

Technihil

The Cultural Import of Cognitive Neuroscience

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Declaration of Authorship

I declare that this thesis and the work presented in it are my own and have been generated by me as the result of my own original research.

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Abstract

The thesis aims to speculate on the implications of neuroscientific resources on aesthetics and cultural production by drawing upon conceptual material provided by '90s and recent accelerationist theory and speculative philosophy.

Following the work of Ray Brassier, the thesis sees a plethora of untapped potencies in the objective image of cognition unveiled by modern neuroscience – which is contrasted with the anti-scientific stance concomitant with much Continental philosophy and critical theory. Focusing primarily on the registers of embodiment and experience in recent forms of corporeal phenomenology and affect theory, it is argued that their intellectual advocates generally share a commitment to the unobjectifiable nature of so-called 'embodied', or 'lived', experience which does not sit well with the neuroscientific project of objectification.

Instead, the thesis utilizes Thomas Metzinger's PSM-theory of selfhood and Brassier's work on the speculative implications of nihilism, science, and technology in order to outline an alternative account of embodiment and experience compatible with the natural sciences. The intention is to create a form of critical theory which it is argued not only is better equipped for addressing modes of power and exploitation in the present, but also for constructing alternate scenarios of the future. These twin issues are addressed on the one hand through an engagement with Mark Fisher's and Simon Reynolds' work on '90s rave culture and its mutation into present forms of postmodern cultural and psychosocial malaise, and on the other hand through recent accelerationist attempts to rethink the program of acceleration according to revisionary modernist and post-capitalist ends.

It is argued that a cognitive reformatting grounded in the revision and remaking of the human on the basis of an updated model of digital psychedelia and a popular modernist aesthetic of cognitive mapping is crucial for overcoming the cognitive lacuna that Fredric Jameson characterizes in terms of a late capitalist discontinuity between structure and experience – and which the thesis suggests currently stifles the ambitions of critical theory on the one hand and cultural production on the other – and thereby realizes the transformative potentials of techno-scientific objectification by augmenting and transforming the parameters of the human.

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Precocious technihilo. Nocturnal Ocean. Dark Matter. Nightmare.

Nick Land

Nihilism is not an existential quandary but a speculative opportunity.

Ray Brassier

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Introduction

As for the marriage of technology and the brain, that day has already arrived. [...] For my own part, I think we have every reason to be more than a little paranoid. Fiddling at the edges of brain function to relieve suffering seems an obvious good. But the stakes change drastically once we begin manipulating the machinery of consciousness. What happens when *experience itself* becomes as pliable as paint? What happens when the only measuring tape we possess becomes as elastic as a rubber band? Altering our own neurophysiology means altering the very structure of our experience, the shared bedrock of our humanity, not to mention the tools required to decide further alterations. There's good reason to believe that self-modification at such a fundamental level will send us looping out into different directions of insanity. Either way, we quite simply *cannot imagine* what a world without this common frame of reference would be like.

(R. Scott Bakker)

The Techno-Scientific Objectification of Cognition

Scott Bakker's science-fiction novel *Neuropath* tells the story of a rogue neurosurgeon who kidnaps and significantly alters the neurophysiologies of his victims in various disturbing ways. Using dramatized versions of actually existing neurotechnologies, the neurosurgeon subjects his victims to neurological conditions such as agnosia (in which a person is unable to recognize faces, and in some cases even his/her own), re-wirings between pleasure and pain centres in the brain (so that orgasms are achieved by submitting oneself to pain), and excessive neural firings (which produce intense religious experiences of heaven and hell). These grotesque acts are all made possible thanks to a device called 'The Marionette', which allows the neurosurgeon to activate deviant cognitive states in whoever is strapped into it by implementing series of algorithms into his or her brain.

Yet however disturbing and utterly alien as these experiments might appear, what is important to recognize is that the book – like any good science fiction story – does not merely present a remote scenario which may or may not be realized in the distant future, but rather vividly dramatizes modes of power already at work in the present. As Bakker himself remarks: “[T]he whole reason I wrote the book is that the question of

cognition and experience is rapidly shifting social domains, moving from armchair speculative arenas to scientific and technical ones". (Comment on Shaviro 2008) What Bakker has in mind here in particular is the fact that multinational corporations already have started to utilize for various commercial purposes the mechanistic image of man that is currently being unveiled by the cognitive sciences. Technologies such as electromagnetic brain stimulation, brain fingerprinting, and functional magnetic resonance imaging (some of which appear in the novel) are already integral parts of various neuromarketing-programs, while neuropharmacological companies eagerly have begun to tap into the novel markets opened up by antidepressants, designer drugs, and cosmetic psychopharmacology.¹ Indeed, the fact that what the political theorist Francis Fukuyama refers to as the 'neurotransmitter revolution' (see Fukuyama 2002: 42) – that is, the emerging scientific understanding of the brain and its complex biochemical infrastructure – is a huge business with massive economic potential has not gone unnoticed by large-scale companies seeking to exploit these novel resources for monetary gains. Together, enterprises such as these promise an entire field of what the neurophilosopher Thomas Metzinger names *commercialized consciousness technology*. (Metzinger 2010: 221)

But what is it about the brain sciences that open up this previously untapped register of cognitive exploitation? In what way does research conducted in these fields feed into the agenda of late capitalist businesses? The critical link between the emerging scientific understanding of cognition and its wider sociocultural implications is to be found in the shared assumption by many cognitive scientists that cognition can be systematically explained from an objective third-person perspective, which in turn will provide us with the key to our inner mental life. Therefore, addressing the objectification of cognition within cognitive neuroscience becomes crucial for understanding the latter's decisive sociocultural import.

What the brain sciences ultimately promise is an objective account of the neurobiological architecture underlying our cognitive activities, which will be obtained

¹ For a brief discussion of how functional magnetic resonance imaging (fMRI) – a form of cognitive modeling which measures brain activity through changes in blood flow – has been used in neuromarketing research attempting to identify the neural correlates for Cola-Cola and sports cars (i.e. the underlying neural kinematics for emotional responses to various commodities), see Lowenberg 2008. For Thomas Metzinger's discussion of what he calls the 'normative dimension' of the scientific disenchantment of the self, see Metzinger 2010: 207-240.

through the gathering of empirical data in the form of various scientific and neurotechnological experiments. In other words, the underlying assumption is that technology will allow science to produce a complete *exteriorization* of our experiential life and its concomitant cognitive machinery. It will make what has previously been thought of as something essentially private open for public investigation. This will allow us to not only understand but also manipulate the brain in increasingly sophisticated ways, given that objectification not only means *explanation* but also *implementation*. Accordingly, once we have produced a more comprehensive understanding of how the brain works we will also be able to trace and even activate various kinds of experiential states at will by utilizing increasingly sophisticated forms of neurotechnologies. This is the critical point where the vast amounts of cognitive data gathered in scientific experiments will be taken up and exploited for commercial gains by various big businesses, which, as Bakker argues, no longer will aim to train us like animals (via attention, habit, etc.) but rather manipulate us like mechanisms (see Bakker 2008b: 378).

Crucial to the link between scientific and commercial approaches to cognition and its underlying objectivity is the search for so-called ‘neural correlates of consciousness’ (NCC’s). The thesis behind the concept of the NCC is that for every sensation and experience that we are able to undergo there are specific sets of activation-patterns among neurons which correspond to that particular phenomenal state. For instance, when I experience the sensation of warmth this will activate certain neurofunctional regions in my brain, whose *objective properties* correlate with my *subjective experience* of warmth. The search for local and global NCC’s (i.e. NCC’s for specific kinds of experiences and for consciousness as a whole) therefore not only provides us with an important method for the crucial task of integrating third-person objective data with first-person subjective experience, but also for understanding how first-person phenomena may be monitored and controlled via third-person means, since once the sufficient sets of NCC’s for a particular kind of phenomenal experience have been isolated it will in principle have made that particular cognitive state open to public manipulation.

Scientific experiments that point to scenarios such as these have already been conducted for several years. As early as in the 1990’s, for instance – in an experiment which sounds disturbingly similar to those dramatized by Bakker in *Neuropath* – the neuroscientist Michael Persinger at Laurentian University in Ontario successfully

managed to generate intense religious experiences in a number of test-subjects by isolating and stimulating specific regions of their brains with the help of a particular kind of electromagnetic technology (see Metzinger 2010: 219). Presumably, Persinger had managed to locate the NCC's involved in particular kinds of religious experiences (in this case, the experience of an invisible presence), which thereby turned the intensely personal notion of a religious experience into public data to be utilized for neuroscientific research. Although conducted for scientific rather than commercial purposes, experiments like this force us to acknowledge the practical implications of cognitive neuroscience in terms of an understanding of human experience as merely another scientific object. In particular, since the neurotechnological activation of NCC's is completely transparent at the level of phenomenal experience as such – that is, the experience undergone feels no different than any experience whatsoever – it is not difficult to imagine future scenarios in which the cognitive resources provided by the monitoring and systematic manipulation of local and global NCC's have resulted in methods of invasive control (of experience, agency, etc.) which were previously unheard of.

The latter is the underlying premise of Darryl Gregory's novel *Afterparty*, which takes place in a near-future scenario where designer drugs have become an integral part of society. The book tells the story of the neuroscientist Lyda Rose, who was involved in creating a substance called 'Numinous' which originally was supposed to cure schizophrenia. Yet it soon turned out that the drug has several nasty side-effects. In particular, it generates intense experiences of divine presence by stimulating the temporal lobe of whoever uses it, and which may become permanent if excessive amounts of the drug are taken (Lyda suffers from this herself and is accompanied by a hallucinated angel throughout most of the story). At the beginning of the book, Lyda – who is in a mental hospital because of her permanent hallucinations – recognizes the symptoms of the drug in a young girl who arrives there and soon commits suicide. It turns out that Numinous has been taken up by a religious group who uses it for their own personal gains, and the bulk of the story consequently revolves around Lyda's attempt to uncover the mystery behind the group and recover the drug in order to prevent a potential disastrous scenario of widespread cognitive manipulation.

Yet as disturbing and unsettling as these kinds of experiments may sound, before moving forward we need to stop for a moment and ask ourselves a crucial question: Is the techno-scientific objectification of cognition an inherently dangerous phenomenon

which should be rejected at all costs, or does it also provide us with productive critical and cognitive resources? While the history of critical theory and its overall hostility towards technology and science certainly seems to point in a mere negative direction here, it is of our firm belief that that the techno-scientific objectification of cognition should not be denigrated as an inherently dangerous phenomenon which needs to be rejected at all costs, since it also provides us with a number of creative critical and cognitive resources. Hence, the many dystopic scenarios often associated with these developments need to be supplemented with a more optimistic account of techno-scientific objectification as an interdisciplinary project of cognitive exploration and discovery. In other words, the sociocultural implications of techno-scientific objectification must not be thought of in mere negative terms, but also as decisive components within a project of widespread cognitive transformation that should be insisted on rather than rejected. It is this project that we are interested in elaborating on in this thesis.

The Manifest and Scientific Images

In order to begin articulate the wider implications of this project, let us have a look at one of the most incisive accounts of the impact of scientific objectification on the human life-world: The philosopher Wilfrid Sellars' influential distinction between the *manifest* and *scientific* images of man. First introduced in the form of a paper which summarizes two lectures given by Sellars at the University of Pittsburgh in December 1960, the distinction between the manifest and scientific images aims to articulate what Sellars views as two conflicting understandings of man-in-the-world (see Sellars 1963: 1-40).

On the one hand, Sellars characterizes the manifest image as a sophisticated conceptual framework which has accumulated gradually since the emergence of Homo sapiens and is organized around the notion of man as *person*; that is, as a *rational agent* capable of giving and asking for reasons within the context of a larger socio-linguistic economy. In that regard, the fundamental import of the manifest image is its *normative* valence in that it provides man with a basic framework for keeping track of commitments, providing and revising explanations, assessing what ought to be done, and vice versa. The space of reasons provided by the manifest image is consequently what distinguishes sapient intelligence from that of mere sentience. It is the overall framework through which man first came to recognize himself *as* a rational being, and

may in that regard be characterized as the world of *common sense* (if we take into account the important fact that ‘common sense’ in this case also encompasses the many philosophical and intellectual programs which have been constructed from within the framework provided by the manifest image) and of *phenomenal sensory perceptions* of coloured, middle-sized objects. In short, the manifest image indexes the human life-world as it immediately appears to us in thought and experience.

The scientific image, on the other hand, is a much more recent invention and presents itself as a rival image in that it is organized around the notion of man as a *complex physical system* in accordance with the accounts of the human provided by the natural sciences (e.g. evolutionary biology and cognitive neuroscience). In other words, whereas the manifest image construes man quasi-transcendentally, as the singular bearer of the object reason, the scientific image instead views man from the perspective of natural history – as a particularly complex accumulation of various forms of biological material. The scientific image therefore introduces a significant kind of cognitive dissonance into the manifest order insofar as it attempts to explain human existence not in terms of *individual* reasons and experiences, but in terms of *pre-individual* causes and colourless subatomic particles – which presents a notable conflict with our intuitive understanding of ourselves as human beings *qua* rational agents.

Whereas many 20th-century philosophers have tended to recoil in horror over the impersonal vistas uncovered by the scientific image and instead aimed to utilize philosophy in order to safeguard the human life-world from its alienating vectors – and others have argued that the image of the human unveiled by the natural sciences ultimately will render the idea of man as a rational agent extinct – Sellars instead sees the crucial task for philosophy to be one of producing a *stereoscopic framework* of the manifest and the scientific which *synoptically integrates* the two images into a comprehensive account of man-in-the-world. The problems with taking the side of just one of the two images are either a reduction of conceptual reasoning to neurobiological causes (which thereby explains away our ability to do science and philosophy in the first place), or of treating the significant expansions of man’s self-understanding that have grown out of the scientific image as mere fictions that have no actual bearing on our understanding of ourselves as human. For Sellars, neither of these options is tenable since he believes that man must be understood *both* as a rational subject and as a scientific object: Human rationality is both embedded in and distinct from the world

indexed by the natural sciences. It is *causally reducible* yet *logically irreducible* to sub-personal neurobiological processes.²

Yet this does not mean that Sellars aims to accommodate the scientific image according to man's psychological needs. Conceptual integration should not be confused with psychological accommodation. On the contrary, once we recognize man as both a rational subject and as a scientific object we will be equipped with a conceptual infrastructure capable of examining and reconfiguring its own biological and neurophysiological underpinnings in increasingly sophisticated ways. It is in this critical space where the objectification of cognition emerges as a particularly decisive resource insofar as it allows us to significantly expand our understanding of our underlying neurobiology through the framework provided by the two images.

What this ultimately points to is a comprehensive transformation of what it means to be human, since the conceptual import of the scientific image undoubtedly will force us to reconsider (rather than abandon) the image of the human that has been constructed within the manifest framework. In an interview conducted in 2007, the neurophilosopher Paul Churchland speculates that once the biological substrate of cognition is better understood it will entail a profound cultural shift in which we will come to understand ourselves according to an entirely novel conceptual framework (see Churchland 2007: 213-216). Just as our understanding of notions such as 'life' and 'health' have been fundamentally transformed through the many advancements made in biology and medicine, a scientific account of the neurobiological basis of cognition will begin redrawing the parameters established by the manifest image in the form a thoroughly *alien* account of what it means to be human. Undoubtedly, this cultural shift will make way for entirely novel forms of cognitive manipulation and control – for instance of the kinds discussed in the first section of this introduction – yet it is of our conviction that it also will open up correspondingly novel spaces for emancipatory sociocultural practices insofar as the commercialization of neuroscientific resources far from exhaust their wider cultural potencies. Indeed, if human culture as we know it has grown out of the intellectual framework concomitant with the manifest image, one of the most crucial questions which confront us at the present is how culture as such will change once elements indexed by the scientific image start bleeding into the communal

² Here we also draw upon Ray Brassier's distinction between *rational subjectivity* and *phenomenal selfhood*; where the former designates the normative, rule-governed infrastructure of human rationality and the latter the biological system through which it is instantiated (see Brassier 2011).

life-world established by the manifest image. This entails constructing a wider image of the cultural than those provided by the many dystopic speculative scenarios often associated with these cognitive developments.

We will attempt to begin thinking through these issues in this thesis by focusing on aesthetics and cultural production specifically. Our basic contention is that the techno-scientific objectification of cognition opens up untapped cultural and aesthetic resources, and that the cognitive discrepancy that emerges between the culturally acquired image of ourselves as humans and the naturalistic image of man constructed by modern science should not be viewed as a mere threat to our immediate self-understanding or to the integrity of aesthetics and culture. On the contrary, it should be understood as a privileged site for future cultural interventions insofar as it points to cognitive and cultural landscapes hitherto alien to us. There are unexplored cultural and aesthetic dimensions of techno-scientific objectification, whose critical and cultural import necessitates an extensive reworking of some of the basic tenets of critical theory and the image of human significance in which it is mired.

Thesis Overview

In what follows, we will present a series of criticisms of these dogmatic positions, and begin outlining an alternative model of critical theory that is organized around a renewed cognitive and scientific understanding of what it means to be human. The conceptual framework for this speculative reconsideration of critical theory has mainly been taken from the philosopher Ray Brassier's book *Nihil Unbound: Enlightenment and Extinction*, which presents an uncompromising critique of the anthropocentric assumptions of much contemporary philosophy. Contrary to this, Brassier mobilizes the disenchanting vectors of nihilism, technology, and the natural sciences in order to redraw the image of classical humanism in a way that entails wide-sweeping changes to aesthetics and culture (among other things). These are the changes that we are interested in beginning to think through here. Central to this task is the key role played by technology, because of our underlying conviction that a thesis which aims to think through some of the cultural implications of the scientific image must come to terms with the technological. Not only is modern culture steeped in increasingly ubiquitous technological infrastructures, but technology is also the crucial link between the theoretical *understanding* of the scientific image and its wider sociocultural *implementation*. In that regard, theorizing technological implementation is crucial for

the important task of coming to terms with the *practical* dimensions of the redrawing of classical humanism at stake here – since without these dimensions its philosophical critique will remain fruitless. Thus, working through this practical function of technology on the basis of aesthetics and modes of cultural production that operate according to the objectification of cognition forms the methodological core of this thesis.

The thesis is divided into two parts, which each contains five thematically interlinked chapters. The first part, ‘The Limits of Experiential Corporeality’, is more philosophically oriented and sets out to critique and rethink the concept of ‘aesthetic experience’ as it has been deployed in various branches of so-called ‘affect theory’. Its basic contention is that affect theory’s commitment to the emancipatory potencies of embodied, aesthetic experience is rooted in a dubious distinction between *aesthetic experience* and *cognitive science* which threatens to undermine the speculative nexus of their conceptual alliance under the aegis of the objective cognition that the thesis sets out to mobilize. Chapter 1 pits the cultural implications of Adorno and Horkheimer’s influential critique of scientific rationality against an alternative model of culture formulated on the basis of Brassier’s account of the link between science, nihilism, and speculation. It then goes on to examine the implications of a science of cognition for modern nihilism – as manifested in the work of Brassier and Scott Bakker – before finally sketching a first outline to a model of aesthetic experience organized around cognitive objectification. Chapter 2 presents a critical reading of the media theorist Mark Hansen’s rejection of modern science on the basis of a corporeal media-phenomenology organized around the problematic concept of ‘lived experience’. Chapter 3 introduces a different model of phenomenal experience – one which is compatible with the natural sciences – provided by the neurophilosophical work of Thomas Metzinger. Chapter 4 outlines a critique of the cultural theorist Steven Shaviro’s panpsychist metaphysics of aesthetic experience on the basis of its problematic relationship to the neurophysiological understanding of affect by the cultural theorist Brian Massumi, and its somewhat lacking anthropomorphic criticism of the anthropocentrism of cognition. Chapter 5 goes on to critically analyse the speculative model of technological negation proposed by the philosopher Nick Land on the basis of the more recent account of the link between technology and negativity by Brassier.

Part Two, 'The Techno-Cultural Exteriorization of Organic Interiority', is more culturally oriented and utilizes the theoretical framework introduced in Part One in order to analyse a number of recent and contemporary cultural phenomena. Central to this second part is the renewed interest in so-called 'accelerationist theory' – and in particular its cultural dimension, which is somewhat missing from the more recent accelerationist programs. This stands in sharp contrast to its '90s predecessor, which resonated strongly with the underground cultural scene at the time (rave culture in particular). Hence, thinking through cultural dimensions of new accelerationism – partly in contrast to its cultural and conceptual predecessor – is the central objective of Part Two. Chapter 6 examines the cultural stagnation of the present as a symptom of the cognitive lacuna of late capitalism identified by the philosopher Fredric Jameson and the political theorists Nick Srnicek and Alex Williams. It then proposes a rehabilitation of an updated modernism as a cultural and critical framework for overcoming this lacuna. Chapter 7 sketches out the basic parameters and social implementations of an aesthetic of cognitive mapping, which operates through various forms of cognitive augmentations engineered by digital aesthetics and techno-science. It also briefly examines how similar cognitive and sociocultural programs already are at work in phenomena such as neuroaesthetics and neuromarketing. Chapter 8 takes the neurobiological underpinnings of '90s rave culture and its 'drug-tech interface' (a term borrowed from the work on rave by the cultural theorist Simon Reynolds) as an early example of an aesthetic of cognitive mapping. This take on rave is then pitted against Land's understanding of rave as machinic program for affective dissolution, and Reynolds' characterization of rave as providing transient enclaves for communal freak-outs. Chapter 9 contrasts the '90s version of the drug-tech interface with its late capitalist successor through the twin lenses of antidepressants and social media, before utilizing the cultural and political theorist Franco Berardi's call for cognitive reformatting as a strategy for realigning the sub-personal resources mobilized by late capitalism with the critical agenda advocated by the thesis. Chapter 10 analyses Gaspar Noé's neo-psychedelic film *Enter the Void* as a cogent cultural example of much of what the thesis sets out to explicate. Finally, the conclusion briefly expands on the notions of cognitive mapping and the cultural implications of the scientific image in terms of digital psychedelia on the one hand, and science fiction as cognitive estrangement on the other.

Part 1: The Limits of Experiential Corporeality

Chapter 1: The Cultural Integration of Scientific Rationality

1.1 The Trauma of Modern Science

While the criticism of techno-scientific objectification spans across a number of contemporary philosophical strands, we will concentrate our present analysis on the influential critique of enlightenment-rationality presented by Theodor Adorno and Max Horkheimer in *Dialectic of Enlightenment*. Our reasons for focusing on this book in particular are twofold: On the one hand because it is the perhaps most influential intellectual statement ever on the link between scientific rationality and cultural production, and on the other hand because it also will help us to contextualize the very different account of enlightenment-rationality outlined by Ray Brassier (partially in critical dialogue with Adorno and Horkheimer), which we will be building our own analysis around. This consequently requires us to engage not just with the celebrated chapter on the culture industry in *Dialectic of Enlightenment*, but also with its central arguments regarding the failure of the Enlightenment and the pathology of instrumental rationality; since what often goes unmentioned in the many books outlining the influence of Adorno and Horkheimer on contemporary cultural theory is the wider critical context in which the analysis of the culture industry is situated. The decision to not articulate this link has in our view become more than a mere pedagogical shortcoming, since it in fact harbours the key to a contemporary engagement with the book's criticisms of modern culture – and it is consequently at this particular juncture where our analysis must begin.

As is well known, the main concern of *Dialectic of Enlightenment* is what Adorno and Horkheimer consider to be the failure of the Enlightenment in the modern world, and may be condensed into the following question: If the objective of the Enlightenment is that of emancipating man from his irrationality (or 'immaturity', as Kant put it), then why is contemporary society sinking into a new form of barbarism? Fascism, capitalism, cultural standardization, and the oppression of women – all of which are analysed in-depth in the book – can hardly be thought of as triumphs of the enlightened man, so the task of the critical theorist therefore becomes one of identifying the root-source to these widespread failures of modern society. Yet unlike during the Frankfurt School's earlier Marxist period, Adorno and Horkheimer argue that the latter cannot be located in various forms of class struggle or political oppression, since those phenomena – just as capitalism itself – are mere symptoms of a much deeper conflict which has

haunted Western civilization since its inception: That between man and nature. This conflict is formulated in terms of a struggle between dominating and dominated, since, for Adorno and Horkheimer, civilization is dependent on man's urge to tame and ultimately control the hostile forces harboured by alien nature. This is the objective of sacrifice in pre-rational societies, since sacrifice – construed as a particular logic of non-conceptual exchange – is primitive man's attempt to affect a commensuration between himself and the horrors of alien nature. Enlightenment is, of course, founded upon the discarding of sacrificial logic in favour of rational explanation; yet what enlightened thought in fact ends up with, according to Adorno and Horkheimer, is not the post-sacrificial logic it is searching for, but merely the internalization of sacrifice *tout court*.

Enlightened thought is consequently characterized as an unreflective pathology in which man's desire to convert the entirety of nature into series of numbers and formulae (i.e. to control nature via scientific explanation) remains deadlocked within the mythical pattern of thought it wants to be rid of, since what scientific logic ultimately represents is nothing but a new form of alienation which not just extends across the exteriority of nature but also into the interiority of man himself. For what the scientific impetus to exteriorize and spatialize ultimately ends up with is nothing but an aggravated form of self-sacrifice, since the reduction of everything to identical units – rather than reaching out towards an exteriority beyond man – merely continues to symbolically sacrifice parts of the human in a pathological, compulsive manner which in the end renders properly philosophical (or reflective) thinking impossible. For Adorno and Horkheimer, this marks the beginning of a dangerous path where ends are substituted for means and domination sooner or later is directed back towards man himself; both in terms of domination between men and in terms of the alienation of man from himself, where thinking is reduced to a pure mathematical function:

Thinking objectifies itself to become an automatic, self-activating process; an impersonation of the machine that it produces itself so that ultimately the machine can replace it. [...] Mathematical procedure [becomes], so to speak, the ritual of thinking. In spite of the axiomatic self-restriction, it establishes itself as necessary and objective: it turns thought into a thing, an instrument – which is its own term for it. (Adorno and Horkheimer 1997: 25)

It is consequently in this wider critical context where the book's analysis of the culture industry must be situated, since what the latter is an example of, according to Adorno and Horkheimer, is one of the modes of social domination that have emerged along with the triumph of scientific rationality. Hence, the term 'culture industry' was deliberately chosen – as opposed to 'mass culture' or 'popular culture' – in order to emphasize the link between enlightenment-rationality and modern culture by highlighting on the one hand how the latter operates in terms of increased technological subsumption by mechanical reproduction, and on the other hand how the distribution of cultural products is being monitored by rational, controlled organization. In other words, for Adorno and Horkheimer, these are the primary symptoms of how enlightenment-rationality has infected cultural production and reduced the latter to a series of banalities of artificial desires which, of course, are strictly in tune with capitalist organization.

Yet the link between scientific rationality and social domination that Adorno and Horkheimer's thesis rests upon is far from guaranteed. Indeed, it is in our view rooted in a severe misdiagnosis of the intellectual import of the Enlightenment, which remains committed to the safeguarding of a dubious humanism at the cost of eliding the Enlightenment's wider speculative implications. However, these implications have been articulated with remarkable cogency by Ray Brassier in *Nihil Unbound*, which introduces a compelling alternative interpretation of the intellectual legacy of the Enlightenment; an interpretation which, as we shall see, will provide us with conceptual resources for the construction of a very different account of the critical link between science and culture than that of Adorno and Horkheimer.

The speculative argument of *Nihil Unbound* may be understood as a thanatropic inversion of Adorno and Horkheimer's dialectics of myth and enlightenment, since it insists on, rather than rejects, the impersonal nihilism implicit in scientific objectification and technological exteriorization. Hence, whereas Adorno and Horkheimer argue that what they conceive of as the terminal exhaustion of reason only can be overcome by its reintegration within the purposefulness of human history – construed as a temporal transcendence of science's pathological compulsion – Brassier (drawing upon the Sellarsian distinction between the manifest and the scientific images) insists on the incompatibility between the image of nature given to us by science and our manifest understanding of things. Indeed, for Brassier, the fact that the thought of science goes beyond our default apprehension of nature must be understood as the starting point for the philosophical enterprise, rather than as a cognitive pathology

which philosophy should be summoned to remedy. The bulk of *Nihil Unbound* is consequently concerned with articulating scientific rationalism as a cognitive overturning of the human life-world, wherein thinking is confronted with an alien outside, unconditioned by phenomenological manifestation. And rather than trying to re-inscribe this universal purposelessness within a human narrative of reconciliation, the task of *Nihil Unbound* is one of progressively tearing down the life-world that we have created in order to satisfy our psychological needs (and which philosophy also has participated in, as can be seen in Adorno and Horkheimer's dialectical thinking) by recognizing that human experience, consciousness, meaning, and history are nothing but minor spatio-temporal occurrences within an exorbitant cosmology which is being progressively unveiled by the natural sciences.

Scientific rationalism, therefore, is a trauma for thought (as Adorno and Horkheimer argue); although its root-source is not to be found within the confines of human history (i.e. as a purely psychosocial struggle between dominating and dominated), but in its negation of the categorical difference between conceptual categories such as life and death in post-Darwinian biology, and matter and void in contemporary cosmology. Scientific discovery consequently has an immediate philosophical import insofar as its elimination of the notion of 'purpose' from the natural realm stands at odds with a prevalent philosophical position: The idea that the human *qua* transcendental dimension of existence constitutes the irreducible bedrock of cognitive and conceptual enquiry.

Hence, despite the cosmological implications of Brassier's speculative nihilism, it is crucial not to overlook its equally significant cognitive import, particularly since consciousness generally has been considered immune to scientific objectification within the Continental mode of philosophizing which has had the major conceptual impact on contemporary cultural theory. As we can see an example of in Adorno and Horkheimer's work, the scientific imperative to objectify consciousness has often been viewed as an index of a dangerous form of anti-humanism which threatens to alienate us from our true selves in its compulsive attempts to objectify that which lies beyond objectification. Yet what the scientific understanding of the human ultimately points to is precisely that: The systematic exteriorization of consciousness and an extension of the cognitive split produced by the natural sciences from the exteriority of nature into the interiority of man. The upshot of this major intellectual project is consequently the insertion of man himself into the purposeless natural order unveiled by the scientific

worldview, through the gradual construction of an image of the human which views the latter as a particularly complex form of biophysical system rather than as a kind of transcendental excess. This is nihil unbound: Nihilism emancipated from the regional horizon of the human life-world and repositioned within a proper universal context.

Needless to say, there is a very different account of culture implicit in Brassier's speculative nihilism; which does not view the link between enlightenment-rationality and cultural production merely in terms of social domination, but also – and more importantly – as a kind of 'speculative opportunity'. Indeed, whereas the humanism advocated by Adorno and Horkheimer ultimately comes down to a form of culture which acts as a mediator of human significance through the integration of nature into the nexus of social remembrance and history (a so-called 'second nature'), Brassier's account significantly refuses to turn nature into a mere cultural construct but instead recognizes the former's *autonomy from* and *indifference to* the latter. This does of course not mean that natural processes cannot be utilized productively in culture, but rather than characterizing this productivity in terms of the rehabilitation of an essentially purposeful Aristotelian nature, it understands it in terms of a specific form of cognitive discrepancy generated by the clash between the manifest and scientific images. This is the discrepancy between the culturally-acquired image of ourselves as humans and the naturalistic image of man produced by modern science. And rather than viewing this clash as threatening to our human self-understanding, as Adorno and Horkheimer do, it views it as the starting-point for the techno-scientific remaking of modern culture and the classical image of the human around which the former is constructed.

It is this latter path that we will pursue in this thesis. However, at this point it is necessary to stop for a moment and elaborate on the crucial link between science, cognition, and nihilism *qua* crisis of meaning, since the implications of scientific objectification for the construction of a genuinely modern form of nihilism hinges on the link between cognition and meaning in light of the emerging naturalistic image of man.

1.2 Passive and Active Nihilism

Brassier has sometimes been associated with the group of thinkers known as 'eliminative materialists', whose primary intellectual commitment is their denial of the existence of many or all of the cognitive categories most of us take for granted. Scott Bakker is one example of such a thinker, which can be seen throughout *Neuropath*. In

fact, the attempt to dramatize novel forms of exploitation and power is only one of the book's objectives; the other one is to introduce Bakker's own so-called 'Blind Brain Theory' of human consciousness, which comes down to the following: What we take to be basic features of human existence – normativity, experience, agency, reasoning, and so on – are in fact fictions generated by our brains throughout the courses of evolution. In reality, there are only deterministic electro-chemical processes among neurons, which we have become unaware of since our brains have evolved to process environmental features from the outside rather than cognitive features from the inside. Naturally, the reason behind this is because it maximizes the conditions for the survival of the species; yet it has also produced an uncanny side effect in that we have become blind to the truth about our own existence. As a result, we have built an entire intellectual legacy around cognitive categories that may not even exist and most likely will have to be abandoned once science has completed its progressive labour of disenchantment. In the end, what might turn out to actually exist could be nothing but sequences of causes-and-effects among neural circuitries, since much of the emerging scientific data concerning the brain shows little or no support to the existence of many of our most fundamental cognitive categories.³

While there are several crucial insights to be extracted from this controversial account of consciousness (which we will come back to in Chapter 3 in particular), it is also important not to conflate it with Brassier's position since this would be to overlook central conceptual differences between the two. For while Bakker argues that the fundamental import of cognitive science is that it will force us to *explain away* many or all of the 'folk-categories' associated with consciousness, Brassier on the contrary (following his Sellarsianism) takes the main issue to be how to *reconsider* basic cognitive categories according to a conceptual schema which is in tune with the image of consciousness currently unveiled by the natural sciences. In short, for Brassier – just like for Sellars – the basic philosophical task in light of the emerging scientific account of cognition is *conceptual integration* rather than *neurobiological elimination*.

³ This is the position of the rogue neurosurgeon in the book, who essentially tries to *live* eliminativism by reprogramming people's neurophysiology in order to prove the reality of the Blind Brain Theory. Further details about this position can be found throughout the book, and also on Bakker's blog *Three Pound Brain* (<http://rsbakker.wordpress.com/>). The two texts that we drew upon specifically when writing this are Steven Shaviro's useful recapitulation of the novel (see Shaviro 2008) and a presentation by Bakker on the book's underlying theoretical arguments (see Bakker 2008a).

Another way to put this is in terms of the concept of nihilism. Nihilism, as we just saw, refers to a basic crisis of meaning, which both Bakker and Brassier link to the (still ongoing) shift from the pre-modern to the modern body of knowledge associated with the Enlightenment. As Brassier points out: Whereas the pre-modern worldview is one in which human existence is construed as intrinsically meaningful – because it is an index of a divine plan – the achievement of the modern worldview is the progressive obliteration of this perspective in favour of an image of nature in which the idea that everything exists for a reason has been abandoned. This is what links the scientific labour of disenchantment to the problem of nihilism. Yet it also marks a critical point where pre-modern nihilism is transformed into modern nihilism, because whereas the former is a result of our *failure* to understand nature and God, the latter is an index of our *increased ability* to understand nature without having to postulate an underlying model of purposefulness. In modern nihilism the crisis of meaning is no longer linked to our *inability* to understand, but to the substantial *gain* in rational autonomy and conceptual intelligibility brought about by the scientific worldview and the intellectual project of the Enlightenment (see Brassier and Rychter 2011).

However, the idea of an originary preserve of meaning which science is unable to access goes far beyond the confines of theology and indeed has played a crucial role in much of contemporary philosophy's ultimate rejection of modern science. The latter often takes the form of the positing of an unobjectifiable transcendence of the human – that is, a condition of human existence which science is unable to objectify – and while the specific medium for this kind of transcendence varies (from consciousness and thinking to embodiment and experience) the implications are undoubtedly the same: Human existence cannot be fully objectified because it dwells in a register of meaning which science is unable to access (we will take a closer look at such a position in Chapter 2). It is at this point where cognitive science emerges as a decisive conceptual resource insofar as it promises to explain human existence in such a way that it can be fully integrated with the modern image of nature and thus vitiate the philosopher's positing of an originary preserve of meaning. Cognitive science is a major conceptual resource precisely insofar as it promises to turn consciousness into a thing by obliterating the register of unobjectifiable transcendence on the basis of an immanent objectivity.

Yet the question of the critical junction between cognitive science and the crisis of meaning still remains open. For Bakker, its ultimate consequence will be the

elimination of meaning *tout court*; since once the project of explaining consciousness in scientific terms is complete we will see that meaning is a mere epiphenomenon of folk-psychology without any actual empirical foundation. In Brassier's view, however, the question is not one of how to eliminate meaning, but rather of how to produce a general transformation in our understanding of it by explaining meaning as a contingent product of regional binding within the register of sapient reasoning. Nihilism *qua* crisis of meaning does in Brassier's view not mark the endpoint of conceptual intelligibility (as it does for Bakker), but rather the starting-point for its fundamental reconsideration. It is consequently *rationality* which turns out to be the critical nexus that separates Brassier's project from Bakker's, since it adds a decisive positive-constructive register to the purely negative-critical program of eliminativism and thereby becomes the medium of cognitive exploration and emancipation which eliminativism is unable to take into account. The conflict between eliminativism and rationalism may consequently be understood in terms of a variety of the Nietzschean distinction between *passive* and *active* nihilism, where the former views the crisis of meaning as ultimately leading to its complete annihilation and the latter as the basic condition for its critical transformation.⁴

1.3 Techno-Cultural Re-Engineering

But what does this critical transformation index? What does the program of cognitive exploration and emancipation ultimately promise? Brassier suggests that what is at stake here is a radical transformation of human nature, which no longer should be understood in terms of a transcendent, unobjectifiable excess – but as a particularly complex configuration of natural and normative mechanisms that can be explained and modified like any other object. In other words, the wider implication of the transformation of meaning on the basis of scientific objectification is that there is nothing inherently unintelligible about what it means to be human, since 'human nature' can be explained

⁴ Thanks to Peter Wolfendale for pointing this out. This is why Brassier's more recent work (i.e. after *Nihil Unbound*) has been increasingly concerned with outlining a model of rationality that draws upon the functionalist and inferentialist philosophy of Wilfrid Sellars in particular. For what the latter provides is a distinct model of meaning which does not view the latter as an immanent phenomenon in nature or as a transcendent locus in thought, but as "rule-governed functions supervening on the pattern-conforming behavior of language-using animals". (Brassier and Niemoczynski 2012; see also Brassier and Malik 2015: 213-230)

in terms of various sets of empirical parameters in the same way as when we explain the internal structures of other objects (see Brassier 2014: 469-487). In that regard, the critical import of scientific rationality explicates the latent theological assumptions among philosophers who continue to uphold the ineffability of human authenticity from the mechanical inauthenticity of techno-scientific objectification. For the claim that there is a dimension of existence that is simply given and ultimately unintelligible to us – and which we should accept as it is – is inherently theological, as Brassier usefully points out (see Brassier 2014: 485). And it is the techno-scientific obliteration of this human dimension of unobjectifiable transcendence *qua* residual theology that harbours the threat of nihilism for these thinkers. But this does not have to end up in Bakker's passive nihilism; for once we have demolished the neo-theological register of unobjectifiable transcendence we are confronted by the fact that there is no divine plan that sets a predetermined limit to human transformation and progress. On the contrary, the realization that nature exists without reason and that nothing is given for a reason – and that human beings are immanently plastic as opposed to existentially transcendent – culminates in a Promethean account of human nature as essentially malleable in the form of techno-scientific remaking and cognitive re-engineering. In Brassier's words:

Prometheanism is the attempt to participate in the creation of the world without having to defer to a divine blueprint. It follows from the realization that the disequilibrium we introduce into the world through our desire to know is no more or less objectionable than the disequilibrium that is already there in the world. (Brassier 2014: 485)

One of the central strands of this Promethean project is that of human enhancement – exemplified by phenomena such as the NBIC convergence (i.e. the convergence between Nanotechnology, Biotechnology, Information Technology, and Cognitive Science) – which attempts to fulfil the transformative promises harboured by techno-scientific re-engineering under the aegis of so-called 'transhumanism' (i.e. the augmentation of human capacities with techno-scientific means).⁵ Hence, it is in the context of human enhancement that this thesis should be read, through the lens of

⁵ A thorough discussion of the virtues and shortcomings of transhumanism in its current forms fall outside the scope of this thesis, but for a useful brief overview, see Wolfendale 2016.

cognitive neuroscience. More specifically, we are interested in how aesthetics and cultural production may participate in and help facilitating this Promethean remaking of human nature in general and of human cognition in particular.

The cognitive nexus that we will concentrate our analysis on is that of human experience. The reasons for this are twofold. Firstly, in cultural theory the concept of experience often tends to be pitted against the so-called ‘reductionist’ agenda of cognitive science on the basis of the safeguarding of an allegedly irreducible aesthetic experience from the disenchanting vectors of techno-scientific objectification (we will take closer looks at such positions in Chapter 2 and Chapter 4). Experience, from this perspective, cannot be broken down and explained objectively; and this is why the richness and immediacy of its aesthetic component cannot be reduced to science. In that regard, this frequent upholding of the primacy of aesthetic experience in cultural theory threatens to undermine the promises harboured by the utilization of aesthetics and cultural production within the program of human enhancement. As Brassier puts it:

I am very wary of ‘aesthetics’: the term is contaminated by notions of ‘experience’ that I find deeply problematic. I have no philosophy of art worth speaking of. This is not to dismiss art’s relevance for philosophy – far from it – but merely to express reservations about the kind of philosophical aestheticism which seems to want to hold up ‘aesthetic experience’ as a new sort of cognitive paradigm. (Brassier and Ieven 2009)

But while we fully agree with this sentiment, it still leaves us with the question of how to conceive of aesthetic experience from the perspective of its techno-scientific objectification. Clearly, aesthetics by its very nature needs some kind of experience; yet how are we to construct an aesthetic which does not reproduce the pitfalls of what Brassier refers to as ‘the myth of experience’⁶ – but instead overcomes the problematic

⁶ “The myth of ‘experience’, whether subjectively or inter-subjectively construed, whether individual or collective, was consecrated by the culture of early bourgeois modernity and continues to loom large in cultural theory. Yet its elevation by idealist philosophers who uphold the primacy of human subjectivity, understood in terms of the interdependency between individual and social consciousness, impedes our understanding of the ways in which the very nature of consciousness is currently being transformed by a culture in which technological operators function as intrinsically determining factors of social being”. (Brassier 2007a)

distinction between aesthetic experience and cognitive science at work in much cultural theory – without rejecting experience and aesthetics altogether?

