The Neoliberal Conditions for Posthuman Exceptionalism

by

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B.A., University of British Columbia, 2010

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Abstract

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This thesis seeks to show that contemporary speculative fiction films both present and act as agents for an understanding of the human as increasingly economically rational. This conception of the human focuses on humanist values that project a vision of human exceptionalism into the future. Expanding on Michel Foucault's definition of neoliberalism, this thesis follows its connection to biotechnology and the transhuman subject created through biotechnological intervention, arguing that the films *Limitless* (2011), *Avatar* (2009), and *District 9* (2009) depict a vision of the human as something that can be calculated and therefore optimized, moving toward the transhuman goal of perfectibility.

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Acknowledgments

Don't try to solve serious matters in the middle of the night. – Philip K. Dick

In attempting to get a grasp on the many slippery issues that came up during the research and writing of this thesis, I spent many nocturnal hours traversing the boundaries between disciplines and their various approaches to technology, biopolitics, the mind-body problem, and speculative fiction, among other areas. I could never have managed to bridge those conceptual gaps without the help of many people, foremost among them the amazing students and faculty at the University of Victoria in the Cultural, Social, and Political Thought program and the English Department. Thanks in particular to Stephen Ross, Ray Siemens, Aleta Gruenewald, Daromir Rudnyckyj, Nicole Shukin, and Michael Butter for all their support along the way, as well as the many other past and present friends and professors who helped push me along this path. Although there are far too many to name here, I would like to thank Rachelle, Emilie, Crystal, Spencer, Leah, Kandice, Annie, Jessica, John, Rita, Randy, Danica, Jocelyn, and Chenoa for helping me make it through. There are so many wonderful professors and students at the University of Victoria that I have known, and I could not have asked for greater depth of engagement and support from friends, colleagues, and faculty.

Dedication

To Mom and Opa. You've been there all along.

Introduction

During the last few decades, Western societies have begun to problematize the status of the human in the context of intensifying technological and cultural change. This thesis seeks to show that contemporary speculative fiction films both present and act as agents for an understanding of the human as increasingly economically rational. This conception of the human focuses on humanist values that project a vision of human exceptionalism into the future. In order to demonstrate this, in the first chapter I describe the relationship between the project of early humanism and the twentieth century developments of posthumanism and transhumanism. Then, I show how the rise of American neoliberalism in the twentieth century contributes to an increasing rationalization of the human and of life itself, extending economic rationality into previously non-economic domains. The contemporary speculative fiction films I analyze in this thesis reveal the extension of market rationality into the realm of life itself, particularly through biotechnology, an area of technological advancement that performs neoliberal, capitalist, and transhuman projects of furthering humanist ideals of humans as exceptional. These films are *Limitless* (2011), *Avatar* (2009), and *District 9* (2009); I seek to show the practices and ideologies evident in each film, but in doing so I do not treat them as allegories or exemplars of either neoliberalism or state capitalism, since each film shows slightly different manifestations of neoliberalism or state capitalism. The following chapters are broken down thematically. The second chapter discusses the role time plays in the films' stories and its relation to neoliberal development and human enhancement. In the third chapter I discuss the dualistic relationship between mind and

body and how its interpretation in each film affects the definition of the human they propose. Finally, in the fourth chapter I look at the way the technological materialities of film production are inherently neoliberal as well as create the conditions for a transhuman treatment of the body both during production and viewing. I then conclude by suggesting areas for further research that I was unable to adequately address due to the spatial limitations of this thesis.

The humanism of the Renaissance places humans at the centre of God's universe, as the "measure of all things." Humans, in this worldview, are above animals in that they can use reason to solve the problems of the natural world. Through placing human reason in a privileged position, humanism holds an inherently dualistic vision of the human that seeks to distance mind from body. This dualism has been articulated throughout the centuries by philosophers such as Plato and René Descartes and places mind in a privileged teleological and epistemological position. Emerging during the twentieth century, the critical project of posthumanism seeks to deconstruct that andropocentric placement and show that the sovereign human subject has never really existed, embracing the human's participation in animal and technological worlds. Cary Wolfe, Donna Haraway, and N. Katherine Hayles are theorists of posthumanism and are critical of this humanist perpetuation of mind/body dualism. I will be working from the point of view of critical posthumanists in that I will be problematizing the dualist nature of the human that is presented in the films.

The transhumanism, also known in this thesis as technophilic posthumanism, espoused by Ray Kurzweil, Hans Moravec, and Ed Fredkin, for example, perpetuates this dualism as it conflates the notion of information with the mind, ascribing qualities of

disembodiment and immateriality to both. This identification disembodies the mind and aspires to offer a vision of the human that can overcome the biological limitations of the body through technological means. Thacker comments in "Data Made Flesh" (2003) that this dualistic vision bases itself on the notion of the liberal human subject; transhumanist ideology, what Thacker calls "extropianism," claims "a universality to certain attributes, such as reason, intelligence, [and] self-realization …. By assuming that 'intelligence' and 'sentience' will remain constants over time and through successive transformations, extropianism smuggles humanist-based conceit into a technologically driven evolutionary paradigm" (76). Underlying the dualist understanding of body and mind is the concept of "mind" representing human qualities and the "body" representing animal qualities. In the case of transhumanism, this marks an attempt to offer the conditions for immortality that a disembodied mind implies, distancing the human from the animal in the process.[1]

In *How We Became Posthuman*, Hayles points out the same fact that transhumanism is informed by this humanist assumption and has critiqued the mind/body dualism from a cybernetics and informatics standpoint, taking as her springboard the dematerialization of the concept of information during the mid-twentieth century. She argues against the current formulation of the technophilic posthuman subject which perpetuates this dualism by conflating the mind with information as essentially disembodied. This in turn decontextualizes and marginalizes the role that the body and its physical situatedness play. Hayles argues instead for greater emphasis on the embodiment

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[1] Implied in this human-animal dualism is the issue of race, which I will not be able to address adequately in this thesis. Particularly demonstrated in *District 9* through the underlying reference of Apartheid and white-black relations, as well as in *Avatar* in its invocation of European-Native American relations, race often arises as a critique of "humanness" in each film.

of consciousness and the inseparability of body and mind. Commenting on the work of Hayles and other critical posthumanist thinkers, Thacker writes: "While not denying the significance and transformative possibilities of new technologies, these critical takes on the posthuman offer a more rigorous, politically and socially rooted body of work from which the difficult task to imagining the future may begin" (79-80). In this vein, my work will build on Hayles, among others, to show how recent technophilic posthuman imaginaries are connected to the concept of neoliberalism, a political policy related to liberal humanism which relies heavily on a vision of the human as economically rational.

In *The Birth of Biopolitics* (2008), Michel Foucault describes the way American neoliberalism arose during the 1960s and 1970s. The main effect of neoliberalism is that it extends economic rationality into areas that were not previously considered economic. This means that, in American neoliberalism, social relations and even family bonds are viewed through an economic interpretation. Focusing on hereditary traits and other biological characteristics as areas that have become weighed economically, Foucault argues that American neoliberalism views most any area of life as if it can be economically calculated and rationalized. Thus, my own arguments stem from Foucault's description of neoliberalism and from an understanding of state capitalism that I describe later through Melinda Cooper's work. I argue that biotechnology serves as the practice that extends economic rationality into life itself on the level of the gene, the cell, and other biological materials. Neoliberalism thus acts more largely as an ideology presuming economically rational subjects and also as a set of practices that define an act or event as economically calculable.

By constituting the conditions under which culture and art is created, neoliberal and capitalist influences affect both the physical production of the films as well as their content. In this way, I hope to analyze through films, as cultural manifestations of neoliberalism, the technological and economic extensions of humanist dichotomies into the future, and what they mean for the films' treatments of the human. In order to do so, I will analyze both the thematic content and the materialities of film production. As the notion of "dream factory" for the film industry makes clear, the filmic medium produces culture as an economic product; it both creates and is created by the economic exigencies of neoliberalism. Film is also key in understanding the complex relationship between consumer and culture in a technophilic posthuman society since it acts as a technological prosthetic that extends the "human," while at the level of content it enacts desires and anxieties around those same extensions of human agency and life. In this way, film manifests and popularizes a transhuman imaginary that both serves and destabilizes neoliberal assumptions**.**

I will analyze the position of film in this imaginary on different levels: the role of time, the relationship between mind and body, and the technological and physical materiality of film production. The first film, *Limitless*, offers a site for interrogating the use of the figure of "technology" as acting on the "natural" or biological, be it the molecule, the body, or the environment. In this film, due to his interaction with a certain drug, the protagonist becomes in neoliberal terms more "successful" a person than he previously was. The concept of efficiency points to the larger issue of time within neoliberal and transhuman thought in that a temporal framework of "limitless future potential" underscores the drive for human exceptionalism in this film. The second film,

District 9, also deals with the concept of the human but focuses on the military-industrial complex and how biotechnological research furthers neoliberal attitudes toward body and health management, commenting on South Africa's political history. The human protagonist undergoes a transformation throughout the film from human into alien after being in contact with a certain fluid, and the film traces both his physical transformation and his acceptance in Johannesburg society through documentary-style filmmaking. The third film, *Avatar*, shows the role of film technology in enacting and presenting anxieties around the role of biotechnology in enhancing the body, both on the part of viewer and of protagonist. The protagonist of this film is able to control an alien avatar body and uses it to infiltrate the society of aliens living nearby to his human encampment. While the protagonist has new experiences through this body, the audience of the film also experiences the film through three-dimensional glasses, drawing a similarity between how each situation relies on technological mediations in order to happen. *Avatar*'s over-$200 million budget also belies the capitalist backing to film production and its impact on the finished product. Thus, through these various levels of interpretation, I will show how technological and economic extensions of humanist dichotomies are presented by the films.

Overall, this thesis will show how contemporary speculative fiction films both present and extend humanist ideals through technological and economic means – that is, through the introduction of technophilic posthuman figures and economic rationality. As the films perform this role on the level of content, they also display it through the capitalist sources of their production and the technological means by which the films are created. The underlying humanist ideals contribute to a vision of the human in these films

as something that can be calculated and therefore optimized, moving toward the transhuman goal of perfectibility and exceptionalism that emerges in technophilic descriptions of posthuman imaginaries. The following chapter will now lay out in more detail the neoliberal and transhuman theories that inform my analyses.

Chapter One

The Role of Neoliberalism in Transhuman Imaginaries

Theories of economic systems and wider political policy in the United States have provided the conditions for a shift in how those in Western cultures conceive of the "human." In this vein, I argue that biotechnology is fundamentally neoliberal because it introduces economic calculation into life itself by placing value on genetic material. As I have written in the Introduction, speculative fictions explore this view of the human in various ways, both as problematic and as positive. In order to explore the reasons why, I will present the various histories of neoliberalism, posthumanism, and biotechnology in this chapter. Beginning with a historical analysis of neoliberalism and biotechnology, I first outline Michel Foucault's 1970s discussion of the emergence of American neoliberalism in the 1940-50s and then discuss the Reagan-era social and political policies, which are largely neoliberal, and their impact on biotechnology. Moving then into an academic discussion of the human's relation to the animal and technological worlds, I discuss Donna Haraway's "Cyborg Manifesto, which emerged in 1985 as a reaction to those Reagan-era social and political policies, and which is a seminal work in posthuman theory and discourse. Tracing a path from Haraway through the Human Genome Project of the 1990s to the speculative fiction films of the late 2000s, I will discuss the transhuman and posthuman debate and situate it within the changing political and economic climate. Finally, I end this chapter by linking the drive for development in capitalism, as discussed by Melinda Cooper, to the drive for human exceptionalism that

arises as a product of these intersecting claims of economic and political theories and the influence of biotechnological research and production.

Michel Foucault delivered the lectures titled *The Birth of Biopolitics* between 1978 and 1979 and during this time he held a chair in "The History of Systems of Thought" at the Collège de France. Continuing his lectures of the previous year, Foucault explains the emergence of a kind of government called "liberalism" in the eighteenth century; in these lectures he aims to show "how this liberalism constitutes the condition of intelligibility of biopolitics" (Foucault 327). As a governmental philosophy, liberalism makes possible the conditions for a certain kind of economic policy, which in turn helps determine how we think of biotechnology. Economics is a reflexive process, one that enacts what it expects to see in stating its expectations. Thus, in order for us to indeed think biotechnology, we first think it through a particular kind of economic lens, which will become apparent throughout this chapter. This form of government and its related one, neoliberalism, make it possible for their subjects to conceive of rational human behaviour as self-interested and economically calculating, which contributes greatly to the theory I propose in this thesis.

According to Foucault, the style of government in the West refined itself from one based on the principle of external limitation (i.e. *raison d'État*) to that of internal limitation, which he calls liberalism (28). With *raison d'État*, the government functioned more or less as a police state – its question was: "Am I governing with sufficient intensity, depth, and attention to detail so as to bring the state to the point fixed by what it should be, to bring it to its maximum strength?" (19). In the eighteenth century, economic theorists and philosophers moved from looking outwards to "maximum

strength" and instead began looking inwards and asking, "Am I governing at the border between the too much and the too little, between the maximum and minimum fixed for me by the nature of things..." (19). Foucault argues that by identifying a "nature of things" that should limit the government, the government imposes its own self-limitation via a "regime of truth" guaranteed by the market (19). The conceptualization of the "market" as a domain free of intervention is key in that the free market that obeys "natural" and "spontaneous mechanisms" produces the conditions of the "good price" or proper value of whatever is being bought and sold (31). The notion of a "good" or "normal" price invokes the question of truth that underlies governmental reason through political economy (17). Foucault argues that "this regime of truth [acts] as the principle of the self-limitation of government" (19), and this concept remains his principle object throughout the year's lectures. The self-limitation of government in the context of economic functions emphasizes the overarching role of freedom in demarcating the limits of power. Freedom will be a key concept in my analysis, since it denotes the state of the market upon which liberalism, and consequently neoliberalism, rely.

Liberalism provides the basis for understanding the type of neoliberalism that developed in the United States during the 1960s and 1970s. With liberalism, Foucault remarks, governmental practice promotes freedom because its role is to manage that freedom: "Liberalism formulates simply the following: I am going to produce what it is you need to be free; I am going to see to it that you are free to be free" (Foucault 63). Freedom thus constitutes one of the conditions required for liberal government to function. Freedom also marks the limits of governmental power, in that it prescribes certain areas where government may not intervene. Limited in its scope, the government

concerns itself with the *population* and the interests of that population; its role is as mediator between, for example, "individual and collective interests, between social utility and economic profit...between basic rights and the independence of the governed" (45). The interests of citizens and the freedom to pursue those interests define the basic limitations of governmental reason within this system: "Government is only interested in interests" (45). In liberal governments, rational, self-interested actors are the assumed and ideal subjects; in fact, they are created by the reflexive nature of economics, which in part creates what it expects to see.

