Incredible but Very Real

3D Cinema and Trauma

in the Wake of WWII and 9/11

By

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Abstract

This thesis investigates Hollywood and global Hollywood 3D cinema at the height of its box-office success, the early fifties, and from 2009-2014. Discourse surrounding 3D cinema in both periods is governed largely by technological and economic arguments. While this discourse holds some merit, it overlooks the cultural and historical background against which 3D cinema rose to prominence.

Shifting research focus from the technological and economic to the cultural, this project uncovers the presence of trauma in 3D cinema of the fifties and D3D of the new millennium, and argues 3D cinema to be a privileged form to engage with traumatic themes. As trauma is uncovered in 3D cinema, connections are drawn between the narratives and poetics of the films discussed and post-traumatic themes prevalent in the US post WWII, and post September 11 respectively.

Focusing on questions of representation, embodiment and temporality, which hold a central role both in 3D cinema and trauma theory, this project finds that 3D cinema narratives and poetics of each period resonated with the cultural trauma that preceded it.
For my mother
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INTRODUCTION

Shortly after I arrived in Wellington, New Zealand, I was fortunate to watch a one-time 3D screening of *One More Time with Feeling* (Andrew Dominik, 2016), a documentary which follows Nick Cave, his spouse, Susie Nick, and Cave’s band during the recording of a new album. The recording takes place after the death of Cave’s and Nick’s son Arthur, who was 15 years old at the time of his death, and confronts Cave with his lyrics, written before the death of Arthur, which in retrospect assume a prophetic and daunting meaning. Filmed in 3D and black and white, the hauntingly beautiful and sensitive film depicts its characters in the most pedestrian spaces. The result is that extremely familiar spaces, for example the inside of a cab, or a line of buildings filmed from the window of a driving car, all go through a process of defamiliarization, as if they are part of a dazed dream. Explaining the choice to film *One More Time with Feeling* in 3D and black and white, Dominik responds that the combination “gives you a way to kind of see the world with new eyes” (Petridis 2016). I find that the film’s distinct defamiliarization of ordinary spaces conveys, to a certain degree, the ways in which Cave’s grief and trauma changed not “his eyes”, but his very world, his immediate surroundings. The world continues as if nothing has happened, the street remains the same, the cab, one’s home, and yet at the same time everything has changed. 3D affords visibility to this change, and to the sense of alienation between the traumatised individual and his surroundings which instantaneously become “unreal”, ungraspable. Robert D. Stolorow describes his personal trauma of the sudden death of his wife in the following manner: “an unbridgeable gulf seemed to open up, separating me forever from my friends and colleagues. They could never even begin to fathom my experience, I thought to myself, because we now lived in altogether different worlds” (Stolorow, 1999:464. My emphasis).
In turn, Cave’s and Dominik’s film affords, in my view, visibility to this changed, recognizable, yet unfamiliar world, both through the ghostlike images haunting the auditorium, and the added depth which engulfs the viewer. *One More Time with Feeling* had profound impact on me and encouraged me to pursue a hypothesis pertaining to 3D’s distinct capacity to engage with trauma. Notably, *One More Time with Feeling* is a highly intimate and personal documentary, which employs 3D to convey how the world of one father changes through grief. However, the question arises whether the employment of 3D within fiction and commercial cinema can engage with and depict traumatic themes with a similar intensity. And, if so, how do they resonate with the social-cultural milieu in which they are screened?

To address this question I search for signs of trauma in Hollywood and global Hollywood 3D Cinema in periods when it enjoyed the most popularity: the early 1950s and from 2009 until 2014. My thesis is based on the observation that in both these periods, the prominence of 3D cinema followed traumatic events sustained by western society: World War II and the events that occurred in the US on September 11, 2001. Although almost none of the 3D films in these periods have stories pertaining to WWII and 9/11, this dissertation will argue that they have a distinct potential to deal with traumatic themes. Examining 3D cinema of the fifties and digital 3D (D3D) of the new millennium, I will argue that they exhibit a coming together of plots and stereoscopic poetics that enabled 3D cinema of these two periods to engage in a unique manner, with traumatic themes, fears and anxieties prevalent in US society during these times.

In order to trace the presence of trauma in 3D cinema following WWII and 9/11, this dissertation asks how 3D cinema can engage with traumatic themes, and what is the relation between the presence of trauma in 3D films and WWII and 9/11? In search of an answer, I explore three avenues in relation to 3D cinema and trauma. Firstly, I afford attention to questions of representation prevalent in trauma theory and 3D scholarship. Secondly, I examine
the role of the body in 3D cinema and in trauma theory, through the nature of the phenomenological relationship between viewer and film in 3D films. Finally I explore the temporal qualities of 3D cinema and their relationship to trauma.

Trauma is often marked as the moment time stopped. It provides a breakage point, dividing time, and the world, to “before” and “after”. For example, Norman Cousins’ article “Modern Man is Obsolete” (1945; see also Boyer 1994:8, 39), published after the bombing of Hiroshima and Nagasaki, points to the use of the Atom bomb as the end of modernism. Following 9/11 Jenny Edkins writes “[…] traumatic events are described as ‘the moment the world changed’. They shatter our previous worlds, built around carefully cultivated stories of durability and safety” (2002:253). If we accept WWII and 9/11 as rupture points, then it should come as no surprise that novel means of representation emerged after these events, offering a particular way of engaging with the newly transformed world. Notably, WWII and 9/11 have received much scholarly attention and have had profound impact on film theory and film history (on WWII and Hollywood see for example Doane 1987; Polan 1986; Koppes and Black 1990. On 9/11 and Hollywood see for example Edkins 2002; Smelser 2004; Sterritt 2004; Kellner 2009; Hallam 2010). The relationship between film noir and WWII has often been explored (for an overview see Sobchack 1998), and horror cinema is traditionally understood as responding to the fears of the time and hence has been afforded significant attention following WWII and 9/11 (see for example Hallam 2010; Wetmore 2012). Moreover, Gilles Deleuze finds that following meta-cinematic events, most notably WWII, resulted in what he terms the “action image crisis”, which in turn led to a transformation in 2D cinema, from movement-image to time-image (Deleuze 1986, 1989). D3D films of the new millennium are often interpreted by drawing on the cinematic images suggested by Deleuze, relegating them either to the time-image, or arguing that they constitute a new cinematic image (see Elsaesser 2013; Liu 2018; Pisters 2012; M. Ross 2012, 2015). However, it has gone unnoticed that the very
surges to popularity of 3D cinema in early fifties and in the new millennium coincided with the transitions in the cinematic image. In the early fifties 3D cinema’s surge to popularity in the US coincided with the transition from the movement-image to the time-image that Deleuze argues took place in Europe. In the new millennium, the renewed widespread attention to 3D coincided with the transition from the time-image to the neuro-image Patricia Pisters argues for. Despite this vast scholarly attention there has been no attempt to look at 3D cinema’s particular response to trauma in relation to these events and how it differs from other forms of representation in this regard.

Explanations accounting for 3D cinema’s success commonly focus on the economic and the technological. In this capacity, the ensuing hegemonic narratives which emerged described 3D cinema in both periods as a gimmick, an attempt by the Hollywood film industry to draw audiences back to the movie theatres in light of diminishing attendance. In the early fifties this was attributed mainly to the rise of television (Belton 1992; Bordwell et al 2003:600; Hayes 1989:20; Lipton 1982:37-41; M. Ross 2015:38; Sklar 1994:284; Zone 2012:48), and in the new millennium to the growing competition of the internet (Ebert, 2010; see also Elsaesser 2013:219).\(^1\) An additional economic explanation behind 3D’s most recent emergence is the attempt to persuade theatre owners to embrace digital projection systems (see Belton 2012; Elsaesser 2013:222; Purse 2013). While these arguments hold merit, and indeed tell part of the story behind Hollywood’s interest in 3D cinema, they are incomplete, at times inaccurate, and

\(^1\) A smaller surge in the popularity of 3D cinema during the 1980s 3D, referred to by some as the 2\(^{nd}\) wave of 3D cinema, is similarly accounted for within economic frameworks. This time the smaller spike in interest towards 3D is viewed as a response to the threat of VCR and home video (see Jones 2015:53).
more importantly, they overlook the cultural and historical background against which 3D cinema surged to the heart of mainstream attention.

Importantly, exploring individual 3D films in relation to a cultural context is an endeavor undertaken by different scholars in the past. In relation to the early fifties it is particularly *Creature from the Black Lagoon* which lends itself to such readings. As Ariel Rogers puts it: the creature itself has been read as an emblem of social concerns pressing on 1950s America, including scientific hubris (and, especially, the threat of the atom bomb), the purported mystery of female sexuality, the threat of communism, and deviance from normative white masculinity—the latter addressing not only changing attitudes about race, gender, and sexuality but also contemporary anxieties about social conformity (Rogers 2013:202).

Similarly, in the most recent resurgence of 3D cinema, it is *Avatar* that has yielded a myriad of different readings, at times conflicting with one another. This has led Thomas Elsaesser has to argue the *Avatar* offers “access for all”. “It is not that the film is controversial”, he notes, but rather that it “contains cognitive dissonances [which] provoke the spectator into actively producing his or her own reading...” (Elsaesser 2011:260)

While indebted to cultural readings offered by different scholars in relation to 3D cinema, this dissertation differs from such cultural readings on two accounts: firstly in its focus on the manner in which stereoscopy is employed in different times in relation to the films’ themes and plots, whereas other cultural readings often focus on narrative and dialogue to the point of ignoring the stereoscopic of 3D cinema altogether (as for example in Biskind’s (1983) discussion of *It Came from Outer Space* and *Creature from the Black Lagoon*). Secondly, this dissertation suggests that 3D cinema holds an inherent potential to engage with trauma and post trauma through the different spaces it gives rise to: the negative parallax space – the space of
the movie theatre; the positive parallax space - the space receding from the screen; and the screen itself, which separates the two spaces and is referred to as the 0 point of the Z axis (on the formulation of the different spaces of 3D cinema along the Z axis see M. Ross 2015:5). The potential of 3D cinema to engage with trauma through its distinct aesthetics is realized, I find, across different 3D films in different periods (albeit in a different manner). In uncovering this potential of 3D cinema - which pertains to 3D cinema’s most inherent characteristic and which offers insight not into a single film but rather into the way 3D cinema operates across different periods - a link is formed between 3D cinema and anxieties in US society which 3D as a stylistic device engages with in a unique and distinct manner.

Shifting my attention from technology and economy to the cultural and social, I suggest that 3D cinema of the fifties and D3D of the new millennium engage with, and bear the marks of post-traumatic themes prevalent in the US in the early fifties following WWII, and in the late 2000s following 9/11. With regards to the fifties period, my proposed analysis points to the way in which the aesthetic and narrative strategies of 3D cinema of the fifties both highlighted and engaged with representational, temporal, and social characteristics of PTSD across different genres such as horror (for example House of Wax [André De Toth, 1953] and Creature from the Black Lagoon [Jack Arnold, 1954]); film noir (Man in the Dark [Lew Landers, 1953]); science fiction (It Came from Outer Space [Jack Arnold, 1953]); and the western (Gun Fury [Raoul Walsh, 1953]).

Apart from identifying post-traumatic poetics in fifties’ 3D cinema, this dissertation also finds that fifties’ 3D cinema reflects the anxieties and fears of the time. Amongst these are the fear of atomic retaliation (see Boyer 1994; Rogers 2013:202), the challenge of witnessing and representing traumatic events encountered at war, the prevalence of PTSD without an adequate treatment protocol, and rising tensions between WWII veterans and civilians, including
prevailing fear of violent behavior by veterans who might find it hard to adjust to peaceful civilian life and put their violent war time past behind them (see Kenneth 2009; Childers 2009).

Examining D3D of the new millennium from the prism of trauma theory finds that whilst the centrality of trauma remains prevalent, D3D engages with trauma in a different manner, congruent with the nature of 9/11. Most evidently, as 9/11 was highly visual, highly mediated, and immediately recognized as a cultural trauma, D3D cinema does not engage with affording visibility to trauma. Instead it is focused on moving away from the traumatic event, and onwards towards restoring and reinstating a secure position in the world. Sarah Ahmed argues that fear immobilizes, that it restricts the potential of movement for subjects, and hence, that following 9/11 “the most immediate instruction made to subjects and citizens in the West was ‘to go about your daily business’, ‘to travel’, ‘to spend or consume’ and so on, as a way of refusing to be a victim of terror” (2014:73). This, in turn, can be observed in post 9/11 D3D cinema. For example, in Gravity (Alfonso Cuarón, 2013) the body of Dr. Ryan Stone (Sandra Bullock) is paralyzed by fear and psychological trauma, and in Avatar Jake Sully (Sam Worthington) suffered concrete spinal trauma, leaving him paralyzed from the waist down. In the duration of the films both protagonists rediscover their agency through movement and by exploring an unfamiliar new world.

The movement from paralysis to agency evident in these narratives is amplified by the unique characteristics of D3D cinema in this period, which I propose examining through the prism of what I call “empowering kinesthesia”. Empowering kinesthesia focusses on the very basic and inherent quality of the body to change, to move, and shake off the stasis of trauma in favor of creating new connections and configurations. Set within narratives in which protagonists regain agency in hostile, unfamiliar worlds, empowering kinaesthesia is an accumulative affect of three distinct poetics of D3D: depictions of bodies enthralled in change, which through stereoscopy invite audiences to embody a novel potential of movement; gentle
protrusions into the negative parallax space which elicit intimate, haptic and hyper-haptic explorations (see Ross 2013, 2015); and the implication of the audience in the genesis of sublime, unfamiliar diegetic worlds.

Affording attention to the distinct stereoscopic poetics of D3D cinema in the new millennium as well as in the early fifties uncovers a pattern which reverberates the traumatic themes of both periods in a unique manner. That said, it should be emphasized that while I find traces of the trauma of WWII and 9/11 in 3D cinema, the prevalence of these traces does not necessarily point to a cause and effect relation between the trauma of 9/11 and WWII to US society, and the surge to popularity of 3D cinema following these events.

Chapter Overview

Scholarship on 3D cinema and trauma intersects at three main points: questions of representation in trauma and 3D cinema, the role of the body in trauma and 3D cinema, and the temporality of trauma and 3D cinema. These three main points of convergence between trauma theory and 3D scholarship form the three analytical chapters of the dissertation and compose its structure.

CHAPTER ONE provides the methodology of the dissertation, discusses the justification for the interdisciplinary approach undertaken, explains the rationale behind the film selection, and acknowledges 3D viewing opportunities and limitations.

CHAPTER TWO surveys the two theoretical frameworks which form the theoretical basis of the dissertation – 3D scholarship and trauma theory. This basis will in turn be expanded and drawn upon in the different analytical chapters and in relation to other theories which will be introduced as the dissertation develops. Significant attention is afforded to the historical and economical narratives employed to account for 3D cinema’s success in the early fifties and the new millennium, and gaps and contradictions in these narratives are highlighted.
CHAPTER THREE is the first analytical chapter of the dissertation. It is in this chapter that I begin to draw connections between trauma theory and 3D cinema. As each analytical chapter draws on different theoretical frameworks in addition to trauma theory and 3D scholarship, and as the field of trauma theory is exceptionally vast, each analytical chapter begins with an overview of relevant scholarship not covered in the literature review chapter. Focusing on questions of representation, chapter four begins by outlining different approaches to the challenge trauma poses to representation, beginning with the pathology of trauma and the unique nature of traumatic memory. I then move on to note the ways in which trauma theory in the humanities engaged with this challenge, by privileging a modernist style of representation and the role of aporia within it. The chapter then turns to analyse Creature from the Black Lagoon (1954), House of Wax (1953), It Came from Outer Space (1953), Man in the Dark (1953), and Life of Pi (Ang Lee, 2012), to demonstrate how the unique poetics of 3D cinema can be employed to engage with trauma and traumatic memory. Particular importance is afforded to the Z axis as providing visuality to the post-traumatic representational characteristic of intrusion. Importance is also afforded to the illusionary but realistic nature of stereoscopic images. This double nature of stereoscopic images gives rise to “failed representations” echoing the nature of traumatic memory, and carving a place for aporias within mainstream cinema. The connection between trauma and 3D cinema in relation to representation is further supported through a discussion of the role of the index in 3D cinema, the veridical nature of traumatic memories, and the limits of visual knowledge. These discussions of stereoscopic poetics are framed within textual analyses of the films discussed that reveal how the films’ narratives supplement stereoscopic poetics to foreground traumatic themes. Notably, this chapter includes a greater discussion of fifties’ 3D films. This is a result both of the different emphasis 3D
cinema of the fifties and D3D afford to questions of representation and trauma, as well as of the rationale behind the selection of films.  

CHAPTER FOUR discusses the role of the body in 3D cinema and trauma scholarship. Affording a significant role to phenomenology, this chapter first draws on the work of Vivian Sobchack (1992), Jennifer Barker (2009) and Miriam Ross (2012, 2013, 2015) and the application of their work to 3D cinema. The starting point of the discussion is Sobchack’s concept of “the film body”. Employing Maurice Merleau-Ponty’s existential phenomenology, the film body, Sobchack argues, is a literal, live body, that both perceives the world during filming, and expresses it in the projected film. Audiences, according to Sobchack, respond to and reciprocate the embodied acts of perception and expression of the film body with their own bodies, hence establishing an embodied connection between audiences’ bodies and the film body. In this chapter I argue that fifties’ 3D cinema employed the extra dimension to perform the phenomenological experience of injury. Positioning audiences in opposition to the film body, this cinema telegraphed upcoming violations of the screen, allowing audiences to collectively brace in anticipation of the upcoming assaults, hence giving rise to a communal wound, and an inclusive phenomenological experience of harm. By phenomenologically echoing wounding experiences and deformed bodies with which US society was familiar in the early fifties, 3D cinema created a point of contact and ensuing empathy between audiences and the stereoscopic film body.

Contrary to fifties’ 3D cinema, D3D of the new millennium was not focused on wounding experiences, but rather on empowering injured, intimidated bodies, affectively generating the experience which I have termed “empowering kinaesthesia”. Drawing in this section on Erin Manning’s concept of “touch” (2007), on Lisa Blackman’s work on the “becoming body” (2012), and on Miriam Ross’ concept of hyper-haptic visuality (2012, 2015), I find that D3D,

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2 The rationale behind the films selected is discussed further in the methodology chapter.
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both in its stereoscopic poetics and narratives, gives rise to a body constantly transforming, a
body which is moving away from a traumatic past and is enthralled in the act of change.
Empowerment is considered here not as honing a powerful, capable body, and in this I move
away from Lisa Purse’s (2011) and Aaron Anderson’s (1998) discussion of empowerment.
Instead, I use the term “empowered” in a sense that emphasizes the body’s capacity and
potential for change. The empowered body I identify is not a body “mastering” space, but a
body “acting” in space and gaining harmonious agency. Through empowering kinaesthesia
trauma is replaced by growth.

CHAPTER FIVE is the final analytical chapter of the dissertation and discusses the
temporal qualities of 3D cinema in relation to the temporal qualities of trauma. 3D scholarship
often evokes Gilles Deleuze’s cinema images to discuss D3D (Deleuze, 1986, 1989), arguing
D3D to be a form of the time image (Liu 2018, M. Ross 2015), the harbinger of a new cinematic
image (Elssaeser 2013), or a form of a new cinematic image such the neuro-image (Pisters
2012). Hence, this chapter begins with a brief overview of Deleuze’s cinematic images before
engaging with the Deleuzian arguments made by different scholars. Employing a Deleuzian
approach, I first note that the surge of fifties’ 3D cinema coincided with the action-image crisis
and with the transition from movement-image to time-image which took place in European
cinema. Positioning the negative parallax space in fifties’ 3D cinema as an “any-space-
whatever” I argue that fifties’ 3D cinema offers a variation of the action-image crisis.

Moving on to D3D, and contrary to the scholars cited above, I find that this cinema, while
reverberating with potential to either offer a new cinematic image, or give rise to the time-
image, highlights the embodied nature of 3D cinema. Thereby D3D reinstates the action-image,
and enacts a wishful return to a past predating the trauma, in which the potential for individual
action is celebrated, as well as the connection of protagonists to the world. Deleuze emphasises
that the time-image and the crystal-image are not subjective, however as trauma is highly
subjective, I move away from Deleuze at this point, to discuss the temporality of trauma. In my analysis of fifties’ 3D cinema and D3D I argue that the Z axis is capable of affording visibility to the temporal qualities of trauma. I refer to the positive parallax space as the space of the past, the space of the dead, and the negative parallax space as the present, the space of the living, as it is the space of the audience. Through this formulation of the temporality of the Z axis, I identify three traumatic temporalities in 3D cinema. The first is the temporality of intrusion, in which images of the past haunt the present. The temporality of intrusion is afforded visibility through the negative parallax space, as it allows images from the depth of the screen, from the positive parallax space, to intrude and protrude into the negative parallax space. An additional temporality is that of going around in circles, which is oriented towards the past, and in which the protagonist revisits the past compulsively. This temporality is depicted by the “folding” of the Z axis, through the use of mirrors, that reflect the negative parallax space into the positive parallax space. The third temporality is a temporal collapse, in which traumatized protagonists are lost in the present, with no clear past or future. This temporality is depicted by disrupting the continuity of the Z axis, by blocking parts of it and creating gaps along it.

The CONCLUSION revisits the different chapters and considers the ways in which they relate to one another. Through the conclusion the importance of the dissertation as a whole is highlighted in relation to 3D cinema and trauma theory, and the ways in which the dissertation helps in advancing current scholarship are discussed.
CHAPTER 1 - METHODOLOGY

The guiding hypothesis of this dissertation is that 3D cinema of the fifties and the new millennium constitute a privileged cinematic form to engage with post-traumatic themes. Deriving from this hypothesis is an interdisciplinary approach which draws new connections between 3D films, 3D scholarship and trauma theory. Hence, the theoretical frameworks of this research are primarily 3D scholarship and trauma theory. Points of convergence of these two discourses form the three analytical chapters of the dissertation: 3D cinema, trauma, and questions of representation; 3D cinema, trauma, and the body; 3D cinema, trauma and temporality. Across these three analytical chapters I explore 3D cinema of the fifties and 3D cinema of the new millennium in order to bring to light the ways in which 3D cinema is distinctly equipped to engage with trauma. In what follows I provide the rationale for employment of these different frameworks.

Why Textual Analysis?

The origin of the theoretical discussion, as well as the convergence point of the different theories, is found in the films themselves. All theoretical discussions in this dissertation stem from my critical analyses of the films and are grounded by them. As the subject of this dissertation is 3D cinema, my analysis of the films draws first and foremost on 3D scholarship, and affords particular attention to the stereoscopic film form. I then analyse the stereoscopic poetics of the films in relation to their themes, dialogues and plots. In doing so I follow David Bordwell, Kristin Thompson and Jeff Smith’s suggestion that in critical analysis of cinematic texts “we should strive to make our interpretations [of films] precise by seeing how each film’s thematic meanings are suggested by the film’s form. In a narrative film, both explicit and implicit meanings depend on the relations between story and style” ([1979] 2017:59).

Such an approach has drawn criticism for focusing too heavily on the cinematic text and consequently “moving away from likely interpretations” (McKee 2003:76). Interestingly, Bordwell, Thompson and Janet Staiger have also noted that textual analysis may miss the broader context of the film discussed, stating that: “too often critical analysis has been unable to specify the historical conditions that have controlled and shaped textual processes” (Bordwell et al [1985] 2003:xvii). As a means to address this oversight of textual analysis they conceptualize what they term the “mode of film practice”, which “situates textual processes in their most pertinent and proximate collective context. This context includes both a historically defined group of films and the material practices that create and sustain that group” (2003:xvii).

3D cinema comprises a defined group of films, and the material practices which “create and sustain” (or fail to sustain) 3D cinema in different periods are well documented and fall within the “mode of film practice” method. As Bordwell et al. note “in the Hollywood mode of production, we find that any technological change can be explained by one or more of three basic causes: Production efficiency, Product differentiation, Adherence to standard of quality” (Bordwell et al. 2003:474-475). Thus, “although stereoscopic pictures provided product differentiation, they failed. The technology could not assure a high-quality product at each screening...” (Bordwell et al. 477)

While the approach adopted by Bordwell et al. is intended to correct the oversights of textual analysis, it is not without lacunas or critique. Miriam Hansen for example, notes that in Bordwell and Thompson’s approach “major technological and economic changes, such as the transition to sound, are discussed in terms of a search for “functional equivalents” by which the institution ensures the overall continuity of the paradigm (Hansen 1999:64; Bordwell et al. 2003:542)” . To elaborate, for Bordwell and Thompson “functional equivalents” relate to the manner one stylistic or technological device subsumes the other while maintaining, or
advancing towards the same goal. As they write, “American cinema’s technological research has been aimed at meeting a commitment to the standards canonized by the classical stylistic paradigm. Synchronized sound, color, widescreen, stereoscopy, and stereophony were justified as progress toward better storytelling, greater realism, and enhanced spectacle” (Bordwell et al. 2003:475). What follows from this is that 3D cinema failed because “another innovation, widescreen, seemed a more efficient way to provide the novelty the industry sought” (2003:477). Yet I find that such a view does not significantly differentiates between the characteristics of different “innovations”, nor does it afford sufficient attention to what 3D cinema does achieve. Following Hansen’s critique, I suggest viewing 3D cinema as a deviation to the mode of practice, as a kind of disturbance, a spike in production and consumption of a specific set of films. 3D cinema constituted a defamiliarization of style, and a deviation to the spectatorial experience, which cannot find its ‘functional equivalence’ in the spectatorial experience of widescreen cinema.

The lack of a space for discussing the distinctness of deviations in Bordwell’s and Thompson’s “classical Hollywood cinema” is evident as they view deviations to classical Hollywood cinema as a testimony to the flexibility of the system. As Hansen writes

any stylistic deviations of the modernist kind within classical cinema — whether imports from European avant-garde and art films, native films noir, or work of idiosyncratic auteurs like Orson Welles, Alfred Hitchcock, and Otto Preminger are cited as proof of the system’s amazing appropriative flexibility: ‘so powerful is the classical paradigm that it regulates what may violate it’ (Hansen 1999:64; Bordwell et al 2003:84).

To explore at length the distinctness of 3D cinema the methodology I undertake will afford close textual analysis to 3D films in two periods, informed by trauma theory and supplemented
by phenomenological and kinaesthetic analysis as well as by Deluzian readings. This approach allows me to explore 3D cinema across questions of representation, embodiment, and temporality, and reveals the distinct aptitude of 3D cinema to engage with trauma. The presence of trauma in 3D cinema should not be surprising, considering the cultural climate in which this cinema thrived, which in turn serves to further strengthen the evidence for trauma in the films discussed.

**Why Apply a Cultural Approach?**

The methodology this dissertation employs aims to contribute to knowledge by demonstrating the ways in which 3D cinema engages with trauma. That said, and as stated in the introduction, the trigger for my research was the observation that surges in the popularity of 3D cinema in the US followed defining trauma for its society. The uncovering of trauma in the films discussed, invites an exploration of their relation to US society. As historian Marc Ferro argues “we need to study film and see it in relation to the world that produces it” (1988:29). Ferro’s suggested inquiry into the relationship between films and history makes clear that he is not referring only to the material conditions that make a film possible: “each film has value [...] by the way it effects people’s imaginary universe, and by the very imaginary universe that it conveys” (Ferro 1988:82).

Ferro’s argument in turn resonates with Walter Benjamin’s concept of the “optical unconscious” as discussed by Miriam Hansen (1999a). The optical unconscious, Hansen explains, “refers primarily to the level ofinscription, specifically the ability of the apparatus and particular photographic techniques to register aspects of material reality that are invisible to the unarmed human eye” (Hansen 1999a:339). However, for Benjamin it is “a different

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nature [...] that speaks to the camera than to the human eye” (Hansen 1999:337), and thus the mimetic quality of the camera translates into an encounter with otherness. As Hansen argues “film does not merely depict a given world, but makes that world visible for the first time, produces it for the sensoria of a spectating collective” (1999a:339).

Interestingly, beginning in early film criticism, the encounter between film, audience, and history tends to foreground the experience of trauma, particularly the trauma of modernity. Benjamin conceptualized cinema as a form apt for modern time, arguing that “there came a day when a new and urgent need for stimuli was met by the film. In a film, perception in the form of shocks was established as a formal principle” (Benjamin [1940] 1999:171). In this, Benjamin referred both to the material, technological condition of cinema, and to society’s struggle to adapt to these new conditions. Hansen argues that “cinema was not only part and symptom of modernity’s experience and perception of crisis and upheaval; it was also, most importantly, the single most inclusive cultural horizon in which the traumatic effects of modernity were reflected, rejected or disavowed, transmuted or negotiated” (Hansen 1999b:69). Other scholars tying cinema to the trauma of modernity include Schivelbusch (2004), and Kirby (1997) (see Kaplan 2005:24).

While Benjamin discusses the early days of cinema, his work is applicable to the fifties in the US through the discussion facilitates of his work, which focuses “on mid-twentieth-century modernity, roughly from the 1920s through the 1950s—the modernity of mass production, mass consumption, and mass annihilation” (Hansen 1999b:59). Ties between modern anxiety and the early fifties are found in a myriad of sources. Consider for example the following passage from Norma Cousins’ article “Modern Man is Obsolete”:

Whatever elation there is in the world today [...] it is severely tempered by fear. It is a primitive fear, the fear of the unknown, the fear of forces man can neither channel nor comprehend. This fear is not new; in its classical form it is the fear of
irrational death. But overnight it has become intensified, magnified. It has burst out of the subconscious and into the conscious, filling the mind with primordial apprehensions. It is thus that man stumbles fitfully into a new age of atomic energy for which he is as ill-equipped [...] where man finds no answer, he will find fear (Cousins 1945)

In paying attention to a particular cinematic effect, 3D, and examining its characteristics against a particular moment in time, this dissertation also follows Tom Gunning’s work on the “cinema of attractions” (see Gunning 1986, 1989), and Kristen Whissel, who in exploring digital visual effects argues that “spectacular visual effects [should be open to] historically specific analysis that aims to define their narrative function, their relationship to the development of character and story, their peculiar mode of signification, and the kinds of spectatorship they make possible or even demand” (Whissel 2014:6).

A distinct example of how cinematic effects can be read in relation to narrative and a historical moment is found in Ferro’s analysis of Jud Suss (Veidt Harlan, 1940). The origin for Ferro’s discussion is Harlan’s defence of the film and of his intentions: “...Harlen always denied having wanted to make an anti-semetic film [...] according to him he accepted an assignment to make a historical film on the Jewish problem [...] At his trial in 1945, he maintained his good faith, showed his proofs, and American justice condemned him to a light sentence ([1976]1988:139). In his discussion of the film Ferro describes and analyses Harlan’s use of four dissolves, the only cinematic effects in the film, and finds their use to be far from innocent. The first dissolve, for example, serves according to Ferro to convey that “the Jew has two faces: his ghetto face (which does not lie about his subhuman nature), and his city face (which is no less harmful despite its deceptive appearance)” (Ferro, [1976] 1988:140). Another dissolve “symbolizes the passage of power from Aryans to Jews” (Ferro, [1976] 1988:140).
Thus, Ferro concludes that “when seen an analysed as a group, these four effects constitute a structure, a summary of Nazi doctrine. Consciously or not, the filmmaker identified the elements defining the essence of the Nazi doctrine and reserved the film’s only special effects for them” (1976 1988:140-141).

A reading of stereoscopy in relation to a cultural background can be found in Jonathan Crary’s discussion of the stereoscope and stereoscopic slides in the 19th century. For Crary, stereoscopic images filled with objects served to accentuate depth relations in these slides, but also to engage with the bourgeois’ fear of the void. Crary writes:

- the most intense experience of the stereoscopic image coincides with an object-filled space, with a material plenitude that bespeaks a nineteenth-century bourgeois horror of the void; and there are endless quantities of stereo cards showing interiors crammed with bric-a-brac, densely filled museum sculpture galleries, and congested city views (Crary 1994:125).

Finally, writing on fifties 3D cinema contemporary, Cinerama, Rebecca Prime argues that viewing Cinerama as a technological gimmick “intended to help wage the battle against television,” while not inaccurate, “overlooks entirely Cinerama’s political and ideological dimensions” (2018:61). Prime situates Cinerama in its historical context, and drawing on Cinerama’s reliance on aerial shots and ties with the US military, argues that “by aligning audiences with a perspective that foregrounds and celebrates America’s military technology, Cinerama’s extensive use of aerial photography contributed to America’s Cold War battle for hearts and minds” (2018:71)

Despite this scholarly attention to the relationship between society and different cinematic effects and novelties, there has been no prior attempt to examine 3D cinema’s poetics against a cultural-historical background. Examining the poetics of 3D cinema of the 1950s and the new millennium within such a background will shed light on the way this cinema functioned
METHODOLOGY

during a particular moment in history. As 3D cinema surges to the lime-light in the wake of WWII and 9/11, such contextualization warrants an engagement with the post-traumatic zeitgeists in which 3D cinema thrived.

Importantly, examining the relationship between society and cinema, particularly through textual analysis, is not without critique. Keith Johnston for example warns against viewing films as “reflecting” social issues and historical events:

The crucial issues with reflection as an analytical tool is its methodology, particularly the notion that there is no mediating presence between ‘real’ social events and the fictions created on screen. Given the multiple input involved in most genre film creation, the complex series of negotiations and influences through production and the varied audiences who watch the finished product, the idea that there is one dominant social perspective that the film reflects is simplistic (if occasionally tempting). Film analysis necessarily accepts that film has a relationship with world issues, societal concerns and cultural totems, but that relationship includes a complex process of construction and representation, not a simple reflection (Johnston, 2013:29)

Johnston however also acknowledges that most works that employ textual analysis to draw connections between the cultural and historical events and films “largely take place at the level of narrative, finding ideas or images that repeat across multiple films, and assume all audiences will easily recognize this dominant encoding” (Johnston 2013:29). My methodology, while not immune to critique of the kind Johnston offers, aims to distance itself from it by going beyond the narrative level of films and affording significant attention to film form and the very particular poetics of 3D cinema - its inherent characteristics, the potentials and possibilities of 3D cinema, and the ways in which these are realized across different periods and different
genres, and across different theoretical frameworks, such as phenomenology and Deleuzian scholarship.

**Why Trauma Theory?**

Since the early 2000s there have been numerous explorations of films and cinematic genres inspired by trauma theory (on melodrama and trauma see Kaplan 2001, 2005; on horror cinema in relation to the traumas of 9/11 see for example Blake 2012; Hallam 2010; Kellner 2003; Lowenstein 2005; McSweeny 2014; on the superhero genre and the trauma of 9/11 see McSweeny 2014). My work, which identifies traumatic themes in 3D cinema following WWII and 9/11 follows this tradition. However, in performing a trauma theory informed analysis of 3D cinema two caveats should be emphasized.

The first caveat pertains to trauma theory, as employing trauma to 3D cinema encounters the risk of generalization, and of trauma becoming a “catch all” theory for scholarly interpretations (see Elsaesser 2001:201; Radstone 2001). Furthermore, Wulf Kansteiner argued that cultural theory “just because trauma is inevitably a problem of representation in memory and communication does not imply the reverse, i.e. that problems of representation are always partaking in the traumatic’” (Kansteiner 2004:205 qtd. in Luckhurst 2008:13). Bearing in mind this criticism, my approach steers clear of the risk of “generalizing” trauma, as my analyses emphasize the difference between the first and third waves of 3D cinema and their relation to the different traumatic events they followed.

The second caveat pertains to connections this dissertation draws at times between trauma identified in films and the cultural and historical background against which 3D cinema thrived. The subject of Benjamin’s “The Work of Art in the Age of Mechanical Reproduction” ([1935] 1999) and “On Some Motifs on Baudelaire” [1940] 1999) rested not on cinema, but on society itself. Gunning, drawing on Benjamin argued that
the cinema of attractions not only exemplifies a particular modern form of aesthetics but also responds to the specifics of modern and especially urban life, what Benjamin and Kracauer understood as the drying up of experience and its replacement by a culture of distraction” (Gunning [1989] 2004:89).

Following Benjamin, Kracauer and Gunning it is possible to hypothesise that 3D cinema responded to a new set of shocks brought upon by WWII and the atom bomb, and the striking images of the terror attacks of 9/11. However, such a hypothesis must be followed by identifying these “new shocks”, situating society itself as its research subject, and would therefore be outside the scope of this dissertation.

The research subject of this dissertation is 3D cinema, not US society. Hence, I do not claim to identify traumatic themes in US society, nor diagnose US society as post-traumatic. Rather, my approach identifies traumatic themes in 3D cinema itself, which may in turn be traced to a particular post-traumatic zeitgeist in US society. A more detailed account of how the traumatic themes in the films analysed offer a response to the traumas of the 1950s and of 9/11 is indeed called for. As Wetmore writes “cinema’ does not exist in a vacuum. Art does not mean, it generates meaning, and cinema is influenced and influences other media as well as popular perception” (Wetmore 2012:6). Studying the interplay of cinema with other media, as well as a more thorough exploration of society would have distracted from the discovery of the distinct capacities of 3D cinema to engage with trauma. Thus the focus of this dissertation remains the films themselves, and the study of US society or the interplay between 3D cinema and other media of its time, while very much needed, remains beyond the scope of this dissertation.
Why Embodiment?

In the second analytical chapter I explore 3D cinema in relation to trauma and the body. The body holds a central position both in 3D scholarship and in trauma theory. In 3D scholarship the body is engaged with by examining the embodied spectatorial experience 3D generates, as well as through the reflexive attention and distinctness 3D cinema affords to the “film body” itself (on the film body see Sobchack 1992; on the reflexive attention and recognition afforded to bodies in 3D cinema see D’Aloia 2015; Purse 2011, 2013; Richmond 2016; M. Ross 2013, 2015; Whissel 2014). In trauma, the body as a source of power is compromised, hurt and violated. Following the traumatic event the body becomes the site where somatic symptoms appear and where traumatic memories are stored, as well as a site holding potential for healing processes (On the centrality of the body during the traumatic event and in its aftermath see for example Cohan 1997:105; Kardiner, 1941:7; Herman 1992; Bessel Van der Kolk, 2014). In my analysis I pay attention to the kinaesthetic qualities of bodies in 3D cinema, as well as to the phenomenological experience of the “film body” itself and explore how the embodied experience, in tandem with narrative, allowed 3D cinema to convey an experience which resonated with its zeitgeist. As Hansen writes

the reflexive dimension of Hollywood films in relation to modernity may take cognitive, discursive, and narrativized forms, but it is crucially anchored in sensory experience and sensational affect, in processes of mimetic identification that are more often than not partial and excessive in relation to narrative comprehension [...] it was not just what these films showed, what they brought into optical consciousness, as it were, but the way they opened up hitherto unperceived modes of sensory perception and experience, their ability to suggest a different organization of the daily world. Whether this new visuality took the shape of dreams
of nightmares, it marked an aesthetic mode that was decidedly not classical...”