We believe that what is needed here is an account of experience which does not reject or reify the experiential, but instead recognizes its cognitive underpinnings and techno-scientific register. More specifically, it seems to us that what this calls for is an aesthetic which – rather than merely taking the form of an experience – instead operates *against* it by actively incorporating the neuroplastic machinery which generates experience as such. Aesthetics, from this perspective, therefore provides us with an *actual way* for getting out of the myth of experience in ways that philosophy and theory only can allude to. In that regard, we believe that an aesthetic of cognitive objectification plays a crucial function within the remaking of human nature that this Promethean project aims to outline. For whereas philosophy by itself is incapable of actually interrupting the myth of experience – as we shall discuss further in Chapter 3, no matter how much we do so at the level of theory, we are still as much experiential subjects as we were before – aesthetics, on the other hand, can be utilized as a practical program for implementing the techno-scientific disconnections from human experience that this project calls for. Indeed, without actual practical ways for doing so, the philosophical rejection of the myth of experience remains an empty promise, and this is where we believe that the kind of techno-scientific aesthetic outlined in this thesis plays a crucial part.

Secondly, experience has often been – as the epigraph to the introduction so lucidly illustrates – nominated by many critical theorists as that which makes us distinctly human. For thinkers such as these, it is through the medium of experience that we are able to relate to each other *as* humans in the form of shared feelings of happiness and sadness, joy and sorrow, life and death. They consequently argue that to objectify experience through techno-scientific means is to engage in a performative contradiction, given that its ultimate implication would be the obliteration of our own humanity.⁷ In that regard, they have turned human experience into a critical nexus for the residual theological upholding of unobjectifiable transcendence, which severely limits the transformative potential of critical theory and therefore needs to be rejected accordingly. As Brassier's work demonstrates, this reactionary stance is a symptom of widespread anti-cognitivist and anti-scientific assumptions in both Continental philosophy and

⁷ See for instance Turkle 2011: 7 and Fukuyama 2002: 166-174.

critical theory. And these assumptions are rooted in a dubious humanism that needs to be overcome by repositioning human experience within a genuinely cognitive and scientific framework. But here too, the practical implications of this highly ambitious program need to be elaborated on in order for it to be able to do the work it sets out to. In that regard, the theoretical speculations of philosophy have to be supplemented by accounts of their practical implementations – and, of course, by actual practice (cultural, aesthetic, social, political, etc.) – in order to demonstrate exactly how the subversion of humanity that this project promises actually pans out. For instance, what positions should aesthetics and cultural production occupy within the cognitive framework posited by the techno-scientific remaking of the human? How can they participate in this remaking? And in what ways do the productive and oppressive utilizations of the resources explicated by this project force us to revise a number of key norms of critical theory? It is questions such as these that will guide us throughout this thesis.

Chapter 2: Corporeal Media-Phenomenology

2.1 Technology and Lived Experience

In *Embodying Technesis: Technology beyond Writing*, Mark Hansen criticizes how several of the most influential philosophers of the 20th century – from Heidegger and Derrida to Freud and Lacan – have addressed modern technology. With what he names ‘technesis’ (the ‘putting-into-discourse of technology’), Hansen argues that despite these philosophers’ stated interest in technological materiality they nevertheless fail to take into account what he calls technology’s ‘radical exteriority’, simply because of their commitment to thought and to representation. For Hansen, the latter takes the form of subsuming an initial attempt to embrace the technological under the aegis of an account of thought as the ultimate locus of experience, which leaves technology as nothing more than a simple handmaiden to language and discourse – and consequently deadlocked in a mere ‘relative exteriority’ – rather than recognized as a material part of the real. Hansen consequently sets out to reclaim this technological materiality – beyond its reduction to language and thought – by addressing the impact of technology on the human body through what he, following Walter Benjamin, names ‘lived experience’ (*Erlebnis*). For according to Hansen, contemporary philosophy’s and cultural theory’s obsession with representation is symptomatic of a lamentable intellectual tendency to side-line embodied experience in favour of thought, or ‘reflective experience’ (*Erfahrung*), and which therefore must be countered through a thorough rehabilitation of technology’s complex experiential impact on the human body.

There are mainly two reasons behind this. Firstly, for Hansen, technology’s impact on the body is primarily pre-cognitive and pre-representational, and therefore cannot be fully captured within the confines of language and thought. Hence, experience is primary and thinking secondary since experience is a matter of *living through* rather than *reflecting on*; and as soon as we try to enclose it in purely representational or cognitive terms we inevitably end up with a simplification, since experience always involves a certain excess which impacts us exclusively at the register of corporeality and therefore cannot be captured in purely cognitive terms. This is what Hansen identifies as the human process of *living through the body*, and which indexes the body as a form of experiential excess; an ambient field out of which cognition and representation emerge, but to which they cannot be fully assimilated. Thus, Hansen argues, it is this molecular and sub-representational realm of embodied excess *qua* non-

cognitive exteriority that both philosophers and cultural theorists too often have neglected because of their tendency to safeguard thought as the apex of experience, and which consequently must be reclaimed through the construction of a genuinely *corporeal* phenomenology.

Secondly, while embodiment, in Hansen's view, always has been primary, this has only become evident in the postmodern era because of the expanding disjunction between abstract thought and lived experience. For while the introduction of three-dimensional perspective during the Renaissance (to name one example) merely marked a shift in representation, the contemporary technologization of agency at the molecular level marks the limit of representation *tout court*, since the material complexification concomitant with current forms of technological multiplicity forces upon the body such an excess of stimuli that reflective experience simply reaches its breaking point. Therefore, in a cultural landscape where it is instead the 'experience of shock' (Benjamin) which is the norm, reflective experience must be side-lined in favour of lived experience as the primary medium for our interfacing with the world, since the latter is much more in tune with the sensorial overload concomitant with postmodern culture. Technology thus marks the crucial turning point in this shift from the reflective to the lived, since its continual dissemination across the cultural field forces us to constantly reinvent our sensorium by developing novel modes of experience which are capable of registering the massive amounts of molecular stimuli that contemporary culture forces upon us.

Consequently, what is at stake for Hansen is the need for a radical reconfiguration of the experiential that does not just try to restore pre-modernist ways of interacting with the world, but rather sets out to produce new forms of experience proper to contemporary techno-culture. Because when technology reshapes our sensory contact with reality in such fundamental ways, the main question is whether we are able to retune our experiential capacities or not; and this can only be achieved through a thorough engagement with the body and with the experience of our own embodiment. For Hansen, the central task of contemporary theory is therefore one of acknowledging the eclipse of thought as the privileged component of experience in favour of the emancipation of experience from the narrow realm of representation, along with a proper reconceptualization of human embodiment through an engagement with its non-cognitive and non-discursive *affective* registers. Only then will contemporary theory be

able to reclaim the radical exteriority of embodiment from its imprisoning within the relative exteriority of thought.

2.2 Extra-Scientific Impact

Hansen begins this account with a simple observation: The fact that the lived experience of the contemporary human has been shaped far more by practical interventions than abstract scientific knowledge. Einstein's discovery of the theory of relativity, for instance, has had far less (if any) effects on our lives than more local changes brought about by the introduction of various technological devices such as the television and the computer. This becomes a significant point for Hansen, since the problem with traditional philosophy of science is the massive privilege it grants the theoretical, while completely ignoring concrete and practical effects, and therefore leaves us with a profound quandary concerning its impact on human life. The antidote to this is to be found in contemporary science studies, which on the one hand argues that the impact of scientific discovery and technological innovation on the human life-world should be assessed according to its concrete experiential rather than abstract theoretical effects, and on the other hand maintains that science as such always is embedded in specific sociocultural contexts which only can be explicated through a particular form of extra-scientific logic.

Accordingly, for Hansen, the fundamental shift brought about by science studies is the central role it grants the concrete and practical, as opposed to the abstract and theoretical, and when discussing the legacy of thermodynamics since the late 19th century he therefore argues that it can be assessed in two different ways: The *narrowly scientific* and the *broader cultural*. On the one hand, thermodynamics presents us with the disenchanting image of cosmic extinction in the form of the heat death of the universe, which is indexed by the inhuman representation of energy as a function of mathematical abstraction in theoretical physics; but then there is also the sober and optimistic realization that in the short run – that is, as long as life persists on earth – this thermal energy can be put into productive use in culture by various technologies such as those that have provided us with electricity and fuelled transports since the industrial revolution. In other words, whereas the scientific *representation* of energy rendered it abstract and essentially divorced from the phenomenal realm, the cultural *experiencing* of energy provided us with an alternative to the nihilistic picture concomitant with scientific abstraction. In Hansen's view, the fundamental cultural import of the

thermodynamic legacy consequently lies in its explication of scientific epistemology as ultimately obsolete, and culture as a field of forces which compels us to replace the narrow realm of scientific abstraction with a proper experiential interaction with technology. It thereby marks a fundamental shift in the economy of experience from that of representation to embodiment, in such a way that the “horrific fantasy of the heat death of the universe is counterbalanced by the redemptive myth of progress channelled through the new technologies of the industrial age”. (Hansen 2000: 58)

Hansen therefore objects to any reading of technology that would localize it solely within the confines of scientific epistemology. Instead, he argues (*vis-à-vis* the early Latour) that science always emerges from and operates in the divide between Nature and Culture, and that any purely epistemological reading of the technological consequently misses its fundamental anchoring in the real. Technology is therefore sharply distinguished from science, for whereas the latter simply converts embodied richness to manageable formulations – and thereby inevitably ends up with nothing but an abstraction of the real – technology, on the contrary, enjoys a certain immanence *within* the real *qua* embodiment. As Hansen puts it: “[T]he scientist’s activity is actually directed not toward the material real but rather toward statements or inscriptions that have been produced in the laboratory and that have taken the place of nature”. (Hansen 2000: 35) Hence, for the scientist reality is the *consequence* and not the *cause* of inscription; which means that science always operates on the basis of the effacement of the very embodiment that makes scientific discovery possible in the first place, but which only becomes a problem if this is not recognized by the scientists themselves. Technology, however, operates across a much more expanded and heterogeneous field which Hansen identifies with its *extra-scientific impact on practical life*; and which only can be accounted for through lived experience, since it exceeds all forms of scientific accounts that would view technology simply as a materialization of thought.

The upshot of this critique is clear: Technology must be safeguarded from the disenchanting inhumanism of scientific epistemology and instead be reoriented along the vectors of a properly human embodied excess. For even though technological representations of reality – from abstract formulas to computer algorithms – have become increasingly divorced from the phenomenal realm, and thus “only seem to expand our experiential alienation” (Hansen 2000: 71), this is not so much an *a priori* consequence of technology as such, but rather a symptom of our commitment to representation that manifests itself in the aforementioned disjunction between thought

and experience. For instance, the scientific representation of the colour red – which breaks it down to an electromagnetic field vibrating at 400 trillion times per second – says very little about our actual experience of red, but instead reduces it to a cognitive abstraction. And similarly, if we grant scientific representation full authority, this again opens up the disenchanting truth of solar death, which – as Jean-Francois Lyotard speculatively has suggested – leaves human survival fully dependent on the construction of technological hardware capable of storing cognitive software while also being able to withstand the death of the sun (see Lyotard 1991: 8-23). Thus, for Hansen, the key to avoid this deplorable nihilism is one of shifting our attention from a *cosmological* (scientific) to an *anthropological* (embodied) perspective and thereby acknowledging the fact that technology's impact on humanity is much broader than in the pessimistic scenario depicted by Lyotard. Indeed, Lyotard's perspective is, in Hansen's view, not so much a cosmological necessity but rather a pathology concomitant with a commitment to the production of representations. But if we instead divorce human praxis from the translation of material stimuli into mental representations, we open up a path of unforeseen possibilities which will reconfigure our attitude to technological change from the broader perspective of the evolutionary history of the human. In short, only then will we be able to maintain what Hansen refers to as a *distinctly human perspective* in the face of scientific abstraction.

2.3 Bodily Framing

Hansen is thus compelled to avoid all theoretical injunctions that would orient technology away from experience and embodiment in favour of an account that situates the technological squarely on the side of the human. Consequently, in *New Philosophy for New Media*, this account is outlined in detail in the form of so-called 'bodily framing'. Against those strands in media theory and cybernetics which argue that the digital – from pattern recognition and algorithmic processing to statistical sampling and abstract coding sequences – threatens to displace or even obliterate the human, Hansen argues that the situation is actually the reverse: It is not so much that digital convergence marks the end of humanity but it is rather at this point in time that the body becomes increasingly important as a 'framer' of information. Because, for Hansen, every image-regime is characterized by a so-called 'embryogenic connection' with the human body, which means that there can be no such thing as an image independently of embodiment:

[T]he frame in any form – the photograph, the cinematic image, the video signal, and so on – cannot be accorded [complete] autonomy [...] since its very form (in any concrete deployment) reflects the demands of embodied perception, or more exactly, a historically contingent negotiation between technical capacities and the ongoing “evolution” of embodied (human) perception. Beneath any concrete or “technical” image or frame lies what I shall call *the framing function* of the human body *qua* center of indetermination. (Hansen 2004: 8)

Hence, no matter how autonomous they might seem in today’s decentred cultural landscape, all images in fact originate in the ‘selective function’, or ‘embodied perception’, of the centre of indetermination. This is the core of Hansen’s neo-phenomenological update of Bergson’s image-philosophy, yet when theorizing the advent of digital technology he argues that it needs to be subjected to two crucial modifications.

Firstly, since the digital image displaces the indexical basis of the analogue image with a processural formation of sequential scanning, and media materiality with contingent rendering operations, we can no longer say (as Bergson did) that the body selects pre-existing *images*. On the contrary, with the advent of the digital this corporeal operation must be reconfigured so that the body now *creates* images by filtering *information*. Since all digital images are crystallized from multiple streams of digital information which is originally formless (i.e. without any inherent meaning), it is the body that comes to act as the so-called ‘enframer’ of digital information and thus transforms *purposeless information* into *purposeful images*. Indeed, for Hansen, information remains fundamentally meaningless as long as it is not correlated with human embodiment, which means that it is the body that performs the crucial task of transforming random patterns of incoming stimuli into framed structures which supply information with meaning. Cybernetic machines are therefore sharply distinguished from human bodies; for whereas the former operate solely within an organo-physical dimension located in empirical space, the latter also encompass a so-called ‘transpatial dimension’ (or ‘unobservable x’) which lies beyond the reach of cybernetic modelling and performs the crucial task of supplying information with meaning. It is through this transpatial realm that the human organism, unlike cybernetic machines, becomes capable of “an absolute experience of itself that is not accessible to an observer and not

constitutable as a scientific object. Insofar as it is responsible for informing the physical with meaning, this transpatial domain constitutes the source of information: it is what produces information on the basis of meaning". (Hansen 2004: 83)

Thus, while cybernetic and other forms of machines hypothetically might continue to function independently of the embryogenic connection with the human organism, this is a completely uninteresting speculation for Hansen since that would constitute a function entirely devoid of meaning. The transpatial therefore asserts the bio-philosophical priority of the human over the machine, since it allows us to differentiate between the 'active assembly' of the body as 'pure form' (or 'form-giving form') and the 'passive assemblage' of technological machines; for whereas the latter only can be accounted for on the basis of the *function* of information, the former adds the crucial dimension of that information's *purpose*. Hansen therefore inverts all accounts that would view technology as an instance of 'programmatically antihumanism': It is not the human which is threatened by technological autonomy, but rather the technological which is 'intrinsic to the human', and the danger is therefore not one of a real but of a *false* autonomy (i.e. if we forget the bio-physiological basis of information *qua* meaning) since any digital image ultimately originates in the framing function of the human body. Hansen consequently argues that the digital in fact *enlarges* the role played by embodiment, because when media lose their material specificity and the image becomes a numerically contingent configuration without any intrinsic connection to the real, it is the bodily enframer which becomes increasingly important as the transpatial operator that filters information and provides it with meaning.

Consequently, following Hansen's neo-Bergsonian take on phenomenology, this account of the body as transpatial in-former becomes reformulated along the lines of embodiment *qua* pure affect. This leads us to the second of Hansen's modifications of the Bergsonian corpus, for what the digital also makes evident, he argues, is precisely the primacy of the *affective* (as opposed to the perceptual) basis of embodiment. According to Hansen, affect is the phenomenological modality of embodiment *par excellence* – or rather, the foundation of all sensory modalities – insofar as it foregrounds the *sensorimotor nexus of the body*, understood as the body's excess over itself in the form of a particular kind of corporeal indeterminacy. Affect is therefore sharply distinguished from perception; for whereas the latter designates a particular sensory modality oriented towards external space, the affective rather comprises a particular sensorimotor system internal to the body as such – understood as an

‘intensive space’ or ‘absolute spacing’ – through which the body is felt from within itself, as opposed to observed from the outside. Without this *proprioceptive intuition* of the body as form-giving form there would be no perception at all, since we would lack the crucial element of our experiencing ourselves as pure form:

Affectivity, accordingly, is more than simply a supplement to perception (as Deleuze maintains) and it is more than a correlate to perception (as Bergson holds). Not only is it a modality of experience in its own right, but it is that modality – in contrast to perception – through which we open ourselves to the experience of the new. In short, affectivity is *the* privileged modality for confronting technologies that are fundamentally heterogeneous to our already constituted embodiment, our contracted habits and rhythms. (Hansen 2004: 133)⁸

Digital media, therefore, do not just foreground the body as such but also its affective potencies, which demarcates it from analogue media and reaches its apex in the total immersion concomitant with virtual reality. For whereas analogue media (such as cinema) presents geometric spaces as already given through the mediating function of the technical frame – and thus suffers from a similar shortcoming as Bergson’s theory of perception in that it views the latter as no more than a selection of external images by consciousness – VR, on the other hand, situates the body in an immersive dataspace. This immersive space is no longer the already given, geometric space encountered through perception, but rather a non-geometric production of corporeal space in the

⁸ This account of the affective is far from unproblematic, however, for Hansen’s basic critique of Deleuze for having disembodied affect from its role as the most basic phenomenological modality to merely a specific type of cinematic image (i.e. the so-called ‘affection-image’) fails to take into account the fact that the Deleuzian understanding of affectivity – also utilized by several contemporary affect-theorists, and which should be traced back to Spinoza rather than Bergson – is in fact much vaster than what can be condensed by merely a particular type of cinematic image. From the perspective of this account, affectivity is not just construed as a particular form of bodily virtuality, but as a virtuality which also encompasses all of inorganic matter; and an object’s capacity to affect and to be affected is consequently an index of a quintessential ontological process of which bodily affectivity merely is one particular instance. So it is actually Hansen and not Deleuze who has a too narrow understanding of the affective. We will return to this wider understanding of affect and experience in Chapter 4.

form of an *affective spacing*. Hence, what is most significant with VR, Hansen argues, is that it explicates the affective underside of perception by triggering a bodily spacing – rather than presenting an external space as already given – since the virtual space of VR is not an actual part of physically extended space, but rather a product of the body’s real actions on itself. VR therefore substitutes the objectivity of the technological image with a dimensionless subjective image which only can be experienced internally, within the sensing body itself. It thereby foregrounds the affective origin of embodiment by functioning as a corporeal biofeedback-system through which technological virtual reality comes to form a positive feedback-loop with embodied real virtuality, whereby “affectivity actualizes the potential of the image at the same time as it virtualizes the body”. (Hansen 2004: 130) This obviously stands in sharp contrast to the tendency in much cybernetic theory to conceive of VR along the lines of transcendence and disembodiment. For what VR first and foremost gives us, Hansen argues, is “not a becoming-inhuman of perception but instead a technical extension of the (human) domain of absolute subjectivity and of the (human) capacity for affective self-intuition”. (Hansen 2004: 196)

It is thus through affect that embodiment *qua* experiential excess, or corporeal framing, comes to act as the source of meaning insofar as it takes on the crucial task of converting the general notion of framing into singular forms of experience. Hansen’s account thereby demarcates a shift from *mathematical complexity* to *experiential complexity*, wherein the scientific ‘object body’ is substituted by the phenomenological ‘real body’; for whereas the former simply objectifies the body on the basis of abstract third-person knowledge, the latter instead gives a crucial account of the body as it experiences itself as absolute form. Hence, it is only the phenomenological body that is sensitive to experience as the medium through which we encounter ourselves directly and as the primary manifestation of corporeal openness towards the new. This is of course where machines cannot follow, for whereas anthropic perception necessarily arises out of more fundamental affective modalities such as touch and proprioception, technological perception – since it lacks the affective basis concomitant with embodied excess – simply transforms vision into an abstract computation of data. Thus, computer-vision is, for Hansen, not really vision at all since it lacks the affective spacing which constitutes the nexus of the phenomenological body, and the role ascribed to the technological is therefore not one of progressive autonomy from the human. Instead

technology acts as a vehicle for corporeal self-transformation by opening novel registers of human embodiment in the context of digital convergence.

2.4 The Primacy of the Body Schema

In *Bodies in Code: Interfaces with Digital Media*, the latter is characterized as a decisive moment in what Hansen refers to as ‘technogenesis’ – or the coevolution of the human with the technological. From the perspective of technogenesis, the correlation between embodiment and technology – which goes back to the earliest forms of tool-use among primitive humans – constitutes the most basic condition of phenomenization in the form of an originary dimension of corporeal experience. This dimension is understood as the sensible-transcendental virtuality proper to the body, and underpins the latter’s role as an ‘immediately given invariant’ (Merleau-Ponty) which serves as our primary mode of access to reality through the medium of technologically-reinforced motor activity. However, as we saw earlier, this structure did not need to be explicated as long as experience operated within a homogenous framework in the form of a distinctively perceptual interfacing with the world. Yet what virtual reality-technologies promise is precisely to expose this virtual dimension of embodiment in the form of a ‘becoming-empirical’ of the sensible-transcendental dimension *qua* basic condition of corporeal experience. This is why VR-technologies must be understood from the perspective of motor activity rather than representational congruence; their real potential lies in expanding the scope of bodily experience, as opposed to presenting us with a disembodied realm of multiple illusory spaces. The former approach to VR is what Hansen finds most promising about certain strands of contemporary media-art, whose creators’ approach to the body is sharply distinguished from that of the scientist’s in the form of so-called ‘reversed epiphenomenalism’ (Raymond Ruyer). As the name implies, the concept of reversed epiphenomenalism aims to invert the idea that subjectivity is nothing but an epiphenomenon of physical properties into an account of the latter as epiphenomena of a more originary mode of subjectivity. From the perspective of this originary subjectivity it is instead the objective body which is derivative of a more fundamental form of embodiment *qua* primordial dimension of life, and it therefore marks a shift from an *observational* to an *operational* perspective in that it designates a form of self-experience which is inaccessible from an external viewpoint and only can be felt from inside itself. It is this kind of affective self-experiences which

VR has the unique capacity to trigger, in the form of a veritable virtualization of the physical.

Hansen consequently takes up Merleau-Ponty's distinction between *body image* and *body schema* in order to further articulate this perspective. In Hansen's reading, the body image is an account of the body from a representational, visual perspective in terms of an external object. The body schema, meanwhile, understands the body from a genuinely internal perspective that is irreducible to external, third-person knowledge. Whereas the body image merely is an index of the body as an object of noetic consciousness, the body schema instead characterizes it as fundamentally pre-noetic and as the most basic form of ontological and proprioceptive operation. It therefore both precedes and exceeds the body image through its irreducible *inter-sensory* and *infra-empirical* functions, which must be understood in terms of the particular role ascribed to tactility.

As we saw earlier, touch is, in Hansen's view, not merely a distinct sense, but also – and more importantly – an inter-sensorial potential which precedes not only the differentiation of the senses, but also accompanying dichotomies of subject-object and experiencing-experienced which follows from the notion of sensation as ordinarily construed. Contrary to differentiated sensation, where touch merely is one sense among others, the inter-sensorial views the latter as a proper corporeal potentiality which binds all the other senses into a general 'system of the sensible' in the form of what Hansen refers to as *primary tactility*. It is therefore primary tactility which constitutes the sensible-transcendental domain that we alluded to earlier, as the infra-empirical condition for sensation *tout court*. Yet it is transcendental in the Deleuzian rather than Kantian sense in that it is a virtuality which constantly is at work in sensation as such, and even can enter the domain of the actual such as in experiences of synaesthesia and in digitally mediated aesthetic experiences. The body schema *qua* primordial tactility, in other words, is an index of the ontological singularity that is the body; on the one hand in terms of its irreducible interiority (self-affection) and on the other hand in terms its fundamental openness towards the world (hetero-affectivity). Hence, the task of the artist working with digital media is to effectuate a proper exteriorization of this bodily potential not in the form of a simple prosthetic extension of an already given embodiment, but rather in terms of a digitally-mediated emancipation of the body schema from the body image which allows the flesh of the body to merge with the 'flesh of the world'. For Hansen, it is only the latter approach which is capable of

producing genuinely affective experiences of corporeal singularity and of bodily life as rooted in an affective basis which lies beyond both individuality and commodification.

2.5 The Cognitive Eradication of Lived Experience

As can be seen from the discussion above, Hansen's account is dependent on pitting the intrinsic and irreducible nature of a supposed nexus of humanity against the deplorable inhumanism of scientific rationality. More specifically, it is a particular form of corporeal experience that is nominated as the bearer of the human perspective in the face of scientific abstraction; and which operates on the basis of a sharp distinction between experience as construed in science and experience as directly lived. Yet the obvious question here is whether it is feasible to separate first-person experience from third-person observational data – by arguing that the former cannot be reduced to the latter – when a plethora of empirical evidence in fact point in the exact opposite direction. As we have remarked earlier, one of the most significant implications of contemporary sciences of the brain is an objective explanation of the neurobiological architecture underlying first-person experience, so to insist on the supposed irreducibility of the latter is merely to reiterate familiar anti-scientific tropes which has been one of the hallmarks of critical theory, but which urgently needs to be reconsidered if critique is to have any purchase within the landscape of modern thought. This is the basic shortcoming of Hansen's project, and to understand it better we need to take a closer look at the concept of experience and its general significance for philosophers of science and aesthetics in particular. This is not only because it constitutes the conceptual core of Hansen's corporeal phenomenology, but also because it will provide us with the rudiments for an alternative account of contemporary techno-culture from the cognitive perspective defended by this thesis.

To understand this problematic better we need to take a closer look at Hansen's distinction between the emancipatory potency of lived experience (*Erlebnis*) and the conservative representationalism of reflective experience (*Erfahrung*). As we shall see, it is indeed crucial to elaborate further on this distinction since it is not so much an index of a particular form of contemporary media-vitalism as much as a symptom of a deep conflict in the history of Western thought regarding the nature of experience as such. As the intellectual historian Martin Jay argues in his comprehensive study of the history of experience in Europe and the US: The fact that experience has two distinct connotations in German has often been recognized even among non-German thinkers,

since the distinction between the two terms is more than a mere semantic issue insofar as it points to two very different understandings of what experience actually is – directly lived or cognitively enclosed.

According to proponents of the former, experience is usually identified as a vital unity prior to objectification, in the form of an inherently personal phenomenon of raw and unmediated sensations that is explicitly pitted against cognitive reasoning, epistemological encapsulation, and universal models. These approaches, it is said, will always be insufficient in capturing and communicating the immediacy of pre-reflective excess that is the most basic characteristic of experience as such. For advocates of the latter, on the other hand, experience is more of a public phenomenon which can be explained rationally and indeed needs to be supplemented with properly cognitive and epistemological registers – since otherwise it will remain caught in the irrationalism of raw immediacy and lived excess, and in mere practice and custom as opposed to theory and explanation. The latter view has been prominent in epistemology and science in particular – such as during the scientific revolution, whose proponents advanced the idea that the individual history of the psychological subject needs to be supplemented with a properly cognitive metasubject operating from a disembodied ‘view from nowhere’. And crucial to this metacognitive perspective was a genuinely universal model of experience, which was to be explicated by transposing the parameters of the experiential from that of the individual to impersonal technological instruments by treating experience itself as an object. Unsurprisingly, this perspective did not fit well within the discourses of aesthetics and theology, whose proponents strongly criticised the reductionist approaches to experience in science and epistemology on the basis of various accounts of the experiential as pre-reflective life, organic and spiritual wholeness, pure feeling, and so on. In other words, even though the mediums through which these kinds of experiences were instantiated differed some – in general terms, ‘spirit’ in theology and ‘flesh’ in aesthetics – what they shared was a commitment to a form of experience that rejected the idea that the latter could be fully analysed in abstract, theoretical terms. As Jay puts it, according to proponents of aesthetic and theological *Erlebnis*, underlying the cognitive register was “the experiential, affective dimension, which had an irreducibly non-rational element”. (Jay 2006:112) The emergence of a proper characterization of aesthetic experience in the 18th century may consequently be understood as a process of re-enchantment in light of the scientific disenchantment of the world, whose proponents’ main concern was to transpose the

project of enchantment from the objective qualities of nature to the subjective qualities of the human body. Central to this model of experience was a particular form of emotion and irrationalism – both in the encounter with artworks but also as a whole way of life – which, as Jay argues, operated according to “the hope that art might serve as the way to overcome the plural rationalities of a differentiated modernity, indeed to surpass the limits of reason itself”. (Jay 2006: 147)

Alongside the phenomenological tradition, it is consequently within this genealogy that Hansen’s work makes sense, given that the basic premise of his project is an attempt to put a modern spin on the idea that aesthetic experience is vital for restoring the order of intelligible meaning in the wake of the scientific labour of disenchantment.⁹ In that regard, it is also one of numerous contemporary examples of a form of critique aimed at healing the fractured and alienated subject of modernity through the restoration of a more authentic notion of pure experience *qua* common life-world. However, the imperative to transpose the nexus of meaning from outer nature to inner experience has lost its purchase in the wake of the emerging neuroscientific image of man, which aims to extend the scientific labour of disenchantment from the exteriority of nature to the interiority of the self and thereby obliterate the latter’s privileged position as transcendental guarantor of meaning. Yet the far-reaching implications of this massive project will not be appreciated as long as experience continues to be safeguarded by the reactionary tenors of philosophers and critical theorists who refuse to accept the dethroning of the latter as a pivotal component of human existence. As Ray Brassier argues, the question of how to integrate the world of human experience with the world as described by science generally sort philosophers and theoreticians into two basic camps: Those who aim to explain science in terms of human experience (*Erlebnis*) and those who aim to explain human experience in terms of science (*Erfahrung*). The implications underlying this distinction are of such a magnitude that it warrants quoting at length:

⁹ A more phenomenologically-oriented criticism of Hansen’s project would have to address the fact that despite his rejection of the Husserlian noetic-/noema-correlation (see Hansen 2000: 20), he has merely replaced it with an equally problematic correlation between embodiment and technology as originary condition of phenomenalization (i.e. technogenesis) – and with experience rather than consciousness as its unobjectifiable transcendence.

As I see it, this dispute about what ‘human experience’ is and our relationship to it lies at the heart of contemporary philosophy. I side with those in the second camp who insist that we can attain an objective perspective on our own subjectivity. Philosophers in the first camp dispute this on the grounds that to explain experience objectively would be a contradiction in terms which would only ‘explain consciousness away’ and ultimately alienate us from the subjective core of our own humanity. Some philosophers in the second camp try to defuse such worries by insisting that it’s perfectly possible for us to reconcile our humanity with science’s objectification of experience. My own view is that despite its fundamentally reactionary tenor, the objection above registers a genuine difficulty, and that it is unrealistic and a little panglossian to insist that we will remain ‘human’ much as we are now even after the explanatory ‘reduction’ of experience. My conviction is that the sources and structures of human experience can and will be understood scientifically, but this integration of experience into the scientific worldview will entail a profound transformation in our understanding of what it means to be human – one as difficult for us to comprehend from within the purview of our current experience as the latter would have been for our hominid ancestors. (Brassier and Ieven 2009)¹⁰

¹⁰ Then there is naturalized phenomenology, which attempts to provide a third option by reconciling Husserlian phenomenology with the physicalist framework of cognitive science. But as the philosopher Dan Zahavi points out, this project suffers from an inherent contradiction insofar as it fails to overcome the fact that Husserlian phenomenology is rooted in the distinction between empirical subjectivity and transcendental subjectivity (i.e. the distinction between the subject as an ‘object in the world’ and as a ‘subject for the world’). In other words, it fails to overcome the fact that Husserl did not intend to merely provide an explanation of consciousness within the objective-empirical framework of the natural sciences, but rather articulate its *unnatural* conditions of possibility or explanatory a priori: The constitutive dimension of givenness proper to philosophy *tout court*. Yet despite his reservations, Zahavi nevertheless suggests that naturalized phenomenology might be possible by somehow reconciling the transcendental with the empirical: “[T]he way to proceed is not by ignoring the transcendental dimension of phenomenology, but by reexamining and revising the dichotomy between the empirical and the transcendental”. (Zahavi 2004) But he does unsurprisingly not provide any actual account for how this should be done, except for insisting on the facts that the naturalization of phenomenology still has to operate according to the explanatory a priori of the transcendental (because otherwise it would no longer be phenomenology) – and that “if a naturalization of transcendental phenomenology is to make any sense at all, it is obvious that a clear rejection of the objectivism and representationalism that have normally

Hansen's so-called 'distinctly human perspective' therefore turns out to be nothing but a conservative mixture of corporeal fetishism and flagrant anti-rationalism, which needs to be rejected from the perspective of a truly modern form of critical theory. The commitment to the transformative potency of corporeal experience is merely a 'neo-romantic cliché' (Brassier) which not only ends up safeguarding the human perspective at the cost of modern science's wider speculative import, but also actively stops us from gaining a better understanding of how contemporary culture is being transformed by nascent consciousness-technologies operating at sub-personal, neurobiological registers. Hence, the claim that experience cannot be objectified – nor, by extension, commodified – on the one hand robs critique of decisive speculative resources, and on the other hand makes it blind to the 'manufacturing of consciousness' and 'commodification of experience' currently at work in contemporary capitalism (see Brassier 2007a).

The vectors of cognitive exteriorization concomitant with technological complexity should therefore not be compromised by conservative commitments to anthropic singularity, but must rather be oriented along the lines of the speculative vistas opened up by modern science. Central to this task is the construction and rehabilitation of the cognitive metasubject of universal applicability, which also includes a reconsideration of its wider cultural and aesthetic potential. Indeed, the idea that the fundamental role of aesthetic experience is to remedy the trauma of scientific disenchantment and mend the shattered subject of modernity merely reiterates the pitting of a reductionist account of scientific rationality against an infinitely richer form of lived experience. This is a critical a stance which is of urgent need for

been part and parcel of naturalism is required" (Zahavi 2004) – for in the end naturalization is conceived of merely as a modification, rather than an obliteration, of the transcendental. In that regard, Zahavi's account usefully exposes the inherent flaw of phenomenological naturalization: The fact that its very premise of integrating scientific explanation with an inherently anti-scientific stance is fruitless in the same way as the attempt to square the belief in the existence of God with a scientific perspective. Naturalized phenomenology therefore sits firmly on the side of its predecessor and will not provide us with further insights about consciousness and its underlying objectivity, as Zahavi himself points out: "In fact, whereas I can understand how cognitive science and phenomenological psychology might profit from one another, I don't quite see how their mutual enlightenment would lead to a closure of the explanatory gap [between third-person and first-person levels]. Nor do I understand how phenomenology is supposed to eventually provide us with an explanation of how experiences can be properties of the brain [...]". (Zahavi 2004)

reconsideration, and entails the construction of a form of critique which on the one hand identifies the cognitive dimensions of aesthetics and the imaginative potency of science and mathematics (see Wolfendale 2014); and on the other hand is conceptually equipped to effectuate a speculative unbinding of the technogenetic correlation between technology and the human on the basis of their underlying objectivity (we will address this latter issue more specifically in Chapter 3).

The scientific disjunction between thought and experience does consequently not mark the limit of cognition to index the real, but rather isolates the incapacity of experience to interface with its own cognitive and neurobiological underpinnings. In that regard, it is not so much a threat to our authentic experiencing of ourselves as embodied selves as it is the mark of a genuine emancipation of cognition from experience (rather than the other way round) and of an unbinding of lived experience from the neurobiological infrastructure necessary for its cognitive instantiation. Accordingly, technology's cultural and aesthetic import does not lie in the safeguarding of the myth of lived experience as privileged medium of affirmation, but rather in the practical extrapolation of scientific objectification through which cognition is transplanted across extensive digital magnitudes within a cultural landscape transformed by scientific abstraction.

Hence, the idea that science is nothing but a social construct (because it always operates in specific sociocultural contexts) is merely an outdated form of postmodern relativism which must be replaced with a model of critical theory that not only refuses to make science a mere handmaiden to culture, but also recognizes the former's capacity to catalyse a cultural transformation wherein cognition is stripped of its human qualities and culture intertwined with the nexus of the inhuman. However, before embarking on these issues we first need to introduce an alternative account of experience, which – contrary to the model defended by Hansen – is compatible with the natural sciences. Such an account can be extracted from the work of Thomas Metzinger, whose project is organized around a compelling naturalist account of what human experience actually is. Hence, introducing the rudiments of Metzinger's model of phenomenal experience and outlining its wider cultural implications is the primary objective of the next chapter.

Chapter 3: Phenomenological Mutants

3.1 Phenomenal Self-Modelling

In his magnum opus *Being No One: The Self-Model Theory of Subjectivity*, Thomas Metzinger presents a representationalist and functionalist (or cognitivist) analysis of how the phenomenal experience of selfhood emerges out of sub-personal, neurobiological processes. In other words, against the widespread idea among philosophers that the experience of being a self is not something which can be reductively explained – because such an explanation would automatically explain away the very target of its explanation – Metzinger’s project is one of explicating how this basic intuition can itself be explained through a thoroughgoing sub-personal analysis of what it is that makes possible the experience of oneself *as* a self. It is this analysis that we will focus on in the present chapter.

According to Metzinger, humans are complex information-processing systems that misrepresent themselves as selves because evolution has equipped them with a transparent, biological interface which increases practical flexibility (survival) yet decreases epistemic clarity (cognitive self-awareness) because it prevents the systems in question from recognizing themselves *as* systems. The interface in question is lived experience (i.e. the phenomenal first-person perspective), for what the latter indeed generates is a form of transparent window inwards and outwards – of inner and outer experience *qua* experience of self and the world – which the system by default fails to recognize as an ongoing representational process because it is unable to experience the underlying neurobiological mechanisms through which the phenomenon of lived, first-person experience is produced. In other words, through the latter we are phenomenally cut off from the reality of sub-personal neurobiological kinematics, and are instead forced to operate under the illusory immediacy of phenomenal appearances while failing to recognize them *as* appearances. For what we experience is not an unmediated contact with the world around us, but rather a low-dimensional projection of an immensely richer physical reality.

Thus, for Metzinger, the notion of an authentic self that is in immediate contact with itself and the world around is a myth rooted in complex representational processes in the brain, whose central function is to maintain the phenomenal transparency that is necessary for a stable first-person perspective. In technical terms this means that it is only the *content properties* (phenomenological data) that are accessible to the system,

but not the *vehicle properties* (underlying neurodynamics). This is how the system comes to experience itself as a self (rather than as the biological data-system it actually is) by failing to recognize that phenomenal selfhood is the content of a particular form of representational model – what Metzinger refers to as the ‘phenomenal self-model’ (PSM) – which has been generated throughout the courses of evolution in order to maximize cognitive and behavioural flexibility strictly for the purposes of survival. Our brains and sense organs simply evolved in this way, for what the PSM in fact is an example of is an immensely useful medium for a physical system’s flexible interfacing with external and internal reality. But it is precisely because the PSM enables a particular form of navigational efficacy that it also needs to filter out earlier information-processing stages, since the computational load imposed on the system otherwise would become too great. This is why phenomenal appearances are transparent: Because it allows the system to successfully integrate myriads of internal and external patterns of information while preventing it from undergoing computational overload by constantly having to process the mechanisms of representation themselves.

Phenomenal transparency is consequently the reason that the concept of ‘lived experience’ is so problematic – because it operates wholly under the aegis of what Metzinger refers to as the *auto-epistemic closure*, or *naïve realism*, which is one of the principal characteristics of the phenomenal first-person perspective. In short, it fails to recognize the latter as a highly complex data-format that has evolved to process information in a very specific way. In one of his vivid metaphors, Metzinger therefore invites us to think of the PSM as an advanced virtual reality-model. For just as in VR the major objective of the PSM is to make the user unaware of the fact that he is operating in a medium.¹¹ Yet with the PSM we need to go one step further, since unlike in VR there is no user that precedes the interaction with the system because *it is only the system that exists to begin with* (see Metzinger 2004: 553-558). Indeed, it is the system’s ability to generate a *world-model* on the one hand and a *self-model* on the other that produces the notion of a strong sense of self in immediate contact with the world:

¹¹ This is of course a very different take on VR compared to Mark Hansen’s. For whereas Hansen understands VR as the privileged vehicle for producing irreducible forms of aesthetic experiences, Metzinger, on the other hand, utilizes VR in order to dramatize the scientific reducibility of first-person experience.

First, we possess an integrated inner image of ourselves that is firmly anchored in our feelings and bodily sensations; the world-simulation created by our brains includes the experience of *point of view*. Second, we are unable to experience and introspectively recognize our self-models *as* models; much of the self-model is, as philosophers might say, *transparent*. Transparency simply means that we are unaware of the medium through which information reaches us. We do not see the window but only the bird flying by. We do not see neurons firing away in our brain but only what they represent for us. A conscious world-model active in the brain is transparent if the brain has no chance of discovering that it is a model – we look right through it, directly onto the world, as it were. The central claim of this book [*The Ego-Tunnel*] – and the theory behind it, the *self-model theory of subjectivity* – is that the conscious experience of being a self emerges because a large part of the PSM in your brain is transparent. (Metzinger 2010: 7)

This is Metzinger's representationalism, but in order to fully understand the philosophical and cultural relevance of the PSM-theory we also need to take a brief look at his functionalism. In contemporary philosophy of mind, functionalism has come to refer to a school of thought that approaches cognition in terms of the functional roles played by its individual components – not the particular medium in which this functional infrastructure is instantiated. In that regard, Metzinger's account of first-person experience is functionalist insofar as it defines the latter according to a number of neurophenomenological constraints which a system (biological or artificial) must instantiate in order to be classifiable as conscious (transparency being one of the most important ones).¹² And once the full list of functional constraints has been isolated by the scientist and the philosopher, we will have been equipped with an *abstract model* (or metacognitive account) of the cognitive target in question (experience in this case), which then will have been objectified and opened up to systematic explanation and manipulation. Once we have understood how these constraints are instantiated in biological systems it will become possible for us to technologically alter their

¹² Thorough analyses of all of Metzinger's constraints fall outside the scope of this thesis, but for his own comprehensive account of them, see Metzinger 2004: 107-212 and 299-428.

underlying mechanisms and even to construct artificial systems possessing some or all of the constraints unveiled by the PSM-theory. This includes identifying the particular neural correlates for the varieties of conscious experience, which will make it possible for us to reproduce the same experiences via technological means by activating the appropriate neuronal patterns in the brain:

[P]inning down the neural correlates of specific conscious contents will lay the foundation for future neurotechnology. As soon as we know the sufficient physical correlates of apricot-pink or sandalwood-amber, we will in principle be able to activate these states by stimulating the brain in an appropriate manner. We will be able to modulate our sensations of color or smell, and intensify or extinguish them, by stimulating or inhibiting the relevant groups of neurons. This may also be true for emotional states, such as empathy, gratitude, or religious ecstasy. (Metzinger 2010: 19-20)

It is consequently the PSM that performs the crucial job of converting the colourless particles indexed by the scientific image into the coloured phenomenal objects experienced according to the demands of the manifest image. And it does so in the form of a metacognitive model of phenomenal experience that sidesteps the conceptual shortcomings of Hansen's experiential reification. Hence, the upshot of Metzinger's account, in our view, is a thorough demystification of the concept of lived experience through its appropriate integration into a conceptual framework compatible with the natural sciences. Whereas critics generally have tended to focus on whether Metzinger has eliminated the self or not (which is the central claim of his books), it seems to us that the most decisive contribution of his work rather should be understood in terms of a distinctively original explanation of what the experience of selfhood actually is: A function of auto-epistemic closure engendered by subconscious, neurobiological mechanisms.¹³

¹³ As Brassier puts it: "Metzinger need not even deny the reality of the self (we might say that self-models are 'real' in some suitably qualified sense – though justifying this would require working out a full blown metaphysics), only the phenomenological postulate of its absolute explanatory priority. He draws a metaphysical conclusion where a methodological one would be more apt: the self-model theory of subjectivity describes and explains the phenomenon of selfhood in a way that allows it to be reintegrated

3.2 Embodiment Revisited

This does however not mean that the corporeal processes that Hansen utilizes are a mere fiction, because they are not. The problem is rather that he has reified them by turning them into a dubious core of humanity, which renders them immune to any kind of explanation aimed at understanding how they actually work. But corporeal self-intimacy as such is of course a fully real phenomenon. For Metzinger, the latter constitutes a particular form of *self-presentational content*, or bodily self-awareness, which usually operates outside of cognitive and perceptual parameters. It is the most basic form of self-related knowledge that allows a system to continuously feel itself through its fundamental physical basis: Embodiment. In that regard, the key role of corporeal self-intimacy (tactility, proprioception, etc.) is to create an integrated and centred phenomenal space organized around embodiment as the most important kind of *functional and phenomenal invariance* for human beings. As Metzinger points out, the body is the only sensory object which always is given (although mostly as a subtle, affective background to consciously directed phenomenal attention) and thereby generates the phenomenal certainty of one's own existence through the embodied experience of oneself as a living, feeling person in all its immediate richness (see Metzinger 2004: 291).