Liberalism is contingent upon the production of citizens who are both governed through freedom and who govern their own freedom through techniques of self-regulation. While nominally related to liberalism, neoliberalism does not in fact stem from it, but instead describes particular practices or forms of management that ascribe to certain characteristics. Foucault argues that neoliberalism arises after World War II in a few notable Western countries (France, Germany, and the United States, among others) as a reaction to the intervention of government in the economy during wartime. In the United States it was a reaction to Franklin Roosevelt's New Deal, which was put in place in the 1930s to combat the effects of the Great Depression through government-funded work projects and other fiscal policies. As Foucault observes it, American neoliberalism attempts to once again restrict governmental intervention in the economy.

While liberalism only applies economic rationality to the market, with neoliberalism economic rationality is extended as a template to domains previously considered external to the market, such as social interactions. In this way, Foucault argues, neoliberalism concerns precisely that notion of the population that liberalism

foregrounded: "American neoliberalism still involves...the generalization of the economic form of the market. It involves generalizing it throughout the social body and including the whole of the social system not usually conducted through or sanctioned by monetary exchanges" (Foucault 243). Importantly, Foucault explains, "the generalization of the economic form of the market beyond monetary exchanges functions in American neoliberalism as a principle of intelligibility and a principle of decipherment of social relationships and individual behaviour" (24). Tightly bound up with this practice is the presumption of a particular economic actor, who acts according to economic rationality; Foucault calls this subject *homo economicus*.

Foucault introduces the concept of *homo economicus* in the context of Marxist views of labour and work power, reconceptualizing the individual in terms of human capital-ability instead of labour power. While Marx sees the labourer as selling his or her labour power for a wage, Foucault demonstrates how, at the beginning of the twentieth century, Irving Fisher conceived of income as "quite simply the product or return on a capital. Conversely, we will call 'capital' everything that in one way or another can be a source of future income" (224). Thus, if a wage is an income, then there must be a capital on which the income is based. Since in this case the capital is "inseparable from the person who possesses it" (224), Foucault argues that "we are at the opposite extreme of a concept of labour power sold at the market price to a *capital invested in an enterprise*" (my emphasis 225). Contrary to traditional understandings of "economic man" as "the man of exchange, the partner" (225), neoliberal theorists view *homo economicus* as "an entrepreneur of himself" (*sic* 226), who uses his or her "human capital" to earn an income (226). Significant for my discussion, Foucault expands further on the way American

neoliberals see biology: through an extrapolation of human capital to hereditary elements they seek to extend market rationality into biology itself. Economic rationality extends even to the level of the gene and to identifying genes that are conducive to economic profitability:

> And if you want a child whose human capital, understood simply in terms of innate and hereditary elements, is high, you can see that you will have to make an investment, that is to say, you will have to have worked enough, to have sufficient income, and to have a social status such that will enable you to take for a spouse or co-producer of this future human capital, someone who has significant human capital themselves. (228)

Thus, Foucault argues that neoliberals see genes as capable of analysis in terms of economics: better genes mean greater human capital; worse genes mean lesser human capital. I argue that this view is easily extrapolated to life itself.

There is a difference here I would like to point out between commodifying human life (and therefore controlling it) and extending economic rationality into life itself. Firstly, commodifying human life in general has been happening for centuries with such practices as buying life insurance, which is the result of a calculation based on variables such as risk factors and the earning power of the person. In this sense, there is an economic rationality already underlying the way we think the human. However, when economic rationality is extended to the level of the gene, it views the building blocks of human life – and not just human life but other organisms as well – as life "producers" that can be harnessed to grow new and more kinds of life, organs, and organisms. These can then be used to prolong, enhance, or otherwise optimize the lives of those currently

living. An example of how biotechnology introduces economic calculation in life itself is the oncomouse, an actual living organism that has been patented in many countries around the world, not just the process used to create it.

Neoliberal economic rationality decontextualizes that to which it is being applied: those employing it look at the gene or cell, but not the importance of the context in which it must be grown. An example of this is the way biologists in the Netherlands have grown artificial meat in a test tube and hope to eventually make it a viable source of protein and food for whole countries (Collins 2012). One aspect of the project, often left unwritten by news articles on it, is the fact that massive amounts of bovine stem cells are used to grow these "environmentally friendly" test-tube strips of meat. The articles focus on the idea that this might be a "clean" meat, but not that it in fact involves the growing and use of thousands of bovine fetuses in order to accomplish the same goal.

As I will argue shortly, transhumanism also acts decontextually in that it disavows the body in its attempts to surpass the biological limits placed on the body as well as the mind. It views the mind as something that can exist separate from a particular embodiment (e.g. *Avatar*). The combined efforts of neoliberalism and transhumanism fragment the body and mind which then leads to a decontextualization of body and mind from all the other important factors that make up their existence.

While Foucault notes that this treatment of genetic information could be construed as a more subtle way of introducing eugenics into biotechnology, he chooses not to focus on it but rather maintains his discussion of the economic rationality introduced via biotechnology, despite the fact that the technology had only just begun developing during that time. Foucault's lectures on neoliberal theories of human capital

coincided with the emergence of genetic engineering in the early 1970s in the United States and public outcry against such practices put a hold on proceedings for several years. By the end of the decade, however, biotechnology companies were gathering strength and acquiring venture capital (Cooper cf. 4-5). Accompanying the increase of acceptability of bioengineering in the United States was a shift in economic policy from Keynesian theory – economic theory underlying the welfare state – to neoliberal theory in the wake of the oil crisis and its accompanying recession in industrial countries. I argue that these two issues – the acceptability of bioengineering and the shift in economic policy – are related in that they both rely on increasing rationalization, as I will explain below.

While Melinda Cooper notes this (and I expand in the next paragraph), John Hyde Evans also argues in *Playing God? Human Genetic Engineering and the Rationalization of Public Bioethical Discourse* (2002) that biotechnology's rise in popularity hung on the bioethical debates arising in the 1970s. As the debate about ethics moved from more complex understandings to more superficial discussions of the ethics underlying bioethical discourse, a shift emerged in *who* the authors of the discourse were and *how* they approached the discourse. Evans characterizes the shift as one moving from a rationality that favours complexity and a range of actionable choices to a rationality that favours universally applied rules and laws. This latter form of rationality emerges in 1970s bioethical discussion in what Evans argues is an assumption of the increasing rationalization of human nature, which I argue goes hand in hand with neoliberal theory. The conception of *homo economicus* presumes a certain ethical understanding of individual decisions and action that is predicated on economic logic and that privileges

some human qualities over others, such as reason and intelligence. Evans writes: "Some of the authors trained in bioethics have the deep assumption that there is a natural progression of human reason, a progressive enlightenment away from emotional, often religiously based arguments and toward more 'rational,' calculating, scientific, 'neutral' arguments" (24). Evans provides examples of bioethicists John Fletcher and Eric Juengst who separately explain that ethical debates follow three- or four-part stages, moving from "less calculating and particularistic to more calculating and universal" (24). I would argue that when taking Foucault's analysis of neoliberalism into account, with its coinciding 1960s and 1970s emergence, one can see the conception of increasing rationalization as symptomatic of the emerging neoliberal worldview that would increasingly represent human beings as economically rational actors.

Having outlined Foucault's arguments regarding neoliberalism and having extrapolated on neoliberalism's relation to the development of biotechnology and the framework of economic rationality, I turn now to a history of the subsequent development of biotechnology in the United States during the 1980s Reagan-era tax cuts and biopolitical agenda to show how neoliberal frameworks have influenced the way biotechnology has been received. Melinda Cooper's *Life as Surplus: Biotechnology and Capitalism in the Neoliberal Era* (2008) takes up Foucault's analysis of American neoliberalism by drawing connections from global debt creation to the life sciences. Cooper notes that "over the past few decades the US government has been at the center of efforts to reorganize global trade rules and intellectual property laws along lines that would favour its own drug, agribusiness, and biotech industries" (4-5). The establishment of the World Trade Organization in 1995 speaks to this, but Cooper traces the origins of

these efforts to the proliferation of neoliberal economic rationalization that underlies the way life sciences enterprises are treated during their emergence in the 1970s and 1980s. Cooper argues "that US nationhood occupies a central, if precarious position, in the constitution of global debt. This position is inseparable from America's engagement in the new life sciences" (5). This is a key convergence that highlights the way neoliberal practices transcend the economic sphere by treating "life" and the life sciences as areas of economic reproduction: "Neoliberalism, in other words, profoundly reconfigures the relationship between debt and life, as institutionalized in the mid-twentieth-century welfare states" (10). At stake in this relationship is the fact that genetic material and life itself are viewed in cost-benefit terms, that is, in terms of economic profitability.

In order to make this argument, Cooper first outlines the history of the welfare state in the United States. She shows where American neoliberal theory arises and what it is reacting to, which is, in fact, Keynesian economic policy and the welfare state. In essence, Keynesian, or social state, policies involve "the idea that the growth cycles of production, reproduction, and capital accumulation can be sufficiently calibrated to avoid capital's perennial catastrophe risks – labour insurgency and financial crisis" (Cooper 10). Cooper continues: "neoliberalism divests itself of all national foundation, projecting its accumulation strategies into a speculative future" (10). In this context, neoliberal practices are based on a representation of the future which places emphasis on the notion of life as a source of perpetual growth, both economic and biological, and amenable to economic intervention. Thus, Cooper argues that "[n]eoliberalism and the biotech industry share a common ambition to overcome the ecological and economic limits to growth associated with the end of industrial production, through a speculative reinvention

of the future" (11). For example, Cooper writes later that while stem cells and other related materials remain in a research market for the time being, transactions "are confined to the exchange and sale of tissues, patents, and knowledge between laboratories" (149). Cooper suggests that the economic focus on the more intellectual material so far is only the beginning, since there still remains a utopic vision to the development of stem cells for creating renewable life through the creation of "new," replaceable organs and the development of biotechnologically modified creatures (153), as I have suggested earlier, such as the oncomouse.

The emphasis on the neoliberal rhetoric of limitless growth in the biotech industry emerges in the context of Reagan-era economic policy and its restructuring of "the US economy along postindustrial lines" (11). Biotechnology is envisioned as the *way* to overcome external, economic limits to growth as it seeks to internalize the limits and thereby rid itself of them. This hearkens back to the liberal formulation of government, which seeks to impose limits on government by turning government's gaze on itself, imposing its own limits. While liberalism avoids over-governance through a process of governmental internalization, neoliberalism uses biotechnology in order to expand its governance *to* the interior of society, biologically and economically, and in turn attempt to overcome the limits to biological and therefore economic growth.

Here, Cooper situates the "biotech revolution" within a larger "neoliberal revolution" of the 1980s through Ronald Reagan's economic policies: "With its promise of future surplus on earth and beyond, the postindustrial literature set the scene for Reagan-era science policy – a policy that combined virulent antienvironmentalism and cutbacks in redistributive public health care with massive federal investment in the new

life science technologies and their commercialization" (18). Cooper's analysis of a neoliberal connection to the emerging biotechnology sector supports many of my arguments, and I find both the Foucaultian sense of neoliberalism as well as Cooper's view of state capitalism enlightening to the films I analyze later. Although Foucault's arguments about neoliberalism follow more closely the mundane and everyday acts based on individual choice and freedom that make up neoliberal practices, Cooper pairs this analysis of neoliberalism with a system of state capitalist processes. For example, she argues that "[t]he biotech revolution ... is the result of a whole series of legislative and regulatory measures designed to relocate economic production at the genetic, microbial, and cellular level, so that life becomes, literally, annexed within capitalist processes of accumulation" (19). In analyzing the films, I will show that there is an extension of market rationality into the realm of the bios, as Cooper argues, but that it occurs in different forms throughout each film, *Limitless* demonstrating a neoliberal foundation, while the other two demonstrate more state-oriented, capitalist processes. Shifting from a more historical study of the rise of biotechnology in the 1970s and 1980s to a more academic and intellectual discussion of the effects of biotechnology on the conception of the human, I will now discuss posthumanism and transhumanism as put forward by the critical posthumanist scholars Katherine Hayles, Eugene Thacker, and Donna Haraway.

In *How We Became Posthuman* (1999), Katherine Hayles raises the debate within posthumanism that I mentioned earlier – that between transhumanism and posthumanism. To begin my discussion of posthumanism and ultimately transhumanism, I describe what Hayles is reacting to in this book and why it is important. As I described in the Introduction, posthumanism is a response to the ideology of humanism, which places

humans in a privileged position over animals. The *Oxford English Dictionary* offers two related definitions for humanism:

> a. Any system of thought or ideology which places humans, or humanity as a whole, at its centre, *esp.* one which is predominantly concerned with human interests and welfare, and stresses the inherent value and potential of human life.
>
> b. *spec.* Freq. with capital initial. A variety of ethical theory and practice characterized by a stress on human rationality and capacity for free thought and moral action, and a rejection of theistic religion and the supernatural in favour of secular and naturalistic views of humanity and the universe. ("humanism," def. 5a and b)

It is a vision of the human that arose during the Renaissance and was especially implicated in Descartes's dualistic view of the human that places the mind/consciousness over the animal body; the "stress on human rationality" privileges the mind's role in defining the human. Posthumanism, on the other hand, comes out of a poststructural tradition of posthuman theory that works to deconstruct the sovereign human subject by showing that it in fact has never existed. This means that critical posthuman scholars argue against the kind of essentialism that humanism implies.

Hayles is a scholar of critical posthumanism, who is writing in opposition to work of technophilic posthumanist or transhumanist scholars – terms which are for the most part interchangeable. Thus, in her first book defining the posthuman, Hayles begins by arguing that "the defining characteristics [of posthumanism] involve the construction of subjectivity, not the presence of nonbiological components" (Hayles 1999: 4). Contrary to popular imagination, Hayles defines the technophilic posthuman in terms of its

construction, not in terms of its physicality, because the crux of her argument turns on the debate between a dualistic or non-dualistic view of human nature and its relation to the binary conception of pattern and randomness. Hayles argues that the figure of the posthuman in contemporary thought and science fiction is actually the transhuman, in the form of the cyborg, the fusion of biological and mechanical components, a figure which itself requires an assumption that there is something flowing between the two that is transcendent of form – information (7). This assumption came about in its current form originally, Hayles argues, through the (retrospectively named) Macy Conferences on Cybernetics, held from 1943 to 1954. Seeking to establish "a theory of communication and control applying equally to animals, humans, and machines" (7), the core group of researchers developed a theory of information that contributed to understanding biological functions as information-processing machines, and conversely machines (computers) that could themselves process and (re)produce information the same way as biological systems (7). Altogether, these theories function to produce a conception of information that disembodies and decontextualizes it and that understands it as a static essence whose only transformations occur in form but never in content. This conceptualization of information as disembodied generalizes information and code as transcendent of their mediums.

Arguing that increasing complexity arises out of simple calculations and applying this model to world systems at large, theorists such as Ed Fredkin have argued that "a universal informational code underlies the structure of matter, energy, spacetime – indeed, of everything that exists" (Hayles 1999: 11). In attempting to create the world from a model of systems in the world, this technophilic worldview perpetuates a "Regime

of Computation," against which Hayles specifically argues in *My Mother Was a Computer* (2005). This worldview upholds a dualistic separation of content from form and in doing so explicitly upholds a dualistic view of human nature, since it views mind as an informational pattern that is separate from its organic body. This sheds light on the way the mind is treated in the speculative fiction films I analyze later, since they treat the human mind and identity in that same way – as an essence that involves little-to-no input from the body.