(Hansen 1999:71-72)

Such an approach allows me to go beyond what is depicted on screen in the 3D films of the early fifties and the new millennium, where scarce direct references to the traumas of WWII and 9/11 are present, to how these 3D films engage with viewers’ bodies, where numerous links between phenomenology, trauma theory and 3D cinema arise.

In this section I also contextualize the “behaviours” of the film body and of the kinaesthetic forces depicted on screen against a historical moment, and in relation to audiences’ bodies in a particular period in time. If cinema is understood to reflect the unconscious and the anxieties of a nation, then these anxieties, this unconscious, affects the bodies of the nation’s subjects in a distinct historical moment. In discussing audiences’ bodies, not in a general sense but in a particular period, I am following the work of Laura Marks and Lori Landay. For Marks, bodies, movement, and bodily senses are imbued with personal and social memories (see Marks 2000). For Landay, the mood of a nation may be reflected in the bodies of its subjects, as she argues that Lucille Ball’s movement and use of her body in I Love Lucy (CBS, 1951–1957) “ran counter to Cold War containment, […] displaying a ludic aesthetic that bristled bodily and rhythmically against the dominant hegemonic ideals, comportment, and movement of domestic femininity” (Landay 2012:132). Hence, following Marks and Landay, I suggest that similarly to human corporeal movement, the movement of the film body can also be tied to a historical and cultural context.

Importantly, as Wetmore argues “audience experiences are not monolithic and even a single individual’s reactions may change with time and subsequent viewings (Wetmore 2012:7). Moreover, phenomenological analysis does not universalize the subject. As Sobchack makes clear: “phenomenological approach seeks, in a given case, the meaning of experience
as it is embodied and lived in context—meaning and value emerging in the synthesis of the experience’s *subjective* and *objective* aspects (Sobchack 2004:2). Finally the very application of trauma theory to 3D cinema as an analytical tool dictates that the analysis cannot offer a sweeping, all-encompassing account of the cinematic experience of 3D films, rather suggesting a more nuanced approach which seeks to uncover the traces of trauma. The point of this qualification is to indicate that while the analysis I offer is to a degree subjective, it does connect to *objective* accounts, or to return to Whissel, “the type of spectatorship” 3D cinema “makes possible or even demands” (Whissel 2014:7).

**Why Temporality?**

The third analytical chapter focuses on the temporality of 3D cinema and trauma. The examination of temporality derives from the analytic work in the previous chapters. For example, in the first chapter I argue that 3D cinema affords visibility to the representational post-traumatic characteristic of intrusion. However, intrusion is described as a “flashback”, in which the past overtakes the present. Hence, it holds a distinct temporal quality.

Another reason for the examination of temporality is the attention D3D scholarship affords to Deleuze’s cinematic images, particularly to the “time-image”. As the essence of the time-image is its temporality, and as the symptoms of post-trauma hold temporal characteristics, I focus in the last analytical chapter on temporalities of 3D cinema. In this chapter, Deleuze’s work provides the initial critical framework, particularly due to his conceptualization of the depth of screen in relation to memories and to the act of remembering (Deleuze 1989). After examining the temporal qualities of 3D cinema by drawing on Deleuze, I turn to conceptualize these qualities in relation to traumatic temporalities.

It should be noted that Deleuze does not discuss trauma, and that the relation between Deleuze and phenomenological scholarship is complex, and referred to at times as an excluding
relationship (Hagin 2013:262). I will discuss this relation in depth in chapter 3, however for now, it is sufficient to indicate that several scholars do draw on Deleuze and phenomenology (see for example Barker 2009, Marks 2000), and that, as Boaz Hagin argues “the cinema books are a phenomenology” (Hagin 2013:278). Throughout my analysis in this chapter I do not conflate Deleuze with trauma theory or with phenomenology but rather draw the boundaries of each approach.

Rationale for Films Selected

This dissertation is focused on 3D cinema on the periods in which 3D cinema was at the height of its success. Hence, the case studies for this research are Hollywood and global Hollywood 3D films that achieved high visibility in the US through box office success and critical attention as reflected in awards and award nominations.

In my discussion of 3D cinema of the fifties my case studies are Man in the Dark (1953), House of Wax (1953), It Came from Outer Space (1953), and Creature from the Black Lagoon (1954). I focus on these films as they are the films which endured in public memory, evident in the fact that they were also the first to be re-released in 3D blue ray format. Moreover, Man in the Dark and House of Wax were the first studio produced 3D films to be released in the early fifties (Man in the Dark premiered on April 8th 1953, and House of Wax premiered one day later, on April 9th 1953, see Zone 2012:35). It Came from Outer Space shortly followed them, released on May 27th 1953, and was the fourth studio released 3D film of the early fifties. The Creature from the Black Lagoon, was theatrically released well into the 3D boom of the fifties (February 12th 1954) but its cultural legacy is evident in the two sequels it yielded, Revenge of the Creature (Jack Arnold, 1955) and The Creature Walks Among Us (John Sherwood, 1956), as well as in the wide scholarly and critical attention it received (see for example Jancovich 1996).
In my discussion of D3D cinema of the new millennium my case studies are Avatar (2009), Life of Pi (2012) and Gravity (2013). I focus on these films as these are the films which achieved the highest visibility and exemplify a new stance towards 3D cinema in this period. This is evident in these films’ numerous Academy Awards nominations, and in Life of Pi and Gravity winning four and seven Academy awards respectively, including the prestigious academy awards for “best achievement in directing” and “best achievement in cinematography”.

In total, seven films will be explored in depth throughout the dissertation, with each analytical chapter engaging with and providing examples from these films. Throughout the dissertation references to other 3D films will be made in passing. The seven films discussed operate as case studies, representing a wider body of films, as they were chosen on the grounds of their highly visible nature, which in turn affords them with greater cultural resonance. This methodological decision allows me on the one hand to afford significant attention to each film and examine it in relation to a wide set of questions as well as through different theoretical frameworks, as a means to uncover distinct capabilities of 3D cinema to engage with trauma. On the other hand, it limits the potential to draw make generalizations as to the overall presence of trauma in 3D films during the periods analysed here. Indeed, this does not mean that the 3D films discussed are the only ones that engage with trauma. On the contrary, other films both from both the early 1950s and of the new millennium, which incorporate 3D as a means to engage with trauma remain outside of the discussion because they did not achieve high visibility. Secondly, it must be noted that while 3D may be employed to engage with traumatic themes not all 3D films do indeed engage with trauma. Hence, well known films such as Kiss Me Kate (George Sidney 1953) and Hugo (Martin Scorsese 2011), are not included. This, in itself demonstrates, as argued earlier, that there is no direct link between trauma and 3D, but rather that 3D is a medium well placed to deal with trauma but not bound to do so.
For the dissertation I watched fifties’ 3D films by means of the 3D television and 3D Blu-ray player provided by Victoria University of Wellington, as well as through my personal 3D projector. I acknowledge that my personal viewing experience is different from the actual experience of viewing these films in the cinema, and vastly different from watching these films in the cinema in the early fifties. When possible I supplement my own arguments with reviews of the films and of their screenings, which were published in the early fifties in cinema magazines such as *Variety* and *Boxoffice*.

As for more recent films, I was fortunate to watch *Gravity*, *Avatar* and *Life of Pi* in 3D at the cinema at the time of their release, however that was long before I was thinking of pursuing a PhD on the subject. My impression of these films stayed with me, yet for this research they were watched, like their fifties ancestors, on the same devices, and in private, and not as part of the social experience cinema provides. That said, these films enjoyed abundant press attention, as evident, for example, in the documented phenomenon of “*Avatar blues*”, which offers insight into the impact these films had.4

Taken together, the interdisciplinary approach and the case studies from the different periods, will provide insight into the ways in which 3D cinema engages with traumatic themes while creating theoretical links between 3D scholarship and trauma theory.

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4 “*Avatar blues*” refers to a phenomenon of viewers developing feelings of sadness and depression following screenings of *Avatar*. The phenomenon captured the attention of popular press and academia after it achieved mass proportions on various online forums (see Piazza 2010)
CHAPTER 2 – LITERATURE REVIEW

This dissertation demonstrates 3D cinema’s unique potential to engage with traumatic themes. At the core of its interdisciplinary approach stand two discourses, the first pertains to 3D scholarship, the second to trauma theory. In what follows, I survey these two discourses, as well as the historical context against which 3D surged to popularity, with the aim of establishing a base to draw upon and expand in the analytical chapters that follow. In addition to 3D scholarship and trauma theory, other supplementary theoretical frameworks are engaged with in the course of this thesis, amongst which are phenomenology, affect theory, and Deleuzian readings of cinematic texts. These supplementary theoretical frameworks will be introduced and discussed in their respective analytical chapters.

2.1 The Stories of 3D

Thomas Elsaesser argues that “3D has never gone away. On the contrary, in different mutations it has been the basso continuo [sic] accompanying the cinema throughout the twentieth century” (2013:241; see also Gurevitch and M. Ross 2013). While in agreement with Elsaesser, the popularity of 3D cinema did fluctuate significantly during its history. As Ian Christie writes “3D is perhaps best understood as something like a comet, returning at periodic intervals to light up the sky of cinema with a spectacular display, before retreating into darkness” (Christie 2014:128). It is in two distinct historical periods that 3D cinema was afforded a place at the very heart of mainstream attention. These two periods are situated in the early fifties with the release of Bwana Devil (Arch Obler, 1952) which initiated the “3D boom” of the fifties; and since 2009 with the release of Avatar (James Cameron, 2009). Other, smaller surges in the popularity of 3D cinema took place in the early 1970s with the release of The Stewardesses (Al Silliman Jr. 1969), and in the 1980s, when sequels such as Jaws 3D (Joe Alves 1983) afforded
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3D cinema with renewed attention from mainstream audiences. Definite numbers concerning how many 3D films were released in each period are hard to come by and accounts vary. According to 3D Film Archive, the first wave of 3D cinema saw forty nine 3D feature films theatrically released between 1952-1954, while RM Hayes cites 45 titles released during these years (Hayes 1985). The smaller surge in the popularity of 3D films between 1981-1985, referred to as the second wave of 3D cinema, yielded 16 Hollywood and global Hollywood 3D films (Hayes 1989:89-111,123-371). The third, and most recent 3D wave was marked by the unprecedented box office success of Avatar (2009),\(^5\) which was followed by a significant surge in the release of 3D films. A table published by the Motion Pictures Association of America (MPAA) shows that 240 3D films were released in the US and Canada between 2010-2018 (see figure 1). I position 2014 as the cut-off date for this dissertation since in 2014 there was a change in trend in the popularity of 3D cinema as evident in the number of 3D films released (see figure 1), and in the percentage of box office revenue 3D films accounted for (see figure 2; see also Giardina and McClintock, 2017; Lang 2018).\(^6\)

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\(^5\) Precursors of this wave are Ghosts of the Abyss (James Cameron, 2003), Chicken Little (Mark Dindal, 2005), and Coraline (Henry Selick, 2009).

\(^6\) While 2014 is the cut off year for this dissertation, it should be noted, as seen in the table, the 3D films regained popularity in 2016, with 51 theatrical releases that year, only to decline again in 2017 to 46 releases and in 2018 to 42 theatrical releases of 3D films.
Figure 1 – Number of 3D films released in the US and Canada between 2009-2018. (MPAA 2019)

![3D Box Office graph]

Figure 2 – 3D box office between 2009-2018 (Lang, Variety, April 4th, 2018).

As I am interested in 3D cinema as a cultural phenomenon I will focus on the two periods in which 3D cinema enjoyed its greatest popularity. Hence the second wave of 3D cinema in the 1980s lies outside the scope of this work, and I will refer to it only in passing. It should also be acknowledged that the focus of this dissertation is Hollywood and global Hollywood 3D cinema, and hence 3D cinema productions from outside the US will not be engaged with (for a discussion of 3D cinema in the UK for example, see Johnston 2011, 2012, 2015).

The first subsection of the literature review outlines the current explanations accounting for the rise of 3D cinema to the limelight, and affords particular attention to the ways in which the unique aesthetics of 3D cinema are discussed. As I will illustrate, discourse surrounding 3D cinema is governed by the same few dominant narratives, which employ similar frameworks to explain each surge in popularity of 3D cinema, in a somewhat repetitive manner. This, I suggest,
results in a restrictive discourse which does not sufficiently acknowledge the merit of the aesthetic features and style of 3D cinema. It further overlooks the cultural-historical peculiarity of the “booms and busts” of 3D cinema. After reviewing the dominant narratives within 3D scholarship, I turn to highlight the gaps and contradictions in these narratives.

2.1.1 3D Cinema of the Fifties

Discourse surrounding the rise of 3D films into the heart of mainstream attention in the early 1950s is dominated by economic arguments, and for a good reason considering the economic difficulties that struck Hollywood in the post WWII years (see Balio 1990:3–41; Lev 2003:7–12; Lipton 1982). The reasons for Hollywood’s economic hardships in the early fifties are mainly attributed to the impact of television’s rising popularity (Balio 1990:3; Lipton 1982:37; Zone 2012:48), to “the migration to the suburbs and the baby boom which focused consumer spending on appliances, automobiles, and new housing” (Balio 1990:3), and to the Paramount anti-trust consent decree which forced Hollywood studios to part with their theatres (Lev 2003:7). Against this economic backdrop, 3D films were perceived as part of a wave of technological novelties such as Cinerama (1952), Cinemascope (1953) and Vistavision (1954), aimed at drawing audiences back to the movie theatre. As noted by David Bordwell, Janet Staiger and Kirstin Thompson: “by 1953, film firms were investigating 3-D and widescreen technologies as means to differentiate their products from television” (1985:332). Similarly, Warren Buckland argues “the film industry’s response to TV is now well known: the invention of CinemaScope, the short-lived 3-D, and the increased use of color” (2004:88; On the attribution of the popularity of 3D Cinema in the early fifties to declining box office sales see also Belton 1992; Elsaesser 2013:219, 221; Lipton 1985:35; M. Ross 2015:38; Sklar 1994:285).

These explanations for 3D cinema’s rise to popularity in the early fifties ignore the social and cultural background in which this cinema thrived. Moreover, these narratives are
historically inaccurate. 3D films were not a calculated response by Hollywood to television, nor a planned effort by Hollywood to draw audiences back to the cinema. Rather, Hollywood’s role was much more passive, merely a response to the public’s interest in 3D that was reflected in the surprising success of the independently produced *Bwana Devil*. Peter Lev notes that apart from a six-month option that Twentieth Century Fox took in 1951 on Natural Vision’s 3D film process, which yielded no productions, no Hollywood studio showed any interest in the potential of 3D (Lev 2003:110; see also Zone 2012:8-9; Lipton 1985:38-39). Moreover, Ray Zone cites an interview with Lothrop Worth, in which the cinematographer who was involved in constructing the Natural Vision 3D rig, states that Natural Vision “couldn’t seem to get anybody” (Worth qtd. in Zone 2012:8-9). This led Milton Gunzburg, head of Natural Vision, to reluctantly team up with independent producer Arch Obler for the filming of *Bwana Devil*, after initially describing Obler as too “small time” (Worth qtd. in Zone 2012:11). Gunzburg was not wrong, as Worth recounts:

> when we got the first day’s work [...] we found out that Arch only had about five or ten thousand dollars, enough money for one or two day’s work. But Bob Stack, the lead in *Bwana Devil*, had seen the rushes. He put money in. His mother put money in. Some theater man in Long Beach put money in. Milton got some more money from his father. And we made *Bwana Devil* with spit and bailing wire (Worth qtd. in Zone 2012:11-12).

Lev’s account, along with Worth’s testament, demonstrate that Hollywood studios did not initiate the adoption of 3D technology. In fact, they demonstrated a blatant lack of interest towards it. However, following the success of *Bwana Devil*, Hollywood studios were quick to try and capitalize on the public’s interest in 3D films. This view is further strengthened by Rick Mitchell who explains what he perceives to be the “poor” quality of many 3D films of the fifties.
by arguing that “the mainstream industry was not geared to putting together quality films as fast as they'd like to capitalise on the Bwana Devil hype” (Mitchell 2004:209).

2.1.2 3D Cinema as Gimmick

Viewing fifties’ 3D cinema from a primarily economic perspective is perhaps the reason that discussions of the stylistic qualities of this cinema were restrictive, almost categorically relegating fifties’ 3D cinema to the realm of sensationalist gimmicks aimed at drawing audiences back to the theaters. This categorical view was largely a result of what critics and scholars deemed an overt and excessive use of the negative parallax space. Grouping together 3D cinema of the 1950s and 1980s, Sarah Atkinson writes: “The films from these eras were characterized by their gratuitous effects and gimmickry, and as such failed to launch or significantly advance the form as a result” (Atkinson 2011:140). Similarly, after watching the 3D films of the fifties, Mitchell argued that “most of them were bad films!” which emphasized “‘in-your-face' gimmicks, an enduring problem with regard to 3-D motion pictures” (Mitchell 2004:209). Mitchell further criticizes 3D cinema, arguing that the “absurd” use of negative parallax by Bwana Devil “didn't stop subsequent filmmakers from throwing chairs, lamps, bodies, spit, and anything else they could think of at audiences, especially in the initial wave of films, usually via camera setups that telegraphed what was about to attempt to come out” (Mitchell 2004:209). Similarly, while Barbara Klinger finds merit in the contemporary use D3D cinema makes of the negative parallax space, she comments that 3D cinema of the fifties exploited the protrusion effect “for cheap thrills and quick profits” (2013:188).

Apart from being accused of gimmickry, the manner in which 3D cinema of the fifties employed the negative parallax space was also tied to aggressiveness. William Paul, for example, writes that “3D is appropriate to horror because its mode of address is aggressive: it is constantly moving into the audience space in a way that is experienced as threatening”
(1992:340). Similarly, Klinger notes “the fact that those who dislike this form of illusion experience it not only as narratively disruptive, but also as a physical assault emphasizes its inappropriateness (Klinger 2013:188).

As exemplified in the works of Atkinson, Mitchell and Klinger, 3D cinema of the fifties was perceived to exploit the negative parallax space in a gratuitous and gimmicky manner. That said, accounts by practitioners and film-critics from the 1950s demonstrate that the opinion towards 3D cinema was more complex. While Fred Hift from Variety called Man in the Dark “a rush job” (1953:6), a review in Boxoffice praised the film’s use of 3D: “[…] the picture is technically impressive. There are enough of the startle-em’ gimmicks to more than satisfy the novelty seekers, but not so many as to retard the logical uninterrupted unfolding of the film” (1953:b11-b12). It Came from Outer Space also received warm reviews. For example, in Variety, William Brogdon praised the film’s employment of 3D and its merging of 3D with widescreen technology: “3-D has been waiting for, and needing, widescreen projection. Under the big treatment, there is added excitement […] stereo process is not used as just an excuse to pelt an audience with flying objects, and […] they are tied logically with the story” (Brogdon 1953:6). Arch Obler stated that “there is a great danger in overdoing the spectacular” and argued that 3D is ideally employed as a “frame through which the audience looks into reality” and that having “objects poking through the frame of the screen in a distorted manner, is a special effects touch to be used with discretion” (Obler 1953:153 qtd. in Zone 2012:13-14).

Zone’s and Lev’s historical accounts of how 3D cinema of the fifties came to be, as well as Obler’s comment, and the reviews of 3D cinema written in the early fifties, undermine the accepted economic and technological narratives accounting for fifties’ 3D cinema surge to popularity and its subsequent cultural dismissal. This, I suggest, calls for a renewed examination of fifties’ 3D cinema, which contextualizes this cinema within the historical and cultural background of its time.
2.1.3 Digital 3D Cinema

Discourse on D3D cinema draws extensively on the discourse of fifties’ 3D cinema. Criticizing the similarity between hegemonic scholarly narratives accounting for the rise of D3D and narratives used to explain fifties’ 3D cinema Elsaesser writes:

These and many similar assessments confirm one of the dominant narratives of why there was a return to 3-D in the first place in the 1950s, with the advent of television. Hollywood once more panicked, this time in the face of increased competition from the internet and a dramatic drop in DVD sales. To combat the threat of piracy, as well as to upgrade the event character of going to a movie theatre for a night out rather than watch a film as streaming video on your home entertainment centre, via Netflix or the iPad, Hollywood had to come up with a new gimmick—a special effect—and to hype a new attraction. The new gimmick in fact turned out to be an old gimmick that had already been short-lived the first time around, but because Hollywood does not have a memory, or is out of fresh ideas, 3-D tried again and failed again. Such would be the canonical story, which can be backed with a brief reminder of the rise and fall (also called the Golden Age) of anaglyph 3-D from 1952 to roughly 1954. (Elsaesser 2013:219. The claims which Elsaesser refers to as canonical have been made by Ebert 2010; Thompson 2011; Kermode 2009).

In contrast to 3D cinema of the fifties where the canonical narrative dominates, Elsaesser shows that several narratives do exist in relation to D3D although they are few and centre on the technological and the economic. Against the canonical narratives of D3D Elsaesser argues for various “counter narratives” (Elsaesser 2013:220). The first views 3D cinema as serving intrinsic Hollywood goals such as introducing 3D technology to ancillary markets, and using
3D films as an incentive for theatre owners to convert to digital projection systems (Elsaesser 2013:222). Similarly to Elsaesser, John Belton (2012:190), Lisa Purse (2013:129-130) and Bordwell, Thompson and Smith (2017:179-180) have also argued that D3D along with the surcharge in ticket prices that it allows, served as an incentive for exhibitors to turn to digital projection. Belton (2012) has gone further, arguing that 3D afforded visibility to the “digital turn” in which Hollywood was enthralled. An additional narrative Elsaesser suggests places 3D cinema alongside surround sound, a long accepted standard in cinema. From this prism, stereoscopic images of D3D cinema are seen as catching up with surround soundscapes (Elsaesser 2013:225-228). Finally, and diverting from economic and technological frameworks, Elsaesser, drawing on Deleuze’s terminology, suggests that 3D cinema gives rise to a new “mental image”. However, Elsaesser does not expand on the characteristics of the new mental image 3D cinema yields, how it was brought about, or how it operates. Patricia Pisters, also drawing on Deleuze’s cinema books, argues that following 9/11, cinema saw a new mental image, which she terms the “neuro-image” (See Pisters 2012). While Pisters analyses Avatar as an example of the “neuro-image”, 3D cinema is tangential to her argument, and she affords little attention to the stereoscopic qualities of the film (Pisters 2012:180-186). Importantly, while the rise of D3D is explained by different narratives, all these explanations pertain to the technological and the economic.

2.1.4 The Poetics of 3D Cinema

Just as technological and economic arguments were carried over from the discourse of fifties’ 3D cinema to the discourse of D3D cinema, the stylistic discussion of fifties’ 3D cinema is also implicated in the stylistic discourse attributed to D3D cinema. D3D cinema of the new millennium sought to distinguish itself from the so called 3D fad of the fifties. It did so mainly by distancing itself from what was considered by scholars and critics to be a gimmicky use of
the negative parallax space by 3D cinema of the fifties. Instead, D3D cinema focused on the positive parallax space. The distinction between 3D cinema of the fifties’ gimmicky use of the negative parallax and D3D’s immersive and artistic use of the positive parallax was suggested by industry personnel and scholars alike, echoing one another. Summing up the comments of James Cameron (cited in Kendrick 2012:np; see also Belton 2012), Thompson (2007), Roger Ebert (2008), Philip Sandifer (2011) and Elssaeser (2013) on the negative parallax space, Klinger writes

[the] negative parallax has to be minimized or excised altogether for 3D to achieve sophistication. By contrast, positive parallax is seen as the great dimensional hope of 3D cinema. By illuminating a scene’s depths and drawing the audience into the space and story, it presents an apparently more mature, aesthetically pleasing cinema (Klinger 2013:188; a similar predilection for the positive parallax space over negative parallax space is found in Belton 2012:198; Higgins 2012; Rogers 2013:187).

Yong Liu goes further to argue that the difference between D3D cinema and its antecedents lies in a strategic paradigm shift towards what he terms “aesthetics of recession”:

Under the Aesthetics of Recession, emphasis is on the positive parallax (the space behind the screen) rather than the negative parallax (the space in front of it). This marks a difference between contemporary 3D and its antecedents, which often placed greater emphasis on the negative parallax. […] this key strategic shift – under the new paradigm of the Aesthetics of Recession – unleashes 3D’s narrative potential (Liu 2018:1-2).
Lastly, Jon Landau, *Avatar*’s producer, explained “we don’t view 3D as a world coming out of a window [...] We view it as a window into a world. What you want to do is immerse your audience in the world of the story you are telling” (qtd. in Walters 2009: 43). Interestingly, and as the reader may notice, there is great similarity between Landau’s statement and the statement made by Obler fifty-six years earlier pertaining to the correct use of 3D, as a “frame through which the audience looks into reality” (Obler 1953:153).

While scholars almost categorically find the use of the negative parallax space in fifties’ 3D cinema is gimmicky, different scholars did find merit in the employment of the negative parallax space in D3D. Discussing the views presented above, Klinger aims to collapse what she argues is a biased distinction between the reputations of the negative and positive parallaxes in relation to D3D. First, Klinger argues that similarly to the negative parallax space, the positive parallax space can also be employed in a manner that calls attention to itself and is inherently distracting (Klinger 2013:188). Secondly, Klinger exposes the role of “taste” in the predilection of scholars towards “highbrow” positive parallax space (associated with the artistry of deep focus) at the expense of “lowbrow” negative parallax space (2013:188). In this regard, one may also note the unfavourable connotation of the word “negative” used to describe the negative parallax space, in comparison to the favourable connotation of “positive”, in the positive parallax space. Klinger then calls attention to the fact that many contemporary 3D films make extensive use of the negative parallax space and argues that in D3D, the negative parallax space holds meaning within the film’s mise en scène (2013:188), diegesis (2013:188-194) as well as a transmedia economic importance (2013:194-197). Similarly to Klinger, Owen Weetch also finds merit in the negative parallax space in D3D cinema, arguing for the expressive qualities of this space, and demonstrating the frequent reliance of *Avatar* on the negative parallax space (See Weetch 2016:12). Both Klinger and Weetch’s work, as well as the similarity in the statements of Obler and Landau, demonstrate that any distinction between D3D cinema
and 3D cinema of the fifties cannot simply lie in a difference of parallaxes. While Klinger and Weetch highlight the use of the negative parallax space in D3D cinema, it is important to note that 3D cinema of the fifties also made artistic use of the positive parallax space (see Rogers 2013). Moreover, discussing the Gill Man in the *Creature from the Black Lagoon*, Rogers finds that the employment of the negative parallax space conveys “the terror of potential contact with this Other” (Rogers 2013:202) and thus reads the employment of depth in a manner which is not merely gimmicky.

Rogers does not develop her argument in relation to the historical-cultural background of *Creature from the Black Lagoon*. However, if further qualities which go beyond the gimmicky and sensational are found in fifties’ 3D cinema, and if cultural significance is uncovered in this cinema, then the evaluation of D3D as aesthetically superior to 3D cinema of the fifties, becomes highly problematic. Purse warns about such a qualitative discourse stating that

narrativising D3D as a progression from ‘primitive’ [the 1950s’ and 1980s’ 3D cinema] to ‘artistic’ film practice” is at danger of repeating the mistake of early historians of cinema. Historians who positioned “early cinema as a primitive forbear of the classical narrative cinema,” a position that has been complicated by “the work of Gunning, Gaudreault, Elsaesser et al. in the 1980s and 1990s [who] proposed new, more nuanced ways of understanding early cinema’s forms and impulses” (Purse 2013:132).

In order to avoid the problem Purse describes, this thesis will pay close attention to the way the cultural and historical frameworks of fifties and D3D films informed the production of 3D cinema in these moments. This allows an understanding of their unique 3D poetics without
privileging one or the other as being more advanced. To approach this objective, I turn to survey the historical climate in the US in the post war years and following 9/11.

### 2.2 Discussing the Historical Context

Examining the 1950s, Kyle Cuordileone argues “anxiety”, was “the great psychic scourge of a mass society, only to be rivalled by its close clinical kin, neurosis, the ubiquitous affliction of the 1950s” (Cuordileone 2012:101). The identification of the 1950s as the age of anxiety follows the publication of “W. H. Auden’s poem, “The Age of Anxiety,” and the 1949 premiere of Leonard Bernstein’s symphony based on that poem” (Cuordileone 2012:103). Anxiety, theologian Paul Tillich argues, becomes a generalized phenomenon when “the accustomed structures of meaning, power, belief, and order disintegrate” (Tillich 1952:62, qtd. in Cuordileone 2012:102). Cuordileone adds that “so prevalent was the idea that an epidemic of anxiety was unnerving the nation that a Harvard sociologist and former president of the American Sociological Association, Samuel A. Stouffer, conducted a study of public opinion in 1954 which sought to answer, among other questions, “Is there a National Anxiety Neurosis” (Cuordileone 2012:103).

A more detailed historical account and the underlying causes of anxiety in the 1950s and of the disintegration of structures of power and meaning, while needed, cannot be further explored here due to limitations of scope and methodology. That said, some causes for both can be seen as linked modernity. As Hansen writes “the spread of urban-industrial technology, the large-scale disembedding of social (and gender) relations, and the shift to mass consumption entailed processes of real destruction and loss” (Hansen 1999:59). One may also mention the events and consequences of WWII, which took the lives of over 400,000 US soldiers and left many others injured and traumatized (Department of Veterans Affairs 2016), and which bear
strong ties to modernism in the 1950s (see for example Cousins 1945; Cuordileone 2012; Hansen 1999a, 1999b; Sontag 1965; Tillich 1952).

Examining WWII, several events stand out, such as the Holocaust, the bombing of Hiroshima and Nagasaki (both of which Hayden White specifically mentions as “Holocaustal events”, White 1996:20) and the incarceration of Japanese Americans in camps on US soil (which, as Neil Smelser argues, gradually developed into a national trauma, Smelser 2004:273). After WWII, the US waged a war on communism abroad and at home, which took the form of the Cold War, the Korean War, the formation of the House of Un-American Activities Committee (HUAC) and the formation of the NSA (see Pomerance 2005:xii-xiv).

Historians, sociologists and film scholars concur that the post-war years in the US were rife with fear and anxiety, however, depending on the focus of their research, they differ on the causes and the exact years in which US society suffered from such symptoms (see for example Boyer 1994:4, 231; Cook 1996:463-480; Kaplan 2005:85-86; LeGacy 1978; Miller and Nowak 1977:3-21; Oakley 1990; Sobchack 1998:131-132; and Sterritt 1998:109-110). Film historian David A. Cook contrasts the years between 1952 and 1965 with the immediate post WWII period and argues that while the US won the war, by the early fifties the nation was overcome “by a disillusioned and cynical mood”, brought upon by the trauma of the war as well as by the shattering of the nation’s unified image that was propagated during the war years (Sterritt 109-110, Cook 463-480). Contrary to Cook, Kaplan suggests that “the 1950s saw the United States “forget” the war as bourgeois ideology and consumer culture reached a new high” (Kaplan 2005:85). However, Kaplan reads the “forgetting” of WWII as a form of belatedness which only attests to the traumatic impact the war had on the US. Hence, while Kaplan and Cook provide opposing depictions of US society in the early fifties, they both acknowledge the traumatic impact the war had on the US.
Paul Boyer’s detailed account of how the bombing of Hiroshima and Nagasaki affected the US public, locates the troublesome years differently. Boyer argues that the dawn of the nuclear era came with swift realization that “things would never be the same again” (1994:4), and that the bombing of Hiroshima and Nagasaki sowed fear of atomic annihilation almost instantly in the hearts of US citizens, giving rise to moral issues regarding the “good side” winning the war by resorting to mass destruction weapons (1994:231). According to Boyer, by the 1950s, alongside the arms race and the exacerbation of the cold war, fear of the Atomic Bomb was perceived as a necessary evil, and as a means to maintain superiority over communism. The national debate on the consequences of atomic energy and weaponry subsided and was replaced with the fear of communism, against which, the atom bomb was a shield (Boyer 1994:349-350).

In his account of the post war years, historian J. Ronald Oakley, argues that the US found peace only in 1953, and that prior to that “the nation was traumatized by one international crisis after another, each having immediate reverberations on the domestic front” (Oakley 1990 qtd. in Cohan 1997:x). By “traumatizing international crises” Oakley refers to the United States war on communism both abroad and at home, which took the shape of The Cold War and the arms race, the Korean War, and the formation of HUAC (see Cohan 1997:x). Finally, Arthur Legacy in his analysis of The Invasion of the Body Snatchers (Don Siegel, 1956), describes the prevailing atmosphere in 1950s’ US society as “a new feeling of paranoia, a new fear of scientists and intellectuals, of foreigners and subversives, fear even of one's next door neighbor” (1978:289).

While conflicting at times, these accounts do highlight that anxiety and fear, as well as post-traumatic reactions to WWII, abounded among the US public in the post war years. Notably, anxiety is inherently linked to trauma. As Herman writes: the psychophysiological changes of post-traumatic stress disorder are both extensive and enduring. Patients suffer from
a combination of generalized anxiety symptoms and specific fears” (Herman 1992:36). Moreover, Benjamin has argued that the experience of modernity is closely linked to combat trauma:

Benjamin’s understanding of modern experience is neurological. It centers on shock. Here, as seldom elsewhere, Benjamin relies on a specific Freudian insight, the idea that consciousness is a shield protecting the organism against stimuli:"excessive energies" - from without, by preventing their retention, their impression as memory. Benjamin writes: “The threat from these energies is one of shocks. The more readily consciousness registers these shocks, the less likely they are to have a traumatic effect” [...] Freud was concerned with war-neurosis, the trauma of "shell shock" and catastrophic accident that plagued soldiers in World War I. Benjamin claimed this battlefield experience of shock "has become the norm" in modern life (Buck-Morss, 1992:16; Benjamin [1940] 1999:110).

Discrepancies in their different accounts serve as a reminder that establishing a cultural zeitgeist is a cause in itself worthy of a doctorate dissertation. Moreover, and most importantly, the war and post war years were not characterized by war trauma alone, and saw great changes across gender relations, suburbanization and the economy. However, it is impossible that I continue in this direction, as it is tangential to the subject at hand. Hence, I reiterate that the focus of my work is the evidence of post-trauma in the 3D films of the period. Despite this tension, I discuss the post WWII period in the US as a post-traumatic zeitgeist not connected to a specific, violent trauma, but rather as a term encompassing a sense of loss Hansen attributes to the period (and which is vident also in the writings of Boyer 1994; Cousins 1945,; Cuordileone 2012; Hansen 1999a, 1999b; Sontag 1965; Tillich 1952).
Examining the cultural and historical background of D3D, similarly reveals ample evidence of post-trauma abundant in US society at the time. The terror attacks of 9/11, particularly on the World Trade Center (WTC), captured on numerous cameras and broadcast live on television, resulted in a highly visible, yet highly mediated trauma to US society. Despite its mediated nature, 9/11 was “appreciated almost immediately by the American population as perhaps the greatest trauma in the nation’s history” (Smelser 2004b:265). Following the September 11 attacks and the recognition of their “traumatic” nature, a debate ensued pertaining to the capacity of images to traumatize viewers, and to the “degree” of trauma they can cause. Edkins (2002) suggests several “levels” of relation to the trauma of 9/11: those who were in the towers, rescuers arriving at the scene, witnesses of the event as it took place from neighbouring streets, and those who saw the events on television. Edkins warns us not to “equate” these traumas, however she argues “we can still read something of the traumatic as extending to many of those who heard eyewitness reports of the events of that day from friends or relatives or who saw them on television” (2002:244). Joshua Hirsch (2004), drawing on Susan Sontag’s (1977) description of her reaction to holocaust images, also finds that images may have traumatic effects. Smelser (2004), and Kaplan (2005), both draw on the vicarious trauma of therapists treating traumatized patients to argue that images can have somewhat traumatizing effects. Kaplan goes further to suggest that “the discussion of vicarious trauma and clinicians may be relevant to the situation of watching a film” (2005:90). Albeit she clarifies that

in a certain sense, all media response should be seen as at most vicarious trauma, not as experiencing trauma itself. Even then, in some cases, vicarious trauma […] may be a misnomer, since […] spectators do not feel the protagonist’s trauma. They feel the pain evoked by empathy—arousing mechanisms interacting with their own traumatic experiences. Such mechanisms are especially powerful when a viewer
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has had first hand traumas that are similar to those being portrayed (Kaplan 2005:90).

As for the degree of traumatic affect images can have, Silver et al suggest an approach which I find particularly useful:

Many mental-health professionals have wondered whether exposure to graphic media images can trigger psychopathology such as PTSD and other anxiety disorders (Pfefferbaum, Pfefferbaum, North, & Neas, 2002). Our goal is not to answer whether media exposure is sufficient for clinical diagnosis; instead, we consider the widespread potential clinical or, more likely, subclinical public-health consequences of repeated exposure to vivid media images of terrorism and war. Our data suggest that media exposure has measurable negative psychological and physical effects, and that exposure to graphic media images specifically, may be an important mechanism through which the negative impact of a collective trauma is dispersed widely (Silver et al. 2013:1632).

Indeed, many descriptions of the atmosphere in the US after September 11 tend to highlight anxiety, fear, and a sense of trauma. Sterritt writes “conventional wisdom about the events of September 11 is clear. Everything has changed since the terrorist attacks on New York and Washington, and nothing will be quite the same again” (2002:64). Kellner similarly observes that “the attack on the twin towers in New York traumatized the US […]” (2009:99) and that “suddenly, the vulnerability and anxiety suffered by many people throughout the world was also deeply experienced by US citizens, in some cases for the first time” (2009:100). These general accounts are further supported by the personal account of Kaplan, a Manhattan resident at the time of the attacks, who writes “on the subway too, we looked at each other as if
understanding what we all were facing. For at any moment, it seemed, another attack could take place, the subway could be blown up, gas might fill the tunnels […] Nowhere was safe…” (2005:9).

Contrary to the accounts by clinicians and cultural theorists above, the official stand of the American Psychological Association (APA) published in the DSM V, does not accept the view that traumatic affects can be caused by exposure to distressing images through different media. The DSM V notes that “exposure to actual or threatened death, serious injury, or sexual violence” may cause post-traumatic stress disorder (PTSD), through “repeated or extreme exposure to aversive details of the traumatic event” (2013:271). Yet the DSM stipulates that this criterion “does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related” (2013:271).

While the positions of clinicians and cultural theorists and the position of the APA conflict, I will refer to both the periods following WWII and 9/11 as periods where “post-traumatic zeitgeists” reigned. In describing both periods with the same term, I do not aim to conflate the two, nor suggest that they were similar. Rather, I merely aim to emphasise that despite the vastly different nature of WWII and 9/11, both periods were rife with post-traumatic themes, as exemplified in the historical overviews of the two periods. How did 3D cinema engage with these post-traumatic themes following WWII and 9/11, and how did the different nature of these events emerge in the poetics of 3D cinema? In search of an answer I turn to trauma theory.