However, *pace* Hansen, the key for Metzinger is to explain how corporeal self-intimacy is functionally anchored in the brain by explicating how the content properties of embodied experience supervenes on the vehicle properties of elemental bio-regulation. For the experience of embodiment is merely another form of the phenomenal transparency introduced just now. It therefore needs to be understood not just according to its immediately lived register, but also, and more importantly, in terms of its physical and sub-personal basis. Metzinger consequently presents an alternative reading of Merleau-Ponty's distinction between body image and body schema, in which the former is an index of the phenomenal self-model and the latter the set of functional properties through which the body image or PSM is produced (see Metzinger 2004: 485-486). This is an important revision, for even though embodiment plays a crucial role in grounding the system in phenomenal self-certainty there is nothing sacrosanct about corporeal experience as such. Indeed, as Metzinger points out, a brain in a vat could potentially

into the domain investigated by the natural sciences. It forces us to revise our concept of what a self is". (Brassier 2011)

have the same kind of experience – even without an actual body – once the NCC’s for self-presentational content have been successfully isolated.

Yet we do not have to wait for future scenarios like this to refute the reification of embodiment on empirical grounds, since there are already examples of various forms of neurological disorders that point in the same direction. Cotard’s syndrome, for instance, is a particular disorder in which the patient explicitly claims that she is dead or do not exist. In other words, the patient has lost the experience of phenomenal certainty concomitant with corporeal self-intimacy: She does no longer experience her body as a lived body, but merely as an inanimate object (see Metzinger 2004: 457). Metzinger hypothesizes that the instantiation of Cotard’s syndrome in the PSM is the result of a global loss of affect following severe accidents and extreme depression. What disappears is the overall emotional profile of the PSM, which means that the so-called ‘pre-reflexive self-intimacy’ concomitant with embodiment no longer is globally available and the default corporeal experience of infinite closeness to oneself has been substituted by an emotionally disembodied experience of infinite distance. Even though the processes of elemental corporeality still are fully functional they are no longer felt by the subject, who thereby draws the conclusion that she is a dead object merely resembling a living body: “In this type of case the patient conceives of herself as nothing more than a locus, not of experience – because, due to the complete suppression of affect, her perceptions and cognitions are not annexed to her body – but of the registration of the passage of events”. (Gerrans quoted in Metzinger 2004: 460) Or, to put it differently, the patient does no longer experience herself as a self but merely as an object. Cotard’s syndrome therefore poses a fundamental problem for Hansen, since he seems to be forced to the uncomfortable conclusion that people suffering from the disorder are not actually humans because they no longer are indexes of the distinctly human perspective that he is committed to. For Metzinger, on the other hand, it is one particular example of the phenomenal state classes known as *hypertrophies*, or *deviant phenomenal models*, which – rather than being a mere conceptual dead-end – provides us with the key to the wider cultural and conceptual implications of the PSM-theory.

3.3 Hypertrophies, Phenotechnologies, Consciousness Culture

From Metzinger’s functionalist perspective, phenomenal experience comes in many different degrees and varieties depending on the number of constraints satisfied by the system in which it is instantiated. This means that two systems can have vastly different

models of reality depending on their specific catalogues of constraint-satisfaction. Yet this is a fact that is often overlooked even by professional theorists, given that non-pathological humans in standard situations all operate under the same reality-model. Hypertrophies point in a different direction, however, for what they are examples of are phenomenal state classes in which a system has lost some of the constraints necessary for a stable PSM and thereby developed a radically different reality-model. They can be instantiated through various forms of neurological deficiencies such as Cotard's syndrome, agnosia, phantom limbs, schizophrenia, and multiple-personality disorder; but also through so-called 'altered states of consciousness' such as dreams, out-of-body experiences, and psychedelic experiences.

It is this latter group of hypertrophies which are of particular relevance to the kind of cognitive culture that we are interested in sketching out here. One significant example of such hypertrophies is the effect of psychedelic drugs on the PSM, and the kind of pseudo-hallucinations (i.e. hallucinations which are recognized as hallucinations by the system experiencing them) that they tend to produce in a cognitive system's phenomenal world-model. This is important for Metzinger insofar as it is an example of phenomenal content which no longer satisfies the transparency-constraint and instead has become phenomenally *opaque*: It is explicitly recognized by the system as an internal, mental simulation. Pseudo-hallucinations are consequently a compelling example of a form of hypertrophy that does not operate under the aegis of naïve realism but instead allows the system to experience earlier processing-stages of its phenomenal reality-model. It thereby foregrounds the representational nature of phenomenal experience in a way which has an immediate import for a contemporary science of the brain:

A controlled experience of pseudohallucinations in a scientific setting may offer a chance to introspectively observe the process of construction, activation, and dynamical self-organization of phenomenal representata as they change along a gradient from transparency to opacity. [...] Transitions from transparency to opacity could become an object of rigorous investigation, not in terms of theoretical or empirical strategies, but by utilizing the phenomenal variant of representation itself as a starting point. Attentional availability of earlier processing stages, in a second step, could become a *variable* in controlled experiments, which finally might lead to

new insights concerning the notion of phenomenal transparency itself.
(Metzinger 2004: 249-250)

However, there is no reason that these experiments have to be of an exclusively scientific nature. They could also be performed utilizing aesthetic resources (or, rather, a combination between the two). We will return to this issue in the second part of the thesis, where we will discuss specific cultural material that utilizes several of the aesthetic and scientific resources implicated here. But for now let us elaborate on some of the wider cognitive implications of phenomenal opacity.

As we just saw, pseudo-hallucinations are an interesting example of a deviant phenomenal model insofar as they no longer operate under the aegis of transparency but under phenomenal opacity. However, there is still a transparent PSM which experiences this kind of opacity; or, to put it differently, pseudo-hallucinations are a form of opaque content which nevertheless is indexed according to a predominantly transparent reality-model. This naturally begs the question of whether it is possible to conceive of experiential states which are *fully* opaque – not just for certain kinds of phenomenal content but for the PSM as a whole. Metzinger names this hypothetical form of subjective configuration ‘nemocentric subjectivity’. A nemocentric subject is a subject who still operates under an egocentric frame of reference and a centred model of reality, but at the same time is *phenomenally selfless* because its PSM is opaque through and through. It is a subject for whom all of the earlier processing-stages of the PSM are attentionally available because they do not satisfy the transparency-constraint, which means that it no longer operates under the aegis of naïve realism and therefore is unable to instantiate a phenomenal self. A nemocentric subject is therefore a subject without a self, because it lacks a phenomenal centre of experience. It would still be capable of referring to itself as “I”, although it would do so not from a phenomenal first-person perspective but from a non-phenomenal *first-object perspective*; because it would experience itself as a system and not as a self (see Metzinger 2004: 581). In that regard, it would be the perhaps most compelling *literal* instantiation of the view from nowhere (i.e. the cognitive metasubject), which the meaning of the term ‘nemocentric’ alludes to: A representation centred on nobody.

There is consequently somewhat of a convergence between Cotard’s syndrome and the hypothetical notion of nemocentric subjectivity in that both are examples of system-states without phenomenal selfhood. Yet there is an important difference as

well, for whereas Cotard's syndrome is characterized by a lack of self-awareness, nemocentrism is the result of *increased* self-awareness in that it provides a rational subject a more fine-grained perspective of its own representational deep-structure. Naturally, this would also involve new forms of biological issues, since a system operating under a nemocentric reality-model would need to make up for the additional computational load concomitant with the processing of opaque phenomenal content. Yet it would most certainly also present new cognitive opportunities, which already is exhibited to a certain degree by humans, since – as Metzinger points out – parts of our cognitive infrastructure already operate under an opaque model in that its content is explicitly recognized as internal representations. This is the case with higher cognitive functions such as rational thoughts, which means that a cognitive system of the model sapience operates across a spectrum covering both degrees of opacity (rational thoughts) and transparency (phenomenal experience). However, a nemocentric subject would be fully opaque in that even its first-person experience would be recognized as a dynamic, representational structure.

It is of course difficult for us to even imagine how a nemocentric subject would conceive of itself – or even someone suffering from one of the neurological deficiencies mentioned earlier – and this has to do with the nature of phenomenal transparency itself, which the PSM-theory exposes in a paradoxical way. For even if we intellectually believe in the latter, we are still *phenomenally committed* to naïve realism in that we cannot simply disregard the first-person perspective and the transparency according to which it operates. In other words, while the PSM-theory certainly is intellectually possible it is also phenomenally impossible from the perspective of our particular cognitive architecture. This naturally begs the question of whether the PSM-theory might turn out to be nothing but a fancy theoretical construction – something we might believe in on an intellectual level, yet which has no actual impact on our lives in that we still are forced to conceive of ourselves as selves and of experience as authentic and immediate. But Metzinger suggests that this will not always be the case; for once neuroscience expands into neurotechnology and neurotechnology turns into what he refers to as 'phenotechnology', it will come to have immediate and potentially dramatic impact on our lives and culture as a whole. At this point, theoretical programs aimed at upholding the primacy of human experience will need to be replaced with what Metzinger refers to as the creation of *a new cultural context* (see Metzinger 2010: 237-240), organized around the cultural implementation of the naturalistic image of man in

the form of a theoretical and practical extension of the scientific disenchantment of the world to the more recent neuroscientific disenchantment of the self. Furthermore, this new cultural context will require the creation of neuroanthropology as a new form of intellectual discipline, whose purpose is to create the rational foundation for normative issues concerning what we *ought to* and *ought not to* become by drawing attention to and systematically exploring the complexity of our experiential possibility space and its underlying neurobiological dynamics.¹⁴ Indeed, one of the most significant insights of the PSM-theory is that experience, like its underlying neurobiological mechanisms, is an inherently *plastic* medium. It is not a static and fixed framework, but rather a dynamical interface that can be modified via neurotechnological means and indeed constantly changes in response to demands imposed by the environment. This is what Metzinger refers to as the extraordinary depth of our phenomenal state-space:

The mathematical theory of neural networks has revealed the enormous number of possible neuronal configurations in our brains and the vastness of different types of subjective experience. Most of us are completely unaware of the potential and depth of our experiential space. The amount of possible neurophenomenological configurations of an individual human brain, the variety of possible tunnels, is so large that you can explore only a tiny fraction of them in your lifetime. [But] a naturalistic, neuroscientific image of humanity suddenly makes it obvious not only that we have a huge number of phenomenal states at our disposal but also that explicit awareness of this fact and the ability to make use of it systematically could now become common to all human beings. (Metzinger 2010: 217)

If successful, rational neuroanthropology will consequently lead to the emergence of a genuine *consciousness culture* operating under the aegis of the cognitive exploration of deviant phenomenal models through the utilization of a variety of resources, such as digital technology, psychoactive substances, scientific and philosophical data, and

¹⁴ As with VR, we may usefully contrast Metzingerian neuroanthropology with Hansen's commitment to an anthropological *qua* embodied perspective. For whereas the latter is invoked in order to stave off the threat of science in the name of phenomenal experience, the former is construed on the basis of science's neurophenomenological eradication of lived experience.

nascent phenotechnologies. This would allow us to systematically explore the multidimensional structure of the PSM and its underlying plasticity through various cultural and scientific experiments which would turn us into what Ray Brassier refers to as ‘phenomenological mutants’: Phenomenal selves modified by various forms of consciousness technologies (see Brassier 2001: 200). We will have a look at a number of examples of such a consciousness culture in the second part of the thesis, but we first need to extend our critical account of unobjectifiable aesthetic experience by examining the work on panpsychism by Steven Shaviro. As we will see, explicating the underlying problems with Shaviro’s account of non-human, non-cognitive experience will help us to shed further light on our own understanding of the cognitivist and abstract underpinnings of human experience.

Chapter 4: The Metaphysics of Aesthetic Experience

4.1 Aesthetic Experience as Primordial Feeling

Drawing upon the work of Gilles Deleuze and Alfred North Whitehead in particular, Steven Shaviro criticizes the post-Cartesian privileging of cognition (i.e. reasoning, representation, and perception) which has dominated Western philosophy at the cost of a more primordial corporeal feeling. The latter constitutes the basic *affective tone* of subjective experience, which for Shaviro has a much wider impact than that of cognition. For whereas cognitive registers play a relatively minor role in subjective experience, affect, on the other hand, operates across a pre-conscious and pre-subjective realm that forms the experiential basis out of which the subject itself emerges. Affect consequently precedes and exceeds cognition in that it is ontologically prior to cognitive processes on the one hand; and on the other hand because it encompasses a wider ontological scope through the primordial functioning of experience. According to Shaviro, experience is the irreducible foundation through which the subject constitutes itself by forming encounters with the experiences of other subjects. This ultimately means that everything is part of the realm of experience and that aesthetics becomes the locus of philosophy, because it (unlike epistemology, for instance) involves a form of primordial feeling which is entirely divorced from scientific objectification and objective knowledge in general. Shaviro consequently criticizes universally oriented cognition as a dangerous totalitarianism that is similar to political despotism and religious fanaticism in that it attempts to subsume everything to the same critical standards. Not only is this impossible, but also undesirable in that it would mean the end of all sorts of invention and creativity congruent with experience *qua* 'constructive functioning' (Whitehead). The latter is an index of affect as a fundamental encounter with novelty in the form of subtle bodily fluctuations, since to be affected means to be transformed at a pre-cognitive register where body and mind exist along the same continuum and which only later enters into the domain of conscious reflection. This is the process which cognitivist and rationalist models of subjectivity ultimately fail to appreciate, and which thereby compels Shaviro to take up the Whiteheadian dictum of replacing notions of truth and understanding with an immanent model of experience organized around enjoyment and purpose, since for Whitehead the efficacy of propositions has more to do with how they are felt than with whether they are true or not. The latter is consequently the basis of Shaviro's account of affect *qua* primordial

feeling, which takes the form of “a pre-cognitive, pre-reflexive, and aesthetic mode of subjectivity; an “I” of pure experience, that does not take the form of the Cartesian cogito”. (Shaviro 2014; page numbers have been omitted, since we only had access to an unpublished draft of this book)

4.2 A Panpsychist Metaphysics

Shaviro’s position is naturally very similar to Hansen’s in this regard, but there is one crucial difference. Whereas Hansen remains committed to what ultimately is an anthropocentric account of experience, Shaviro, on the other hand, explicitly rejects this in favour of a speculative extension of the experiential across the non-human realm. Once again drawing upon Deleuze’s and Whitehead’s work – but also on that of the more recent object-oriented philosophy (i.e. Graham Harman, Levi Bryant, Ian Bogost, and Timothy Morton) – Shaviro criticizes the post-Kantian privileging of the human/world-relation at the cost of the numerous relations between non-human entities.¹⁵ For Shaviro, this is merely another symptom of Western philosophy’s obsession with cognition and representation, which fails to take into account what he (following Whitehead) refers to as ‘causal efficacy’ – or the non-representational way in which all kinds of entities affect and are affected by each other through non-human experiences. For whereas cognition and representation only belong to so-called ‘high-grade organisms’ like ourselves, causal efficacy is universal in that it refers to the non-cognitive sense in which all sorts of entities (organic and inorganic) touch each other affectively by forming immanent connections through fluxes of feeling. This ultimately means that affect, feeling, experience, and even aesthetics must be reoriented along ontological trajectories, since what they are indexes of is the *ontological equality* among entities: The fact that all entities must be put on the same ontological footing because they are all constituted by the same kinds of affective and experiential relations. They are all ‘drops of experience’, to use Whitehead’s formulation; or in Shaviro’s own words:

There is always a subject, though not necessarily a human one. Even a rock – and for that matter even an electron – has experiences, and must be

¹⁵ It is first and foremost Graham Harman’s philosophy which Shaviro draws upon (see in particular Shaviro 2011, as well as Harman 2011 for Harman’s response).

considered a subject-superject [i.e. something that emerges from experience rather than precedes it] to a certain extent. A falling rock “feels”, or “perceives”, the gravitational field of the earth. The rock isn’t conscious, of course; but it is *affected* by the earth, and this *being affected* is its experience. (Shaviro 2009: 12-13)

It is consequently for these reasons that Shaviro comes to embrace panpsychism – the thesis that all entities have mind-like qualities – since he sees it as the only possible way of overcoming philosophies which operate according to what Whitehead refers to as ‘the bifurcation of nature’ (i.e. according to a sharp distinction between the experience of nature and nature as the cause of experience). According to Shaviro, this is the problem with phenomenology and eliminativism respectively: The former ends up over-privileging human experience at the cost of its non-human counterparts, while the latter simply dismisses the existence of experience altogether. Contrary to this, as well as to arguments of the contingency and radical emergence of experience, Shaviro argues that experience already is an intrinsic part of nature and consequently that ‘thought’ (understood in a wider sense than in post-Kantianism) is not a unique or particularly privileged human phenomenon, but a common feature of being *tout court*. This does not mean that every entity is conscious or ‘alive’ in the traditional sense, but rather that everything is ‘mindful’ without necessarily being given to a mind. In other words, according to Shaviro, the claim that everything is mindful does not mean that everything is a mere function or correlation of a human mind, but rather that mindfulness extends far beyond the human realm in the form of non-cognitive, experiential connections among all sorts of entities in ways which cannot be neatly confined within cognition and representation. For Shaviro, the panpsychist ‘depsychologization of experience’ (Isabelle Stengers) is therefore the proper way out of post-Kantian idealism and the bifurcation of nature. This will allow an ontological democratization of non-cognitive thought which dethrones its anthropocentric privileges and blurs the line between sapience and sentience, subject and object, and mind and matter.

However, despite its explicitly non-phenomenological inclinations, Shaviro’s account nevertheless suffers from a problematic model of inner experience that is rooted in the same kind of dubious separation between first-person phenomenal experience and third-person scientific knowledge at work in phenomenology. More specifically,

Shaviro argues that it would be impossible to verify panpsychism scientifically since it makes an ontological rather than empirical claim. Indeed, the underlying idea with his panpsychism is not just that all entities enjoy a certain amount of mindfulness, but also that this mindfulness takes place at a register autonomous from human access. Shaviro links this non-human autonomy to what he refers to as “the strange ontological status of ‘experience’”. (Shaviro 2014) The latter indexes the public inaccessibility of so-called ‘inner experience’ and the fact that first-person subjective experience cannot be reduced to third-person objective knowledge, since the attempt to analyse or communicate the spectrality of inner experience ends up undermining its immanent complexity by turning it into a cognitive abstraction. Contrary to this, Shaviro argues that we need to accept both that non-human entities have distinctly non-human experiences, and that these experiences far exceed our understanding of them in their richness and complexity:

[A] bat’s thinking is inaccessible to us; we should not anthropomorphize the bat’s experience by modelling it on our own. But we also should not claim that, just because it is nonhuman, or not like us, the bat cannot have experiences at all. These are really just two sides of the same coin. We need to accept, both that the bat does have experiences, and that these experiences are radically different from ours, and may have their own richness and complexity in ways that we will never understand. (Shaviro 2014)

Shaviro consequently follows Wittgenstein’s characterization of inner experience as ‘not a Something, but not a Nothing either’, which draws a sharp distinction between the object which is the cause of experience and the experience itself. For even though human and non-human experiences do take place entirely within the world as described by science, this does not mean that they can be neatly encapsulated in scientific terms because science is only capable of talking about the extrinsic feature of things but not about their *intrinsic nature*. Science can only say what things are to others, but not what they are to themselves, which is where panpsychism emerges as a decisive conceptual resource by complementing the causal interactions described by science with an equally important account of the experiential locus of the physical world. The latter refers to affect as a kind of non-human thought operating below the threshold of representational information-processing and phenomenological aboutness, in the form of what Shaviro

names ‘noncorrelational sentience’. Affect, accordingly, involves phenomenality rather than phenomenology, and compels us to expand our notion of ‘thinking’ to also include non-cognitive processes of touch that exceed any kind of cognitive or intentional relation between a human subject and a non-human object. Indeed, for Shaviro, it forces us to think precisely insofar as it is an index of an experiential excess which takes place at a register prior to cognition and among non-human entities in general. This is consequently why affective experience *qua* primordial feeling is aesthetic rather than epistemological, why a pluralistic thought immanent to being lays the groundwork for a metaphysics capable of undoing the post-Kantian correlation between thinking and being, and why reality ultimately is aesthetic.

4.3 The Cognitive Recoding of Affective Experience

There are a number of problems with Shaviro’s panpsychism, two of which we want to examine further in this chapter: The interlinked issues of the reification of affective experience and the anthropomorphic criticism of the anthropocentrism of cognition.

Let us begin with the first issue. Building upon the discussion of Mark Hansen’s work in Chapter 2, we can now see that while Shaviro extends experience beyond the confines of the human, he nevertheless retains the neo-phenomenological account of inner experience as unobjectifiable and irreducible to third-person systematic explanation. In that regard, he has hardly overcome the bifurcation of nature (or what Sellars refers to as the clash between the manifest and scientific images) in that he has merely extended the rift between nature as experienced and nature as the cause of experience into the non-human realm. The claim that experience is ‘not a Something, but not a Nothing either’ is not far from Hansen’s characterization of corporeal experience as an ‘unobservable x’, whereas the attribution of irreducible experiential and mindful qualities to everything only reiterates the problematic idea that aesthetic experience needs to be sharply delineated from scientific objectification on an ontological scale. This is particularly unfortunate in the context of a theoretical program such as Shaviro’s, which explicitly utilizes scientific data produced in such fields as insect biology and complexity theory without turning it to cultural metaphors (i.e. it does not simply dismiss scientific explanation as a mere fiction in the same way as Hansen) – yet nevertheless insists on maintaining a sharp dichotomy between a reducible outer nature and an irreducible inner experience. This once again begs the question of why the latter necessarily must remain outside the externalizing vectors of

scientific objectification. Why do we have to keep reserving a privileged space for the experiential, rather than simply integrating it into the nature to which it inevitably belongs? What is it about inner experience that compels even scientifically oriented theorists such as Shaviro to ascribe to it such a privileged and unique status?

This not only points to one of the most problematic aspects of Shaviro's work, but also indexes a peculiar quandary within the affect theory-strand of critical theory that his and Hansen's projects belong to and which therefore is in need of some unpacking via a brief look at the genesis of the field. What we have in mind here in particular is that Shaviro's and Hansen's insistence that affective experience should be sharply distinguished from scientific explanation notably breaks with the influential theorization of affect by the cultural theorist Brian Massumi in his by now canonical essay on the topic, which has come to form one of the cornerstones of affect theory (see Massumi 1995). Thus, whereas Hansen and Shaviro insist on isolating affectivity from scientific explanation, Massumi, on the contrary, explicitly draws upon scientific experiments when articulating his neo-Deleuzian understanding of affect. For even though he shares Hansen's and Shaviro's conception of affectivity as operating prior to – and below the threshold of – cognition, he does not view science as antagonistic to this conception of affect – but on the contrary in support of it. Indeed, what is often forgotten in by now familiar neo-Deleuzian articulations of affect as aesthetic and bodily potential (in the form of 'virtuality' and 'novelty') is that this only comprises one register of Massumi's essay. For operating alongside the Deleuzian toolbox of concepts is a series of theoretical frameworks and empirical data provided by mathematics and the natural and cognitive sciences – such as topology, complexity theory, and (most significant to us) neurophysiology. Indeed, one way to characterize the essay is as an attempt to link recent advancements in these fields with a neo-Deleuzian philosophy of corporeality and materiality. In other words, whereas Massumi has similar ideas as Shaviro and Hansen about affect as a form of bodily potential operating prior to the register of cognition, he does not characterize it as an aesthetically irreducible mode of lived experience, but as a form of subconscious, neurophysiological modulation that is *accessible to science*. This is a significant point, for not only does it mark an important disjunction among key affect theorists on the question of whether scientific explanation has any import in our understanding of affect; but it also highlights the turn away from neuroscientific resources among some more recent work operating under the aegis of affect theory, in favour of the dubious accounts of aesthetic and lived experience which

we encountered earlier. This is unfortunate insofar as neurobiology has been a crucial aspect of the turn towards affect in critical theory from its very inception, and in our view still needs to be insisted on if critical accounts based on affectivity are to have any purchase within the realms of politics, philosophy, and culture.

It is with this in mind that one should consider Massumi's discussions of scientific experiments in his affect-essay. One such experiment that has been particularly crucial for the development of affectivity in critical theory is that of the missing half-second. This refers to one of a series of experiments conducted between the 1970's and 1990's by the neurophysiologist Benjamin Libet, and which then came to influence discussions about the relationship between intention, corporeality, and free will. The experiment cited by Massumi involved a number of participants who all were asked to place their hands on a table top and then flex a finger at any given moment. They were then asked to report when they first became aware of their decision to do so by referring to the spatial position of a revolving dot on an oscilloscope (an electronic instrument capable of measuring fractions of seconds). Libet reports the following results: The finger-flexes occurred 0.2 seconds after the participants registered their decisions, yet the EEG-machine (the electroencephalograph, i.e. a machine for measuring activity in the brain) signalled notable brain activity 0.3 seconds *before* the participants reported awareness of their decisions. In other words, the experiment seems to suggest that conscious decision-making is preceded by subconscious brain activity (what has become known as 'readiness potential'); or, to put it differently, that there is a half-second time-lag between subconscious neural activity and conscious intention. Both Libet and Massumi argue, on the basis of experiments such as these, that reasoning and intention are preceded by complex corporeal processes, and consequently that "what we think of as "free", "higher" functions, such as volition, are apparently being performed by autonomic, bodily reactions occurring in the brain but outside consciousness". (Massumi: 1995) Thus, free will, for Libet and Massumi, seems to have nothing to do with initiation, but with *vetoing* and with *selection*.

It is experiments such as these which compels Massumi to reinvent the concept of affectivity by fusing his particular interpretations of them with readings of the philosophies of Spinoza, Bergson, Deleuze, Simondon, and others, in the form of a by now familiar vocabulary of affect as virtuality, intensity, novelty, and so on. Yet despite the fact that Massumi deserves considerable credit for having attempted to fuse Continental philosophy and critical theory with contemporary neuroscience, the

question still remains about the extent to which this particular fusion is valid. Indeed, as the critical theorist Ruth Leys points out, there are good reasons for questioning it (see Leys 2011). In particular, Leys draws attention to a series of responses to Libet's experiment, which emphasizes the simple fact that the movements performed by the test-subjects are examples of movements which normally are executed without one's explicit awareness or intention to act. Therefore, to ask the participants to actually pay attention to them is to construct an artificial scenario which fails to take into account the distinction between *conscious intention* and *subconscious motor movements*. The objection here is therefore not that the subconscious movements indexed by Libet's experiments are non-existent, but rather that the conclusions drawn from them are false. For while there naturally exist a large variety of bodily processes which occur outside, or at the edges of, awareness – indeed, as Metzinger points out, “there may also be forms of simple bodily self-awareness, which are so fleeting that not only are they not available for cognition and perceptual memory but not even for self-directed *actions*” (Metzinger 2004: 286) – it does not necessarily follow that the existence of such bodily processes makes it necessary to undermine the entire register of cognition and representation. On the contrary, it seems perfectly plausible to us that it is possible to *recode* these processes in cognitive terms by characterizing them as a particular form of self-presentational content – which, as Metzinger notes, takes the form of non-conceptual, cognitively unavailable content that indexes the internal state of the experiencing self in the form of a ‘subtle affective tone’ (see Metzinger 2004: 287-288) – but whose existence nevertheless does not threaten to undermine the legitimacy of cognitive reasoning and representational efficacy which affect theorists too often tend to assume.¹⁶ Or, to put it differently, the mere existence of subconscious motor movements

¹⁶ Another objection related to the conclusions drawn from the experiment (which we do not agree with, but it is worth pointing it out anyway) is that if conscious thinking and volition indeed lag behind subconscious neurophysiological processes, it seems that the notion of free will not only might need to be reconsidered but in fact *abandoned* (as some commentators have pointed out in response to Libet's experiment). In that regard, Massumi's account of affectivity actually bears some resemblance to neurobiological eliminativism of the kind defended by Scott Bakker, who argues that since thinking is preceded and exceeded by automatic brain-processes there is simply no point in talking about free will at all. The sharply contrasted conclusions drawn by Massumi and Bakker naturally originates in their very different understandings of biology (as emergent and creative and as reducible and deterministic), but what they both have in common is the privileging of neurophysiology over cognitive reasoning-processes in their understandings of what it means to be human.

does not provide enough ground to question the very nature of cognition and representation.

Furthermore, it is interesting to note that Massumi explicitly rejects the criticism that his account of affect “inevitably raises the objection that such notion involves an appeal to a pre-reflexive, romantically raw domain of primitive experiential richness”. (Massumi 1995) This is because affect, as he understands it, is not part of experience as such. But it is not outside of experience either. Affect, for Massumi, is immanent to experience without actually being experienced – except through its effects. This is the basis for his famous distinction between *affect* and *emotion*; where emotions refer to conscious and personal experiences, and affects to subconscious and pre-personal forces which produce such experiences. But this leads to the question of why we should even talk about experience at all? If one understands affects to be composed of subconscious neurophysiological modulations which cannot be directly experienced but indexed by the representational efficacy of cognitive science, would it not be better to expand on the former and simply downplay the experience-talk altogether given that affects ultimately operate at the neurophysiological and not the experiential level?¹⁷ Indeed, a core usefulness of techno-scientific experiments lies precisely in how they provide cognitive and representational traction on phenomena which operate outside our experiential life-world. If affects indeed are composed of subconscious, neurophysiological modulations, does not their wider cultural implication lie in how we may understand them cognitively rather than in how we may feel them experientially? It seems to us that it is at this particular juncture where the avowed corporeality of affect theory comes into question. For even though Massumi explicitly denies that the account of affect proposed by him is merely a neo-romantic vision of experiential richness, he nevertheless rejects the Kantian objective of indexing the conditions of possible experience in favour of a Deleuzian imperative to complexify corporeal experience as unclassifiable emergence and unassimilable novelty. It is at this crucial moment where affect theory turns into a non-cognitive account of the body *qua* movement/sensation, first in the work of Massumi and later on in the work of theorists such as Hansen and Shaviro – who ironically redefine affectivity in exactly the kind of neo-romantic terms rejected by Massumi – and which we believe has led affect theory into somewhat of a

¹⁷ Thanks to Kodwo Eshun and Mark Fisher for pointing this out and for encouraging us to write this criticism of affect theory.

conceptual lacuna. Indeed, as Leys points out, there is a certain tension already in Massumi's work between his utilizations of scientific experiments to explain how affects operate and his claim that experience is unclassifiable and unassimilable (see Leys 2011: 468). And unfortunately, this tension has not yet been resolved but instead ended up even more obscured by the later rejections of affect theorists such as Shavero and Hansen of the link between neuroscience and affectivity.

What has been lost here in particular is indeed the representational availability and neurophysiological basis of affectivity, which provides the rudiments for a very different conception of the relationship between cognition and affect than those proposed by affect theorists. Indeed, we believe that it is possible to rethink affectivity along the Kantian trajectories dismissed by Massumi by recoding its corporeal commitments in cognitive terms. This would involve reconceptualising the relationship between cognition, affectivity, experience, and corporeality as construed by central affect theorists, as well as rethinking affectivity along the lines of cognitive *Erfahrung* – as opposed to corporeal *Erlebnis* – by rearticulating the false dichotomy between aesthetic experience and cognitive science at work in much recent affect theory. Needless to say, this ambition goes beyond the scope of this thesis. But it is nevertheless worth elaborating on even briefly insofar as it promises to put much needed conceptual light on a topic that has become obscured by neo-Deleuzian clichés and anti-scientific aestheticism. For either one accepts Hansen's and Shavero's claims that affectivity has nothing to do with science – which admittedly makes any detour into cognitive neuroscience unnecessary, but at the same time opens up affect to the many problems brought up in this thesis – or one follows Massumi in explicitly utilizing neuroscientific experiments to articulate the notion of affectivity. But in that case one also has to address an entirely different set of issues concerning the neurophysiological underpinnings of affect – as well as the relationship between cognition, affectivity, experience, and corporeality – which no longer may be characterized in terms of mere 'irreducibility'. While research on this topic has been conducted for a long time in the cognitive sciences (see Leys 2011: 468-472 for a brief overview) it is still somewhat lacking in the humanities, which is unfortunate insofar as it harbours decisive cultural and socio-political significance and therefore is of general interest also for philosophers and critical theorists. In that regard, the critical essays on affect by Ruth Leys (see Leys 2011) and Felicity Callard and Constantina Papoulias (see Callard and Papoulias 2010) are exemplary, precisely insofar as they sidestep affect theory's default commitment to

corporeal experience and instead make important efforts to investigate its not entirely unproblematic relationship with the neurosciences and the extent to which its anti-cognitivism is conceptually tenable. It is work of this kind – as opposed to the neo-Deleuzian aestheticism and corporeal romanticism which has come to dominate many recent strands of affect theory – which we believe harbours the key to affect theory's future critical import.

4.4 The Abstract Underpinnings of Cognition

Let us now turn to the second issue: The critique of the anthropocentrism of cognition, which Shaviro formulates on the basis of a particular kind of anthropomorphism. Shaviro is of course aware of the anthropomorphism that inevitably goes with panpsychism, but does not see it as a problem insofar as he considers a certain amount of anthropomorphism necessary in order to avoid anthropocentrism. In other words, the rationalist claim that sapience is different in kind from sentience insofar as it is bound by certain forms of normative, rule-governed patterns is necessarily anthropocentric for Shaviro precisely because it assumes that human cognition is unique or exceptional to begin with. Contrary to this, panpsychism views rationality as just one particular example of a wider image of thought which encompasses sapience and sentience, the organic and the inorganic, and mind and matter. What this leads to is a deterritorialization of thinking, which robs it of its cognitive and human privileges by distributing a pluralistic account of non-cognitive mindfulness across all of non-human materiality in such a way that human cognition no longer may be viewed as particularly privileged or exceptional at all. Indeed, if all entities exhibit a certain amount of experience, mindfulness, and even agency, it would be wrong to view sapient cognition as fundamentally different from the kind of vital sentience indexed by panpsychism. Human thinking and non-human mindfulness should consequently not be radically separated, Shaviro argues, since the distinction between the animate and the inanimate is far from as clear-cut as Western philosophers often have assumed. As he puts it himself: "Vitality is unevenly distributed, but it is at work everywhere. This is why the 'democracy of objects' [Levi Bryant] is also a 'democracy of fellow creatures'". (Shaviro 2014)

Yet Shaviro's critique of the anthropocentric assumptions of cognition suffers from his claim that it remains deadlocked in a conservative human exceptionalism. As we saw earlier, Shaviro's panpsychist program can only think of cognition as an

intrinsically human feature that must be counterbalanced with the nonhuman mindfulness of sentience (which is posited as strictly continuous to sapience) and even of the inorganic. Yet this criticism fails to appreciate the abstract underpinnings of the cognitive model defended and utilized in this thesis. For as we saw in the previous chapter, the cognitive structures at stake here are only contingently instantiated in sapient creatures insofar as unfolding their sub-personal architecture will allow us to account for their underlying medium-independence and potential techno-scientific extension beyond the human substrate. In other words, cognition may have evolved through the biological and sociocultural history of sapience, but this does not mean that it constitutes a set of parameters intrinsic to the human in the form of a given axis or immutable core. In the words of the philosopher Jean-Pierre Dupuy:

[C]ognitivism asserts that if a mind arises as a result of implementing a certain program in the physical world, then any implementation of the same program in different hardware, no matter what it may be, would produce a mind endowed with the same properties. In other words, what is essential for the emergence of mind is not the concrete causal organization of this or that material system possessing a mind; what is essential is its *abstract* causal organization, which remains invariant when one passes from one material system to another. (Dupuy 2009: 6)

Accordingly, the claim that any injunction towards the cognitive is steeped in human exceptionalism only makes sense if one considers cognitive interests to be strictly symmetrical to human interests, but this is in our view false. Hence, the problem with Shaviro's criticism of the anthropocentric assumptions of cognitivism is that it only takes into account one side of the cognitivist program (its rationalist agenda), while failing to address the other one (its abstract underpinnings). For even though the cognitivist program indeed remains committed to a sharp discontinuity between sapience and sentience, this is only part of the story insofar as it also views the evolution of cognition as wider in scope than the evolution of its human substrate. In that regard, one might say that the cognitive discontinuity between sapience and sentience also needs to be accompanied by a discontinuity between cognition and substrate. As the philosopher Reza Negarestani puts it: Once the techno-scientific abstraction of cognition is realized, the link between cognition and substrate is

significantly weakened in that it allows for the cognitive to evolve asymmetrically to the evolution of the substrate. What this means is that cognitive abstraction is unveiling an image of the human that is radically discontinuous with the present in that it does not simply view *Homo sapiens* as the pinnacle of cognitive maturity, but as a vehicle for the revisionary emancipation of cognition as a vector of progressive self-realization (see Negarestani 2015). In short, the significance of cognitivism as realized through the human does not lie in any kind of essential conjunction, but rather in the possibility for future *disjunctions*, and to commit to its revisionary vectors is therefore to commit to a cognitive overturning of canonical portraits of the human, which is the reason for why this speculative program recently has been referred to as *inhumanism*.¹⁸

In that regard, Shaviro's non-human aesthetics remains ill-equipped for addressing issues concerning the aesthetic, despite (or, rather, because of) its avowed aestheticism. Indeed, the claim that everything is irreducibly aesthetic not only ends up flattening aesthetic potency into a homogenous plane of 'novelty' (for does not the claim that everything is new really mean that nothing is new?), but also stops us from gaining further insight into how aesthetics and culture may be transformed and expanded by scientific and cognitive resources operating beyond the confines of his experiential reification. The result is therefore not the speculative program he is looking for, but indeed a living, anthropomorphic nature steeped in a neo-animism that leaves us with profound quandaries regarding the supposedly irreducible nature of a form of aesthetic experience common to all entities.

Hence, whereas Shaviro's experiential commitment to the nonhuman operates according to an ontological democratization that distributes human qualities across all organic and inorganic entities, cognitivism instead seeks to unbind cognition from its contingent instantiation in the medium 'sapience' by unveiling its abstract and sub-

¹⁸ Inhumanism may be characterized as a revisionary and constructive extension of humanism which takes as its starting-point the abstract infrastructure of cognition. As Negarestani puts it, "Inhumanism is the extended practical elaboration of humanism; it is born of a diligent commitment to the project of enlightened humanism. A universal wave that erases the self-portrait of man drawn in sand, inhumanism is a vector of revision. It relentlessly revises what it means to be human by removing its supposedly self-evident characteristics while preserving certain invariances. At the same time, inhumanism registers itself as a demand for construction: it demands that we define what it means to be human by treating the human as a constructible hypothesis, a space of navigation and intervention". (Negarestani 2014: 427; see also Brassier and Malik 2015, Negarestani 2015, and Wolfendale 2016)

personal underpinnings. Central to this cognitive unbinding are, on the one hand, the claims that cognition can be mapped out and explained objectively, and that it is possible to implement its abstract infrastructure in different substrates (e.g. artificial or post-biotic); and, on the other hand, that this will be a fundamental objective of so-called ‘techno-science’ – understood as the practical program of augmenting ourselves and the world through science and technology. Needless to say, it is the latter perspective that this thesis endorses; and in its second part we will attempt to begin unpacking some of its cultural and aesthetic implications. But we first need to complete our criticism of affect theory’s commitment to the emancipatory potency of aesthetic experience by having a look at its function in the work of Nick Land, which also will help us setting the stage for the analyses of culture and acceleration in Part Two.

Chapter 5: Technological Negation

5.1 The Acceleration of Critique

In this chapter we will complete our critical engagement with affect theory, but also present the conceptual underpinnings to one of the central arguments of this thesis: The claim that cognition can be objectified, or exhaustively exteriorized, by impersonal technological instruments. So far we have characterized this largely as an important *scientific* achievement, yet it also comes with a number of philosophical implications that necessitates the construction of a critical framework capable of indexing its decisive *conceptual* import. Accordingly, this is the task of the present chapter's account of objectification as *technological negation* or *cognitive spatialization*.

The rudiments to such an account of technological negation can be found in the work of Nick Land, whose writings have remained unpublished and largely unread until their recent re-emergence in the context of new accelerationism where they finally seem to have found an audience willing to engage with their largely untapped intellectual potency (see Avanesian and Mackay 2014). Needless to say, it was the uncompromising and intemperate tone that informs the Landian textual apparatus – along with its disdain for all forms of humanist culture and politics – which quickly made the writings fall into obsolescence. But Land's work has more to offer than mere esoteric writing-experiments and rabid anti-humanism, for beyond the admittedly dense textual surface lies a rigorous (anti-)conceptual framework organized around the notion of technological negation. Indeed, it is precisely the attempt to forge a link between technology and the powers of the negative which we take to be one of the most significant aspects of the Landian corpus insofar as it refuses to make technology a mere function of cognition, but rather turns cognition into a function of technology (i.e. artificial intelligence). However, despite its extraordinary cognitive implications, Land's project nevertheless remains steeped in a problematic model of affective depersonalization, which – despite significantly reorienting the concept away from its vitalist underpinnings – nevertheless remains tied to the experiential agenda of the theorists discussed in the previous chapters. In particular, it is, as we shall see, the link between technological negation *qua* affective depersonalization and Land's vision of techno-capitalist acceleration that constitutes the core of this problematic. This is consequently the aspect of Land's work that we will be focusing on here.