Behind her theory of how "information lost its body," Hayles is taking the stance of a critical posthumanist arguing against transhumanist thinkers. The Regime of Computation describes a further decontextualizing and therefore rationalizing understanding of the matter of the universe; Stephen Wolfram in *A New Kind of Science* (2002) extrapolates the results he receives from his research with cellular automata (that they can create increasingly complex systems from simple equations, therefore generating emergence and complexity) from modelling the world to attempting to envision it "as the process that actually *generates* behaviour in everything from biological organisms to human social systems" (Hayles 2005b: 19). Technophilic posthumanism perpetuates this dualism as it conflates the notion of information with the mind, ascribing qualities of disembodiment and immateriality to both. This identification disembodies the mind and aspires to offer a vision of the human that can overcome the biological limitations of the body through technological means, which is similar to Cooper's argument. Through its reliance on a set of logical and calculative processes to describe the basis of the universe, the Regime of Computation follows closely in the steps of American neoliberalism since it moves towards an increasing rationalization of the

universe and theorizes based on this view how atoms, molecules, organisms, and actors should function within it.

On the topic of human essence or "human nature," Hayles herself attributes the dualistic view to the "values of liberal humanism – a coherent, rational self, the right of that self to autonomy and freedom, and a sense of agency linked with a belief in enlightened self-interest" (Hayles 1999: 85-86). Here, the underlying connections between Hayles and Foucault become explicit: posthumanism and neoliberalism have similar ties in the kinds of human agents or individuals they presuppose, both of whom are based on a self-interested, freedom-oriented actor: a humanist vision of the human. Foucault's neoliberal *homo economicus* describes a similar subject who holds the same attributes of reason and intelligence. Here, I would like to connect the ideal American neoliberal subject who reasons by virtue of calculative, economic rationality with the assumed technophilic posthuman subject who holds those same attributes. These two different kinds of subjects, I argue, have actually become one through their views of biotechnological enhancement.

Biotechnological enhancement presumes that there is something to be enhanced, and that thing – be it body or mind – is on a trajectory from "imperfect" to "perfect." Underlying the goal to enhance is the goal to optimize, which is a neoliberal undertaking in its focus on efficiency. Because the transhuman subject and the neoliberal subject share the same humanist underpinnings to their theoretical bases, the Cartesian dualism inherent in humanism remains. In the case of the films I analyze, and I would argue in any situation where the mind is privileged over the body as "more human," the mind

represents human qualities and the body represents animal ones.[2] In the attempts to escape the animalistic body and enhance only those qualities represented as human, and so predominantly represented by the mind, transhuman imaginaries often focus on ways the mind might escape the body or take different forms. In the case of transhumanism, this demonstrates how the conditions for immortality arise in these imaginaries. Immortality also represents the neoliberal, idealistic attempts at refinement and development that underscore the presumed drive towards human perfection and exceptionalism, a theme that runs throughout posthuman imaginaries as well as in biotechnology's aspirations.

Cooper's arguments about the importance of the "future" as a motif in capitalist and neoliberal discourse appear to be based on the same ethics and drive for immortality, or unlimited improvement, as the transhuman ideals. In fact, the arguable father of American neoliberalism himself, Austrian-American economist Friedrich von Hayek, devised a theory of economics which was based on biological complexity theory; that is, Hayek postulated that the economy should be understood through biological models of nonlinear development (Cooper 44). In doing so, Hayek not only understood the biological through the economic, but also the economic through the biological, making these models reflexive in their action. As Hayek was developing this economic theory, the Macy conferences and cybernetics theory were gaining momentum. In 1987, towards the peak of Reagan-era biotechnology investment, Hayek organized a series of

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[2] As I mentioned in the Introduction, this association of mind-human, body-animal translates to both racial and gendered privilege in the context of the films. I will not be able to discuss these matters thoroughly in this thesis, however. Please see the Conclusion for more detailed information.

conferences on "Economy as a Complex Evolving System." The consensus of the conferences was that,

> first, complex systems evolved best in far-from-equilibrium conditions or at the edge of chaos, to adopt Kauffman's phraseology; moreover, such systems evolve most productively when they are free from external regulation – complex systems in other words prefer to self-organize; and finally, although an individual complex system eventually exhausts its possibilities of further differentiation, there is no essential limit to the evolution of complexity per se. *In nature as in economics the law of complexity is one of increasing returns punctuated by periodic moments of crisis.* (Cooper 44, my emphasis)

This means that von Hayek believed that liberalism, and thus neoliberalism, acts the same way as biological systems – through "self-organization" based on the freedom from regulation. In this, I would argue that American neoliberal economic theory and transhuman thinking both formulate the "law" of complexity as that of "increasing returns," the drive toward development. In a reflexive way, neoliberalism can be analyzed through biological theories, and biology can be analyzed through economic theories. At stake in this exchange is the formulation and creation of life as economically rational. It is in this way that freedom, particularly in the self-interested, economic sense it has been used in this chapter, plays a common role for transhumanism and neoliberalism – if biological and economic systems are interchangeable, then freedom is a key means of eliciting rational self-interest. Seen in this light, as the human species increasingly develops and becomes enhanced, the evolutionary process might resemble the same drive for constant gain (development of the human mind and body) that

neoliberalism seeks. The high idealism of technophilic transhuman theory holds up these neoliberal ideals of enhancement, both striving for a utopic vision of the human and the economic world that is not altogether sustainable (a theme that arises in *Avatar* and that I will later discuss).

In my view, Donna Haraway's "Cyborg Manifesto" is a reaction to this push for enhancement and unlimited development in biological, economic, and political spheres. Haraway argues to reframe the discussion of feminism and women (and ultimately all living things) from a patriarchal, dualistic discourse to a more embedded and contingent one – a move similar to Hayles. Towards the end of the chapter, Haraway comments both on the reflexive development of technologies in creating the human as the human creates them and the more general impact of transhuman thinking in terms of code:

> In modern biologies, the translation of the world into a problem in coding can be illustrated by molecular genetics, ecology, sociobiological evolutionary theory, and immunobiology. The organism has been translated into problems of genetic coding and read-out. Biotechnology, a writing technology, informs research broadly. In a sense, organisms have ceased to exist as objects of knowledge, giving way to biotic components, i.e., special kinds of information-processing devices. The analogous moves in ecology could be examined by probing the history and utility of the concept of the ecosystem. (164)

Haraway's understanding of conflicting metaphors – organism as "translated" into coding and the "analogous moves in ecology" – for describing the world substantiates Cooper's arguments about neoliberal frameworks and Hayles's arguments about the impact of cybernetics on human understandings of life itself.

Further to this point, and moving back into a more historical analysis of the development of biotechnology, Haraway's manifesto comes just one year after the Department of Energy and the National Institutes of Health in the United States officially founded the Human Genome Project in 1990, whose goal is to identify, map, and code all the genes in human DNA. Similar to the cybernetics discourses of the early 1950, this project seeks to represent the building blocks of life, in this case, DNA, as information that can be encoded and remediated based on its purpose. It is on this formulation of the story surrounding DNA that Eugene Thacker bases his book *The Global Genome* (2005):

> On the surface, it appears that the tensions inherent in the concept of biotechnology have to do with the relation between biology and technology, between nature and artifice, and so on. But I suggest something further: the core tension in the concept of biotechnology is not that between biology and technology or that between the natural and the artificial, but rather a tension between biology and political economy. The aim of this book is to present a set of concepts for understanding this twofold tendency within biotechnology – its globalizing tendency and its tendency to integrate biology and informatics. (2005: xix)

Thus, Thacker's work aligns well with Cooper's and Hayles's in that he respectively takes up the issues of political economy underlying Cooper's understanding of biotechnology and analyzes the assumptions underlying the codification of DNA present in biotech's management of DNA, which is largely Hayles's project.

In this chapter I have hoped to demonstrate through Foucault's history of neoliberal thought, Hayles's history of the fashionings of a kind of technophilic posthuman subject, and Cooper's arguments on the drive for surplus in the biotech

industry, that the conditions underlying real processes of governance, and the type of subjects this governance assumes, are complex and often defined in opposition to one another. As I argue, American neoliberalism can be seen as a practice that extends market "truth" into areas which were previously not seen as the proper domain for market action – that is, in social relationships, in family dynamics, in the molecules comprising bodies. It is this emphasis on the separability and fragmentation of mind from body, and thus of identity from those processes constituting it, that creates a mechanization and economization of the human body and mind which assumes the drive for development and enhancement as universal. In this way I argue that the drive towards human exceptionalism, prefigured in America's debt-based economic policies, comprises the overwhelming rhetoric of human development today.

Taking my cue from Thacker, who writes that "popular culture is arguably the site in which the ambiguities, anxieties, and tensions of the biotech industry get played out" (2005: 340), I move from here to the next chapter, in which I outline the role speculative fiction films play in the focus and refinement of popular cultural understandings of human "nature."

Chapter Two

The Optimism of the Future and its Optimization

In the previous chapter, I demonstrated how transhuman figures and neoliberal practices are based on a common humanist view that pursues the enhancement of the human. Neoliberal and capitalist practices extend economic rationality into areas where it did not formerly exist, which include family relationships, societal connections, and even explanations of molecular and genetic material. As the body becomes a site for technological "improvements," the collective social stories surrounding technological improvements to the body continually express the "evolution" of the human body and human nature in terms of enhancement, perfection, and limitless potential.[3]

In this and the following chapters, I aim to show the thematic similarities among three specific speculative fiction films of 2009-2011. During this time period, beginning in 2007 and rising to a full-blown crisis by 2008, the American mortgage and housing market crumbled, sparking a global economic crisis. A neoliberal and capitalist ethos has become continually apparent in speculative fiction imaginaries through films of the last few decades. By pushing the theme of biotechnology through to its extreme in each case, the films *Avatar*, *District 9*, and *Limitless* elaborate on the economic impulses inherent in neoliberal and capitalist worldviews and present technophilic posthuman figures. I will first analyze these films through the lens of time, which overarches both the transhuman

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[3] See Gerlach et al., *Becoming Biosubjects* (2011), for a discussion on the "social science fictions" that support biotechnological enhancement.

and the neoliberal drives for development and enhancement, reflecting on present circumstances and assumptions and interrogating the worldview created by those assumptions. In the following chapter, I discuss the relationship between mind and body and the way the films problematize bodily identity in the context of neoliberal and capitalist practices. I will conclude the thesis with a discussion of the technological materiality of film itself and how film demonstrates a transhuman fantasy to create viewing environments that suspend the viewer's bodily awareness while extending that awareness into the film itself.

The conclusions I draw in this and the following chapters are broadly observable in contemporary film. For example, *In Time* (2011) presents a world where time is literally the currency as well as the life-essence of each citizen, since the biotechnologically perfect human body can survive forever. The main character uses his "time" to buy coffee and pay rent, but the "time" he spends takes literal minutes and hours off his life, to the point where "living from paycheque to paycheque" means having enough time to finish work for the day with an hour or two to spare before getting paid at the end of it. In *Source Code* (2011), the main character's mind is used in a computer program to visit what turn out to be parallel universes in an attempt to find out the identity of a train bomber. The way the character's mind is easily transferable from biological to digital spaces again demonstrates how the digital and technological are becoming synonymous with the biological. These two films are among many others that perpetuate an economic understanding of the human, albeit not as optimistically neoliberal or technophilic as some of the films I explore in this thesis.

Here I will outline my approach to these films: in this chapter I will analyze the figure of time in each film and show how it is used to develop or signify conflicts that arise. In the following chapter I will demonstrate how the films reflect on mind-body relations and how this is complicated by biotechnology and its aims. As I conclude in the final chapter I will discuss the materiality of film production and what that means in this context. Altogether, through these analyses I will show how the technophilic posthuman imaginaries arise out of humanist, calculative understandings of human bodies and human "nature."

I would like to repeat, in different words, my last remark: I am arguing that the transhuman arises in tandem with the neoliberal and capitalist extension of economic rationality into life itself. The films I study here push this notion further than we are currently technologically capable to do, but not unimaginably so. The films' interpretations of the transhuman focus on a vision of the human that has acquired a rationality that is economic in nature. In this chapter, my discussion shows how these films extend the neoliberal and capitalist bases of the transhuman to a calculative sense of time that leads to its manipulation in posthuman environments. The tension between a sense of real time in filmic texts and the calculated elongation or shortening of it for dramatic purposes manipulates the viewers' subjective, physical experience of time. This transhuman situation acts as a corollary of the extension of economic rationality into all areas of the bios.

"Time" both denotes and connotes many things. In technophilic posthuman theory and neoliberal and capitalist practices, time presents the optimal, the excessive, the potential, and the giving. Future-looking time offers the potential for optimal

development, excessive in its ability to give limitlessly to the present, in terms of health, life, money, and hope. The posthuman, as Hayles has argued, is already here in our society, but, particularly in the form of technophilic posthumanism, it also remains as a spectre to be feared and coveted. The transhuman lives, in the imagination, in the future, never quite with us in our time. This figure, in technophilic terms, is a modified, enhanced, developed, engineered, and generally *better* human than what came before. Specifically with the novel *Neuromancer* (1984) by William Gibson, body mods (modifications) become an influential vision of how the "posthuman" oftentimes means "human integrated with technology." The spectre of the transhuman arises in the images of us taking our evolution *into our own hands*. This sort of speculative imaginary, without criticism, is what Hayles argues against in "Computing the Human" (2005a) as she seeks to point out that our visions of the future, the imaginaries we create, always begin in the present and affect the trajectory the present takes. She warns:

> Future projections should be evaluated not from the perspective of how plausible they are, for that we cannot know with certainty, nor in the inertia of our evolutionary past, for that alone is not sufficient to determine what we can or will be. To accept the gambit of positioning the argument in either of these terms is already to concede the game to those who would hold the present hostage to the future or the past. (148)

Thus, the figure of the posthuman plays an integral role in helping determine what directions the human may honestly evolve in the next decades, and the technophilic posthuman does so through the lens of economic embodiment.

In posthuman theory, the future denotes the time when the human is no longer human, but past, after, or beyond it. In technophilic posthuman terms, this means that the human will become enhanced to such an extent that it can no longer be considered "human" any more. In both neoliberalism and capitalism, "future" holds a promissory note of development (technology), enhancement (human), exploitation (nature), and debt-renewal (economics). Each film I discuss takes up the issue of time differently, but holds the future in a special position, whether simply through its use of science fictional worlds (in the future) as its setting, or through the experiences of time that its protagonist feels. As Neil Gerlach writes in *Becoming Biosubjects* (2011), the "new mode of subjectivity" arising out of new, genetically influenced social relations manifests "the encounter between present reality and future possibility" (5).