2.3 Trauma Theory

Cathy Caruth, one of the scholars who “imported” trauma theory to the humanities (see Radstone 2001:188), argues that “there is no firm definition for trauma, which has been given various descriptions at various times and under different names” (1996:114, footnote 2).
Elsewhere, Caruth admits that “the precise definition of post-traumatic stress disorder is contested (1995:4). Twenty years later trauma remains a disputed field as evident in Jason Crouthamel’s report from the conference on “Languages of Trauma – Body/Psyche, Historiography, Traumatology, Visual Media”, which took place fairly recently, in November 2016, at the Humboldt University in Berlin. Surveying the different papers presented, Crouthamel’s report concludes that a definition of trauma, and how it operates on different levels remains a source of much debate amongst scholars (2017:np)

While admitting trauma is contested ground, Caruth defines post-trauma as “a response, sometimes delayed, to an overwhelming event or set of events, which takes the form of repeated, intrusive hallucinations, dreams, thoughts or behaviours stemming from the event.” (Caruth 1995:4) The pathology, she notes, consists “solely in the structure of the experience or reception: the event is not assimilated or experienced fully at the time, but only belatedly in its repeated possession of the one who experiences it” (Caruth, 1995:4–5 qtd. in Kaplan 2005:34). The importance of Caruth’s work lies in her emphasis and insistence on trauma’s non-representability. Her claim for the non-representability of trauma rests on two important and disputed arguments: first, that trauma necessarily cannot be known by the individual at the time of its occurrence. As she writes “the most direct seeing of a violent event may occur as an absolute inability to know it” (Caruth 1996:91-92 qtd, in Luckhurst 2008:4). Secondly, that traumatic memories are not encoded like ordinary memories in a linear, narrative form, rather they are “etched” into the mind of the victim in the form of images and corporeal sensation. The return of these traumatic memories, be it in the form of flashbacks, nightmares or other intrusive phenomena, is not a (re)presentation of the event, but a literal return of the event itself, voided of any symbolic meaning: “what returns to haunt the victim […] is not only the reality of the violent event but also the reality of the way that its violence has not yet been fully known” (Caruth 1996:6). The notion that the violence is not yet fully known, suggests, in turn, that the
violence is still occurring. Kaplan joins Caruth’s two fundamental arguments, stating that for Caruth “because the traumatic experience has not been given meaning, the subject is continually haunted by it in dreams, flashbacks, and hallucinations” (Kaplan 2005:34). For example, while the flashback may seem to be a representation, Caruth clarifies that “the return of the flashback as an interruption—as something with a disrupting force or impact—suggests that it cannot be thought simply as a representation” (Caruth, 1996:115. endnote 6).

In affording traumatic memories distinct status, Caruth draws on the work of Bessel Van der Kolk, who through neuro-research explains the mechanism of traumatic memories as follows:

when something terrifying happens […] we will retain an intense and largely accurate memory of the event for a long time […] [the more adrenaline you secrete, the more precise your memory will be. But this is true only up to a certain point. Confronted with horror—especially the horror of inescapable shock—this system becomes overwhelmed and breaks down […] when memory traces of the original sounds, images, and sensations are reactivated, the frontal lobe shuts down, including […] the region necessary to put feelings into words, the region that creates our sense of location in time, and the thalamus, which integrates the raw data of incoming sensations […] as a result the imprints of traumatic experiences are organized not as coherent logical narratives but in fragmented sensory and emotional traces: images, sounds, and physical sensations (Van der Kolk, 2014:175-176).

Yet, a question arises: if trauma is non-representable, what is one to make of the testimony of the traumatized subject? For Caruth “an act of narration risks betraying the truth of the trauma defined as an incomprehensible event that defies all representation” (Leys 2000:269; see Caruth
1995:153 - 54). Hence, for Caruth, attempts to represent trauma, be it through narrative, or other means, are necessarily incomplete. As Ruth Leys comments: “fundamentally victims of trauma cannot witness or testify to the trauma in the sense of narrate and represent it to themselves and others: all they can do is perform the experience as if it were literally happening all over again” (Leys 2000:252). Instead of perceiving traumatic testimonials and narratives as representations, Caruth argues them to be primarily performative acts, which need to be read not through what is narrated, but through how it is narrated, and what is omitted, that may in turn point to that violence that is not yet fully known. As Leys notes of Caruth’s approach: “language succeeds in testifying to the traumatic horror only when the referential function of words begins to break down, with the result that, as Walter Benn Michaels has put it, what is transmitted is ‘not the normalizing knowledge of the horror but the horror itself’” (Leys, 2000:268; Michaels, 1996:8). Since trauma cannot be represented according to Caruth, yet is present in different texts, a new form of hermeneutics arises from her approach which focuses on gaps, omissions, caesuras, and contradictions. In other words, Caruth’s approach enables reading the traumatic in texts which do not engage directly with trauma. Thus, the “trauma question” in the humanities becomes a question of representation, how trauma can be present in texts without being represented in them, or as James Berger puts it in his review of Caruth’s Unclaimed Experience (1996) - “how trauma becomes text […] how wound becomes voice (Berger 1997, 577).

Caruth’s and Van der Kolk’s insistence on the un-representability of trauma has drawn much criticism. Leys, for example, dedicated two chapters of her book Trauma: A Genealogy (2000), to dispute Caruth’s and Van der Kolk’s claims. Much of Leys’ polemic is focussed on criticizing Caruth’s and Van der Kolk’s employment of a purely mimetic approach to trauma
Leys argues that the mimetic is always underlined by the antimimetic,7 as well as to undermine Caruth’s and Van der Kolk’s interpretations of key texts they provide in support of their argument. Moreover, Leys criticizes the sweeping manner in which trauma theory embraced Van der Kolk’s scientific findings, particularly his 1984 paper on the subject of post-traumatic dreams, in which Van der Kolk demonstrates that post-traumatic dreams are literal repetitions of the event, voided of any fantastical, symbolic or displaced elements (see Van der Kolk, Robert Blitz, Winthrop Burr, Sally Sherry, and Ernest Hartmann 1984:187-190). Contrary to the Van der Kolk et al. findings, Leys cites the work of sleep researcher Milton Kramer with Vietnam veterans, which demonstrates that the content of post-traumatic dreams, while informed by the traumatic experience, incorporate recent experiences and everyday concerns and anxieties from present everyday life. As Leys writes “nothing in the Kramer study indicated that the traumatic dreams of Vietnam veterans were exact replicas of combat experience with no other manifest or latent content” (Leys 2000:237). Leys also cites Melvin R Lansky, who found that nightmares of Vietnam veterans -

contain defensive, screening, and other features that make them, if not identical to other kinds of dreams, at least subject to similar mechanisms of distortion, symbolic substitution, and displacement. Lansky particularly emphasizes the role of family worries and concerns in contributing to the content of such traumatic dreams.” (Leys 2000:241; Lansky, Carole R. Bley 1995:3-4)

7 For Leys, the mimetic approach to trauma, supposes a victim who enacts the event without sufficient distance to allows her/him to represent it. On the opposite pole lies an antimimetic approach to trauma in which the victim does represent the event. Leys traces these two approaches to the use of hypnosis to treat trauma victims (for an overview of this discussion see Stuber 2002).
In both Lansky’s and Milton’s research, Leys finds evidence that undermines Van der Kolk’s 1984 research and goes on to deduce that if post-traumatic dreams indeed incorporate every day concerns, then they do in fact carry symbolic meaning and hence, that traumatic memories can be represented by the individual.

Another critic of Caruth’s emphasis on the “literality” of traumatic memories is Susannah Radstone. For Radstone traumatic memory is “the outcome of complex processes of revision shaped by promptings from the present, whereas trauma theory posits the linear registration of events as they happen, albeit such registrations may be secreted away through dissociation” (Radstone 2000:89 qtd. in Kaplan 2005:35). Radstone sums up the difference between a psychiatric approach to trauma and the approach of trauma theory in the humanities stating that “at stake […] is the issue of the inner world’s mediation of the external world, a mediation which is foregrounded by psychoanalytic theory and minimised by trauma theory” (Radstone 2000:88-89, qtd. in Kaplan 2005:35).

Kansteiner and Weilnböck also strongly criticize Caruth’s legacy of cultural trauma, arguing that trauma theory in the humanities employs “a vague, metaphorical concept of trauma” which is a simplified selective adaptation of psychological and psychoanalytical terminology that ignores the most recent studies in the field” (2008:237). Kansteiner and Weilnböck further argue that trauma theory in the humanities does not sufficiently differentiate between the concrete suffering of individuals and ontological questions concerning human existence. This lack of differentiation results in “a grave insult towards people who actually suffer from post-traumatic stress” (2008:237). Moreover, they find that in its insistence on an anti-narrative approach, trauma theory rejects “the consensus in psychotherapy studies that
narration is an indispensable tool for healing” (2008:237) and that such an approach “confuses representations of violence with the presence and reproduction of trauma” (2008:235-236).

A response to such critiques may be found in Kaplan’s suggestion that trauma is researched in varied discourses and “in practice, there is slippage between these arenas, but each discourse makes its own contribution. Each contributor needs to specify the terrain of her research so as to avoid speaking across, rather than to, one another” (2005:39). Elsaesser, too, points out that in the adaptation of trauma by culture theory, the term’s primary meaning as a psychic disorder shifted into a more metaphoric meaning (2014:310), and Dominik LaCapra notes that “no genre or discipline ‘own’ trauma as a problem or can provide definitive boundaries for it” (LaCapra 2001:96, qtd. in Luckhurst 2008:4).

Another contested terrain pertains to the way trauma affects not individuals but societies and cultures as a whole. Scholars such as Kaja Silverman (1981), Maureen Turim (2001) and Kaplan (2005) argue that collective traumas are closely linked to individual traumas. For Silverman and Turim, an aggregate of individual traumas can cause collective trauma, and for Kaplan “where the ‘self’ begins and cultural reactions end may seem impossible to determine” (2005:2). Contrary to this, aiming to establish an empirical definition of cultural trauma, Jeffrey C. Alexander et al. (2004) employ a sociological approach to define cultural trauma as a social and cultural construct, independent and separated from individual suffering (Alexander 2004:37; Smelser 2004a:38; See also Dunst 2012).

The current debate pertaining to trauma focusses on slippage between the psychiatric discourse of trauma, and trauma in the humanities, and the manner in which the latter draws on the former, while somewhat simplifying it, and offering rivalling understandings of trauma. It is interesting to note that claims about the unrepresentability of trauma were made in the humanities long before Caruth’s writing, albeit without touching on the underlying psychiatric, scientific process of trauma. A well know example is Theodor Adorno’s declaration in 1949
that “to write poetry after Auschwitz is barbaric” (Adorno [1949] 1981:34, qtd. in Luckhurst 2008:7), and that “after Auschwitz there is no word tinged from on high, not even a theological one, that has any right unless it underwent transformation” (Adorno [1966] 1973:367 qtd. in Luckhurst 2008:7). Considering that the relation between words and their referents is of a symbolic nature, what Adorno alludes to, in my view, is the collapse of the symbolic order in the face of the trauma of the Holocaust. A collapse that will later find expression in Van der Kolk’s experiments and in Caruth’s writing, pertaining to the literality of traumatic memories.

What becomes evident in this overview is the breadth and reach of trauma across different discourses and theoretical frameworks, and the degree to which trauma theory remains contested terrain. However, despite these disputes, Caruth’s work is considered “the dominant model for cultural trauma” (Luckhurst, 2008:4). As I am interested first and foremost in the analysis of cinematic texts, which do not attempt to represent trauma directly, Caruth’s approach offers the most useful manner through which to apply trauma theory to 3D cinema. Thus, this dissertation will primarily follow Caruth’s footsteps, while acknowledging the critique her work encountered. References will also be made to cultural trauma as defined by Alexander et al (2004).

2.4 Cinema Reacts to WWII and 9/11

The challenge of representing trauma in the humanities revolves around the questions of how to represent that which resists representation, and what is a morally adequate way to do so? In this capacity the question of trauma and representation also pertains to “style”. Hayden White argues that the scope and the novelty of the atrocities of the 20th century posed a challenge to historians as

any attempt to provide an objective account of the event, either by breaking it up into

a mass of its details or by setting it within its context, must conjure with two
circumstances: one is that the number of details identifiable in any singular event is potentially infinite; and the other is that the “context” of any singular event is infinitely extensive or at least is not objectively determinable. (1996:22)

Thus, White concludes his essay by arguing that in light of these difficulties, a modernist style is most appropriate to engage with trauma in both literature and film. Contrary to this, Adam Lowenstein argues that trauma theory is biased towards modernist ways of representing trauma, and suffers from a “fear of narrative”. The preference toward modernism, Lowenstein finds, was a result of an ethical standpoint, aiming to protect and respect survivors who had come in direct contact with historical traumas (2005:15). However, this standpoint resulted in a commonplace misunderstood conception in which “modernist representation is understood as encompassing healthy mourning and the integration of working-through, while realist representation is seen as encompassing unhealthy melancholia and denial in the form of acting-out” (2005:15).

Apart from the debate pertaining to realist versus modernist modes of representation, another way through which style permeates the discussion of trauma in cinema is through the association of certain film genres with traumatic events. An example of a genre often debated in relation to WWII is film-noir. Film noir’s characteristics of being dark both in themes and style, featuring frail and morally and sexually ambiguous characters, and resulting in a close and hardly decisive victory of good over evil, were viewed as corresponding to the mood prevalent in the US during and shortly after WWII (Zone 2012:45). In his discussion of film noir, Robert Sklar argued that the “overwhelming aura of claustrophobia” extended beyond film

8 Film noir is now challenged as being a genre but was declared as one in the mid-forties by French film critic Nico Frank in 1946 (See Sobchak 1998; Zone 2012:45)
noir to many of Hollywood’s wartime films (1994:253). Sklar attributes this aura both to wartime economics which reduced Hollywood productions to small interiors (1994:253), as well as to the intentions of the filmmakers: “clearly, these films were a direct response by filmmakers to the crisis of the time” (1994:254). What Sklar finds remarkable in these films is “how much they shifted the focus of screen drama from an outer to an inner world. In Depression [era] movies, horrible threats came from alien sources, from vampires and monsters […] by the 1940s, horror lay close to home, in the veiled malevolence of trusted intimates, in one’s own innermost thoughts” (1994:255).

Sobchack in “Lounge Time: Postwar Crisis and the Chronotope of Film Noir” (1998) provides an overview of the common perception of “film-noir during the peak years of its production as a pessimistic cinematic response to the volatile social and economic conditions of the decade immediately following World War II” (1998:130). Sobchack’s work is distinct from other scholarship on film noir and WWII in that she “literally, rather than metaphorically or allegorically, locates film noir in its historical and social context” (1998:130). Sobchack does so by building on Bakhtin’s concept of the chronotope, and traces the chronotope of home and homelessness in film noir against the concrete historical background of the housing crisis in the early 1950s:

the intimacy and security of home and the integrity and solidarity of home front are lost to wartime and postwar America and to those films we associate at both the core and periphery of the cinematic grouping we circumscribe as noir. Both during and after the war, the phenomenological coherence of the domestic life of family was shattered, dispersed and concretely re-membered elsewhere: in hotels and boardinghouse rooms and motels, in diners, in bars, in swanky and seedy cocktail lounges and nightclubs, all places for transient, all fragmented, rented social spaces
rather coherently generated places of social communion, all substitutes for the intimate and integral domestic space of home (Sobchack 1998:146).

Another genre associated with trauma, and traumatic events is horror cinema, perhaps not surprisingly, as Michael Elm, Kobi Kabalek and Julia B. Kohne argue that “violent experiences are, without a doubt, represented most strikingly in the horror genre” (Elm et al. 2014:16). Douglas Kellner points out that horror films enjoy popularity following traumatic events and crises such as the 1930s depression, the explosion of the Atom bomb, and the exacerbation of the cold war (Kellner 2003:126). Following Linnie Blake (2008), horror movies are considered “a disturbing, yet highly political and therapeutic genre that capacitates its audience to deal with the traumatic legacies and horrific incidents of reality in a productive way, on both an individual and collective level” (Elm et al. 2004:13). Similarly, Lindsay Hallam argues that discussions of “torture porn” in the last cycle of horror films, “more often than not […] inevitably make reference to 9/11 and the subsequent War on Terror” (Hallam 2010:230). Hallam concludes her article by stating that in recent torture porn films “through the application of trauma theory we can see that the trauma resulting from recent events is being played out, but in a way that is also asking questions about how we came to this point, and the responsibilities that come with working through it” (Hallam 2010:235). Thus, as evident in the in the overview of scholarship above cinema can react to traumatic events in a myriad of ways.

Importantly, 3D films have been the subject of textual analysis which ties the films’ narrative to cultural and social currents. For example Cindy Hendershot analyses *Creature from the Black Lagoon* and argues that “postwar cultural paranoia both uses the sexualized bomb as a means of averting individual sexual problems and as a means of binding mass trauma”. (Hendershot 1999:92). Biskind argues that while the creature in *Creature from the Black Lagoon* can be read as the Other, and thus, following Sontag, equated with the Atom bomb, the
film is a “centrist” film which favours technology, as its theme is “nature run amok” (Biskind 1983:107-108). Biskind further finds that the film delivers a warning “not to go poking for utopian alternatives. Home was safe; danger lurked out there [...] the USA circa 1955, was utopian enough for everyone” (Biskind 1983:115). It Came from Outer Space, Biskind argues, propagates a “left-wing” message – “We are them”, offering a “doctrine of peaceful coexistence [...] regarded by many in the fifties as no more than Soviet propaganda” (Biskind 1983:157-158). Jancovich challenges Biskind’s readings of It Came from Outer Space and Creature from the Black Lagoon in relation to Cold War tropes, and argues instead that the films demonstrate “juvenility”, a sense of alienation and estrangement, and the rejection of social norms associated with the 1950s (Jancovich 1996:167-197). Susan Sontag does not mention 3D films, yet writing on 1950s science fiction cinema, she argues “that a mass trauma exists over the use of nuclear weapons and the possibility of future nuclear wars. Most of the science fiction films bear witness to this trauma, and, in a way, attempt to exorcise it” (Sontag [1965]2001:218). And furthermore that

in the science fiction films lurk the deepest anxieties about contemporary existence. I don’t mean only the very real trauma of the Bomb—that it has been used, that there are enough now to kill everyone on earth many times over, that those new bombs may very well be used. Besides these new anxieties about physical disaster, the prospect of universal mutilation and even annihilation, the science fiction films reflect powerful anxieties about the condition of the individual psyche (Sontag [1965]2001:220)

To conclude, the survey of scholarly literature in this section serves both to form a theoretical base upon which the following chapters build, as well as to carve a space for the theoretical

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contribution this dissertation offers, by highlighting gaps and contradictions in existing 3D scholarship. As the literature review demonstrates, 3D cinema enjoyed its greatest success in periods rife with post-traumatic themes. The thorough attention 3D scholarship affords to technological and economic explanatory frameworks leaves ample space to explore other, less charted territory, such as the cultural and sociological background against which 3D cinema thrived. Moreover, the stronghold of these explanations within academia, led to underestimation of several contradictions, pertaining both to the reasons behind 3D cinema’s success, as well as to the differences in the manner 3D was employed in the early fifties and the new millennium. To fill these gaps, this dissertation employs an interdisciplinary approach, affording a central position to trauma theory as an analytical framework for further understanding 3D cinema’s success in different periods. Drawing on the discussions presented above, this dissertation argues that in periods marked both by the catastrophes of 9/11 and WWII and by the changes in the cinematic image, 3D cinema constituted a particularly privileged and novel cinematic form to engage with particular conditions in US society, dominated by the prevalence of post-traumatic themes.
CHAPTER 3 – 3D CINEMA, TRAUMA AND THE QUESTION OF REPRESENTATION

The question of representation, situated at the heart of 3D cinema scholarship and trauma theory, serves as the point of departure for my exploration of 3D cinema of the fifties and D3D cinema of the new millennium. The visual image enjoys a privileged position in relation to trauma, due to the nature of traumatic memories which “lack verbal narrative and context; rather, they are encoded in the form of vivid sensations and images” (Herman 1992:38). Luckhurst debates the role of the image within the trauma paradigm, touching on its capabilities to represent trauma, and provide adequate representation strategies. He contrasts two opposing strategies to represent trauma: at the one end

   cultural theory of trauma becomes increasingly suspicious of the direct image, fearing banality, psychic numbing, or the cheap sentiment of affective identification. Instead, an aesthetics of aporia or the sublime is invoked, ‘bearing pictorial or otherwise expressive witness to the inexpressible’” (Luckhurst 2008:174; Lyotard 1989: 199).

At the other end, the intrusive image is situated at the centre of PTSD, and its veridical nature renders it not a representation at all “so much as a shard of the event itself” (see Luckhurst 2008:149). While aporias are generally attributed to “highbrow” forms of entertainment, particularly works that employ modernist strategies (see for example Lyotard 1989, White 1996), 3D cinema employs its own strategies to point to the limits of visual representation within popular culture. In face of the challenges trauma presents to representation, 3D cinema I argue, offered filmmakers and audiences alike, a “new” way to represent, engage with, and make sense of the world, which changed significantly following the defining traumas of WWII
and 9/11. 3D cinema of these two periods is hence closely tied to the central question of trauma in the humanities: how to represent that which resists representation, and what is a morally adequate way to do so?

While trauma theory commonly favours a highbrow modernist style to engage with trauma, my aim in discussing 3D cinema in relation to trauma is not to re-position 3D cinema as highbrow, but rather to uncover 3D cinema’s overlooked qualities which allow it to engage with traumatic themes in a distinct manner. In what follows I analyse *Creature from the Black Lagoon, House of Wax, Man in the Dark, It Came from outer Space* and *Life of Pi* to demonstrate the ways in which 3D cinema post WWII and post 9/11 engaged with the challenge of representing trauma. Admittedly, this chapter discusses an uneven number of films from the two periods. This, as mentioned in the methodology section, is a result first of the rationale behind the selection of films. Affording attention to 3D films which achieved the most visibility, mandates a discussion of *Gravity, Avatar* and *Life of Pi*, and of the three, it is only the latter that deals explicitly with questions of representation. Secondly, it exemplifies the centrality of the issue of representation to fifties’ 3D cinema. In D3D cinema questions of representation are afforded less attention, although traces of the engagement with this issue can still be seen, as evident in *Life of Pi*. The difference in the role of representation in 3D cinema of the two periods may be tied to several important differences between WWII and 9/11. Namely that 9/11 took place on US soil, was highly visible, highly mediated, and was shown on multiple screens at the time of its occurrence. Conversely, WWII took place away from the US and had to be “brought” home, and represented to civilians by veterans.

The analyses that follow are divided into three subsections, each exploring 3D cinema in relation to a specific post-traumatic representational category: 1. The *Incredible but Real Paradox* explores the tension between illusionism and realism in 3D cinema and argues that this tension affords 3D cinema the potential to engage with the challenge trauma poses to
memory and representation in relation to the traumatic event. 2. In *Intrusion* I focus on stereoscopic images in the negative parallax space and argue that they afford visibility to the post-traumatic symptom of intrusion. 3. The third representational category I engage with pertains to the post-traumatic category of *Constriction*. Constriction refers to “dissociative alterations of consciousness”, which “keep the traumatic experience walled off from ordinary consciousness” (Herman 1992:45). I discuss constriction in relation to representation by drawing on Elsaesser who points to trauma’s subjective non-representability, in which “trauma makes failure of memory significant” (Elsaesser 2001:195). I argue that 3D cinema engages with the subjective non-representability of trauma in two ways: first by destabilizing the role of the index in stereoscopic cinema, through which 3D cinema points to the limits of visual knowledge. Secondly, 3D cinema reflexively highlights acts of interpretation of different symptoms and signs, thus engaging with the pathology of trauma as “an event that does not leave visible traces” (Elssaeser 2001:196), and with the pathology of constriction which walls of the traumatic event from consciousness.

### 3.1 The Incredible but Real Paradox

WWII was not overtly depicted in the themes, narratives and visuals of fifties’ 3D cinema. One can go further and claim that with the minor exceptions of the short documentary *Doom Town* (Allen H. Miner, 1953), depicting a nuclear test, and *Miss Sadie Thompson* (Curtis Bernhardt, 1953), which takes place in an army base, yet occurs after the war is over and does not have the war as its theme, WWII is completely absent from the 3D cinema of the early fifties. Similarly, the attacks of 9/11 are not overtly visible in D3D cinema. The lack of direct engagement with WWII and 9/11 by 3D cinema in the two periods fits in with the notions of “belatedness”, “afterwardness” and latency, which pertains to a period of time in which trauma is supressed before it breaks into consciousness or is engaged with in a direct manner. The
hypothesis of latency originates from the psychiatric discourse of trauma, and is also central to trauma theory within film studies. As Elsaesser argues: “accepting the latency hypothesis as significant for filmmaking almost necessitates a theory of trauma, in order to understand the nature of the delays (the displacements of an event and its representation) and to be able to pose the question: why this or that film now” (Elsaesser 2001:195).

Instead of engaging directly with WWII and 9/11, 3D cinema of these two periods engages with these events through allegory. In this, 3D cinema, which was employed in a variety of genres, fits Kaplan’s and Hallam’s views on the modes through which genre films engage with trauma. As Kaplan contends, through allegory, genre films can engage with events “too dangerous … for the culture … to acknowledge or recall” (Kaplan 2005:74, qtd. in Hallam 2010:229). Drawing on Kaplan, Hallam adds that through displacement and allegory, traumatic events can be worked through, and that genre films “do not recreate an event directly, but use narrative in order to deal with the effects, namely, the resulting trauma of a certain event” (Hallam, 2010:229).

When the APA first recognized PTSD in the DSM III, it defined a traumatic event, in the wake of which individuals are at the risk of developing PTSD, as an event “that is generally outside the range of usual human experience” (APA 1980:236). 3D cinema of the early fifties, and D3D since 2009, engage with trauma by depicting events outside “the range of usual human experience”. While such a description may be apt to many films, plots and dialogue in the films discussed here revolve around “incredible events and encounters” and foreground the protagonists’ efforts to find a “vocabulary”, a certain means of representation, that will attest to the actuality of these traumatic encounters. In doing so, these films engage with two central terms in trauma theory – the traumatic event, and the challenge this event poses to representation.
Stereoscopic moving images were particularly suited to engage with plots depicting a protagonist struggling to come to terms with events “outside the range of usual human experience”, by offering novel images that were themselves embedded with an “incredible but real” quality. Stereoscopic moving images inherently sustain a dualism of materialism and illusionism. They are “liminal” images, seemingly haunting the auditorium; images which spring from the screen and at the same time are “not there.” This dualism of 3D cinema has captured the attention of 3D cinema scholars. Nick Jones for example writes “as the history of this entertainment makes clear, realism and illusionism are key concerns in any analysis of 3-D media: that is, it is often asked whether stereoscopic material is more life-like than photographic or pictorial representations, or whether it is inherently unreal and ‘unnatural’” (Jones 2015:172; see also Paul 1994; M. Ross 2015). Focusing on the embodied and phenomenological bond between 3D cinema and its audience, Miriam Ross suggests that the tension between the real and illusionary is sustained in 3D cinema arguing for “[…] a tensive co-presence that is mirrored by the doubled processes of stereoscopic spectatorship, in which audiences believe and disbelieve in the optical illusions they witness” (M. Ross 2015:199).

The dualities associated with 3D cinema, such as belief and disbelief and realism and illusionism, hold particular importance in relation to fifties’ 3D cinema’s engagement with questions of representation pertaining to the complex nature of the traumatic event and traumatic memory. The challenge of representing a traumatic encounter is engaged with explicitly in *Creature from the Black Lagoon*. The film tells the story of a scientific expedition that sails into the Black Lagoon, located in the depths of the Amazon, in search of fossils and rock samples. Soon after the expedition invades the remote lagoon it encounters a monstrous creature, the Gill Man, and the expedition’s initial mission is significantly obscured by its members’ efforts to photograph the creature and capture it dead or alive. This new goal is very much driven by the expedition’s members’ desire for people back home to believe their
experience. In fact, reducing the narrative of *Creature from the Black Lagoon* to its bare essentials, reveals that the story is very much focused on questions of trauma and representation: how to produce proof of a monstrous encounter? As clearly articulated in dialogue when Mark (Richard Denning), who sponsors the expedition, tells David (Richard Carlson), the chief scientist “they won’t believe it back home. None of them.” Framed within historical-cultural context, this line which could have very well been uttered by US troops on the battlefields abroad, alludes to the gap between veterans who fought on battlefields abroad and civilians.

The impossibility of representing trauma is engaged with in the film through the expeditions’ failed attempts to photograph or capture the Gill Man dead or alive, as a means to produce proof of their traumatic encounter. The limits of representation in relation to trauma are alluded to explicitly when David photographs the creature underwater and develops the negative only to be confronted with a blank image. To this David exclaims “where is he? I was sure I had him in my finder.” Taking David’s words at face value, that he did in fact have the creature in his finder, inscribes the creature with a quality that eludes the inherent photographic characteristic of "thereness" (see Barthes 1981). This draws attention to the limits of representation, to the limits of sight, and to the limits of photography. Could an image transfer the meaning of the encounter the expedition experienced? Furthermore, while underwater, David aims his camera directly at the audience, momentarily blinding us with its flash, thus drawing our attention to the fact that images can be more blinding than revealing.

David’s surprise at the creature’s absence from the photograph he took explicitly produces a “failure of representation”. The failure to photograph the creature illustrates Jean-François Lyotard’s claim: “what art can do is bear witness not to the sublime, but to this aporia of art and to its pain. It does not say the unsayable, but says that it cannot say it” (Lyotard 1997:47). Thus, instead of depicting the traumatic encounter, *Creature from the Black Lagoon*
highlights the impossibility of representing such an encounter by representing a failed attempt to represent trauma.

Similarly to *Creature from the Black Lagoon*, *House of Wax* is also centred around questions of representation, and includes a character who struggles to represent a traumatic encounter. The film’s plot revolves around the occupation of its antagonist, Prof. Jarrod (Vincent Price). Jarrod is a gifted sculptor who becomes a murderer after he is disfigured in a fire that his business partner set to his collection of wax figures. Thought to be dead, Jarrod returns to recreate his wax sculptures. Only this time, to afford his creation a more lifelike quality, he cocoons the wax figures around the real corpses of the women and men whom he has murdered. Through the centrality of the wax figures to the plot, and the life-like appearance of the wax figures, *House of Wax*, as William Paul argues, “philosophically explores the play between illusion and reality central to the experience of stereoscopic films by using the wax works as a kind of metaphor for 3D itself” (1993:341; see also Heffernan 2004:24). Drawing on Paul, I argue that in *House of Wax* the “play between illusion and reality” is not only reflexive and “central to the experience of stereoscopic films”, but also offers an important visuality to the “incredible but real” characteristic of trauma.

A pertinent moment in the film directly addresses this point. The morning after Sue (Phyllis Kirk) witnesses Jarrod preparing to steal the body of her friend and flat mate, Cathy (Carolyn Jones), whom he has just murdered, she goes to the police station to report her ordeal. The film cuts into the conversation mid-scene, to detective Brennan (Frank Lovejoy) at the police station commenting on Sue’s description: “that’s the strangest description”, to which Sue replies: “he was incredible but very real”. This dialogue exchange, alongside Sue’s actual description of the killer which is withheld from the audience attest, I argue, to the difficulty of describing the face of trauma.
Sue’s exclamation pertaining to her traumatic encounter with a murderer and her situating of “incredible” and “real” as opposing claims, resonates with scholarly literature on traumatic memories. As Janet Walker argues: “traumatic memory is distinguished from other evidentiary forms precisely because it alludes to binary ‘it happened or it didn’t’ approaches” (Walker 2001:212). Or as Judith Herman writes:

The conflict between the will to deny horrible events and the will to proclaim them aloud is the central dialectic of psychological trauma. People who have survived atrocities often tell their stories in a highly emotional, contradictory, and fragmented manner which undermines their credibility and thereby serves the twin imperatives of truth-telling and secrecy (Herman 1992:1).

*House of Wax* further engages with questions of representation, which in turn uncover additional traumatic themes pertaining directly to the post-traumatic climate in the US following WWII. A remake of *Mystery of the Wax Museum* (Michael Curtiz, 1933), *House of Wax* inherently begs the question of representation through comparisons and issues of similarity and difference between the remake and the original. While this may be the case in relation to any remake of an earlier film, a comparison between the two films further reveals the theme of trauma in *House of Wax*. The plot of the two films is largely similar, as both are based on the same never published short story, however, the role of the lead female protagonist in both films is significantly different. In *Mystery of the Wax Museum* (1933), Charlotte (Fay Wray), is a seasoned journalist investigating the death of Joan Cale (Monica Bannister), and the ensuing disappearance of her body from the morgue. In *House of Wax* (1953), Sue is unemployed, and discovers the body of her best friend and roommate, Cathy, by mistake, disturbing the killer before he can finish his job and take the body with him. Sue is subsequently chased by the killer through the streets, and is later haunted by nightmares of the ordeal. Considering this change
of plot within the cultural context of the period suggests that Sue’s witnessing of the murder scene, and then being chased by the killer and haunted by nightmares, adds the theme of vicarious trauma to the original film. More particularly, this alludes to the vicarious trauma experienced by women, which was prevalent in the US following the return of troops from the battlefields (Kaplan 2005:20; see also Anderson 1981).

One may also argue that Sue’s struggle to secure a job as well as having to deal with harassment by a male figure, her boss, reflects the situation of women who after WWII had to relinquish their roles in the work force (Anderson 1981). This occurs despite the fact that the film highlights the potency of women and the impotency of men. For example, a husband sends his wife to demand the rent from Sue, and when Sue screams after encountering the murderer, it is the wife who leads the party up the stairs, with the men hesitantly following. While the group slowly advances up the stairs, Sue makes a daring escape, dangling from the balcony and jumping down to the street below.

Similarly to House of Wax, and Creature from the Black Lagoon, the protagonists of It Came from Outer Space also attest to their bewilderment in the face of what they encounter, as they struggle to both communicate what they have witnessed and to convince society of the validity of their experiences. It Came from Outer Space tells the story of John (Richard Carlson), a scientist and an astronomer who discovers aliens who are capable of assuming the appearance of the humans they capture. After an extra-terrestrial object crashes to Earth, John and Ellen (Barbara Rush) rush to the site of the collision in a helicopter flown by their friend Pete (Dave Willock). John descends into the crater alone, leaving Ellen and Pete behind. While he is in the crater, John discovers a spaceship and is about to investigate when the space vessel’s door closes, triggering a landslide that buries the spaceship underneath tons of rock and endangers John. When John ascends to tell Ellen and Pete what he has seen, he struggles to find words – confessing that “there was something down there […] like nothing we’ve ever seen
before.” Ellen and Pete do not believe his account, yet John insists “I’m not crazy and I’m not imagining. I tell you I saw this thing”. Pete and Ellen remain skeptical, and as the police approach the crash site, urge him not to share his experience with law enforcement officials.

In another instance, when John and Ellen meet Frank (Joe Sawyer) and George (Russel Johnson) working on the electrical wires in the middle of the desert, John asks them if they have seen anything out of the ordinary, to which Frank replies: “haven’t seen anything but I sure am hearing things. Like nothing I’ve heard before”, referring to sounds emitting from the electricity wires. Thus *House of Wax, Creature from the Black Lagoon* and *It came from Outer Space* all foreground characters who reflexively admit to their difficulty of communicating events which are “incredible but real”, and which are “generally outside the range of usual human experience”. Elsaesser refers to such challenges as originating from trauma’s “objective” non-representability, stating that “trauma makes of representation a significant failure” (Elsaesser 2001:195).

Another theme prevalent in *Creature from the Black Lagoon, House of Wax*, and *It Came from outer Space*, as evident in the examples above, is the protagonists’ desire for their friends and other authoritative figures to believe, and hence validate their experiences. In this manner the films engage with the relation between trauma and society. As Herman writes:

To hold traumatic reality in consciousness requires a social context that affirms and protects the victim and that joins victim and witness in a common alliance. For the individual victim, this social context is created by relationships with friends, lovers, and family. For the larger society, the social context is created by political movements that give voice to the disempowered (Herman 1992:9).
The textual analyses above demonstrate the ways in which plots and dialogue of fifties’ 3D films engage closely with the role of trauma in society, as well as with the gaps between those who experienced the traumatic event and those who didn’t.

Nearly sixty years after *Creature from the Black Lagoon*, the plots of 3D cinema still engage with questions of trauma and representation, as evident in *Life of Pi* (2012). *Life of Pi* engages with trauma explicitly, however the traumatic ordeal it depicts is as far removed as can be from the terror attacks of 9/11. The film is constructed as a story within a story, recounted in present time, when an adult Pi (Irrfan Khan) tells his life story to a Canadian writer (Rafe Spall). Pi, the sole survivor of a sunken ship that was on its way from India to Canada, lost his entire family in the ordeal, and was stranded on a life boat for 227 days. While these facts are undisputed in the film, Pi offers two different accounts of his tale of survival. In the first account, which comprises the vast majority of the film, Pi (Suraj Sharma) is stranded on a life boat with a zebra, a hyena, an orangutan named Orange Juice, and a Bengali tiger, named Richard Parker. At the end of the film, after Pi miraculously makes it to the Mexican shore and is rescued, insurance company representatives ask him for his version of the events. Unsatisfied by the phantasmagorical nature of his story, Chiba (Jun Naito), an insurance representative, tells Pi they need “a story that won’t make us look like fools” and his partner (James Saito) adds “we need a simpler story for our report. One our company can understand. A story we can all believe”. As if to satisfy them, and one hour and fifty minutes into the film, Pi provides a second account of his ordeal. This time, his companions are the ship’s cook (Gérard Depardieu), a Buddhist sailor (Edison Wang) and his mother (Tabu). Pi tells the insurance company how he witnessed the cook kill the sailor and murder his mother, and then throw her body into the sea, where sharks devoured it. Pi confesses his guilt over the death of his mother, stating it was all “his fault”. Pi then asks the writer, which story he prefers to believe? To add to the ambiguity, the writer finds the insurance company’s report, which tells an amazing tale of a young boy
stranded on a boat at sea, with a tiger. In fact, what *Life of Pi* asks of its viewers, is to accept the reality of the images they have just witnessed, despite their fantastic nature.