At the heart of the Landian corpus is the attempt to radicalize critique beyond what he considers a conservative and severely institutionalized academic landscape.¹⁹ For Land, this means abandoning every theoretical program organized around a reactionary humanist socialism that aims to criticize capitalism from the perspective of an exterior representational model. The problem with this approach, according to Land, is that it fundamentally misidentifies capitalism as a particular politico-economical phase in human history, whereas it in fact is an index of an emerging artificial intelligence-system of planetary proportions which slowly assembles itself through nascent technological resources and ultimately will render human history obsolete in the form of a so-called ‘technological singularity’. Utilizing Deleuze and Guattari’s controversial account of capitalism as a system which unleashes inhibited productive potentials of prior social formations, along with a cybernetically informed reconsideration of Freud’s death drive, Land consequently presents a delirious vision of capitalism as a planetary singularity progressively drawing terrestrial history towards a global state of inorganic dissolution:

Capitalism is still accelerating, even though it has already realized novelties beyond any previous human imagining. After all, what is human imagination? It is a relatively paltry thing, merely a sub-product of the neural activity of a species of terrestrial primate. Capitalism, in contrast, has no external limit, it has consumed life and biological intelligence to create a new life and a new plane of intelligence, vast beyond human anticipation. (Land 2011: 626)

Thus, whereas critique of the traditional kind views capitalism as a system that needs to be overcome, Land instead celebrates it as the true agent of inhuman emancipation. This is the reason that representational models of capitalism from a humanist perspective ultimately have to be abandoned, since they are nothing but feeble attempts to decelerate the global processes of acceleration congruent with the capitalist singularity. From a Freudian perspective, one might say that central to the critical objective of the

¹⁹ Land’s position as an academic outsider is an important factor for fully understanding the heretic tone which animates his ‘90s texts. For useful overviews of Land’s antagonistic relationship to the academia, see Reynolds 2009 and Fisher 2014b.

humanist kind is a misunderstanding of the relationship between capitalism and death, wherein the contradictory idea of the death of capital comes to replace death as the impersonal motor which fuels capitalism *tout court*. As Land puts it himself: “The death drive is not a desire for death, but a hydraulic tendency to the dissipation of intensities” (Land 2011: 283); and it is the identification of this speculative model of impersonal death (i.e. death *qua* intensity=0, or the degree zero of being) with capitalism (as opposed to merely the biological organism, as in Freud) which animates the Landian project as a whole.

Accordingly, critique can no longer operate according to the parameters of truth versus falsity, but has to be reconfigured along the axis of acceleration versus deceleration. It is no longer a question of speaking about or to create conditions for critical interventions, but to connect and intensify in such a way that it feeds directly into the immanence of capitalist production and thereby facilitates the progressive emancipation of its nascent planetary intelligence. Any attempt to counter these processes – such as by asking ‘why?’ or ‘but what if?’ – ultimately needs to be abandoned given that the program of critique now has to be situated squarely on the side of the synthetic. This is where representation becomes substituted for intensification and where theory is redeployed as a means for accelerating the cyberpositive escalation of the capitalist singularity: “There is no real option between a cybernetics of theory or a theory of cybernetics, because cybernetics is neither a theory nor its object, but an operation within anobjective partial circuits that reiterates ‘itself’ in the real and machines theory through the unknown”. (Land 2011: 295)

This controversial model of capitalism has its roots in a short-lived ‘heretical Marxist’ tendency in post-’68 French theory – most notably represented by Deleuze and Guattari’s *Anti-Oedipus*, Lyotard’s *Libidinal Economy*, and Baudrillard’s *Symbolic Exchange and Death* – which all argue that the proper way to overcome capitalism is not through deceleration from the outside but through acceleration from within. Accordingly, Deleuze and Guattari understand capitalism in terms of a dynamic that consists of simultaneous processes of decoding/deterritorialization and recoding/reterritorialization. Capitalism, in their view, both opens up *and* blocks possibilities for new forms of social formations, and the accelerationist objective should consequently be one of pushing the processes of decoding and deterritorialization beyond what capitalism itself is capable of (as opposed to reject everything that capital

has ever been associated with). As they put it in the perhaps most quintessential accelerationist passage in *Anti-Oedipus*:

But which is the revolutionary path? Is there one? – To withdraw from the world market, as Samir Amin advises Third World Countries to do, in a curious revival of the fascist ‘economic solution’? Or might it be to go in the opposite direction? To go further still, that is, in the movement of the market, of decoding and deterritorialization? For perhaps the flows are not yet deterritorialized enough, not decoded enough, from the viewpoint of a theory and practice of a highly schizophrenic character. Not to withdraw from the process, but to go further, to ‘accelerate the process,’ as Nietzsche put it: in this matter, the truth is that we haven’t seen anything yet. (Deleuze and Guattari 2004: 260)

This account of capitalism was taken even further by Lyotard in *Libidinal Economy* – a book which, as Mark Fisher points out, should be understood as the acceleration of Deleuze and Guattari’s work insofar as it removes the processes of recoding and reterritorialization – which for them are constitutive of capitalism as such – in favour of an image of capital as operating in terms of pure decoding and deterritorialization (see Fisher 2008). Hence, what is left for Lyotard is a thoroughly synthetic proletariat that joyfully celebrates the ‘mad destruction of their organic body’ that capitalism imposes upon them:

The English unemployed did not have to become workers to survive, they – hang on tight and spit on me – enjoyed the hysterical, masochistic, whatever exhaustion it was of hanging on in the mines, in the foundries, in the factories, in hell, they enjoyed it, enjoyed the mad destruction of their organic body which was indeed imposed upon them, they enjoyed the decomposition of their personal identity, the identity that the peasant tradition had constructed for them, enjoyed the dissolutions of their families and villages, and enjoyed the new monstrous anonymity of the suburbs and the pubs in morning and evening. (Lyotard 2004: 109-110)

What is perhaps most extraordinary about *Libidinal Economy* today is not so much its false (but admittedly seductive) model of capital, but rather its deliriously aggressive style – which is light-years away from the Lyotard that we have come to know through postmodern critical theory, and only really has been matched by Land through his similar hatreds of representational critique and left-wing humanism. For instance, Lyotard’s provocative claim that the English working-class enjoyed capitalism’s mad destruction of their organic body is similar to Land’s criticism of the leftist moralist socialism “aimed at the restoration of a lost human integrity” (Land 2011: 267) in the face of capitalist abstraction. For even though Land mainly utilizes (a reworked version of) Deleuze and Guattari’s conceptual machinery in his own accelerationist texts, it is really Lyotard’s understanding of capitalism to which he ultimately subscribes. Indeed, whereas Deleuze and Guattari eventually came to adopt a much more ‘sober’ attitude in their follow-up to *Anti-Oedipus* – 1980’s *A Thousand Plateaus*, which explicitly raises a finger of caution about the dangers of pushing processes of deterritorialization too far – and Lyotard later rejected *Libidinal Economy* as his ‘evil book’, it was really Land who pushed accelerationism *qua* heretical Marxism to novel speculative dimensions in his ‘90s texts.

But it was nevertheless Deleuze and Guattari’s understanding of capitalism that turned out to be the most accurate insofar as what characterizes late capitalist culture of the postmodern kind is not an uninhibited emancipation of inhuman technological potential, but a bland mixture of techno-scientific complexity and quasi-organic primitivism: “Genetic engineering labs next to lovingly reconstructed nineteenth century village greens”. (Fisher 2008; see also Fisher 2014b) Indeed, Land’s understanding of capitalism as an agent of global depersonalization clearly does not fit well with the actual reality of capitalist culture, which shows few signs of his delirious post-humanism. On the contrary, what characterizes capitalism, as Reza Negarestani points out, is not death as an impersonal motor, but rather an obsession with lifestyles and modes of living (*qua* affording more); which means that capitalism in fact only can integrate death and exteriority in ways which are affordable to the organism as such, precisely insofar as banal forms of individualism are integral parts of its basic infrastructure (see Negarestani 2010). “Capitalism has abandoned the future because it can’t deliver it”, as Fisher puts it (Fisher 2014b) – which indeed points to a crucial misdiagnosis of capitalism in the Landian corpus, but also to the need to rethink (rather than reject) the vectors of inhuman emancipation and future-orientation at work in his

essays. For as absurd as Land's position may seem today, it still provides an important contrast to the flaccid conservatism and bland affirmationism in which much of contemporary critique is mired – and it is this speculative inhumanism which is worth insisting on from a contemporary perspective (although in a somewhat different form). It was indeed Land's ability to synthesize his speculative vision of capitalism and uncompromising critique of academic orthodoxy with the latest cultural innovations (underground dance music in particular) and a vast range of theoretical and fictional resources which gave his writings what Alex Williams refers to as their “exquisitely savagery quality” (Williams 2013;²⁰ see also Mackay and Brassier in Land 2011: 1-54). And even though one certainly may be suspicious of their enthusiastic romanticization of capitalism as the avatar for a coming technological singularity, the sheer magnitude of their visionary scope should nevertheless not be rejected. Indeed, the latter is exactly what is missing following the widespread cognitive and cultural downscaling that we have witnessed over the past few decades, and which makes the rehabilitation of speculative programs of the Landian scope an absolute necessity. We will return to this issue in Part Two, but now we need to turn to the link between technological negation, cognitive emancipation, and affective depersonalization which in our view constitutes the conceptual core of the Landian project.

5.2 Technological Negation as Affective Depersonalization

The mechanics of Landian accelerationism are organized around an account of the objective underpinnings of technological cognition from the perspective of a particular kind of affective depersonalization. As we just saw, Land argues that the fact that technology emerges through human history does not make it reducible to human practices and intentionality in the form of an interiorized exteriority – for what the technological rather implicates for Land is the obliteration of anthropic interiority *tout court*. This is encapsulated in his commitment to a technological singularity: A futuristic scenario where human intelligence will have become surpassed by an emerging super-intelligence realized by advanced A.I., whose cognitive superiority to

²⁰ Williams' essay provides a useful overview of the recent criticisms of Land's project, such as its confusion of thinking and being, its misdiagnosis of the algorithmic mechanics of capitalism, its limited conception of freedom, its romantization of speed, and its eradication of human agency. The present chapter attempts to expand on this list of criticisms.

humans will be comparable to that between humans and other animals and thereby render human minds a thing of the past. As Land puts it himself: “Human brains are to thinking what medieval villages were to engineering: antechambers to experimentation, cramped and parochial places to be”. (Land 2011: 293) Hence, the argument that humans invented technology – and therefore it cannot but remain intrinsic to biological history – gets things backwards according to Land, since what the cyber-culture of late capitalism unveils is the fact that human history was nothing but a mask for an abstract intelligence of planetary proportions whose gradual emergence will mark the realization of a global cognitive transformation. The link between technological singularity and cognitive transformation is outlined in one of Land’s most important passages, which warrants quoting at length:

It is ceasing to be a matter of how we think about technics, if only because technics is increasingly thinking about itself. It might still be a few decades before artificial intelligences surpass the horizon of biological ones, but it is utterly superstitious to imagine that the human dominion of terrestrial culture is still marked out in centuries, let alone in some metaphysical perpetuity. The high road to thinking no longer passes through a deepening of human cognition, but rather through a becoming inhuman of cognition, a migration of cognition out into the emerging planetary technosentience reservoir [...] where human culture will be dissolved. Just as the capitalist urbanization of labour abstracted it in a parallel escalation with technical machines, so will intelligence be transplanted into the purring data zones of new software worlds in order to be abstracted from an increasingly obsolescent anthropoid particularity, and thus to venture beyond modernity. (Land 2011: 293)

Needless to say, the account of cognitive transformation and cultural subversion brought about by the technological overturning of the human has been a crucial influence on our own project. Yet for all its remarkable speculative implications, Land’s inhuman overturning of human culture nevertheless ends up suffering from similar shortcomings to that of the more orthodox Deleuzian theory which he aimed to reinvent. Indeed, Land’s criticism of human cognition’s inferiority to A.I. suffers from the same kind of anti-rationalism that has become endemic to neo-Deleuzian theory in that it can

only think of cognition and representation as obsolete indexes of sapience which need to be blatantly rejected on the basis of non-human sentience. As Ray Brassier points out, Land views human cognition as a mere derivative of the primary process that is intensive materiality – which means that he can only think of representation as a fundamentally conservative medium whose mere existence is antagonistic to the cognitive transformation at stake in his work (see Brassier 2010). In this future scenario, sapient reality-models (including those produced by neuroscience) will have become surpassed by an abstract intelligence that will unmask A.I. for what it really is: Not an object of natural science open for extensive academic analysis, but a ‘meta-scientific control system’ geared at technically supplanting the central nervous-systems (CNS) of an increasingly obsolete human species:

Brains constellate excitable cells into electro-chemically signalling networks whose emergent outcome involves behavioural guidance through operantly-tested reality models (including neuroscience). If virtual reality competes with ‘natural’ neuronal hypothesis, it must simultaneously divert behaviour (minimally: CNS motor output) into alternative machinic channels. VR is less a change of levels than a mutation of circuitry; a matter of additive sensory-motor reloopings, compressing anthropohistorical consensus reality into a menu option as it denaturalizes the brain. (Land 2011: 437)

This is why Land’s project lacks an actual model of cognition. Instead, he mobilizes a neo-Deleuzian reconsideration of Kant’s transcendental synthesis in order to explain how human cognition is a mere function, or secondary by-product, of the machinic potencies of intensive, non-human materiality. As Brassier and Robin Mackay argue, central to the Landian project is a fusion of Kant’s model of transcendental synthesis with Deleuze’s account of self-organizing matter in which synthesis no longer is construed in terms of objects of experience and the faculties of the understanding from the perspective of human cognition (see Mackay and Brassier 2011). Instead, in Land’s work, synthesis becomes dehumanized and distributed across all of organic and inorganic matter in a way which allows him to explain how human cognition and representation emerge from the primary processes of non-human synthesis at the level of self-organizing materiality. This is the root-source to Land’s critique of cognition and representation insofar as the latter are viewed as mere transcendental illusions that

prevent us from recognizing the self-organizing production of non-human materiality (or the body without organs), and death as the impersonal nexus of anti-production that underpins production as such.

Yet for all its speculative inventiveness, Land's distribution of synthesis across all of materiality remains a mere machinic variety of the problematic panpsychism that we examined in the previous chapter, insofar as the claim that human cognition is a mere derivative of a 'thinking' immanent to matter as such ends up flattening the human onto the non-human in a way which brings it closer to traditional neo-Deleuzian theory than to the cognitive inhumanism it calls for. For as we saw in the previous chapter, it is rather through the nexus of human cognition that the inhuman gradually emerges insofar as the explication of its abstract underpinnings points to the fact that alien artifice already is inside us. We were never 'human' in the way that we thought we were, and the 'high road to thinking' therefore indeed 'passes through a deepening of human cognition' – which Land's model fails to appreciate insofar as it dismisses human cognition too hastily and consequently ends up confusing the inhuman with the non-human, or thinking with being.

This leads us to the issue of affective depersonalization, which we need to confront both from a philosophical and from a cultural perspective. Let us begin with the philosophical. In Land's work, the concept of affective depersonalization plays a pivotal role insofar as it is nominated as the process that allows cognitive subjects to feed back into the impersonal machinery of primary production. For if one accepts the Landian critique of representation, the problem then becomes one of how to circumvent the illusion of cognitive representation and converge with, or dissolve oneself across, the vectors of non-human materiality. This is where Land widens the neo-Deleuzian underpinnings of his project by nominating affect *qua* experiential intensity as the primary medium through which human beings are able to gain temporary access to the inner workings of the emerging technosentience reservoir. In other words, Land conceives of the convergence between human interiority and non-human exteriority in terms of a particular kind of affective experience – but whereas affect theory of the traditional kinds oppose representation to a sub-representational layer of lived experience, Land instead (since he is not interested in the experiences of any individual subjects) aims to push experience and affectivity to their absolute breaking-point in the form of an *impersonal experience*. Contradictory as it may sound, Land's notion of an impersonal experience *qua* experience of death is organized around the idea that if the

affective subject emerges from pre-personal experiential processes it is possible to also de-stratify it on the basis of the latter. As Fisher points out of the Landian position: “[T]he claim is that experience need not presuppose a subject. Rather, de- or pre-personalised sensation precedes the formation of a subject that is always only ever epiphenomenal”. (Fisher 2014a)

Here it is useful to make a brief detour into the work of the philosopher Manuel DeLanda, whose illuminating work on this Deleuzian model of subjectivity helps to clarify the Landian position. DeLanda first and foremost credits Deleuze with having invented (*vis-à-vis* Hume and Bergson in particular) a materialist theory of experience that conceives of the psychological subject as what he refers to as a ‘crystallization in a field of raw sensations’ (see DeLanda 2008 and DeLanda 2011).²¹ According to this theory, the subject is a mere coagulation of inner and outer sense impressions on the one hand, and internal, lower-intensity replicas of these impressions on the other (so-called ‘ideas’, which are non-linguistic and non-representational). And what gives the subject its coherence *vis-à-vis* itself and the world is the habitual association of these ideas according to the parameters of resemblance, causality, and contiguity in space and time. Extreme mental states such as madness, delirium, and psychedelic states are consequently conceived of as moments when the coagulation of the subject is dissolved and the individual sensations are unbound from the coherence of their human bearer. But crucially, DeLanda argues that what happens in extreme mental states such as these is not that one goes unconscious. Rather, the sensations, having liberated themselves from the framework of human self-coherence, turn out to have their own ‘micro-consciousness’ insofar as they are no longer experienced from the fixed perspective of a human subject but are instead experiencing themselves in a kind of free-floating, de-stratified form. What this points to, according to DeLanda, is the fact that the field of sensation does not need the subject (i.e. it is not a mere function of subjective experience), and that experiential processes continue to operate even when the subject melts away in the form of what he, following Deleuze, refers to as ‘larval selves’. Larval selves, for DeLanda, are precisely ‘mini-selves’ which are attached to raw sensations that experience themselves without reference to a human subject and only are

²¹ These are both lectures by DeLanda on Deleuze and subjectivity given at the European Graduate School. For texts where DeLanda discusses the same issue, see in particular DeLanda 2006: 47-52 and DeLanda 2011: 80-110.

contingently instantiated by it. Psychedelic experimentation is accordingly conceived of as a science of systematically dissolving the subject on the basis of these pre-personal experiences. But whereas DeLanda – just like Deleuze and Guattari – cautions against pushing the processes of destratification too far so as to avoid complete madness or delirium, Land instead seeks to mobilize these resources for the purposes of absolute deterritorialization. Accordingly, for Land, the fundamental objective of aesthetics and even theory itself becomes one of inducing an affective state of complete depersonalization through which human subjects momentarily converge with impersonal death *qua* degree zero of being.

The Landian understanding of affect consequently has nothing to do with having intense experiences, but with intensifying experience to the point of complete depersonalization; since what Land aims to retain from the affective animus is the emphasis on the pre-personal nature of intensities – not the subject which later comes to experience them. This is how Land reinvents the Deleuzian concept of intensity by removing all of its Bergsonian underpinnings on the basis of an impersonal thanatropism that finds its post-phenomenological realization in a speculative ‘experience without a subject’. Hence, despite its extraordinary cognitive ambitions, Land’s project is nevertheless steeped in a kind of gothic experientialism given that affect and intensity turn out to be the *modus operandi* for emancipatory theory and practice – indeed, for their very convergence in the form of an experiential flattening of the transcendental subject onto immanent death.

Yet there is an obvious problem here, since death, as Brassier points out, “is not translatable into any register of affective experience or affective intensity” (Brassier 2010); which means that to nominate affect-based convergences of theory and practice as the gateway towards inorganic dissolution is to engage in a kind of performative contradiction. Death may be cognized, but that does not mean that it can be experienced. Indeed, because of his pre-critical commitment to the emancipatory potencies of affect and intensity, Land turns what really is a cognitive phenomenon – a particular deviant phenomenal state – into a metaphysical process which consequently turns out to have no actual practical efficacy.²² There are simply no machinic materialist

²² This is linked to another issue, which has to do with the emergence of a heretic affirmationism rooted in Land’s insistence that the affective destratification of representational subjectivity will be a process of *enjoyment*. It might take the form of an experience of dread and paranoia, but it will be an exciting one given that it will allow the subject to joyfully affirm its own dissolution by going faster and faster until it

subjects of the kind envisioned by Land. This leads us to the cultural objection to the Landian model of affective depersonalization, since its conceptual incoherencies also have important cultural (and political) implications. In particular, coupled with his equally dubious account of capitalism as global vector of inhuman emancipation, it becomes increasingly evident that what primarily is lacking in the Landian project is any account of cognitive and cultural *agency*. As we saw in the previous section, Land envisions capital's transformation of human culture to realize itself independently of human intervention since the processes at work in the techno-capitalist singularity far outstrip the cognitive capacities of the human species. Instead, the only option for bio-sapient interiority is to affectively dissolve itself on the basis of techno-sentient exteriority by utilizing various cultural instruments of identity-disintegration (such as cyberspace and rave culture, as we shall see in the Chapter 8). However, since capitalism never overturned the human life-world in the way envisioned by Land – and the human species similarly was culturally and cognitively unable to feed back into the abyss of impersonal death – the Landian project ultimately ended up in a kind of practical incapacity which has become increasingly obvious from the cultural and political stagnation that has been the result of capitalism's successive expansions over the past decades. The futures promised by Land were simply never realized, since it turned out that capital did not possess the inhuman agency that he suggested; which means that it is necessary at the present moment to rehabilitate cultural and cognitive agency, since it has become evident that capitalism will not deliver in the way envisioned by Land and that we consequently need models of cognitive subjectivation which may act as normative foundations for cultural and socio-political agency capable of actually transforming capital for the better. This will be a key theme in the second part of this thesis, where the rehabilitation of cultural and aesthetic agency from the perspective of this project will be construed in terms of a particular model of so-called 'cognitive mapping'. But we first need to begin outlining its conceptual underpinnings in the final section of this chapter, which necessitates reformulating the notion of technological negation as speculatively deployed by Land according to the agenda of

has become fully integrated into the immanence of the capitalist real. In that regard, Land's position is neither an affirmationism of the traditional kind, nor a straightforward mobilization of the negative, but an example of what the political theorist Benjamin Noys refers to as 'epidemic affirmationism': An "affirmation of the essential infiltration of the negative". (Noys 2010: 79)

techno-scientific objectification utilized in this thesis. This will allow us to reorient these resources from the Landian account of technological negation as affective depersonalization towards the conceptual territories of cognitive spatialization. For as Fisher points out, Land's experience without a subject may usefully be contrasted with Brassier's 'subject without experience' (i.e. the cognitive metasubject, or Metzinger's nemocentric subject; see Fisher 2014a) – and our reconsidered notion of technological negation will, as we shall see, allow us to rethink technology's speculative registers on the basis of the shift from an experience without a subject to a subject without experience. It will allow us to formulate an account of technology in terms of cognitive spatialization as opposed to affective depersonalization.

5.3 From Affective Depersonalization to Cognitive Spatialization

The rudiments to the conceptual underpinnings for this account of technological negation may be extracted from Brassier's discussion of the sociologist Roger Caillois' conception of the psychology of psychasthenia (see Brassier 2007b: 42-48 and Caillois 1935), which is organized around so-called 'spatial dispossession'. More specifically, Caillois identifies psychasthenia as a fundamental "disturbance in the [...] relation between personality and space" (Caillois 1935), in which the psychological subject is compelled by an impersonal spatial attraction which ends up dispossessing it of its vitalist self-conceptions: "[T]he living creature, the organism, is no longer the origin of the coordinates, but one point among others; it is dispossessed of its privilege and literally no longer knows where to place itself". (Caillois 1935) For Caillois, the psychology of psychasthenia is perhaps best exemplified by schizophrenics, whose mental condition is characterized precisely by a form of spatial depersonalization in which their psychological individuality slides uncontrollably towards the immanence of unbounded exteriority: "To these dispossessed souls, space seems to be a devouring force. Space pursues them, encircles them, digests them in a gigantic phagocytosis. It ends by replacing them". (Caillois 1935) Yet Caillois' analysis does not stop here. In a move similar to Freud's in his account of the death drive in 'Beyond the Pleasure Principle' (see Freud 2003: 43-102), Caillois argues that the spatial dispossession of psychasthenia is a mere psychological instantiation of a phenomenon spanning across much vaster registers, from the biological to the sociocultural. Accordingly, he finds a similar logic at work in various forms of insect mimicry – such as mantises that mimic flowers and leaf insects that mimic leaves – in which the distinction between inside and

outside, organism and environment, also is significantly blurred. And contrary to the popular conception of mimicry as operating solely under the aegis of adaptation and survival (i.e. an organism mimics part of the environment in order to survive), Caillois draws attention to various forms of non-adaptive mimicry through which organisms end up annihilating themselves – such as leaf insects that mimic their own food and thus becomes “the dying semblance of its own living sustenance”. (Brassier 2007b: 43)

This latter example points to one of the fundamental conceptual imports of Caillois’ account of spatial dispossession: Its negation of the categorical difference between life and death, or the animate and the inanimate. As he remarks himself: “The assimilation to space is necessarily accompanied by a decline in the feeling of personality and life” (Caillois 1935), which is conceptually significant insofar as it shatters the philosophical idea of life as unobjectifiable transcendence on the basis of an immanent objectivity. This is an explicit post-Darwinian insight, and one way to characterize the conceptual import of Darwin, as Brassier argues, is precisely in terms of a re-inscription of natural and biological history into space (see Brassier 2007b: 48). There is consequently a necessary link between scientific thought and Caillois’ account of depersonalization by assimilation to space insofar as the scientific enterprise as such indeed may be understood as operating according to a logic of spatial dispossession in which the notion of life as philosophers often have understood it (e.g. in terms of unobjectifiable consciousness, experience, or vitality) is subjected to significant categorical reorganization. As Caillois notes in a particularly incisive passage:

One can already recognize the characteristic scientific attitudes and, indeed, it is remarkable that represented spaces are just what is multiplied by contemporary science: Finsler’s spaces, Fermat’s spaces, Riemann-Christoffel’s hyper-space, abstract, generalized, open, and closed spaces, spaces dense in themselves, thinned out, and so on. The feeling of personality, considered as the organism’s feeling of distinction from its surroundings, of the connection between consciousness and a particular point in space, cannot fail under these conditions to be seriously undermined. (Caillois 1935)

In *Nihil Unbound*, Brassier links Caillois’ account of spatial dispossession as manifested in contemporary techno-science to a model of objective cognition according

to which objectification indexes an objectivity operating prior to that of the subject – as opposed to merely a particular form of objective knowledge from the perspective of the subject. And against Adorno and Horkheimer, for whom objectification is nothing but an adaptation to the inanimate according to the logic of self-preservation – of which the technological automation of cognitive processes merely is the latest instantiation – Brassier utilizes this model of objective cognition in order to effectuate a conceptual reversal of critical theory’s account of objectification as a cognitive pathology. Objectification, from this perspective, is no longer construed as a pathological repression of humanity strictly for the purposes of survival, but as a cognitive overturning of the transcendental subject that is evacuated by de-individuated space and “swallowed up by the brute opacity of the object”. (Brassier 2007b: 44)²³

The objectivity underlying the current model of technological negation consequently has to be linked to a specific form of spatial dispossession: Cognition is overturned by technological complexity insofar as it is robbed of its transcendental self-differentiation and re-inscribed into the impersonal exteriority concomitant with de-individuated space. Thus, rather than the Landian injunction to affective depersonalization according to the parameters of cyber-positive escalation, it is cognitive spatialization on the basis of what Brassier, following Hegel, calls ‘concept-less exteriority’ which properly indexes the speculative unbinding of the technogenetic correlation between embodiment and technology as originary condition of phenomenalization (Hansen).²⁴ Indeed, space, as Caillois understands it, is conceptually

²³ It is worth noting here that Mark Hansen also utilizes Caillois’ account of psychasthenia when formulating his corporeal media-phenomenology. More specifically, Hansen argues that psychasthenia indexes how digital art effectuates an affective contact between body and world by explicating their ‘primordial indivision’. Linking Caillois’ account to his reading of Merleau-Ponty’s conception of the body as situated immanently in the world, Hansen consequently sees psychasthenia as a form of ‘dynamic coupling of body and space’ which generates subtle fluctuations in the register of ‘lived spatiality’. This is not the impersonal space of modern science, but an affective space ‘constituted by the motor-intentionality of the body’. Yet insofar as he has reduced de-individuated space to a mere function of embodied affectivity (*qua* indivision of body and world), Hansen’s analysis of psychasthenia has merely modified the concept along the anthropocentric registers of his corporeal phenomenology, at the cost of its wider speculative import (see Hansen 2006: 126-137).

²⁴ This also allows us to link Caillois’ account of the psychology of psychasthenia to Metzinger’s discussion of hypertrophies (such as Cotard’s syndrome), since what these examples isolate are various concrete sociocultural instantiations of the form of cognitive subversion at stake here: Human subjects overturned by an impersonal objectivity. Needless to say, our intention is not to romanticize various

significant precisely insofar as it indexes a reality prior to embodiment and the order of the animate as such – which manifests itself in such diverse phenomena as insect mimicry, scientific reasoning, and the psychology of psychasthenia. Accordingly, rather than operating on the basis of an ultimately incoherent model of affective depersonalization *qua* technological negation of the parameters of cognition and representation, the current model of technological negation instead effectuates a cognitive overturning of the transcendental subject by rendering it immanent to space in the form of the impersonal void of the object (see Brassier 2007b: 44). As we saw earlier in our discussion of phenotechnologies and consciousness culture, the key conceptual and sociocultural import of emerging neurotechnologies is precisely their capacity to exteriorize the cognitive subject along the sub-personal axes of spatialized objectivity. The technological objectification of cognitive structures may therefore be characterized as ‘synthetic intelligence’s short-circuiting’ (Brassier) of the anthropocentric life-world, wherein the human organism gradually comes to unfold the involution between organic vitality and inorganic death from which it draws sustenance. Indeed, it is precisely insofar as synthetic intelligence harbours the implicit capacity not only to explicate but also to reprogram the morphology concomitant with biological interiority that technology “not only dismembers the vital unity of being; more fundamentally, it objectifies the subject in such a way as to sunder the putative reciprocity between mind and world”. (Brassier 2007b: 45)

The plethora of modern consciousness-technologies therefore marks a trauma for the transcendental subject insofar as it subverts the latter’s avowed humanism by converting cognition into series of abstract algorithmic sequences. In that regard, it indexes a significant transformation in the register of cognitive understanding – which no longer is rooted in the immutable core of the human phenomenon, but in the plasticity and universality of spatialized objectivity. In the second part of this thesis, we will see how the remobilization of technological negation along the axes of cognitive spatialization crucially circumvents Landian affective depersonalization in the form of an aesthetic of cognitive mapping based not on speed and intensity, but on navigation and representation. As we shall see, this is precisely where cultural and aesthetic agency as socially instantiated through cognitive mapping (or representational and navigational

forms of cognitive pathologies, but to emphasize their underlying conceptual significance – which we believe can be practically reinvented in the form of speculative cultural experiments.

modelling) becomes crucial. Hence, as our next step we need to turn to new accelerationism, which will provide us with the wider conceptual framework for this model of technological negation *qua* cognitive mapping.

Part 2: The Techno-Cultural Exteriorization of Organic Interiority

Chapter 6: Cultural Dimensions of New Accelerationism²⁵

6.1 The Cognitive Lacuna of Folk Politics

In their exceptionally ambitious book *Inventing the Future: Postcapitalism and a World Without Work*, Nick Srnicek and Alex Williams offer a compelling diagnosis of the current political malaise of the left. The latter is steeped in what they refer to as ‘folk politics’; a term which indexes a set of assumptions and attitudes that are shared by many anti-capitalist groups, but which in themselves are inadequate to properly challenge the global hegemony of late capitalism. Central to folk politics are certain transitory and small-scale tactics oriented around concepts such as ‘localism’, ‘organicism’, ‘authenticity’, ‘immediacy’, and ‘horizontalism’, and which articulate themselves in the form of by now familiar leftist political actions such as occupations, marches, protests, strikes, and the establishments of temporary autonomous zones. Yet

²⁵ Here we need to raise a word of caution regarding the many ambiguities surrounding the concept accelerationism. It was initially coined by the political theorist Benjamin Noys in order to criticize the earlier post-’68 strands of accelerationist writings (Lyotard, Baudrillard, and Deleuze and Guattari in particular; see Noys 2010), but has since then been appropriated by numerous theorists who seek to reformulate it for the productive ends that Noys’ criticism fails to identify. The term has consequently been steeped in a certain ambiguity right from the start, and this is true even today insofar as the many mobilizations of the term by numerous thinkers for a variety of different ends only have reinforced its initial ambivalence. Accelerationism has been taken up in political theory, rationalism, affect theory, design, art theory and practice, and so on, in ways which makes it impossible to view it as a coherent theoretical position that neatly encompasses the many thinkers associated with it. As Nick Srnicek puts it: “I think part of the problem of discussions about ‘accelerationism’ – square quotes intended – is that it has so many different embodiments. The accelerationism of Marx is different from that of Lyotard, D&G in *Thousand Plateaus*, and Land. Which is all different from Firestone and Haraway’s work, and mine and Alex’s project, and all of which is in turn different from Negarestani and Brassier’s work. So the term, I increasingly think, is difficult to pin down beyond a broad family resemblance”. (Srnicek 2015: personal communication) Yet even though we agree with this assessment of the ambiguity of the term, we nevertheless think that it has its usefulness as a way to articulate a certain critical attitude which we believe that the key accelerationist thinkers share (capitalism needs to be transformed from within, rather than retreated from) – as opposed to a particular theoretical position which all the thinkers associated with the term neatly may be grouped up around. With that said, different strands among new accelerationism may nevertheless be isolated; and the one which we are drawing upon here is the ‘neo-rationalist’ wing associated with the work of Ray Brassier and Reza Negarestani in particular (for a useful overview of the many varieties of accelerationism, see Mackay and Avanesian 2014).

the problem is that none of these tactics offers more than temporary bunkers of resistance against the invasive hegemony of late capitalism, and they have consequently been reduced to mere symbolic acts whose practical political purpose remains blatantly unclear: Are we engaging in them because we actually believe that they will change things for the better, or are we stuck in the ritualism of an outdated set of political instruments? For Srnicek and Williams it is certainly the latter which is the case – and it is therefore the key task of the left at the present, they argue, to scale up beyond its conservative commitments to the local and transitory and embrace the transformative potencies of globality, technology, science, complexity, and abstraction. As they demonstrate in the book, neoliberal capitalism did not appear out of nowhere, but was the result of meticulous long-term and large-scale planning which spanned over several decades – and this is exactly what is missing in the leftist disdain for globality, mediation, abstraction, and techno-science.

The outcome of this is indeed disappointing, given that it has turned the leftist agenda into a conservatism that ultimately is unable to move beyond the political deadlocks of the present and change the world for the better. For despite the neoliberal rhetoric of progress and modernization, it has become blatantly clear that capitalism will not be able to deliver on its promises of growth and innovation, since it ultimately ends up stymying the revolutionary potentials of its socio-technological infrastructure under the aegis of its relentless obsession with the accumulation of surplus value. In that regard, capitalism cannot be viewed as the impersonal pilot of acceleration, as Land did in his writings, given that its core mechanics – as Deleuze and Guattari saw – must be understood not only in terms of deterritorialization but also in terms of complementary reterritorialization. Yet the left will be unable to intervene in these mechanics as long as it remains committed to the fetishization of temporary autonomous zones and the nostalgia for some kind of pre-capitalist organic primitivism. On the contrary, Srnicek and Williams argue, the left should fully immerse itself in the techno-social infrastructure that has emerged through capitalism and repurpose it towards the speculative horizons of a genuinely ‘post-capitalist’ social system. This means taking up and fully utilizing the resources of cognitive abstraction, long-term and large-scale planning, technological automation, and subversive universality in order to reclaim progressive modernity from its confinement within neoliberal capitalism and ultimately build a counter-hegemonic political program capable of overturning the hegemonic universality of capital. Only then will the left be able to rehabilitate the utopian futures

– indeed, the future as such – which capitalism has erased from the individual and collective imagination.

What primarily interests us here are not the specific political components of this ambitious political program (for more on this, see Srnicek and Williams 2015), but rather the cognitive lacuna that Srnicek and Williams argue that folk politics is rooted in. Indeed, the fact that they to a significant extent characterize the emergence of folk politics in terms of a cognitive lacuna is significant to us, since it feeds directly into a central topic of this thesis: Overcoming the cultural and critical dead-ends that emerge in the wake of the cognitive disjunction between a humanist critical theory and an increasingly inhuman scientific image of man-in-the-world (and indeed of the world as such).

According to Srnicek and Williams, folk politics does not refer to an explicit political position, but rather to a set of critical assumptions that are more or less advocated by various anti-capitalist groups. In that regard, it may be understood as a political *common sense* that partially has grown out of the particular political history of the left, and – while once effective – has become increasingly out of joint with modern structures of power. They consequently argue that folk politics also must be understood in terms of a failure of the left to engage with a world which is becoming increasingly complex, abstract, and non-linear. As they put it, phenomena such as globalization, the economy, and climate change are all abstract systems whose non-human complexities vastly outstrip the cognitive capacities of the human experience and therefore leave us alienated in a world which no longer neatly corresponds to our experience (see Srnicek and Williams 2015: 13-14). It is this form of non-human alienation that folk politics aims to overcome by scaling things down to a human level, and which manifests itself in terms of temporal, spatial, and conceptual immediacy. This includes nostalgia for the past (i.e. a desire to restore a certain primitivism that capitalism allegedly has obliterated) as opposed to pushing towards the future, a privileging of the local and small-scale (e.g. small businesses and communities) over the global and large-scale, as well as valorising the experiential and affective over the cognitive and rational (see Srnicek and Williams 2015: 10-11). This does however not mean that the critical elements advocated by folk politics should be completely rejected, but rather that they must be repositioned within a larger political spectrum that also encompasses the cognitive, the global, and the future. As Srnicek and Williams put it, at the present moment of increasing non-human complexity there seems to be two options to choose

from: Either reduce complexity to a human level, or expand humanities' capacities to interface with complexity (see Srnicek and Williams 2015: 16)

Yet the cognitive lacuna indexed by folk politics also expresses itself culturally, as we have seen throughout this thesis. Indeed, it is possible to extend the critique of conceptual, spatial, and temporal immediacy to culture – in terms of aesthetic and critical commitments to affect and experience prior to cognition and representation (see Part One), concerns over how the late capitalist expansion of digital technology and social media threatens to obliterate face-to-face communication and human authenticity (see section 7.2), and a turn towards retrospection and nostalgia in cultural theory and production in response to the psychological dreariness and emotional alienation of daily life in late capitalist digital culture (see section 6.2). Of course, as with its political counterpart, the point here is not to reject these concerns and the concepts they invoke as pseudo-problems, but rather to recognize that they form an impoverished critical and cultural framework on their own, and therefore needs to be significantly expanded.

With this in mind, let us briefly summarize the key differences between early and new accelerationism:

1. Whereas early accelerationist writings tend to dismiss theory and conceptual representation in favour of an affective intensification of critique that ends up undermining the construction of a space of cognitive subjectivation, new accelerationism is interested in rehabilitating the parameters of cognition and representation insofar as it views these as quintessential resources for the construction of a form of techno-cognitive agency capable of moving beyond neoliberal capitalism.
2. New accelerationism does not commit to the idea – as Land and Lyotard do – that capitalism itself will propel us into an inhuman future of emancipating technological singularity. On the contrary, it views capitalism as an ultimately unsuccessful attempt to remake the world after the collapse of feudalism. Capitalism, from this perspective, is viewed as a failed project of human emancipation which needs to be radicalized on the basis of a critical model that recognizes on the one hand the plethora of techno-scientific resources that capitalism has made available, and on the other hand the limitations imposed on these resources by the very system that employs them in the first place. In that regard, it argues for a return to Deleuze and Guattari's model of capitalism as a

dynamic system of decoding and deterritorialization followed by compensatory recoding and reterritorialization. What new accelerationism consequently seeks to accelerate are certain resources and potencies (cultural, techno-scientific, socio-political, etc.) which capitalism makes available but is unable to utilize to their full potential. Hence, rather than advocating mere affective intensification of capital, it instead calls for various kinds of strategic instrumentalization.

3. Whereas the early accelerationist models (Land's in particular) tend to think of acceleration in terms of sheer speed (i.e. the faster the better), new acceleration substitutes speed for navigation. This is arguably one of the most significant modifications of early accelerationism by Srnicek and Williams: "However Landian neoliberalism confuses speed with acceleration. We may be moving fast, but only within a strictly defined set of capitalist parameters that themselves never waver. We experience only the increasing speed of a local horizon, a simple brain-dead onrush rather than an acceleration which is also navigational, an experimental process of discovery within a universal space of possibility". (Srnicek and Williams 2014: 352) In other words, the objective of new accelerationism is not a mere cheerleading of capitalism as it ramps up momentum in terms of faster and faster inorganic dissolution. Instead, it seeks to utilize the novel resources made available by capitalism as various kinds of navigational instruments for the purpose of constructing a genuinely post-capitalist social order.
4. For new accelerationism, it is a future modernity that constitutes the socio-political nexus towards which acceleration must be oriented. This first of all means disentangling the notion of modernity from that of capitalism; but also going back and re-examining the legacy of Marx, since Marx must be read as a distinctively modern thinker who is not against everything that capitalism has accomplished. On the contrary, he in fact praises the bourgeoisie for the radical transformations of the world that they have effectuated through the machinery of capital. Yet because the latter remains deadlocked to the mere accumulation of surplus value, he sees it as the key task of the revolutionary proletariat to take control over and complete the process of progressive modernity initiated by the bourgeoisie (as opposed to rejecting modernity altogether). Hence, new accelerationism can hardly be referred to as a heretical Marxism, since it in fact returns to some of the core struggles of modernity faced by Marx and attempts

to update these at the beginning of the 21st century. In that regard, it is a form of deepened Marxism in the same way that Marx himself aimed to deepen the struggles of modernity.

6.2 Phenomenological Discontinuity

One way to further articulate the cultural dimension of the cognitive discrepancy outlined earlier is in terms of Fredric Jameson's claim that late capitalist abstraction and complexity have produced a novel form of multinational space which is fundamentally different from the spaces of earlier capitalist and pre-capitalist configurations. What is particularly distinctive of this late capitalist space, Jameson argues, is the rift it introduces between structure and experience – or between the lived experience of the individual subject and the structural coordinates of capitalism as such. In earlier social configurations, the larger social and economic coordinates that governed individual experience were still accessible and comprehensible to the experiential subject – but what is characteristic of late capitalism is that structure has superseded experience to the extent that it is no longer accessible to the subject of experience. This produces a particular form of experiential alienation at the level of the phenomenological subject, which – as we saw in Part One – has prompted many philosophers and theoreticians to safeguard the existential coordinates of human experience from the non-human complexities of late capitalist abstraction.