Limitless takes place in present day New York, following the character Edward Morra. Eddie is a struggling writer who has an overdue book draft to finish and a girlfriend, Lindy, who leaves him at the start of the film. Shortly into the film, Eddie meets the brother of his ex-wife, Vernon Gant, who is now a drug dealer. Hearing about his woes, Gant gives Eddie a pill of NZT-48, prefacing his offer with: "You know they say that we can only access 20% of our brain? This lets you access all of it." While the side effects are memory loss and eventual death, this drug enables Eddie to make connections between thoughts, memories, and even random pieces of overheard conversation in order to better assess his situation, invoking the theme of the optimization and ultimate perfectibility of human life. For example, after finishing ninety pages of his book in four days, Eddie gets more of the pills and starts trading in the stock market. He starts with twelve thousand dollars and invests so well that he has made 2.3 million by

the end of ten days. After struggling through some mafia problems, getting back together with his girlfriend, and reverse engineering a better version of NZT that has no side effects, Eddie ends the film as a politician running for the United States Senate.

As Eddie experiences the drug, it increases the speed at which he experiences the world around him and articulates those experiences. The opening credit scenes of the film demonstrate this: creating a "fish-eye" look and zooming endlessly forward through New York City streets, the film introduces a "hyperreal" but disorienting technique that is used later in the film to show the effects of the drug on Eddie's perception of time and reality. Passing groups of people talking on the street, flying past cab after cab, the camera moves forward in an endless motion toward the core of New York City, straight towards the Jumbotron in Times Square. This camera technique reflects Eddie's later experience of time as fast, blurring, and disorienting, and in taking Times Square as its final destination through the city, it foreshadows the importance of time throughout the movie. By introducing the disorienting effect of fast-moving space and time, even as cars, people, and other moving objects move at normal speed through the shot, it establishes the audience's position as sympathetic to Eddie's plight, implicating the audience in what we find out are the effects of the drug later on.

Eddie originally accepts the drug from Gant because he has writer's block – he is not being productive with his time and is facing an upcoming deadline with no pages to show for it. It is clear through narration and flashbacks that Eddie has done drugs in the past, so taking NZT should be nothing much out of the ordinary for him. He does not know, however, what sort of experience he will have on it, and so he "didn't want to see anybody, especially not [his] landlord's nasty young wife," Valerie, whom he proceeds to

run into. As the drug begins to kick in, Eddie first experiences her voice echoing as she lectures him about rent; the camera pans left as Eddie looks to see a second version of himself walking up the stairs behind him. As that version of him arrives at the top of the landing, the wall lights flicker and the yellow colour emanating from them expands to morph into a molecular view of presumably Eddie's brain, emphasizing how many synapses are firing. Zooming out from his forehead, the camera shows the brightening of lights behind Eddie and cuts to close-up shots of bicycle wheels turning, signaling sense-making. Eddie's voiceover explains: "I was blind but now I see," a reference to divine grace that moves Eddie's apprehension of his experience from the mundane to the exceptional or supernatural. Things are in motion, both metaphorically and physically in the scene, and the camera's quick cuts from the woman's mouth to her hair to her purse to the bicycle tire demonstrate the speed of Eddie's thoughts: he is gathering clues to figure out why she might be so angry. But as his thoughts quicken, his experience of time slows, signalled through a slow motion zoom out from the woman's talking face to a fish-eye view of the whole hallway from Eddie's perspective.

Significant in this scene is the way NZT supposedly works inside Eddie's brain. He realizes that this woman, while angry, is not angered by him but by something else. While the imagery of synapses firing suggests that connections are being made within Eddie's mind, he describes himself as "a self-defeating, energy-sucking piece of shit who's sponging off [her] husband" – but there must be something more to why she is so mad. He concludes that she must be stressed by the law paper she is writing (he notices a law textbook in her purse), and she is suspicious but pleasantly surprised by the amount of information he offers her on how to approach her paper. Eddie's voiceover describes

how his mind connects disparate bits of information over years of time to draw conclusions on the subject at hand: “Information from the odd museum show, a half-read article, some PBS documentary: it was all bubbling up in my frontal lobes, mixing itself together into a sparkling cocktail of useful information.” This voiceover pauses, punctuated at the end by her laugh, suggesting that the “cocktail” had worked, and Eddie finishes: “she didn’t have a chance.” The next shot depicts Eddie and Valerie having sex after having finished her law school paper in forty-five minutes. “Information” in this context quickly eases social relations and establishes a sense of trust between the interlocutors; a similar phenomenon occurs during each of Eddie’s interactions with people while he’s on the drug, which is how he meets people in the business sector and meets a woman who is later murdered, possibly by Eddie himself.

NZT not only increases the efficiency and efficacy of Eddie’s thoughts and actions, but as Eddie begins to overdose on it, events happen so fast that he can no longer keep track of time. Time, as he experiences through the drug, moves with such exceptional speed that, although he is not mentally impaired during the events, he cannot recall them later. His first and most extreme experience of “skipping” time begins after he is dropped off at home from his first meeting with financial magnate Carl van Loon. Eddie finds himself walking down the street twenty blocks later and does not know how he got there. The afternoon progresses into evening and the audience sees the tunnel vision from the beginning of the movie as things move by so quickly that they cannot be grasped. As the camera slows at a party scene, it pans to the left from a group of people being charmed by Eddie to another group of people being charmed by Eddie, and as it zooms out we see six groups all simultaneously charmed by Eddie. The audience sees

more tunnel vision, then Eddie finds himself walking through the subway, about to get into a fight with a group of guys. His mind races to remember old kung fu movies and self-defence videos that provide him with knowledge of fighting, and he manages to fight his way out of a five or six man fight. Later, when time stops skipping, Eddie finds himself on a bridge: "When it finally stopped, I couldn't account for the last eighteen hours of my life."

Throughout the film, time – particularly in the guise of efficiency – demonstrates the change in Eddie's personality. On NZT, Eddie accomplishes things many times faster than any "normal" person might – when cleaning his apartment, the film shows five different Eddies washing dishes, organizing things, and taking out the garbage; Eddie helps Valerie finish her paper in forty-five minutes; he makes 300 times his money in ten days during trading in the stock market. As these experiences rack up, he explains his ways of thinking about the world and for example, the stock market, in terms of larger pattern recognition – as if his view of the world was becoming more "rational" or, I might suggest, computerized. Since the metaphorical relationship between brain and technology is already established early in the film, as the camera zooms through the screens in Times Square to the same images of the brain and synapses firing that we see periodically throughout the film as Eddie's brain, moving from "the brain as electrical processor" to "the brain as a highly sophisticated computer" is not a large jump. Recognizing patterns within apparent randomness or chaos is another aspect of the posthuman that Hayles recognizes in *How We Became Posthuman* (1999). In this scene, and in many others during the film, the quick pace of Eddie's reasoning and experience is an effect of the drug that makes him more efficient. Efficiency is a key concept in

neoliberalism, since it brings together time with the rational, calculative agency presumed in neoliberal subjects. Through NZT, Eddie is becoming a superhuman who can assemble fragments of his experience into larger, risk-free assessments and knowledge. He is no longer subject to normal human limitations and can become optimally productive. Thus, the drug enables the rationalization of his productive capacity, his labor, through the privileging of his mental capacity, which plays into the larger humanist dichotomies. The movie demonstrates Hayles's observation of pattern over randomness through the computational metaphor and the rationalization of time, which is central to neoliberal goals of efficiency. The drug thus optimizes Eddie's mind in accord with neoliberal imperatives of efficiency and perfectibility.

While *Limitless* demonstrates the neoliberal drive toward optimization, particularly in terms of efficiency, *Avatar* engages with time in a slightly different manner – that of environmental activism and urgency. The realistic portrayal of time in the film is also altered in certain scenes for dramatic effect, scenes which are drawn out past the realistic representation of time in order to manipulate the viewer's expectations.

Avatar tells the story of a man named Jake Sully who is sent to take over his late twin brother's position as a scientist and avatar operator on the moon of Pandora. It is the mid 22nd century and RDA Corporation, the company recruiting Jake, is extracting a mineral called "unobtainium" from Pandora to ship back to Earth, since it helps power the Earth when all its resources are declining. Jake is an ex-marine and has no training as a scientist, but because his DNA matches his brother's, he is able to drive the avatar Na'vi body that was created through splicing his brother's and Na'vi DNA together. Avatars are necessary for exploring Pandora since the atmosphere of the moon is

poisonous to humans. As the paraplegic twin brother of a scientist on the planet of Pandora, the protagonist arrives to take over his late brother's previous job, which includes the use of an avatar body grown from a combination of Na'vi and human DNA. While operating this Avatar body, Jake finds himself drawn into relationships with the Na'vi people living near to where the human settlement is. After being caught by Neytiri, the chieftain's daughter, Jake's avatar stays with the Na'vi and learns their ways. Jake eventually falls in love with Neytiri and they form a bond that is lifelong, according to the ways of the Na'vi.

The climax of the film arrives when the director of operations discovers that the largest deposit in the vicinity is underneath the Na'vi's Tree of Life – a sacred tree that houses their memories and possibly souls after they die – and decides to uproot it. Jake tries to prevent this, but fails. The tree is destroyed and the Na'vi accuse Jake of deceiving them. By this point, Jake is fighting against the corporation. He, a few of the scientists and one of the soldiers get together and move their capsule with the avatar mind-mediation equipment out into the Sky Mountains above Pandora in order to avoid the military. He gathers up other groups of Na'vi from around the moon and they all join forces to defeat the human settlers. During one of the climax scenes, Neytiri is fighting to defend Jake (in Na'vi form) from the Colonel and she finds his human body in a bunker near the scene of the fight. She recognizes his human form and tries to give him oxygen: Jake breathes and lives. At the end of the film, through a spiritual ceremony lead by Mo'at, Neytiri's mother, Jake's soul is transferred from his human body into the Na'vi avatar and he awakens as one of them. The humans in the camp who did not support the Na'vi are sent back to Earth and the rest remain.

While time in *Limitless* focuses on the mind as an object of efficiency, *Avatar* approaches time from a different angle – the urgency of environmental politics. Because the film focuses on the demolition of nature for corporate greed and Earth's energy need, it speaks to many of the current debates about environmental practices and their success or lack thereof. Melinda Cooper draws connections between the global financial crisis and the depletion and soon-to-be-bankruptcy of the Earth's finite energy stores, casting *Avatar*'s similar issues into relief. The urgency for Cooper's research and analysis results from her view of global, unsustainable debt creation; published in 2008 and written in the lead up to the global financial crisis of that year, *Life as Surplus* diagnoses the conditions of the upcoming crisis while it lays out the utopic tropes common in science fiction films created in the contemporary decade:

> The difference today is "merely" that the tensions of capitalism are being played out on a global, biospheric scale and thus implicate the future of life on earth. It is therefore no coincidence that the dream of terraformation has arisen at a moment in history when capitalist modes of production are literally testing the limits of the earth. Nor is it incidental that the life sciences are promising to invent new forms of life at a time of accelerating extinction rates. (49)

Avatar engages directly with this sense of urgency through its plot and themes. These themes have been largely taken up by highly documented and cited instances of so-called "Avatar Activism." Coined by Henry Jenkins in an op-ed written for news magazine *Le Monde diplomatique* (September 2010), Avatar activism refers to the way popular culture has been appropriated by activists in order to further a particular cause. Jenkins writes that "people all around the world are mobilising icons and myths from popular culture as

resources for political speech." *Avatar* was immediately taken up by environmentalist groups as a sounding call for the preservation of rainforests and appreciation of nature, as well as the critique of rampant exploitation of natural resources for profit. Jenkins's article points to the impact of this film on the environmental community and the exploitation of resources and also hearkens to the notion that corporations need to take responsibility for their actions. Jenkins argues, however, that behind these political and ideological standpoints lies the larger question – how the audience takes up the film and meanings for itself:

> Such ideological critiques encourage a healthy skepticism towards the production of popular mythologies and are a step above critics who see popular culture as essentially trivial and meaningless, as offering only distractions from our real world problems. The meaning of a popular film like Avatar lies at the intersection between what the author wants to say and how the audience deploys his creation for their own communicative purposes.

Jenkins is writing from a perspective of collaboration between author and reader; his work on contemporary media and participatory culture, titled *Convergence Culture* (2006), focuses on the relationship between an original work of art and the various ways it is taken up by its fans. He has since moved on to more explicitly approach his work through fan studies and analysis. In the article, Jenkins describes several very different groups of protesters appropriating the look of the Na'vi to make a point in their protests against respective groups: "in Bel'in, the focus was on the Israeli army; in China, it was on the struggles of indigenous people against the Chinese government; in Brazil, it was the Amazon Indians against logging companies." So, not only did *Avatar* have amazing

success at the box office, but its mainstream position created a lot of political and ideological critique that was later reappropriated in the fight against real-world military-industrial complexes.

Time is also a central issue in *Avatar* in that time both adheres to and resists real representation; that is, the film manipulates the viewers' expectations in the way it elongates time for dramatic effect. As I described at the beginning of this chapter, this presents a transhuman manipulation of the viewer's expectations as the plot of the film uses time calculatedly to evoke a reaction in the viewer.

Towards the end of the film, the capsule where Jake's human body is held loses power after being attacked: Jake is thus violently removed from the avatar body he was fighting in and resumes functioning in his human body only to find that the oxygenated air is no longer being pumped through the capsule. As the toxic air of Pandora replaces the oxygenated air, Jake cannot reach an air mask soon enough, and he passes out on the ground. Neytiri, outside of the capsule, notices that Jake's avatar body is completely limp. She realizes that his human form must be in danger and rushes to the capsule to save him, finding him on the ground. She recognizes him from the avatar's facial similarities and puts a mask on his face. A few seconds elapse before Jake stirs and pushes the buttons himself that release the air into the mask.

In this scene, all the action appears to be executed in real time; that is, the time the viewer understands to occur in calculated, clock-like time. Towards the end of the scene, however, the viewer is left in suspense as Jake appears to have been exposed long enough to the toxic air to have died. He does not, however, die. This elongation of what would otherwise be construed as real time represents a calculated effort to manipulate the

viewer's expectations in the transhuman environment of watching film, a topic I treat further in Chapter Four.

Along with *Avatar*, *District 9* presents a conflict between human and alien, although this time it is on Earth. Time is a repeated and important figure in *District 9* since it determines the urgency with which the protagonist must act as he undergoes a metamorphosis from human to alien. While time in the film does not hold the same neoliberal tendencies towards efficiency that *Limitless* demonstrates, it nonetheless presents the protagonist in terms of capitalist necessity in biotechnological dissection, as I will demonstrate.

District 9 is set in the early 2000s in Johannesburg, South Africa. The film opens as a documentary, with clips from interviews with "knowing" characters – a press correspondent, a sociologist, aid workers – who recount the story of Wikus van der Merwe. It begins with the landing, or rather, hovering, of a spacecraft over Johannesburg in 1982. The paramilitary organization MNU (Multi-National United) is called to find out what the problem is and whether there are beings inside the ship. On June 1, 1982, they discover one million extremely unnourished and unhealthy aliens who have been stuck in the ship. Under international pressure, South Africa establishes an aid group through MNU who ferries the aliens to a "temporary" camp beneath the ship. There was no real plan for the crisis, and what was first a "temporary holding zone" became militarized; "before we knew it, it was a slum," reports the sociologist from Kempton Park University. Fast-forward twenty years into the future: tension between the aliens, derogatorily called "prawns" by Johannesburgians for their crustacean appearance, and

the people of the city is still high, and MNU has begun a project to move all the aliens from their current camp in District 9 to a new camp in District 10.