3D cinema of the fifties and *Life of Pi* produce images which are failures of representation, images which are seemingly real, yet at the same time reflexively call attention to their immateriality. Set within narratives that focus on traumatic, incredible encounters, these paradoxical images, these failures of representation, allude to the tension between the validity of the traumatic memory and its fantastical elements (on traumatic memory and its fantastical elements see Walker 2001, 2015:15-16). In conjunction with the films’ narratives which focus on the question of trauma and representation, these images create within popular culture a place for aporias, sought after in modernist texts by traditional trauma theory as signs of post-trauma (for an overview of the role of aporia in trauma theory in the humanities see Luckhurst 2008:1-16).

Shoshana Felman and Dori Laub discussing Albert Camus’ *The Plague* (1947), ask “if the narrative is testimony, a historiographical report whose sole function is to say ‘This is what happened,’ why, however does Camus have recourse to the metaphor of the plague?” (Felman and Laub 1992:101). The answer for them, lies in the impossibility of the metaphor, which creates an historical event without a referent. As the plague is long extinct from the Western world, Camus’ characters insist on the impossibility of the disease. Thus for Felman and Laub an aporia exists “between the allegorical and historical qualities of the event: the allegory seems to name the vanishing of the event as part of its actual historical occurrence […] Camus’ testimony is not simply to the literality of history, but to its unreality, to the vanishing point of its unbelievability” (Felman and Laub, 1992:103, emphasis in original).

The 3D films I discuss here are works of fiction, and hence do not attempt to say “this is what happened”. However, these films do construct fictionalized narratives which foreground the challenge for characters to say “this is what happened.” More so, stereoscopic images
themselves realize cinematically the poetics that Felman and Laub identify in *The Plague*. Considering that an image is an indexical sign, the stereoscopic image affords visibility to the vanishing point of history and facts, or at the very least to the unsteadiness of the connection between history and facts. This is since the facts, manifested here as stereoscopic images, are at the same time believable and unbelievable, real and illusionary, images which inhabit the auditorium’s space, but vanish and disintegrate against the corporeality of the audience. Thus 3D cinema of the fifties, and *Life of Pi* afford visibility to the difficulty of facts to point to history. Just as the protagonists in these 3D films ask other characters to acknowledge and believe their encounters, the stereoscopic images request and at the same time undermine the audience’s faith in the image. Set within narratives of “incredible but real” encounters, stereoscopic images echo, sublimate, and displace into popular culture the aporia of witnessing traumatic events. By foregrounding failed attempts of representation, both through its phantom-like images, and through the failed attempts of its protagonists to describe or produce evidence of the traumatic encounter, fifties’ 3D cinema provided a compelling depiction of the aporia of witnessing, as well as of the challenge trauma poses to representation.

### 3.2 Intrusion

Simply put, intrusion refers to post-traumatic recurring flashbacks, nightmares and other intrusive phenomena that impose themselves on the survivor. Intrusion holds both representational characteristics of veridical images intruding on the subject, re-immersing the subject in the traumatic event, images perceived not as representations but as shards of the event itself; and a temporal characteristic, in which the past haunts the present (see Luckhurst 2008:147). This section will cover the representational quality of intrusion in relation to 3D cinema, whereas temporal characteristics of intrusion in relation to 3D cinema will be discussed in chapter six. Intrusion, I argue, is articulated in 3D cinema through images in the negative
parallax space which figuratively and phenomenologically resonate with the characteristics of the traumatic, intrusive image, by invading the space of the auditorium and imposing themselves on the audience’s space.

As noted in the literature review, fifties’ 3D cinema was perceived as “aggressive”, initiating assaults on its audience. These assaults provided ample instances of intruding images, in which audiences were taken aim at. A recurring type of image “intruding” on the negative parallax space in the 3D cinema of the early fifties is that of explosions and debris. Assigning images which frequent the cinema screen with the potential to carry traumatic meaning is evident in more recent writings on trauma. Terrance McSweeney, for example, argues that the recurrence of images of debris in contemporary Hollywood cinema, is one of the ways through which 9/11 permeates this cinema (McSweeney 2014:16). Applying McSweeney’s reasoning to fifties’ 3D cinema, suggests that recurring images of explosions common in 3D cinema of the early fifties are means by which the trauma of the bombing of Hiroshima and Nagasaki haunts these films.

The first image of Creature from the Black Lagoon depicts an explosion in the form of the big bang. Debris falls in the negative parallax space within the audience's reach, thereby situating the audience closer to the explosion and to the past atrocities of war, implicating them in the explosion of the Atom bomb. Similarly, It Came from Outer Space also features an explosion. This time it is the explosion of a spaceship, mistaken for a meteor, hitting the earth. John and Ellen witness the explosion from John’s home, which is distanced from the site of the explosion. Despite this, part of the debris falls “un-justifiably” from a point-of-view perspective in the negative parallax (as John and Ellen are miles away from the explosion and we are seemingly sharing their point-of-view), implicating the viewer in this distant explosion. Both films “bring” the bombing of Hiroshima and Nagasaki “home”. This interpretation may seem metaphoric, and to a degree it is, however it is important to contextualize these explosions in a
social and political climate, when following the bombing of Hiroshima and Nagasaki the fear of atomic annihilation in US society was very concrete (See Boyer 1994). In these instances the “assault” otherwise associated with stereoscopic cinema’s gimmickry is employed to provide an image for the very real fears in the audience’s psyche, thus carrying important cultural significance.

*House of Wax* does not feature explosions of the kind shown in *It Came from Outer Space* and *Creature from the Black Lagoon*, however the opening sequence does feature a massive fire set to Prof. Jarrod's studio by his business partner, Burke (Roy Roberts), in an attempt to defraud the insurance company. *House of Wax* provides a unique case study, since, as mentioned earlier, the 3D version is a remake of an earlier film, *Mystery of the Wax Museum* (1933). The opening sequences of the two films resemble each other to the extreme: the plot is nearly identical, the characters look alike, and shot selection is also similar. Both films open with an exterior shot taken at night of a deserted rainy street, with a street lamp in the foreground to create depth. The first interior shot of *Mystery of the Wax Museum* features an “establishing shot” of the studio space, with a right to left pan movement, revealing the wax figures. *House of Wax* features the exact same shot only the pan direction is reversed, from left to right. Both these shots culminate with the professor working on a sculpture, only in the original the professor is on the left side and the sculpture on the right, and in the remake the professor is on the right side of the screen and the sculpture is on the left (see figures 3, 4). In fact, the two films are so much alike, that one might mistake *Mystery of Wax Museum* for the 2D version of *House of Wax*. 
3D CINEMA, TRAUMA AND THE QUESTION OF REPRESENTATION

Figure 3 - Igor (Lionel Atwill) in Mystery of the Wax Museum (1933).

Figure 4 - Prof. Jarrod (Vincent Price) in House of Wax (1953).
The opening sequence of the two films climaxes with the struggle between Jarrod (Ivan in the original) and Burke (Joe in the original, portrayed by Edwin Maxwell) and the burning of the studio and the wax figures in it. The burning wax figures are afforded significant screen time in both films, depicting the melting of the figures in a similar manner: the wax melts and the faces slowly become disfigured until the head detaches from the body. That being said, both films make use of the burning wax figures for different ends. The burning figures in *Mystery of the Wax Museum* are used as “insert shots”. The scene cross cuts between Ivan and the melting wax figures, which in turn highlight Ivan’s dire situation and the urgency of his plight. In *House of Wax* this sequence is augmented, showing up to seven consecutive close ups of burning wax figures. The film makes frequent use of the negative parallax space during this climatic sequence: heads fall off burning figures into the movie theatre; the hands of the burning wax figures of John Booth and Mary Antoinette extend forwards towards the edge of the negative parallax; and in two instances during the struggle between Jarrod and Burke they fling objects into the negative parallax space. The lingering on the burning wax figures in *House of Wax* and the emphasis of the bodies and faces of the wax figures melting and slowly becoming disfigured, along with the frequent use of negative parallax space in this sequence, endow the burning wax figures with further symbolic meaning in a post WWII-Cold War context: the fear of atomic annihilation.

It should be noted that “photographs of [Japanese] victims [of the Atom bomb] rarely appeared in American publications until the 1950s” (George H. Roeder, Jr. [1997] 2015:93). Widespread visibility of the Japanese victims was brought to the attention of the US public only in September 1952 when *Life* published an article titled “When the Atom Bomb Struck” (*Life* 1952:19). *Life* opened its article stating that the images “published here for the first time in the U.S., has the immediacy of today’s news picture for any people who live in the not illogical fear of being caught themselves in an atomic blast…” (*Life*, 1952:19). Hence, the article itself
affords the atomic bombing with “presentness”, demonstrating how recent and vivid the images of Atom bomb victims were in the collective consciousness of US society at the time of *House of Wax*’s release. Notably, in *House of Wax* it is not the Japanese who are burning, but Western, Caucasian figures. As the burning wax figures are modeled after iconic figures of western history, their burning symbolizes “the end of the world as we know it”, since we are, in effect, witnessing hegemonic, historical western narratives going up in flames. In this manner the haunting images of Hiroshima and Nagasaki intrude the film, however, the film turns the real suffering of Japanese victims of the Atomic bomb into a western fear that the bomb might be used against them and ruin their civilization.

Paul argues that 3D provides spectators with a kind of “reality check”. Whereas audiences may flinch at the first object flung from the screen, they evidently grow accustomed to the trick and see these objects for what they are, phantoms. Thus “3D enables us to confirm our wholeness as subjects ultimately by denying the integrity of the image field” (Paul 1993:344). Paul’s analysis of 3D here is important, and becomes even more useful when brought, as I suggest, into the framework of trauma theory and into cultural contexts. In post-traumatic contexts, where the autonomy of the individual is violated, confirming “our wholeness as subjects” carries important cultural significance. Moreover, considering the veridical quality of traumatic nightmares and flashbacks, the challenge of gaining mastery over images, and confirming their illusory nature becomes ever more important and gratifying. In this capacity 3D and its framing and employment in *House of Wax* provide a “safe” environment in which to be reminded that phantoms and images are merely an illusion.10

10 Paul’s argument suggests that the mastery over images involves almost a conscious effort to hold one’s body still at the sight of approaching images. While this argument has merit, I would like to add that it is but one way through which film and audiences’ bodies can interact and explore this in depth in the next chapter.
The theme of trauma is further employed by *House of Wax* on several occasions. When Sue encounters the wax figure of Joan of Arc, which is cocooned around Cathy’s dead face, she is reminded of Cathy and bursts out crying. Sue then confesses to suffering from the post-traumatic phenomena of “intrusion” stating that she wakes up at night and sees Cathy’s face, and that she “can’t get it out of her head”. Another example of intrusion in *House of Wax* is evident when Scott (Paul Picerni), Sue’s partner, recalls nearly being beheaded himself and luckily saved at the last minute by the police when he attempted to rescue her. In the film’s final scene at the police station, Scott thanks the police: “we'll never forget you and your men. Thanks to you, we're still alive. But every time I shave, I can still feel that guillotine blade”, to which Sue replies “Please, let’s not talk about it anymore”, and Scott agrees “Yes. You’re right”. Thus, the film’s concluding scene emphasizes how trauma permeates the everyday, but is avoided in conversation. In cultural-historical context these instances resonate with the experiences of US troops returning from WWII who were encouraged not to share their traumatic wartime memories (see Childers 2009, Rose 2013). Admittedly, these examples do not discuss 3D explicitly. Yet these narrative points do coincide with visual intrusion employed through the negative parallax space, demonstrating ways in which both narrative and 3D poetics in *House of Wax* reverberate with post-war themes and anxieties prevalent in the US in the early fifties.

Intrusion in relation to trauma is also evident in *Life of Pi*, if one perceives of Richard Parker as an allegoric representation of Pi’s trauma and violent drive. Thomas E. Allen suggests that the story about the tiger protects Pi against a moral wound – “a complex trauma in which the victim, in order to survive in life-threatening circumstances, commits an ethical transgression against his or her deeply held values” (Allen 2014:965). The moral wound is not located in the stories of *Life of Pi*, according to Allen, but is rather what the story defends the teller from (Allen 2014:975) - “the tiger protects Pi by carrying responsibility for the guilt of having killed someone who helped him, but also protects him against someone who might have
killed him, or might in the future” (Allen 2014:979). The role of stereoscopy in relating Richard Parker with intrusion is crucial. In 3D the tiger lives on the edge of the negative parallax space. He is always moving along the Z axis away from and towards Pi, threatening to impinge both on Pi’s space and on the viewers’ space, by breaching into the negative parallax space.

Much of Life of Pi is devoted to describing Pi and Richard Parker’s ordeal at sea. This part of the film engages mostly with Pi’s survival efforts, as well as with his attempts to establish an equilibrium of sorts, or an understanding with Richard Parker. Such attempts, while represented as concrete, can be also read symbolically – as Pi negotiating, and renegotiating his inner position in relation to his personal trauma. Following this route, Pi’s initial response to Richard Parker in his attempts to ignore and avoid the tiger reads as Pi’ suppression of his traumatic memory. Pi then attempts to contain the trauma by drawing borders between himself and the tiger, that is between what has happened, and his current self. To draw this border Pi urinates on the canvas in an attempt to outline a territory safe from the ever intruding tiger, the ever intruding trauma. However, this attempt is quickly rendered futile as Richard Parker squirts urine in Pi’s face, infringing on Pi’s territory and dissolving the border Pi has drawn. This negotiation of spaces is enhanced by stereoscopy, as the urine squirted by Richard Parker is shot into the negative parallax space, thus dissolving also the boundary between audience and film.

Another form through which Pi negotiates intrusion is the manner in which he and Richard Parker occupy the space of the life boat, evident in the difference in altitude in the positions they assume. The raft is situated below the life boat, hence when Pi is on the raft his trauma in the form of the tiger is given precedence, towering over him. When Richard Parker jumps into the water and Pi climbs on to the boat, Pi gains a sense of control over his trauma, that is, over the tiger. This is evident when Pi has an opportunity to let Richard Parker drown after the tiger has jumped into the ocean. However, Pi decides to help him climb back onto the
life boat, thereby saving Richard Parker’s life, and electing to keep his traumatic experience alive. As Allen argues, Pi “simultaneously both preserve[s] the tiger and wish[es] it to disappear” (Allen 2014:965).

Pi’s second attempt to negotiate life with Richard Parker occurs when the life boat crosses the path of a school of flying fish which swarm Pi and Richard Parker and land in the boat. The flying fish are chased by larger tuna fish, one of which jumps out of the water and lands on the boat, leading to a face-off between Pi and Richard Parker, both wishing to claim the fish for himself (see figures 5, 6).

![Figure 5](image1.png)  ![Figure 6](image2.png)

**Figure 5 – Pi wields a stick at Richard Parker. Figure 6 – Richard Parker growls at Pi.**

Two things should be noted in relation to this scene. Firstly, that while Pi and Richard Parker share the life boat, they are still separated by a difference in height, as seen in figures 4-5. The positioning of the tiger below Pi alludes to the tiger symbolizing the more primitive, violent drives which Pi attempts to keep suppressed. In this scene, the film brings Pi closer to Richard Parker and his trauma by employing a floating digital stereoscopic window. The floating stereoscopic window allows for pushing the boundary of the 0 point of the screen further into the positive space, hence allowing an increase in the volume of the negative parallax space in a manner that it originates further back in the screen. Note for example that in figures 4 and 5 above, the stick Pi wields at Richard Parker begins its emergence higher in the frame, allowing for a greater length of the stick to protrude before reaching the audience and disintegrating.
Extending the volume of the negative parallax space allows this space to be even more dynamic, making room for further negotiation of this space between Pi, Richard Parker and the audience.

One should also note that the frame size in this scene changes to 2.35:1 when Pi catches a flying fish and throws it at Richard Parker. Ang Lee addressed the change in aspect ratio in this scene stating that: “I felt that 'Scope was the only way to see this [flying fish] scene, and with the black areas [at the bottom of the frame], I could pull fish out of there; I think that's a great tool in 3D film-making” (Lee cited in Jason Shawhan 2012:np). Recalling that the difference between Pi and Richard Parker is also a difference in altitude and space, using this aspect ratio inevitably pushes the two beings towards one another, hence symbolizing Pi coming into closer contact with his trauma, and his growing efforts to negotiate and come to terms with his traumatic experience. To conclude, the negative parallax space affords 3D cinema a distinct potential to engage with the post-traumatic symptom category of intrusion, in which images advance towards the audience in a threatening manner. This is evident both in the early fifties in which threatening stimuli, such as debris of explosions for example, invaded the audience space, and in Life of Pi, as exemplified by the menacing tiger approaching and retreating from the negative parallax space.

3.3 Constriction

The category of constriction refers to the constriction of consciousness both during the traumatic event and after it, which keeps painful occurrences and memories outside the realm of cognitive knowledge (see Herman 1992:45). Man in the Dark engages with questions of trauma and representation in a manner slightly different to the films discussed above. It focuses on what Elsaesser refers to as trauma’s subjective non-representability, in which trauma hinders the remembering of the traumatic event, which is a precondition to representing it. Man in the Dark tells the story of Steve (Edmond O’Brien), a convict who is pardoned providing he agrees
to undergo brain surgery in which the part of his brain provoking criminal behavior will be removed. The side effect of this procedure is that it will also erase his memory. The operation is a success, however the result is that Steve does not know himself. Just before the operation commences, Steve asks his surgeons to bring him a mirror so he can watch as the team operates on his brain, saying “I never saw how I came into this world, I’d like to see how I go out”. The surgeons bring him a mirror while warning him that he will soon succumb to anesthesia, and indeed shortly after, Steve loses consciousness. In this scene, Man in the Dark provides an illustration of constriction: the doctors render Steve unconscious so that he will neither experience the operation as it happens, nor remember it. Furthermore, the scene alludes to the limits of visual knowledge, to the limits of representation – Steve cannot witness his own brain operation.

An amnesiac hero was a common trope in film noir during the war and post war era (consider for example Night Without Sleep [1952, Roy Ward Baker], The Blue Dahlia [1946, George Marshall], The Crooked Way [1949, Robert Florey], and Somewhere in the Night [1946, Joseph L. Mankiewicz]). However in these film noir films the protagonist’s post-traumatic amnesia is most commonly a result of an injury sustained during the war (as in The Crooked Way, The Blue Dahlia and Somewhere in the Night) or a result of substance abuse (Night without Sleep). Steve’s amnesia provides a unique case as it is induced by a representative of an official institution, a doctor, during a benevolent procedure, in which amnesia is an expected side effect and perhaps even a desired one. By clearly pointing to the official institution as the cause for Steve’s amnesia, Man in the Dark, as I will show, introduces the theme of cultural memory and cultural trauma. This is in line with Alexander et al.’s (2004) discussion of cultural trauma, as the scene explicitly depicts representatives of the establishment shaping Steve’s memory.
The role of official agents in the shaping of cultural memory is further emphasized in this scene through the film’s employment of 3D. During the operation, when Steve is under anaesthesia, the audience witnesses the doctors operating on him, from his point-of-view, as if he was awake. The doctors are hunched over both Steve and the audience, their medical instruments probe into Steve’s brain and into the negative parallax space. The extension of the medical instruments into the negative parallax space produces a symbolic meaning – it is not only Steve’s memory that is shaped by representatives of the establishment but also the memory of the audience. By probing the negative parallax space with their instruments, the doctors are symbolically operating on the audience. The operation of the doctors on the audience is a result both of the employment of 3D, and of the audience’s alignment with Steve, through his positioning as the film’s protagonist. In subjecting the audience to the probing instruments, and in aligning the audience with a protagonist who is undergoing brain surgery in which his violent nature and memory are removed, the film alludes to the ways in which cultural and collective memory is shaped by cultural agents. In this, I suggest, the symptom of constriction is carried over to the realm of cultural memory and knowledge. As Herman writes “soldiers in every war, even those who have been regarded as heroes, complain bitterly that no one wants to know the real truth about war” (1992:8). Support for Herman’s argument in relation to WWII veterans can be found in the work of Kenneth Rose and Thomas Childers. Rose cites an article in Newsweek magazine describing the returning soldiers who “had young faces with old, wise eyes which had seen sights never to be forgotten and some never to be retold” (Rose 2013:226. My emphasis). Childers states that “with few psychiatrists to treat them and a cultural ethos that hardly encouraged open discussion of emotional problems, especially among men, many veterans simply suffered in private” (Childers 2009:8).

Moreover, the removal of a convict’s violent impulses and past memory in Man in the Dark also reflects the fear of veterans prevalent in the US following WWII. Childers finds that
contrary to the nostalgic memory perpetuated by “welcome home” banners and “the homecoming kiss”, US society was nervous about veterans returning to the domestic sphere (Childers 2009:6-7). Magazines were running headlines such as “Will Your Boy be a Killer When he Returns,” and sociologist Willard Waller argued in 1944 that “unless and until he can be renaturalized into his native land, the veteran is a threat to society” (Childers 2009:6, 131; Waller 1944:13; emphasis in original). The plot of Man in the Dark, provides a striking parallel to this cultural context, with the veteran replaced by the convict: Steve, the ex-convict is allowed back into society on condition that his violent past is removed from his personality by a surgical operation. The possibility of simply “removing” one’s violent past as depicted in Man in the Dark reads in this cultural context as a portrayal of US society’s wishes – to forget the war and embrace returning veterans without having to come to terms with the impact the war had on them. Hence, in Man in the Dark constriction is engaged with both on a narrative level through Steve’s not knowing his past, and as an allegory to US society’s wish to “forget” the war.

The theme of constriction is also evident in Life of Pi in two ways. Firstly, through the symbolic presence of Richard Parker, who Allen argues protects Pi from acknowledging what he has done (see Allen 2014). Secondly, the theme of constriction is further engaged with through the film’s coda introduced towards the end, in which Pi asks the writer (and by extension, the audience) to decide which of two accounts of his ordeal is true. The inclusion of the coda in the film encountered various critiques. Andrew Chan writes that the coda “makes a pedantic connection between this power-of-storytelling moral and a half-assed proof of God’s existence” (Chan 2012:np). Philip French disagrees, stating that the film “concludes with a fascinating, deliberately prosaic coda that raises questions about the reality of what we've seen, and confronts the teleological issues involved” (French, 2012:np). Roger Ebert writes “is this whole story real? I refuse to ask that question. Life of Pi is all real, second by second and minute
by minute, and what it finally amounts to is left for every viewer to decide” (Ebert 2012:np). Similarly to Ebert, Wael Khairy writes on the question posed by the film:

there is no right answer, because it doesn't matter which is true. [Ang] Lee allows the viewer make a leap of faith and choose to believe which version to believe in. I suppose those who back the tiger tale are more spiritual and those backing the cook tale are governed by reason, science, and probability. Therefore, it's completely pointless and contradicting to debate on side, because you would be doing the very thing the film asks you not to do (Khairy 2012:np).

I disagree with Khairy and Ebert. *Life of Pi* is not “all real” and Ang Lee does not ask the viewer to choose which version to believe, he asks of the viewer a harder task – to believe the fantastical version, despite her better judgment and reason. As Lee stated in an interview regarding his impression of the novel: “I thought the book has something most interesting in that it provides you a grand illusion and it defends it” (Edward Douglas, 2012, np). This is what the film version of *Life of Pi* accentuates – the demand that the audience believe in the illusion. When one believes and defends an illusion, it becomes something more, a religion perhaps. As Lee stated in the interview: “making sense is an artificial and human way of putting it together. Story is one of them because it has a beginning, middle and end. It has wisdom at the end, it has meaning, and we share it with each other, and that’s powerful, that’s not nothing. It’s not just making illusion” (Douglas 2012, np). Hence, the leap of faith Lee asks of the viewer pertains to believing the fantastical story, despite evidence in the film suggesting otherwise. Choosing to “believe” the fantastical version echoes the process of constriction, as it does not acknowledge the actual, horrific turn of events in *Life of Pi*, as confessed by Pi in the second account of his ordeal.
In what follows, I provide textual analysis that demonstrates how *Life of Pi* affords visuality to the process of constriction, and renders the fantastical account as a symbolic representation of the actual account Pi provides in the concluding minutes of the film. When adult Pi tells of his ordeal at sea, Richard Parker first appears shortly after Pi leaves the TsimTsum on a life boat. Pi accidently throws the tiger a buoy, and when the tiger climbs on the boat, petrified Pi jumps into the stormy, turbulent sea to escape the beast. Then the tiger seems to be forgotten. There is no hint of him as Pi shares the life boat with Orange Juice the orangutan, the hyena and the zebra. The unlikely group of survivors is rife with tension. The hyena attacks the helpless zebra, and then kills the orangutan. Pi shouts at the hyena but is too late. Shocked by the death of the orangutan, Pi, with a savage expression, turns on the hyena and a standoff ensues, with Pi and the hyena at opposite sides of the boat (see figures 7, 8). As Pi is about to strike, suddenly, from beneath the canvas, Richard Parker leaps towards the hyena, and the negative parallax space (see figures 9, 10). The surprise attack by Richard Parker catches the audience off guard. It is as if the tiger swallows the camera whole, and the movie uncharacteristically cuts to black (see figures 11, 12).

Figure 7 – Enraged Pi turning on the hyena.  Figure 8 – The hyena awaiting Pi’s attack.
3D CINEMA, TRAUMA AND THE QUESTION OF REPRESENTATION

A cut to black is usually employed to cut between scenes and signal a change of time or space. In this example, despite the “black gap” at the moment of the attack, the scene continues without paying any attention to the momentary lapse (see figures 13, 14). Note too, that the actual killing is hidden from Pi’s point of view (see figure 14). The film then retreats backwards through camera movement to an objective shot depicting both Pi and Richard Parker. After killing the hyena the tiger immediately turns on Pi, but fails to attack him as he is unable to secure his footing on the slippery canvas. Note that the corpse of the hyena is nowhere to be seen (see figures 15, 16).
The shots employed by the film to depict the action suggest that the tiger is a representation of Pi’s internal violent drive. The surprising emergence of the tiger from under the canvas, as if he were there all along waiting for Pi to summon him, along with the framing of this moment, strongly suggest that the tiger has sprung from within Pi, from a part of him which he has kept suppressed, covered. The subsequent lapse in the form of the black frame, and the camera positions which conceal the actual killing from Pi’s point-of-view and the corpse of the hyena from the objective point-of-view, further suggest that the scene depicts a process of dissociation and constriction. As Allen writes: “Pi experiences such a trauma [a moral wound] and deals with it by dissociating it in the form of the tiger” (Allen 2014:965). The scene further evokes dissociation through the camera’s retreat to assume an objective camera position, hence tapping into the dissociation characteristic of viewing one’s body as if watching the scene without taking part in it, that is watching oneself from the outside (see Herman 1992:42).
It should be noted that dissociation is a term applied within trauma theory to *victims* in order to describe a broad mechanism of conscious altering phenomena at work when no escape is possible. Herman writes

when a person is completely powerless, and any form of resistance is futile, she may go into a state of surrender. The system of self-defence shuts down entirely. The helpless person escapes from her situation not by action in the real world but rather by altering her state of consciousness [...] the person may feel as though the event is not happening to her, as though she is observing from outside her body (1992:42).

Allen applies dissociation when he describes Pi as a perpetrator preforming an act of violence. In discussing the trauma of the perpetrator, which Allen refers to as a “moral wound” he draws on Herbert H. Stein who argues that “combat veterans frequently develop a split in superego functioning” to adapt to wartime environments and to the actions required of them (See Stein 2007:580 qtd. in Allen 2014:972). Further support for such a split may be found in the work of Robert Jay Lifton. Lifton examines why soldiers partake in war crimes and argues that “extreme trauma creates a second self [...] it’s a form of doubling in the traumatized person [...] there have to be elements that are at odds in the two selves, including ethical contradictions” (see Caruth 1995:137, also qtd. in Morag 2012:112).

Drawing on Lifton, Stein, and Allen, I suggest that the scene in which Richard Parker emerges from beneath the canvas clearly resonates with the doubling and split Lifton and Stein argue for. Pi’s attempt to come to terms with what has happened, even though he is not yet completely aware of it, is illustrated by the tiger subsequently turning on him. Finally, the somewhat weak excuse for the tiger not reaching Pi due to the slippery piece of canvas, further suggests that the pair is, in fact, one.
By launching Richard Parker’s attack from close to the zero point the scene makes creative use of 3D. The “close range” attack enhances the depiction of the tiger as emerging from within Pi and allows the tiger to perform a “dual assault”, on both the hyena and the audience. The tiger’s assault on the audience helps align the audience with the shock, and to a certain degree, with the dissociation process Pi experiences when committing the murder. The audience’s shock at the attack resonates with Pi’s shock, which is depicted through Pi tumbling on the canvas when the tiger emerges, and later cowering in a foetal position when the tiger turns on him.

The implication of the audience in Pi’s post-traumatic symptom of constriction is further emphasized by the film’s coda. After Pi finishes recounting his phantasmagorical story of survival to the writer, a pause ensues, in which the writer admits his scepticism pertaining to the truthfulness of Pi’s story, as evident in the dialogue that ensues:

**WRITER:** I don’t know what to say.

**PI:** It’s hard to believe, isn’t it?

**WRITER:** It is a lot to take in. To figure out what it all means.

At this point, Pi becomes defensive, and states “if it happened, it happened. Why should it have to mean anything?” However, the writer insists “some of it is pretty incredible”. It is only following the writer’s expressed scepticism, that Pi confesses a second version of his ordeal, a horrific one, in which he sees his mother murdered and fed to sharks. And it is only after hearing Pi’s horrific second version of the ordeal, that the writer chooses to believe Pi’s phantasmagorical account of the events. The tiger, the hyena and the zebra not only protect Pi, as Allen (2014) argues, but also protect the listener from coming face to face with the true horror of trauma, a horror the writer would have had to face, had he chosen Pi’s second version. Moreover, the writer is the one the story is told to, and in this sense, he symbolizes the audience. If the writer had chosen the second version, the audience would have had to come face to face
with Pi’s trauma. And it is in this sense that the writer and the audience, as a means of protecting themselves, choose not to know. It is through this choice that Pi’s not knowing, Pi’s trauma, is extended to the writer and the audience. The film places the writer and the audience in the “trajectory” of Pi’s trauma. The writer’s and the audience’s election to suppress and “forget” the true unfolding of Pi’s ordeal at sea, symbolically illustrates the process of vicarious trauma. Note that in this the film closely follows the process of the narration of trauma as argued for by Caruth. Firstly, that trauma cannot be represented, and indeed the second version of Pi’s ordeal is told, but not seen. Secondly, that which is transmitted during the telling of trauma is, as Michaels argues (Michaels 1996:8), not “the knowledge of horror” (this is what happened) but “the horror itself”. This is evident in the writer choosing Pi’s first account of the events, hence not gaining the knowledge of what happened, and in the suppression of Pi’s second version of his ordeal by both the audience and the writer, thus implicating them in the process of trauma.

3.3.1 Constriction and Interpretation

Another means through which 3D cinema engages with constriction is by foregrounding acts of interpretation. When traumatic memories remain outside of consciousness, they may manifest themselves as somatic symptoms which disguise their cause. As Anton Kaes writes

A traumatic event inscribes itself and becomes stored in the body without the mind having any overt awareness of its presence. The trauma returns involuntarily by ways of flashbacks, repetition compulsions, and psychosomatic illness. Precisely because a traumatic shock eludes conscious understanding, it is not directly accessible to memory or speech: it constitutes a failure of symbolization (2011:4; see also Herman 1992:12).
Hence, the task of the therapist is to interpret “disguised” symptoms, and uncover, together with the patient, their underlying traumatic cause. Similarly, we should recall that Caruth’s work on trauma theory in the humanities asks of the listener and the researcher alike to identify and interpret the aporia of the text. Hence trauma does not simply “reveal” itself, but rather is revealed in a disguised form. Moreover, interpretation is further tied to trauma as trauma is considered a “traceless event” (see Elssaeer 2001:196). One of the ways 3D cinema engages with these questions is through foregrounding themes of indexicality, interpretation, and incomplete representations.

Just as stereoscopy and 3D cinema are particularly privileged to depict both the traumatic event and the post-traumatic symptom of intrusion, 3D cinema is also privileged to engage with constriction, through the role of the index within it. A photographic image's claim to truth is its index, that imprint of light on a chemical surface which gives the image its noeme, its “thereness” (see Barthes 1981). In relation to the role of the index in cinema, Marks notes that “the use made of indexicality varies, to be sure, from evidentiary proof to mere ghostlike trace of the profilmic real”, however “any kind of cinema has this [indexical] relation to the profilmic event” (Marks 2000:93). Radstone writes that since its inception screen studies “has meditated on the illusory but shocking indexical 'thereness' of the moving visual image” (2001:190), and Kohne el al. argue “film functions as a medium that witnesses” (2014:10). Luckhurst takes this further and argues that the role of the index in cinema is greater than in still photography: “the foundational stories of cinema themselves circle around profound physiological shock, fostered by the even greater indexicality ascribed to the moving over the still image” (Luckhurst 2008:177).

However, while 2D cinema is bound by indexicality, 3D cinema complicates the relation between images and their indices to a great degree. Jones argues that the 3D image “is not two side-by-side or overlain images; it is their fusion and surmounting by our own perceptual
apparatus” (Jones 2015:178). Thus, as Jones argues “there isn’t really a stereoscopic image” (Jones 2015:178; see also Crary 1992:122). If it is indeed the spectator who constructs the stereoscopic image, then what we “know” of the profilmic event is destabilized:

3-D cinema does not transparently recreate reality, does not make objectively existing space more visible; it instead eradicates presumed correspondences between the observer and that which is observed, creating an unreal space through a novel mode of perception. 3-D films generate a visual illusion in which the observer’s perceptual apparatus is implicated, a physiologically produced sensation entirely particular to stereoscopic media (Jones, 2015:180).

I agree with Jones’ conclusion that 3D cinema produces a unique correspondence between the observer and the profilmic event, however, Jones’ argument implies that a “natural” perception exists in which the observer’s perceptual apparatus is not implicated. I contest this notion. Perception is never a natural process, and the observer’s apparatus is always implicated. In the cinematic experience the viewer is distinctly involved turning a sequence of still images projected at twenty-four frames per second into movement (a process often referred to as the illusion of motion in cinema, see for example Stewart 1999; Mulvey 2006; Cubitt 2010; M. Ross 2015). Yet, the observer is implicated in the perceptual process also outside of the movie theatre. As Bergson argues “there is no perception which is not full of memories” (Bergson [1912] 2004:24). More recently neuroscientist, Eric Kandel argued “because any image that is projected onto the retina of the eye has many possible interpretations, we must construct each image we see. In this sense, every image is subjective” (Kandel 2012:200) and “what we see in “the mind’s eye” goes dramatically beyond what is present in the image cast on the retina of our real eye […] It is in the construction of these internal representations of the visual world that we see the brain’s creative processes at work.” (Kandel 2012:234). Moreover, the image
INCREDIBLE BUT VERY REAL

of the world which is received on our eye’s retina is received “upside down”, and it is the brain that decodes the light signals into our image of reality (See Ramachandran et al. 2008).

Drawing on Jones, I suggest that it would be more accurate to argue that 3D cinema exposes the seemingly “natural” process of perception and the implication of the perceptual apparatus not just within stereoscopic perception, but within any perception. 3D cinema creates a special relationship between the image and to the profilmic event precisely because it is composed of two images fused together. As a result the stereoscopic image is comprised not of an index, but of two indices, thus complicating the relation to the profilmic event. The index is “doubled”, and the illusion of the privileged, omniscient, single perspective of cinema is undermined significantly (On the privileged position of the viewer in the cinematic apparatus see Jean Baudry [1970] 1975; Elsaesser 2011). Crary has observed this in relation to the operation of the stereoscope and stereoscopic slides, arguing that “the stereoscope signals an eradication of "the point of view" around which, for several centuries, meanings had been assigned reciprocally to an observer and the object of his or her vision” (Crary 1992:128). As the stereoscopic image is comprised of two perspectives fused together, it uncovers that which we “know” of the profilmic event as inherently constricted (as the illusion of an “omniscient” single perspective is broken down), and manufactured (as it is two perspectives fused together). Importantly, as imaging technologies move away from the filmic image, first to video, and then to digital, they also move away from the index. As Marks writes “the video image’s status as index is less secure than that of the film image, since it does not originate from a material object (of celluloid/acetate)” (Marks 2000:175; see also Burnett 1995). In the digital turn this is further accentuated, however despite this, “the index […] dominates thinking about visual culture, even if the category of the indexical is held to be in crisis” (Luckhurst 2008:149). Moreover, Luckhurst finds that the very destabilization of the role of the index by digital imaging technologies is in itself a form of “shock” (Luckhurst 2008:150). Thus, the uncovering of the
constricted and contrived nature of perception through the doubling of the index in 3D cinema is valid both in fifties’ 3D cinema films, and in D3D. In the latter, the “shock”, already brought on by the crisis of indexicality in digital photography, is amplified.

Interestingly, *Creature from the Black Lagoon* engages in a reflexive manner with the role of the index in relation to questions of representation and interpretation, as evident in the prologue of the film. Including a prologue in a film constitutes a particular thematic and artistic choice. It is an affix to the film’s narrative and, as it does not possess narrative importance, its inclusion in the film and its relation to the whole must be explored. I argue that the prologue of *Creature from the Black Lagoon* provides the researcher with the keys to the analysis of the film, bringing to the surface the themes of indexicality, limits of representation, and traces of a traumatic past that the film addresses throughout.

The prologue situates us in the far past, at the beginning of the world, the big bang which started life. The first image of the film depicts the explosion of the big bang, to which I have already devoted attention as a form of intrusion alluding to the bombing of Hiroshima and Nagasaki. The second most prominent visual component in the prologue is the emphasis on footprints leading from the sea to the shore. Footprints are an indexical sign, one of many the film brings to the foreground. This imagery of the prologue is accompanied by a narrating, disembodied, transcendental voiceover, an artistic form of expression that appears in *Creature from the Black Lagoon* during the prologue only. The voiceover says:

’In the beginning, God created the heaven and the earth. And the earth was without form, and void’. This is the planet Earth, newly born, and cooling rapidly from a temperature of 6,000 degrees to a few hundred in less than five billion years. The heat rises, meets the atmosphere, the clouds form, and rain pours down upon the hardening surface for countless centuries. The restless seas rise, find boundaries, are contained. Now, in their warm depths, the miracle of life begins. In infinite
variety, living things appear, and change, and reach the land, leaving a record of their coming, of their struggle to survive, and of their eventual end. The record of life is written on the land, where, 15 million years later, in the upper reaches of the Amazon, man is still trying to read it.