For Jameson, the cultural consequences of this experiential alienation manifest themselves in terms of what he refers to as a turn towards so-called 'postmodernity', which expresses itself through an obsession with retro and nostalgia in terms of a flattening of cultural time and abolition of genuine exteriority (futura, outer space, sub-personal cognitive resources, etc.) – and in that regard is symptomatic of its function within late, multinational capitalism (as is well known by now, Jameson indeed characterizes postmodernism as the cultural logic of late capitalism; see Jameson 1992). Indeed, as Jameson points out himself, his understanding of the postmodern does not come down to the analysis of a particular cultural style (among many others), but to the diagnosis of a novel *historical moment* that converges with the latest transformations of capitalism as such (i.e. Ernest Mandel's 'late capitalism'). But whereas Jameson was very quick in grasping these tendencies when they first began to emerge in the '80s – and therefore still theorized them in relation to an older modernism of the Adornian kind – what has happened since then, as Mark Fisher argues (see Fisher 2009: 1-11 and

Fisher 2014), is that postmodernism has expanded to such an extent that the residues of classical modernism in Jameson's work have been progressively annihilated. Hence – building upon Jameson's Marxist thesis that changes in culture must be understood in conjunction with changes in the economy, and that postmodernism is the cultural logic of late capitalism – Fisher sees contemporary culture as steeped in what may be characterized as a sort of aggravated postmodernism (see Fisher 2009). The latter designates a widespread cultural inertia where the residual conflict between modernism and postmodernism which haunts Jameson's work has been completely forgotten, and where the modernist ethos of orienting oneself towards the future has been fully substituted – as Jameson correctly predicted – by a tendency towards revivalism, retrospection, pastiche, and constant recycling of the already familiar. Accordingly, 'retro' no longer designates one particular style but the modus operandi of culture *tout court*, and the capitalist colonization of nature and the unconscious – observed with wonder and horror by Jameson in the 1980's – has now been normalized to such an extent that it is simply taken for granted. Popular culture today is driven by what Simon Reynolds refers to as 'retromania': An obsession with its own immediate past in the form of remakes, re-issues, pastiche, and nostalgia (see Reynolds 2012). Whereas the 20th century initially was steeped in ambitious projects of centralized planning and public investments, as well as large-scale science fiction fantasies and the emergence of so-called 'future studies' (or 'futurology') as an intellectual discipline (see Reynolds 2012: 364-365), the recent decades have witnessed a radical scaling down of cultural, cognitive, and political ambitions. Science fiction seems to be unable to generate anything beyond distinctively dystopic scenarios about the end of mankind (from natural disasters, global pandemics, environmental exploitation, etc.), thinking and the imagination remain deadlocked into the dreariness of digital culture, and the large-scale political projects of the mid- and early 20th century have gradually been abandoned in favour of the neoliberalist agenda as the singular vehicle of modernity.

This is not to say that technological invention has been completely absent over the past few decades – on the contrary, the emergence of portable and social media has, in many ways, reshaped culture profoundly – but the cultural end-products are nevertheless disappointingly bland because of their inability to move beyond the cultural framework established by late capitalism. What we have ended up with instead is a technologically sophisticated culture that nevertheless remains deadlocked in retrospection, nostalgia, and identity-fetishism. Technology has been seamlessly

integrated into the cultural landscape in such a way that the singular potencies extracted from it by earlier modernists have been lost in favour of a 'culture of upgrades': Minor technical improvements have come to substitute major technological innovation (see Reynolds 2013: 725). Hence, even though cultural distribution, consumption, and communication have gone through remarkable changes over the past decades, cultural production itself has generated very little of excitement. And as we remarked earlier, this widespread cultural deceleration must be understood as a symptom of the current neoliberal order, since capitalism not only has taken over the notion of modernity but also that of the future – yet is unable to deliver anything beyond marginal changes within what ultimately must be characterized as a terrestrial status quo. The result is a left that is paralyzed by the deadlocks of the present, unable to even imagine a future beyond the confines of the neoliberal order. What we have instead are paltry turns towards immediacy, organicism, authenticity, and laments over the decline of our humanity in the face of cybernetic capitalism.

From a cultural perspective, it seems to us that the demise of the future on the one hand is a symptom of increased political hostility towards the sociocultural infrastructure that supported innovative critical and cultural production over the past few decades (this problematic falls outside the scope of this thesis, but for a lucid recap of it from a primarily British perspective, see Fisher and Gilbert 2014), and on the other hand to the particular forms that popular culture and critical theory have taken over the past decades. In his '90s writings, Nick Land utilized William Gibson's concept of cyberspace as an avatar for the emerging technological singularity. For Land, cyberspace provided artists and theorists with a global vehicle for identity disintegration that would allow them to feed into the immanence of the capitalist dissolution of social relations. Yet the actual reality of cyberspace turned out to be very different, since rather than identity disintegration and emancipatory transformation we ended up with a form of culture organized around the cult of the personae (from celebrities and television reality-stars to friends and acquaintances on social media), and the emergence of widespread cognitive pathologies (see chapter 9). Contrasting his own adolescence with that of young people today, Reynolds notes that whereas his own youth was driven by interests such as modernist art, alien life, and outer space, the wonders of boundless exteriority no longer seems to have any purchase on teenagers today – immersed as they are in Youtube, Facebook, iPhones, and other forms of social media (see Reynolds 2012: 362-398). This is a cultural situation that he characterizes as one of widespread

temporal malaise, or ‘hyperstasis’, *qua* digital life as daily experience. And while critical theory correctly has lamented these cultural pseudo-developments extensively, it has been unable to provide any kinds of critical options besides from the dreary humanist conservatism that we explored in Part One.

In other words, aggravated postmodernism also has a political and a cognitive component which both need to be addressed accordingly. In what follows, we will consequently aim to elaborate on the cognitive component against the backdrop of its political counterpart. As we will see, addressing these cognitive shortcomings of contemporary culture will help elucidating the potential cultural and aesthetic usefulness of the conceptual framework mobilized in this thesis.

In order to begin doing so, we need to return to – and take a closer look at – the cognitive discontinuity diagnosed by Jameson in his essay on postmodernism, since it also harbours a different set of cultural resources that often have been overlooked in the plethora of texts written on his work. In particular, Jameson also points out that the emergence of the multinational late capitalist space necessarily requires a concomitant cognitive expansion proper to the present cultural landscape. This is an important point insofar as it hints that the critical objective for him should not be one of safeguarding the coordinates of phenomenal subjectivity, but rather of utilizing the cognitive dissonance between techno-scientific structure and human experience as a speculative platform for the re-engineering of human culture through various forms of aesthetic and technological subversions. In other words, cognitive expansions of the kind sought after here should insist on the late capitalist rift between phenomenal experience and techno-scientific structure and utilize the cognitive dissonance it introduces into the manifest order as a means for redrawing the parameters of postmodern culture – and the worn-out humanism that permeates it – according to the demands and affordances provided by the scientific image. This is indeed a significant point that too many commentators on Jameson have failed to appreciate, and which indicates an account of culture very different from that of the postmodern. Or to put it differently, if postmodernism partly is rooted in a failure to overcome the cognitive dissonance introduced by late capitalism, then the form of culture hinted at here aims to take on and complete this crucial task (just like classical modernism aimed to do at the time of industrial capitalism). Needless to say, this is the cultural program that we are interested in elaborating on here.

In that regard, Jameson’s work is also notable for how it converges with certain claims of new accelerationism in its conception of late capitalism. It is true, of course,

that Jameson views late, multinational capitalism mostly in negative terms – yet at the same time his analysis of it, as we just saw, in fact spans across a larger register than the merely pessimistic one. In particular, he argues that neither Marx nor Lenin saw the return to older forms of socialism as a proper antidote to the emergence of global capitalism. On the contrary, what was necessary according to them was the creation of an entirely novel form of social order that would emerge out of capitalism as such – for it was nothing less than capital itself that was to provide the basic resources and framework for the construction of a socio-political order beyond capitalism. Jameson, in a passage echoing both Marx and Deleuze and Guattari, therefore views capitalism as both the worst and best thing that has happened to humanity: On the one hand as a ‘demonstrably baleful’ system of ruthless exploitation, and on the other hand as a system of ‘extraordinary and liberating dynamism’ (see Jameson 1992: 47). It is this account of the peculiar two faces of capitalism that new accelerationism has taken up, and which should be elaborated on from a cultural perspective as well. What is particularly crucial here is Jameson’s claim that “a truly new culture could only emerge through the collective struggle to create a new social system” (Jameson 1992: xii), since the major contribution of new accelerationism is indeed the attempt to construct such a system on the basis of the technological infrastructure provided by late capitalism.

In that regard, what Jameson’s and Srnicek and Williams’ distinctions between experience/structure and folk politics/late capitalist abstraction provide are lucid accounts of the cultural and political implications of the inability to synoptically integrate the manifest and scientific images – which express themselves in terms of a disjunction between a humanist folk politics and postmodern retro-culture, and the non-human, techno-scientific infrastructure on the basis of which these phenomena are instantiated. Accordingly, their respective accounts explicate on the one hand how elements indexed by the manifest image have become fetishized and reified in the name of anti-capitalism – and the cultural and political vacuums that this generates – and on the other hand provide important conceptual frameworks for reversing these unfortunate tendencies by overcoming the cognitive lacuna that they to a significant extent are rooted in. In the rest of this second part of the thesis, we will consequently attempt to elaborate on the cultural implications of these issues from the perspective of cognition as such. In doing so, we will attempt to identify some of the cultural dimensions of new accelerationism, and speculate on aesthetic forms and cognitive models that have moved beyond the dreariness of the postmodern.

6.3 Modernism Reconsidered

Crucial to this cultural acceleration, we believe, is a reconsideration of the concept of modernism. In the conclusion to his book *Retromania: Pop Culture's Addiction to Its Own Past*, Simon Reynolds discusses some recently proposed concepts – such as ‘super-hybridity’, ‘digimodernism’, and ‘postproduction’ – that all attempt to push cultural thinking beyond postmodernism and isolate genuinely novel forms of aesthetic expressions. But the problem, as Reynolds correctly points out, is that these concepts – given their continued emphasis on bricolage, mixing, and recombination – only keep valorising distinctively postmodern symptoms, rather than propelling aesthetics towards a sphere properly beyond it (see Reynolds 2012: 412-421). In that regard, they ultimately remain unsuccessful and actually work better for diagnosing how the emergence of the Internet as a popular medium has forced us to modify (rather than abandon) Jameson’s account of the postmodern. It seems to us that a more viable option is to rehabilitate the grand ambitions of classical modernism from the perspective of our cultural present. Yet this should not be confused with a desire for returning to, or merely imitating, its particular aesthetic formulas; for modernism should not be reduced to a mere stage of cultural history. Rather, it should be understood as a particular *cultural disposition* or *cognitive modality* (Franco Berardi): A way of thinking about aesthetics and culture which needs to be implemented through – but which ultimately transcends – specific aesthetic formulas and historical phases.

In his book *All That is Solid Melts Into Air: The Experience of Modernity*, the philosopher Marshall Berman defines this modernist disposition as being ‘moved [...] by a will to change’ – of radically transforming oneself and the world, and the thrill and terror which follows once life as we know it disintegrates (see Berman 2010: 13). Berman, of course, traces the roots of this disposition to the late 19th century and the early 20th century, and ‘the maelstrom of modern life’ that emerged following the many inventions and discoveries in the natural sciences, industrial production, mass communication, architecture, urban planning, psychoanalysis, and so on – which all gave modern subjects “power to change the world that [was] changing them, [and] make their way through the maelstrom and make it their own”. (Berman 2010: 16). For Berman, modernity in the 20th century expanded into what he refers to as a ‘world culture’ that encompasses virtually the entire planet. To this day, it forms a unity which cuts across national, ethnic, religious, ideological, class, and gender boundaries; but it is a ‘paradoxical unit’, as he puts it – a ‘unity of disunity’, filled with contradictions and

ambiguities that needs to be overcome (see Berman 2010: 15). In that regard, to be modern means to face its novel power structures and injustices – from corporate domination and social upheaval to political sovereignty and racial and gender oppression – not with a ‘neofeudal regression’, but with a set of critical tools that truly grasps the hidden potentialities of modern life. Thus, according to Berman, writing about modernity and modernism should not be reduced to historicism or cultural nostalgia, but should rather be conceived of as an attempt to revive the modernist project and invent novel modernisms of tomorrow. As he puts it, appropriating the modernisms of yesterday may provide us with resources for critiquing the (post-)modernisms of the present and invent novel modernisms for the future: “It may turn out, then, that going back can be a way to go forward: remembering the modernisms of the nineteenth century can give us the vision and courage to create the modernisms of the twenty-first”. (Berman 2010: 36)

For Berman, it is Marx, more than any other thinker, who captures the many tensions and ambiguities of the modernist imagination. The title *All That is Solid Melts Into Air* is obviously borrowed from *The Communist Manifesto*, and it is this phrase – with its cosmic, visionary, and apocalyptic underpinnings – which best indexes the “agitation and turbulence, psychic dizziness and drunkenness, expansion of experiential possibilities and destruction of moral boundaries and personal bonds, self-enlargement and self-derangement” of the ‘modern sensibility’. (Berman 2010: 18) This is what constitutes the core of Marx’s analysis of capitalism, which most powerfully explicates the many potentialities and entrapments brought about by modern life. Indeed, Berman’s analysis of Marx’s work usefully converges with that of new accelerationism in that it too articulates this underappreciated aspect of the Marxist project. In particular, Berman points out that what is crucial for Marx is that the bourgeoisie has set in renewed motion the human capacity for development and innovation – which manifests itself in a constant desire for change and renewal in economic and social life. Indeed, for the bourgeoisie, to reject progress and growth means to get stuck in the dread of social stability and the fixed relationships of the past. Contrary to this, man must orient himself towards the prospects of an open-ended future through a constant demand for self-development. As Berman puts it, the bourgeoisie is the first ruling class in history whose authority does not derive from that of their ancestors but from their own achievements – which radically changed the world as we previously knew it. In that

regard, the global processes set in motion by the bourgeoisie are in many ways truly astonishing.

Yet the problem is, as we saw earlier, that the bourgeoisie ultimately fails to deliver on the promises of progression and renewal that they advocate insofar as their agenda remains deadlocked to the narrow obsession with the accumulation of capital. In that regard, they are unable to realize the truly revolutionary potentials of the processes which they have set in motion. It is consequently the central task of the proletariat to seize the means of production and complete the Promethean project initiated by the bourgeoisie, for it is only then that the humanist notion of self-development will be emancipated from the narrow bourgeoisie model of economic development. Thus, Berman's reading of Marx is distinctively accelerationist in that it recognizes the fact that capitalism both creates and destroys previously unheard of possibilities. Indeed, it destroys the very possibilities it creates. In that regard, Marx is in fact more attentive to the processes at work in bourgeois society than the bourgeoisie are themselves, as Berman usefully points out, since he identifies in them a model for a modern vision of communism organized around the emancipation of the ideal of 'open-ended, unbounded growth' initially proposed by the bourgeoisie. In that regard, he does not shy away from the processes set in motion by capital through pastoral regression, but instead sets out "to heal the wounds of modernity through a fuller and deeper modernity". (Berman 2010: 98)

This Marxist Prometheanism has, needless to say, been thoroughly criticised by the Frankfurt School and other philosophers and critical theorists, who argue that Marx merely ends up fetishizing central elements of capitalism – such as labour and production – and thereby suffers from a failure of imagination which culminates in the deplorable objective to achieve rational mastery over nature – as opposed to live in harmony with it. Adorno's remark (which he never put in print) that Marx wants to turn the entire planet into a gigantic workhouse is exemplary of this anti-Promethean stance.²⁶ But as Berman points out, the idea of some kind of pre-established oneness between man and nature is itself a fiction that in fact would require an immense Promethean effort to produce. And furthermore, what Marx ultimately is advocating is

²⁶ It has however been cited by Martin Jay in his history of the Frankfurt School (see Jay 1996: 259) and by Berman (see Berman 2010: 126). The quotation is borrowed by Jay from his interview with Adorno during the preparation of his book.

not work but *development*; and it is only the latter which will be sufficient for realizing his Promethean visions, since work is merely a degraded form of development (see Berman 2010: 126-127). In that regard, we can say that while capitalism has initiated novel forms of development, it fails to utilize them to their full potential precisely insofar as they remain deadlocked to the dreary agenda of work. Yet once development is emancipated from work and capitalist production, it may go on to realize its truly emancipatory dimensions.

A similar progressive agenda is to be found in the many varieties of modernist art that emerged in the decades following the appearance of Marx's work. Indeed, this art's critique of aesthetic realism as no longer adequate for capturing the 'maelstrom of modern life' sits at the heart of its visionary program. Thus, rather than dwelling in past forms of archaic realism, modernist art was to radically reinvent aesthetics by productively utilizing the many social and scientific breakthroughs at the time in ways apt to the modern world: "Electrical energy, the kaleidoscope, explosion: modern art must recreate for itself the immense transformations of matter and energy that modern science and technology – physics, optics, chemistry, engineering – have brought about". (Berman 2010: 145) Thus, we believe that the cognitive lacuna whose cultural manifestation expresses itself in the symptoms diagnosed in the current chapter stems from a postmodern inability to reinvent aesthetics on the basis of the many scientific discoveries and social innovations which have emerged since the demise of classical modernism – for whereas the latter concerned itself precisely with overcoming the cognitive discrepancies that follow widespread scientific and techno-social transformation, the former is a symptom of the present failure to do so. And while the postmodern critique of classical modernism correctly identifies the present exhaustion of its antagonistic potencies – largely, of course, following its integration to and accommodation by capitalism – it only goes halfway in that it fails to introduce any novel aesthetic formulas and cultural programs beyond flimsy accounts of cultural democratization, which – as Adorno saw – merely operate as a mask for social domination. Instead, modernism is simply considered to be dead. But this critique confuses the critique of *particular* modernisms with the critique of modernism *as such*, and the call for the rehabilitation of cultural and aesthetic modernism should therefore not be taken as a call for recreating modernism as it was first articulated a century ago – but rather for rehabilitating the modernist ethos of experimentation and innovation which appeared at that time but cannot simply be reduced to it. This includes

reinvigorating modernist instruments such as rationality, universality, progression, and science – which postmodern relativism tends to reject as inherently oppressive, and which we believe is a major reason for its inability to reinvent aesthetics in the wake of the latest transformations of the world. These would then become crucial resources for novel forms of modernist aesthetics at the beginning of the 21st century. Indeed, rather than understanding these instruments as inherently oppressive, they need to be emancipated from the oppressive agenda of capitalism in ways apt to the modern world. For whereas the sociocultural landscape at the time of classical modernism was Fordist, industrial, and analogue, our present sociocultural space is distinctively post-Fordist, computational, and digital – and the implementation of a 21st century modernism therefore requires entirely novel sets of cultural and aesthetic formulas in order to be successful.²⁷ This is where the naturalist model of cognition congruent with the scientific image becomes a decisive cultural resource, insofar as it is the product of one of the major scientific branches which have appeared following the demise of classical modernism (i.e. cognitive science) and whose full sociocultural impact is yet to be determined. Accordingly, just like Freud’s discovery of the unconscious turned out to be an immensely productive resource for various strands of classical modernism (surrealism in particular), the similar transformation in cognitive understanding implicit in cognitive science and objective cognition is something that a contemporary modernism simply cannot ignore. There are other resources too, of course, but the aesthetic utilization of techno-scientific objectivity for the purposes of culturally integrating the manifest and scientific images in conjunction with philosophy, digital technology, and cognitive science – and thereby overcoming the cognitive lacuna of postmodernity and the numerous cultural deadlocks that go with it – is, we believe, a particularly central task for a 21st century modernist program.

So what would provide the rudiments for this form of 21st century modernism? A key aspect here, as we see it, is the rejection of the by now common Adornian distinction between modernism and popular culture. This rejection has two aspects.

²⁷ The emphasis on aesthetic and sociocultural implementation is crucial here, since the call for a renewed modernism otherwise risks falling into the trap of merely celebrating ‘progression’ and ‘innovation’ for their own sake – without actually explaining what we mean with these terms. In other words, the stress on implementation is important because it prevents us from emptying the normative content out of terms such as these.

Firstly, whereas this very distinction obviously is what gave modernism in its classical form its antagonistic force vis-à-vis popular culture – or the culture industry – today, as Jameson points out, one of the distinguishing characteristics of postmodern culture is the disappearance of a semi-autonomous cultural sphere that is separate from the culture industry. Rather, in postmodernism, the culture industry has expanded to such an extent that it is no longer possible to talk about some kind of cultural realm outside of it. If modernist culture operated in terms of various kinds of confrontations with an Other, or outside – such as nature and the unconscious – then postmodern culture is a form of culture where these outsides no longer are available and where culture has been transformed into an all-too human ‘second nature’ under the aegis of late capitalism. This is the by now well-known culture of spectacles and simulacra diagnosed by Baudrillard, Debord, and Jameson himself. Needless to say, in this cultural scenario the classical modernist distinction between high art and popular culture no longer works, since by now everything is part of the popular. Yet this does not mean that modernism as such is dead (as postmodernists would have it), but rather that it needs to shift form and *modus operandi*. Indeed, rather than operating outside of the realms of popular culture, modernism needs to continue to perform its subversive operations *within* popular culture as such. In his recent writings, Mark Fisher refers to this particular form of modernism as ‘popular modernism’. According to Fisher, popular modernism explicates how the classical modernist agenda of experimentation and innovation was carried on during the post-war decades within the popular culture (New Wave-cinema, post-war music, pop-art, the American Counterculture, etc.) that classical modernists of the Adornian kind scornfully reject. In that regard, popular modernism provides us with a useful instrument for thinking about how modernism’s subversive and exploratory ethos may continue to operate from within the all-encompassing culture industry of postmodernism, in the form of a much needed alternative to the equally unsatisfying options of classical modernist nostalgia and postmodern naivety. For while Adorno is unable to understand the encounter between modernism and popular culture in any other way than through the accommodation of the former to the latter (e.g. when Debussy is played during commercials, it loses its antagonistic force), popular modernism instead allows us to theorize this encounter in terms of the subversion of the latter by the former.

But whereas we agree with the theoretical side of Fisher’s account of popular modernism, its practical implementation may still be somewhat questioned insofar as

much of what he groups up under the banner still operated at relatively marginal positions at the outskirts of popular culture (we will look more closely at an example of this in Chapter 8). Furthermore, despite its popular register, popular modernism – including the wider sociocultural infrastructure that supported it – did not survive the onslaught of postmodernism, but disappeared just like its classical predecessor. However, we still believe that a reworked version of the concept would be a useful resource for the cultural agenda advocated by this thesis, insofar as the ‘popular’ in popular modernism feeds into the program of techno-cultural acceleration and its insistence on the fact that it is necessary to confront – indeed, pass through and transform – the realms of the popular if it is to fulfil its cultural promises (as opposed to occupying a transitory and marginal position vis-à-vis popular culture, in the form of a cultural variant of the politics of withdrawal criticised by Srnicek and Williams). But this forces us to reposition the concept by detaching it from the post-war cultural agenda with which Fisher associates it, and instead insert it into the new accelerationist program of techno-scientific objectification advocated by this thesis. In Chapter 8, we will attempt to do so by having a closer look at rave culture and its accompanying drug-tech interface – which is an interesting cultural phenomenon insofar as it on the one hand marks the apex of post-war popular modernism, but also hints at future cultural forms that the concept may index under the program elaborated on here. Hence, assessing the cultural and cognitive virtues and shortcomings of ‘90s rave will help us in further articulating our version of popular modernism and what we believe would be its required cultural conditions now that the conditions of post-war popular modernism have disappeared.

The second aspect of the fusion between modernism and popular culture is its techno-scientific dimension. This builds upon our previous discussion of classical modernism, and the analysis in Chapter 1 of Adorno’s characterization of the culture industry as an instrument of social domination. As we saw in that chapter, Adorno’s rejection of popular culture is rooted in his understanding of scientific rationality as a sociocultural pathology; but if we instead conceive of scientific rationality as a speculative opportunity – as Brassier’s work invites us to – then a popular culture steeped in techno-scientific resources becomes the desired locus of modernist experimentation, rather than its antagonist. And furthermore, it marries the popular modernist agenda with the techno-scientific program of cognitive transformation advocated by this thesis in that it insists on the fact that the cognitive and techno-social

manipulations at work in popular culture should not merely be rejected on the basis of an understanding of science as inherently pathological. On the contrary, they should be emancipated from capital's restrictive framework and be re-oriented towards truly transformative and productive ends. This completes the critique of the Adornian model of the culture industry insofar as it widens the parameters of popular modernism by fusing it with the techno-scientific resources utilized in this thesis, and thereby updates the ethos of classical modernism by rehabilitating the link between modernism and Prometheanism that Adorno's work threatens to undermine. Indeed, given the wide-sweeping technological infrastructures that have emerged through popular culture over the past decades, and the numerous cultural potentials they harbour, it is clear that we need an option which bypasses the Scylla of classical Adornian modernism (and its problematic distinction between authentic culture and an instrumentally rational culture industry) and the Charybdis of postmodernism (and its failure to utilize the productive potentials of popular culture's techno-scientific underpinnings). This is what we believe that our understanding of popular modernism provides us with. As we shall see in Chapter 8, both of these dimensions of popular modernism – its popular and techno-scientific registers – were active in rave, but were ultimately suppressed by what must be understood as cultural expressions of the folk politics critiqued by Srnicek and Williams. It is therefore at this particular point, we believe, where the popular modernism advocated by this thesis needs to be activated.

In sum, we may consequently argue that popular modernism offers us a crucial resource for thinking about how the cognitive disposition of modernism may be facilitated and updated through its encounter with – and potential transformation of – a popular culture increasingly steeped in technology and science. For as Jameson notes, even though the outsides of classical modernism may have lost their critical potencies, this does not mean that no such outsides no longer are available. On the contrary, when capital has expanded to such an extent as we have witnessed over the past decades it is not unreasonable to identify outsides within capital itself. He thus argues that some of the most intriguing forms of contemporary cultural production are those that attempt to navigate the so-called 'technological sublime' of late capitalist postmodern culture – which surpasses the capacities of our default cognitive faculties, but may be explicated through what he refers to as an 'aesthetic of cognitive mapping'. Hence, the main purpose of cognitive mapping is to provide us with larger navigational coordinates of the late capitalist cultural spaces that we are situated in and thereby overcome the rift

between structure and experience. For Jameson, William Gibson's cyberpunk novels are exemplary of cognitive mapping insofar as their narratives invoke and explore a technological complexity far beyond what is comprehensible to default cognition. But cyberpunk is also significant for how it utilizes the cultural dimensions of a cognitive science that to this day provides an intriguing cultural outside yet to be fully utilized by popular culture (including capitalism, of course). As we shall see in the next chapter, it is this cultural dimension of cognitive science that we aim to activate when outlining our own model of cognitive mapping.

Chapter 7: A Popular Modernist Aesthetic of Cognitive Mapping

7.1 The Parameters of Cognitive Mapping

At its most basic, the account of cognitive mapping outlined here attempts to utilize the twin resources of experiential objectification and popular modernist aesthetics by fusing Fredric Jameson's sociocultural account of cognitive mapping with what in neuroscience is known as 'brain mapping' (i.e. a branch of neuroscience oriented towards producing spatial representations of the anatomy of the brain through the use of neuroimaging-technology). Central to our model of cognitive mapping is therefore a turning inwards to the cognitive system itself, and with how a fusion of aesthetic and scientific resources may be productively utilized in culture by exteriorizing and exploring the sub-personal architecture of the human brain and the sets of local and global NCC's which are functionally instantiated by it. Its basic objective is therefore not one of trying to restore the continuity between structure and experience which late capitalism has shattered, but rather of productively utilizing the concomitant cognitive dissonance in order to update this continuity through various aesthetic and techno-cultural subversions. But whereas Jameson's model of cognitive mapping remains tied to merely tracking the impersonal vectors of the present cultural landscape, the version outlined here aims to explicate the latent cognitive potencies of aesthetic trajectories which are properly oriented beyond it. This is, as we see it, the most crucial function of cognitive mapping. Its primary objective, therefore, is not to merely situate the phenomenological subject within the global landscape of postmodern culture (important as that is), but rather to utilize aesthetic and techno-scientific resources for the purposes of a cognitive remaking of the human along the sub-personal vectors of objectification and the scientific image on the one hand, and the subversive trajectories of popular modernist digital aesthetics on the other. As such, its purpose is to provide the crucial link between the *theoretical* framework outlined in this thesis, and cultural and aesthetic *practice*, by elucidating how the scientific objectification of the brain may be utilized in various aesthetic and sociocultural contexts. We will take closer looks at specific examples of this account of cognitive mapping in the final chapters of this thesis. But first we need to outline its more general characteristics in terms of its key parameters and its sociocultural implementations.

The first parameter of cognitive mapping as we envision it is the notion of *alienation*. Yet here we need to distinguish between two models of alienation in order to

sidestep the mere negative connotation that the concept is associated with in critical theory: Regional alienation and universal alienation. Regional alienation refers to the phenomenology of alienation characteristic of late capitalism, whose effects operate entirely within the surface-logic of the phenomenal experiences of the PSM (in the form of mass-media representations, simulacra, surface-appearances, etc.). This is the kind of alienation normally recognized by critical theory. However, the kind of alienation congruent with the scientific vector of disenchantment traced throughout this thesis is fundamentally different in its nature in that it is a universal model of alienation whose cognitive import stretches beyond the regional surface-effects associated with late capitalism. In that regard, it marks a fundamental gain in cognitive self-understanding. For as we have argued throughout this thesis, while it is true that modern science has effectuated a split between man and nature – which now has been extended into a cognitive split between the immediately experienced self and the image of selfhood unveiled by cognitive neuroscience – this is not the mark of a deplorable pathology which must be cured, but of a cognitive achievement which should be insisted on. It is a form of alienation, but a productive one in that it indexes an intellectual emancipation of man from myth and theology – and a subsequent gain in cognitive autonomy.

It is this particular kind of universal alienation that we aim to rehabilitate here, since we believe that it harbours massive critical potency for theory and practice in the form of a vector of alienation which will turn default conceptions of ourselves and of nature on their heads. Going back to the concept of experience, we can say that whilst regional alienation merely is an experience of alienation (such as in late capitalist culture), universal alienation instead marks an *alienation from experience*. In other words, whereas the former operates entirely within the confines of experience, the latter instead forces us to question the theoretical and cultural validity of the concept of experience as such – and, by extension, it also forces to question the status of our own humanity. Thus, rather than simply recoil in horror over alienation in its modern form, we believe that a key cultural and critical challenge lies in how to emancipate the notion of universal alienation from the regional framework imposed by late capitalism. Indeed, there certainly is something dubious about an entire intellectual trajectory in critical theory that seems to be unable to address issues related to technology and science on any other terms than the safeguarding of phenomenal experience *qua* human authenticity from the horrors of alienation. But as we saw in Chapter 3, the notion of experiential authenticity may be traced back and explained in terms of physical systems

unable to represent their ontological status *as* systems, which forces us to abandon the notion of an authentic core in favour of an underlying inauthenticity. Hence, alienation and self-estrangement are not concepts to shy away from, but intellectual trajectories to systematically explore:

The dialectic of alienation culminates in the realization that there is no home to be excelled from, no self from which to be estranged. This is precisely the realization that separates the thinking subject from the self, but this split can be embraced as an enabling condition for thought and practice. It incurs a defamiliarization allowing semblance to be confronted as semblance from a vantage registering the discrepancy between how appearances are experienced and how they are produced. (Brassier 2012)

The second parameter of cognitive mapping is that of *abstraction*. The scientific image has provided us with an important conceptual medium for interfacing with the many abstractions unveiled by modern science. But as we have seen throughout this thesis, this is a resource which critical theory generally has failed to appreciate in that tends to view scientific abstraction as nothing but synonymous with capitalism itself. However, as Alex Williams argues, the plane of abstraction is not just a mere function of late capitalism, but rather “the very substance of modernity”. (Williams 2014: 70) It is a generic space ripe for speculative interventions through aesthetics and technology, which the critical tendencies towards immediacy fail to appreciate. Contrary to this, we believe that only a form of critique capable of disentangling the plane of abstraction from the abstractions imposed by capitalism is capable of succeeding where the latter does not. This includes various forms of exterior technological and planetary abstractions, but also the interior abstractions of the human herself. For as we have argued throughout this thesis, the human being is an equally complex system of abstract natural and cognitive processes which may be systematically exploited or utilized creatively in ways that we are just beginning to understand – and it is the positioning of an increasingly abstract sapient entity in an equally abstract world which the current version of cognitive mapping aims to explicate.

The third parameter is *quantification*. Against the plethora of theorists committed to the ineffability of phenomenal experience, cognitive mapping as outlined here insists on the facts that experience can be broken down into distinct, objective quantities – and

that this is a central sociocultural and aesthetic resource insofar as quantification provides us with cognitive and representational traction on phenomena which operate beyond our default phenomenal first-person perspective. Thus, rather than criticizing the reductionism that inevitably goes with quantification as aesthetically impoverished, our model of cognitive mapping instead recognizes that quantification (at least in its many productive forms) actually enriches our understanding of our interfacing with the immediately experienced life-world and that which lies beyond it. In that regard, it is the commitment to ineffability, rather than to quantification, which is aesthetically impoverished. Furthermore, as with abstraction another key objective of cognitive mapping as we see it is to emancipate the notion of quantification from that of capitalism by explicating how its various operations also may be utilized for emancipatory purposes.

The fourth parameter, building upon the discussion in Chapter 5, is *spatiality*. For Jameson, one of the defining symptoms of postmodernity's obsession with nostalgia and pastiche is a crisis of temporality and its congruent spatialization of culture. This is most obvious in what he refers to as the 'pseudohistorical depth' of postmodern aesthetics, wherein bland aesthetic styles come to replace actual, lived history. (Jameson 1992: 20) In common with thinkers such as Baudrillard and Debord, Jameson argues that one of the most unfortunate effects of the shallow image-culture that is postmodernity is a gradual effacement of referents (in this case, the past) on the basis of images that exist only for themselves. Historical time thus gradually fades away underneath the glossy pseudohistory of postmodern image-culture, since what is represented is no longer the past as such but only our ideas of it. According to Jameson, what is lost on the individual level is what he refers to as the 'organic relationship' between historical time and lived experience. (Jameson 1992: 22) The outcome is a subject unable to organize past, present, and future into one coherent experience and as such has lost its autonomy and capacity for individual style.

But the postmodern crisis of temporality is only one potential outcome of spatialization insofar as the disjunction between historical time and lived experience also may take other forms, as we suggested in our discussion of cognitive spatialization at the end of Chapter 5. For while the temporal fragmentation and experiential disjunction that Jameson and others associate with postmodernism make sense from within the phenomenal interface of the PSM, once we have expanded our analysis to also take into account its abstract underpinnings we will need to rethink many of these

core postmodern terms significantly. Indeed, from the perspective of the cognitive metasubject the breakdown of experiential temporality is no longer a psychological crisis which must be averted, but a cognitive overturning which transforms the conditions of existence through the voiding of the individual subject in the form of its dispossession by the impersonal object. From this perspective, the transformation of the relationship between organic time and lived experience which inevitably follows massive techno-social change must not merely be mourned from the perspective of regional alienation – but should rather be utilized as an important cultural resource from the perspective of universal alienation (as Jameson himself is aware, when he speculates about novel cultural and aesthetic opportunities that may arise from the collapse of individual and collective temporality; see Jameson 1992: 28-32) Hence, the aim of cognitive mapping is not one of trying to restore the lost integrity of previous forms of subjectivity – but rather to explore the novel cognitive and aesthetic opportunities implicit in the postmodern breakdown of temporality.

Parameter five is that of *universality*. The model of universality defended here is organized around the cognitive metasubject introduced in Chapter 3, and is based on the idea that underlying various cultural and cognitive variances is a culturally invariant, cognitive infrastructure which is concretely realized in particular cultural contexts. Hence, cognitive mapping on the one hand needs to navigate this culturally invariant cognitive structure, and on the other hand explicate its particular cultural realizations and the constraints exercised by these realizations. While not denying the elements of Eurocentric oppression which accompanied previous attempts at utilizing this model, it nevertheless argues that these elements should be understood as ultimately flawed attempts at mobilizing the cognitive metasubject for emancipatory purposes. Contrary to the narrow agenda of Eurocentrism, this model instead aims to expand cognitive invariance beyond the human substrate through various aesthetic, techno-scientific, and sociocultural experiments.

The sixth and final parameter is that of *plasticity*. The idea that the brain continuously undergoes structural changes throughout one's life has not always been widely accepted within the neuroscientific community. In fact, the concept of plasticity is still relatively new and was preceded by an understanding of the brain as a fundamentally rigid structure that takes shape during childhood and then stays essentially the same throughout adulthood and old age. But empirical studies over the

past decades have shown us that this is false, and that the brain indeed changes in response to our actions and experiences. As the writer Nicholas Carr puts it:

Every time we perform a task or experience a sensation, whether physical or mental, a set of neurons in our brains is activated. [...] As the same experience is repeated, the synaptic links between the neurons grow stronger and more plentiful through both physiological changes, such as the release of higher concentrations of neurotransmitters, and anatomical ones, such as the generation of new neurons or the growth of new synaptic terminals on existing axons and dendrites. Synaptic links can also weaken in response to experiences, again as we live embedded in the ever-changing cellular connections inside our heads. (Carr 2010: 27)

It is in this sense that the concept of plasticity is crucial for overcoming the resistance to cognitive objectification in much critical theory, insofar as it points to how the commitment to cognitive ineffability not only undermines a better understanding of how the brain works – but also to how it may be manipulated and modified at will through technology and psychopharmacology. Exploring the cultural and aesthetic implications of this conviction is therefore another crucial task of cognitive mapping. Yet at the same time we also need to be careful to not fetishize plasticity like the philosopher Catherine Malabou does in her book *What Should We Do with Our Brain?*, which brings together scientific research on brain plasticity with critical analyses of late capitalism, depression, and precarity against the backdrop of Continental philosophy. Despite providing a number of insightful analyses of the neurobiological registers of neoliberalism, Malabou's account of plasticity suffers from a dubious form of neo-Bergsonian vitalism insofar as she fails to articulate the concept beyond its apparent connection to some kind of universal creativity or freedom. More specifically, Malabou argues that the problem with late capitalism is not that it exploits plasticity but rather that it stifles it by only utilizing one of its two sides: The reception of form. Yet plasticity also involves production of form, which is what late capitalism is unable to appreciate, according to Malabou. This is why she argues that capital's impact on neurobiology better is understood in terms of flexibility than plasticity. For while flexibility is tied to the agenda of late capitalism, plasticity as such remains fundamentally opposed to it. This dichotomy is far from guaranteed, however, and not

only runs the risk of rendering the concept immune to its many oppressive implications, but also of stifling its creative potentials. Indeed, the tendency to align plasticity with vague injunctions to some kind of organic vitality ends up reifying the concept in the same way as we have argued that experience often has been romanticized in contemporary critical theory – and thereby threatens to severely limit its practical import under the same kind of ineffability that the concept promises to overcome. In that regard, Malabou’s overly *aesthetic* account of plasticity may be compared to Scott Bakker’s overly *scientific* one. For even though their conclusions drawn (i.e. genetic freedom and determinism) are diametrically opposed, what is missing in both Malabou’s and Bakker’s work is a wider account of cognition and the positioning of plasticity within a basic *normative* economy. Indeed, it is only once the latter has been recognized that we will be able to construct a satisfactory account of plasticity, and systematically explicate its various positive and negative effects within wider aesthetic, political, and sociocultural contexts.

These are the six parameters of our model of cognitive mapping: Alienation, abstraction, quantification, spatiality, universality, and plasticity. Needless to say, they may all be understood as pitted against concepts such as authenticity, immediacy, ineffability, temporality, particularity, and rigidity; although not in the sense of completely rejecting the latter, but rather of expanding upon them by exposing their particular limitations and the fact that they must not be thought of as immutable axes of critique as such.

7.2 Sociocultural Implementation

Besides these basic parameters of cognitive mapping, what also is crucial is its sociocultural implementation. Here capitalism itself becomes a useful model, since it has implemented various forms of cognitive mapping on increasingly widespread sociocultural and psychosocial scales. As we will see in the next chapter, whereas the cognitive navigation at work in some of the ‘90s anti-capitalist cultural strands operated at the margins of popular culture in the form of temporary autonomous zones whose main sociocultural function was to act as vehicles for communal emotional discharge within an emerging late capitalist landscape, the neoliberal version of cognitive mapping is a culturally ubiquitous phenomenon which has imposed long-term and large-scale structural changes on popular culture and human cognition. In that sense, it has far surpassed the cultural and cognitive impact of its ‘90s anti-capitalist version and

therefore needs to be understood as a springboard for novel forms of cognitive experiments along post-capitalist trajectories. For even though the actual cultural and cognitive modifications effectuated by the neoliberal version of cognitive mapping are far from exciting, even its critics should be attentive to the scale on and speed with which these changes have been implemented. In that regard, it exemplifies the lacuna which accelerationism seeks to overcome insofar as we believe that the proper way to combat these developments would be to socially implement a popular modernist aesthetic of cognitive mapping on similarly large-scale and long-term bases. Simply put, the key objective of this model of cognitive mapping needs to be oriented towards effectuating similarly large-scale and long-term structural changes to human culture and cognition.

Needless to say, this is a huge task that we only will be able to sketch out some brief outlines of at the present. Firstly, this project involves a fusion of aesthetic and scientific resources in cultural production so that aesthetic experimentation and cultural implementation do not merely operate in terms of providing various forms of aesthetic experiences, but act as sociocultural laboratories for cognitive and cultural transformation (in unison with overlapping practical programs, such as Metzingerian neuroanthropology and Berardian neuro-engineering, which we will come back to in Chapter 9). Issues to be addressed here include the following:

- How can scientific resources reinvigorate and fuel aesthetics and cultural production?
- In what ways may a popular modernist aesthetic of cognitive mapping contribute and expand on the projects of techno-scientific objectification and human enhancement?
- What are the wider implications of these experiments on our understanding of human culture and what it means to be human?

Secondly, these sociocultural laboratories also need to orient themselves outwards – in contrast to the inwards-looking animus of communal aesthetic experiences – if they are to effectuate any large-scale and long-term changes. In that regard, yet another crucial issue to address here is the following:

- How can the productive experiments conducted in these laboratories be implemented on a larger sociocultural scale?