Wikus is the man in charge of the evacuation, making sure the aliens sign eviction notices and legally and orderly move from District 9 to District 10. During his investigation of the houses – more accurately described as shacks – in District 9, he comes upon a tube of black liquid that squirts a substance in his face. Later we find out that this substance is an alien fluid required to energize the ship's command module, which fell from the ship and was "lost" somewhere in District 9 . During the eviction process, Wikus comes into contact with a fluid that makes him begin to transform into an alien. As he is sought out by the military for biological testing and shunned by the Johannesburg citizens, Wikus hides out in District 9 and becomes uneasy allies with the alien Christopher Johnson. At the end of the movie, he and Johnson break into MNU laboratories, steal back the alien fluid, make it back to District 9, and Wikus helps Christopher escape to the ship with the module. Christopher then leaves with the ship with the intention of returning in three years to help Wikus turn back into a human. By the end of the film Wikus has entirely morphed into an alien.

As I argue in the previous chapter, part of the drive towards enhancement is influenced by the emphasis on the promissory nature of the future. While future-looking time acts in a promissory way in terms of technological possibility, it also acts promissorily in terms of value and money. Cooper notes this correlation in her book, writing that "[n]eoliberalism and the biotech industry share a common ambition to overcome the ecological and economic limits to growth associated with the end of industrial production, through a speculative reinvention of the future" (11). *District 9*

bears out this observation throughout the film, but in one particular scene it stands out as Wikus's body becomes that "contingent" body that I describe in Chapter One. Based on Neil Gerlach's definition, the contingent body is an ontological framework for understanding how the body is being treated in contemporary neoliberal and capitalist culture – that is, the body is treated as a "denaturalized object or set of object – genes, cell, proteins, organs" (8). From here, the body can be manipulated and, in the case of *District 9*, divided into different, economically viable pieces. In terms of biopatenting and research, "the body" becomes a set of gene, cell, and protein activity and manipulation that can be leveraged for economic benefit, as the processes used to analyze and manipulate these activities can be patented, and from there, bought and sold. The resulting creature, organism, or cell created through the patented procedure is also patentable and can be sold. This is precisely what Cooper means by "new kinds of life," since we, as a society, are now invested in creating and maintaining new forms of life, both biologically and financially. In *District 9*, there is a scene that explicitly demonstrates this body ontology.

Partway through the film, after Wikus's injured arm is revealed at the hospital to have transformed into an alien arm, he is arrested and taken to MNU laboratories for testing. After establishing that, despite his human DNA, his newly-created alien DNA is strong enough in him that he is able to use the alien-created bioweapons (weapons that only function when handled by an alien), the head researcher discusses the situation with the general in charge of the project, who also happens to be Wikus's father-in-law. Ultimately, the goal of this research is to somehow get the alien technology to work for the humans and to develop human technology that works similarly. This dialogue

between the researcher and the general places Wikus precisely in that realm of biotechnologically-viable "matter:"

> RESEARCHER: General, you're running out of time. This is the key stage in the metamorphosis. His DNA is in perfect balance between alien and human. The problem is as the infection spreads the transition becomes permanent and less active.
>
> GENERAL: He's going to turn into one of them – a prawn.
>
> R: What happens to him isn't important. What's important is that we harvest from him what we can right now. This body represents hundreds of millions, maybe billions of dollars worth of biotechnology. There are people out there – governments, corporations – who would kill for this chance.
>
> G: Will he survive the procedure?
>
> R: Of course not. We need everything: tissue, bone marrow, blood. The procedure's going to basically strip him down to nothing.

As these characters are speaking, Wikus is lying, strapped to a gurney, in between them. First, these characters completely disregard Wikus as a person and objectify his body to the point where his identity no longer matters. I will deal with the issue of identity in a later chapter, but I will treat it in how it concerns time in this chapter. Time becomes an issue for the characters in regards to Wikus's body since it determines the viability and usefulness of his body as a source of information. Key to the capitalist view of the "usefulness" of Wikus's body is that the economic rationality attributed to the *parts* of his body are now worth more than the *sum* of his parts. The current "balance" of DNA in Wikus's body is what makes it in any way valuable to MNU – it is the only way they

might "harvest" the information (as represented by his genes and organs) needed. In referring to Wikus, the researcher uses words that change his role from that of living person to an item or matter.

The researcher emphasizes the importance of time in collecting the "active" infection that still lives in Wikus's body. This infection defines the role Wikus plays – his body is a host for the infection, and it is the infection that most concerns the researchers. Building on this, the researcher refers to Wikus's body as a site for harvesting. "Harvest," by connotation, brings up two differing senses: first, they may be harvesting Wikus's body in the same way doctors harvest organs from recently deceased people in order to provide transplants to others, a way of extending the life of body parts while the life of the person has left; second, "harvest" connotes a sense of time that is related to cycles of the year, which frames Wikus and his body in terms of objects, food, and consumption. In particular, the notion of "consumption" in this context recalls Cooper's argument about the depletion of resources necessitated by uninhibited energy consumption and, on the molecular level, the necessity for new forms of life as others become extinct, and this is precisely what Wikus "represents" to MNU: a new source of "life" and energy through his "active" DNA. In this promise of "hundreds of millions, maybe billions of dollars worth of biotechnology," Wikus embodies the future-looking, promissory aspect of both financial gain (economic) and biotechnology (life) that is encoded within his transforming DNA. While the conflation of these two aspects of Wikus's promissory role argues strongly for the notion of the contingent body, the information resulting from a kind of optimistic potential for life sciences and economics also ironically provides the information and technology necessary for death in the form of weapon technology, the

reason why MNU is interested in Wikus in the first place. As I are argue in the earlier chapter, neoliberal and capitalist economic practices, particularly in regards to their future-oriented vision, are founded explicitly on the notion of limitless debt-renewal, as noted by Cooper (cf. 5), which treat "life" and the life sciences as areas of economic reproduction, something that *District 9* demonstrates particularly well.

Thus, future-oriented time acts similarly in this film to the way it does in *Avatar* – it provides the conditions for potential, despite the intrinsic motivations for the use of that potential. *District 9* presents a world where people's actions are predominantly formed through capitalist rationalities (particularly from the view of MNU) and are based on the position and representation of a person's economic value. This world, while different from our own, shows the way these economic frameworks are bound to a concept of time that signifies possibility and development.

I have hoped to show in this chapter that future-oriented time, and the optimism it provides for optimizing the human, plays a large role in the development and continued success of extending economic frameworks to the bios. By using the future as a motivating and optimizing source, the transhuman imaginaries presented in these films conflate economic development with biological enhancement, pointing toward the neoliberal and capitalist influences exerted within the films. On this same topic, the next chapter will discuss the mind-body relation in these films and show how economic aims – achieved through biotechnology – complicate the relationship.

Chapter Three

Mental Faculties and Physical Memories

I have just explained how the speculative fiction films I am analyzing reveal the temporal and future-looking characteristics of transhumanism, neoliberalism, and capitalism. I would like to now show how the concept of enhancement manifests in the mind-body problem in these films, and how identity and mind interact in the context of body enhancement and manipulation. Complicating these issues is the spectre of "technology" and the way it acts upon the mind and body in these films. Later, I will argue that when this happens, it offers a "proof" that the enhancement of the human is necessarily evolutionary and thus justifies the utopic development and manipulation of the human body and human genes supposedly for the betterment of humankind itself. Despite the body-centric focus of the technology in these films, however, the identity of the protagonist is largely left untouched, since its assumed humanist origin is in the mind. In these films, this furthers the transhuman's claims to human exceptionalism, as the mind is taken as part of the human realm and the body as part of the animal.

In *Limitless, Avatar,* and *District 9*, the conflict between mind and body arises specifically through the enhancement or change of the human. In *Becoming Biosubjects*, Neil Gerlach writes about this problem, stating that the social science fictions that are transhuman imaginaries treat "nature... [as a] problem to be solved by technology" (15). This argument relies on a conception of "nature" that defines nature as an original, prior-existing state, not a reference to nature as the environment (although it implies this

definition as well). By describing nature in this way, Gerlach is pointing out the economic bias smuggled in generalizations of technology that nature is inefficient and technology helps improve efficiency. Technophilic posthumanism then relies heavily on the negative connotations of "nature" as inefficient and inhuman, even as it promises a return to the "real" human through its means; that is, a return to a broadly assumed human potential that exists beyond current human capability.

In order to properly discuss the humanist dichotomy between mind and body, I will first define the terms I am using. According to the *Oxford English Dictionary*, the mind is:

> (a) The seat of awareness, thought, volition, feeling, and memory; cognitive and emotional phenomena and powers considered as constituting a presiding influence; the mental faculty of a human being (esp. as regarded as being separate from the physical); (occas.) this whole system as constituting a person's character or individuality. ("mind," def. 19a)

The attributes of "awareness" and "memory" play a large role in determining the way the mind is treated as corresponding with "human" values in the humanist dichotomy. The persistent identity of an individual is commonly held to reside in the mind, as the "occasional" designation of the definition suggests. Importantly, the *OED* itself offers a portion of the overall definition that upholds the humanist dichotomy: "the mental faculty of a human being (*esp. as regarded as being separate from the physical*)" (my emphasis). Particularly in this chapter of the thesis, when I refer to the "mind," I am invoking all these qualities associated with it, and I mean to set it up as treated differently in humanist-based understandings than the brain is treated. The brain, on the other hand, is

purely "[t]he organ contained in the skull of humans and other vertebrates, consisting of soft grey or white tissue with (esp. in mammals) a conspicuously convoluted surface. Also (as a mass noun): the substance or tissue of this organ (comprising nerve cells and nerve fibres)" ("brain," def. 1a). In discussing the mind's relation to the body then, I will not focus on the brain, which is itself a part of the body, but rather on the mind and its associated qualities.

As I wrote in the Introduction, these films present a dichotomy between human and animal that is often paralleled in the mind-body dichotomy discussed in this chapter, as more "human" characteristics are attributed to the mind (identity, rationality, etc.), and more "animal" characteristics are attributed to the body (sex, odour, etc.). In technophilic posthumanism, there appears to be a goal to transcend the body in attempts to distill humanness to a "pure" human identity based on the mind. While the films' imaginaries disavow the importance of the body in creating and defining human identity, they always ultimately reinscribe its importance through the way their protagonists develop more ethical personalities *because* of the way they have been affected by their changing bodies.

Hayles disagrees with the notion that this dichotomy between mind and body exists, both in philosophy and in the transhumanist's very real view of the future.[4] She argues instead that the particular, situated embodiment of the mind cannot be reified by transhuman ideals, such as the computational metaphor for the human mind. The concept of information has long been treated separately from the form it comes in; for example, there may be several different printings or editions of a book, with different paginations, but the content of that book – its information – is generally treated as the same regardless

[4] See Ray Kurzweil's *The Singularity Is Near* (2005).

of which printing it is. The idea is the same for reposting an article across different websites on the internet; the article – the information it represents – remains the same. Hayles argues against this formulation of information, and I believe Friedrich Kittler's work on media and technology theory helps enlighten other aspects of the situation. Kittler argues that since the early 1800s, "interpretive homogenization" has become the norm. According to Kittler's translators in the introduction to *Gramophone, Film, Typewriter* (1999), "...a naturalized language now seen as a lucid carrier of meaning cut through and homogenized the different media. In short, people were programmed to operate upon media in ways that enabled them to elide the materialities of communication" (xxii). This argument postulates that as the typewritten book and paper became more common, the readers of these papers were trained to disregard the material form of the communication and to focus on the content instead; interpretation became less focused on the materiality of the object and more on the information residing inside it. This habit of elision has persisted through not only text media but through the development of other media as well, and emerges again in the Macy conferences of the 1960s with the disembodiment of information. As content became independent from its form and translation, cybernetics and systems theory became larger issues. Emerging from this background, the theory of information as disembodied is often extrapolated to the mind, which "holds" information, and from there science fiction imaginaries begin treating the body like it is a vessel for the mind.

Playing upon these shifting notions of mind and body and their relationship to one another, *Limitless*, *Avatar*, and *District 9* first set up their protagonists as flawed or in need of change, and technological intervention provides a solution. In all of the films the

protagonists are considered to be missing something; they do not fit in in society. In *Limitless*, Eddie is weak; he drinks too much, has little confidence, and is paralyzed by fear. The drug he takes compensates for all of this, making him "whole," although I will show what that means. In *Avatar*, the protagonist is paralyzed from the waist down; he must always travel in a wheelchair. Through the avatar he controls, though, he finds a body that his mind can use when it is technologically mediated in order to infiltrate the alien society. This body, super-abled and whole, becomes his at the end of the film as his mind is transferred from his disabled human body to the avatar body through a spiritual ceremony. *District 9* presents Wikus, a man whose human body begins changing into an alien one. Through the process of transformation, however, Wikus's once insensitive attitudes towards the aliens begin to change as well, and he becomes more sensitive to the goals and values of others. These are brief examples of how the relationship between mind and body is not clear in the films, despite a transhuman leaning towards bodily negation, and I will expand on them further as I explore the complex relationship between identity and mind in this chapter.

Limitless takes a specifically neoliberal view of human nature in its presentation of Edward Morra's personality, before and after NZT. It seeks to show the potential of an individual whose mind could be enhanced to make him as successful as possible. In doing so, the film dismisses the identity of the character prior to his engagement with the drug and focuses only on those aspects of his personality that arose because of it – charisma, intelligence, and confidence – assuming these attributes as universally wanted characteristics. For example, when the film introduces Eddie's character prior to NZT, it depicts a struggling writer, who has a book contract but no pages written, whose

girlfriend dumps him within the first five minutes of the movie's start, and who looks like he is "living on the streets." He comes across as an empathetic character, but as representing someone who is unreliable, has no real conviction, and is generally a "failure" by conventional standards. After taking NZT, though, his personality drastically changes.

As his personality and identity change, Eddie comes to represent not just any user of NZT, but an exceptional one. All users have Eddie's same response of efficiency, "smarts," and optimization, but not all manage to get quite as far as he does – his ex-wife is one example of a user who was burned out by the drug – nor are foresightful enough to reverse-engineer their own pills. His entire existence is viewed through the frame of increasing enhancement. The title of the film points to this limitless view of the capacity of the human mind. His last name, "Morra," is no coincidence, either, as it suggests the one of the driving factors behind enhancement or development: more. As NZT acts on Eddie, he increasingly wants more, and describes the feeling as: "If I wasn't moving forward, I thought I was going to explode."