This text creates an amalgam of religion and science, beginning with easily recognizable quotes from the book of Genesis (Gen. 1:1—2), and moves on to describe the history of the earth from a scientific point of view, a conflicting juxtaposition to the religious tale of the creation of the world. In this manner, I suggest, the film alludes to mankind harnessing the power of God and the power of the universe.11 Paul Boyer demonstrates that the linking of God and science has been frequently invoked in relation to the Atomic bombing of Hiroshima and Nagasaki (see Boyer 1994). For example, following the bombing of Nagasaki on August 9th, President of the USA, Harry S. Truman stated on nationwide radio “It is an awful responsibility which has come to us; We thank God that it has come to us instead of to our enemies; and we pray that He may guide us to use it in His ways and for His purposes” (Truman qtd. in Boyer 1994:6). Relating the destructive powers of the Atom bomb to mankind harnessing the power of God was also apparent in many newspapers of the time, both in editorials and in readers’ letters, as well as in the moral questions that ensued in US society following the bombings (see Boyer 1994:179-241). These moral questions are, in turn, manifested in Creature from the Black Lagoon by including the audience in the explosion of the Big Bang, and through debris falling in the negative parallax space. The narrating text ties mankind to “a” big bang, reframing the atomic bombing into a more benevolent explosion, that which started life; then the falling of debris in

11 Rogers briefly notes that the plot of Creature from the Black Lagoon has been read as an “emblem of social concerns”, amongst which the threat of the Atom (Rogers 2013:202).
the negative parallax space literally situates the audience closer to the site of explosion, implicating the audience in it. Thus, the explosion in the prologue of *Creature from the Black Lagoon* both implicates the audience in the bombing of Hiroshima and Nagasaki, yet at the same time, it displaces the bombing, sending it as far into the past as possible.

The text then explicitly draws attention to the act of interpreting signs and incomplete representations through indexicality: “in infinite variety, living things appear, and change, and reach the land, leaving a record of their coming, of their struggle to survive, and of their eventual end. The record of life is written on the land, where, 15 million years later, in the upper reaches of the Amazon, man is still trying to read it”. The use of the voice over, as well as the scenic imagery, allude to documentary filmmaking, a type of filmmaking which enjoys a certain claim to truth for its images. As the rest of the film, however, is clearly fiction, the coupling of the “documentary” style of the prologue and the fictitious style of the rest of the film maintains the tension inherent in the stereoscopic image, oscillating between reality and illusion.

Taken together, the text and imagery of the prologue ask the viewer to consider the act of interpreting the past through traces. The traces in the prologue represent life that lies beyond any individual’s reach of memory, similarly to the way the traumatic event leaves traces on individuals and nations while escaping assimilation into cognitive memory. Furthermore, the voiceover combines the past of planet earth with the past of mankind. Thus, the journey the expedition embarks on, searching for the past of “the creature”, is in fact, a journey to the monstrous past of mankind.

The foregrounding of indexicality evident in the prologue continues throughout the film, most evidently in the form of the fossil, which is the prime example of indexicality. Marks writes “a fossil is the indexical trace of an object that once existed, its animal or vegetable tissue now become stone. Consider how similar this is to the photographic process” (Marks 2000:84). Other examples of indexicality in the film are the imprint the creature’s claws leave on the
ground as its hand retreats shortly after approaching Kay’s (Julie Adams) ankle; the hole the creature makes in the net in its efforts to escape; bubbles and ripples on the surface of the water which signify either the creature or David and Mark nearing the surface; and the wet traces on the ship’s deck surface signifying the presence of the creature. Through heavy reliance on indices, *Creature from the Black Lagoon*, entrusts the viewers with the task of deducing the underlying cause for a sign. In this I find *Creature from the Black Lagoon* employs visual cues – the interpretation of indices and signs – as a means to relate to the pathology of trauma and constriction, in which the traumatic event is walled off, yet manifests itself through seemingly unconnected symptoms.

Another form of representation *Creature from the Black Lagoon* often draws on is that of synecdoche, where parts are made to represent the whole. An instance of this is apparent when the creature’s claw is left in the bottom of the net he escapes from, leaving trace of his presence. Also noteworthy is the creature’s menacing hand which appears in the beginning of the film signifying the creature and at the same time delaying its full bodied appearance. Thus the film’s emphasis of the theme of representation is highlighted through the foregrounding of images of synecdoche and indices, through the narrative which asks how to produce proof of a traumatic encounter, and through the use of 3D images which destabilize the role of the index.

While discussing direct representations of the trauma of 9/11, Kristiaan Versluys argues that “the ‘synecdochic imagination’ is unable to make Oliver Stone’s *World Trade Center* (2006) stand for the entirety of the events of 9/11, and instead reduces it down to a disaster movie of the week for television” (Wetmore 2002:2; Kristiaan Versluys 2009:1-2). Versluys’ argument pertaining to *World Trade Center’s* failure to represent the events of September 11 can be seen as an example of Luckhurst's argument, concerning trauma theory’s association of the direct representation of traumatic events with “banality, psychic numbing, or the cheap sentiment of affective identification” (Luckhurst 2008:174). Proposing an opposite relation to
that articulated by Versluys and Wetmore, I suggest that the heavy reliance on indices and
synecdoches in *Creature from the Black Lagoon*, along with the stereoscopic moving images’
inherent complication of the role of the index, serve as a call to read the film against a wider
cultural background. Accepting the film’s call and considering *Creature from the Black Lagoon*
in a wider cultural and historical context, position the fragmented and disguised representations
featured in the film as signs of constriction. Within this context, the task of interpreting these
disguised signs further alludes to the poetics of uncovering trauma. Instead of attempting to
represent WWII directly, *Creature from the Black Lagoon*’s plot presents an allegory pertaining
to the impossibility of representing a traumatic encounter, and features incomplete
representations to allude to the disguised signs of trauma.

The question of indexicality and the interpretation of traces is also present in *It Came
from Outer Space*, where it plays an important part in the narrative. Firstly, the crater formed
by the spaceship’s crash is an indexical sign in itself, and will become a site of dispute and
rivaling narratives attempting to account for its formation, that is to link the symptom to a
cause. In a scene where John tries to convince Dr. Snell (George Eldredge) to allocate the
university’s resources to dig out the spaceship buried underneath the landslide, Snell counters
his request with a “landslide” of facts indicating that the crater was formed by a meteor and not
a spaceship:

SNELL: Look John, last night you saw a meteor fall to Earth. That much has been
substantiated by witnesses. The presence of the crater itself, its formation, and
characteristics, all support that theory that it was a meteor.

JOHN: But I tell you it was a ship!

SNELL: You saw something that looked like a ship. You can’t prove it John.

JOHN: I can prove it, if I can get you to help me to dig it out of there.

SNELL: I can’t in good faith ask the university to do it. We’d dig for months and
spend thousands, and maybe all we’d find would be these. Look, note the black coloring, characteristic of the meteor, the fusion from the heat, the nickel and iron. Facts, John, facts. Even the angle of contact with the earth. Everything points towards it being a meteor. […] There's no sign of any excessive radioactivity anywhere. Odd, wouldn't you say, for something coming in from outer space?.

JOHN: I don't know what's odd and what isn't anymore. But I do know I expected you to be more open to the idea than the others. You're a man of science!

SNELL: Therefore, less inclined to witchcraft, John.

JOHN: Not witchcraft, Dr. Snell. Imagination!

Note that Dr Snell cites a series of findings that all supposedly maintain an indexical connection that ties the crater to a meteor crash: “the black coloring […] the fusion from the heat […] the nickel and iron […] the angle of contact with the earth. Everything points towards it being a meteor”. Moreover, Snell cites the lack of indexical signs that might tie the crater to a spaceship, for example “excessive radioactivity”, as the final proof that the crater was formed by a meteor rather than a spaceship. In misinterpreting the indexical traces, Snell and the narrative and dialogue of It Came from Outer Space, contribute to a destabilization of the role of the index. Moreover, this dialogue alludes to the misalignment of truth and facts characteristic of trauma. An example of the first is Giorgio Agamben’s formulation of the aporia of Auschwitz as “the very aporia of historical knowledge: a non-coincidence between facts and truth” (Agamben 1992:12 qtd. in Luckhurst 2008:7). The resemblance here lies in John’s request for Snell to disregard “facts” and act on the basis of the fantastical testimonial of what he has seen, hence affording it validity.

House of Wax and It Came from Outer Space also foreground acts of interpretation by undermining the automatic process of visual perception and visual knowledge. In House of Wax this is achieved through the centrality of the wax figures to the plot. The life-like appearance of
the wax figures is a source of confusion both to the characters and the audience alike. This confusion can be noted, for example, when characters who visit the “chambers of horrors” wax exhibition mistake a man checking his watch to be a wax figure (see also Paul 1993:342), and when Sue is unable to discern Igor’s head (Charles Bronson) among the wax heads. Hence the capacity of the characters of *House of Wax* to rely on visual clues to interpret their environment and distinguish between real human beings, and representations of human beings is called into question. This ambivalent, uncertain attitude towards wax representations demonstrated by the characters of *House of Wax*, is in turn extended to the audience through stereoscopic images which are inherently embedded with the duality of realism and illusionism.

In *It Came from Outer Space* the limits of visual representation are explored in what may seem like an amateurish mistake – the night scenes in the film are not dark, and appear to have been shot in daylight. As a result the viewer cannot “instinctively” determine the time of the scene and becomes dependent on dialogue, or other light bodies such as a car’s headlights, to signal that a night scene is unfolding. Arguably, this may have been a mistake either in the remastering of the film into digital format, or during production itself. Indeed, if it is a mistake, it is surprising as it is not in line with the craftsmanship of cinematography in *It Came from Outer Space*, which creates incredibly stylized shots. However, whether it is a mistake or not is irrelevant. The inability to determine the time of the scene, that is to identify automatically whether the scene takes place during daytime or night-time, undermines the primacy of vision in our perceptual process (see Marks 2000). As a result the validity of visual knowledge is called into question, and viewers becomes aware to the possibility that our eyes may mislead us. When visual knowledge is put into question one becomes more receptive to the possibility of conflicting accounts. As the film advances the gravity of the implications of undermining

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12 In first viewings I was surprised when the dialogue signalled that it is in fact night time, changing my orientation towards the scene and my understanding of it.
one’s visual knowledge sets in. This is articulated when it turns out that the aliens can take the form of humans they capture, as sheriff Matt Warren (Charles Drake) tells John:

SHERIFF: I'd give anything if things were the way they were this mornin', with me callin' you a fool. Is it reasonable for anything to stay alive after hitting Earth that hard?

JOHN: It's reasonable because it's true.

SHERIFF: Believin' all this talk about takin' over other people's forms! That's crazy, I tell ya! Nothin' would ever add up! I couldn't even be sure that you're John Putnam standing beside me.

And later, it is the appearance of an alien in the form of George that causes the sheriff to lose his composure:

SHERIFF: That clock!

JOHN: Don't do anything!

SHERIFF: Look at him, walkin' around like he belongs here!

JOHN: The sooner they finish, the sooner they'll clear out.

SHERIFF: How do you know? How do we know whether they're really walkin' around in our clothes? [...] They could be all around us and I wouldn't know it!”

Following this exchange, the sheriff assembles an armed group and sets out to confront the aliens. The look-alike alien clones of the characters in It Came from Outer Space also allude to the veterans returning from the war looking almost the same as before, yet suffering from post-trauma and numbness. This also reflects the atmosphere of paranoia prevalent in the US during the Cold war, and in the aftermath of WWII, described by LeGacy as “fear even of one's next door neighbor (1978:289). In this capacity It Came from Outer Space engages with the inability to differentiate between the familiar and the alien and rely on what our senses convey, reflecting anxieties and fears prevalent in US society and closely tied to trauma and war.
Through narrative and stereoscopic poetics, the films discussed create scenarios in which the very act of seeing is called into question, alongside other visual reproduction technologies such as still photography. As a result, the limits of visual knowledge are exposed, and the representational faculty of photography is called into question. The undermining of the representational faculty allows for the opening up of the possibility of stereoscopic cinema to engage not with attempts to show the traumatic event, but rather to afford visibility to the very poetics of trauma.

3.4 Conclusion

Through distinct poetics, narrative frameworks and dialogues which reflexively acknowledge the distinct characteristics of stereoscopy, 3D cinema of the fifties and *Life of Pi*, afford visibility to the very pathology of trauma, to trauma’s non-representability and to the processes of intrusion, constriction, and the limits of visual knowledge. The un-representability of trauma is engaged with by creating images which constitute failures of representations, simultaneously real and at the same time calling attention to their illusionary nature. Intrusion is engaged with by creating images which impose and intrude on the audiences’ space. Constriction is engaged with by destabilizing the role of the index and exposing the limits of visual knowledge, as well as by foregrounding attempts of interpretation. These poetics, along with protagonists that attest to their struggles in attempting to communicate “incredible but very real encounters”. demonstrate the ways in which 3D cinema engages with the question of representation which lies at the heart of trauma theory in the humanities. The emphasis of 3D cinema on questions of representation bears important cultural significance. When viewed against the cultural-historical context and through an approach informed by trauma theory these films reveal the ways in which they engaged with the different questions of representation brought upon by WWII and 9/11.
In the previous chapter I engaged with representation and trauma in 3D cinema and argued that 3D cinema is able to engage reflexively with the challenge of representing traumatic events in a unique manner, and to afford visual manifestation to the PTSD symptom categories of intrusion and constriction. In this chapter I turn to explore the second application of trauma theory in the humanities as argued for by Callard and Papoulias, affect and the body in relation to trauma and 3D cinema.

In trauma we encounter the body initially as a site of power, autonomy and agency that has been threatened, violated and overthrown during the traumatic event. Abram Kardiner drew attention to the physiological aspects of trauma in 1941, proposing that “the nucleus of the [traumatic] neurosis is a physioneurosis” (Kardiner 1941:7 qtd. in Herman 1992:35, emphasis in original). More recently, in The Body Keeps the Score (2014), Bassel Van der Kolk situates damage to bodily functions at the core of traumatic processes: “trauma produces actual physiological changes, including a recalibration of the brain’s alarm system, an increase in stress hormone activity, and alterations in the system that filters relevant information from irrelevant. We now know that trauma compromises the area of the brain that communicates the physical, embodied feeling of being alive” (Van der Kolk 2014: 2-3, my emphasis). Alongside intrusion and constriction, a third symptom category of PTSD, Herman argues, is that of hyperarousal:

After a traumatic experience, the human system of self-preservation seems to go
onto permanent alert, as if the danger might return at any moment. Physiological arousal continues unabated. In this state of hyperarousal, which is the first cardinal symptom of post-traumatic stress disorder, the traumatized person startles easily, reacts irritably to small provocation, and sleeps poorly. (Herman 1992:35)

The centrality of the body both in the traumatic event and in its aftermath leads Van der Kolk to afford the body an important position in the healing process of trauma, supplementing treatment of trauma victims with a "bottom up" process which includes “allowing the body to have experiences that deeply and viscerally contradict the helplessness, rage, or collapse that result from trauma” (Van der Kolk 2014:3). Thus, for Van der Kolk, the treatment of trauma survivors includes questions of mastery and agency: “How can people gain control over the residues of past trauma and return to being masters of their own ship?” (Van der Kolk 2014:4).

To sum up this brief exploration of the role of the body in trauma scholarship, the body maintains a significant role throughout the entire traumatic and post-traumatic process: the body is threatened and violated during the traumatic event; the body goes through physiological changes as a result of the trauma (Kardiner 1941; Herman 1992; Van der Kolk 2014) and is the site where somatic symptoms manifest themselves (Herman 1992; Van der Kolk 1997, 2014); lastly, the body is also a source of healing power (Van der Kolk 2014).

Drawing on scholarly work on the body in the fields of trauma and 3D cinema, I will argue that through different artistic means, 3D cinema of the fifties and D3D cinema of the twenty-first century, elicit an embodied experience which engages with trauma, albeit in different ways. The difference in the ways 3D cinema in the fifties and D3D engage with trauma and the body may in turn be tied to the nature of the traumatic historical events that preceded their respective surges into mainstream attention. Laura Marks argues that “all of us hold knowledge in our bodies and memory in our senses” and that “the body is a source not just of
individual but of cultural memory” (Marks 2000:xiii). Drawing on Marks my analysis of 3D cinema in the two periods takes into account the different bodily knowledge and memory inscribed in US audiences post WWII and 9/11.\textsuperscript{13}

The bodies of audiences in the US in the early fifties were engraved with the trauma of WWII and the Korean War battlefields, and with the fear and suspicion brought on by the Cold War. Furthermore, US audiences in the post WWII period were highly familiar with deformed, hurting bodies. In WWII alone over 400,000 US soldiers died, over 670,000 were wounded and many (undocumented) more suffered from post-trauma and vicarious trauma (Department of Veterans Affairs 2016:np). In my analysis of fifties’ 3D cinema I will demonstrate how it employed the negative parallax space primarily to phenomenologically act out wounding experiences, thus allowing US society to symbolically share the physical and mental wounds sustained by veterans and families affected by WWII. This was achieved through violent violations of the negative field of screen which ruptured the film’s body, thereby echoing experiences of bodily harm. Acting out wounding experiences in the cultural-social sphere of the cinema also allowed for the creation of a unified metaphorical audience body upon which a “communal wound” could be inflicted. Thus, by experiencing trauma in the safety of cinema audiences could symbolically participate in the burden of WWII veterans, and resurrect

\textsuperscript{13} Importantly, and as discussed in the methodology chapter, the audience is not a uniform entity. There is no “blanket response” to films (to draw on Wetmore 2012:7). In arguing for a certain embodied response I am following Whissel who argues that films and special effects can “make possible, or even demand” a certain kind of spectatorship (2014:7). That said, I am in no way suggesting that this is the only embodied response possible to the films and scenes analysed. For a more thorough discussion see the methodology chapter.

Conversely, bodies of post 9/11 audiences were affected by the terror attacks which took place on US soil and televised nationwide. Many descriptions of the atmosphere after September 11 in the US tend to highlight anxiety, fear, and a sense of trauma. Alexander Dunst notes that the September 11 terrorist attacks were mediated to the US public as a bodily wound inflicted on the imagined body of the state (see Dunst 2012). Post 9/11 the US imagined body was hurting and 3D cinema of this time employed stereoscopy in a manner that generated an affect I term empowering kinaesthesia, in which the “embodied feeling of being alive” to draw on Van der Kolk’s words is rejuvenated (Van der Kolk 2014:2-3). This is achieved firstly as D3D cinema depicts bodies which are enthralled in the act of change, creating novel connections and unlocking dormant potential for action. These changing becoming bodies reverberate with the bodies of audiences; secondly, D3D cinema implicates the viewer in the very genesis of the diegetic world which in Life of Pi, Gravity, and Avatar, is imbued with the sublime; finally, D3D employs its added depth to introduce gentle protrusions into the negative parallax space (see M. Ross 2015). These protrusions stand in sharp contrast to the threatening stimuli of post-traumatic intrusive images, and allow for a close bond, bordering on the erotic, to form between the viewer and the stereoscopic images. Before exploring in more detail the films from the different periods and the ways in which they engage differently with viewers’ bodies, I first turn to explore the various ways cinema, and more particularly 3D cinema, can engage with viewers’ bodies.

4.1 3D Cinema and The Body

3D cinema uniquely engages viewers’ bodies through the negative and positive parallax spaces. Images which protrude into the negative parallax space invite tactile exploration, encouraging
audiences to reach towards them, or recoil if the protrusion is threatening. This heightened bodily response to images in the negative parallax space results from the proximity of the images to the audience, which is enough to elicit nascent or even fully performed actions from viewers. As Henri Bergson argues “perception […] measures our possible action upon things, and thereby, inversely, the possible action of things upon us […] the distance which separates our body from an object perceived really measures, therefore the greater or less imminence of danger, the nearer or more remote fulfilment of a promise” (Bergson 2004:57-58). In other words, through proximity to the viewing body images in the negative parallax space hold greater potential for eliciting action from the viewer. In turn, the bodies of audiences respond to this potential with nascent and fully performed actions.

Similarly to the negative parallax space, the positive parallax space also engages the viewer’s body. The positive parallax space in 3D cinema creates infinite depth planes and multiple horizons which challenge viewers’ ocular orientation in space, thus hindering the primacy of vision in the process of orientation. As the positive parallax space undermines the certainty of ocular perception, audiences’ bodies participate in a more conscious way in the process of cinematic perception. Crary highlights the shortcomings of ocular perception in stereography arguing that it elicits “a vertiginous uncertainty about the distance separating forms” (Crary 1990:125). A similar message is also articulated by Elsaesser, who argues that D3D cinema is “introducing the malleability, scalability, fluidity, or curvature of digital images into audiovisual space—doing away with horizons, suspending vanishing points, seamlessly varying distance” (Elsaesser 2013:237). Hence, through the challenge that the positive parallax space introduces to viewers’ ocular perception viewers become more aware of the ways in which the body participates in the effort to situate oneself in 3D space.

M. Ross, drawing on the work of Marks, argues that 3D cinema can also engage with viewers’ bodies through what she terms “hyper-haptics”. Marks argues that by employing
techniques such as extreme close ups, pixellization, and over or under exposure, “thin” images can be produced. Such images hinder viewers’ recognition of the representations depicted. Unable to decipher the image through ocular perception alone, viewers are drawn into close contact with the image:

haptic visuality is distinguished from optical visuality, which sees things from enough distance to perceive them as distinct forms in deep space: in other words, how we usually conceive of vision. Optical visuality depends on separation between the viewing subject and the object. Haptic looking tends to move over the surface of its object rather than plunge into illusionistic depth, not to distinguish form so much as to discern texture. It is more inclined to move than to focus, more inclined to graze than to gaze. (Marks, 2000:162)

While for Marks the intangibility of the image is a condition for the generation of haptic visuality, M. Ross argues that the overt depth and richness of the 3D image also impede ocular mastery over the image. This results in a haptic-tactile relation between the viewer and the stereoscopic image which M. Ross terms “hyper-haptic” visuality. In the negative parallax space hyper-haptic visuality operates as objects in close proximity to the audience are rendered, with the aid of the richness of the image, hyper-familiar, thus inviting tactile rather than optical exploration (See M. Ross 2015:21-40). In relation to the positive parallax space M. Ross writes:

When viewing these films, rather than finding distance from the screen and a sense of mastery over the images, we consider and reconfigure our bodily placement in relation to the screen content. This factor, combined with the expansiveness of depth, means that, while their images may be optically clear and intelligible, they invite a more tactile exploration. Significantly the proximity of objects in the field screen threatens to engulf the audience, and this affects both vision and other senses.
If the intercultural cinema that Marks examines plays upon and exploits the uncontrollable, tactile quality of images in the production of haptic visuality, then 3D cinema asserts an uncontrollable, infinite depth in its image, producing a hyper-haptic visuality (M. Ross 2015:24-25).

Other ways through which both 2D cinema and 3D cinema may engage viewers’ bodies are kinaesthetic empathy and embodied simulation. Recent discoveries in brain studies place kinaesthetic empathy and embodied simulation at the heart of the human perceptual process. Succinctly put

when we observe someone performing an action, such as waving their hand [in greeting] we covertly and unconsciously simulate ourselves performing the movement, access our own associated intentions and goals for that particular movement, and assign them to the person we are observing’ (Dinstein 2008:R957, qtd. in Reynolds and Reason 2012:21).

In other words, the internal simulation of a perceived action allows us to assign meaning to the action and provides a “motor-based understanding” of the world (Rizzolatti and Sinigaglia 2010; see also Reynolds and Reason 2012:21). Rose Parekh-Gaihede’s discussion of kinaesthetic empathy provides a useful example of the ways in which motor-based understanding operates within narrative. Parekh-Gaihede describes how she was able to empathize with a survivor of a suicide bomber attack through a performative action. When the survivor recounted how she pulled at human body remains entangled in her hair following the explosion, the survivor accompanied her account with a performative action – and began pulling her own hair. Of this action Parekh-Gaihede writes:
although her experience would never be mine, her action let me participate in her physical re-enactment of her own experience. I was able to find that place within myself where I was pulling my own hair; and linking this imagined movement with the image of ‘body parts’ gave me an embodied realisation of the horror of the reality she described. Furthermore, the performative action let me participate through my body in her body’s repetitive attempt to cope with the inexplicable. The closeness given by the performative representation did not come from a permission to possess her experience, but from the fact that I could share its inexplicable nature (Parekh-Gaihede 2012:179-180).

What is particularly interesting in this example is the way it ties narrative with kinaesthetic empathy. That is, while the internal simulations of the acts of others is automatic, here, it was through attunement to the actions and the experience of her friend that Parekh-Gaihede was able to empathise with her. To put this differently, a bypasser watching a woman mimic a pulling of her own hair would not feel empathy nor interpret the action in the same way as Parekh-Gaihede did. Narration provided in this case an essential framework for the performative action. Hence, I suggest that employing kinaesthetic empathy to mainstream cinema should take into consideration the relation between narrative and action. The result is that the boundary between higher order functions, such as narrative interpretation, and lower level functions, such as inner-motor understanding is dissolved. This approach follows Jane Stadler’s suggestion:

Rather than reinforcing a value-laden dichotomy denigrating “lower-level” nonvolitional, embodied forms of empathy and privileging “higher-order” cognitive deliberative responses, the study of cinematic narratives, aesthetics, and spectatorship can help illuminate the networked interplay between these processes. Film studies can identify the aesthetic and technical cues, narrative scenarios, and
storytelling strategies that stimulate or inhibit embodied resonance and the moral imagination (Stadler 2017:325).

Furthermore, grounding kinaesthetic empathy in narrative helps us understand why the physical actions of some characters resonate differently within audiences. For example, if the protagonist is chased by the antagonist audiences will most likely kinaesthetically empathise with the experience of being chased, rather than with the experience of the pursuer. As actions by protagonists are more likely to elicit kinaesthetic empathy from audiences than actions of antagonists, kinaesthetic empathy also pertains to the question of “sympathy” towards fictional characters. I use the term sympathy here following Noël Carroll who argues: “we rejoice when the character rejoices over circumstances we judge to be actually beneficial to him because he is already an object of our benevolence. We do not rejoice when the villain rejoices, because the villain is not an object of our sympathy; his wellbeing is not something about which we could give a fig” (2011:174). Hence, the translation of embodied simulation into kinaesthetic empathy depends on the attention and position the perceived action holds within our perceptual apparatus, a position which may fluctuate through prisms often influenced by narrative. These embodied processes have particular relevance in relation to trauma that will become evident in my following analysis.

4.2 3D Cinema of the Fifties

As discussed earlier 3D cinema of the fifties has often been criticized for its overt, excessive, gimmicky and assaultive use of the negative parallax space. It is this “assaultive” quality of 3D cinema I turn to examine, since it is first in the negative parallax space that an important link to trauma and the body can be witnessed. While I agree with the categorization of 3D cinema of the fifties as assaultive, I would like to suggest that the assaults were not gimmicky but carried
important cultural and social significance. Moreover, as my analysis will demonstrate, 3D cinema of the fifties employed the added depth in a variety of ways rather than limiting itself to assaulting the audience alone.

4.2.1 Films that Ache

Vivian Sobchack, drawing on Merleau-Ponty’s existential phenomenology, argues that cinema comprises a “film body” (Sobchack 1992). Jennifer Barker offers a succinct interpretation of Sobchack’s film body as “a lived-body (but not a human one) capable of the perception of expression and the expression of perception: “the film certainly perceives, experiences and is immersed in, and has a vantage point on the world, and without a doubt the film signifies, or otherwise there would be nothing at all for us to see, hear, feel or interpret” (Barker, 2009:9). The stereoscopic film body, however, is slightly different – it is capable of expressive gestures 2D film bodies are not capable of. As M. Ross argues “stereoscopy has unique modes for incorporating the embodied and synesthetic nature of perception, so that both film and viewer are physically present in the production of meaning” (M. Ross 2015:9).

M. Ross, drawing on Sobchack and Barker, examines the unique stereoscopic film body and suggests viewing it as an elastic porous membrane capable of bulging towards us or receding away from us (2015:119-120). Taking note of 3D cinema’s “signature” or “emblematic” aesthetic, she asks “what, then, of the stereoscopic objects that often seem to fly towards us in negative parallax space in a way that demonstrates they are completely detached from the rest of the film body?” (M. Ross 2015:120).

In regard to 3D cinema of the early fifties, I suggest that the violations of the negative parallax space (for example by gun shots fired at the audience, spears launched at the audience and other objects flung in their direction) create wounds in the stereoscopic film body. In other words, the stereoscopic film body of the fifties’ 3D cinema employs the negative parallax space
to perform its own mutilation, to draw attention to its own wounding. Barker writes that our musculature empathy with the film body is based on shared movements:

Our bodies’ muscular empathy with the film’s body emerges partly from experience. When the film swivels suddenly with a whip pan, or moves slowly in a long take or a tracking shot, or stretches itself out in widescreen to take in a vast landscape, we feel those movements in our muscles because our bodies have made similar movements [...] when the film “ducks” or “swerves” or “races” or “stalks” it subjects or “crashes” into something, we can relate, having performed many of these basic gestures ourselves, in our own way (Barker 2009:75).

Drawing on Barker, I suggest that the stereoscopic film’s injured body resonated experiences of bodily harm that US audiences of the time were familiar with. In the early fifties many individuals in US society had sustained the experience of being wounded, either vicariously or directly. Audiences in the US post WWII were familiar with injured, hurting bodies and 3D cinema of the fifties, through the negative parallax space phenomenologically performed the experience of being wounded.

Barker suggests that viewers’ bodily responses may be elicited not through an alignment of the viewer with the protagonist, but rather that viewers’ bodies might relate to the film body itself and reverberate with its actions: “perhaps viewers respond to whole cinematic structures–textural, spatial, or temporal structures, for example – that somehow resonate with their own textural, spatial and temporal structures” (Barker, 2009:74). Considering that human bodies, movements and senses are imbued with personal, and social memories (Marks 2000, see also Lori Landay 2012:132), then the movement of the film body can also be tied to historical and cultural contexts. Viewing fifties’ 3D cinema’s film body in historical and cultural contexts, I argue that this cinema’s stereoscopic film body mimicked, and allowed for mimicry of the
experience of being injured. Audiences understood with their bodies the “pain” the stereoscopic film body was performing. Simply put, the added depth of 3D cinema of the fifties – viewed in particular historical and cultural contexts – allowed these films to “ache”, and invited a relation of kinaesthetic empathy, centered around bodily harm, to form between audiences’ bodies and the film body itself. Hence, 3D cinema of the fifties offered an experience which “is mimetic, or an experience of bodily similarity to the audiovisual images we take in” (Marks 2000:xvii). Audiences share and resonate with the kinaesthetic powers of the cinematic film body, and in 3D cinema of the fifties, this means that audiences shared the phenomenological experience of bodily harm. These films employed the extra dimension to perform the phenomenological experience of injury, allowing audiences’ bodies to empathize with this wounding experience. To perform these injuring experiences, 3D cinema of the fifties rendered the violations of negative parallax space just that – violent.

A step towards associating the negative parallax space with trauma as a cultural phenomenon in the US following WWII can be found in E. Ann Kaplan’s writing on Spellbound (1945, Alfred Hitchcock). Kaplan draws a connection between Spellbound taking aim at its audience and the state of vicarious trauma. For Kaplan, Alfred Hitchcock’s directorial choices for the scene in which Murchison (Leo G. Caroll) turns the gun on himself serve as the final proof for the presence of WWII and its traumas in the film:

The real ending is of the viewer being shot at, vicariously traumatized as it were. This shot (very near the film’s end) suggests that the war and its traumas were present in the film’s unconscious […] [The camera] rotates the gun toward Murchison, whose point of view spectators still share, as he prepares to commit suicide. The gun now looks directly at the spectator. It makes the viewer the target; we are about to be shot. While Hitchcock no doubt had in mind the famous shot of
the gun in close-up, pointed at the viewer, from *The Great Train Robbery* (1903), surely he also had war in mind (Kaplan 2005: 84).

Similarly to Kaplan, I will outline instances in which 3D cinema of the fifties “takes aim” at its audience. It must be acknowledged, as in the previous chapter, that WWII was largely missing from the narratives of 3D cinema of the fifties. That said, the war, I suggest, manifested itself through the added dimension and the aggressive manner in which this dimension was employed.

Some of the critique of fifties’ 3D cinema assaults pertains to 3D cinema’s “telegraphing” of upcoming attacks (see Mitchell 2004:209). Telegraphing upcoming violations of the negative parallax space seems peculiar – it allows audiences to prepare themselves for the upcoming intrusion – hence undermining the assaultive quality of the intrusion. However, observed in a cultural context, by “telegraphing its attacks,” i.e. the forthcoming violations of the negative parallax space, 3D cinema of the fifties allowed its audiences time to brace themselves and experience the attacks together, in a collective manner. This telegraphing of upcoming attacks in fifties’ 3D cinema allowed the audience sufficient time to crystallize into a metaphoric unified body and share the wounding experience. By inspiring a collective experience of harm, fifties’ 3D cinema was also able to resonate with the mythologized home front of the US during WWII, in which hardships were met in a collective manner. This mythologized home front is outlined by Rose who discusses the development of “romantic/utopian” elements of WWII, such as “the creation of a home front idyll, where Americans during wartime eagerly put aside their class, race, and personal interests to unite as one for the war effort” (2013:1).

Writing on 1950s 3D cinema, Jancovich has argued that 3D films emphasize “the ritual aspect of the cinema experience” and as a result “become even more of a collective event and experience than the more usual forms of film exhibition...” (Jancovich 1996:169). The collective, inclusive nature of fifties’ 3D cinema and its stereoscopic assaults are also
documented in reviews written by this cinema’s contemporary critics. Following the premiere of *House of Wax* J.M. Jerauld writes in *Boxoffice*:

’Wax’ is a chiller that out chills anything ever seen before, because the new techniques permit remarkable effects […] When a chair is thrown at a combatant in the direction of the audience everybody in the first 15 rows ducks – when a woman faints on screen she seems to be falling into the orchestra […] There was more screaming in the audience than on the screen (Jerauld, 1953:9).

Moreover, the screening of 3D films was celebrated, at least initially, as a cultural-social event which further inspired a sense of a collectiveness. *Boxoffice* reported that

the around-the-clock, every-two-hours a marathon premiere of “Wax” was featured by attendance of civic, governmental and film dignitaries including Mayor Fletcher Bowron and Police Chief William H. Parker of Los Angeles, several city councilmen, Post-master Michael Fanning, members of the consular corps and a host of other celebrities (*Boxoffice*, 1953:16).

Ten days later, enthusiasm was still high, as Army Archerd reported in *Variety*:

Here’s the public’s answer to the future of 3-D: Of the hundreds we queried at the Hollywood Paramount, nine out of ten want to see more 3-D’s. With glasses raised high, patrons toasted the presentation. Even the kids said they’d be willing to spend a buck to buy better-fitting, permanent glasses. Teen-agers want bigger and better gimmicks. Most adults admit “House of Wax” is the first film they’ve seen in months […] Three-D and the exploitation dragged them in and they say they’ll be back (Archerd, 1953:np).
While the nature of these accounts is far from sombre, they emphasise a unity of sorts, in which individuals collectively gather and wait in line to experience and confront threatening images together. It should be noted that recent scholarship argues that part of the appeal of horror cinema lies in allowing audiences to experience, cope and come to terms with frightening themes in the safety of the movie theatre (See Hallam, 2010:228-236; Wetmore, 2012:13, 16-17). Mary Beth Oliver and Meghan Sanders for example, survey the different appeals of horror cinema and find that one of the draws of horror cinema pertains to the role of a “viewer’s broader community and life situation” in relation to her enjoyment of horror cinema (2004:249). They note the rise in popularity of horror film during times of war and argue that “people who experience or witness a great deal of violence in their everyday lives tend to view horror films […] to cope with their fears of aggression” (2004:249). Oliver and Sanders conclude their survey of the appeal of horror cinema during times rife with aggression and anxiety by drawing on research by Boyanowsky, Newtson, and Walter who argue that “given safe conditions of exposure, individuals will show a preference for a stimulus situation containing an event or object representative of the real-life source of their fear” (Boyanowsky et al. 1974:42). In light of fifties’ 3D cinema’s tendency to “attack” its audience, thereby eliciting a collective viewing experience, and as this cinema contained displaced representations of WWII, I suggest that the functions scholars argue horror cinema carries, can be extended to fifties’ 3D. Namely, that fifties’ 3D cinema engaged across a variety of genres with aggression and anxiety brought upon by WWII.

In what follows, I turn to examine how fifties’ 3D cinema generated an inclusive experience and identify the techniques this cinema employed to prepare its audience for upcoming assaults. The first technique is what Mitchell (2004) refers to as camera setups used to telegraph upcoming violations of the negative parallax space. While Mitchell does not elaborate on these camera setups, I assume he primarily alludes to camera setups which are
positioned directly in front of the protruding element. An example of an “invaded camera position” is evident for example in *Gun Fury*, where Blinky (Lee Marvin) prepares to shoot Estella (Roberta Haynes) who is pursuing the Slayton gang. The camera, first positioned to the side of Blinky, follows and mirrors his body’s movements, the drawing of the rifle, the alignment of the body, resulting in a camera movement that ends precisely in front of Blinky’s rifle as he pulls the trigger. Three other techniques which prepare the audience for an upcoming assault are gradual escalation, dialogue set-up and repetition.

3D cinema of the fifties utilizes gradual escalation to set up violent breaches into negative parallax, preparing the audience for instances in which characters fire directly into the negative parallax space. *Man in the Dark*, for example, surprises the audience with the occasional punch, bird or spider flying into negative parallax space, but when the audience is about to be shot at, there is a sequence that gradually sets up the shot. During the chase sequence near the beginning of the film, insurance agency representatives are chasing Steve’s former gang who have just kidnapped him. Only after several gunshots are exchanged between the two parties, Cookie (Nick Dennis) sticks his head out of the car window and fires point blank at the audience several times. Similarly, when we are presented with Steve’s nightmare, a particularly surreal scene depicts the cops firing at Steve while they are all sitting in a “rotating cups” fairground ride. As the officers fire we are first presented with shots which only generally situate us in the cross fire, and it is only after several such shots that a frontal camera position is utilized allowing an officer to fire directly into the negative parallax space.

An additional way through which fifties’ 3D cinema alerts audiences to upcoming intrusions is “dialogue set-up”. For example, *It Came from Outer Space* relies on dialogue set up to prepare the audience for upcoming direct fire, as is explicitly evident when the police set up a road block intended to cut off a truck driven by an alien who is assuming the form of Frank. As the alien’s truck approaches, the police are well prepared, guns drawn, and sheriff Matt
(Charles Drake) orchestrates the attack: “Now check your guns, and check your ammunition now! He’ll be coming any minute! Here he comes. Here he comes now. Hold your fire! Get ready! All right, let him have it,” and at that the Sheriff fires directly into the negative parallax space. In another scene, when an alien assuming the appearance of Ellen fires at John, we follow the development through John’s point-of-view. The alien who has assumed Ellen’s appearance is shown in a medium shot and exclaims “I’m sorry, we did not want to use violence, now there’s no other way.” Her hand slowly rises from the bottom of the screen into the frame, a wand of sorts points directly at us and from its tip fireballs are fired towards the negative parallax space. In both these instances, *It Came from Outer Space* utilizes dialogue to prepare us for the violence which is about to erupt from the screen.