Central resources here, as we see it, are those of ubiquitous technology, networked media, and cosmetic enhancements – which capitalism already has mobilized, but for its usual narrow purposes. Hence, another central objective is one of feeding aesthetic and scientific experimentation into the wider and everyday sociocultural implementation promised by these more culturally dispersed resources. Yet this requires reworking the standard critical way of analysing them, which often revolves around familiar critical concepts such as immediacy and authenticity. For instance, in her book *Alone Together: Why We Expect More From Technology and Less From Each Other*, the computing psychologist Sherry Turkle presents a pessimistic account of the forms that online-culture have taken since the popular emergence of the Internet and social and portable media. In particular, the most significant development over the past 15 years, according to Turkle, is the emergence of the ‘always on’ of technology. Whereas initial interchanges between the physical and the virtual operated across clearly defined boundaries – one sitting by a desk, in front of a computer, for a specific amount of time – technology nowadays is everywhere, and we are always online. This has led to a situation in which we are able to escape from the physical at any time, and indeed are more than happy to do so. Yet what has emerged out of this increased blurring between the physical and the virtual is what Turkle refers to as a ‘culture of distraction’, which takes the forms of failed intimacies and abolished physical relations: Parents texting at dinner, children checking their e-mails during class, young adults getting addicted to video games and social media, people sitting with laptops and smart phones at cafés and other public spaces where face-to-face communication used to be the norm. For Turkle, all of this points to the peculiar social reconfiguration that digital communicative technology engenders: We are more connected than ever, yet the very techno-social fabric that makes these new connections possible is also one which makes it significantly harder to engage in authentic encounters with other human beings. Technology has produced a new form of social isolation, which, as Turkle puts it, gives us “the illusion of companionship without the demands of friendship”. (Turkle 2011) We become lonely behind our devices yet are increasingly fearful of human intimacy, since digital technology makes it possible for us to hide from each other behind the very devices that allow us to communicate in the first place. According to Turkle, this opens

up a dangerous sociocultural path where we only are willing to engage with people in amounts that we are able to manage. Rather than submitting ourselves to the demands and complexities of physical communication and real human intimacy, we use technology as a filter to reduce other humans to objects. Texting and tweeting are basic examples of modes of communication that started out as substitutes for the real thing, but more and more have become the default way of interacting with others simply because it allows us to bypass the complexities of physical encounters. This marks the point where we risk isolating ourselves through the seductiveness and apparent simplicity of the virtual.

But the problem with this account of the sociocultural impact of ubiquitous, networked technology is that the focus on concepts such as ‘emotion’, ‘intimacy’, and ‘authenticity’ tends to undermine the wider speculative registers of technology, cognition, and science implicit in the virtualization of culture. For the blurring of the line between the physical and the virtual must not merely be understood as a threat to human authenticity, but also as an opportunity to redraw the parameters of what it means to be human as such. This is not to suggest that Turkle’s concerns are not valid at a certain level of analysis, but to make the critical discourse operate exclusively along the axis of emotional isolation/intimacy significantly scales down the sociocultural and cognitive impact of critique to the fetishization of the localism that Srnicek and Williams rightly reject. Contrary to this, we believe that a more pressing techno-social issue at the present is the sociocultural implementation of a cognitive mapping which operates according to the parameters outlined above and which utilizes technology as a means for cognitive remaking as opposed to emotional authenticity. This would significantly widen the ambitions of aesthetics, techno-social experimentation, and cultural production by truly attempting to overcome the cognitive dreariness and cultural vacuum of the present by rehabilitating the subversive ethos of modernism as filtered through the potentially transformative resources provided by cognitive science, late capitalist technology, and popular culture.

7.3 Cognitive Mapping in Neuroaesthetics and Neuromarketing

There are of course overlaps between our model of an aesthetic of cognitive mapping and the brain mapping at work in so-called ‘neuroaesthetics’, which aims to explicate the neurobiological underpinnings of aesthetic experiences and artistic creativity by pinpointing their underlying NCC’s through the usage of various neurotechnologies.

Yet while certainly not critical of this, our own fusion of neuroscience and aesthetics is slightly different insofar as it does not merely attempt to utilize neurotechnologies for the purposes of explaining aesthetic categories – but rather to integrate them into aesthetics and cultural production as such. In that regard, it aims to move beyond the quite orthodox division between science and (mostly classical forms of) art at work in neuroaesthetics – in favour of scientifically informed models of techno-aesthetics that are distributed all over popular culture (as opposed to being anchored in labs and art galleries) for the purposes of widespread cognitive remaking.

Another neuroscientific and sociocultural practice that exemplifies much of what we have been discussing here to an even greater extent than neuroaesthetics is neuromarketing, which aims to utilize the latest findings in cognitive neuroscience as a means for marketing clients to predict consumer responses in more accurate ways than through questionnaires and focus groups (which always run the risk of cognitive bias). Contrary to this, neuromarketing utilizes neuroimaging-technologies such as functional magnetic resonance imaging (fMRI), electroencephalography (EET), and steady state topography (SST) in order to measure cognitive and sub-personal neurobiological processes for the purpose of gathering objective data on emotions, preferences, and subconscious desires as a way to help marketers fine-tune the consumer experience (through media, packaging, branding, etc.) by targeting the appropriate mechanisms in the brain. One particularly striking example of these novel commercial practices is Neurofocus, which was established in 2005 and acquired by The Nielsen Company in 2008 under the banner ‘Consumer Neuroscience’. The following statement can be found at the Nielsen-webpage:

When time is money, every second counts. Our brains react to marketing in milliseconds. They’re so in tune with what’s going on around us that the feelings that guide our behavior exist within our subconscious well before we’re even aware of them. Since time is of the essence, it’s important to pinpoint which aspects of your marketing materials are the most provocative. Through our comprehensive, consumer neuroscience research, we do just that. By studying people at their most fundamental level – by measuring brainwaves – we provide a real-time view of their subconscious reactions. Using proprietary technology that applies neuroscientific techniques to market research, we provide insight into every aspect of your

marketing material. We measure real-time responses at both the conscious and subconscious levels, resulting in specific and actionable recommendations that can be implemented immediately. The value of this research extends across the marketing spectrum – from ads to aisles and from food to finance. Our work for a broad cross-section of Fortune 100 category leaders speaks for itself, demonstrating the value that consumer neuroscience can have for virtually every business. (<http://www.nielsen.com/us/en/solutions/capabilities/consumer-neuroscience.html>)

Neuromarketing thus recognizes and utilizes the novel sociocultural and aesthetic opportunities afforded by the scientific image of man for the purpose of transforming marketing-aesthetics on the basis of objective neurobiological and cognitive processes, and thereby exemplifies Jameson's observation that aesthetic production has become fully integrated with economic production in postmodern culture. It is a form of cognitive mapping thoroughly integrated with aesthetics and popular culture in that its positive experimental results are taken up and are implemented on a widespread sociocultural scale (hundreds of global companies have utilized it – from Pepsi and Coca-Cola to Google and Paramount). Critics of this research often tend to emphasize the normative dimension of neuromarketing's underlying implications – the fact that it threatens to turn us into 'consumer-mechanisms' once the NCC's for various forms of branding and consumption are better understood – and suggest that it would be best not to pursue any further research in this area. Yet as we see it the question is not so much whether we should insist on this research or not, but rather the particular forms that it should take. For even though the profit-driven agenda of neuromarketing under late capitalism is far from exciting, there is nothing inherently bad about mapping and objectifying the brain and its cognitive processes – it all depends on how we put this research into use. Hence, despite its obvious limitations, neuromarketing nevertheless exemplifies the awkward gulf between an anti-scientific left and a pro-scientific right; for whereas the former still are remarkably hostile towards the opportunities provided by the scientific image, the latter have embraced them completely and already started to utilize them on a widespread sociocultural scale. Capital does not hesitate to make full use of techno-scientific objectification for the purpose of transforming culture in the ways envisioned by its proponents – and this is why we believe that the proper response

from an anti-capitalist cultural and aesthetic agenda at the present is not to simply reject these resources, but to take them up for itself and significantly widen the narrow orientation that capital has subjected them to. Needless to say, it is at this point where the deepened modernist agenda of new accelerationism becomes crucial.

In the final three chapters of this thesis, we aim to substantiate this claim by having a closer look at an example of cognitive mapping in the form of the so-called 'drug-tech interface'. Originally coined by Simon Reynolds in order to describe the productive synergy between drugs and music in '90s rave culture, we believe that the drug-tech interface may be understood as an early example of cognitive mapping as we envision it (although it was not fully recognized as such at the time). However, since the decline of the rave-scene following the end of the '90s, it is capitalism that has taken up and mobilized the drug-tech interface for its particular purposes. More specifically, whereas the components of the '90s version of the drug-tech interface were Ecstasy and alien sounds, the capitalist version is fuelled by the distribution of antidepressants and the ubiquity of social media. And whereas the '90s version only operated fleetingly at the edges of the mainstream, the late capitalist model has fully transformed everyday life and popular culture as such. Thus, identifying the virtues and shortcomings of the '90s drug-tech interface – and the potentials and limitations of its late capitalist successor – will allow us to expand on our account of cognitive mapping from within the context of techno-cultural acceleration.

Chapter 8: The Drug-Tech Interface

8.1 The Legacy of Rave

‘Rave’ is an umbrella term for a musical subculture that emerged in Europe and the US in the late 1980’s and saw its creative and popular culmination in the following decade. Even though the term itself covers a number of musical styles – house, techno, jungle, trance, garage, gabber, big beat, hardcore, acid, breakbeat, and so on – what all of them have in common is that they are various expressions of what has become known as ‘electronic dance music’. Rave culture on the one hand refers to the multiplicity of novel sonic expressions that have come to operate under this banner, and on the other hand to the very particular social environment that accumulated around them and the whole way of life it brought with it. As Simon Reynolds – whose writings on rave culture from the ‘90s still stand out as the most historically incisive and conceptually significant²⁸ – remarks of his own experience with rave:

It was an entirely different and un-rock way of using music: the anthemic track rather than the album, the total flow of the DJ’s mix, the alternative media of pirate radio and specialist record stores, music as a synergistic partner with drugs, and the whole magic/tragic cycle of living for the weekend and paying for it with the midweek comedown. There was a liberating joy in surrendering to the radical anonymity of the music, in not caring about the names of tracks or artists. The “meaning” of the music pertained to the macro level of the entire culture, and it was much larger than the sum of its parts. (Reynolds 1999: 4)

Of course, many of the above examples – like electronic dance music itself – are no longer unusual components of our late capitalist cultural landscape, but have long since been normalized and accommodated to the demands of popular culture. It is, however, the central argument of this chapter that the modus operandi of the so-called ‘golden age’ of rave was driven by a particular entwinement between technological and

²⁸ In particular, Reynolds’ book *Generation Ecstasy: Into the World of Techno and Rave Culture* (1999; also available in an extended 2013-edition with new and revised chapters) lucidly combines personal experiences with overarching historical, stylistic, and critical perspectives.

neurobiological resources that manifested itself through what at its best moments may be characterized as an utterly alien sonic culture. In this chapter, we therefore aim to show how rave culture not only was significant for its sonic innovations, but also for how it integrated and implicitly advanced sub-personal neurobiological resources in the form of a nascent artificial unfolding. This aspect of rave may not have been properly understood at the time (or even today) – but once explicated provides us with an example of the cultural instantiation of the cognitive resources introduced in Part One, as well as an early sketch of the aesthetic of cognitive mapping outlined in the previous chapter.

Elaborating on this basic conviction will therefore be the primary objective of this chapter. In doing so, we will sidestep the affective framework that often has been utilized when theorizing the rave-ethos (other than Land's work, see for instance Goodman 2009) in favour of the cognitive perspective defended in this thesis, since we are under the conviction that it is only the latter which is capable of recognizing the wider cultural significance of the techno-scientific registers which were crucial to rave at its peak. Furthermore, our approach will be conceptual rather than historical in that we will focus specifically on the sociocultural nexus between the technological and the neurobiological – as opposed to how and where rave culture first emerged, how it mutated into a multiplicity of sonic expressions, how they influenced each other, and so on – given that our main interest in rave as a cultural phenomenon lies in how these cognitive and technological resources were mobilized across aesthetic and sociocultural registers.²⁹ Accordingly, the bulk of the chapter will utilize the work on rave by Simon Reynolds in order to analyse how the technological and neurobiological registers of the rave ethos converged into the so-called 'drug-tech interface'. This analysis will be followed by a discussion of the two poles of the drug-tech interface – its utopian and dystopian extremes – which shows how they both suffer from similar conceptual shortcomings that are rooted in quasi-metaphysical, experiential reifications. Finally, the chapter will identify key problems in Reynolds' own understanding of rave in terms of mass communion and collective emotional release. Pinpointing these issues will allow us to expand our criticism of Land's project, as well as elaborate on our own account of the cognitive and sociocultural impact of techno-scientific resources for the

²⁹ For a comprehensive overview of the history of rave, see Reynolds 1999.

purposes of aesthetics and cultural production in a way that moves beyond Reynolds' ultimately localist sentiments.

8.2 Alien Sounds

Let us begin with the technological aspect of the drug-tech interface, which naturally refers to the use of new forms of music technology in rave and the alien sounds thus generated. Reynolds uses the terms 'hallucinogenes' and 'sampladelia' to refer to the "disorienting, perception-warping music created using the sampler and other forms of digital technology". (Reynolds 1999: 42) What was significant with the sampler and other pieces of music technology (such as mixers, synthesizers, and later computers) was that it allowed DJ's and music producers to approach sounds in a very unorthodox, non-musical way. Because sampled sound is converted into digital data and stored on a hard disk, it allows producers to tweak, morph, and rearrange already existing sound files into seemingly infinite forms of alien soundscapes whose sonic registers far exceed those produced by traditional acoustic instruments. This became a trademark type of rave sound, whose major innovation was its decisive break with traditional sonic notions of natural acoustics, real-time performance, and musicality, in favour of a full-fledged digital psychedelia which converted the "musical energy of flesh-and-blood musicians into the zeros and ones of binary code". (Reynolds 1999: 45)³⁰ This inhuman approach to music consequently necessitated an entirely novel vocabulary of sonic terms organized not around notions such as 'authenticity', 'immediacy', and 'musicality' – but around 'artifice', 'abstraction', and 'frequency'. For Reynolds, this distinction between humanist musicianship and inhuman machine sounds points to two very different (but not completely distinct) understandings of sonic aesthetics, which he refers to as *subjective expressionism* and *objective functionalism*. Subjective expressionism is an account of music in terms of human personality and interpretation, which approaches the musical material through the persona of the artist, the meaning of

³⁰ Of course, this approach to music technology did not first appear in rave (although it was certainly popularized by it), but was already an important component of sound art and experimental music at the time. For instance, the musician and producer Brian Eno's famous essay on the studio as a compositional tool already prefigures a lot of the compositional techniques that later would become central to rave – such as the break with real-time performance, the expanded possibilities to directly manipulate sound, the notion of the engineer as artist, and the studio as something more than merely a venue for polishing recorded sounds during the mastering-process (see Eno 2004: 127-130).

the lyrics, and the larger biographical context in which they are embedded. Objective functionalism, on the other hand, discards musical communication and lyrical interpretation in favour of what Reynolds (borrowing a phrase from the writer Susan Sontag) refers to as ‘the programming of sensations’. In short, what was central to the rave ethos was not the narrating of a story or personal experience, but the massive impact of alien sonic frequencies on the human body and the cognitive and affective overload that inevitably followed.³¹ As Reynolds puts it: “Whereas rock relates an experience (autobiographical or imaginary), rave *constructs* an experience [although *deconstructs* might be more suitable from our perspective]. Bypassing interpretation, the listener is hurled into a vortex of heightened sensations, abstract emotions, and artificial energies”. (Reynolds 1999: 10) But whereas Reynolds tends to conceive of objective functionalism merely in terms of its ‘affective charge’, it seems to us that its wider cognitive and cultural significance rather lies in how sonic resources indexed by the scientific image were utilized in order to overturn the alleged ‘humanism’ of music culture by activating its abstract underpinnings. Thus, read along these lines, rave may be conceived of as an early example of what this thesis characterizes as the transformative cultural potencies of the scientific image.

³¹ This is a somewhat generalized and oversimplified depiction of rave culture as a whole, since in fact not all of its many branches were completely opposed to musical expressionism in the more traditional sense. As with all cultures and subcultures, tensions between different strands operating under the same overall banner always exist and manifest themselves in different ways. For instance, Reynolds draws a distinction between so-called ‘progressive’ or ‘intelligent’ rave music and its hardcore counterpart. Whereas the former was characterized precisely by returning to more traditional notions of musicianship and authenticity under the aegis of artistic maturity, the latter was driven by what he refers to as ‘the will of technology’ in the form of a ‘DJ-oriented functionalism’ which combined drug-induced delirium, underclass rage, and aesthetic heresies in seemingly unparalleled ways. This is not to suggest that everything produced under the label ‘progressive’ was by default inferior or lesser music, but rather that – as Reynolds argues – it was the hardcore pole of rave which was the most provocative, experimental, and ultimately aesthetically creative: “What I’m proposing here is that music shaped by and for drug experiences (even “bad” drug experiences) can go further precisely because it’s not made with enduring “art” status or avant-garde cachet as a goal. Hardcore rave’s dance floor functionalism and druggy hedonism actually make it more wildly warped than the output of most self-conscious experimentalists”. (Reynolds 1999: 8) It is consequently what Reynolds refers to as the ‘hardcore-continuum’ (i.e. jungle, techstep, darkcore, etc.) which we primarily refer to when we talk about rave culture and the rave ethos in this chapter.

It was consequently the mobilization of objective functionalism and the alien experiential impact of technologically altered sounds that were among the central aesthetic innovations of rave culture. For Reynolds, these aesthetic innovations indicate on the one hand a present information-based, mediascape-realism – and on the other hand visions of future models of subjectivity and social organizations in the form of a nascent “posthuman life in the age of virtual reality”. (Reynolds 1999: 46) He consequently links the central components of rave and their functional roles within the culture as a whole to the artificial and gothic sublime of science-fiction and horror. For what primarily mattered in rave – just as in science-fiction and horror – was the cognitive and affective impact of an alien futurity and outside.

It is therefore not surprising that Reynolds refers to sampladelia as a form of ‘zombie music’, which consists of dead sounds reanimated and stitched together into a ‘quasi-organic seamlessness’ (see Reynolds 1999: 45). However, a slightly different way of characterizing sampladelia is as a form of spatial dispossession insofar as it transplants the temporal locus of the live-performance across the extensive and quantifiable magnitudes of the studio technology. As Brian Eno notes in his essay on the studio as a compositional tool: One of the most significant consequences of this novel approach to music technology is that it spatializes sound by making it available for entirely novel forms of technological manipulation (see Eno 2004; Eno singles out the tape as the best example of this approach, but today it is of course computers and digital technology which operate at its forefront). In short, the spatialization of sound detaches it from its link to an *aesthetic subject* and makes it resembling something closer to a *scientific object*. This fusion of the aesthetic and the scientific is perhaps best illustrated by the transformation of the producer and sound engineer from mere studio technicians into artists as such (as both Reynolds and Eno note in their discussions of sampladelia and studio composition), since the increasingly central role attributed to technology in both rave and sound art necessitated a creative approach to its untapped potentials which is akin more to that of a technician than to a traditional musician. Indeed, since technology came to play such an important part of rave culture, experimenting with different (and often unintended) settings and setups became absolutely crucial for DJ’s and producers – whose work often grew out of identifying

and exploiting these unintended features of their technological arsenal.³² Accordingly, it is the figure of the mad scientist – rather than the artistic genius – which seems to be the most apt metaphor at least for these more unconventional approaches among producers to rave as a *sonic science*.

This scientific aspect of the rave ethos becomes even more explicit once we turn to the other component of the drug-tech interface – its neurobiological underpinnings – which fed into the technological register in a way which resonated strongly across rave culture as a whole. Hence, one of the central aspects of Reynolds’ analysis of the rave phenomenon is his insistence on the decisive role played by psychoactive drugs within the subculture. Of course, rave has since long been intimately entwined with drug culture, but this is not a mere arbitrary connection since drugs – as we shall see – in fact came to play a central role in the social and even sonic developments of the rave ethos.

8.3 The Neurochemistry of MDMA and Its Cultural Impact

For Reynolds, it is Ecstasy, or MDMA (Methylene DioxyMetAmphetamine), which was *the* rave-drug par excellence. First synthesized in 1912 by the chemist Anton Köllisch (who died a few years later, during World War One) for the German pharmaceutical company Merck, MDMA would later be rediscovered in the 1960’s by the biochemist Alexander Shulgin and was initially used for therapeutic purposes within loose networks of psychiatrists and psychotherapists in the United States. However, in the early 1980’s the drug started to spread beyond the smaller networks of professionals and close friends and became commercialized under the name ‘Ecstasy’ when a distributor known as the Texas Group started mass producing it in 1983. It would later spread to bars and nightclubs – it was sold openly at bars in Dallas and Austin in the early 1980’s and became increasingly popular across the nightclub-scene – before being put on the Schedule 1 of controlled substances by the Drug Enforcement Administration (DEA) in 1985 (to much dismay among therapists and MDMA-proponents), where it remains to this day (see Pentney 2001: 214-216). While the criminalization of MDMA

³² “How does this project [i.e. of using the studio as a compositional tool] relate to technology? First, it’s about finding out what a new piece of equipment facilitates that wasn’t previously possible or even thinkable. This involves locating and exploiting potentials in the new machines that the manufacturers never intended. A frequent claim heard from techno producers is that the first thing they do when they’ve acquired a new machine is to throw away the manual and start messing around, in blithe indifference to the manufacturer’s helpful hints”. (Reynolds 1999: 50)

was mainly contested on medical grounds, Reynolds argues that the sociocultural potencies of the drug – beyond its use as a recreational tool in a therapeutic context – already had been recognized by a nascent musical subculture that came to exploit them in collective synergy with technology and a plethora of artificial soundscapes.

Turning to the neurobiological level of description, it is mainly the field of neurochemistry that has helped scientists to understand how psychoactive and other sorts of drugs affect the human brain and nervous system. As the philosopher Sadie Plant points out in her book *Writing on Drugs*, by the 1970's an emerging image of the neurochemical processes underlying the experiences of pleasure, euphoria, stress, arousal, and other forms of standard and deviant phenomenal states started to come together. And this image would later lay the groundwork for an increased understanding of how these processes may be intensified or interrupted by artificial stimulants whose chemical structures interact with neurotransmitters in the brain by mimicking their specific behaviour. As Plant argues, the psychoactive effects of these compounds principally stem from the body's attempt to compensate for a sudden influx of chemical stimuli, and the key objective for the scientist is consequently to understand how a particular compound interacts with specific workings within the neurochemical system as a whole (see Plant 1999: 170-203).³³

³³ Plant's discussion of the neurochemical effects of psychoactive drugs is one of the key chapters in her book *Writing on Drugs*, which lucidly combines analyses of the Freudian death drive and various research in the field of neurochemistry with speculations about psychedelic experiences as experiences of abstract, cognitive invariances, and the natural evolution of psychoactive chemicals in various plants as a form of defense-mechanism in arms-races between predators and prey. This chapter and the book's analysis of drugs and music have, along with Reynolds' and Land's work, been particularly central for the construction of the present analysis. Furthermore, while Plant mainly is known for her work on cyberfeminism, she also produced a number of important articles on culture, technology, and cognition which should be read in conjunction with the above chapters and Land's work in particular. For instance, in her essay 'The Virtual Complexity of Culture', Plant argues that the cultural import of connectionism from the fields of neuroscience, computer science, and artificial intelligence will necessitate profound reconsiderations of human thinking, knowledge, and culture in terms of a distributed, bottom-up system of parallel computational processes (see Plant 1996: 203-216). Needless to say, Plant's work on the cultural shift brought about by the transdisciplinary integration of a computational account of cognitive processes from the natural sciences has been highly influential on themes brought up in this thesis. However, whereas Plant builds her discussion around what basically comes down to a Humean (i.e. associative) conception of cognition, our understanding of the cognitive crucially adds a further normative (i.e. Kantian) register.

Going back to MDMA, its neurochemical effects are related to the release and concentration of dopamine, norepinephrine, and serotonin – neurotransmitters which generate intensified senses of mood, perception, and sociability. Desired short-term effects include euphoria, a sense of well-being, increased empathy and feelings of closeness with other people, as well as heightened perceptions and mild forms of hallucinations. At a rave, all of these effects are greatly intensified by the social and sonic setting. There is an increased sense of solidarity and emotional connection with both friends and strangers, and the drug's mild hallucinogenic effects make the music sound more distinct and vivid. Reynolds also points out that recent neuroscientific research indicates that the drug stimulates the brain's 1b receptor, which triggers repetitive behaviour and consequently may offer a neurochemical explanation to why rave music – which substitutes narrative progression for repetitive stimulation – works so well with the psychedelic effects generated by MDMA. Furthermore, once this psychedelic conjunction between MDMA and the rave sound was recognized, producers started to intentionally create tracks which would intensify the MDMA-experience by using processes like filtering, panning, and phasing in ways which further stimulated the drug's psychedelic potencies. In that regard, rave gradually evolved into what Reynolds refers to as a “self-conscious science of intensifying MDMA's sensations” (Reynolds 1999: 85) – in particular among the more functionalist oriented strands, which seemed to best understand the positive feedback-loops established between technology and neurobiology through the mediums of drugs and sound. Yet similar links were identified in other realms of culture as well. In *Writing on Drugs*, Plant argues that this mind-altering and brain-modifying aspect of the drug-tech interface found its most immediate intellectual fellow traveller in cyberpunk-literature, which also concerned itself with exploring the complex structures of the human brain through an intricate fusion of technology, aesthetics, and cognitive science:

[O]ne wave of writing seemed to feel this rush of music coming on: cyberpunk, a genre in which what Bruce Sterling defined as the ‘powerful theme of mind-invasion’ played a crucial part: ‘brain-computer interfaces, artificial intelligence, neurochemistry – techniques radically redefining the nature of humanity, the nature of the self’. [C]yberpunk anticipates a world in which drugs are enhanced or replaced by even more immediate and precise means of modifying brains and changing minds. (Plant 1999: 169)

In particular, Plant saw a crucial conjunction between Ecstasy and conceptions of cyberspace at the time, which allowed a new generation of thinkers to explore previously unimaginable cognitive and virtual spaces through neurobiology and digital technology. Indeed, the great cultural significance of cyberspace, according to Plant, was that it further widened the cognitive expansions induced by Ecstasy across the social and public realm in the form of what the cyberpunk author William Gibson famously referred to as a ‘consensual hallucination’. It is thus at this particular junction where rave and cyberpunk converged – as the two major cultural movements oriented around exploring these consensual hallucinations of the modern age.

However, the cognitive expansions in rave, like those in cyberpunk, also exhibited darker sides that mainly manifested themselves through a number of unpleasant side-effects generated by MDMA. These include short-term effects such as dehydration, anxiety, slight nausea, and increased body temperature (which may result in blood clots and internal bleeding) – as well as long-term effects such as weight loss, sleep deprivation, paranoia, panic attacks, and severe depression. The underlying neurochemical explanation for these long-term effects is that the brain needs a certain amount of time to restore serotonin-levels – which means that when MDMA is used regularly, it will take longer for serotonin levels to normalize and one consequently runs the risk of a certain amount of depletion. While these neurochemical processes pinpoint why MDMA not should be viewed as physically addictive, it can however lead to what Reynolds refers to as an ‘emotional addiction’ in which the raver hopelessly tries to recreate the original ‘honeymoon experience’ with Ecstasy through increased dosages and polydrug abuse. The result, however, is the exact opposite: Anxiety disorders, paranoia, and other forms of psychological damage. In that regard, long-term psychological costs, as opposed to physical ones, seem to constitute the most severe side-effects of MDMA, as Reynolds notes (see Reynolds 1999: 86-87).

What is particularly interesting about these two faces of the MDMA-experience from the perspective of rave, however, is that they both not only were reflected in but even shaped the aesthetic and social developments of particular sonic strands within rave culture. In that regard, they constitute the two poles of what Reynolds refers to as rave’s ‘utopian/dystopian-dialectic’. The utopian side is perhaps best exemplified by San Francisco’s Full Moon-parties, which combined Internet-utopianism, New Age cosmology, and the ethnobotanist and psychedelic guru Terrence Mckenna’s ‘Stoned Ape-Theory’ of human consciousness (according to which the appearance of Homo

Sapiens is the result of the consumption of psilocybin, or so-called ‘magic mushrooms’, among Homo Erectus, which acted as an evolutionary catalyst that spawned human culture, language, and imagination) into a neo-hippie Gaia-version of rave. And much as Mckenna condemned the sickness of modern society – which was to be healed through an ‘archaic revival’ in the form of psychedelic, aesthetic, and sexual experimentation – the Full Moon-perspective was one of merging with a Cosmic Oneness through an idea of rave as what Reynolds refers to as “biorhythmic synchronization with Gaia”. (Reynolds 1999: 154) Indeed, it was precisely this idea of rave as part of a cosmic eschatology that made the Full Moon-parties stand out for their avowed utopianism, which partly seems to have grown out of the vitalism of the Ecstasy-experience.

Yet lurking beneath the glow of Ecstasy-utopianism was the dystopian side of the rave-experience, which Reynolds refers to as its ‘latent nihilism’. For Reynolds, the latter on the one hand took the form of a ‘collective comedown’ among hardcore ravers – whose brains had been seriously depleted of serotonin following extended periods of intense raving – and on the other hand referred to a chaotic neuropharmacological situation in which a number of amateur and fake substances were flooding the market. More specifically, the emergence of various cocktail pills (which combined cheaper and more unreliable chemicals) and Ecstasy containing (the harsher and more toxic) MDA rather than MDMA, combined with increased intake and polydrug use among ravers (which was to make up both for the lower-quality drugs and for Ecstasy’s long-time serotonin-depletion), led to an entire neurochemical street-science of homemade cocktail pills and an overall psycho-physical exhaustion which extended MDMA’s nasty side-effects to a social level and soon spiralled out of control in the form of a collective darkside-paranoia. Gone was the life-affirming communion of rave’s early days, and left were disoriented and serotonin-depleted veteran ravers who were stuck in the emotional void following their initial blissful MDMA-experiences:

The nihilism latent in the dehumanizing logic of the drug/technology interface is always lurking, waiting to be hatched. Rave’s “desiring-machine” becomes a machine gone mad, wearing out its flesh-and-blood components. The human nervous system is not built to withstand the attrition that comes from sustained sensory intensification and artificial

energy. Ultimately, the rave experience can be literally mind blowing – as in a fuse burning out, rather than psychedelic bliss. (Reynolds 1999: 127)

But interestingly, rather than leading to the demise of the rave-ethos, this neurochemical darkside-paranoia instead opened up entirely novel spaces for sonic and social experimentation that ended up spawning some of the most exciting subgenres of rave – first darkcore and later jungle and techstep – which developed darker and harsher sounds, as well as novel forms of complex rhythms. What also was crucial here was a distinctively fierce and uncompromising attitude towards rave and its position within an emerging late capitalist economy. Whereas the bliss of the original Ecstasy-experience had been operating as a collective antidote against social atomization and alienation (particularly in the UK) – although not in the form of active resistance, but in terms of collective social withdrawal – the darkside strands instead came to affirm capital's breakdown of previous social relations under the premise that there is 'no turning back'. Capitalism may have obliterated the social fabric according to its ruthless logic of exploitation, yet the key here was not to passively withdraw but to actively push this grim logic to its ultimate conclusion. Accordingly, what animated these darkside strands of rave was an antisocialist and predatorial accelerationism which openly affirmed the paranoia and social deterioration that comes out of extensive sonic and neurochemical overstimulation, since this was what would lay the affective groundwork for future technological emancipation under the aegis of capital's dehumanizing forces.³⁴ The Landian parallels here are of course striking, and may best be summarized in terms of

³⁴ Neurochemistry may thus constitute a decisive explanatory basis for these different attitudes towards capitalism among the utopian and dystopian proponents. For it has often been noted that psychoactive drugs tend to either diminish or accentuate capitalist norms and values among the individuals who use them. For instance, marijuana has generally been considered an anti-capitalist drug insofar as its chilled-out effects belong to those traits which capitalism tends to reject. Amphetamine, on the other hand, is an inherently capitalist drug from this perspective, insofar as it stimulates competitive and aggressive behavior among its users. Perhaps this provides us with an additional explanation to why the darkside-strands came to embrace rather than withdraw from the destructive forces of techno-capital: The empathy-component of MDMA and its anti-capitalist effects had been diminished as a consequence of collective serotonin-depletion, leaving the amphetamine-component as the dominant neurochemical stimulant (see Reynolds 1999: 240). We will return to this issue in the next chapter, where we will discuss the role of Prozac and similar antidepressants within late capitalist precarity.

an ‘apocalyptic glee’ and ‘perverse *jouissance*’ (Reynolds) that the darkside-producers shared with Land:

“Darkness” is where primordial energies meet digital technique, where id gets scientific. Identify yourself with this marauding music, and you define yourself as predator, not prey. What you affiliate yourself to with techstep is the will-to-power of technology itself, the motor behind late capitalism as it rampages over human priorities and tears communities apart. (Reynolds 1999: 354)

Machinic desire can seem a little inhuman, as it rips up political cultures, deletes traditions, dissolves subjectivities, and hacks through security apparatuses, tracking a soulless tropism to zero control. This is because what appears to humanity as the history of capitalism is an invasion from the future by an artificial intelligence space that must assemble itself entirely from its enemy’s resources. (Land 2011: 338)

We are now in a better position to understand the convergence between Land’s work and darkside-rave, insofar as the latter seemed to provide exactly the kind of program for affective depersonalization that he was looking for. Land’s accelerationism therefore found its cultural equivalent in jungle and techstep, which sampled the same kinds of cyberpunk- and horror-films as he did in his writings and were driven by a similar agenda oriented towards expanding capital’s dehumanizing logic through various forms of technological and neurobiological subversions. It is therefore not so much that Land wrote ‘about’ rave which is compelling, but rather that his writings effectuated an affective convergence with the sonic darkside in precisely such a way that he conceived of the machinic dissolution between theory and practice.³⁵

³⁵ Land’s perhaps most explicit references to the darkside strands can be found in his essay ‘No Future’ – which vividly utilizes phrases such as ‘manically dehumanized machine-music’, ‘digital audio machine-howls’, and ‘impending human extinction becomes accessible as a dance-floor’ in order to dramatize the nascent emergence of the singularity *qua* inorganic dissolution – yet all of his writings from his most explicit ‘machinic’ phase are worth reading more for their ability to tap into the twisted vibe of the sonic darkside than for explicit references to rave culture as such (see Land 2011).

8.4 Objective Functionalism Reconsidered

These were the two poles of the drug-tech interface. On the one hand there was the utopian side, which was animated by a particular form of sonic vitalism that took rave's general impetus to be one of facilitating a collective fusion with the universe in the form of a Cosmic Oneness. And on the other hand there was the latent nihilism concomitant with the dystopian side, for which rave's underlying agenda instead was marked by impersonal darkness and nothingness. Yet these polar tendencies are in fact best understood in terms of their similarities rather than differences, for underlying both positions are a similar set of folk-psychological misapprehensions marked by a dubious form of sonic eschatology (whether construed as 'vitalist' or 'nihilist')³⁶ organized around the emancipatory potencies of individual and collective experience. Indeed, the underlying conceptual problem that cuts across the utopian/dystopian-dialectic is the attempt to construct a cultural program of emancipation based on an experience of euphoria and dread, respectively. For in both cases it was precisely through the medium of experience that the subject ultimately would be able to facilitate a fusion with the immanence of boundless exteriority. Experience, in that regard, was endowed not only with dubious cultural but also metaphysical qualities, which ended up undermining its neurobiological underpinnings and thereby points to the conceptual confusion that Metzinger's work allows us to sort out in terms of an inability to distinguish an individual (or collective) experience from the pre-individual realm through which this experience is produced: The neurobiological possibility space and the dynamical modifications imposed on it by various forms of external stimuli (in this case the drug-tech interface). Indeed, the vitalism and nihilism that animate the utopian/dystopian-dialectic have distinct neurochemical underpinnings which seem to shed light on classical and modern conceptions of these positions from the perspective of contemporary neuroscience. As Reynolds points out, the Bergsonian concept of a 'life-

³⁶ Like Land, Mckenna conceives of human history as being progressively accelerated by a teleological attractor towards a cosmic bifurcation-point of unparalleled mental and physical singularity. More specifically, Mckenna argues that the (at the time of when he was writing) future point of maximum novelty would be reached in 2012 and would mark the end of physical laws and the convergence of human minds with the Overmind (see Mckenna 1993). Needless to say, nothing like what Mckenna's pseudo-science predicted ever occurred – in the same way as Land's delirious vision of an inhuman capitalism turned out to be false – which again points to the fact that these seemingly contradictory positions in fact suffer from similar shortcomings.

force' (or 'élan vital') may have found an important neurochemical explanation in the serotonin-overload that MDMA produces – much in the same way as William James' notion of a 'diabolical mysticism' (a sort of twisted religious mysticism) seems to correspond to the serotonin-depletion concomitant with the darkside-strands (see Reynolds 1999: 90, 216). We may therefore argue that what the utopian/dystopian-dialectic primarily points to is not a schism between cultural vitalism and nihilism, but a problematic metaphysics of experience which cuts across rave culture as such. It is therefore only once these cultural and sonic commitments to the experiential have been recognized that we can take the two sides of the rave-dialectic for what they actually were: Local modifications of the organism's cognitive economy, rather than a global convergence with an all-loving/schizophrenic cosmos.

But Reynolds' own understanding of rave culture also suffers from a number of shortcomings, insofar as he conceives of rave as a sonic 'desiring-machine' (Deleuze and Guattari) whose central sociocultural and (anti-)political function was to provide 'temporary autonomous zones' (Hakim Bey) of collective emotional release – in the forms of 'mass communion' and 'communal freak-out' – in the midst of an emerging late capitalist social atomization. In his own words:

Ecstasy culture is a useful way of dissipating the tensions generated by wage slavery and underemployment; it's an agent of social homeostasis, insofar as the loved-up ambience of clubs and raves offers youth a sort of provisional utopia each and every weekend, thereby channelling idealism and discontent out of the political arena altogether. [...] Could it be that the entire project of rave and post-rave club culture has amounted to little more than a survival strategy for the generation that grew up under Thatcher? A culture of consolidation, where the illusory community of the Ecstatic dance floor compensates for the withering away of the "social" in the outside world, ever more deeply riven by class divisions and economic disparities? The explosion of pent-up social energies that occurred in the late eighties has been channelled and corralled into a highly controlled and controlling leisure system. The rave as temporary autonomous zone has become the club as pleasure-prison, a detention camp for youth. (Reynolds 1999: 382)

However, the account of rave culture's significance along these registers threatens to undermine its wider speculative implications by reducing its cognitive import to the mere facilitating of various forms of mass communions, and its social implementation to nothing more than the provision of transient bunkers for short-term cultural escape. In that regard, it sits firmly alongside the folk political registers criticised by Srnicek and Williams – as well as the axis of emotional alienation and intimacy according to which orthodox critique operates. Reynolds is not entirely unaware of this, however, such as when he ponders on the fact that for all its sonic and chemical innovation, rave culture as such nevertheless has done little to overturn the basic work/leisure structure established by industrial capitalism – and indeed seems to be fitting quite comfortably within it (i.e. work hard during the week and party over the weekend). Yet in the end, rave culture as theorized by Reynolds comes down to no more than mere 'collective disappearance' (a term that he borrows from an essay by Antonio Melechi on rave): A short-term holiday of mass communion in the form of transient spaces for collective emotional release, which notably reintroduces the humanist vocabulary of immediacy and authenticity – whose aesthetic components he remains critical of – at the sociocultural level in a not entirely unproblematic way.

In a 2010-conversation with Mark Fisher, Reynolds further stresses this position by pointing out that the best post-rave music which has appeared since the decades following the death of rave (such as Burial and Darkstar) is significant not because it introduces novel forms of cultural futures, but rather because it uses the medium of sound in order to articulate a kind of spectral mourning for the now past forms of collective intimacy that rave provided. In other words, it is a kind of nostalgia, but not in the form of the default nostalgia-mode that popular culture operates according to. It is not merely nostalgia for the near past, but for the past futures that post-war popular modernism once promised:

The idea that artists and commentators are groping towards, without fully articulating, is that dance music no longer provides the kind of emotional release that it once did, through collective catharsis. So there is this turn inwards, and also a fantasy of a kind of publically displayed inwardness: the widely expressed artistic ideal of "I want my tracks to make people cry on the dancefloor". Because if people were getting their release in the old way (collective euphoria), why would tears be needed? [...] In the Nineties,

drugs – specifically Ecstasy – were absolutely integral to this communal release. One of the reasons hardcore rave was so hyper-emotional was because its audience’s brains were being flooded with artificially stimulated feelings, which could be elation and excitement but also dark or emotionally vulnerable (the comedown from Ecstasy is like having your heart broken). [...] I’m just speculating here, but I wonder if [this post-rave emotional turn] has anything to do with a dissatisfaction with Internet culture, the sort of brittle, distracted numbness that comes from being meshed into a state of perpetual connectivity, but without any real connection of the kind that comes from either one-on-one interactions or from being in a crowd. (Reynolds and Fisher 2010)

Yet as affectively intense as this post-rave turn towards emotionality and inwardness may be – such as in Burial’s music, which powerfully articulates a specific kind of post-rave, late capitalist affect prevalent in the UK in particular (i.e. capitalist realist emotional alienation) – it nevertheless fails to move beyond the localism congruent with cultural enclaves of communal freak-out. Indeed, it is precisely the loss of such enclaves that this kind of music mourns (which is obviously why Burial’s music was so well-received in the UK in particular). But, as we have argued throughout this thesis, what we most urgently are in need of at the present are novel forms of cultural ambitions that move beyond the axis of localism/emotionality and instead attempt to significantly scale up cultural and cognitive ambitions beyond the transitory cultural gatherings concomitant with phenomena such as rave.

Furthermore, Reynolds’ account of the neurobiological function of Ecstasy in rave oscillates somewhat uncomfortably between on the one hand a commendable scientific materialism (as we saw earlier), and on the other hand a somewhat problematic quasi-spiritualist experientialism. The latter becomes most obvious when he characterizes rave as a ‘celebration of celebration’ (i.e. a cultural program for generating communal intensities with no other purposes than themselves), and the affective charge of Ecstasy in terms of “its sense of access to a wonderful secret that can be understood only be direct, unmediated experience”. (Reynolds 1999: 243) But here again, the insistence on understanding the neurobiological import of MDMA in terms of the mere production of communal intensities and ineffable affective experiences skates over the wider sociocultural and cognitive transformations at stake in resources such as this, and

therefore necessitates the construction of a different critical program capable of recognizing its more productive long-term and large-scale potentials.