Beyond the implication of "more," however, Eddie represents the generic neoliberal subject in other ways too: he is good at just about everything: Eddie becomes a financial trading genius, can learn languages in hours, instruments in minutes, and has incredible romantic success. During his first time alone on NZT, he tidies up his apartment, and the film depicts several other Eddies cleaning at once, demonstrating both the intensity and the efficiency of this drug. Eddie's voiceover asks after the cleaning is done: "What was this drug? I couldn't stay messy on it, I hadn't had a cigarette in six hours, hadn't eaten, so...abstemious and tidy? What was this, a drug for people who

wanted to be more anal retentive?" Following this meditation, he stands up, gazes out the window, then turns to his computer: "I wasn't high, wasn't wired, just clear; I knew what I needed to do and how to do it." Eddie sits down at his computer, and, as the camera focuses in on the swiftness of his fingers typing on the keyboard, letters begin falling, eventually turning into a torrent of words and letters falling around him and landing on the furniture. This scene demonstrates how Eddie's mind begins to work on NZT, and what he starts realizing he can get done on it. He thinks not just "clearly" but strategically in determining his next course of action. He does not procrastinate, but knows and does. This element of efficiency is not only neoliberal, but it supposes that the impulse behind improvement is often a temporal concern. As I showed in the previous chapter, time plays a major role in determining the relevancy and relative "success" sought by the actor. Being successful is not just a matter of skills but a matter of time, particularly in how the concepts of time and efficiency impact the character's ability to achieve goals.

One of the characters early on in the film suggests that NZT helps people "reach their potential." This would imply that potentials are individual, personalized for each user, but according to what happens to Eddie, the American Dream type of goals repeatedly occur: he can make money out of nothing, becomes highly charismatic, and can use his mind to accomplish almost any goal, both physical and mental. His potential to be great at anything is not limited by the physical limits of his body or brain.

It is at this point that the story begins to slowly eradicate the importance of the body. The film presumes each body is equal in physical capacity to any other, as well as any mind to any other, when it presents Eddie's skill set increasing so quickly. For example, as I have

described earlier, Eddie finds himself in the midst of a fight in the subway one night. Having never been in a fight before, he would normally have no way of knowing how to fight. Because he is on NZT at the time, however, he recalls old self-defense videos, kung-fu movies, and boxing matches and imitates the fighting in them. One- or two-second-long clips from the videos show a particular move – a kick, a punch, a block – and cut directly to Eddie in exactly the same position, using precisely the same move. Implied in this kind of learning by Eddie, learning-by-recall, is the idea that not just the mind can learn and execute swiftly on NZT, but that the body, that muscle-memory, can execute just as swiftly: "I learned to play the piano in three days. Math became useful and fun. ...I suddenly knew everything about everything." This presumes a standard or norm of bodies that all have the capacity to function the same as other bodies and that must all inherently have the "potential" to, for example, fight like a master, or speak languages like a native speaker, in spite of having no prior experience or having previously developed the muscle capability to do it. In this way, NZT effaces the slow, materially clumsy process of, for example, practicing piano, or any other repetition-based material skill. Normally, Eddie might know how to play and that he wants to play, but practice itself is the only thing that will allow him to do it well; it is a material bodily resistance to the actualization of knowledge that can only be overcome with time. With NZT, however, this material resistance is erased. Eddie's ability to actualize his knowledge, be it of languages, musical instruments, or fighting among other things, is not dependent upon time or physical ability; it is readily available by virtue of the knowledge simply being there in his mind. Knowledge, or "information," in this way becomes

decontextualized from his body, from his material ability, underscoring the transhuman thrust of the enhancement.

One of the major signs that Eddie's change has taken a neoliberal form is that he becomes incredibly successful in the stock market. Because the stock market is a symbol of wealth, free-trade, and the *best means to determining truth*, it is no wonder that Eddie's optimized mind looks directly towards that means of making a living. The functioning of the stock market also relies on Eddie's ability to analyze patterns and calculate trends, something his calculative mind addresses easily. This places Eddie's mind in the realm of computing devices, since those are the functions a computer executes. By this point, then, the film has implied that the ultimate, superhero neoliberal character would have an unlimited capacity to access memories, to retain new knowledge, and especially to calculate. In fact, the film has applied the "optimal" attributes of a generic computing device to the human mind. But Eddie is not just a computing device; he acts as a portable encyclopedia – "Everything I'd ever read, heard, seen, was organized and available." As I have argued already, as neoliberalism and transhumanism have come together, they encourage an equivalence of the human brain to a computer and particularly to the world wide web. This is an extension of Cooper's arguments about neoliberal and capitalist development to the region of the mind, to human qualities as refinable, to the human body itself as mechanical and fixable. In this case, as technology intervenes on the level of the molecule through the drug's effect on the molecular functioning of the brain, neoliberal exigencies of efficiency and development apply to those molecules, to the mind, and to the person whose mind it is.

Regarding his identity, Eddie's understanding of himself changes throughout the film. After his first experience of NZT wears off, Eddie describes the situation in terms of brain function: "The next morning, I sent a little probe down into my brain. No surge of brilliance came up to greet me. In short: *I was back*" (my emphasis). Eddie does not initially identify with the person he becomes on NZT. He feels smarter, inspired, and clear with NZT and slow, unmotivated, and dull without it. He would do "anything to get back that little clear pill that would *bring back enhanced Eddie*" (my emphasis). As the film progresses, though, Eddie begins viewing his new self as his authentic self, as the actualized person who always existed in his potential. He is Eddie without the "problems" he previously had: "All my fear, all my shyness – gone." Eddie has internalized his new thought processes and, as they become more familiar to him, he begins identifying with the new Eddie who is created through that process. Because NZT acts on the physical/chemical level of the body in the brain, one can argue that while the body is often absolutely disavowed in the film, it returns in a pivotal role through the impact it ultimately has on Eddie's identity. As I have shown in this section, Eddie's self-identification changes throughout the film. He begins the film paralyzed by fear and cannot bring himself to even begin writing the book he has been hoping to write. His fear holds him back, and these attributes like emotions are considered "weaknesses." In essence, NZT helps rid Eddie of "bad" emotions and helps him act with more confidence and more calculatedly. Calculation, in this case, is king, and it overcomes even bodily needs or wants. He does not need sleep in order to finish writing his book. His mind somehow has so much influence over the abilities of his body that it makes everything immediately possible to him. If the drug's effects were accommodated for individuals'

unique minds, bodies, and talents, however, they would probably appear less evenly stacked across all of the American Dream type of areas. In essence, NZT makes Eddie a more calculating subject than he previously was, and as that calculation is based in the mind, the humanist dichotomy of mind versus body is upheld.

Avatar presents a different but related vision of the relationship between body and mind through the introduction of the avatar the film's name suggests. As Jake begins spending less time in his physically disabled body and more in his fully functional avatar, he comes to identify with the alien avatar body over and above his own human body. Throughout this process, we can see a few things happening: the new avatar body affects the way Jake interacts with the Na'vi and their world, and therefore the way he thinks. This places importance on the body as one of the sites of identity, since as it changes he changes. However, the body is relegated to a lesser status than the mind, because it becomes generic and disposable, to be used or not used. This applies to both the avatar body and Jake's human body, although there is another hierarchy developing within the realm of body following humanist assumptions, a hierarchy that oscillates between privileging human and Na'vi.

In disavowing the importance of the body, *Avatar* acts much like *Limitless* in privileging information and mind as the seat of identity, entrenching humanist dualisms in the film's treatment of its protagonist. I will focus in this chapter on the main events that define *Avatar*'s treatment of Jake's mind and body. The avatar itself is a product of biotechnology and thus inherently retains and represents some transhuman qualities. I hope to show through the following examples that the complex relationship between

mind and body is not clear-cut in the film, but rather arises through conflicting humanist assumptions about nature and technology.

Most importantly, I also hope to show in this section that *Avatar* presents a state-imposed economic rationality, despite its superficial critique of neoliberalism and capitalistm. Because the Na'vi are successful at turning back the humans who have come to extract their resources for economic profit, the film appears to be offering a critique of the market rationality that led the humans to the Na'vi in the first place. However, I argue that *Avatar* actually upholds market rationality, and it does so through the transhuman figure of Jake.

At the beginning of the film, Jake recounts being recruited to take over his late twin brother's position on Pandora as an avatar driver for RDA Corporation. Because the avatar was created through a combination of Na'vi DNA and his brother's human DNA, Jake is presumably able to step in because his DNA is the same as his twin's, and physical resemblance, both in the genomic sequence and bodily, is a requirement for proper cognitive connection to the avatar. Here we already see a connection between body and its influence on the character's identity as a whole.

The biotechnology used to create Jake's Na'vi body in the first place is born out of a capitalist impulse to improve and optimize human and alien bodies. By creating a body that merges the two, the RDA Corporation has essentially created a being who can bridge the gap between Na'vi and human worlds. In doing so, biotechnology in this film bridges cultural differences that get in the way of economic rationality. The limits of difference become the limits of the market, in that the humans are not able to get the unobtainium and put it to proper economic use on Earth if it is required for the Na'vi's

mystical relationship with their environment. Broadly speaking, the Na'vi's values are spiritual and the humans' values are economic, and Jake, as fully-fledged Na'vi by the end of the film, ultimately bridges those different value systems by representing a universal standard of value that can apply to both since his avatar body is not just Na'vi, but also human. When markets share an equivalent value or are the same, they are able to trade without impediment, which increases efficiency. Jake is the bridge between these two markets, making him an ideal, optimizing, *homo economicus*. Now I will turn back to the transhuman effects of this dualism.

Because the Na'vi are humanoid creatures, they have similar facial features and other attributes to humans. When Jake first sees his avatar in its incubation tank, he recognizes the facial features of his brother in it, a physical characteristic which he later comes to accept as his own. This scene establishes the avatar's identity as related to Jake's in the mind of the audience, since we see the similarities between Jake's face and the avatar's, but it also sets up a relationship between human and Na'vi DNA that is never fully acknowledged in the film. Because the avatar has both Na'vi and human DNA, one might assume that the resulting avatar will have an equal mix of individual characteristics drawn from each species, given that there is no such thing as "generic" DNA – each sample would be taken from a specific individual. However, the way the avatar resembles Jake in face and form, despite its residence in a fully Na'vi body, suggests that the human DNA somehow inhibits the Na'vi DNA's ability to manifest any of its donor's own characteristics or attributes. As human DNA takes precedence over Na'vi DNA in the formation of identity and mind, this process demonstrates a literal

dualism between the purely Na'vi body (which takes no human characteristics) and the human mind (which takes no Na'vi characteristics).

A couple interesting issues crop up in this aspect of *Avatar*'s treatment of identity. First, there is a discrepancy between how each human or Na'vi body works independently of Jake's mind inhabiting it. While his identity and mind developed within the human body as he grew up, the Na'vi body is supposedly grown and developed without a mind. The audience only ever sees it unconscious in its incubation fluid, or lying sleep-like on tables or beds when Jake is not occupying it. This presumes that either no mind would have naturally developed within the avatar to compete with Jake's, or that Jake's mind (in a similar fashion to the physical attributes) takes precedence over the avatar's. Second, while his avatar body can continue living freely without his mind controlling it – such as when he must return to his human body to eat and sleep – his human body cannot survive without Jake's mind. Once Jake's mind or soul is transferred to the avatar at the end of the film, his former human body stops breathing and dies. This poses a problem between what it takes to create and maintain identity (thus, where the body comes in) and what role the mind plays in determining that identity.

This continual dichotomy between mind and body arises through the humanist assumptions that both conflate and split nature and technology. Nature becomes something that can and must be intervened on and "improved" through the use of biotechnology, which can act on nature to optimize it on the molecular level. In *Avatar*, this amounts to a privileging of mind over any kind of body in determining the protagonist's ultimate identity. The relationship, in this case, is dominated by an essential premise of continuing identity somehow unrelated to the body, while still affected by it.

District 9's thesis as well as its presentation frame the mind-body issue in economic and transhuman terms as much as *Limitless* and *Avatar* do. While there is a physical enhancement to the protagonist's body as he undergoes transformation from human to alien (he is now able to activate and use alien weaponry and technology that the humans cannot), he nonetheless undergoes a societal attack on both his character and person in response. As an alien, he is shunned by his former society and can no longer rely on those people he once knew and trusted. The protagonist's identity, supposedly residing in his mind, changes only slightly, but his body undergoes drastic transformation. In this film, then, the protagonist, Wikus, is represented in both economic and transhuman terms as he transforms into an alien, and the focus remains on his DNA specifically as the place of capitalist intervention. This relates to identity as well, but poses many mind-body questions relating to what a different mind – the alien mind – might do to his understanding and awareness. Similar to *Avatar*, however, as I will show, the protagonist's identity remains largely unchanged by the actual transformation: he retains his sense of identity despite what must be major changes in his neurological and biological functioning. This film demonstrates the close relationship between economic and transhuman actions and understandings, and it shows how biotechnology enables this understanding.

The film offers two major examples of how economic rationality affects the understanding and conception of Wikus's identity and body by other characters. First, as his transformation is discovered by MNU, Wikus becomes the target of genetic research on how his human DNA is turning into alien DNA. As I mention in the last chapter, he becomes an object of study and a thing to be dissected and sold for profit. To the

researchers, Wikus's identity as a person and a human no longer matters. Second, while this is occurring on the biological level, it does not seem to affect his identity or mind in any way. As Wikus transforms, his identity stays the same despite the actual metamorphosis his DNA undergoes. This plays largely into transhuman assumptions regarding mind and body, and what each means for the development of the other.

Here I will interpret the same scene from the last chapter, but in a different way. Please see page 45 for the full dialogue; I will summarize the salient points here for this analysis. After Wikus goes to the hospital and his arm is found to have become an alien arm, MNU is alerted and Wikus is forcibly taken to the MNU research labs. After testing him to determine that his newfound alien appendage works with the bio-enabled weapons the aliens use, but that humans cannot use, the head researcher, the MNU general in charge of the Department of Alien Affairs, and an MNU executive board member discuss what they should do with Wikus now that he is in the "key stage of the metamorphosis." As an object of research, Wikus is valuable only while the infection spreads and is active; once he turns into an actual alien, they will no longer have a chance to find out how the infection works and how to potentially repeat it. As Wikus is lying strapped to a gurney before them, the researcher discusses Wikus as an object of scientific knowledge, of information, and of money: "What happens to him [Wikus] isn't important. What's important is that we harvest from him what we can right now. *This body represents hundreds of millions, maybe billions of dollars worth of biotechnology*. There are people out there – governments, corporations – who would kill for this chance" (my emphasis). When the general asks if Wikus will survive the procedure, the researcher responds in the negative: "Of course not. We need everything: tissue, bone marrow, blood. The

procedure's going to basically strip him down to nothing." The terms the researcher uses to describe Wikus objectify him in such a way that the constituent parts of his body become all that matters; his identity as a person, employee, husband is no longer relevant to MNU's needs.

In *Becoming Biosubjects*, Gerlach et al. write about the way biotechnology treats the body as separable and therefore more readily available for intervention. In their assessment of this situation, Gerlach et al. refer to academic Irma van der Ploeg, who argues that "the anatomical/physiological body of modernity has been slowly usurped by a fluid communicative or informational body comprising bits that can be separated out and put to different use" (7-8). In *District 9* this occurs as the value of Wikus's body is assessed through the amount of biological "information" they can "harvest" from him. This understanding of the body as information supports the arguments in Chapter One about transhuman conceptions of the human. Once the body has been viewed as information that is transferable and generic, it enters the realm of economics in which biological data itself will be bought and sold. In the film, Wikus's "tissues, bone marrow, [and] blood" are no longer his, but will now be divided, analyzed, and sold by MNU for both a profit and for military advantage. It is no surprise that MNU is so interested in Wikus's metamorphosis, because they have been trying to find a way to utilize the alien weaponry for decades, and Wikus is their first chance to determine how a human might very well be able to engage these weapons while not having become fully alien yet. Thus, as the researcher speaks of Wikus's body in terms of representation, his body becomes an economic object, highly valuable to the military-industrial complex that MNU represents in the film.