The use of the fourth technique, repetition, is evident in the inciting moment of the narrative in *It Came from Outer Space* – the collision of a spaceship into earth. Three shots depict the object’s orbit towards earth. The last one shows it deep in the positive parallax space, advancing towards the negative parallax space, and finally crashing in the negative parallax space, thus allowing the audience sufficient time to unite and brace for the hit. Moreover, the exact same sequence is shown twice. Once in the opening title sequence, and then shortly after, as part of the narrative. As a result, the audience is well aware of what is to come and is ready to experience the explosion in a collective manner. Another instance of repetition takes place after John descends to explore the crater created by the spaceship’s impact with earth. As he witnesses the spaceship’s portal close a landslide occurs, nearly burying John beneath sand and rocks. A low angle diagonal shot of rocks falling into the negative parallax space is repeated four times, and is only on the fifth time that a slight change of angle takes place so now the camera, in low angle, is positioned completely frontal to the landslide. Through repetition the film sets the audience up for the forthcoming intrusions, allowing them sufficient time to prepare for the upcoming intrusion and share it collectively.
Through the “invaded camera position”, “gradual escalation”, “dialogue set up”, and “repetition”, 3D cinema of the fifties ensures that the audience is not surprised by the upcoming attacks, hence allowing the audience sufficient time to crystalize into a coherent unified symbolic body which experiences these attacks collectively rather than individually. The wounding of the shared symbolic body of the audience created a shared experience of “coming under attack”, as well as a communal wound, allowing the audience to symbolically share veterans’ injuries. This is important as trauma survivors may alienate themselves from those who have not shared their experiences. Van der Kolk describes how a group of former Marines he treated gave him a Marine captain’s uniform for his birthday. He writes –

In retrospect that gesture revealed part of the problem: You were either in or out—you either belonged to the unit or you were nobody. After trauma the world becomes sharply divided between those who know and those who don’t. People who have not shared the traumatic experience cannot be trusted, because they can’t understand it. Sadly, this often includes spouses, children, and co-workers. (Van der Kolk 2014:17-18)

It should be noted that on many occasions the negative parallax space is invaded when the protagonist is under attack. In this manner both the audience and the protagonist are simultaneously placed in the way of harm. Hence, the attack resonates with the audience on two levels – on the level of kinaesthetic empathy towards the film body, and on the level of sympathy and kinaesthetic empathy towards the protagonist who is the diegetic character being shot at and whom the audience is aligned with. By the means depicted above, fifties’ 3D cinema allowed for a “social”, and “inclusive” experience of injury, harm, and trauma, thereby bringing audiences together, and contributing to the formation of a re-enforced unified (and unifying) body.
4.2.2 Negative Parallax Space and the Stasis of the Audience

Columbia producer Jerry Wald stated when promoting Man in the Dark - “We’ll throw things at the public until they start throwing them back” (Wald, qtd. in Zone 2012:61). Wald’s words allude to 3D cinema’s potential to elicit action from audiences. Moreover, taking Wald’s words at face value, he asks his audience to revolt, to shake off their “stasis”, to help the protagonists, and to ignore the “illusion” that they are watching a film and throw stuff back. Wald asks the audience “to act”. A call for action on the part of the audience similar to Wald’s call for action can be explicitly seen in Dial M for Murder (Alfred Hitchcock, 1954), when Margot (Grace Kelly) is attacked by an assailant (Anthony Dawson) who chokes and pins her against a table. Margot reaches towards us, the spectators, for help, by extending her hand into the negative parallax space. Margot succeeds in overcoming her perpetrator, yet we, the audience, are not exhilarated by her victorious struggle but rather reminded of our impotence. When Margot’s “hand reaches out into our space, it also reiterates the unbridgeable gulf that separates our space from that of the film image because we know we cannot reach back” (Paul 2004:230). Hence, in this scene from Dial M for Murder the stasis of the audience is emphasised. Another example of the audience’s stasis can be found in Man in the Dark. When Steve reluctantly undergoes brain surgery, the doctors’ instruments protrude into the negative parallax space as if operating on the audience. Our passivity in this shot is doubled. First, since unless we close our eyes we cannot ward off these probing instruments, and while we may try to reach for them the probing instruments will disintegrate momentarily only to reappear in order to continue the operation. Secondly, we witness the operation from the point-of-view of an anesthetised Steve. The point-of-view shot accentuates the audience’s alignment with Steve, rendering the viewers like the protagonist, passive and frozen, as if under anaesthesia.
Similar examples of the stasis of the audience in the face of a “metaphoric” call for action directed towards the negative field of screen can be found in House of Wax. Towards the end of the film when Scott enters the chamber of horrors looking for Sue, he (and the audience) are surprised by Igor who leaps from the negative parallax space towards the positive parallax space, charging Scott and quickly overtaking him. This movement from negative to positive parallax space, gives the impression that Igor has sprung out from amidst the audience, and is uncharacteristic of 3D aesthetics. It seems that House of Wax is asking the audience to rush in Igor’s footsteps and come to Scott’s aid. After all Igor has emerged from the negative parallax space, from amongst the audience, to attack Scott. While this scene is constructed differently, it greatly resembles Margot’s metaphoric call for help in Dial M for Murder. As in this scene and in the example from Dial M for Murder the audience is frustrated by their inability to act, to influence the diegesis.

4.2.3 Narrating Impotence

The embodied phenomenological experience of hurt generated by 3D cinema of the fifties is further strengthened by the films’ narratives and protagonists. Often revolving around male protagonists, which is not a coincidence considering the gender politics of the time, fifties’ 3D cinema depicts male bodies that despite being strong and able are no match for antagonists, monsters and challenging events. This observation is in line with Rogers who notes that Creature from the Black Lagoon emphasizes “bodily vulnerability” (2013:210). The passivity and failed actions of fifties’ 3D cinema’s protagonists reflect themes of powerlessness, freezing in the face of danger, and the futility of actions – all central to the traumatic experience (see for example Herman 1992:33, 42). Moreover, the protagonists have to rely on other characters to aid them and come to their rescue. The saviours of the protagonists in these films usually hold office and can be seen as representatives of the establishment. In Creature from the Black
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*Lagoon* the Gill Man kills or wounds the overwhelming majority of the expedition. While both David and Mark are well built and the film lingers on their half-naked bodies as they dive and swim through the lagoon, they are both no match for the Gill Man. Mark is killed by him in close combat and David, while attempting to come to Kay’s rescue, is quickly disarmed by the Gill Man who then effortlessly lifts him over his head preparing to kill him. Luckily for David, the ship’s captain and a crew member (office holding characters) arrive in the nick of time to shoot the creature and rescue both David and Kay. Similarly, Scott in *House of Wax* rushes to save Sue who is about to be encased in wax, only to be swiftly overcome by Igor who carries him to the guillotine to be beheaded. Luckily for Scott the police arrive at the scene and save him. *Man in the Dark* sees Peg initiating sexual advances towards her former lover, Steve, who despite being a tough, masculine outlaw, fails to reciprocate her advances, signalling his temporary impotence. Moreover, in the film’s final sequence Steve tries to escape the police and his former gang by disembarking from a roller coaster. Closely following him, Lefty (Ted de Corsia) and Cookie try to shoot him down. Lefty catches up with Steve and as they wrestle, Steve takes advantage of an approaching rollercoaster cart to cause Lefty to lose his balance and fall down. Steve then tries to climb down from the tracks, however Cookie spots him and opens fire. As Steve tries to take cover, pinned down by Cookie’s gunshots, he is saved by a police officer who shoots Cookie down.

The plots of these films highlight the impotence of individual action, and in contrast, the importance of the establishment and the dependence of the individual on it. The police force saves Steve and Sue in *House of Wax*; the ship’s captain shoots the Gill Man in the *Creature of the Black Lagoon*, saving David and Kay; a police officer shoots down Cookie in *Man in the Dark*. Moreover, in *Man in the Dark* Steve’s case constitutes an epitome of state power over the individual, as the film explicitly engages with the establishment’s control over Steve’s freedom, memory, and character.
It is worth noting that fifties’ 3D cinema dissolves, to a certain extent, Bordwell et al.’s distinction between the role of the protagonist in modernist narratives and in classical Hollywood narrative. For Bordwell et al. a mark of modernist cinema is the passivity of the protagonist, whereas in classical Hollywood cinema, plots are driven by the protagonist’s desires and pursuit of a goal, in which he actively overcomes different obstacles before achieving his goal and going through a process of change (see Bordwell et al. 2017:98). Fifties’ 3D cinema does not uphold this distinction. Its protagonists’ actions highlight their shortcomings and inability to overcome obstacles, and the film achieves resolution through the intervening of other, secondary characters.

These failed actions of protagonists, anchored within narrative, should also be considered in relation to kinaesthetic empathy. In her work on contemporary action cinema, Lisa Purse (2011) identifies narrative structures in which the protagonists are honing their bodies, which become ever more powerful in the duration of the film and allow protagonists to master the space in which they operate. I will discuss Purse’s work in greater depth in relation to contemporary D3D cinema, yet I mention it here to highlight how differently the narrative of fifties’ 3D cinema frames the actions within it, and how this influences kinaesthetic empathy. *Creature from the Black Lagoon*, for example, is rife with underwater scenes in which we witness Mark and David dive into the lagoon as they search for and confront the Gill Man, or Kay swimming leisurely unaware that the Gill Man is watching her closely. As the characters are dressed in bathing suits the physicality of swimming is highlighted, hence inviting a more conscious act of embodied simulation. While these scenes invite us to internally simulate the actions of the characters, anchored within narrative these actions do not convey a sense of being or becoming powerful. On the contrary, when Kay is swimming the audience is aware of the creature lurking underneath, hence a sense of anxiety and uneasiness underlines the scene. David’s and Mark’s underwater encounters with the Gill Man are likewise underlined with a
sense of fear for the safety of the characters. They are in no way presented as mastering the space. When Mark and David do encounter the creature he either escapes or overcomes them easily. Similarly, in *Man in the Dark*, Steve is the target of violent actions such as punches and gunshots for example. Hence, in *Man in the Dark* and *Creature from the Black Lagoon*, kinaesthetic empathy is that of harm, conveying the threat of bodily injury and wounding experiences to both the protagonists and that of the film body.

To conclude, 3D cinema of the fifties highlights the failing actions of protagonists and employs its added depth to phenomenologically enact wounding experiences upon its film body, allowing for another point of contact and expression of empathy between audiences who were familiar with hurting, wounded bodies and the film body. The telegraphing of upcoming violations of the negative parallax space in fifties’ 3D cinema allowed the audience time to crystalize into a unified imaginary body, and become a site upon which a communal wound could be inflicted, hence giving rise to an inclusive experience of harm. Such an experience was culturally appropriate because the post-traumatic zeitgeist of the early fifties called for experiences which could bridge the gap between veterans who had experienced the horror of war and US civilians. By situating audiences in opposition to the screen and as targets for upcoming attacks from stereoscopic images, audiences were in matter of fact assigned to the same group, collectively experiencing attacks in the safety of the movie theatre. In short, fifties’ 3D cinema created an experience in which audiences were situated in opposition to the stereoscopic images, and on the “receiving end” of action.

### 4.3 Digital 3D Cinema and Empowering Kinaesthesia

Contrary to 3D cinema of the fifties, D3D post 9/11 creates a very different cinematic experience, which can be read against the different nature of the trauma of 9/11. While far fewer individuals came into direct contact with the terror attacks of September 11, the US
experienced the attacks collectively through live TV coverage. Many descriptions of the atmosphere after September 11 in the US highlight anxiety, fear, and a sense of trauma and inclusion. As noted earlier, Kaplan describes the experience of commuting in an NYC subway to be dominated by the shared fear of a possible future terrorist attack, which in turn inspired a sense of a shared fate and inclusion (Kaplan, 2005:9). Jenny Edkins writes of 9/11 the sudden, totally unanticipated and spectacular appearance of a new type of indiscriminate, instrumental violence in the centre of major cities in the United States was undoubtedly traumatic in varying ways for the many who witnessed it. Something that until that moment had been totally inconceivable happened (Edkins, 2002:243-244, my emphasis).

The traumatic events of 9/11, Edkins argues, called into question the social reality in the US following 9/11 in which meta narratives concerning security, safety and the power of the state were undermined which is why, according to Edkins “traumatic events are described as ‘the moment the world changed’” (Edkins 2002:253, emphasis in original). The “indiscriminate” nature of the 9/11 terror attacks, as well as their mediated televised nature through which they reached the majority of the US population, created a sense that the attacks of 9/11 affected the entire nation simultaneously. The attacks of September 11 were instantly perceived as traumatic to the entire nation (see Smelser 2004:265) resulting in a burst of solidarity [that] was not confined to the sites of the attacks (New York and Washington), but was a national response. There was an outpouring of sympathy to the cities affected (“We are all New Yorkers”). It included a sense that every citizen was affected and thus equal to all other citizens under adversity and threat (Smelser 2004:268).
Not surprisingly then, the most visible D3D films released post 9/11 do not unite audiences around an experience of hurt, which was already acknowledged within the US society, but rather focus on transforming the experience of hurt into an affective experience which I term “empowering kinaesthesia”. Empowering kinaesthesia describes an empowering affect communicated to audiences through three distinct poetics of D3D cinema: gentle intrusions into the negative parallax space which allow for an intimate, hyper-haptic relation to form between audience and the film body; an emphasis on bodies enthralled in the act of change, of “becoming”; and the implication of the audience in the genesis of sublime diegetic worlds. These distinct poetics accumulate into a spectatorial experience which rejuvenates the “embodied feeling of being alive” (see Van der Kolk 2014:2-3), and dissolves the paralysis, stasis and isolating qualities of trauma. Erin Manning’s concepts of touch which she applies to the becoming body and “worlding” in which through movement the body creates space (see Manning 2007), provide useful frameworks through which I examine D3D cinema. To discuss empowering kinaesthesia I turn first to survey scholarship pertaining to stereoscopy as empowering before drawing on Manning’s work to demonstrate the distinct empowering qualities of D3D.

4.3.1 Digital 3D Cinema as Empowering
The empowering aspect of contemporary D3D cinema was engaged with in a tangential manner by Lisa Purse in her work on contemporary action cinema. Purse argues that contemporary action cinema exhibits what she terms “a narrative of becoming” that “articulates the protagonist’s physical and emotional trajectory towards achieving full occupation of the heroic action body” (Purse 2011:33). Becoming powerful, Purse contends, is the main draw of contemporary action films:
action bodies, with their capacity to escape physical constraints, to subject environments, people, and more abstract entities like institutions and unruly criminal organisations to their physical mastery, offer fantasies of empowerment that allow us to rehearse our own dreamed-of escapes, our own becoming-masterful, in a fantasy context, allow us to ‘feel’ this mastery for ourselves through our sensorial connection with the body of the hero (Purse 2011:45).

Purse’s work focuses both on the way protagonists’ bodies are framed within the narrative and on the kinaesthetic empathy protagonists’ bodies elicit from the audience. Purse brushes with 3D cinema when she cites Avatar, in which paraplegic ex-marine Jake Sully gains agency on the planet of Pandora through his avatar Navi body, as a paradigm of “the narrative of becoming”. However, it should be noted that Purse does not afford any attention to the stereoscopic qualities of the film.

At first glance, it seems that not only is Avatar a paradigm of the narrative of becoming, but also that this narrative structure can be extended to describe other contemporary 3D films. Gravity for example revolves around protagonist Dr. Ryan Stone, a scientist who is on her first trip to outer-space, and suffering from psychological trauma following the death of her daughter. Adriano D’Aloia employs neuroscience and embodied simulation to analyse Gravity and arrives at a conclusion similar to the narrative structure described by Purse. D’Aloia proposes that Stone’s journey is a journey towards successful action, and frames her journey as a course from disembodiment to embodiment, which, in turn, is extended to the audience:

Gravity plays with variable alignments and misalignments in two basic steps. First a phase aimed at perturbing the viewer’s perception - this is a phase of disembodiment of perception, ‘detachment’ from corporeality, ‘dissociation’ from natural alignment, as a result of being disturbed by manipulating forces generated
in the fictional world. Second, a phase of ‘re-attachment,’ a *re-embodiment* dynamic, aimed to redress the balance, the sense of position, the readability of movement, the emotional continuity and the intentionality of action (D’Aloia 2015:191-192).

Similarly to the plots of *Gravity* and *Avatar* in which protagonists are lost in outer space and Pandora respectively, *Life of Pi*, as discussed earlier, tells the story of Pi, a sole survivor of a shipwreck who is lost at sea and endures the treacherous environment of the ocean until reaching shore. These three films which will serve as the case studies of my analysis all depict protagonists cast into, and lost, in hostile unfamiliar environments. As the narrative progresses they gain agency in the environment and in a sense “master” it. This thematic tendency is not unique to these 3D films. Other 3D films such as *Tron: Legacy* (Joseph Kosinski, 2010), *Edge of Tomorrow* (Doug Liman, 2014) and *Dredd 3D* (Pete Travis, 2012) also depict protagonists subjected to environments which are governed by unfamiliar forces. The protagonists of these films also learn to navigate these environments until by the virtue of their bodies they emerge into safety.

While at first glance it seems these films depict protagonists mastering their environment, closer examination reveals that the notion of mastery in D3D cinema is more complex. This is evident in the discussions of various scholars who engaged with the question of mastery in relation to contemporary D3D cinema and arrived at conflicting conclusions. Sara Ross, for example, argues that “the learning to fly sequence in *Avatar* provides viewers with a controlled version of the thrill of rapid forward movement through three dimensional space” (S. Ross 2012:219), and ties this to a “visual mastery of space” which is “at the heart of the powerful appeal of the flying sequence [...] the more complete the illusion of spatial mastery, the more satisfying will be the result” (S. Ross 2012:212). For S. Ross the visual mastery of space in
flying sequences can be tethered to protagonists’ arcs: “key to flying sequences’ narrative integration is the way they lend themselves easily to favoured Hollywood character arcs, in particular progress from fearfulness to confidence” (S. Ross 2012:210).

Contrary to S. Ross, Scott Richmond analyses the flying sequences in *Avatar* and maintains that:

in its virtuosic perceptual manipulation, *Avatar* draws our attention to our encounter with the cinema as such and thus to cinema’s *otherness*, an alterity not arising from destabilization, decentering, or divergence, but instead from reflexivity. The otherness of the cinema is thematized—made viscerally, voluptuously palpable—because during these scenes *viewers feel the cinema doing something to them*. (Richmond 2016:265; emphasis in original).

This leads Richmond to argue that by this “intervening, mediating intentionality of the cinema, viewers’ illusion of movement has an element of passivity: they move, but they are not in control of that movement” (Richmond 2016:265).

Two additional scholars who, like S. Ross, tie stereoscopy to a sense of mastery are Jib Fowles and Bruce Bennett. Fowles analyses the popularity of stereoscopic still images between 1870-1910 and argues that the stereoscope empowered viewers as it allowed individuals to view, and thus possess distant views, affording them with omniscience, and increasing their “mental repertoire of images,” rendering them “more aware and adept” (Fowles, 1994:91).

Highlighting the role of the body in the interaction with the stereoscope, Fowles writes:

Holding a stereograph card first by hand and then in the stereoscope, they could in a most elemental way possess it. It was totally under their control. The sight did not tower over them; they towered over it. They did not have to accept the subject in its natural setting, which may well have been alien and dreadful; wrenched away, the
subject now existed within the viewer's surroundings, within the comfort and security of the viewer's home (Fowles 1994:91).

A similar argument to that of Fowles was made by Bennet in relation to 3D cinema. Bennett, drawing on Giuliana Bruno’s work on the commodification of space (see Bruno, 2002:62), identifies “imperial visuality” in 3D cinema, and argues that “3D cinema is the material articulation of central fantasies of mainstream cinema: the capacity for unrestricted, imperial, heroic mobility and total visibility” (Bennet 2013, np). Both Fowles’ and Bennet’s arguments conflict with scholarship that argues that the 3D image denies ocular mastery of the image and instead promotes a more bodily engagement with films (see Crary 1990:125; Elsaesser 2013:237; M. Ross 2012, 2015; von Duuglas-Ittu 2009).

Thus, the accounts of various scholars differ and seem to end in an impasse. Whereas S. Ross describes the flight sequence’s immersive qualities which do not disrupt narrative flow and can be tethered to characters’ arcs, Richmond argues that the flight sequence generates a reflexive awareness of the encounter with the otherness of cinema. Whereas S. Ross, Purse and Bennett highlight the mastering of space, Richmond, M. Ross and Von Douglas Ittu focus on the lack of mastery in this cinema. A way out of this impasse begins by recognizing that the protagonists of Avatar, Gravity, and Life of Pi, do not master the environment, but rather become embedded in it as a means of reaching an equilibrium between body and space. In Avatar, while the Navi move gracefully through Pandora their way of life clearly rejects any notion of mastery over the environment and the fauna and flora on Pandora. Instead, the Navi promote a way of life based on humble, harmonious, connectedness. Dr. Stone in Gravity and Pi in Life of Pi reach safety by a hair’s breadth thanks to their actions and to pure chance. Indeed, they do achieve agency in the hostile environments in which they operate, however Stone, Pi and Jake do not master outer space, the vast ocean and Pandora respectfully. A more accurate
description of their actions would be that Stone and Pi achieve the minimum amount of impact necessary to survive, and that the Navi way of life on Pandora is centered around maintaining an equilibrium in their world.

Moreover, I find that the central experience D3D offers is one of connectivity, which dissolves the dichotomy of mastery and passivity and of powerful and weak as oppositional terms. This is because mastery and passivity are relational terms that necessitate the positioning of one’s body as separate and stable so that it can be measured against something. However, if we perceive the body as embedded in the environment, constantly in touch with the world and other beings, then the body can no longer be conceived as stable and separate. Such an approach is found in Erin Manning’s concepts of touch and the becoming body, which enable an alternative reading of the concept of mastery in D3D. Through touch and reaching towards, Manning conceptualizes the body as enthralled in the act of change, in the act of forming novel connections to other bodies, and creating space through its movement. In what follows I point to the manner in which D3D foregrounds the potential for creating novel configurations as a means of reaching towards, and argue that such a reaching forward, while empowering in nature, does not imply a mastery of the environment or of other characters.

4.4 Empowering Kinaesthesia and the Becoming Body

The becoming body which lies at the center of the experience I term “empowering kinaesthesia” and at the center of the films discussed here, is different from the body Lisa Purse posits at the centre of the “narrative of becoming”. The narrative Purse argues for advances the protagonist’s body in a predetermined trajectory which exhibits change in the form of becoming “more”. Simply put, in the duration of the film the protagonist’s body becomes “more powerful”, “more masterful”. Such change can be referred to as a change of degree.
In contrast, the becoming body I identify in D3D cinema exhibits a change of kind, creating different configurations which afford the body different potentials for affecting and being affected by the environment. Manning, following choreographer William Forsy, suggests thinking of bodies not as nouns but as verbs, “to body” (2014:165). Lisa Blackman in *Immaterial Bodies* (2012) demonstrates the ways in which the becoming changes how the body is perceived in contemporary scholarship. Blackman writes:

bodies are seen to always extend and connect to other bodies, human and non-human, to practices, techniques, technologies and objects which produce different kinds of bodies and different ways, arguably, of enacting what it means to be human […] bodies do not conform to our expectations of clearly defined boundaries between the psychological, social, biological, ideological, economic, and technical […] If there is one guiding principle towards which work on the body and embodiment has moved, it is the assumption that what defines bodies is their capacity to affect and be affected (Blackman 2012:ix-x).

One of the ways through which bodies “become” according to Manning is touch, which she conceptualizes as a reaching towards: “to speak about bodies is first and foremost to explore the ways in which bodies move. I locate touch as one way of thinking this body-in-movement […] touch is not simply the laying of hands. Touch is the act of reaching toward” (2007:xiii). In turn, I find Miriam Ross’ positioning of touch at the center of the spectatorial experience of 3D cinema to resonate with Manning’s argument:

the distinct optical illusions created by use of negative and positive parallax space provide qualities of to-be-touchedness that suggest the possibility of tactile exploration while simultaneously maintaining optical modes. The flux between these states heightens the embodied relations produced in traditional cinematic
experiences by concentrating spectator attention on where their viewing bodies are placed in relation to the depth planes presented in 3D films (M. Ross 2015:10)

This negotiation between 3D cinema and viewers’ bodies can be seen as an enactment of the body as process, and in this capacity I would like to relate to Manning’s concept of touch. The becoming body is always changing, always in contact, always reaching towards. D3D I suggest, holds a privileged position and potential to enact the becoming and relational body. Contrary to fifties’ 3D cinema which positioned audiences in opposition to the diegesis, D3D operates to include the viewer in the diegesis through gentle protrusions, by implicating the audience in the genesis of sublime worlds, and by emphasising kinaesthetic empathy between audiences’ bodies and protagonists’ bodies which are depicted as enthralled in change. I find these poetics of D3D cinema as empowering particularly when viewed within a post-traumatic zeitgeist and in relation to the characteristics of post-trauma. Whereas trauma inspires stasis and paralysis, D3D cinema emphasises the very capacity of the body to change, to reach towards. Whereas trauma renders stimuli as threatening and inspires startled responses, D3D cinema offers gentle, intimate protrusions. Finally, whereas the world after trauma is perceived as threatening and alien, D3D cinema involves the audience in the very genesis of sublime worlds through “worlding”.

Of these three poetics which accumulate into a spectatorial experience of “empowering kinaesthesia”, I turn first to discuss the becoming bodies of characters in D3D cinema. Enthralled in the act of change, the bodies of characters create different, novel configurations and connections between separate bodies and between body and environment. *Life of Pi* depicts a connection between a wild tiger and a human boy and blurs the boundaries between the bodies of the pair, by raising the possibility that the tiger is in fact “in” Pi, or as Allen argues “the tiger [is] in us all” (Allen 2014:972). In *Gravity* the becoming body is evident through the different
technological apparati which Stone and her mission wear and are assisted by. For example their space suits, which are extensions of their bodies, make it possible for them to act in environments where the naked human body would perish. Most explicitly, the becoming body is observable in Avatar where different bodies are implicated in one another, and where the Navi create different connections with the flora and fauna of Pandora. To begin the exploration of empowering kinaesthesia in relation to the becoming body I turn first to Avatar and to the configuration of Jake’s human-Navi body.

4.4.1 Jake’s Human-Navi Body

The plot of Avatar is based on technology which allows humans to control avatar Navi bodies by matching the DNA of each avatar to its designated human controller. Hence, Avatar is based on a bond between a Navi body and a human body, signalling the centrality of the becoming body to the plot. What is interesting to note in this context, is that Jake is called on to operate a Navi body created for his twin brother, who was murdered. It is explained in the film that due to the similarity between Jake’s DNA and that of his late twin brother, he can operate the Navi body designed to match his twin brother. Thus it is already in the opening of Avatar that we encounter three bodies: the body of Jake’s late twin brother, Jake’s paraplegic body, and the Navi body Jake controls. These three bodies are implicated in one another, resonating each other in their very being.

Once on Pandora, Jake learns that the Navi have “the ability to connect their neurons to those of their mounts, be they earthbound or flying, and to the majestic network of the trees, and thence to their ancestors whose memories are retained in the network along with their life-force” (Cubitt 2012:233). Hence on Pandora Jake’s body, already resonating three different bodies, is reaching towards other bodies, vibrating with the potential of different “becomings”. Jake’s body is always the body of Jake’s twin brother-Jake’s human body-Jake’s Navi body-
and the different fauna and flora with which Jake forms bonds. During the film Jake’s body explicitly assumes different configurations as he forms bonds with a direhorse (a horse-like creature with a long neck and snout), a thanator (an apex predator which resembles a black panther), a banshee (a bird-like aerial predator), a toruk (an apex aerial predator which resembles the banshee yet is much bigger), and the tree of souls. Under these configurations and re-configurations the stable, fixed body is dissolved in favour of a becoming body enthralled in the act of change, a body which is never singular. The entanglement of bodies lies at the very core of Avatar, and gives rise to configurations in which different bodies dissolve into one another – is “Jake’s twin brother’s - Jake’s human - Jake’s Navi - thanator” body, first a thanator body? Or a Navi body? Or Jake’s human body? What is the role of Jake’s twin brother’s body within the reconfigured body?

One may also wonder whether bodies can truly separate. After Jake soars through the skies by means of his banshee body, once he realises the potential of flying, the question arises as to what degree this bodily potential reverberates in him even when his body detaches from the banshee and is no longer capable of flying? In the world of Avatar there is no doubt that this potential continues to reverberate in the body waiting to be actualised. This is evident when Jake, who is a paraplegic, has no trouble walking and running once he inhabits his Navi body. In other words, while his human body has been injured and cannot walk or run, the potential of walking and running remains very much alive, waiting for a chance in which it can be actualized. Hence, the formulations of the different bodies in Avatar become even more complex. Since each reconfigured body must include the previous configurations of the body: the Jake-direhorse body remains implicated in the Jake-banshee body and so on.

The first connection between bodies in Avatar is created through the connection of human characters and their Navi avatars, made possible through pod like devices. The human-Navi connection constitutes a form of empowering kinaesthesia, as it allows both Jake and the
audience to embody a body which holds novel potential for movement and for forming new
bonds with other bodies. The process in which Jake inhabits and embodies his Navi body for
the first time is extended to the bodies of viewers through the employment of stereoscopy which
elicits both haptic and hyper-haptic visuality, as well as recognized reflexive attention on the
part of the audience to processes of embodied simulation. As Jake anticipates becoming Navi
for the first time he prepares to hoist himself onto the pod and curiously pushes a finger into
the “sponge-memory-foam-like” material he is about to lie on. This gesture engages our bodily
senses as the information it provides Jake concerning the density, temperature and texture of
the material is tactile and not visual. In response, audiences’ bodies become more attuned as
they are explicitly invited to participate in what is about to come. Next, a sequence of becoming
takes place when Jake’s consciousness leaves his human body and makes its way to his Avatar.
The journey is visually depicted through a close up on Jake’s face, followed by a further dolly
in which frames Jake’s face in extreme close up, with his nose protruding slightly into the
negative parallax space. Next, a flash of blinding white fills the screen, followed by the camera
rushing forward through a tunnel of sorts, surrounded by a myriad of psychedelic colours,
perhaps a representation of Jake’s synapses. Interestingly the psychedelic colours are confined
to the positive parallax alone. Stereoscopy is employed in this shot to create a window with a
winding tunnel in its centre leading to the positive parallax space, into which the camera rushes
with immense speed. The infinite depth of the positive parallax space into which the camera rushes through the tunnel offers no stable horizons and provides a form of hyper-haptic
visuality, which invites audiences’ bodies to participate in this journey by leaning forwards and
mirroring the twists and turns of the tunnel with their bodies. Moreover, the lack of easily
discernible shapes in the image impedes the “representational” bond between viewers and film
and allows for a closer, textural, more haptic relation to the image. The restriction of negative
parallax space and the avoidance of protrusions which may cause the viewer to be taken aback,
along with the haptic and hyper-haptic qualities of this sequence, elicit from the viewer a leaning forwards, towards the image, towards the tunnel. Thus, the audience is encouraged to participate in Jake’s synaptic journey to inhabit his new Navi body, a body the audience will soon learn to embody and affectively share.

This sequence is followed by a scene in which Jake and the viewer are acquainted with the new Navi body. Jake’s awakening into his new body is depicted first through an out of focus point-of-view shot. Drawing on Marks (2000), shots in which we cannot discern what is visually depicted afford viewers’ bodies with an opportunity to engage more fully with the image. When Jake’s vision does come into focus, a series of tests examining the bodily functions of his Navi body ensues. The scientists snap their fingers near Jake’s Navi ears, and in response his ears twitch slightly. A first person point-of-view shot depicts Jake’s Navi hands and, as the viewer shares his point-of-view, these hands seem to be the viewer’s. Jake then wiggles his Navi toes, and the dialogue draws attention to this fact as one of the scientists exclaims “wiggling your toes”. Jake then sits up and the scientists ask him to touch his thumb with his fingers. Then Jake stands up. A close up of his Navi feet touching the ground highlights the moment in which the former-paraplegic Jake regains control of his lower limbs through his newly discovered Navi body. As evident in the description above, this scene makes ample use of the close up.

Considering that embodied simulation is an automatic process which helps us interpret the motoric actions of others by internally mirroring them, this process is at its height in close up shots which centre on actions. Through the employment of many close ups Avatar generates a heightened attention to embodied simulation, and allows audiences’ bodies to share the experience of Jake embodying a Navi body for the first time.

Towards the completion of his physical check-up, Jake bursts out of the lab and runs through the training compound. One shot follows his footsteps, showing his running feet throwing dirt into the negative parallax space. When he finally stops, another close up of his
feet shows him digging his toes into the dirt. Grace (Sigourney Weaver), the chief scientist of the mission, in her Navi body throws Jake an indigenous fruit which he catches and bites into enthusiastically. Throughout this scene Jake marvels at his new found abilities, at the realisation of bodily potential for movement. M. Ross notes the corporeal emphasis of this sequence stating “there is an overwhelming sense of physicality as his body bursts out through the laboratory and into the lush vegetation on Pandora” (2012:394). What is particularly interesting however, is that according to M. Ross, 3D cinema’s privileged potential to bring audiences closer to the action by extending movement and action into the negative parallax space, also paradoxically raises audiences’ awareness to the fact they cannot “fully embody the content that appears on screen” (2012:394). Drawing on this scene in Avatar M. Ross writes:

[Jake] begins to run across dirt paths and jump over obstacles in the way. Although his feet kick foliage into the auditorium, and thus bring the action close to the viewer, we do not feel the true tactile quality of what he is experiencing in these shots. After his co-worker, Grace, appears and throws him an indigenous fruit, Sully takes obvious sensual pleasure in eating it […] While the viewers may salivate at the prospect of food on the tongue and their bodies may react in various ways to this moment, they cannot fully taste it (2012:394).

While M. Ross suggests that the lack sensed by viewers as they are unable to fully embody the content of the screen may be an enjoyable experience, I wish to take this further and suggest that this lack, in fact, supports the experience of empowering kinaesthesia I argue for. The lack M. Ross turns our attention to echoes in my view the potential the body does possess, to touch, to taste, to be. The translation of the lack sensed by viewers into potential is evident in Sobchack who writes:
as I cannot literally touch, smell, or taste the particular figure on the screen that solicits my sensual desire, my body’s intentional trajectory, seeking a sensible object to fulfill this sensual solicitation, will reverse its direction to locate its partially frustrated sensual grasp on something more literally accessible. That more literally accessible sensual object is my own subjectively felt lived body. Thus, “on the rebound” from the screen—and without a reflective thought—I will reflexively turn toward my own carnal, sensual, and sensible being to touch myself touching, smell myself smelling, taste myself tasting, and, in sum, sense my own sensuality (Sobchack 2004:76-77).

In Sobchack’s account, the body is a stable, subjective entity to which the individual can retreat. Such an account seems to contradict perceptions of the body in affect theory, conceptualized as always becoming, never stable. However, what is evident in Sobchack’s account is that the retreat is not necessarily a retreat to a specific past experience, but rather to the different potentials of the body, the potential to smell, the potential to taste, the potential to sense. When the viewer feels the “gap” of not fully sensing what the protagonist smells, she does not retreat, rather she envisions: what she has not yet smelled, the fruits she has not yet tasted. The body knowing its potential thus exceeds past experiences and becomes focused on its potential instead, oriented towards expanding these experiences and towards that which it is yet to become. It is in this recognition of potential that the becoming body is evident. As Manning claims “the incorporeal is not the opposite of the corporeal. It is a stage of corporeality that reminds us that the corporeal is only ever virtually concrete. The body is always what it has not yet become” (Manning 2007: xix).

As the scenes discussed above focus on the physicality of the Navi avatar, the attempt to embody the diegetic content and the lack is compounded. In turn, this lack does not result in a
vacuum, but rather in the recognition of bodily potential. This recognition I argue, allows for an experience of empowering kinaesthesia to ensue – the viewer becomes attuned to the potential to re-discover, to unlock the potential of action embedded in the body, to “re-connect” to its potential for action. This dormant potential for action is explicitly depicted in *Avatar*. Jake’s injured spinal cord does not affect his potential for movement, but rather affects his current condition, his current “body”, which awaits a becoming that will make it possible for him to utilize his lower body again. Put differently, within his currently and momentarily paraplegic body, the habitual memory of running, of walking, remains unaffected, awaiting a body that will allow this memory to be translated into action (on habitual memory see Bergson 2004 [1912]).

What is interesting to note is that Jake’s spinal trauma does not have long lasting effects on the becoming body. Rather, within the narrative of *Avatar*, Jake’s trauma serves as a force that drives him to reach towards different “becomings”. It is the opportunity to regain control over his lower limbs that compounds Jake’s enthusiasm for his Navi body and the Navi ways. Only later does his growing love for Neytiri (Zoe Saldana) become the leading motivation to adopt the Navi way of life. This is also evident in Jake’s initial agreement to spy on the Navi and report to Colonel Quaritch (Stephen Lang) in return for the promise of a spinal operation that will allow his human body to regain control over his lower limbs. Viewed within the post-traumatic zeitgeist of US society following the September 11 attacks, the positioning of trauma in *Avatar* as “fixable”, and as a temporary state which motivates action, carries an important empowering message.

4.4.2 Jake’s Human-Navi-Direhorse Body

The connection Jake makes with his Navi avatar allows him to further connect with the different flora and fauna on Pandora. The first connection Jake makes as a Navi, under Neytiri’s
guidance, is with a female direhorse. The scene opens with the camera slowly floating downwards unveiling a wide shot of a valley in all its glory (see figure 17). Colours are warm and rich as the sun floods the meadow through the treetops creating patterns of light and shadow. The strongest effect is created by the incredible depth of the scene and the multitude of depth planes which are created within it featuring different harmonic actions: protruding into the negative parallax space are several plants; a direhorse suckling on a follower creates an additional depth plane in the foreground; Neytiri and Jake attending to a direhorse mid-frame create a third depth plane; and a fallen tree behind them creates a fourth depth plane, while far in the distance waterfalls flow creating a fifth depth plane, and all are depicted in deep focus and clear. These depth planes are connected by an insect flying between the different planes and by a fallen down tree positioned diagonally across the Z axis to the right of the screen. The plenitude of depth planes draws the viewer into the image creating a sense of lushness, of hyperhapticity, and of being in the world, that is of inhabiting Pandora. The scene cuts to a low angle close up shot depicting a strange looking direhorse’s face, suckling on an exotic flower which sprouts from the negative parallax space and extends towards the positive parallax space (see figure 18). The direhorse’s snout extends downwards towards the flower breaching into the negative parallax space, and as it extends its tongue to suckle the flower the tongue intrudes even further. The breaching of the direhorse’s snout and tongue are restrained through framing. Their aim is the flower and not the audience, and in turn, the flower, positioned further into the negative parallax space, hides part of the action. As a result, the sensationalist potential of such breaching (a dire horse licking the audience’s face) is restrained and instead a sense of wonder and sensuality is created. The close up and the positioning of the flower and the direhorse’s actions in the negative parallax space elicit a heightened response of embodied simulation from viewers, due to their proximity to the content. Through the proximity to the flower and the direhorse, who is nearly licking the viewer’s faces, audiences can sense the pleasure the animal
is taking in the plant. An affective bridge between human and animal is created in which the
viewer is able to interpret the inner state of the unfamiliar animal through motor-based
understandings. This bridge, along with the focus on embodied simulation directed at the animal
reverberates with new potential of becoming – when the animal sucks on the exotic flower
viewers turn to themselves, to their own bodies envisioning tastes they have not yet tasted.