We believe that emancipating the neurobiological underpinnings of rave culture from the utopian/dystopian-dialectic and from collective localism allows us to resituate these resources within the critical framework outlined in this thesis. For despite the conceptual shortcomings in these various theorizations of rave, it is precisely insofar as it did have a strong neurotechnological component that it marks an interesting cultural moment where abstract processes indexed by the scientific image came to play central roles in aesthetics and cultural production. Reynolds even goes so far as suggesting that hardcore perhaps best is to be understood as a decisive “neurological rather than cultural phenomenon” (Reynolds 1999: 139) – that is, as a cultural movement which utilized psychoactive drugs and technologically generated sounds as part of an ongoing neurotechnological experimentation – and we believe that it is along these lines that the legacy of rave should be reflected on today.

In order to articulate this perspective further, we need to extend the distinction between subjective expressionism and objective functionalism from aesthetic to cognitive and sociocultural registers. This will not only allow us to differentiate between rave and traditional musicianship, but also between two different ways of interpreting the cognitive and sociocultural significance of the rave-phenomenon as such. From the perspective of subjective expressionism, rave’s wider significance lies in its experiential and affective impact, and how – as we just saw – attending raves provided the audience with spaces for collective emotional release. However, from the perspective of objective functionalism, what is central to rave as a cultural phenomenon is how the drug-tech interface was utilized as a medium for navigating, modifying, and aesthetically integrating objective neurochemical processes indexed by the scientific image. Aesthetic synergy between technology and neurobiology became pivotal for turning sonic production into a medium of neurochemical modification and cognitive navigation in such a way that the producer’s electronic arsenal no longer remained merely sonic, but also turned neurotechnological. In that regard, sound became an aesthetic probe for cognitively mapping the neurochemical and social impact of MDMA and other substances through the construction of novel sonic landscapes that were evolving as quickly as the psychoactive drugs reworked the human nervous system. As Reynolds puts it:

House and techno producers have developed a drug-determined repertoire of effects, textures, and riffs that are expressively designed to trigger the tingly rushes that traverse the Ecstatic body. Processes like EQ-ing, phasing, panning, and filtering are used to tweak the frequencies, harmonics, and stereo imaging of different sounds, making them leap out of the mix with an eerie three-dimensionality or glisten with a hallucinatory vividness. (Reynolds 1999: 85)

We may consequently argue that the central cultural import of rave's objective functionalism was the way in which the drug-tech interface allowed DJ's and producers to sonically map objective neurochemical processes through a progressively expanding set of technological modulations that responded to the dynamical modifications imposed by MDMA and other drugs. In other words, what is central from this perspective is not the affectively emancipatory experience of going to raves, but how a positive feedback-loop was established between objective neurochemical processes and a constantly evolving set of novel aesthetic expressions – and which culminates in an account of rave as a primitive form of cognitive mapping conducted through the mediums of drugs and sounds (i.e. the drug-tech interface).

This is ultimately why rave is an important cultural phenomenon from the perspective of this thesis. The fusion of technology, neurochemistry, and alien soundscapes along the sub-personal axes of cognitive navigation and functional objectivity provides us with exactly those resources which we believe are crucial to the kind of cultural and cognitive transformation that we are advocating here. Thus, rather than positioning rave along the trajectories of a lacking model of cosmic eschatology or a mere affective and emotional communal experience, we believe that what is significant about rave as a cultural phenomenon is that it opened up a singular cultural space for widespread aesthetic and techno-scientific experimentation with objective, neurobiological processes. This was of course not fully recognized at the time, which is why the cognitive implications of the neurobiological processes activated and facilitated by the drug-tech interface remain outlines of an unfinished cultural project. But by utilizing the conceptual resources introduced in the earlier chapters we hope to have shed new light on rave's cultural and cognitive import in a way which sidesteps the Landian model of rave as a machinic program for affective dissolution and Reynolds' conception of raves as transient spaces for collective emotional release, and instead

reorients it towards the cognitive and cultural registers advocated by this thesis. Indeed, what the drug-tech interface provides us with are the rudiments for a distinct *cultural model* of what we have characterized as the displacement of experience along impersonal technological axes. This is not to neglect rave's purely sonic innovations, of course, but what is most significant with rave to us undoubtedly goes beyond the music, given that sound is just one example of how these abstract neurobiological processes could be put into productive use in culture. But there are others as well, which have nothing to do with rave or even with music. What ultimately matters here is the link between objective neurobiology and an aesthetic of cognitive mapping – not the particular medium or sociocultural setting through which this link is realized. This is after all the meaning of objective functionalism, insofar as its sub-personal infrastructure can be activated through completely different sociocultural settings and aesthetic programs. In that regard, the rave ethos also operates as a *cognitive blueprint* for future cultural experiments along similar trajectories. What other possible fusions between aesthetics and cognitive neurobiology are culturally viable? How could they be productively integrated into culture at large? What kind of impact will they have on our default human self-image? These are the broader questions that the drug-tech interface invites us to ponder on.

In the next chapter, we aim to begin addressing these questions by taking a closer look at how the drug-tech interface has been taken up by capitalism since the demise of the rave ethos. For as we remarked earlier, it is not so much that the drug-tech interface has disappeared over the past decades – but it has rather been appropriated by capitalism and implemented on a significantly wider sociocultural scale. In Chapter 9, we will therefore take a closer look at the technological and psychopharmacological sides of the capitalist version of the drug-tech interface (i.e. the Internet and digital network-technology on the one hand, and antidepressants and cosmetic psychopharmacology on the other) and how they feed into the agenda of late capitalist precarity. As we will see, these examples usefully illustrate capital's usual mixture of innovation and stagnation, which offers both novel obstacles to overcome and opportunities to seize.

Chapter 9: Technology and Psychopharmacology in Late Capitalist Culture

9.1 Prozac and the Neurobiology of Mental Disorders

At the same time as Ecstasy rapidly spread across the sonic underground during the '90s, Prozac (Fluoxetine) began to enter the therapeutic scene and would – as we will see in the present chapter – later come to play an important part in the shaping of late capitalist precarity. Prozac was first discovered by scientists working at the American global pharmaceutical company Eli Lilly and Company, and was approved by the Food and Drug Administration for treatment of severe depression in 1987. There are several interesting sociocultural and neurochemical parallels between Ecstasy and Prozac insofar as both act as mood-altering serotonin reuptake inhibitors which tend to stimulate increasingly outgoing social behaviour – yet the sociocultural landscapes that these substances have helped shaping are in many ways strictly opposed.³⁷ And like Ecstasy, Prozac has had significant impact on culture (like no other antidepressant); it was on the cover of *Newsweek* and *New York Magazine*; it was widely discussed on talk shows such as *Oprah Winfrey* and *The Today Show*; it spawned significant pro- and con-movements arguing for its many virtues and side-effects; and it played a central role in Elizabeth Wurtzel's acclaimed autobiographical novel *Prozac Nation*. Finally, the drug also has wider speculative and sociocultural implications insofar as its neurochemical effects have been shown to sometimes stretch beyond mere treatment of psychiatric disorders and also encompass cognitive and emotional makeovers that may take the form of a full-blown psychopharmacological self-transformation.

It is this latter perspective that interests the psychologically trained psychopharmacologist Peter D. Kramer in his influential book *Listening to Prozac*. This is the book that first introduced the by now famous concept 'cosmetic psychopharmacology' – and it did so on the basis of Kramer's own experiences of a number of his patients' reactions to Prozac, which seemed to go beyond the mere regaining of psychological health. After taking Prozac, timid people became socially

³⁷ As Francis Fukuyama points out, the social and neurochemical similarities between Prozac and Ecstasy are numerous and do not seem to warrant legalization of one and criminalization of the other. It rather points to the fact that politics rather than science too often ends up dictating the formulations of drug laws (see Fukuyama 2002: 54-56).

confident, sufferers of abuse suddenly stood up for themselves, people with low self-esteem started to exhibit remarkable self-confidence, and so on. This led Kramer into comprehensive speculations about the impact of biology on personality (as opposed to what he refers to as the ‘mere experiential’), the sociocultural implications of a drug that can alter or even transform personality, and the neurobiological underpinnings of various mental disorders. These are the questions which we will aim to elaborate on in the present chapter, since it seems to us that whereas much that has been written in response to Kramer’s work has focused on the medical aspects of Prozac (i.e. various side-effects which Kramer does not mention), it is equally important to elaborate on its wider sociocultural implications (this is, after all, what the book actually focuses on, as Kramer mentions in the introduction).³⁸ In particular, we are interested in how psychopharmacology has contributed to a late capitalist conception of the remaking of the self, and how this may be understood as a severely impoverished version of the cognitive transformation advocated in this thesis insofar as it utilizes the sub-personal resources provided by cognitive neuroscience for disappointingly narrow ends.

Yet before turning to the transformative register of Prozac and its sociocultural implications we first need to take a brief look at the neurobiological model of mental disorders that Kramer outlines throughout the book, since it is on the basis of this speculative model (including its convergences and divergences with traditional psychoanalysis) that his account of Prozac must be understood.

Drawing upon the work of the psychopharmacologist Donald Klein, Kramer introduces a so-called ‘functionally autonomous’ model of mental disorders. In short, what the notion of functional autonomy refers to is a biological alteration of cognition and/or mood in response to psychological trauma, which persists as a neurological deficit in the patient’s brain after the termination of the originary traumatic cause. Whereas psychoanalysis approaches trauma in terms of unconscious conflicts which are to be resolved with the help of the analyst through conversation and personal reflection, the functionally autonomous approach instead views mental disorders as anatomical

³⁸ “I have limited myself to exploring the impact of mood-altering drugs on the modern sense of self, a large topic and an absorbing one”. (Kramer 2006: xvi) For a critical response to Kramer’s book from a medical perspective, see Peter Breggin and Ginger Ross Breggin’s aptly titled *Talking Back to Prozac* (Breggin and Breggin 2014). For brief sociocultural analyses of Kramer’s work and its wider critical context, see Fukuyama 2002: 41-56 and Malabou 2008: 46-54.

changes that are physiologically encoded in the patient's neurochemical architecture and thus should be diagnosed in terms of sub-personal alterations in neuroanatomy as opposed to personal conflicts at the level of the psyche. Trauma is therefore viewed largely as a biological phenomenon: It manifests itself through structural changes in brain anatomy following repeated environmental stimuli (such as physical and/or psychological abuse), where symptoms become unmoored from their originary causes and persist – very literally – as biological scars encoded as distinct neurological states in the brain. Kramer is not merely rejecting psychoanalysis, however, since what the model he is outlining aims to accomplish is to expand our understanding of psychological trauma and the cognitive and affective imbalances that it produces. In that regard, it is not so much a question of simply ditching traditional psychoanalysis on the basis of neurobiology, but of utilizing resources provided by psychopharmacology in order to redraw our understanding of the boundaries between the biological and psychological self and its surroundings, and thereby arrive at a renewed consensus of what it means to be human. This is why novel forms of medication are interesting to Kramer – because if a significant aspect of the self is biologically encoded in a person's brain chemistry, this means that psychopharmacological medications target vital parts of what he refers to as 'the biology of personality' and its underlying functionally autonomous architecture in a way which opens up a multitude of questions regarding the objective underpinnings of the self and its implications for clinical and cosmetic psychopharmacology. As Kramer points out, drugs are often used in research as cognitive and affective probes which, by effectuating immediate chemical alterations in the brain, aim to expand our understanding of various neurotransmitter-states and our neurobiological anatomy. They consequently play an important role within the scientific project of explicating the neurobiological underpinnings of cognition and mood. Naturally, this is why Kramer took such an interest in Prozac and the effects it had on some of his patients.

9.2 The Prospects of Cosmetic Psychopharmacology

Listening to Prozac combines theoretical reflection with empirical data drawn from Kramer's experience as a practicing psychopharmacologist. More specifically, the book contains a number of recapitulations of professional encounters with patients whose responses to Prozac stood out for a number of reasons. For instance, the opening chapter of the book (entitled 'Makeover') tells the story of a highly accomplished

businesswoman in her thirties who nevertheless suffered from clinical depression. She had endured a difficult childhood with various forms of physical abuse, an alcoholic father who died when she was twelve, and a clinically depressed mother. After the death of her father she had no choice but to take care of her family – which consisted of nothing less than nine younger siblings and later on a significantly older alcoholic husband whom she married at age seventeen – by herself. Following the collapse of her marriage, she had been engaging in a series of affairs with abusive men since she saw herself as unattractive and felt that no one else was interested in her. After modest responses to other antidepressants, Kramer prescribed Prozac to the woman and was astonished by its effects (this was shortly after the drug first was approved by the Food and Drug Administration). Just two weeks after she first went on medication, the woman stopped feeling depressed and announced with astonishment how remarkable it felt to no longer feel depleted of energy. Her social aura changed, and she suddenly exhibited a more energetic and outgoing persona that also affected her social life dramatically in that she emancipated herself from her previous relations with abusive men and instead came to enjoy the sociality of dating. She also started showing more confidence at work, expanded her circle of friends, and no longer struggled with her many previous inner conflicts about herself and how she related to others. Yet when she was taken off medication, she slowly started to regress into her previous psychological self and sadly declared that “I am not myself”. And once back on medication, her socially confident and outgoing self emerged yet again.

There are two aspects in particular that interests Kramer about this and all the other stories about certain patients’ responses to Prozac that are recapitulated in the book. The first one has to do with the extent of the *transformative effects* of medication on entire personalities, which went far beyond the very specific *restorative functions* that commonly are associated with antidepressants. As he puts it:

It is all very well for drugs to do small things: to induce sleep, to allay anxiety, to ameliorate a well-recognized syndrome. But for a drug’s effect to be so global – to extend to social popularity, business acumen, self-image, energy, flexibility, sexual appeal – touches too closely on fantasies about medication for the mind. (Kramer 2006: 13)

This radical makeover indeed converges with a common fear among patients that antidepressants will significantly alter their very selves, rather than just counteract particular forms of mental disorders. And indeed, this is exactly what Prozac seems capable of according to Kramer: Transformation as opposed to mere restoration. The second aspect has to do with the sheer rapidity of the transformations. Whereas overcoming the symptoms exhibited by the woman in the above story is a gradual affair in traditional therapy, medication effectuated a radical, global transformation within a very brief time. Kramer points out that it was almost as if a biological switch had been turned on, which suddenly reconfigured her public and private selves in profound ways. Of course, not all patients respond to Prozac in this way – yet it is patients like this that have been central to Kramer’s writings and which led him into his by now famous speculations about psychopharmacological compounds that not merely heal, but indeed effectuate complete transformations of selves by altering their neurobiological underpinnings.

For Kramer, these transformations indeed open up an entire field of speculative psychopharmacology which encompasses both the biologically informed model of mental disorders recapitulated above, as well as potential future scenarios where drugs such as Prozac might be used also for cosmetic rather than medical purposes (much like surgery already is, for instance) in culture at large. This is where the prospects of cosmetic psychopharmacology emerge, and with it a number of accompanying medical-normative issues:

1. *Where do we draw the line between actual mental disorder and mere cosmetic improvement?* The distinction between a mere social deviation from norms (shyness, for instance) and full-blown mental disorder (such as clinical depression, which in some cases leads to isolation) is not always clear-cut and also changes with time. Hence, drawing the line between medical and cosmetic treatment will not always be a simple task since it is one thing to prescribe drugs to a clinically depressed patient and another to adjust a socially deviant personality trait by modifying its neurobiological substrate.
2. *What would the doctor’s role be in terms of prescribing these drugs to ‘patients’?* Psychoanalysis has often been criticized for being a manipulative practice, yet how will we view psychopharmacologists capable of altering local and global personality traits through increasingly refined forms of chemical

interventions? For once we gain a better understanding of the brain's neurochemical infrastructure – and substances capable of affecting it – even more invasive and specific modifications will become available for doctors to apply.

3. *Where do we draw the line between licit and illicit drug use?* There is somewhat of an uncanny parallel between drug abuse and mood-balancing drugs such as Prozac, since drug abuse should not be understood as mere pleasure-seeking but rather as a form of neurobiological self-regulation aimed at mastering a series of intolerable affective states. As Kramer puts it: “In terms of treatment, for both the neurotic and the drug abuser, the goal is to adjust the capacity to experience pleasure in response to ordinary events”. (Kramer 2006: 235) Is cosmetic drug-usage then nothing but a legal form of chemical self-regulation that is safer than its illicit counterpart, yet virtually indistinguishable in terms of its underlying causes of usage?
4. *What kinds of psychopharmacological substances should we accept for cosmetic usage?* Prozac is a mood-regulator which acts as an emotional stabilizer by lightening a patient's so-called ‘affective loading’. Yet this is far from the only neurobiological register across which cosmetic psychopharmacology could be applied. Cognitive enhancers (i.e. substances which improve cognitive skills such as attention and memory), for instance, are another example of a form of drug with potentially far-reaching implications if unleashed across culture. Hence, assessing the risks and benefits of all kinds of cosmetic substances will be a key task for future psychopharmacology.

It seems to us that Metzinger's neuroanthropology would be a discipline particularly apt to address these issues. As we discussed in Chapter 3, neuroanthropology as Metzinger envisions it would mainly be concerned with integrating new scientific knowledge about selfhood into culture by articulating its specific normative register. In that regard, neuroanthropology would form a rational and empirical platform for normative issues regarding cognitive enhancement, desirable and undesirable states of consciousness, clashes between pre-modern and modern senses of self, and so on. In particular, rational neuroanthropology would orient itself around the speculative question of *what should human beings become?* For Metzinger, the neurotechnological branch most urgently in need of this normative framework is that of psychoactive substances. The use of

cognitive enhancers such as Ritalin, Modafinil, and Propanolol is already part of the scientific community – which can be seen from a poll referred to by Metzinger, where one in five out of fourteen hundred scientists admitted to having used either of these compounds for nonmedical reasons (see Metzinger 2010: 221-222). And experimenting with psychoactive drugs for medical and transformative purposes continues to be a relevant issue for individuals interested in unfolding the underlying complexity of the phenomenal self via neurotechnological means. This poses a number of urgent normative concerns, such as those listed above, which would have to be addressed through the framework of rational neuroanthropology.

But the notion of cosmetic psychopharmacology also raises a number of wider concerns about culture and our own humanity. The latter issue has been addressed extensively in the work of the American author Walker Percy (also discussed by Kramer), whose novel *The Thanatos Syndrome* tells the story of a former psychiatrist who faces a dangerous plot upon returning to his home town. This involves the spreading of a rogue chemical called Heavy Sodium through the town's water supply. Once affected by the chemical, people lose their past inhibitions and become outgoing, competitive, and sexually promiscuous. Yet they also end up losing their distinct sense of humanity. Percy, a man of Catholic faith, wrote the novel in order to dramatize how the abstractions of techno-science and its short-term goals threaten to annihilate the human life-world by severing the link between man and God. For Percy, what constitutes this link is man's ability to suffer. Symptoms such as pain, anxiety, and guilt are central to what is distinctly human in Percy's view – and the only way to overcome them is through inner journeys of self-discovery, rather than through artificial numbness and tranquilization. According to Percy, the latter constitutes a dangerous pathology of contemporary society – that is, a lack of understanding of symptoms central to the authentic human condition – which manifests itself in the form of an aesthetic and existential deterioration brought about by a scientific perspective incapable of properly diagnosing the humanity whose interests it supposedly operates according to.

Percy's Catholic perspective is but one example of one of the major forms of criticisms which have been directed at cosmetic psychopharmacology and human enhancement in general: The idea that suffering constitutes a pre-determined limit of human existence and that the pursuit of its reduction or elimination via artificial means is itself a dangerous pathology. The roots to this form of criticism are obviously theological – suffering as an inherently meaningful condition of human existence – but

have also been extended to non-theological realms in the form of similar commitments to that which makes us authentically human. But, as Ray Brassier points out, we should be very suspicious of any claim that suffering is inherently meaningful and central to the human, since “the fact that we have learnt to extract meaning from our susceptibility to suffering, illness, and death, does not license the claim that suffering, illness, and death are prerequisites for a meaningful existence”. (Brassier 2014: 481) Indeed, our understanding of suffering – and our ability to reduce and even eliminate aspects of it – has already been greatly modified by advancements in medicine and biology, which makes the claim that suffering is a necessary condition of human existence highly dubious.

The psychopharmacological modification of the plethora of human biological features should consequently not be viewed as a sin which turns our collective attention away from the original sin as constitutive of human existence, but as part of a transformative program aimed at redrawing the limits of humanity as they had been defined in the pre-modern era. In that regard, it may be understood as the latest instantiation within the great scientific dethronings of man, which presents us with a distinct set of fears to overcome and opportunities to explore through the transition from what we may think of as a pre-modern to a modern understanding of the self. As Kramer puts it:

Copernicus wrenched the earth from the centre of the universe. Darwin undercut the human race’s uniqueness among God’s creations. Freud made the conscious mind less special. Modern biology attacks the centrality of mind altogether, highlighting the roles of brain and body. [...] As modern men and women, we may already be uncomfortable with the extent to which our surroundings, in the form of complex equipment, are beyond our ken. Now we are faced with the likelihood that introspection alone will not explain us to ourselves. [...] Like so many of the “good responders” to Prozac, we are two persons, with two senses of self. What is threatening to the old self is already comfortable, perhaps eagerly sought after, by the new. Here, I think, is Prozac’s most profound moral consequence, in changing the sort of evidence we attend to, in changing our sense of constraints on human behaviour, in changing the observing self. (Kramer 2006: 297-300)

Yet despite the fact that we are in favour of the project of human enhancement in principle, there are problematic aspects about Prozac's specific function in this context which need to be outlined. Kramer is not unaware of these issues, such as when he asks what kind of role Prozac would play within the contemporary world of business. Could it, for instance, be the case that the transformative potency of Prozac (in contrast to that of Ecstasy) merely fosters a particular kind of conformity to capitalist norms? Indeed, since the effects often induced by the substance – flexibility, energy, alertness – also are central to the capitalist world of precarity, is Prozac then merely an instrument for the socio-political logic of late capitalism (as psychoanalysis also has been accused of, as Kramer points out)? “The success of Prozac says that today's high-tech capitalism values a very [particular kind of] temperament. Confidence, flexibility, quickness, and energy [...] are at a premium”. (Kramer 2006: 297) As Catherine Malabou puts it in her discussion of neuropsychiatry, depression, and the logic of precarity in late capitalism: What the depressed person first and foremost represents is a broken link in the capitalist network of flexibility, and the function of antidepressant drugs such as Prozac is consequently to reintegrate the depressed person into the logic of precarity by stimulating the appropriate neurochemical transmissions. “Hence to heal means to reintegrate, to restore flexibility. [...] Medications should give back the appetite for mobility, the capacity to rid oneself of rigidity and of fixity in one's identity”. (Malabou 2008: 51-52) Thus, we may live in a permanent state of stress, depression, and anxiety thanks to reduced job-security, minimal income, and the requirement to always be online and available – yet the real issue according to the logic of precarity is when a person is being cut off from this state of flexibility, and at which point neurochemical intervention becomes an appropriate means for ensuring quick reintegration.

But Kramer's and Malabou's analyses are contextual rather than abstract – which means that although the way Prozac operates in late capitalist culture is far from exciting, this does not entail that other more productive utilizations of cosmetic psychopharmacology cannot be implemented at a similar sociocultural scale. We will take a closer look at the wider implications of this issue towards the end of the chapter, but first we need to introduce the other component of the late capitalist version of the drug-tech interface: Its technological aspect.

9.3 Cognitive and Techno-Social Deterioration

Towards the end of his book *The Ego Tunnel*, Thomas Metzinger briefly speculates on the cognitive implications of the emergence of late capitalist online-culture and presents the following pessimistic diagnosis:

For those of us intensively working with it, the Internet has already become a part of our self-model. We use it for external memory storage, as a cognitive prosthesis, and for emotional autoregulation. We think with the help of the Internet, and it assists us in determining our desires and goals. We are learning to multitask, our attention span is becoming shorter, and many of our social relationships are taking on a strangely disembodied character: “Online addiction” has become a technical term in psychiatry. Many young people (including an increasing number of university students) suffer from attention deficits and are no longer able to focus on old-fashioned, serial symbolic information; they suddenly have difficulty reading ordinary books. (Metzinger 2010: 234)

Metzinger is certainly not alone in this bleak sentiment. Over the past decade, a number of writers and psychologists have published important critical studies of the psychosocial and neurobiological implications of late capitalist online-culture. For instance, in his book *The Shallows: What the Internet Is Doing to Our Brains*, Nicholas Carr suggests that our increased occupation with computers and social media has profound impact on our abilities to concentrate and even think insofar as the hyperlinked, fast-paced online-culture in which we now live induces neuroplastic changes in our brains which literally diminish important aspects of our cognitive capacities. Since the brain is a plastic medium whose synaptic connections constantly change in response to environmental stimuli, Carr’s thesis is that such a profound technological and psychosocial phenomenon as the Internet will impose massive cognitive modifications on the individuals that are operating it on a regular basis.

Carr thus sites an experiment led by the professor of psychiatry Gary Small, which involved monitoring the brain-activity of twelve regular Internet-users and twelve online-novices as they performed Google-searches. What the monitoring revealed was that the regular users exhibited significant brain-activity in the left part of the brain (the so-called ‘dorsolateral prefrontal cortex’), whereas the novices showed little or no

activity in that area. Yet on a repeated monitoring a few days later (during which the novices had been asked to go online for about an hour a day), the same area in the novices' brains also started to show significant activity. And since the prefrontal area in question mostly is associated with problem-solving and decision-making it hints to why concentration seems to diminish online insofar as the demand "to evaluate links and make related navigational choices, while also processing a multiplicity of fleeting sensory stimuli, requires constant mental coordination and decision making, distracting the brain from the work of interpreting text or other information". (Carr 2010: 122) Hence the enthusiastic advocating of multitasking by a number of experts who consider it to be the most important cognitive skill for quickly navigating the virtual landscapes of digital culture. However, recent research has shown that people who multitask actually perform worse on the tasks that they attempt than those who do not, because the cognitive load imposed on the brain becomes too heavy. Yet multitasking remains emotionally satisfying insofar as it has been shown that the brain rewards the multitasker with neurochemical stimulation in the form of rushes of dopamine which produce a false experience of productivity and satisfaction (see Carr 2011: 129-134 and Turkle 2013: 162-163). This has led the writer Emily Yoffe to propose that the low-level online-addiction that most of us share partially may be traced back to a seeking for the dopamine-rushes that the Internet and social media in particular provide us with (see Yoffe 2009).

Yet the long-term implications of online-addiction seem to be far less emotionally satisfying, as the psychologist and computer-educator Larry Rosen argues. In his book *iDisorder: Understanding Our Obsession with Technology and Overcoming Its Hold on Us*, Rosen presents a bleak diagnosis of what he sees as the increasingly widespread cognitive and psychosocial effects of technology on society. According to Rosen, the emergence of cyberspace, computing, social media, portable electronic devices, Web 2.0, and so on, has brought about a major cognitive and psychosocial malaise with symptoms which looks suspiciously like those of a number of well-known psychiatric disorders and is centred on our increased occupation with technology and digital media. These disorders include (but are not limited to) obsessive-compulsive disorder (constantly checking our Facebook, e-mail, iPhones, etc.), attention-deficit hyperactivity disorder (increased inability to focus on one task because of the prevalence of multitasking, video-gaming, etc.), social anxiety disorder (hiding behind various screens at the cost of maintaining face-to-face social relations), and narcissistic personality

disorder (being obsessed with creating an idealized online-persona). This is accompanied by various neurobiological reconfigurations, such as alterations in chemical levels of dopamine and serotonin (i.e. changes in the brain's reward system as a result of technology addiction, which seems to mirror the chemical imbalances underlying various forms of substance addiction), and the creation of new synaptic connections among neurons in response to the environmental changes brought about by technology (which may be the underlying neurobiological explanation for phenomena such as 'phantom vibration syndrome', where cell-phone users start to experience phantom vibrations on a regular basis – presumably as a result of increased attentiveness to vibrating sensations). Taken together, all of these symptoms point to an overall state of collective anxiety and it is this anxiety that Rosen refers to as 'iDisorder'.

Undoubtedly, there is still a lot of work that needs to be done here, since the Internet is still a relatively recent phenomenon and research on its cognitive and psychosocial implications is only just beginning to emerge. Yet it still seems clear to us that Rosen's and Carr's projects bring light on issues that everyone familiar with daily life in late capitalist digital culture can recognize themselves in.

But while Carr's and Rosen's analyses of the psychosocial and cognitive symptoms of late capitalist digital culture are highly illuminating, their proposed solution – temporary withdrawals from the stress and anxiety of life online – are somewhat lacking. For while the imperative to take breaks and wind down makes sense on a short-term everyday basis, it fails to address the long-term structural changes of the cognitive modifications brought about by late capitalist digital culture – and the more ambitious critical programs necessary for overturning them. This is particularly evident in Carr's work, which opposes the shallow thinking and cognitive flattening brought about by the Internet to the cognitive complexity and deep thinking concomitant with book-reading (against the backdrop of the calmer cultural landscape prior to the emergence of the Internet). In Carr's view, the Internet is merely the latest instantiation of the capitalist dream to automate, quantify, and systematize everything – indeed, even consciousness itself, in the form of so-called 'cognitive capitalism' – for the sake of maximizing labour efficiency and which culminates in the (for him somewhat disturbing and most certainly false) idea that the brain itself is a complex machine (or computer). According to Carr, the cognitive deterioration engendered by late capitalist online-culture – in the form of hyperlinks, multitasking, multimedia, browsing,

scanning, and so on – is a consequence of the neo-Taylorist compulsion to subject everything to algorithmic formalization and is rooted in the assumption that the brain operates according to the same formal rules as a computer. As he puts it himself towards the end of his discussion of Google (for him the most obvious example of this deplorable attitude): “What’s disturbing about the company’s founders is not their boyish desire to create an amazingly cool machine that will be able to outthink its creators, but the pinched conception of the human mind [as a computer] that gives rise to such a desire”. (Carr 2010: 176) For Carr, this is the underlying premise of the extension of Taylorism from that of the body and the factory to cognition and information under the aegis of ‘knowledge work’. Thus, he continues, the most unfortunate consequence of the computational view of human cognition – in terms of mere ‘data-processing efficiency’ which needs to be optimized and eventually transformed into proper machine intelligence – is a flattening of the depth and complexity of the human self, wherein we progressively sacrifice what is most central to our own humanness (experience, thinking, emotion, the connection between mind and body, etc.). Just as the introduction of the clock detached us from the organic experience of the flow of time, cognitive automation under the aegis of digital media threatens to do the same thing to our own minds. This is indeed an inherent price of technological augmentation, as Carr points out, since by extending and enhancing parts of ourselves technologically we alienate ourselves from how these parts functioned in their previous organic state. This is not an inherently negative phenomenon – since in some cases alienation is exactly what we aim for (such as in the constructions of sewer-systems or protections against storms and the cold) – yet once we turn to the functioning of our own minds the situation changes immediately, since alienation then becomes part of a delusional algorithmic script oriented towards the impossible task of subverting humanity itself and human cognition as such. This is the point where the project of technological enhancement turns into a mere neo-Taylorist agenda which expresses itself in the cognitive and neuroplastic deterioration of late capitalist online-culture:

It’s not just that we tend to use the Net regularly, even obsessively. It’s that the Net delivers precisely the kind of sensory and cognitive stimuli – repetitive, intensive, interactive, addictive – that have been shown to result in strong and rapid alterations in brain circuits and functions. [...] The Net’s cacophony of stimuli short-circuits both conscious and unconscious thought,

preventing our minds from thinking either deeply or creatively. Our brains turn into simple signal-processing units, quickly shepherding information into consciousness and then back out again. (Carr 2010: 116, 119)

But Carr's criticism of late capitalist online-culture confuses the critique of cognitive automation under the aegis of late capitalism with cognitive automation as such, since just because present forms of online-culture certainly are far from exciting, that does not mean that increased connectivity and automation are inherently bad – and that more productive modifications could not be engineered through these very resources. Or as Mark Fisher puts it, we have only experienced cyberspace under late capitalism, so who knows what forms it could take if it was to be emancipated from its narrow logic? (Fisher 2014: personal communication) Indeed, as Carr admits himself, while every medium hampers some cognitive skills it also augments others. So while life online certainly has contributed to the cognitive symptoms diagnosed here, it has also increased our visual-spatial abilities and our ability to decode multiple sequences of information simultaneously (see Carr 2010: 141 and Berardi 2009: 88). Similarly, the fact that such modifications have taken place at such a grand scale – and in such short time – is in many ways remarkable. The same point can be made about drugs such as Prozac; for whereas the cognitive experiments in rave culture only enjoyed a somewhat temporary and fleeting existence at the margins of the mainstream, the cognitive agenda congruent with late capitalist culture has radically transformed popular culture and everyday life as such. Thus, rather than falling back into by now familiar forms of anti-capitalist nostalgia for a more authentic past – and the dubious humanism that goes with it – we believe that the more productive move would be to fully immerse oneself in the chemical and techno-social resources made available by late capitalist culture and transform them for the better. Technology should be repurposed rather than rejected, as Nick Srnicek and Alex Williams put it (see Srnicek and Williams 2015: 145-153). Or, to put it differently, if – as we have suggested earlier – we in fact are complex natural and normative systems of the computational kind, then surely the late capitalist expansion of digital technologies and psychopharmacologies should also be conceived of as an enormous sociocultural and cognitive opportunity for widespread techno-social re-engineering beyond what capital itself is capable of. Needless to say, implementing such re-engineering at a sociocultural scale extensive enough to challenge the one put at work by capital is an immense task that exceeds the scope of this thesis. But it is

nevertheless one worth insisting on from the deepened modernist perspective defended here insofar as it points to the fact that this is a struggle that must be worked through, rather than merely retreated from.

Carr's work thus lacks any speculations about the potentially productive impact that technology may have on plasticity and cognition. But this is what an analysis of our kind needs to take into account. Because if we accept the fact that the brain changes in response to actions and experiences, the key issues then become not just one of articulating how current techno-social infrastructures impact cognition – but also one of speculating on what other kinds of pairings between brain and world are possible? For just as the present media-informational matrix may have imposed specific structural constraints on our brain-anatomy, other techno-social systems are obviously capable of loosening and rewiring these constraints for different purposes. Hence, despite (or rather, because of) its flaws, Carr's project sheds further light on the cognitive lacuna which currently permeates the many branches of anti-capitalist writings – and which too often prompts the kind of backwards-looking romanticism that his project is steeped in. Indeed, one of the major problems of contemporary cultural theory is its lack of ambition to actually overcome the cognitive lacuna and psychosocial pathologies of late capitalist digital culture and transform them for the better. Instead, it too has succumbed to retrospection and nostalgia under the aegis of aggravated postmodernism, and in that regard it seems to us that one of the major critical and cultural tasks at the present is to reverse these trends and rehabilitate the modernist vectors of cognitive transformation and cultural exploration advocated by this thesis.

9.4 The Reformatting of Cognition

We will outline further rudiments of this major critical and cultural project by having a look at the work of the cultural and political theorist Franco Berardi. Most notably in his books *Precarious Rhapsody* and *After the Future*, which trace the neurochemical and psychosocial pathologies that have emerged along with the digital technologies of late capitalism against the backdrop of a culture that gradually has come to lose sight of the future.³⁹ What is central with digital technology for Berardi is the way it has been integrated into the biology of the human organism in the form of what he refers to as “a

³⁹ See also Fisher 2009 and 2014c for further meditations on the present decline of the future from the cultural and political agenda.

post-human vision of digital production” (Berardi 2009: 35) where flesh and circuitry fuse into a global ‘digital nervous system’ thanks to the massive proliferation of screens and interfaces in all parts of life under late capitalism. As he puts it himself: “[T]he hidden finality of software production is the wiring of the human mind in a network continuum of the cybernetic type destined to structure the fluxes of digital information by means of the nervous system of all the key institutions of contemporary life”. (Berardi 2009: 35) In other words, for Berardi, cyberspace under late capitalism is a ‘neurostimulant flux’ – or a ‘neuro-telematic rhizome’ – which takes the form of the internalization of the machine following the passage from Fordist to precarious labour. Indeed, whereas the Fordist machines were external enhancements of the human body, the post-Fordist ‘bio-info machine’ operates as an internal modifier of human cognition itself. And whereas the Fordist machines were situated within the physical borders of the factory, the bio-info machine (i.e. cyberspace) exists everywhere in all parts of life. As Berardi puts it, the mobile phone (and other electronic devices) is the link between the demands of what he calls ‘semio-capital’ and the living labour of its fragmented cells: It is the late capitalist version of the conveyor belt proper to precarious labour and the integration of cognition itself into the heart of capitalist production.

The major consequence of this late capitalist fusion of flesh and circuitry is a massive intensification of informational stimuli wherein the organism is subjected to such an intense cognitive overload that it runs the risk of undergoing psychic meltdown. For just as the external machines of Fordism have depleted our planetary resources, the internal machines of post-Fordism have done the same to our psychochemical resources. Hence the widespread proliferation of the panic-depressive syndromes and attention disorders that we discussed earlier, as well as the emergence of phenomena such as multitasking and what Berardi refers to as the ‘Prozac culture’ which acts as a feeble attempt to counteract the psychochemical and neuro-stimulant acceleration caused by the entwining of biological and technological nervous systems.

According to Berardi, the threat of psychic meltdown first and foremost stems from the growing disjunction between transmitter and receiver, or the widening gap between a continuously upgraded digital media-sphere and the much slower transformation of the human cognitive system which lags further and further behind the increasingly fast-paced mutations of digital technology. We are simply no longer able to process the vast amounts of data that constantly is being fed to us because of our cognitive and biological constraints, and therefore turn to multitasking and similar

methods for fast cognitive interfacing at the cost of concentrated attention and deep focus. For Berardi, this asymmetry is best characterized in terms of the difference between ‘cyberspace’ and ‘cyber-time’. Cyberspace, as is well known, is the techno-cultural sphere where mind and machine are linked together into an infinitely expanding network of information and transmission: What Nick Land and William Gibson deliriously wrote about in the ‘80s and ‘90s from the perspective of identity-disintegration and neurotechnological transformation. Cyber-time, on the other hand, is the organic register of human cognition, attention, and experience, which – unlike that of cyberspace – expands at a much slower rate because of the biological constraints of the organism. As Berardi puts it: “The mutation of the technological environment is much more rapid than the changes in cultural habits and cognitive models” (Berardi 2009: 70), which produces a basic asymmetry between the objectivity of cyberspace and the subjectivity of cyber-time (or between structure and experience, to use Jameson’s formulation) in the form of a late capitalist acceleration of experience wherein the progressive lack of time for attention and elaboration results in an epidemic of various psychosocial pathologies which by now are as common as digital technology itself (this is essentially where the Landian take on accelerationism in terms of speed rather than navigation ends up – that is, in the form of confused ‘machinic materialist’ subjects hopelessly trying to feed into the speed of experiential acceleration without realizing that this local horizon in fact is a function of a much more subtle, late capitalist global navigation).

Once again, the central question then obviously becomes: How do we overcome this? Should we withdraw from the ‘info-sphere’ of digital media and aim to decelerate our fast-paced lives through the restoration of a more authentic human ‘psycho-sphere’? For Berardi, this is not sufficient. Given the degree to which digital technology has become integrated into our lives today it is no longer possible to simply opt out of the digital network-continuum; and while cognitive deceleration works as a useful short-term solution from time to time, it is clear that it will not offer more than temporary autonomy from the demands of the late capitalist cyberspace-matrix. And, of course, withdrawing from the digital technologies of late capitalism also means withdrawing from the wider emancipatory potencies implicit in these technologies. Instead, what is necessary, on the one hand, is more large-scale cultural and political reforms that would emancipate digital technology from the deadlock of cyber-capitalism. But what is also needed are novel models for our cognitive interfacing with digital media, and this is

where we believe that the resources brought up in this thesis may contribute. In particular, throughout his writings Berardi suggests that our cognitive infrastructure also needs to be reformatted in a way similar to the digital reformatting of the present media-sphere. And it is here that the work of artists will become crucial for constructing speculative models of such cognitive reformattings, as he explains: “Aesthetic perception [...] is directly involved in this transformation: in its attempt to efficiently interface with the connective environment”. (Berardi 2009: 131) This is after all what the most exciting visions of the post-human aim to address, as Berardi points out (see Berardi 2009: 43): The cognitive and corporeal *upgrading* of the human organism by an aesthetics and techno-science uninhibited by the demands of the late capitalist profit-economy. Indeed, the emergence of the present digital techno-sphere is really a consequence of how – following the decades of Reagan and Thatcher – scientific knowledge has been subordinated to the narrow functional operations of technological automation under late capitalism, and it is therefore the central objective of what Berardi refers to as the ‘cognitariat’ (i.e. the proletariat under cognitive capitalism) to reclaim the autonomy of cognition, science, and technology from the profit-economy of semio-capital. Berardi thus speculates about the formation of a ‘high tech labour movement’ of autonomous researchers invested in scientific research divorced from the cognitive framework imposed by semio-capital, and whose main task would be “the social, epistemic, and technological recomposition of cognitive labour”. (Berardi 2009: 59)

But even though we agree with Berardi’s commitment to cognitive reformatting in critical response to the emergence of semio-capitalism – in contrast to Carr’s romantization of pre-technological cognition – he nevertheless insists on preserving a similar distinction between human cognition and machine cognition, which takes the form of a basic contrast between the ‘conjunctive’ parameters of the human organism and the ‘connective’ registers of semio-capital:

Conjunction is the meeting and fusion of round and irregular shapes that are continuously weaselling their way about with no precision, repetition of perfection. Connection is the punctual and repeatable interaction of algorithmic functions, straight lines and points that overlap that render the different parts compatible to a pre-established standard. The shift from conjunction to connection as the predominant mode of interaction of

conscious organisms is a consequence of the gradual digitalization of signs and the increasing mediatization of relations. (Berardi 2009: 99)

Yet the obvious question here is whether this sharp distinction between human bodies and algorithmic functions risks obviating the wider speculative implications of the call for cognitive reformatting (and of the scientific image as such). For instance, when assessing what he considers to be the ultimate ‘philosophical flaw’ of the transhumanist project – understood as a ‘project and a strategy for the reprogramming of the human brain’ according to the objectification (or automation) of cognitive activity – Berardi thus argues that this project is based on what he refers to as ‘a flawed idea of the human experience’. Thus, while Berardi acknowledges that cognition may be reduced to an objective set of formal procedures – that in principle could be instantiated in an artificial agent or android – the latter will be no more than a mere simulation of the human organism, since human experience cannot be reduced to discrete sets of informational procedures. For Berardi, experience is equivalent to ‘the self-reflective deployment of consciousness in the temporal dimension’ – which ultimately comes down to the awareness of death as the temporal limit of the organism – and it is this experience of time which is unique to *Homo sapiens* and consequently marks the human nexus which transhumanist objectification is unable to annex (see Berardi 2014). In that regard, we remain wary of Berardi’s critique of connection in terms of what he refers to as ‘a simple effect of machine functionality’, as well as his somewhat conservative worries about the gradual deterioration of conjunctive organic registers such as sensibility, affectivity, and empathy through the fusion of digital and cybernetic devices with the human body under the aegis of semio-capital. Contrary to this, it seems to us that integrating the connective with the conjunctive – as opposed to maintaining a basic dichotomy between them – provides a more robust ground for the cognitive reformatting hinted at by Berardi.