Because the MNU researcher treats Wikus and his body as purely an object to dissect and analyze, Wikus's identity and personality are ignored. However, even as the researcher's economic rationality trumps his understanding that Wikus is a person above being an object of analysis, the audience is confronted with the way Wikus's identity remains the same throughout every stage of his transformation. The film actually draws quite a strong line between body and mind during Wikus's metamorphosis, and the end of the film goes a long way in implying that Wikus's identity still remains the same, despite his now fully alien form.

During the beginning of Wikus's transformation, he experiences a change in his appetite and finds himself very interested in hamburger and partially raw meat, even as the metamorphosis is taking a toll on his body and making him feel nauseous. After he escapes from the MNU laboratory, he flees to *District 9,* because he knows it is one of the few places the MNU military will not be able to follow him or find him as easily. There he tries bargaining for some meat that is on a spit, but instead buys a tin of cat food, a type of food that the aliens are well-known to enjoy. After eating about half the tin, Wikus realizes what he has done, feeling somewhat ill since his body is still predominantly human, and he throws the tin away, disgusted with himself.

This series of events demonstrates the connection between Wikus's now transforming body and how he understands himself to be. He wants to be human but realizes that he is changing irrevocably into something other than who he was. The film, however, goes no further in presenting a connection between body and identity than this, however, since it ends by implying that the same Wikus who once had a human body is now the same Wikus who has become an alien, and this change would have relatively no

bearing on who he is as a person. Ending in the same documentary style as it began, the film presents those same characters, particularly the UKNR reporter who says that Wikus was never seen again after that series of events. Even as this reporter's voiceover plays, the camera fixes on an alien who is creating a tin flower out of scrap metals from the junk piles around the camp. The scene cuts to Tania who then holds up the same flower, which she found on her doorstep, and she tells the camera that while she has been told to give up hope, she still believes Wikus is out there trying to be with her. Through this final set of scenes, the audience understands that Wikus, as the audience has come to know him, still remains, despite his current alien form. This implies, similarly to *Avatar*, that the body is certainly a vessel that cannot account for the whole of a character's "true" identity, and that may even account for almost none of it.

In this chapter, I have shown how these particular speculative fiction films address the mind-body relation, and that this relation is a humanist-based dualism. I have also shown how capitalism arises in the transhuman figure through its ability to bridge the gap between different cultures, and therefore different markets. In the next chapter, I will show how the material production of film demonstrates neoliberal, capitalist, and technophilic posthuman processes.

Chapter Four

The Materiality of Film Production and Its Transhuman Effects

Up to this point, I have argued that neoliberal economic rationality enters not only into life itself but manifests in and affects the way we think the human in terms of time, identity, and the importance of the body. In arguing that this kind of economic rationality fragments and decontextualizes the body, I would now like to show how film itself enacts similar processes. I will discuss the use of technology in each film and how it affects the actors and the viewer; next, I will discuss the way each film's choice of location and other material factors influenced the film and how they both take into account and eschew the historical context of the films' stories. In exploring these different aspects of the films' materialities, I hope to show that the neoliberal push towards decontextualization affects not only the stories told by the films but also their production and reception.

The film industry itself is rooted in technology and the various ways that technology physically functions to produce the visual and aural phenomena that we consider to be film. Film studies scholars often focus on analyzing things such as camera positioning, framing, tracking, lighting, movement, time, and space among many other aspects of filmmaking to support their claims. In my own analyses throughout this thesis, I have tried to focus on close readings of the scenes, camera positioning, and other aspects of film technology to support my arguments. While avant-garde cinema and other film genres and styles are common, there is focus on narrative cinema in popular films

made in North America, specifically "classical Hollywood" cinema that uses filmmaking techniques to achieve a sense of reality. In *Film Studies: An Introduction,* Ed Sikov writes that "…classical Hollywood films want us to believe that we are watching reality, if only for the duration of the picture" (63). In more detail, Sikov describes the spatial and temporal techniques Hollywood films employ in order to achieve this sense of reality:

> Classical Hollywood style strives to avoid calling attention to the means and forms of its own construction. Through strictly formal techniques, Hollywood films attempt to smooth over the many cuts that occur. They try to maintain a sense of spatial unity within each individual sequence. They attempt, to use loftier critical discourse, *to efface themselves* – to render themselves unnoticeable. (*sic* 63)

The films I analyze in this thesis, *Limitless*, *Avatar*, and *District 9,* are produced predominantly in this Hollywood style: "Continuity editing strives not only to keep disruptions to a minimum but to *actively promote a sense of narrative and spatial coherence and stability in the face of hundreds or even thousands of the discrete bits of celluloid called shots*" (Sikov *sic* 63). Shown in dark theatres, the films encourage their viewers to become immersed in the films to such an extent that they might forget about their bodies. This participates directly in what I have described above as a transhuman problem – that of decontextualizing the body. In the same way that the body is written off in the storylines of the films, the viewers' own bodies are discounted in favour of visual and aural stimuli.

Even as the viewers experience a sense of transport when watching a film, the development of technological apparatuses in production and post-production have

become the norm for many films. While *Avatar* demonstrates this well as the majority of its environments and non-human characters are computer generated, *Limitless* and *District 9* also use similar technological practices to complete their films. Although film always attempted to achieve a sense of the real through artificial means (e.g. fake food that looks even more real on screen), technology has now enabled even more artificial graphics and environments to achieve realism on film. Actors now work increasingly in front of green screens and are digitally visually enhanced through post-production techniques. In this case, film is transhuman in the way it imposes a necessary level of technological mediation on both its actors/creators and viewers/users.

Like *Avatar* and *District 9,* which deal with technological materialities and historical issues through their plots and filming processes, *Limitless* demonstrates a connection between neoliberalism, capitalism, technophilic posthumanism, and the technological materiality of its filming. *Limitless* employs filming and visual effects techniques to further the story and enhance the sense of "hyperreality" the characters experience under the effects of the drug. According to Ian Failes on *fxguide.com*,

> Director Neil Burger sought to highlight the effects of NZT by creating hyper-real scenes of those under the drug's influence, including as out-of-body experiences and as fractal-like movements in time and space. The effects are enhanced by long zooms through the city's New York locations, seen initially in the opening titles as well as throughout the film, and in repeating patterns as the characters discover the limits of their new addiction.

These effects provide visual cues for the viewer regarding the mental state of the character, but they also underscore the relationship between the sense of reality that film

achieves and the technology and artificiality it takes to achieve that sense. In film more generally, although also demonstrated in *Limitless*, relating "reality" to the viewer depends upon the suspension of reality within the process of filming itself, achieved through a variety of techniques such as using green screens and digitally manipulating graphics. Since much of its plot turns around the spectre of time and how it is experienced by Eddie, *Limitless* itself highlights these techniques' influence on the character's and viewer's perception of time. Sikov writes that time is a large component in the creation of the appearance of "reality" in film: "There is a philosophical point to film's technical apprehension of time. Unlike any other art form, motion pictures capture a seemingly exact sense of real time passing" (Sikov 17). These various technological and digital techniques not only create the transhuman imaginary in the film, but actually enact a technologically-mediated posthuman existence for the actors as well as the viewers. I will expand on this argument below as I discuss the role of visual effects in *Limitless*.

Look Effects was one of the companies chosen by Burger to create some of the special effects in the film, and to do so, Dan Schrecker, the visual effects supervisor at Look, consulted with Burger about the development of the "fractal zoom" and how it could be achieved. A vision communicated by Burger himself, this "fractal zoom" was meant to imitate videos of Mandelbrot fractal patterns that can continue indefinitely; the closer one gets to new details, the details reveal themselves to be the same shape as the original, larger shape just seen, and one can continue zooming in to find this pattern repeat infinitely. Thus, "Eddie's loss of time and space is represented on the screen in 'infinite zooms'…" (Failes). The cameramen would set up a tableau of the environment

through a combination of different resolution cameras. Tim Carras, visual effects supervisor at Comen VFX, explains in how the effects team achieved this: "…[T]here was a rig of three Red cameras mounted side by side on a single tripod, and each one had a different lens on it ... a wide-angle section of the street, a medium, and a close-up. All at the same time, [they're recording] the same movement from the extras walking around in the frame and the cars traveling down the street" (Moynihan). In order to control the speed of the shot, which was most important to Burger, they used a pattern of zooming that achieved the same effect as they would have achieved using dollies, but without the hassle of setting up tracks down kilometers of street. Schrecker explains, "This way, we control the move and the speed and no matter how fast we're moving through the spaces, everyone in the frame is moving in normal time" (Failes).

Most important to the filming and achievement of the infinite zoom is the continual progression that occurs from shot to shot. The visual cues this effect creates underscore the imperative Eddie feels when he insists, "if I wasn't moving forward, I thought I was going to explode." Throughout the film, Eddie describes his experiences and his understanding of the world in terms of boundaries: he refers to humans as "wired to *overreach*" (my emphasis) and gets back together with his girlfriend by showing her that his "capacity for self-sabotage wasn't *boundless* after all" (my emphasis). Thus, the visual effects and technology employed in this film further its plot and enhance the sense of "limitlessness" embodied in the experience of NZT, suggesting a connection between the overwhelming rhetoric of "enhancement" in neoliberal understandings of the human and human "nature".

Neoliberal exigencies exist not only on the level of plot in *Limitless*, but also on the level of production and financing. Although *Limitless* had a relatively small budget for a film of its type, it still cost roughly $27 million, according to the *Internet Movie Database*, which is about one third of the average 2008 budget ($100 million) for Hollywood films. There has been no more recent estimate of average film budgets than in 2008, however, since in 2009 the Motion Pictures Association of America (MPAA) announced that it was no longer reporting the average costs of making and marketing movies: "… MPAA chief Dan Glickman said the increasingly complex nature of film financing and distribution made it difficult to obtain reliable data" (Verrier). Coming just after the beginning of the financial crisis in 2008, the decision suggests various financial and reputational reasons to no longer make official reports on the earnings of films. Nonetheless, in the culture of film reviews, box office earnings and budgets are still paramount in determining a film's "objective" success. Film, while an art form, is also a business venture which requires a large investment of capital up front, with no guarantee on return. Hollywood films require millions of dollars in investment prior to their filming, and *Limitless* is no exception. Like many others, it is based on this pattern of investment as well as a script convention that holds classical Hollywood films to certain plot devices (that have already proven economically successful in other films) in order to justify their use.

Similarly, the business end of filmmaking plays on the sense of the word "limitless" in terms of companies being "limited." When a company is deemed "limited," it means that a company is incorporated, a process which makes the company its own legal entity. According to Canadian and American laws, incorporation gives the company

"all the powers of an individual, an independent existence – separate and distinct from its shareholders, and an unlimited life expectancy. In other words, the act of Incorporation gives *life* to a legal entity known as the corporation…" (my emphasis, "How to Choose" 2). In this case, then, instead of attributing "life" with economic rationality, economically rational business practices attribute "life" to corporations, by giving them the legal status of living people. Added to this notion of companies or corporations as "living," individual, legal entities, incorporation includes the notion of "limited liability" (where the "LTD" abbreviation comes from), which holds "no member…personally responsible for the debts, obligations, or acts of the corporation beyond the amount of share capital the member has subscribed" ("How to Choose" 3). Thus, if a company incorporates, the act of incorporation obviates the owners or shareholders of any risk incurred by the company as a whole. While companies, considered people in the eyes of the law, may take on infinite amounts of risk, they save their shareholders from making any personal risks beyond their capital investments. Similarly, in *Limitless* Eddie takes on a role of hedging risk in investments since he can *take on* an unlimited amount of risk; he is the neoliberal, transhuman subject, limitless in his capabilities. He himself insists that there are no "[safeguards] against aggressive overexpansion [in business]" because "there are no safeguards in human nature." Morra's description equates the functioning of markets with human nature, and not just because markets are created by humans and therefore influence the way they run – he is also making an implicit comparison between the way markets function and the way human beings – not just himself – "function." In this way, the film extends economic rationality

to the human, and interestingly the concept of "life" to corporations, in its comparison of business models to human nature.

Limitless demonstrates the way film production itself involves creating a story through artificial means, decontextualizing the actors even from the story environment as it is created digitally and added later in post-production. Putting the viewer in the same shoes as the character, film techniques, such as the infinite zoom, also add to the transhuman effect of film in that they take the viewer out of the viewer's own experience and attempt to immerse the viewer in the filmic experience. As *Limitless* demonstrates, film in itself is very much a business activity, centred on the investment of capital in the hopes of creating a profit. It takes a neoliberal turn in the way it creates new entities from processes of incorporation and views these "people" as economically rational, independent actors, despite the fact that they "exist" only in figurative legalese.

While *Limitless* demonstrates the relationship between the act of filming itself and the way it is often elided in the viewing of the film, *Avatar* also offers many examples of the role technology plays in both the production of the film and how it is received by the audience, and what this means in terms of actualizing technophilic posthuman activities in filmic contexts. I will discuss how *Avatar* was filmed and produced technologically and focus on the relationship this has with the viewer, particularly seen in the light of transhuman technological mediation. Thus, I hope to draw together some of the points I have been making regarding plot in the previous chapters and expand them to the material aspects of the film itself.

Avatar achieves a kind of transhuman ideal through its attempts to create the same immersive environment for its viewers that its protagonist undergoes throughout the

course of the film. The *Internet Movie Database* reports that the film's estimated budget began at $237 million and the film had grossed $760 million in the United States by November of the following year. Much of the original investment went into the quality of digital imagery and production that *Avatar* was already billed for prior to its release. Having won three Academy Awards for "Best Achievement in Art Direction," "Best Achievement in Cinematography," and "Best Achievement in Visual Effects," *Avatar* is recognized as an exceptionally visually rich film. The film's use of computer generated images (CGI) at the time and to such an effect had not previously been achieved. The use of three-dimensional (3D) glasses and imaging contributes to the look and feel of the graphics used by the film, and viscerally puts the viewer into the action of the film. In this way, it seems that the film "enhances" the film experience; the viewer is actually put into a similar position as Jake in the film – being technologically mediated into a new viewing position.