Figure 17 – Plenitude of depth planes in Avatar.
As Jake prepares to mount the direhorse, a similarity between the skin of the two creatures can be seen, with stripes adorning their legs. The similarity of patterns and skin tones affectively reverberates the becoming body which is no longer animal, nor Navi, rather it is both. When Jake forms a bond with the direhorse, their neurons, entangling through their braids, are depicted in a close up. The direhorse recoils and omits a loud exhale of air accompanied simultaneously with a hard cut to an extreme close up of the animal’s eye. The sudden movement and loud noise result, I suggest, in a light jump-scare, and the viewer may recoil slightly in her seat, eyes widening. Through the jump-scare and the newly formed bond, both the audience and the direhorse jolt simultaneously. In this the viewer echoes the animal’s response, embodying her, just as Jake is embodying the animal and the animal is embodying him. An affective bond between the viewer, Jake, and the direhorse is created.

The extreme close up of the direhorse’s eye is followed by two wider shots depicting the movement of the direhorse, the film then cuts to a close up of Jake’s face showing his wonder. Jake’s expression turns the affect reverberating through the viewer’s body into a sense of wonder that is consciously and reflexively recognized. Therefore, Jake’s expression of wonder offers not only a gateway into his feelings, through embodied simulation and emotive contagion, but also helps interpret the affect the viewer senses (on the contagiousness of emotions see Coplan 2011). As a result, through the novel direhorse-Jake connection and the closeness it implies, an affect of empowering kinaesthesia is created which dissolves the walls of isolation characteristic of constriction in post-trauma. The novel bond necessarily expands Jake’s body allowing him and the audience to experience intimacy towards the direhorse’s body, as well as a sense of discovery. This results in empowering kinaesthesia and a recognizable and rejuvenated embodied feeling of being alive. Firstly, because it highlights the
body’s potential to form connections, that is to affect and be affected, and also because the connection to the direhorse unlocks the potential to move in an unfamiliar and novel ways, and conveys the juvenile, genuine joy of discovery.

Neytiri draws Jake’s and the viewer’s attention to the potential this newly found bond holds for movement when she instructs Jake: “Feel her. Feel her heart beat. Her breath. Feel her strong legs. You may tell her what to do”. Her words are accompanied by close up shots of the different body parts of the direhorse’s body, her legs, her chest, further encouraging a hyper-haptic viewing, in which the viewer “feels” the body of the animal with her body. The different patterns on the direhorse’s skin encourage the viewer to “graze” the animal’s skin with her eyes, to reach towards it, to feel its texture.

In “Riding: Embodying the Centaur”, Ann Game (2001) describes a process of becoming which is somewhat similar to the bond Neytiri guides Jake to form with the direhorse. Game recounts how she helped her horse, KP, to recover from paralysis and contends that she succeeded in rehabilitating KP by forgetting that she was separate from the animal. Blackman and Couze Venn provide a useful analysis of Game’s account:

Game was able to mount KP, and to try and connect with subtle movements that the horse was making in order to help her to remember what it felt like to canter and trot with a rider. In this sense, memory was plural, co-constituted and co-enacted through attuning to subtle movements which involved the development of a shared kinaesthetic modality of attention. This kinaesthetic modality involved the entraining of horse and human through rhythmic forms of communication; a kind of “kinetic melody” (Blackman and Venn 2010:11).

The connection made between Jake and the direhorse and between the audience and the two beings, provide an instance which encourages touch and a reaching towards, unlocking further
potential for action which is affectively felt by the viewer. Recall that following 9/11 the “instructions” of the US establishment to its citizens were to act, to travel, to spend and to consume, as a means of refusing to become a victim of terror, and consequently a victim of trauma. Hence, Jake’s unlocking novel potential for action in Avatar, subsequent to his past trauma, reverberates the same message – the negating of the stasis of trauma and post-trauma through action. The unlocking of potential through touch is explicitly evident in Manning’s writing on the inventive quality of touch: touch “[…] invents by drawing the other into relation, thereby qualitatively altering the limits of the emerging touched-touching bodies. Touch is not graspable as a stable concept. The only thing we can grasp, momentarily, are touch’s inventions” (2007:xiv). The inventiveness Manning speaks of, is, in my view the recognition of a novel potential for action.

If one accepts the proposition of the body as becoming though touch not in a material sense but as Manning utilizes the concept, as a reaching towards, then actual touch, the actual formulation of a Human-Navi-Direhorse body is but one of many possibilities, one of many “potentials”. Jake describes a similar understanding in a voice over to his video diary: “I’m trying to understand this deep connection the [Navi] people have to the forest. She [Neytiri] talks about a network of energy that flows through all living things”. Hence, the body in Avatar, is reconceptualised as reverberating with the potential to form infinite connections which are in fact an infinite reservoir of potential for action, for movement. Manning suggests reformulating the question of what a body is, to how a body can move (Manning 2007:xv). Avatar provides this question with infinite answers. Through the potential of touch the Human-Navi-banshee body can soar through the skies, through the potential of the human-Navi-thanator body it can race through the lush vegetation. The new potentials for action that Avatar foregrounds are in turn extended to the viewer through stereoscopy. To further clarify, Manning does not argue for touch in a corporeal sense, but as a reaching towards that can only orient the subject towards
the other, to move towards the other with an anticipation for touch that is never fulfilled but only longed for. Hence 3D is particularly suited to give rise to a cinematic experience which enacts Manning’s concept of touch. While in the diegesis the characters in Avatar corporeally touch each other, the viewer can never “lay hands” on the stereoscopic images. Viewers can “reach towards” but can only sense themselves touching or sense being touched, without actually, corporeally touching the image. In this the body changes, affects the world and is affected by it.

In her analysis of Avatar M. Ross draws attention to the scene in which colonel Quartich gives a briefing on Pandora. Comparing the 2D and 3D versions of the film, M. Ross argues that

while the camera positions the viewer at the same height as the workers, only stereoscopy is able to put them on the same spatial plane. By providing the viewer with the sensation that they are on the same plane as the workers, the power dynamic created by the placement of the colonel as he stands above this group is enhanced. Our relationship with him is constructed through a sense of where our physical bodies are placed within the screen space, near and far from him, near and far from the other workers (2015:28).

Weetch draws on M. Ross to argue that “3D’s ability to put the character on the same spatial plane as the spectator then, allows a literalised ‘acentrality’ by intensifying alignment with a character […] to an unprecedented degree” (Weetch 2016:22). By “acentrality” Weetch refers to “Richard Wollheim’s concept of ‘acentral imagining’ (Wollheim 1984: 74), whereby readers of fiction do not place themselves ‘in the scenario, so much as entertain an idea, but not from the perspective … of any character within the scenario’” (Smith 1995:77; Weetch 2016:22). Weetch’s development of M. Ross’ analysis to include the concept of acentral imagining can
be applied to the flying sequences described in *Avatar*. Through stereoscopy we are placed not precisely on the same plane as Jake but slightly behind him, trying to keep up, performing what Richmond terms “a pas-de-deux with Jake, more as a training partner than as an alternate self” (Richmond 2016:262). In other words, we entertain the idea of being in the scene but not from the perspective of any character, rather from the embodied perspective of the camera, from the perspective of a “training partner”. It is important to note that this aesthetic is employed earlier in the film when Jake is learning to move like a Navi. Jake rushes in Neytiri’s footsteps as she effortlessly moves through the foliage, and the camera rushes in Jake’s footsteps, into the positive parallax with branches and other fauna protruding into the negative parallax space, as if scratching against audiences’ skin. Thus, a trio is formed, moving into the depth of the screen with corresponding hierarchies: Neytiri leading the pack, Jake, the slightly less capable member, and finally the audience, the least capable, lagging ever so slightly behind the pair.

The aesthetic described above holds dual importance. First, as Richmond notes, it allows for a more embodied presence in Pandora. Secondly, I argue, it allows the audience members through the embodied presence afforded by stereoscopy to be part of a team, creating a sense of inclusion in a group which is remarkably physical and capable, moving through space in spectacular fashion. Note that this experience is of an individual joining a team, and each member of the audience is independently accepted. In this the film opens up spectators’ bodies to an increasing repertoire of the potential for movement. This is possible through two unique stereoscopic aesthetic means: placing viewers on the same plane as the characters, and the embodied presence of the camera as a sort of “training partner”. Through these aesthetics we can become a part of a collective, be it the human workers in Pandora as in M. Ross’ example, a Banshee riders’ formation as in Richmond’s example, or a couple running through the forest. This inclusion of the viewer as part of a capable group acting in a hostile environment turned familiar is of particular importance considering the post-traumatic zeitgeist in which *Avatar*
was released, and considering the characteristics of trauma which isolate the victim and render the world hostile. This experience is also substantially different from the cinematic experience of the 3D cinema of the fifties. Whereas in the fifties audiences were united around the experience of hurt, D3D cinema offers inclusion in empowering experiences celebrating the possibility for action, hence providing an experience of empowering kinaesthesia.

4.4.3 The Becoming Body in *Life of Pi*

The opening title sequence of *Life of Pi* depicts images of animals in the Patel family zoo. Stereoscopy affords the various animals – a flamingo, a sloth, a local lizard, amongst others – a hyper-haptic quality. Along with the bright and saturated colours used in the title sequence, the animals inspire a sense of excitement and awe, as if one is truly viewing the animal rather than a representation of it. Andrew Chan described the opening sequence in a review in *Film Comment* as a “display of zoological delights” (Chan 2012, np). Similarly, Philip French writes in the *Guardian* “from its opening scene of animals and birds strutting and preening themselves in a sunlit zoo to the final credits of fish and nautical objects shimmering beneath the sea, the movie has a sense of the mysterious, the magical. This effect is compounded by the hallucinatory 3D” (French 2012, np). While the viewer may be enchanted by the colourful animals, one should remember the setting in which these animals are depicted. The zoo is a paradigm of tamed wildlife which dictates a certain relation between human bodies and animal bodies, emphasizing the power of culture, of man, over nature. Moreover, it is a place where true encounters between animal and human are at best artificial, or as John Berger argues, simply impossible:

the zoo cannot but disappoint. The public purpose of zoos is to offer visitors the opportunity of looking at animals. Yet nowhere in a zoo can a stranger encounter the look of an animal. At the most, the animal’s gaze flickers and passes on. They
look sideways. They look blindly beyond. They scan mechanically. They have been immunised to encounter […] (Berger, [1980] 1991:28).

Against the impossibility of a human-animal encounter in the zoo, the second part of the film which depicts Pi and Richard Parker stranded in the middle of the vast ocean, puts man and animal into close contact. Moreover, both Pi and Richard Parker find themselves in an unfamiliar environment and become dependent on each other for survival: Richard Parker is dependent on Pi’s wits to supply him with food and drinking water; Pi in turn is dependent on Richard Parker, as taking care of the tiger provides him with company as well as a routine, which helps him keep his sanity while stranded at sea. This is evident when Pi tells the Canadian writer that he laments not having had a chance to say goodbye to the tiger: “I know Richard Parker is a tiger, but I wish I had said ‘it’s over. We survived. Thank you for saving my life Richard Parker. You will always be with me. May God be with you’”. Moreover, the notion of Pi’s dependence on the tiger is strengthened if one subscribes to the interpretation of Richard Parker as a symbolic figure. Following this reading, Pi is dependent on the tiger to protect him from coming to terms with the trauma of his ordeals. As Allen writes “the tiger protects Pi by carrying responsibility for the guilt of having killed someone who helped him, but also protects him against someone who might have killed him, or might in the future” (Allen 2014:979).

The connection between Richard Parker and Pi provides an experience of empowering kinaesthesia through Pi’s determination to reach out towards Richard Parker. This reaching out is marked by danger due to the wild nature of the tiger which, as A. O. Scott notes, is never anthropomorphized (Scott, 2012, np). Pi’s reaching towards Richard Parker affords visuality to the possibility of touch and, in turn, change, which is translated into an affective experience of empowering kinesthesia allowing for negotiation of past trauma. As Manning argues “I reach out to touch you in order to invent a relation that will, in turn, invent me” (Manning 2007:xv).
Pi’s attempts to reach towards Richard Parker are represented in the film through the negotiation of spaces between the human body and the tiger’s body. Once Richard Parker appears, Pi’s universe changes considerably, both in a concrete manner and symbolically. The concrete change is observable as Pi’s space is now defined in relation to Richard Parker. If Richard Parker climbs onto the life-boat, Pi jumps overboard onto the makeshift raft dragging behind the boat. If Richard Parker jumps into the water, Pi quickly climbs onto the boat. Simply put, Pi avoids sharing the same space with the tiger. The implication of this on his material space is considerable. Without Richard Parker Pi would be truly alone, truly lost. Stranded at sea, it is thanks to Richard Parker that Pi experiences space as hyperbolic. Sobchack describes a similar experience in the Sahara desert that can be applied to the water desert of the Pacific Ocean:

For a solitary human being […] [a] featureless desert without objects would be neither hyperbolic (with some known thing or someone else to provide local measure in terms of one’s own body) nor Euclidean (with given objects known to be spaced […] In such a contextless context “one” (the pronoun chosen precisely here) would be truly “lost in space” (2004:19).

What renders space as hyperbolic for Pi is the relation between bodies, between Pi’s body and Richard Parker’s body. Sobchack describes a hyperbolic perception of space in the following manner:

everything […] is measurable only locally, in terms of the human body and the meaningful size and order it confers on known things. Hyperbolic space […] is primordial and subjectively lived—and, in terms of human sense-making, it precedes Euclidean abstraction and Cartesian objectivity […] for adults put in a situation with no Euclidean markers one’s lived relationship to the world is body
based. In this system the body is positioned in the *center* of a surrounding world” (Sobchack 2004:20).

When Pi reaches an equilibrium with Richard Parker their bodies mirror each other, as seen in figures 19-22.

Figures 19-20 – Pi’s and Richard Parker’s bodies mirroring one another

Figures 21-22 – The mirroring enacted by the bodies of Pi and Richard Parker continues.

Following the shots of Pi and Richard Parker each staring into the depths of the ocean (figures 21-22), the film cuts to a frontal close up of the reflection of Richard Parker’s face on the ocean’s surface. The camera glides forward, into the depth of the ocean and the positive parallax space, signalling the beginning of a surreal sequence. We embark on the surreal journey through
a zoom in on a close up of Richard Parker’s reflection, and exit it through a fade to black which dissolves into a zoom out of Pi’s eyes and face (see figures 23, 24).

Figure 23 – Richard Parker’s face reflected on the water’s surface.

Figure 24 – A medium-close-up shot of Pi, through which the surreal journey ends.

The mirroring of the bodies as well as the similar close up marking the beginning and end of the surreal journey, which is also a journey into the traumatic past, suggest that Pi and
Richard Parker are the same being. Dissolving the boundaries between bodies and asking the viewer to consider synthesis of the two provides an example of the becoming body and suggests, as Allen argues, that there’s a tiger in all of us (see Allen 2014:972). Pi’s traumatized self is associated with powerlessness in the face of the sheer force of the environment, his failure to save his mother, and the murder he committed. However, through the assimilation of the tiger into Pi’s being he is afforded with a wilder, untamed potential for action. In this, Life of Pi provides an experience of empowering kinaesthesia which allows Pi to reconcile with past trauma and with the existence of a violent potential for action within him.

4.5 Empowering Kinaesthesia and the Genesis of the Diegesis

An additional way in which D3D cinema enacts the becoming body and empowering kinaesthesia is through what Manning terms “worlding”. For Manning “the body does not move into space and time, it creates space and time: there is no space and time before movement” (Manning 2007:xiii). A central type of movement Manning draws on is that of touch, and of reaching towards. She writes

touch is not simply the laying of hands. Touch is the act of reaching towards, of creating space time through the worlding that occurs when bodies move. Touch, seen this way, is not simply an addendum to an already-stable body. Touch is that which forces us to think bodies alongside notions such as repetition, prosthesis, extension.” (Manning 2007:xiv).

Worlding, I suggest, is a form of empowering kinaesthesia – firstly as it involves the intention of movement, and secondly as it not only implicates the subject in the world, but implicates the subject in the very genesis of the world. Worlding is evident in 3D cinema by means of the very
apparatus which requires 3D glasses to view stereoscopic moving images. The donning of 3D glasses serves as an extension to the spectator’s body which allows it to relate to the stereoscopic content. This act signifies the process of becoming a 3D spectator, a process in which the human body changes and gains the possibility to affect stereoscopic content and be affected by it. It affects the stereoscopic content by being involved in the creation of the 3D film, through the fusion of two images into one stereoscopic image. The 3D film is composed of two largely similar images presented in tandem, and it is our brain’s task, with the aid of the stereoscopic glasses, to fuse the two images into one coherent image which exhibits stereoscopic depth. In other words, as Crary and Jones argue, the stereoscopic image exists only in the mind of the viewer (see Jones 2015; Crary 1992:120-122). In turn, the viewer is affected by the 3D film through an entanglement of the stereoscopic film body and the human body, which are co-dependent in the creation of the stereoscopic world.

While the viewer is implicated in the creation of stereoscopic content both in fifties’ 3D cinema and D3D, it is mainly the latter that provides a cinematic experience in which a reflexive attention to “worlding” is elicited. This is a result primarily of D3D cinema implicating the viewer in the genesis of sublime diegetic worlds (think of Pandora in Avatar, the vast ocean in Life of Pi and outer space in Gravity). Moreover, these diegetic worlds are afforded a central role in the plots of D3D, thus further eliciting a reflexive attention from the viewer to her role in the creation of these diegetic sublime worlds. The importance of the environment and the diegetic world to D3D cinema is evident in Yong Liu’s analysis of Life of Pi, in which he writes that the storm in the film is portrayed “as an alive and influential character” (Liu: 2018:58). The

14 While not all stereoscopic moving-images require glasses, autostereoscopy remains vastly unpopular as the technology has not yet matured. Thus the donning of 3D glasses still retains cultural significance and is perceived as a condition for viewing 3D films.
sense of scale and sheer force of the different environments of D3D cinema is lacking from fifties’ 3D cinema. While films such as *Creature from the Black Lagoon, Inferno* (Roy Ward Baker, 1953), *Bwana Devil* and *It Came from Outer Space*, do take place in intriguing environments, these environments serve as settings against which the plot unfolds, and are far from being “an alive and influential character”, to draw on Liu’s words. Moreover, recall that fifties’ 3D cinema positions the audience in opposition to the diegesis, emphasising the gulf between the diegesis and the audience, hence distancing the viewer from the experience of worlding. In contrast, D3D cinema provides the viewer with the experience of “worlding” by creating spaces with emphasise infinite positive parallax space that draws the viewer into the diegesis, and by means of gentle protrusions which bridge the gap between viewer and diegesis. Thus in D3D cinema the audience is implicated in the genesis of sublime diegetic worlds, which gives rise to a reflexive awareness of “worlding”. Through the implication of the audience in the genesis of the diegesis, worlding rejuvenates the audiences’ embodied feeling of being alive, and provides an experience of empowering kinaesthesia.

### 4.5.1 Worlding as Empowering Kinaesthesia in *Gravity*

*Gravity* provides an explicit example of worlding as it is Stone’s movement which creates the environment around her. As long as Stone is paralysed by her past trauma she is deprived of agency, and her movement in space is cyclic and dictated by the momentum of other bodies caught in orbit. When Stone regains agency she begins to move in a manner which defies the trajectory of other objects, until she manages to break orbit and return to Earth. Before proceeding with my discussion of empowering kinaesthesia in *Gravity* through worlding, it should be noted that the experience of “touch” and of “reaching towards” prominent in *Avatar* and *Life of Pi* is also evident in *Gravity*. *Gravity* is a film centred on the experience of “touch” and of reaching towards, and engages with these themes both literally and metaphorically. Set
in outer space the importance of touch, tactility and gaining traction is compounded, evident in
the effort invested in every move Stone makes, and particularly in her repeated attempts to grab
hold of the different space stations into which she crashes. Reaching towards in a metaphoric
sense is evident in Gravity as Stone orients herself towards the different space stations,
“reaching towards” them, in the hope of reaching home. Despite this centrality of reaching
towards in the plot and diegesis of Gravity, I find that the becoming body and empowering
kinaesthesia are most evident in Gravity through the different "worldings" Stone gives rise to.

To discuss the becoming body in Gravity I turn first to examine the film’s opening
sequence. Both Kristen Whissel and Adriano D’Aloia argue that Gravity’s opening inspires a
sense of disembodiment. Whissel writes that Gravity

enhances the sensation of disembodied floating by eliminating vanishing points and
directionality (there is neither up nor down) and, moreover, doing away with the
camera movements and editing conventionally used in narrative cinema to orient
the spectator in space, instead allowing directions in motion – of the camera, the
astronauts, the rotating Earth, the shuttle – to dis-locate and disorient perception
and perspective (Whissel 2016:238).

I have quoted D’Aloia earlier, but to remind the reader briefly D’Aloia argues that Gravity
exhibits a structure which first elicits a sense of disembodiment, and as the film progresses,
allows the audience to embody Stone’s action. Whissel does not clarify the nature of the
disembodied affect of Gravity, and D’Aloia equates disembodiment with disorientation
(D’Aloia 2015:196). I would like to suggest that both Whissel’s and D’Aloia’s accounts, while
accurately pointing to the corporeal feeling elicited by Gravity, and to the means generating
this sensation, confuse disembodiment with disorientation. To elaborate on the confusion
between disorientation and disembodiment, a brief exploration of space in Gravity is warranted.
Vivian Sobchack draws on Patrick Heelan to argue that Euclidean space is culturally cultivated, whereas hyperbolic space is primordial:

for a situation to provide “a Euclidean perceptual opportunity, . . . it must . . . be virtually populated with familiar (stationary) standards of length and distance, and be equipped with instantaneous means for communicating information about coincidences from all parts of space to the localized visual observer, wherever he/she happens to be” (51) […] The visual observer making sense in hyperbolic space, rather than relying on abstract, standardized, and stationary measures, “must . . . use the rule of congruence which . . . is embodied in the capacity of the unaided visual system to order the sizes, depths and distances of all objects in the unified spatial field of vision. (Heelan 1983:51 qtd. in Sobchack 2004:18).

The transition between Euclidean space and hyperbolic space, Sobchack argues, is not an easy one:

for adults put in a situation with no Euclidean markers (as elaborated above), one’s lived relationship to the world is body based. In this system the body is positioned in the center of a surrounding world […] for an adult whose world is normatively Euclidean and organized and directed abstractly, a return to hyperbolic space in which the measure of things is generated primordially by his or her own body and his or her contingent tasks can be disorienting, unsettling, even perilous (Sobchack 2004:20-21).

As *Gravity* is set in outer space, the space the film presents is mostly hyperbolic, particularly in its exterior shots. The encounter with the primordial hyperbolic space experienced by the protagonists is extended to the audience in through stereoscopy in several ways. First, through
the stereoscopic image inspiring a “vertiginous uncertainty about the distance separating forms” (Crary 1990:125), and secondly because Gravity accentuates the D3D characteristic of dissolving the distinct boundary of the screen (M. Ross 2013:406). Due to the infinite positive parallax space in Gravity and the lack of Euclidean markers, viewers reflexively recognize their vision failing to establish Euclidean coordinates, failing to discern up and down. Consequently, viewers’ bodies become involved in the effort to orient themselves in the diegesis. A hyper-haptic visuality thus ensues in which the audience is drawn towards the image, attempting to graze its surface, in the search of a ledge or some form of texture to hold onto. However, as the setting of Gravity is outer space, and as stereoscopy dissolves the surface of the screen, images in Gravity are voided of any such surface. The viewer is instead drawn even further into the depth of the diegesis and the darkness of outer space intermingles with the darkness of the auditorium, eliciting a sensation that the diegetic outer space is about to subsume its audience.

The lack of Euclidean markers in Gravity emphasises the diffusion of the rectangular shape of the screen in 3D cinema, perhaps the most obvious Euclidean marker in movie theatre, and one which signals the audience’s distance from the image. This is perhaps why Richmond (2016:3) in his analysis of Gravity confesses to gripping the armrest of his seat, a relic of the extra diegetic world, felt and sensed but not seen in the darkness of the theatre. Gripping the armrest can enable one to retain a sense of separation, a Euclidean measurement, from the “expanding” diegesis. If one accepts that the space portrayed in Gravity is indeed hyperbolic, then by no means can it have a disembodying affect, rather the body becomes the focus of the audience’s experience of the cinematic space.

Similarly to Richmond, Purse affords attention to the distinct force of Gravity. Purse finds that the camerawork assumes

the attributes of an object or camera person, sharing the diegetic space with the characters and subject to the same Newtonian laws. Animation supervisor David
Shirk notes that Cuarón “wanted it to feel like there was a human hand on the camera,” creating “an underwater handheld feel, where in scenes of rapid motion the camera operator would react and follow the action to hold frame, but we’d feel the effort of the operator controlling the camera mass” (Shrik qtd. in Purse 2017:230; see also Fordham 2014:51).

Shirk suggests that Cuarón wanted the audience to feel the “effort of the [camera] operator”, and indeed the audience feels the force behind the camera in *Gravity*. However, in my view, this force is not attributed in a reflexive manner to the camera operator, but rather reverberates the immense mass and life force of *Gravity*’s film body. The film body of *Gravity* constantly vibrates with the potential for movement, one which is restrained and stifled by different technologies, until in distinct moments it erupts and conveys its sheer force.

While Purse discusses the movement of the camera, it is interesting to explore the articulation of such movement from a phenomenological perspective informed by 3D. Recalling Barker’s assertion that we can empathize with the film’s body through some familiarity with its movements, one may posit that when the film body acts in unfamiliar ways, governed by unfamiliar forces as described above, viewers’ bodies struggle to re-enact the movement, to “understand” the film body. As *Gravity* progresses, Stone learns to navigate and act in zero gravity, in tandem with the film aesthetic which becomes less erratic. Thus, empowering kinaesthesia is also evident in *Gravity*, as audiences learn new possibilities of movement, and more particularly, learn not to master, but to adapt. The encounter with the stereoscopic film body expanding towards the audience through the dissolution of the screen, and the intermingling of the darkness of outer space and the darkness of the movie theatre is, I suggest, met with a reaching towards by the viewer. This meeting offers new forms of kinaesthesia, reverberations of the potential to move beyond the confines of what is humanly
familiar. Hence, apart from endowing viewers with empowering kinaesthesia through their implications in the genesis of the diegesis, *Gravity* also affords viewers with empowering kinaesthesia because the encounter between viewer and film body yields potential for movement in new and unfamiliar ways which are different and exciting.

The opening of *Gravity* thus offers not a sense of disembodiment, but what Sobchack argues for as the affects of encountering a hyperbolic space: disorientation, unsettlement and peril. This substitution of spaces from a familiar Euclidean space which governs our everyday lives, to the hyperbolic space of *Gravity* necessarily implicates a body which is “becoming”. If space has changed, (and it has – from a Euclidean space to a hyperbolic space), then our bodies are changing as well, are becoming different. We now reach towards in a different manner. Moreover, recall that for Manning it is the body’s movement that creates space, thus if the space of *Gravity* has changed, it has changed by the virtue of the viewer’s body. Hence, as the audience takes part in the genesis of a world governed by unfamiliar physical forces, they are simultaneously imbued with the forces governing this world. Put differently, since it is the audience’s participation that animates the environment with unfamiliar striking force, it follows that this force must, to a certain degree, originate in the audience. As audiences come into contact with the diegesis, as they are implicated in its creation, the force of the environment “brushes off” on them. Thus the genesis of the stereoscopic outer space by the audience in *Gravity* provides a striking example of how Manning’s conceptualization of “worlding” occurs in 3D cinema.

This point is particularly important, as the space in *Gravity* changes several times throughout the film signalling the different becomings of the body. The first transformation is in the by now famous and much discussed opening shot of the film, which substitutes the viewer’s Euclidean space for a hyperbolic one. A second change follows shortly, when after being hit by satellite debris, Stone is catapulted into outer space. Spinning in space without any
control over her trajectory, not able to discern her position, and lost in a featureless outer-space, Stone’s surroundings are neither hyperbolic nor Euclidean and her body no longer provides a point of reference in the world. Unlike Pi, in Life of Pi, for whom Richard Parker and the life boat rendered space hyperbolic, Stone is “truly lost in space” to draw on Sobchack’s words (Sobchack 2004:19).

Spinning out of control and with no point of reference, Stone’s attempts to frantically reach towards, to touch, is experienced reflexively by the audience. Both Stone and the audience are attempting to reach towards something, anything, that will restore a sense of hyperbolicity to space. Following Sobchack’s discussion of space it is only during this sequence, when Stone is “truly” and momentarily lost in space, that both she, and the audience may feel disembodied. As Stone rotates into space her movement “combines two types of motion: translation in depth (a linear displacement), and a rotation around its own barycentre (a spiral-like, recursive and ‘reflexive’ movement” (D’Aloia 2015:193). Stone’s movement, as she is catapulted through space is met with a complex and meticulous orchestrating of the camera. Analysing this sequence D’Aloia identifies “four types of camera movement related to the character’s movement in space: 1) linear translation (such as tracking or backward [sic] in the depth of the space); 2) rotation round the character’s body centre; 3) rotation with respect to a point (turning); and 4) slow approach to and departure from the character” (D’Aloia 2015:196). Throughout this sequence Stone’s catapulting into the depth of outer-space assumes a profoundly unsettling sensation for the audience, since in 3D the positive parallax space is, like outer-space, infinite, rendering the positive parallax space in Gravity hauntingly terrifying (See Richmond 2016:1). While Stone is only momentarily truly lost, the sensation of being truly lost, truly alone, and the disembodied sensation it carries persists for the audience for an even shorter time. This is because when the camera tethers itself to Stone’s rotation, depicting her face in a
close up with only the background rotating (see D’Aloia 2015:196), the sense of disembodiment is replaced for the audience with a sense of hyperbolic relation to Stone.

The second transformation of the environment occurs when Stone succeeds in entering the Soyuz, the escape pod of the International Space Station (ISS). Upon entering the Soyuz, Stone, who has run out of oxygen, hastens to take off her astronaut helmet and space suit. Her legs and arms appear to be kicking and swaying as she struggles to remove the spacesuit in zero gravity. Eventually her human body emerges in shorts and an undervest. Immediately after shedding her space suit Stone assumes a foetal position clutching her legs against her chest and floats in zero gravity. I refer to Stone’s entering the Soyuz as the distinct emergence of a different becoming body for several reasons. First, unlike outer-space, space in the Soyuz is finite. Where the foreground and background of the frame are easily discernible and lines converge, space here is Euclidean. The changing of space signals the emergence of a different body.

Secondly, I refer to this in relation to the becoming body as the emergence of a different body is explicitly depicted here when Stone sheds her space suit. Patricia Pisters, drawing on Deleuze, suggests that following 9/11 another cinematic image emerges, which Pisters terms the “neuro-image”, and identifies its characteristics in Avatar (on rebirth in Avatar see also Whissel 2014:121, 125-128). While I will discuss Deleuzian readings of 3D cinema in depth in the following chapter, I note here that Pisters identifies “re-birth” as a distinct characteristic of the “neuro-image”. This scene, I suggest, marks the re-birth of Stone, through the moulting of her space suit, and the unlocking of the potential of her body for action.

Thirdly, I refer to this scene as exhibiting a distinct becoming body since it changes the relationship between Stone’s body and the audience. Through embodied simulation the audience now reaches towards Stone’s body in a different manner. When Stone sheds her space suit, audiences’ bodies instantly recognize her human body and relate to it with their own
bodies. For the first time the audience can orient themselves more easily. Still in zero gravity, Stone’s human body acts as a compass. She effortlessly navigates her way around the Soyuz, with movements similar to those of a person swimming in water. Encountering the familiar human body for the first time in the film, allows audiences to reach towards this body with ease, in the automated way of embodied simulation. Against the previous, exterior, outer space scenes, in which reaching towards was laborious, Stone’s body in the Soyuz offers a relief, almost a respite, in which the reverberations between bodies are welcomed. Compared to the effort required of the audience to reverberate Stone’s actions up to this point, welcoming the visibly human body also reveals the inherent desire to reach towards other bodies.

Whereas the entering the Soyuz scene offers a respite which is corporeally sensed by viewers, previous scenes resonate with the laborious nature of Stone’s actions, which is extended to audiences’ bodies in two ways. Firstly, as Purse argues, the effort Stone invests in each movement is mediated to the audience through Bullock’s “vocal performance” and through sound design: “even simple actions (hooking up a tether, moving a faulty transmission card) create audible vibrations transmitted through Stone’s space suit, manifesting as deep, muted rumbles that are likely (not least in a theatre with surround sound) to unsettle the spectator in a directly physical way” (Purse 2017:228-229).

A second way through which the audience experiences Stone’s difficulty to act in space is evident through the difficulty for corporeal simulation. This is because human bodies in the opening of Gravity are monitored and sensed, but not seen. When we are first introduced to Stone, it is through dialogue. Houston expresses concern over the radio with her ECG reading. In this point the shot is so wide and Stone is positioned so far away from the camera, that she is not seen on screen. Later in the opening shot, Houston again shares intimate details of Stone’s condition: “Dr. Stone, Houston medical now have you with a temperature drop to thirty-five-point-nine and a heartbeat rise to seventy”. At this moment Stone is already clearly visible in
the image, working on the Hubble telescope’s communication card, however her body is covered by the cumbersome spacesuit. There is a striking contrast between the intimate bodily details shared over the radio, and the cocooned identical bodies of Stone, Kowalski (George Clooney) and Shariff (Phaldut Sharma) floating through space. Embodied simulation lends us “direct access to the worlds of others […] grounding our identification with and connectedness to others” (Gallese and Guerra 2012:193). However, the cumbersome spacesuits along with the protagonists operating in an environment governed by unfamiliar forces, render their bodies alien and strange. When the automatic nature of embodied simulation is impeded, a reflexive awareness of the process arises. As a result, Stone’s effort to act is mirrored in the audience’s effort to simulate her actions.

In turn, in the Soyuz we succeed in adapting and simulating Stone’s actions. This is evident, for example, when Richmond notes that after Stone escapes a fire and arrives in the cockpit of the Soyuz she is upside down. However, for Richmond, the upside down depiction of Stone was barely noticeable. He writes:

What’s amazing about this shot, some forty-five minutes into the film, is that while she is upside down, this is a wholly unremarkable thing—not only unremarkable but hardly noticeable. (Only on my third viewing was I able to notice.) Over the course of the previous forty-five minutes, the film has so radically reoriented our perceptual coordinates that the screen directions of up and down no longer hold any weight (Richmond 2016:121).

Merleau-Ponty draws on research by George Stratton (1896, 1897), which somewhat resembles the process Richmond describes. In Stratton’s experiment the participant has to wear glasses which “inverts his view, so the participant now sees the world ‘upside down’. As the participant performs actions in what he initially perceives as an inverted space, his vision, and body
INJURED BODIES AND EMPOWERING KINAESTHESIA

gradually become accustomed to the ‘inverted’ view, until he perceives the inverted world as ‘normal’” (see Merleau-Ponty 2012:254-255; see also D’Aloia 2012:159).

Both Merleau-Ponty and Richmond discuss scenarios in which the subject’s perception changes. However, for Richmond the viewer is passive and it is the film, Gravity, that changes the viewer’s perception. In contrast, Merleau-Ponty describes the changing of perception as occurring through a mutual, reciprocal process, between the subject and the world. The viewer actively negotiates actions and the perceived view until the two coincide, offering the participant a sense of being in the world to the strongest degree. Drawing on Stratton’s experiment in which after the fifth day the subject orients himself, Merleau-Ponty explains how the subject inhabits the inverted space:

I identify it without any reflection because I live within it, because I carry myself into the new spectacle entirely, and because I locate my center of gravity, so to speak, within it. At the beginning of the experiment, the visual field appears simultaneously inverted and unreal because the subject does not live in this field and is not geared into it (Merleau-Ponty, 2012:262).

If indeed up and down lose their meaning in Gravity, then drawing on Merleau-Ponty, this signals that the viewer is, to a certain degree in the film, sharing its perceptual conditions. Moreover, if as Merleau-Ponty suggests, the reorientation of perception is made possible particularly through action, then the viewer of Gravity doing without “up” and “down”, signals a reciprocal process in which the viewer adapts to the forces governing the diegesis. This, in turn, implies that the viewer has been affected by the diegesis, but also, that to a certain degree she was acting in it, affecting the diegesis. Considering the September 11 attacks resulted, as Sterritt writes, in a sensation that the world has changed, and that “nothing will be quite the
same again” (2002:64), then the potential to adapt and gain agency in a hostile world reverberates with empowering kinaesthesia.

After entering the Soyuz, this location will serve as the setting for Dr. Stone’s actions until she is forced to embark on another space-walk in order to release the Soyuz parachute tethering the vehicle to the ISS. As she regains agency inside the Soyuz, the orchestrating of the camera also settles down, allowing for several classic horizontal medium shots depicting Stone grasping the controls with clear foreground and background. Moreover, in the Soyuz, the daunting depth of outer space and the positive parallax space is limited. What is particularly interesting is that once Stone’s body regains agency in the Euclidean space, this agency is carried into her further explorations of hyperbolic space in subsequent spacewalks, not only through the actions her body performs, but through the staging of the camera. As Stone attempts to release the parachute which tethers the Soyuz to the ISS, framing restricts positive parallax space by depicting Stone in closer shots and by situating her in close proximity to different elements of the space shuttle. In this manner outer space, as well as stereoscopic depth are somewhat confined. As Stone is surrounded by objects, her immediate space, that is the space which surrounds her, remains Euclidean.