Nevertheless, Berardi’s account still provides us with several crucial resources that we are in need of here. In the same essay where he rejects transhumanism, he also argues that the plasticity of our neurobiological substratum will play a key role both for a better understanding of the digital pathologies endemic to late capitalist culture, and for the construction of cognitive models which will help us realizing ‘a project of neuroemancipation from our surrounding reality’ (see Berardi 2014). As we saw earlier, the concept of plasticity is ambiguous insofar as the brain’s capacity to reformat itself

according to various demands imposed by the environment may be used both for restrictive and emancipatory purposes. Needless to say, the ways that plasticity has been utilized by capitalism are highly restrictive – to maintain the agendas of precarity and cognitive labour – so the key task of neuroemancipation *qua* cognitive reformatting would be to reorient technology, neurobiology, and cognitive science away from these narrow domains by rehabilitating their truly transformative potencies. In fact, the massive increase in consumption of various antidepressants under late capitalism may be understood as feeble attempts at such cognitive reformattings. As Berardi points out, just as the abuse of illegal substances such as heroin and cocaine skyrocketed following the acceleration of production and the precarization of labour in the ‘80s and ‘90s (see Berardi 2009: 41-42 and 91-92), the ‘90s and current flourishing in the sales of antidepressants (such as Zoloft, Prozac, and Ritalin) may be understood as failed attempts at augmenting the human brain’s capacities in response to the cognitive and chemical imbalances brought about by the techno-social landscape of semio-capitalism. Indeed, since the proliferation of these substances is orchestrated by capitalism itself and only works towards functionally reintegrating cognitive systems into the agenda of semio-capital, they are ultimately insufficient for overcoming its cognitive framework and rather play a key part in it, as we saw earlier.

What is necessary instead, Berardi argues, is the construction of sociocultural platforms for collective neuro-engineering through the combined resources of cognitive science, socially oriented epistemology, and aesthetic perception. The main task of these platforms would be to rehabilitate the link between aesthetic creativity, scientific research, and progressive models of thought that were central to the modern era and were founded upon the idea that the future would be radically different from the present. This is indeed an underlying premise of the Marxist project and 20th century modernism, whose utopian models “marked the credibility of a progressive model of the future”. (Berardi 2009: 122) Yet at the beginning of the 21st century this utopianism has faded away in favour of a widespread cultural dystopia, which, as Berardi puts it, draws “the narrative horizon of the century with no future”. (Berardi 2009: 132) As Berardi usefully points out, the commitment to progressive models of the future is not a natural given (i.e. it is not the same as the simple fact that the future always follows the present), but a cultural and cognitive modality which played a key part in the modernist reconceptualization of time as a distancing from God into one of progress towards social transformation and improvement.

Berardi's work thus allows us to bring together the twin components of the late capitalist drug-tech interface and the wider narratives of postmodern stagnation and cognitive transformation central to this thesis. Indeed, how to begin redrawing these narratives is a central cultural and aesthetic task today as we see it – and for which we believe that the conceptual resources brought up in his work are crucial: Cognitive reformatting as a means for overcoming the cultural and cognitive stagnation in the wake of the cognitive dissonance between cyberspace and cybertime (or between structure and experience) through the transformation of late capitalist techno-science for truly exploratory ends. But this will not be possible as long as critical theory and cultural production remain committed to safeguarding the paltry confines of human experience and authenticity, since the project of cognitive reformatting necessitates the resources brought up and defended in this thesis – cognitive objectification in particular – for it to ever fulfil its cultural promises. Thus, rather than dwelling in conservatism and nostalgia, we believe that the left needs to take hold of the transformative potentials provided by cognitive objectification and mapping – rather than merely allowing capital to map us for its narrow and exploitative ends – and maximize their sociocultural and aesthetic registers. The exact outcomes of such experiments we can only speculate on at the present – it could be everything from increased cognitive self-awareness as hypothesized by Metzinger, to augmented capacities for attention and information-decoding – but regardless, this is a critical and sociocultural project worth insisting on given the lack of engagement with such resources among the left at the present. For in a culture that has been so thoroughly transformed by technology and psychopharmacology in the wake of the emergence of cognitive capitalism and the precarization of labour, it is becoming increasingly clear that attempting to simply reject these transformations as inherently bad is not only conservative but simply impossible. What rather is necessary is a deepened engagement with them in the same way as Marx attempted to with the techno-social transformations brought about by industrial capitalism. For as this chapter has aimed to explicate: The program of cognitive and sociocultural transformation advocated by this thesis has already been initiated by capitalism on a widespread sociocultural scale, and is fuelled by the neo-Taylorist/Promethean ambition to radically reshape not only work but society as such under the aegis of 'a utopia of perfect efficiency' (Carr). But – as with the initial capitalists – this is of course a disappointing utopia, guided by economic rather than self-development under the aegis of precarity; and it is therefore the task of the left at

the present, we believe, to claim these resources for themselves and significantly widen the scope of sociocultural utopia –just as Marx himself attempted to do one and a half century ago.

In the next chapter, we will present a brief analysis of cultural material which exemplifies ways of how this project may begin to take shape on an aesthetic level, in the form Gaspar Noé’s film *Enter the Void*.

Chapter 10: The Cognitive Import of Modern Cinema

10.1 ‘The Shimmering Vacuity of the Human Experience’

Enter the Void (2010) tells the story of Oscar (Nathaniel Brown), an American who lives in Tokyo with his younger sister Linda (Paz de la Huerta) and supports himself by dealing drugs. One night, following an intense DMT-trip and a discussion with one of his friends about *The Tibetan Book of the Dead* and its depiction of reincarnation following the afterlife of the spirit, Oscar is caught by the police during a job and is shot to death in the bathroom of a bar called ‘The Void’. Yet rather than marking the end of a conventional narrative, Oscar’s death merely initiates the main scenarios of the film, which depict the disembodied viewpoint of the protagonist as he recalls his traumatic childhood caused by the death of his parents in a car-crash, his strong bond with his sister, their move to Japan and eventual descent into drug-abuse and stripping; observes the aftermath of his death from the perspective of a spirit; and eventually re-experiences his own birth (or, perhaps, reincarnation) at the very end of the film.

Undoubtedly, this brief summary of the film’s storyline raises questions regarding the relevance of a film supposedly dealing with reincarnation and spirits within the context of an analysis of the impact of scientific rationalism on cultural production. Let us therefore begin with sorting out this potential problem. Noé himself comes from an atheist background and became interested in *The Tibetan Book of the Dead* not for its spiritualist speculations on afterlife and reincarnation, but rather because of its vivid depictions of altered phenomenal states (most notably out-of-body experiences and the experience of dying) and their hallucinatory underpinnings, which inspired counter-culture icons such as Timothy Leary to use it as a manual for experiments with psychedelics already in the ‘70s. It has also had notable influence on various experimental musicians, such as Eliane Radigue (*Trilogie de la Mort* (1998)), as well as the painter Alex Grey and the author Philip K. Dick. In other words, it is within this avant-garde/counter-cultural lineage – operating at the intersection between visionary art and psychedelic experimentation – where the film must be situated, since it too aims to bring together the aesthetic and the psychedelic through the cinematic articulation of extreme mental states (e.g. hallucinations and out-of-body experiences). However, what is significant from the perspective of this thesis, and where the film indeed stands out from the majority of cultural material inspired by the book – which tends to retain much of its spiritualist agenda – is that it substitutes the latter in favor of a thorough

neurobiological account of altered, psychedelic states. As Noé points out himself, “the movie is not so much about reincarnation. It’s more about someone who gets shot while on acid and DMT, and trips out about his own death and dreams about his soul escaping from his flesh, because he wants to keep this promise to his sister that he’ll never leave her, even after death”. (Noé and Lambie 2010) This consequently gives *Enter the Void* a decisive cognitive import, and the major impact of the film indeed lies in its utilization of the capacity of the cinematic medium to aesthetically translate altered experiential states into publicly available images (many of the more distinctive psychedelic segments are based on Noé’s own experimentations with psychedelic drugs) in a way which bring to the fore what Noé refers to as ‘the shimmering vacuity of the human experience’ (see Noé and Schmerkin 2010). Here, as one character in the film puts it, dying itself becomes the ultimate trip:

Books tell stories where people have hallucinations at the moment of their death, linked to the secretion of DMT in their brain. This molecule is a substance that is the source of dreams, and, apparently, a massive discharge of DMT can occur in the brain during an accident or when one dies. It’s the same molecule that we absorb in our systems when we take ayahuasca, the magic Amazonian drink... (Noé and Schmerkin 2010)

Hence, what might at a first glance appear to be nothing but a mere residue of ‘70s counter-culture – a bland mixture of hippie psychedelia and popular Buddhist thought – instead turns out to be a distinctively modern fusion of cinematic and cognitive resources – an audio-visual laboratory operating on the basis of the neurochemical underpinnings of phenomenal experience – which consequently must be analysed accordingly. In what follows, we will therefore utilize the conceptual resources introduced in our earlier discussion of Thomas Metzinger’s work in order to shed more light on the film’s cinematic treatment of the neurochemistry of phenomenal experience. Indeed, it seems to us that Metzinger’s PSM-theory provides us with a particularly useful framework for assessing the cognitive import and wider cultural implications of the film. But let us first elaborate briefly on its unusual cinematic style.

We take the main virtue of the film to be its compelling cinematic treatment of cognitively enclosed experience: Of the phenomenal first-person perspective on the one hand and of various forms of deviant phenomenal models on the other. In other words,

the major impact of the film takes place at a distinctively *formal* register (i.e. the story is of a secondary nature) and thus coincides with Brassier's claim that the cognitive and cultural import of art in the eradication of experience is inseparable from its formal and structural resources (see Brassier 2007a). This is partly manifested in the film's unusual and uncompromising take on the phenomenal first-person perspective, which operates on the basis of the extensive use of subjective point-of-view-shots across a number of phenomenal state classes. Of course, the use of first-person-shots is nothing new in the language of cinema. Yet the extent to which these are taken up in *Enter the Void* certainly is, since the entire film in fact is made up exclusively of shots from Oscar's subjective point-of-view (including personal, inner thoughts, blinks of the eyes, etc.). Normally, point-of-view-shots are used selectively in narrative films – for instance in order to invoke individual cognitive states (e.g. the image sometimes loses focus or becomes unstable when a character is drunk or hallucinating) – yet *Enter the Void* significantly reverses this formula and makes the point-of-view-shot the basis of the entire film. This makes sense, of course, given that point-of-view-shots may be characterized as distinctively cognitive shots, which thereby reinforces the agenda of cognitive exploration under which the film operates. From the first to the last sequence the camera always depicts Oscar's subjective, first-person perspective – even when it is seen observing him from the outside, which we will come back to later – and therefore is in tandem with Metzinger's claim that phenomenal first-person experience first and foremost involves individual *point-of-view*: A subjective perspective of oneself and the world which is immediately recognized as *one's own*.⁴⁰ However, as we remarked towards the end of Chapter 3, the seeming stability of the default first-person perspective may easily be shattered through various methods of cognitive disruption that manifest themselves in the mental production of deviant phenomenal models. This constitutes the other side of the film's formal aesthetics, and its full cognitive impact can therefore only be understood once we have had a look at how it explores these atypical phenomenal state classes. We shall therefore, in our next step, analyse the two

⁴⁰ Noé himself mentions Robert Montgomery's *Lady in the Lake* (1947) – a film shot almost entirely from the point-of-view of the protagonist – and the opening sequence of Kathryn Bigelow's *Strange Days* (1995) as crucial cinematic influences for this stylistic choice, and also recalls that having watched *Lady in the Lake* under the influence of mushrooms and being transported into the head of the protagonist was a significant reason behind why *Enter the Void* was made (see Noé and Schmerkin 2010).

forms of deviant phenomenal models which play significant roles in the film's overarching cinematic and cognitive architecture: Hallucinations and out-of-body experiences.

Hallucinations

One of the most compelling sequences of the entire film is the opening DMT-trip, which consists of roughly five minutes of abstract, coloured patterns following Oscar's inhalation of the drug in his apartment. The patterns bring to mind the Jupiter-sequence in Stanley Kubrick's *2001: A Space Odyssey* (1968), as well as the experimental shorts of filmmakers such as Jordan Belson and Kenneth Anger (both mentioned as significant influences by Noé), but are also based on hallucinations experienced by Noé himself under the influence of the drug. In order to communicate these kinds of mental images to the digital graphics-team (whose staff had not necessarily experimented with the drug personally), Noé put together a portfolio of images from films, books, and paintings, which then were handed to the graphics-team who turned them into digital images for the film. This procedure brings to mind what Metzinger refers to as "a new and important scientific discipline called 'phenomathematics'" (Metzinger 2004: 243), which concerns itself with outlining abstract geometric patterns supposedly experienced by all human beings under the influence of psychedelic drugs. More specifically, the discipline of phenomathematics has so far isolated four kinds of context-free, geometric patterns – gratings, cobwebs, tunnels, and spirals (all of which appear in the sequence in question) – which, because they seem to point to invariant phenomenal properties shared across all cultures, supposedly contain information about the underlying functional infrastructure of the PSM (see Metzinger 2004: 243). For instance, the emergence of abstract geometric patterns during psychedelic experiences – and the accompanying phenomenal intensification of qualitative content, such as colours (which also plays a significant role in the DMT-sequence and in the film as such)⁴¹ – may be traced back to a neurological disinhibition of dynamical activity which results in the

⁴¹ This is the reason for why Tokyo finally was chosen as the city the film would take place in (earlier locations included New York and the Andes). In Noé's own words: "For this specific project, with its hallucinatory sequences, all requiring very vibrant colors, Tokyo (which, as far as I know is one of the most colorful cities with the most flashing lights on the planet) was the ideal setting". (Noé and Schmerkin 2010)

intensification of internal stimulus-correlation (i.e. internally generated phenomenal content) and subsequently the onset of colour-intense states of abstract pseudo-hallucinations (see Metzinger 2004: 242-243). Hence, pseudo-hallucinations may be understood as a specific form of extrasensory phenomenal content generated by the internal simulation of perceptual experiences – presumably as an attempt by the system to maximize global coherence during states of cognitive overload.

Out-of-Body-Experiences (OBE's)

Even though the entire film is depicted from Oscar's first-person perspective it is only for the first 20-25 minutes where the latter actually is tied to his body. For the rest of the time it floats around incorporeally through flashbacks and across the streets of Tokyo in the form of a variety of a so-called 'out-of-body-experience'.⁴² Naturally inspired by the accounts of OBE's in *The Tibetan Book of the Dead*, the film depicts this disembodied first-person perspective through the use of a large amount of complex crane-shots where the camera often hovers above the characters, flies through walls, and circles around in the sky. It is a very impressive technical and cinematic achievement that was made possible by a talented key grip and recent development in production techniques. However, it also adds additional weight to the film's cognitive import insofar as the

⁴² Strictly speaking, the OBE's experienced by Oscar in the film are for the most part not OBE's in the traditional sense, since they generally only involve a disembodied first-person perspective without the object-component (i.e. without the observed physical body itself). Notable exceptions are at the beginning of the DMT-sequence and just after Oscar is shot, when the camera slowly detaches itself from his body and briefly observes him from a bird's eye view (which is a brilliant cinematic visualization of an OBE-experience, given the film's rigorous commitment to the first-person perspective). There are also a large number of flashback-sequences (both to Oscar's childhood and to recent events in Tokyo) which involves a subject-component observing an object-component (usually from behind). Although these are not OBE's per se since they lack the latter's ultra-realistic *nowness*, but are rather examples of internal reconstructions of past events (i.e. memories, which, as Metzinger points out, often operate from an external, third-person perspective). Thus, the many sequences involving Oscar's incorporeal first-person perspective rather seems to be something like a dreamt or hallucinated out-of-body experience (which would mean that it is a hallucination within another hallucination). This is perfectly consistent with the present analysis, however, insofar as dreams, like hallucinations and OBE's, occur in situations when somatosensory input is very low and when the system instead has to manufacture complex *internal* phenomenal models – presumably as a way of stabilizing overall coherence during states of cognitive deviation (during accidents, when drifting in and out of consciousness, etc.).

OBE is an example of another phenomenal state class with great theoretical and practical relevance.

In its most basic form, an OBE may be defined as a phenomenally transparent and thus highly realistic experience of leaving one's own body and observing it from an external, third-person perspective (often in the form of some kind of floating 'presence'). This is interesting from a neurophenomenological perspective insofar as it is an example of a representational configuration which involves two self-models: One (passive) which is tied to the physical body and another (active) which has departed from the first in the form of an 'etheric double' (Metzinger). Another way to put this is that OBE's are characterized by a peculiar form of intentionality-relation wherein not only the subject-component but also the object-component consists of a self-model. However, in all cases it is only the second, non-corporeal self-model which is mentally and intentionally active: It is the new locus of cognition, attention, and sometimes even of agency.

Naturally, many intricate questions arise in any discussion about OBE's (it has not until recently been considered a serious field of study so the amount of available research is still relatively poor), such as why do they occur in the first place? Metzinger (following other prominent consciousness-theorists such as Susan Blackmore) notes that OBE's (like hallucinations) usually occur in situations when somatosensory input generally is very low – such as before or after sleep or during severe accidents (like in the film) – and suggests that it is a method of functional modularization performed by the PSM in order to preserve overall coherence during stressful or unusual situations by redistributing the locus of higher cognitive functions across a new functional module. Furthermore, as we mentioned above, OBE's are also characterized by a high level of phenomenal transparency in that they feel extremely realistic through and through. The transparency associated with OBE's therefore seems to be the underlying neurophenomenological explanation to why OBE-experiences frequently have been associated with various forms of mind-body dualism in several different cultures, such as in the form of the existence of a soul or spirit which departs from the body after death (as in *The Tibetan Book of the Dead*). However, as Metzinger suggests, the culturally widespread ideas of a soul or spirit may in fact turn out to be proto-conceptual theories of the functional core of consciousness, which in these cases is instantiated in the form of a culturally invariant, functional modularization (i.e. the OBE-experience) with distinct neural correlates common to all human beings:

Under certain conditions, the brains of all human beings, through specific properties of their functional and representational architecture which have yet to be empirically investigated, allow for this set of phenomenal models of reality. Probably this set of models of reality is a discrete set, forming an individual, clearly circumscribed goal for empirical research. A minimally sufficient neural correlate for the OBE state in humans is likely to exist, and, in principle, a functionalist analysis of the phenomenon can be developed from a more fine-grained representationalist analysis.⁴³ (Metzinger 2004: 503)

It is at this particular juncture between the scientific and the aesthetic where *Enter the Void* enjoys its most immediate theoretical and cultural relevance, in the form of a *cinematic exteriorization* of inner, experiential states. As we have argued above, there is an intimate link between Noé's account of 'the shimmering vacuity of the human experience' and Metzinger's PSM-theory which is manifested in the conjunction between cinematic formalism and cognitive exploration – and which in our view constitutes the defining characteristic of the film. As Noé points out, the purpose of the film was to cinematically reproduce altered states of consciousness, which has had the effect of people in the audience feeling stoned and sometimes even perceptually uncomfortable (see Noé and Stephenson 2010). Yet this is not a shortcoming of the film; quite the opposite, since it points to the fact that *Enter the Void* is not just an example of a particular kind of cinematic experience (whether characterized as 'genuine', 'productive', 'disturbing', etc.), but rather a form of cultural material which forces us to question our basic understanding of experience as such. In that regard, it may be characterized as a film which uses the cinematic medium in order to progressively deconstruct our notions of 'self' and 'experience' in a way similar to Metzinger's theoretical work, by explicating and productively mobilizing the culturally invariant, neurobiological underpinnings of phenomenal experience through cognitive and cinematic exteriorization.

⁴³ Naturally, this would also allow us to trigger OBE-states with the help of various neurotechnologies. This has in fact already happened in 2002 at the Laboratory of Presurgical Epilepsy Evaluation of the University Hospital of Geneva, where Olaf Blanke and his team repeatedly induced OBE-like experiences using electrical stimulation while treating a woman for drug-resistant epilepsy (see Metzinger 2010: 95).

In that regard, the film is a cogent example of cognitive mapping as we envision it, insofar as its fusion of neuroscientific objectification and popular modernist aesthetics under the aegis of a cinema steeped in technological experimentation and cognitive exploration provides us with the cultural resources called for earlier. It is certainly not a perfect film – it is too long and its quasi-spiritualist underpinnings tend to get a bit tedious near the end – and it is also somewhat cognitively limited in that cognitive disruption mostly is represented rather than actually implemented. But its distinctively modern take on altered states of consciousness through the novel affordances provided by digital technology significantly converges with our own call for cognitive reformatting on the basis of technology mobilized by semio-capitalism.

10.2 Cognitive, Cultural, and Social Dimensions

The usefulness of the film may be elaborated on from the cognitive, cultural, and social dimensions of cognitive mapping. Cognitively, the film may be utilized as an important critique of the affective cinema of re-enchantment proposed by Darren Ambrose, who in his book *Film, Nihilism and the Restoration of Belief* criticizes the prevailing nihilism which he sees as characteristic of our cultural present. For Ambrose, this cultural nihilism is the effect of its entwinement with the logic of late capitalism – and whose immediate symptoms include skepticism, indifference, and hopelessness because of our increased alienation from an ontologically impoverished reality of simulacra, mass-media representation, and surface without depth. In Ambrose's view, this deplorable situation cannot be cured through knowledge alone, but must rather be challenged through a particular form of counter-sense that will alter our habitual modes of perception through a process of re-enchantment and the production of a vital faith in the possibility of living differently. This is where cinema emerges as a particularly crucial medium for Ambrose, since when at its best, he argues, it offers us a unique way for achieving this kind of re-enchantment and renewed faith because of the capacity of certain forms of cinematic experiences to transform our habitual modes of thinking and perceiving the world. Ambrose traces this transformative power of cinema to its emergence as a medium of reconciliation for the modern, enlightened subject, who has lost her religious fidelity to God – and her social and collective identity – through the Enlightenment's vector of scientific disenchantment. According to Ambrose, the scientific abolition of God also meant the abolition of collective meaning and a general epistemological crisis because of the enlightened subject's increased rational autonomy

– which resulted in a fundamental alienation of man from nature. Cinema, however, has the capacity to help us overcome this collective alienation through the production of vital images of the world and subsequently of experiences which will re-connect us to the deep fabric of reality in a way similar to the religious transcendentalism of the pre-Enlightenment era; but not through a simple appeal to ‘truths’ or ‘facts’, however, since this would be to operate exclusively according to knowledge and an essentially mechanistic world of illusory appearances. On the contrary, following Deleuze’s Nietzschean reading of the powers of the false, Ambrose argues that it is the power of cinema to restore a vital faith in a world which is not static and unchanging, but in a constant state of change through the composition of multiple forces of becoming. This is a philosophy of life rather than knowledge, and of experience and affectivity rather than cognition and representation: “Cinema is a uniquely *affective* way of capturing and preserving our experience and our collective dreams, translating them into *affective* cinematic images”. (Ambrose 2013: 121)

Needless to say, Ambrose’s criticism of enlightenment-disenchantment and late capitalism is yet another example of familiar critical narratives which attempt to forge a destructive link between the two through the supposedly pathological nature of scientific rationality. Ambrose, similarly, pits the capitalist-scientific subject of nihilistic alienation against the affective subject of vital re-enchantment through the transformative powers of the cinematic experience. However, the positing of a continuity of alienation between enlightenment-rationality and late capitalism fails to index the crucial difference between regional and universal alienation that we outlined in Chapter 7. This allows us to see that *Enter the Void* is an example of a form of cinema that no longer is bound by the restrictions of regional alienation. Rather, what is crucial here is the new set of aesthetic resources which the film’s take on universal alienation makes available – and which are yet to be fully explored. This is of course the path that contemporary cinema and cultural production should insist on as we see it; that is, utilizing the cognitive split indexed by universal alienation as an enabling condition for practice, rather than following the conservative path outlined by Ambrose in order to stave off the threat of alienation. This lays the groundwork for the cinema of cognitive disenchantment that we believe *Enter the Void* is an example of – as opposed to the cinema of affective re-enchantment proposed by Ambrose.

Similarly, the film also provides the rudiments of a cognitivist cinema which stands in contrast to the panpsychist model of cinema proposed by Gilles Deleuze.

When writing about cinematic perception in *Cinema 1: The Movement-Image*, Deleuze argues that the fundamental innovation of experimental cinema (from the early French surrealists and Soviet auteurs to the American avant-garde) is the cinematic realization of an objective perception that transposes the subjective perception concomitant with the human (the molar) into an objective realm of non-human materiality (the molecular). Taking the Bergsonian definitions of subjective and objective perception as the variation of images in relation to a central image and to each other as his starting point, Deleuze argues that what was discovered by filmmakers such as Dziga Vertov and Michael Snow was the ‘genetic element’ of perception *tout court*: The vibratory potency of pure materiality where molecules move about in a free, gaseous state. This is no longer a cinema of variation according to a privileged perspective, but one of universal variation where perception is put back into its non-human state through the use of montage *qua* cinematic expression of the Open (see Deleuze 2004: 78-88). Deleuze thus advocates a panpsychist metaphysics of pure perception in the Bergsonian sense, according to which the two poles of the subjective and the objective are formulated along the lines of the human and the non-human. However, from our cognitivist perspective, we take the central relationship between the subjective and the objective to be not one between the human and the non-human, but between the human and the inhuman. In other words, we take the perceptual experiments in *Enter the Void* to be indexes not of an objective pole according to a double system (as in Deleuze), but rather of an objectivity located *within* the subjective as such. This objectivity indexes the abstract infrastructure of cognition and its potential for systematic exteriorization and techno-cultural implementation, which is utilized in the film in the form of a cinematic exteriorization of a number of deviant phenomenal states that are neurobiologically instantiated in the brain.⁴⁴

⁴⁴ Arguably, similar points can be made about a number of filmmakers associated with the experimental tradition, such as Stan Brakhage – whose films Deleuze credits with exploring a non-human world of pure perception in its molecular state (see Deleuze 2004: 87). But it seems to us that Brakhage’s concept of the ‘untutored eye’ – an eye freed from the limitations imposed by our default perspectival modes of vision and engaging in a constant adventure of perception by, for instance, observing all the shades of green in a field of grass – also could be read as an example of phenomenal opacity in Metzinger’s sense. In other words, the untutored eye may be understood as a cinematically informed attempt to systematically explore earlier processing-stages of perception within an aesthetic context. It would therefore be an index of the cognitivist cinema defended in this thesis – as opposed to Deleuze’s panpsychist cinema (Deleuze

Culturally, the film operates as a much-needed antidote to the recent turn to so-called ‘Slow Cinema’ among various cineastes and theorists in critical response to the fast-paced formulas of contemporary Hollywood-filmmaking. Slow Cinema refers to a particular style of art-cinema that emphasizes minimalism, long takes, lack of narrative, little dialogue, and slow camera movements. It is partly associated with the 1960s and ‘70s work of directors such as Michelangelo Antonioni and Chantal Akerman, but also with the plethora of contemporary filmmakers who have come to operate with similar cinematic styles. According to Slow Cinema-blogger Harry Tuttle, what characterizes Slow Cinema is the attempt to “find the content behind the appearance of emptiness, [and] to understand the depth and complexity in the intervals between the apparent (nominal) details. [...] It is an alternative way to make films, a new narrative mode, a different angle in storytelling, and it gives a new perspective to the audience”. (Tuttle 2010) What is important in the aesthetic of slow cinema according to Tuttle is that it represents an important reaction against an increasingly fast-paced and superficial digital culture that promotes entertainment rather than reflection. And it does so by transcending ‘mainstream prejudices’ through lack of action, narrative, and verbalization. It is instead the contemplative atmosphere that binds the images together and provides the audience with a critical space for reflection outside of the fast-paced parameters of popular culture.⁴⁵

But while there certainly are plenty of examples of important slow films (more recent ones included), there are larger cultural and aesthetic issues implicit in the rejection of current hi-tech digital cinema on the basis of the slow. As Steven Shaviro argues in an emphatic rejection of Slow Cinema on his own blog, the major problem with many recent slow films is that one does not get the sense that they are pushing cultural and aesthetic boundaries in the same way as the pioneers of slow cinema did during the ‘60s and ‘70s. At that time there was something specifically daring about the

is right, however, in linking the American experimental tradition to drugs as its so-called ‘collective assemblage of enunciation’).

⁴⁵ Slow Cinema must also be considered part of the so-called ‘Slow Movement’ (which encompasses everything from Slow Food to Slow Living), according to which the slow marks an important cultural shift away from the fast-paced rhythms of present everyday life. Needless to say, the Slow Movement is the antithesis of accelerationism; although not because it favors the slow over the fast, but rather because its commitments to the slow make it unable to address the abstract and cognitive dimensions mobilized by this thesis.

major slow films and the stylistic methods they incorporated, which in many ways expanded our sense of what cinema is and what it is capable of. Yet this is more or less completely absent from the majority of recent slow films, which rather seem to have taken up the slow as a kind of default art-cinema critical and aesthetic form that has lost much of its cultural and aesthetic potencies over the recent decades. There have been profound changes both in cinema and in culture since the '60s and '70s – and this is what contemporary Slow Cinema and its advocates fail to address:

[I]n a world that has been so profoundly changed over the past 30 or 40 years by globalization, financialization, and technological innovation, it's simply an evasive cop-out to make movies as if none of this had happened. And in a film industry whose production processes have been entirely upended by digitalization, and where film itself has increasingly been displaced by newer media, and refashioned to find its place within the landscape of those newer media, it is a profound failure of imagination to continue to make films in the old way, or that continue to signify in the old way, when this "old way" has itself become nothing more than a nostalgic cliché. (Shaviro 2010b)

We see here many of the typical characteristics of the folk: The rejection of the current media-scape on the basis of older and more authentic aesthetic formulas; the attempt to counter hi-tech digitization and technological abstraction by scaling things down; and the nostalgia for older cinematic styles, as opposed to an interest in trying to invent a novel kind of cinema at the present. For Shaviro, such a cinema needs to be constructed according to the digital media-scape that has come to characterize the early 21st century, and which is distinctively different compared to that of the analogue era. In particular, whereas classic analogue cinema (i.e. in its mainstream versions) operates according to the Fordist assembly-line following the rules of classical continuity, digital cinema has come to constitute an integral part of the computational culture that emerged along with post-Fordism. This is a cinema which is deeply integrated with other media-forms (gaming, television, the Internet, etc.) and which has abandoned the logic of classical continuity in favour of immediate shocks and sensorial overload. It is these forms of what Shaviro calls 'post-cinema' and 'post-continuity' which are rejected by advocates

of Slow Cinema and similar adherents to the superiority of the analogue era.⁴⁶ But as Shaviro argues, there is something problematically nostalgic about these criticisms insofar as they remain insensitive to the affordances and opportunities that digital technologies open up. As he puts it himself: “[W]e are now witnessing the emergence of a new media regime, [which has] given birth to radically new ways of manufacturing and articulating lived experience” (Shaviro 2010a: 2) – and this is where slow cinema inevitably falls short.

Shaviro thus proposes an aesthetic accelerationism organized around post-continuity and digital technology as a way of combatting these critical sentiments. But while we are fully sympathetic with this overall ambition, we remain wary of his insistence that aesthetic accelerationism should be affective – or, more specifically, an aesthetic of affective mapping. Shaviro also builds this argument around Jameson’s diagnosis of the late capitalist discontinuity between structure and experience. But rather than cognitive reformatting as a way to overcome this, he instead argues that since the non-human abstractions of late capitalism supersede the cognitive capacities of the experiential subject, the only way to approach capital is aesthetically – through affect. Affect, therefore, provides us with the non-cognitive link between subjective experience and a-subjective capital. On the basis of readings of recent digital films and music videos, Shaviro thus proposes an aesthetic of affective mapping whose purpose is to index *what it feels like to live* at the beginning of the 21st century by utilizing the latest digital technologies in order to diagram the existential coordinates proper to late capitalist experience (see Shaviro 2010a). This is why the mourning of the death of analogue media is problematic for Shaviro – because it fails to appreciate the fact that only digital technology is capable of affectively mapping the algorithmic and computational mutations of capital that have taken place over the past 30-40 years (i.e. through the passage from earlier forms of industrial capitalist spaces to Jameson’s multinational world-space).

But Shaviro’s affective mapping fails to recognize the fact that the parameters of cognition are not fixed and immutable, but rather – as Jameson himself points out – subject to various forms of modifications and expansions. As we saw earlier, this is exactly what mapping should insist on, as we see it: Cognitive augmentations via

⁴⁶ Here it is worth noting that Shaviro has done a lot of work to define post-cinema and post-continuity more specifically (see in particular Shaviro 2010a and Shaviro 2012).

techno-scientific means as ways to overcome the disjunction between structure and experience through various forms of cultural and aesthetic subversions. For what is increasingly significant with late capitalist technologies is the sophisticated forms of monitoring and manipulation they are able to execute at pre-experiential and sub-personal registers. Yet the reason that they are sophisticated is not because they operate beyond cognitive traction and scientific explanation; on the contrary, it is precisely the latter that give rise to their invasive nature and why they therefore must be analysed accordingly. They are cognitive instruments of control which turn affect, experience, and embodiment into quantifiable parameters that may be technologically externalized and projected across extensive digital grids. This is the critical point where affective approaches to technology and culture reach their limit, and why we believe that a post-affective form of critique will need to rehabilitate the many conceptual categories rejected by affect theory – cognition, representation, normativity, rationality, and so on – since they are necessary components for a form of critical theory conceptually equipped to address and overcome the nascent modes of power and exploitation discussed throughout this thesis. Needless to say, it is within this critical framework where we want to position a film such as *Enter the Void* – as an example of an aesthetic of cognitive mapping which operates under the aegis of cognitive reformatting rather than Shaviro’s affect-based conception of mapping, which merely explores the contours of a paltry late capitalist emotional subjectivity and thereby is unable to realize the truly productive potentials implicit in the call for digital post-cinema. For in the end, its aesthetic accelerationism comes down to no more than a mere intensified postmodernity – rather than the subversive modernist ethos advocated here – which we believe is a symptom of its commitment to the local horizon indexed by affectivity.⁴⁷

Finally, from a social perspective the film deserves considerable credit for having brought certain aesthetic styles that long have been prevalent in avant-garde filmmaking out of the gallery to the big screen and to a slightly wider audience. But while this certainly is a commendable achievement, it still leaves us with the question of whether it would be possible to push the sociocultural implementation of the cognitive and

⁴⁷ This becomes particularly evident through a closer look at the audiovisual material that Shaviro brings up – such as Richard Kelly’s *Southland Tales* (2008) and Harmony Korine’s *Spring Breakers* (2012) – which sit firmly within the postmodern media-spectacles of the present (in intensified forms, but nevertheless), rather than pointing anywhere beyond them (see Shaviro 2010a).

aesthetic experiments at work in *Enter the Void* to even bigger groups of people than the still somewhat marginal strands of cineastes who constitute the film's key audience. As the artist Brian Rogers puts it: It is a shame that the aesthetics of *Enter the Void* largely has remained in the art-galleries, rather than becoming a blueprint for what modern cinema and television could be. (Rogers 2014: personal communication). Needless to say, *Enter the Void* should not be considered as some kind of definite statement on the issues brought up in this thesis, but rather as a basic example of how the resources articulated here may be mobilized productively in culture. Naturally much more needs to be said on this topic, but this falls outside the scope of this thesis and we will instead conclude with articulating two central themes implicit in the film and in this thesis as a whole: Cognitive mapping as digital psychedelia and the psychedelic experience as an experience of sub-personal objectivity.

Conclusion

Digital Psychedelia

Another way to characterize our account of cognitive mapping is in terms of a reconsideration of the concept of psychedelia. In *Writing on Drugs*, Sadie Plant suggests that the vivid colours and symmetrical patterns that occur with remarkable frequency in various forms of art and craftsmanship across cultures all over the world in fact should be understood as different attempts at visualizing the abstract cognitive patterns that constitute the very fabric of a psychedelic experience. According to Plant, these patterns might turn out to be what she refers to as ‘universally geometric constants’ which would constitute “a level of basic hallucinatory experience that proceeds independent of all the user’s own personal and cultural preconceptions”. (Plant 1997: 195) In other words, what a psychedelic experience brings to the fore according to Plant are culturally invariant, abstract cognitive patterns which she hypothesizes may be nothing less than phenomenal manifestations of the workings of the brain during extreme states of excitation (such as of the kind induced by psychoactive drugs), when local modifications brought about by changes in synaptic connections bring about global alterations in brain wave-amplitude, speed, and frequency (see Plant 1997: 192-196). This is exactly what Metzinger is referring to when he discusses the experience of opacity during pseudo-hallucinatory cognitive states: The system no longer operates according to a fully transparent self-model, but is suddenly able to experience the underlying functional workings of the mechanisms of phenomenal appearances (i.e. the workings of the brain itself) as manifested in the form of abstract geometrical patterns of the kinds indexed by phenomathematics. Or, to put it slightly differently, in psychedelic experiences the cognitive subject is able to experience sub-personal neurobiological mechanisms that underpins its default notion of selfhood. It is able to experience its underlying objectivity.

What this ultimately points to is a modern understanding of psychedelia organized around the neurobiological underpinnings of so-called ‘altered states of consciousness’ and their wider conceptual and sociocultural import. The concept of psychedelia and its many links to altered states of consciousness as induced by art and various forms of psychoactive substances is of course not a new phenomenon, but where our account differs from by now familiar counter-cultural and Eastern-influenced understandings of the concept is in our insistence on its scientific (as opposed to spiritualist)

underpinnings. Hence, whereas psychedelia often has been associated with spiritualist notions such as ego-death, mystical transcendence, and an underlying cosmic oneness, our understanding of the concept necessarily reorients it along the scientific trajectories of neurochemistry, brain plasticity, and cognitive modelling. A similar line of reasoning may be extracted from Metzinger's work, since, as he argues himself, from a neurophenomenological perspective the psychedelic notion of ego-transcendence may be explained in terms of cognitive systems operating according to increased degrees of phenomenal opacity during psychedelic experiences and thereby temporarily cancelling out the transparency-constraint and self (or PSM) as such (see Metzinger 2004: 460). It is in this sense that we believe that the psychedelic notion of ego-death may be reinterpreted along the lines of nemocentrism and a sub-personal naturalism – as opposed to an anthropomorphic spiritualism. Not only does this provide us with an alternative explanatory framework to classical notions of the psychedelic, it also significantly updates the concept along the modernist trajectories that this thesis has aimed to articulate by opening it up to the plethora of critical issues brought up here – such as the cultural and aesthetic implications of scientifically informed models of cognitive expansion, the modes of power and creativity associated with neuropharmacology and neurotechnology, and the function of cognitive navigation and exploration for the purposes of remaking the cognitive system of the human and its present entwinement with the logic of late capitalism.

Our reworked version of psychedelia accordingly remains committed to the cultural significance of scientific and aesthetic modifications of human cognition in the form of altered states of consciousness. But it is also a model of psychedelia that rejects its sacred and archaic residues, and instead situates the psychedelic squarely on the side of the profane and the futuristic (i.e. on the side of technology and cognitive science). It is organized around an account of the phenomenal first-person perspective as merely another scientific object, and the psychedelic experience as a medium for scientifically and aesthetically navigating the sub-personal underpinnings of this object (e.g. via neuroplasticity, neurochemistry, NCC's, phenomenal opacity, etc.) against the backdrop of a nature devoid of any organic or purposeful qualities. Culturally disheartening as this may initially sound, it nevertheless provides the psychedelic with the modern conceptual framework it is in clear need of. And a psychedelic experience, therefore, does not index a mystical experience beyond objectification – but on the contrary constitutes an experience oriented towards exploring its own objective underpinnings.

Indeed, a psychedelic experience is conceptually significant precisely because “it feeds back the critique of experience into experience itself” (Fisher 2016: personal communication), and may therefore be understood as exemplary of the kinds of cognitively mediated experiences which this thesis advocates insofar as it provides a practical way for interrupting the myth of experience through science, culture, and aesthetics.

The neurophenomenological understanding of altered states of consciousness consequently allows us to bring together the scientific aspects of the thesis (objective cognition) with its cultural counterparts (popular modernism), in the form of what we may refer to as a ‘digital psychedelia’ operating in terms of an aesthetic of cognitive mapping which utilizes the latest scientific and technological resources in order to produce different forms of cultural material oriented around the link between aesthetic subversion and cognitive transformation.

A Culture of Cognitive Estrangement

The aesthetic genre that most explicitly feeds into this project is science fiction. Not only is the starting-point of this thesis – culture reshaped by elements indexed by the scientific image – also the basic premise of science fiction, but science fiction is also, as the critical theorist Carl Freedman argues, the aesthetic of *cognitive estrangement* (see Freedman 2000: 13-23). It is the dialectic between cognition and estrangement which is central to science fiction, as Freedman points out, insofar as the privileging of just one of these concepts results either in realism (cognition) or fantasy (estrangement). Science fiction, on the other hand, is fuelled by the interplay between cognition and estrangement (or, reason and the imagination) – coupled with an emphasis on the temporal nature of estrangement in the form of the future – which, while not limited to present scientific evidence, still operates within the same physical universe as that indexed by modern science. This link between cognitive estrangement and futurity makes the aesthetic of science-fiction even more crucial from the perspective of this thesis, since the cognitive revolution advocated here – as Reza Negarestani argues – is a form of revolution which necessarily takes place in the future insofar as it outlines an image of cognition that is radically discontinuous with the present and therefore cannot be fully grasped from the point-of-view of the present (see Negarestani 2015).

Science fiction is consequently a medium particularly apt for exploring the cultural implications of this revolution insofar as it at its very core orients itself towards

the future. Indeed, science fiction at its best utilizes the future in order to expand the horizon of cognitive possibilities in the present. Needless to say, we believe that contemporary culture – because of its lack of visions of the future – would benefit enormously from the cultural integration of such resources on a widespread scale; although not just in the form of science fiction as a particular aesthetic, but rather in terms of cognitive estrangement as the *modus operandi* of culture as such. Indeed, the point with the cultural and cognitive program outlined in these pages is not so much that it should reference the genre science-fiction, but rather that it *is* science fiction. Cognitive estrangement should not just be illustrated in the form of particular aesthetic styles, but should constitute the sub-personal motor of culture as such. For instance, what is interesting with a film such as *Enter the Void* is not that it depicts characters who undergo neurochemical modifications, but that it turns the medium of film itself into an interface for cognitive exploration. And similarly, what is crucial with ‘90s rave to us is not the mere usage of samples from science fiction-films in tracks – but the fact that the drug-tech interface itself was a form of science fiction, or cognitive estrangement. This is the operational agenda that we believe should be taken up in contemporary culture as such. Certainly, this is far from a simple task; but it seems to us that the first step would be to disentangle the speculative potency of the scientific image from the cultural confines of the manifest image while remaining sensitive to the cognitive anomalies generated by their continuous clashes – for it is within these anomalies where future cultural opportunities surely will surface.

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