On the level of production, this film incorporates what was considered to be the most advanced stereoscopic vision technology and computer generated imagery at the time into its creation. Jonathan Fawkner, one of the many visual effects artists working on the project, reported in an article that "…what we got from the production was literally an actor in a green background, and we were required to put everything else, including set material props and people" (*sic* "*Avatar* 3D Film"). Thus, while the film resulting from this highly digitized world offers a supposedly more "immersive" experience than traditional film, it is nonetheless a product of transhuman processes of decontextualization. The actor must attempt to act with stand-in props and people, in front of a green screen, only imagining what the environment of the story must be. The

editor in chief of Empire Digital, James Dyer, however, believed that "[James] Cameron wrote it fairly unapologetically as a vehicle for his effects company Digital Domain… It's a big financial investment and there's a lot riding on it but it's not the first time Cameron's been in this position." Dyer notes that Cameron has a track record of creating the most expensive films of the times, such as *Terminator 2* (1991) or *Titanic* (1997), and making them blockbuster successes – success, in this case, defined by box office earnings. Cameron invested in *Avatar* in order to further technological capabilities in film and create a spectacle that had never been seen before – a three-dimensional (3D) representation of a completely digital, created world.

While technically difficult and enabling an even more immersive experience for audiences than the average film, the 3D filming technology that Cameron developed demanded not only years of research and development but also the conversion of theatres for 3D viewing. *Vanity Fair*'s Rebecca Kegan published an article in 2009 on the question, "How Much Did *Avatar* Really Cost?" She quotes sources such as *The New Yorker* and *The New York Times* which report a budget of anywhere between $230 and $500 million. Kegan asserts that "*Avatar* is in a class by itself, however, when it comes to the film's unofficial costs and their potential returns. …How do you account for the technologies Cameron and co. developed – the 3D cameras, the motion-capture tools, and the virtual production pipeline the director tinkered with for years in order to create the world of *Avatar*?" Kegan reports that while Cameron and other investors had already made these investments, the technology was already making returns directly after *Avatar*'s release, since the 3D cameras were being licensed by several upcoming films. The resulting conversion of more and more cinemas to 3D screens, pushing ticket prices

up by $3-to-$5, would also have "a financial ripple effect in Hollywood" (Kegan). While the technology creates a transhuman situation for both the actor and the viewer in how removed, or decontextualized, they become from their environment, it is based firmly in a capitalist process of investment, development, and return.

Avatar's technological prowess ensured its box office success, but it also required interest from cinemas to convert to 3D screens and interest on behalf of the viewers to wear 3D glasses. John Scott Lewinksi comments on the 3D technological effect in an article on the website *Popsci*: "Unlike traditional 3-D techniques that allowed foreground objects to 'extend' out toward the audience's perspective, Avatar's image offers depth between the focused foreground and the surrounding environment" (Lewinksi 2009a). In another article, Lewinski reviews the technology used in *Avatar* and reports the specifications of 3D viewing, but moves beyond just how many images are projected into an eye per second (144 to be exact) and explains how Cameron manages to really immerse the viewer in the action of the film:

> After a computer inserts the motion-capture performances into the digital environment, Cameron carries a virtual camera – an LCD display with buttons and grips similar to a videogame controller – onto the set. …This allows Cameron to walk through the virtual action to record any shot he wants – he can even set the vantage point to take shots that would require a crane or helicopter. Later, the 3-D footage of human characters can be added to these scenes. (Lewinski 2009b)

When watching this footage, the viewer becomes situated, along with the actors, in a technophilic posthuman environment of digitally created visuals. Surrounded by the digital flora and fauna of Pandora, the shooting arrows of the Na'vi and the flying

machines of the humans, the audience becomes involved in the film through a semblance of physical immersion.

Even as this happens on the level of the viewer, the protagonist, Jake, is himself immersed in a new world-view offered to him by the strong and large humanoid Na'vi body. While these technological mediations gesture towards a complex understanding of the embodied and unique experience, they continue to offer a disjointed view of mind and body, basing themselves again on a humanist figuring of the relationship between mind and body, form and content. On both the level of content and the level of technological filmmaking, there is an immersive experience that focuses on the mind's ability to disregard its situatedness in the body as a transhuman fantasy. Whether it is Jake's neglect of his human body in favour of the Na'vi avatar, or the viewers' own neglect of their bodies as they sit in a darkened theatre, immersed in the most technologically sophisticated 3D physical representations in a decade, the transhuman emerges in *Avatar* and the continual decontextualization of mind from body on the level of technology. This can be contrasted with the film's message, which upholds the interconnectedness of life and the inherent value of embodiment as it is valorized through the Na'vi. Their spiritual and connected way of interacting with the environment on Pandora presents precisely the opposite of that technological decontextualization that occurs through technology on the level of film production.

District 9 also employs some very sophisticated imaging techniques, but to a slightly different purpose than *Avatar*. *District 9*'s use of computer generated imagery (CGI) does not aim to provide spectacle, like *Avatar*'s immersive environment does, but rather aims for an understated realism in its use of technology. Director Neill Blomkamp

tells *Wired*'s Lewis Wallace in a video interview, "I very purposefully wanted all of District 9 to feel as real as possible, even though, you know, 50 percent of the film is presented in a cinematic way" (Wallace). To this end, the *District 9* filmmaker made "[a] conscious decision not to put the special effects on a pedestal [which] adds to the movie's gritty, realistic feel…" (Wallace). This method of realism is employed throughout the film to achieve different goals. For example, Greg Broadmore, the special effects designer at WETA Workshop who worked on the film, describes the design of the alien weapons as a cross between some weapons that were created explicitly to be used as weapons, while others are merely tools or equipment that can then be used as weapons, "like a chainsaw" (Wallace). This adds an element of realism to the film, as the back story to the aliens' arrival is thought-through. Add to this technological realism the documentary-style that much of *District 9* is filmed in, and Blomkamp's attempts to create an understated, realistic merger between Hollywood-style and documentary-style filmmaking appear to have achieved a nonetheless classical Hollywood immersive experience. The seamless transfers between overtly documentary-filmed portions and omniscient portions problematizes the boundaries between what documentary represents (a specific point of view) and what classical Hollywood filming represents (omniscient point of view). This then transfers from the filmmaking to the audience's experience of the film, and how much the film creates or exceeds expectations.

The use of CGI in this film, and the style of filmmaking to which it contributes, is not the only key to the film's successful classical Hollywood-style attempt at immersive realism. Blomkamp's set location contributed greatly to the look and feel of the film, adding an "incredibly visually rich" element. The film's setting is remarkable in that it

was filmed in Soweto, an area of Johannesburg in South Africa that historically housed Africans prior to but increasingly during the Apartheid era. Blomkamp describes the situation in one of the DVD's special features, a featurette produced by Michael Brosnan: *The Alien Agenda: A Filmmaker's Log*. In "Chapter Two: Shooting District 9," Blomkamp says,

> Where we are right now, this is South Joburg, geographically part of Soweto, but it's a suburb or a neighbour of Soweto, and there's a lot of strange connections to the film that we never really sought out to do. One of them is all of these shacks around here – we only have access to this area, and we could only build our additional shacks here, because all of these residents were moved into RDP [Reconstruction and Development Program] housing somewhere else in Joburg, which is exactly what happens to the aliens in the film. So that's just a complete, bizarre, set of events. (*The Alien Agenda*)

Since "people had been living and surviving off that land for twenty-two years" (*The Alien Agenda*), there already existed in the area a whole set of details provided by the very real former residents of that particular neighbourhood. The art director for the film, Emelia Weavind, comments, "We used the entire place and terrain as our inspiration to build [District 9]. Every single thing that we have used in the squatting camp comes from the squatting camp. And with the help of the local people, it's just building shacks" (*The Alien Agenda*). Through this series of events, *District 9* proves itself to represent more than just a fictional encounter between humans and aliens. Actors in the featurette commented on the Apartheid-inspired anti-alien signs throughout the movie and the way the alien refugee camp resembles an African camp during Apartheid era. This accidental

turn of events, however, that results in Blomkamp using a former African encampment as the setting for the aliens' camp mirrors precisely those problems the film's aliens face on the level of content, while having unintentionally incorporated it on the level of production.

Ultimately, the film comments on the plight of Africans in South Africa, regardless of its intentions to do so. It creates a comparison in which Africans are set up as the aliens, non-human or posthuman in their own right. The actor who plays Wikus, Sharlto Copley, describes the film's implications toward the end of the final chapter of *The Alien Agenda*: "People haven't quite realized what challenges will still lie ahead in this area of understanding differences – what differences to reject, what differences to accept, how, as we become one global community, what's going to get washed out and what's going to stay" (*sic* Brosnan 2009). The multi-layered relationship of *District 9* to its historical context and filmic and technological environment sheds light on the transhuman urge to decontextualize film and its production by pointing out that some of the most important details of this film lie in its contextuality within South Africa and especially Johannesburg.

In this chapter, I have sought to show the relationship between film production, the technologies used to mediate film, and the economic and transthuman exigencies residing within the production of film itself. In *Limitless*, I demonstrated how the film industry enacts neoliberal rationalizations on the level of both technological production and financial production. In *Avatar*, I showed again how technological immersion in film implies and creates a sense of mind-body dualism that is often mirrored in the content of the film itself. *District 9* shows how the technological considerations of film do not

always monopolize the presentation, but still contribute to classical Hollywood immersive techniques, creating once again the conditions for the transhuman on the film production, viewership, and historical level. I will now turn to the conclusion to weave these various findings together.

Conclusion

Throughout this thesis, I have shown that a definition of the human is arising in early twenty-first century science fiction films that represents an increasingly economically rational actor striving for biotechnological enhancement. By building on Michel Foucault's discussion of neoliberalism, I demonstrate that the technophilic posthuman drive toward exceptionalism is based on a neoliberal and capitalist intervention of economic calculation into life itself by placing value on genetic material. Biotechnology offers the site of intervention, which in turn fragments the body, allowing for dualist understandings of the mind and body. The impulse to decontextualize in humanism – that is, to view the mind as separate from the body – leads to an assumption that the human may be perfectible and enhanceable. Economic rationality emerges through biotechnological intervention in the body and in genetic material, and transhumanism emerges through the biotechnological goal of exceptionalization of the human.

In chapter one, I connected neoliberal practices of fragmentation and economic rationalization to biotechnology and its role in increasing the economic valuation of bodily materials, particularly genetic material. Thus, I showed that biotechnology is fundamentally neoliberal, since it introduces economic calculation into life itself. I then introduce the notion of transhumanism and how it is based on an economically rational actor. Making the connection between human enhancement that is prized in technophilic posthumanism and the capitalist drive for increasing returns, I propose that science

fiction films take the next step in presenting the transhuman as being created through neoliberal and capitalist practices – particularly those of biotechnology.

The intervening chapters offer various lenses through which I then analyze the transhuman figures proposed in *Limitless*, *Avatar*, and *District 9*. I first analyze these figures through the lens of time. In Chapter Two, I show that time plays a large role in conceiving of technophilic posthuman development, particularly in the way it treats speed or "efficiency." I preface my discussion of the films with Hayles's proposal that the conception of the future is particularly strong in determining what present actions are taken, particularly in technological goals, research, and development. In *Limitless*, time is based on a conception of efficiency. After Eddie takes NZT, he finds himself much more productive, orderly, and efficient than he previously was; this in turn amounts to success in less quantifiable areas of his life. The film displays Eddie's high level of efficiency and interaction with time through a multiplication of his body in several scenes – he is shown to be in several places at the same time. Ultimately, efficiency is a concept defined through economic practices and that is brought about by Eddie's transformation into a transhuman figure through his use of NZT. In *Avatar*, time is represented through the ongoing theme of environmental activism in the film as well as the filmic technique of adhering to and flouting realistic time expectations in the film. Time emerges, then, as an urgency to protect the environment, both on Earth outside of the film's parameters and on Pandora within the film's story. It also provides that same sense of urgency to certain acts taken by characters, acts which are drawn out past the realistic representation of time, such as when Jake is about to die from the atmosphere towards the end of the film. *District 9* explores the relationship between time and transhuman bodies through the

concept of bodily material "harvesting" and its constant display of "hours since exposure," referring to what stage of metamorphosis Wikus is currently in.

Chapter Three dealt with the relationship posed between mind and body in these films and the economic and transhuman basis of this relationship. Consistent throughout all three films, the mind, and its relation to identity, is treated as separate from the body. In *Limitless*, this amounts to the mechanization, ordering, of Eddie's mind and the way his newly ordered knowledge assumes a physical capability of successful execution. In *Avatar*, the relationship between body and mind is troubled, particularly in the way the avatar body itself is treated. On the level of the gene, there appears to be a crude dualism presupposed in the splicing of DNA between human and Na'vi in that human mental characteristics are assumed while Na'vi qualities are physical and have no bearing on the identity of the human driver. *District 9* deals with the issue of mind-body relation by continuing to imply toward the end of the film that Wikus's "original" identity never undergoes much change during the metamorphosis, thus continuing the humanist assumption of mind-body dualism. As I have already pointed out, a dualistic conception of body and mind arises first through neoliberal and capitalist practices of decontextualization that transhumanism perpetuates. While the films uphold a dualistic vision of the human, they nonetheless also admit the influence of the new bodies on their protagonists who demonstrate having morally changed towards the end of the films.

Chapter Four focused on the materiality of film production and its neoliberal and transhuman bases. I demonstrated how film is an inherently technophilic posthuman medium, in that it decontextualizes both the actors on the level of production as well as the viewers on the level of consumption. In *Limitless*, this occurs through the various

filmic techniques used to communicate the "hyperreal" experiences of the protagonist. In *Avatar*, the actors act primarily in front of green screens, with almost every other aspect of the set and other characters digitally created. *District 9* uses CGI and other technologies to a different purpose, but nonetheless creates an immersive filmic environment for its viewers. I also demonstrated in this chapter how the film production business underscores the relationship between capitalist goals and the creation of posthuman environments, both for the actors and the viewers.

As I mentioned at the outset of this thesis, because of spatial and other limits associated with a project of this kind, I have not been able to expand on some of the questions of race that arise in relation to transhuman thought. Foucault deliberately avoids discussing biopolitics in terms of eugenics, but in many of the films I analyzed here, the issue of race arises in terms of human-alien conflict and how each film deals with those particular situations. Regardless of whether the film is commenting on a metaphorical level on white-Native American relations (*Avatar*) or Apartheid government (*District 9*), it engages with race. Race indicates how the category of the human has always been striated and differential. As neoliberalism, capitalism, and transhumanism come together through biotechnology to offer the "optimal" vision of the human in these films, they seek to create a vision of the human that is no longer differential or changing, but rather static, a figure against which the critical posthumanists would argue.

Through all of this discussion, I have tried to show that the films' representations of various transhuman figures, as well as the neoliberal and capitalist practices underlying the creation of these transhuman figures as economically rational and

calculating actors, are only the most recent instantiation of a continually changing definition of what the "human" is and can be. On this same topic, Foucault writes in *The Order of Things* (1973):

> As the archaeology of our thought easily shows, man is an invention of recent date. And one perhaps nearing its end. If those arrangements were to disappear as they appeared, if some event of which we can at the moment do no more than sense the possibility – without knowing either what its form will be or what it promises – were to cause them to crumble, as the ground of Classical thought did, at the end of the eighteenth century, then one can certainly wager that man would be erased, like a face drawn in sand at the edge of the sea. (387)

Technophilic posthumanism only concerns the human in that it is the next definition of many, and I argue that it currently conceives of the human in the way I have described – a figure who ultimately views itself through an economic rationality that seeks to determine the future course of human enhancement and exceptionalism.

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