This is the case also in Stone’s third and final spacewalk in which she uses a fire extinguisher to propel herself in space towards the Shenzou, the escape pod of the Chinese Space Station. This final spacewalk is framed in a long shot, depicting the Shenzou in the depth of the positive parallax space, and Stone as a small figure employing the recoil of a fire extinguisher to ricochet through space. As Stone advances along a predetermined trajectory towards the depth of the screen, which shows both her starting point and her destination point, space retains a sense of Euclidean readability. That is, a line may be drawn from Stone’s point of origin to her destination.
When Stone reaches earth and lands the Shenzou in the ocean, a third “worlding” occurs and space changes for the third time. As she opens the door of her escape pod water rushes in, and the force of gravity makes itself explicit sinking Stone and the Shenzou to the bottom of the sea. Stone holds her breath and attempts to swim to the surface. However, her spacesuit is too heavy, preventing her from swimming upwards and threatens to drown her. In a scene which mirrors the “rebirth” scene in the Soyuz, Stone once more sheds her spacesuit and kicks upwards to the surface. Space here is distinctly familiar and Euclidean. Stone washes ashore where she marvels at the sensation of touch, clutching her hand around the sand. She then attempts to push her upper torso off the sandy beach, and momentarily fails. At this Stone smiles. Her momentarily failure serves as a reminder she is back in Earth, grounded by its gravity, she has returned “home”. Stone then stands up, the camera depicts her feet digging into the sand before she walks off into the background. What is at work here is not only Stone’s third becoming body operating in the fourth distinct space the film introduces, but also a fourth way for the audience to reach towards Stone, this time in a more familiar manner, signalling not only Stone’s grounding and embodied return home, but also the audiences’.

To conclude, through distinct manipulation of 3D and stereoscopic space *Gravity* depicts four distinct spaces, that is four "worldings": 1. Hyperbolic outer space in the beginning of the film. 2. Space which is neither hyperbolic nor Euclidean when Stone is momentarily lost, floating aimlessly in space. 3. Space in the Soyuz which signals a rebirth and the introduction of Euclidean space into the film. 4. Euclidean space governed by gravity upon Stone’s return to Earth. Touch, action, and reaching towards are not only enacted differently in these four spaces both by Stone and the audience, but are the underlying causes for the genesis of these spaces. The different “reaching towards”, along with the grounding return home, constitute examples of empowering kinaesthesia particularly when viewed within the cultural context of a world changed by the trauma of September 11 attacks. Firstly they emphasise the power of
the individual to adapt and change, and hence shake off the stasis of trauma, a process embodied by Stone’s character to a great degree. Secondly, the “worldings” in Gravity, constituted by the different ways in which Stone operates in different spaces, serve as empowering kinaesthesia since they mark the turning of a hostile environment into a manageable one. This is evident in the differences between the spacewalks Stone embarks on. What changes the environment is Stone: the way she reaches towards it changes it. Hence Gravity emphasises the effect of the individual on the world. Lastly, as the audience is implicated in the genesis of the diegesis, the different film bodies which constitute these worlds are, to a degree imbued in the viewer itself. Hence, through the emphasis of movement in the process of worlding, Gravity allows for a self-recognition of the inventive and creative potential of the audience and the unlocking of the potential for movement not yet known.

Sarah Ahmed notes that following the terror attacks of 9/11, citizens of the west were encouraged to “explore” and to enact movement, as an empowering action. “The effect of terror” Ahmed argues, did not amount to containment, “but provide[d] the very grounds for remobilisation” (Ahmed 2014:73). In Gravity we see a similar message of remobilization, exploration, and a safe return. Both Stone, and through her, we, the audience, explore and act in four different hostile spaces, and, in a sense, “land” back on earth marking a successful return home. Or in Kowalski’s reassuring words which offer a conclusion to Stone’s journey: “by this time tomorrow, you’re gonna be back in Lake Zurich with a hell of a story to tell”.

4.6 Tales of Intimacy and Inclusion: Reaching Towards in Avatar and Gravity

The final manner in which D3D offers an experience of “empowering kinaesthesia” is through what M. Ross identifies as D3D’s unique employment of “gentle” protrusions into audiences’ space, which invite tactile exploration in an unthreatening manner (2015:28). Such opportunities to gently engage with images in the negative parallax are vastly lacking from the 3D cinema of
the fifties. Weetch concurs with M. Ross writing that “emergent, non-threatening objects serve to draw the spectator into the illusory diegesis to a singular degree, countering the common criticism that negative parallax cannot be used to involve the spectator in a film’s narrative” (Weetch 2016:33). A gentle, non-threatening protrusion is evident in the opening scene of Avatar, which features a close up of Jake Sully’s face. Analysing the opening sequence M. Ross notes how the close up of

Sully’s head takes up most of the vertical space in front of us, its contours are noticeably manifest. The extremities (cheeks, forehead and particularly the nose) protrude towards us and give a sense of volumetric depth that we could reach out to touch. Combined with this depth, the rough texture of his skin becomes more palpable (M. Ross 2015:26).

This palpability is heightened by small droplets forming in front of Sully’s face which “hovering in negative parallax space, provide a contact point between us and Sully that manifests the screen space as full of shared materiality rather than a void between viewer and screen” (M. Ross 2015:27). The added depth of 3D renders the face “hyper familiar” and encourages not only an optical exploration of the face but a haptic one, intimate and bordering on the erotic:

although the figures are eventually unattainable, the play between the potential breaching of this distance and resignation towards its impossibility deepens the experience. Considering Laura U. Marks’ claim that ‘haptic images invite the viewer to dissolve his or her subjectivity in the close and bodily contact with the image’ (2002: 14), which in turn creates an erotic relationship, it is possible to see how the foregrounding of human bodies within a hyper-haptic sensibility will entangle their relationships further (M. Ross 2015:153).
Drawing on M. Ross I would like to suggest that this scene encourages a reaching towards by the spectators and allows for a procedural becoming and empowering kinaesthesia to ensue. Such an experience is elicited through *Avatar*’s invitation to the audience to establish an intimate connection towards a character who is, at this point, largely unknown, unfamiliar. At this point the audience knows little about Jake. Affectively the film encourages an act of trust, of accepting and welcoming the presence of a “stranger” in the negative parallax space. Moreover, through hyperhapticity the film encourages an intimate, haptic exploration of this stranger’s face. Trauma, Herman writes, causes victims to “withdraw from close relationships” due to “the profound disruption in basic trust, the common feelings of shame, guilt, and inferiority, and the need to avoid reminders of the trauma that might be found in social life” (1992:56). In a post-traumatic zeitgeist when traumatic symptoms prevail, when the world and other humans are perceived as alien and potentially harmful, *Avatar* in its opening minute seeks to restore intimate connections and trust. Audiences are invited to feel an intimate bodily connection to Jake. The reaching towards Jake’s face is a reaching towards the unknown since the audience does not know Jake, his body is not revealed, and Jake can be anything. Narrative has not yet limited the potential of his becoming, nor tethered it to one narrative trajectory or another. Hence, in this case the protrusion takes precedence over narrative, and in a sense generates narrative, as viewers explore Jake’s face and form a relationship to the still anonymous character. As narrative involvement in the opening of *Avatar* is rather limited, the origin to the recognized connection to Jake’s must lie not in narrative but in an inherent affective attraction and communication between different bodies. Blackman writes:

haptic, or affective communication draws attention to what passes between bodies, which can be felt but perhaps not easily articulated. The more non-visual, haptic dimensions of the lived body distribute the idea of the lived body beyond the
singual psychological subject to a more intersubjective and intercorporeal sense of embodiment (Blackman 2012:12).

Thus, through the haptic and hyper-haptic connection formed with Jake’s face, the opening of *Avatar* alerts audiences to “what passes between bodies”, between the viewer’s body and the protagonist’s body. The bond established reverberates with potential of what is yet to be due to the nascent stage of the narrative, formulating the film’s main theme – the potential for becoming.

The lingering on Jake’s face and the invitation to explore it at leisure elicit an experience of empowering kinaesthesia particularly when read against a post-traumatic zeitgeist. A cardinal symptom of PTSD is hyperarousal, which “reflects the persistent expectation of danger” and “in which “the traumatized person startles easily, [and] reacts irritably to small provocation (Herman 1992:35). Read against these symptoms of post-trauma, *Avatar* encourages the audience to act, to advance, and renders the stimuli in the image as gentle, hence providing an opportunity for remembering the potential of touch, of gentle action. The inclination towards forming connections and the connection formed with Jake carry importance in a post-traumatic zeitgeist – creating and reaffirming a sense of togetherness. Once more drawing on Kaplan’s feelings in the subway, there was something in the subway coach that although no words were spoken, created a connection between bodies, establishing a sense of togetherness, a bond of shared trust, an intimacy. A similar bond is formed here, in *Avatar*, as the protruding face of Jake invites the audience to connect with him and establish an embodied bond.

Moreover, the close up of Jake’s face also invites a personal, individuated relation to the image This is evident as Kehr compares the close up of Sully’s face to a landscape: “Sully’s face is not a flat plane against a receding background, but an entire landscape in itself, opening vast reaches between cheekbone and eyelash” (2010: 67, qtd. in M. Ross 2015:26-17). The
freedom to explore “the landscape” of Sully’s face results in an individual exploration by the viewer – any viewer may focus on any features of the face thus establishing an intimate almost private connection to Sully, as he is introduced to the viewer for the first time.

In its opening scene Avatar affectively demonstrates Manning’s argument for “reaching towards”. The negative parallax space encourages the audience to reach towards, to advance towards Jake. As we do not know Jake this reaching towards through the hyper hapticity of the image, is a reaching towards that which we do not yet know, that which has yet to come. Since we can never truly “reach” Jake, we can “never grasp the chimera like” images (to draw on Paul, 2004:230), the reaching towards that Avatar elicits can never materialize, only vibrate with the potential of an encounter. Thereby, this reaching towards articulates Manning’s argument on becoming through touch: “to become is to move toward something that is not yet. To exist in the not-yet is to individuate incorporeally or virtually [...] to touch is always to attempt to touch the incorporeality of a body, to touch what is not yet. I do not touch the you that I think you are, I reach toward the one you will become.” (Manning 2007:xviii, xix). In other words, it is already in the first minutes of Avatar that the viewer’s body is becoming, reaching towards the unknown, entangled with the film body and the protagonist’s body. There is reciprocity at work in this scene. The film breaches the negative parallax space in a gentle way and this gesture is met with the audience returning the gesture, reaching towards Jake’s face.

It is easy to see how the close up of Sully’s head provides a significantly different spectatorial experience than that of Margot’s hand imploring us for help in the negative parallax in Dial M for Murder. Margot’s hand acknowledges the audience as “there for her”, affording us with the role of extending help, and failing to do so. A similar affect of “paralysis” is achieved by Man in the Dark when Steve undergoes brain surgery and the doctors’ instruments probe the audience – who are ostensibly under “general anaesthesia” and therefore cannot respond. In
contrast, Sully’s face is there for us. Sully asks nothing of the audience, it is there for the audience to explore and engage with at leisure.

Interestingly, another example in which droplets connect the audience’s space and that of the protagonist takes place in *Gravity* when Dr. Stone is alone in the Soyuz and is trying to communicate with earth and draw attention to her dire situation. When she fails to do so she begins to cry and a single teardrop emerges into focus floating into the negative parallax space, while Stone is seen out of focus in the background. Weetch writes of the moment:

>This teardrop’s emergence therefore exploits the alienating qualities of negative parallax, activating them within the fiction as a direct but hopeless address. The shot’s shallow focus drives visual emphasis onto the emergent artefact and its nature as, to use Bazin’s phrase, an ‘intangible phantom’ (1985:13)” (Weetch 2016:60).

I disagree with Weetch, as I find that this moment achieves the opposite. The tear floating into the negative parallax can be viewed as a “secretion” (to use M. Ross terminology, 2015:122) of the stereoscopic film body. In this the film body phenomenologically performs the act of crying allowing for audiences’ bodies to empathize not only with Stone’s plight, but also to kinaesthetically empathize with the film body and embody the act of crying. Hence, I find this scene to create a bridge between us and Stone, allowing us to share her predicament and empathize with her, not only through the intimate moment but also through the film body’s secretion of tears.

Contrary to 3D cinema of the fifties, which as the reader may recall used the single object to violently pierce the stereoscopic film body’s membrane creating a phenomenological wounding experience, the tear in this case generates the phenomenological experience of crying. Through the secretion of tears *Gravity* invites audiences to mirror the state of the stereoscopic
film body. By empathizing with Stone’s plight and reaching towards her, an experience of empowering kinaesthesia is formed. Not as “becoming more”, that is stronger, or masterful, but by establishing a connection to an other, allowing for a reaching towards which dissolves the isolation imposed by post-trauma.

Weetch goes on to compare this scene to Margot’s hand prompting us to help her in *Dial M. for Murder*. Again, I disagree with Weetch. First because the free floating tear, unlike Margot’s hand, has no intentionality and therefore I do not view the tear, as does Weetch, as a form of direct address. Moreover, while the presence of a witness would in all likelihood be very helpful to Margot, and even possible, considering the urban setting of the scene, Stone is distinctly alone, isolated in space, and it is clear that there is no possibility of a witness intervening on her behalf. Moreover, as there is no expectation of finding an astronaut in the crowd we are not afforded with a sense of impotence or stasis at the scene. In other words, we are not afforded with a call for action that we fail to comply with. Furthermore, Stone *does not* ask the audience, nor Aningaaq, an Inuit fisherman who intercepted her transmission by accident over the radio, for *concrete* help. She asks Anigaaq to pray for her. If one extends Stone’s request from Aningaaq to the audience, we find that we do fulfil Stone’s request. The audience does, in a manner of speaking, pray for her. As Dr. Stone is the protagonist and by now viewers are emotionally invested in her, we wish with all our being almost immanently for her success. In other words, I find that in *Gravity* we *do* fill the role we are afforded with. We do “our part” and by extension, soon Stone does her part too and finds a way to act and return to earth. Hence here, as we do pray for Stone and she succeeds in her journey the audience shares her sense of accomplishment. The film generates reflexivity in which our prayers for Stone’s well-being are answered and as a result allows audiences a sense of contribution to Stone’s success, generating once more a sense of inclusion, and of empowering kinaesthesia. It’s interesting to note from a gender perspective that *Gravity* depicts a female body that seems
to need help from others (Kowalski, Houston) but eventually saves herself, whereas fifties’ 3D cinema often places at its centre a male body that needs to save the female protagonists, but ultimately needs help himself.

D3D cinema’s fostering of intimacy and reaching towards is not restricted to the close up and can be observed in other shot sizes as well. Consider for example the “sacred tree” scene in *Avatar* in which Neytiri and Sully, standing in a site holy to the Navi people, are surrounded by luminescent seeds. Of this scene M. Ross writes:

> Owing to their luminescent quality, the seeds are particularly suitable objects to appear in negative parallax space and seem to swarm towards the viewer before they eventually descend. In this way, they make a gentle, physical connection between audiences and characters in the film that allows them to operate as entities which Carter Moulton terms ‘transdiegetic objects’ (M. Ross: 2015:27; Moulton 2013:8).

Hence, being “transdiegetic objects” the luminescent seeds invite both us and Jake to marvel at the seeds and reach for them, enacting a “reaching towards” both on behalf of the protagonist and on behalf of the audience. Once more, through the shared marvel at the seeds the audience is afforded an opportunity to rejoice through the embodied feeling of sharing the diegesis, of being alive in the world. A comparison to fifties’ 3D cinema reveals the vast difference between the two periods: consider that in *Man in the Dark* during the scene in which Steve undergoes brain surgery we are aligned with him and the medical devices that protrude into the auditorium do not elicit wonder nor a reaching towards in awe but rather cause the audience to recoil. Moreover, as we are aligned with Steve we share his paralysis during the surgery scene. In comparison, in *Avatar*, the negative parallax space allows the audience to share the intimacy and bewilderment Sully experiences when making contact with the luminescent seeds. As
Weetch notes: “Sully, with whom we have been stereographically aligned, now wonders at a flying object that floats in front of him just as we are also invited to appreciate one ourselves” (Weetch 2016:32). This is in sharp contrast to Man in the Dark in which audiences futilely attempt to avoid the invading medical instruments.

It should be noted that “gentle intrusions” into negative parallax are only one way that negative parallax is used in D3D – there are occasions when more threatening objects intrude into the negative parallax space at great speed. However, fifties’ 3D cinema’s modus operandi of telegraphing upcoming attacks by a “single” intruding object is not common in D3D. Instead threatening intrusions take the form of what M. Ross terms “stereoscopic debris – “the use of liquid and debris (exploding materials, embers, sparks, dust clouds, bubbles, jetsam) [that] creates thick palpable screen spaces where the boundaries between the film’s objects and the viewers’ bodies are unclear” (M. Ross 2015:13). The use of stereoscopic debris does not situate the audience in opposition to the diegesis, as in fifties’ 3D cinema, but rather serves to bridge the chasm between audience and diegesis.

4.7 Conclusion

Examining 3D cinema of the fifties from an embodied and phenomenological stance this chapter reveals important characteristics of this cinema in relation to trauma. The aggressiveness of 3D cinema of the fifties, in conjunction with its habit of telegraphing upcoming attacks on the audience allowed the audience to crystalize into a united metaphoric body on which a communal wound could be inflicted by the object propelled from the screen. By drawing attention to the single object which pierced the film body and propelled towards the audience, 3D cinema of the fifties phenomenologically recreated experiences of bodily harm, echoing wounding experiences and alluding to deformed bodies with which US society
was familiar in the early fifties. This created a point of contact and ensuing empathy between audiences and the stereoscopic film body.

The embodied experience D3D offers is different and pertains to the different nature of the trauma of September 11. By identifying the operation of D3D cinema in relation to embodiment, phenomenology, hyper-haptic visuality and kinaesthesia, this chapter found that D3D affords viewers with an affective response I term empowering kinesthesia. Informed by Erin Manning’s concepts of the becoming body and touch, empowering kinesthesia is a result of three distinct processes evident in D3D both in themes and stereoscopic poetics: novel configurations of bodies, the implication of the audience in the genesis of sublime diegetic worlds, and gentle, intimate protrusions into the negative parallax space. In this way empowering kinaesthesia fits within the post-traumatic zeitgeist in the US following the September 11 attacks in which the message propagated by the nation was employing action and movement, as a means of countering the effects of trauma.
CHAPTER 5 – THE TEMPORALITIES OF 3D CINEMA AND THE TEMPORALITIES OF TRAUMA

This chapter is informed by the discourse on the temporality of 3D cinema and the temporality of trauma. As discourse pertaining to the temporality of 3D cinema is conducted largely by drawing on Gilles Deleuze’s cinema images, and in relation to D3D cinema alone (see Elsaesser, 2013; Pisters, 2012; Liu, 2018; M. Ross 2012, 2015), a brief overview of key terminology in Deleuze’s cinema books is necessary.

At the basis of Deleuze’s cinema books lies Henri Bergson’s theory of perception and memory. For Bergson perception is always utilitarian, always oriented towards action. To facilitate transforming perception into action, our perception is supplemented to the point of being overshadowed by what Bergson calls “habitual memory”, a memory that retains the appropriate corporeal action to different perceptions. Bergson writes

there is no perception which is not full of memories. With the immediate and present data of our senses we mingle a thousand details out of our past experience. In most cases these memories supplant our actual perceptions, of which we then retain only a few hints, thus using them merely as ‘signs’ that recall to us former images (Bergson [1911] 2016:14).

And elsewhere:

our whole life is passed among a limited number of objects, which pass more or less often before our eyes: each of them is perceived, provokes on our part movements, at least nascent, whereby we adapt ourselves to it. These movements, as they occur, contrive a mechanism for themselves, grow into habit, and determine in us attitudes which automatically follow our perception of things (Bergson 2016:52).
This form of perception finds its expression in Deleuze’s writing as the “action-image”, the defining characteristic of a broader cinematic aesthetic he terms “he movement-image, which in turn dominates classical Hollywood cinema. For Deleuze, the action image conforms to a “sensory-motor” schema which “effectively retains from the thing only what interests us, or what extends into the reaction of a character” (1989:45). Put differently, the action-image through an automatic process of the sensory-motor schema retains from the perceived view only that which can be extended into action. This is why Deleuze terms the cinema of the action-image as the cinema of behaviourism. In this cinema progress is made through continuous patterns of Action-Situation-Action (ASA) or Situation-Action-Situation (SAS), which describe the reciprocity of actions and situations: a situation promotes an action which yields a new situation, which in turn provokes another action and so on.

However, such a perceptual process and in turn such cinema, come at a cost: it is habitual, automatic, and does not perceive the object in its totality but rather only that of the object which can be translated into motoric extension. This is why Deleuze, in a somewhat derogatory fashion, equates the perception mechanism of the action-image to the perceptual process of the herbivore: “the cow recognizes grass […] the cow moves from one clump of grass to another […] grass [is made] to be eaten […]it is grass in general that interests the herbivore” (Deleuze 1989:44-45). The herbivore example demonstrates the lack of attention to the perceived object in the action-image, as well as the superiority Deleuze attributes to the perceptual process of the time-image, to which he refers as richer (See Deleuze 1989:44-45).

As the action-image relies on automatic perception, a disturbance, a suspension to the process of the sensory-motor schema must be introduced in order to suspend this automaticity and allow for a more attentive perception to surge. Such a disturbance is found in what Deleuze terms the “action-image crisis”. Framing his argument most notably within European cinema,
Deleuze argues that the end of WWII saw the creation of “any-spaces- whatever”, spaces which were stripped of their functions by the atrocities of war:

in Europe, the post-war period has greatly increased the situations which we no longer know how to react to, in spaces which we no longer know how to describe. These were ‘any spaces whatever’, deserted but inhabited, disused warehouses, waste ground, cities in the course of demolition or reconstruction” (Deleuze 1989:xii).

As a result, man was uncertain how to operate within these spaces. Thus, Deleuze argues, an action-image crisis was formed in which “the first things to be compromised everywhere are the linkages of situation-action, action-reaction, excitation-response, in short, the sensory-motor links which produced the action-image” (Deleuze 2005: 211 qtd. in M. Ross 2015:39). The result of the severance of these links is the inability to act and a lost connection to the world. As Pisters puts it: “the sensory motor link of humans with the world is broken and we can no longer be sure of the exact relationships between ourselves and the world […]” (Pisters 2012:195).

These conditions as well as the action-image crisis have manifested in European cinema in a transition from the movement-image to the time-image. A cinema of behaviourism, of action, gave way to a cinema of seeing “in these any-spaces-whatever a new race of characters was stirring, kind of mutant: they saw rather than acted, they were seers” (Deleuze 1989:xii). As “seers” rather than “doers” inhabited cinema and as a result of WWII European cinema, according to Deleuze, underwent a transformation. The movement-image was replaced by the time-image, the aesthetics and narratives of classical Hollywood cinema gave way to modernism. In the cinema of the time-image temporal order takes precedence over action. Whereas in the cinema of behaviorism, dominated by the action image, progression, that is
temporal flow, was achieved through action, in the time-image the halting of action allows temporality to take precedence over movement:

thanks to this loosening of the sensory-motor linkage, it is time, 'a little time in the pure state', which rises up to the surface of the screen. Time ceases to be derived from the movement, it appears in itself and itself gives rise to false movements. Hence the importance of false continuity in modern cinema: the images are no longer linked by rational cuts and continuity, but are relinked by means of false continuity and irrational cuts. Even the body is no longer exactly what moves; subject of movement or the instrument of action, it becomes rather the developer [revelateur] of time, it shows time through its tiredness and waitings (Deleuze 1989:xi).

The first intersection of Deleuze and stereoscopy is found in Crary who argued that the space of the stereoscope and still stereoscopic images give rise to “what Deleuze calls a Riemann space”. In a Riemann space, each vicinity […] is like a shred of Euclidian space but the linkage between one vicinity and the next is not defined . . . . Riemann space at its most general thus presents itself as an amorphous collection of pieces that are juxtaposed but not attached to each other” (Deleuze and Guattari 1987:485, qtd. in Crary 1994:126). While Crary’s description is apt, it pertains to stereoscopic still photography in the 19th century. In what follows I will argue that 3D cinema of the 1950s offered a variation on the action-image crisis by demonstrating failed attempts for action on the part of protagonists, and by rendering the negative parallax space as an “any-space-whatever”. In relation to D3D I will demonstrate that this cinema reverberates with the potential to open up the temporal dimension of the image, the films discussed here do not follow up on this potential but rather reinstate the sensory-motor schema. After discussing 3D cinema in relation to Deleuze, I will move on to suggest an inherent
temporal structure enacted by 3D cinema along its Z axis. The temporality of the Z axis I argue for can, in turn, be employed to afford visibility to different traumatic temporalities: the temporality of the traumatic event often described as the moment time froze; the temporality of intrusion in which the past overtakes the present; a cyclic temporality of repetition, oriented towards a particular moment in the past; and finally, a temporal collapse, which pertains to being lost in the present.

5.1 Deleuze and the “Any-Space-Whatever” of 3D Cinema of the Fifties

Deleuze’s work is often criticized as “only applicable to European art film” (David Martin-Jones, 2009:214) and most research on Deleuze and Hollywood cinema pertains to contemporary Hollywood rather than the cinema of the early fifties (see for example Martin Jones 2006; in relation to D3D cinema see for example M. Ross 2015; Elsaesser 2013; Liu 2018: Pisters 2012). Despite this criticism and the lack of Deluzian reading of fifties’ 3D cinema, I find that Deleuze’s work does bear important relevance to the 3D cinema of the fifties.

Applying Deleuzes’s work to fifties’ 3D cinema is possible because while Deleuze finds that the action-image crisis manifests itself in Europe as a result of WWII, he does not single out the war as the sole culprit of this crisis. Rather Deleuze cites several meta-cinematic events as the underlying causes for the action-image crisis. Amongst them are:

in no particular order, the war and its consequences, the unsteadiness of the American Dream in all its aspects, the new consciousness of minorities, the rise and inflation of images both in the external world and in people’s minds, the influence on the cinema of the new modes of narrative with which literature had experiments, the crisis of Hollywood and its old genres (Deleuze, 1989: 206).
Note that the processes Deleuze points to, such as the new consciousness of minorities and the unsteadiness of the American dream, are themes with strong ties to US society in the early fifties, evident for example in the arguments of different scholars pertaining to the crumbling of the nation’s unified image after the war (see for example Cook 1996; Rose 2013; Sobchack 1998:131-132; Sterritt [1998]). Moreover, Deleuze does discuss a form of the action-image crisis and the transition he argues for in relation to US cinema. His discussion of the western and the neo-western provides an example of the transition from classical to modernist cinema in Hollywood cinema. A key difference between the Western and the Neo-Western Deleuze argues for is that while unanimity is “the political character of American cinema before and during the war,” in the neo-Western we see “the break-up of the American people who could no longer believe themselves to be either the melting-pot of peoples past or the seed of a people to come” (Deleuze 1989:216. For a thorough discussion of the Western in relation to Deleuze’s work see Campbell 2013).

“The break-up of the American people” is a theme present most evidently in Gun Fury. During the opening minutes of the 3D film, protagonist Ben Warren (Rock Hudson) and antagonist Frank Slayton (Philip Carey), who fought for opposite sides in the US civil war, engage in an argument in front of Ben’s fiancé, Jennifer Ballard (Donna Reed):

BEN: I've seen enough and I've had enough of killing. I'm sick of violence and force. I learned one thing: bullets are very democratic. They kill good men as well as bad. I'd like to try the other way.


JENNIFER: The war is over. We can’t go on thinking about it forever.
BEN: I've forgotten it. I'm interested only in the future... because that's where we're going to spend the rest of our lives. I spent five years fighting somebody else's quarrel. Now I don't quarrel with anyone.

SLAYTON: By not carrying a gun? Is that how you do it?

BEN: By staying in my own back yard... which, in this case, happens to be 1,200 acres of good California land. [...] You can stand on the front porch and see straight ahead for three days. The ocean's the west boundary and the river's the east boundary. For me, that's the whole world.

SLAYTON: And what happens on the other side of the river is no concern of yours?

BEN: That's right.

While the tensions and rifts between the South for which Slayton fought, and the North for which Ben fought are evident in this dialogue, the scene is important because the rest of Gun Fury focuses on calling into question Ben’s self-declared philosophy. The morning after their argument, Slayton, who is a gang leader, attacks Ben and his fiancé Jennifer on their way west and kidnaps Jennifer. Ben, who survives the attack sets out in pursuit in the hope of saving Jennifer. Knowing he is outnumbered, and as his chase leads him through different small towns in the west, Ben retells his ordeal in each town and asks the town’s people to join him in pursuit. However, his pleas are not answered, instead his declared philosophy is thrown in his face. The people in each town deny Ben’s request with the excuse that his plight is none of their concern. Hence, Gun Fury portrays a break of unanimity in the west by depicting each small town as an island, not bothered by events outside the town’s borders.

Importantly, a lack of unanimity is evident in many fifties’ 3D films through the emphasis of tensions between tight knit groups. In Man in the Dark Steve’s former gang is rife with tensions and demonstrates a striking lack of solidarity. Alien clones assuming the appearances
of former neighbours and friends threaten the solidarity of a small town in *It Came from Outer Space*. In *Creature from the Black Lagoon* the traumatic encounter with the Gill Man leads to ego showdowns and bitter arguments among the expedition’s members concerning the desired course of action. In this we see that the change in Hollywood westerns which Deleuze attributes amongst other causes to WWII is evident in fifties’ 3D cinema across a variety of genres.

The lack of unanimity in post-war Hollywood cinema was also identified more broadly in film noir (Sobchack 1998). As the lack of unanimity was identified in the Neo-Western, the film noir, and in fifties’ 3D cinema across different genres, it is safe to say that the lack of unanimity was not unique to a particular genre, or to 3D cinema of the fifties. Rather the lack of unanimity was a sign of post-war US cinema more generally. What is, however, unique to 3D cinema is that while its narratives may depict the breakage of unanimity, the phenomenological spectatorial experience engendered by this cinema is, as argued in the previous chapter, one of collective unification. 3D cinema of the fifties thus presented a peculiar hybrid, which offered a disjunction between narratives that depict the loss of solidarity and the inclusive phenomenological experience these films engender.

Another example of employing Deleuze’s writing to analyse US cinema in the fifties is the work of Angelo Restivo (2000). Restivo finds traces of the transition from movement-image to time-image in *Psycho* (Alfred Hitchcock, 1960) and *Kiss Me Deadly* (Robert Aldrich, 1955), and argues that the films fall into what he identifies as a traumatic breach between the movement-image and the time-image. That is the films retain characteristics of the movement-image such as the sensory-motor schema, however depict “a kind of jerking forward of self-contained spasms of action […] the mark of a world in which any notion of the social totality has been shattered” (Restivo 2000:189). In this Restivo’s argument resonates with the break of unanimity Deleuze argues for. That said, Restivo argues that the underlying trauma in US cinema in the early fifties is “rooted in the transition to an economy of consumption” (Restivo
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2000:189). It is this point that I disagree with in Restivo’s argument. Restivo draws on two highly different forms of trauma, the trauma that took place in Europe during WWII, and the trauma of economic change, and finds that they lead to the same result: signs of modernism in cinema. Drawing such a parallel is, in my view, unfounded and suffers from generalization. As I will demonstrate, while the traumatic breach Restivo argues for can be witnessed in fifties’ 3D cinema, this breach is tied closely to the traumatic experiences of WWII.

Building on the work of Restivo and Campbell (both of whom do not discuss 3D cinema), I find that 3D cinema of the fifties demonstrates signs of the action-image crisis, without completing the transition to the time-image. Crucial to such understanding is viewing the transition between the time-image and the movement-image not as a point of breakage, but as a “site of struggle” (see Campbell 2013:43), or as an “infinite spiral” made “of entwined connections and interlinkings” (see Jacques Rancière 2006:119, Campbell 2013:43).

A more distinct characteristic of the action-image crisis then the breakage of unanimity, evident in 3D cinema of the fifties is the stasis of audiences and protagonists. More particularly, I argue that fifties’ 3D cinema employed the negative parallax space as an “any-space-whatever” in which action was forestalled, disconnected, and thwarted. As noted earlier, for Deleuze any-spaces-whatever are spaces in which characters do not know how to act. Deleuze distinguishes between two kinds of any-spaces-whatever: a disconnected space and an empty space (Deleuze 1986:120). Both these types of any-space-whatever are evident in the negative parallax space of fifties’ 3D cinema.

A disconnected any-space-whatever is formed in 3D cinema of the fifties in the negative parallax space by suspending the patterns of SAS and ASA which Deleuze attributes to the action-image and the movement-image. When fifties’ 3D cinema places the audience under attack, shooting point blank at the viewers, there is no image that can follow in a manner that will sustain SAS and ASA continuity. Indeed, what image can follow the burning wax heads
that fall into the negative parallax space in *House of Wax*? Or the cops chasing Steve on the rotating cups ride in *Man in the Dark* and shooting directly into the negative parallax space? Or in *Gun Fury*, where the camera slowly pans to position itself, and the audience, point blank in front of Blinky’s rifle as he shoots Estella’s horse? Where in the diegesis can an image of the audience, momentarily wounded by intrusions, find its place? The answer is it simply cannot. The narrative rushes forward but a rupture has already been created which undoes the completeness of the diegesis, undoes its continuity, and unveils the positioning of the audience in opposition to the cinematic image. As Klinger notes “[the] negative parallax disrupts on-screen universes and prevents audience immersion. The fact that those who dislike this form of illusion experience it not only as narratively disruptive, but also as a physical assault emphasizes its inappropriateness” (Klinger 2013:187).

In the previous chapter I have argued the negative parallax space of fifties’ 3D cinema to be a space that allows audiences to crystalize into a symbolic communal body so that they can experience upcoming attacks together. This may seem as a contradiction to my current positioning of the negative parallax space as a disconnected “any-space-whatever”. However, while the audiences experience the attacks together, they are alienated from any potential to defend themselves or retaliate. Moreover, they are alienated from the very diegesis itself. The negative parallax space still abides by the sensory-motoric schema, but it is one rife with caesuras. The sensory-motoric schema it offers is one in which SAS patterns are cut short and do not offer continuity. After the audience is assaulted and after a collective symbolic injury is sustained, a gap follows, as the symbolic wound does not translate into a successive situation/action.

Moreover, Deleuze characterizes the disconnected space of any-spaces-whatever in the following manner: “the connection of the parts of space is not given, because it can come about only from the subjective point of view of a character who is, nevertheless, absent, or has even
disappeared, not simply out of frame, but passed into the void” (Deleuze 1989:8:). In 3D cinema we find that the negative parallax space is dependent upon the subjectivity not of the character but of the spectator, who is disconnected from the diegesis. As for Deleuze the lost connection to the world is an important part of the action-image crisis, by emphasizing the disconnectedness of the spectator from the diegesis in fifties’ 3D cinema, another characteristic of the action-image crisis is discovered.

The second any-space-whatever Deleuze describes is an emptied space, “which has eliminated that which happened and acted in it. It is an extinction or a disappearing […]” (1986:120). Once more the relation to the negative parallax space is striking as the images in this space appear only to quickly disintegrate, to disappear. Recalling that images themselves are indices of an event, their disappearance is, in turn, an act of erasure.

Any-spaces-whatever constituted a concrete condition across Europe through scars that WWII had left on different spaces, and indeed on the very perception of space. These conditions, in turn, were manifested in European modernist cinema through diegetic “any spaces whatever”. As the war was not fought in the US, any-spaces-whatever did not materialize on US soil in the same manner as in Europe. Rather as returning veterans had encountered any-spaces-whatever and as US society and many individual bodies and psyches were hurting after the war, any-spaces-whatever found their way into Hollywood cinema in the negative parallax space. The negative parallax space constitutes a liminal space, caught between the diegetic and the extra-diegetic. While there were no any-spaces-whatever in the US, no “ruins” bearing the scars of war, the negative parallax space functioned as the ruins of the wartime mythologized and united US society. Moreover, the negative parallax space in fifties’ 3D cinema is a space in which audiences are not sure how or indeed whether to react to the approaching images. Potential for action within this space in fifties’ 3D cinema is unclear and the kind of interaction
which it promotes highlights passivity. Thus the negative parallax space in fifties’ 3D cinema reconstructs the characteristics of the any-space-whatever Deleuze argues for.

While fifties’ 3D cinema does present incomplete ASA and SAS links between audiences and images in the negative parallax space, and its protagonists’ actions fail repetitively, this cinema still belongs to the movement-image. This is because fifties’ 3D cinema confirms to linear temporality, and as despite the unsuccessful outcome of their actions the characters still act in the diegesis through ASA and SAS links. That said, this cinema’s down playing of the possibility for the individual to successfully act upon his surroundings and its employment of the negative field of screen as a restricted plane for action, create a peculiar liminal hybrid. Fifties’ 3D cinema no longer advocates the cinema of behaviourism, yet it does not pose an alternative. Instead, it depicts an impaired sensory-motor schema visible in the failed actions of protagonists, and in the vulnerability of both protagonists and audiences who repeatedly come under attack. Resolution is offered in fifties’ 3D cinema not through the actions of protagonists, but rather through the artificial intervention of officers of the state who “save the day” when male characters either fail to come to the aid of female protagonists (as in *House of Wax* and *Creature from the Black Lagoon*), or are helpless in a dire, life threatening situation (as in *Man in the Dark*). It is in the demonstrating of the impaired sensory-motor schema that fifties’ 3D cinema demonstrates a variation of the action-image crisis which manifested itself in European cinema following WWII.

A caveat may be introduced – Deleuze discusses any-space-whatever in relation to the diegetic space. Campbell, for example, identifies any-spaces-whatever as a sign of modernism in post-war American cinema in what he terms the “post-western” and cites films such as *Lusty Man* (1952), *The Exiles* (1961), *The Misfits* (1961), *Fat City* (1971). He locates the origin of any-spaces-whatever in these films in the protagonists’ search for a “home”. This search was undertaken either as a result of the housing crisis in the US during the post-war period, or due
to the exiled status of the protagonist, for example, the native American in *The Exiles, The Misfits* and *Fat City*. I, however, identify any-spaces-whatever not in the diegesis but in the liminal negative parallax space, where it is the audience who is not sure how to act. How then is it possible to link the diegetic any-space-whatever in modernist cinema which pertains to the space in which characters operate, to a space in which it is the audience who is not sure how to act? Firstly, by arguing that *Psycho* bears the trauma of the transition from the movement-image to the time-image, Restivo relies on the “spectatorial experience of the film” to be one of “a radical rupture of expectations” (Restivo 2000:179). In this he extends the causality at the base of narrative cinema and its breakage to the spectatorial experience, hence providing a theoretical link for an argument which identifies the action image crisis within the audience rather than in the characters, and within the space of the audience rather than within the diegesis. Further basis for such a link can be found in Boaz Hagin who argues that “the access to movement images depends on the spectator’s experience” as the movement image and the action image assume a shared habitual underlying memory (2013:278). One may add that the action-image crisis is also, in turn, based on the “malfunction” of this shared habitual experience.

Secondly, one must remember that any-spaces-whatever and the seers that wondered at them were, according to Deleuze, a result of a concrete spatial and human condition. While these conditions may manifest themselves in European cinema through modernism, in US cinema, which experienced these conditions differently, they may manifest themselves otherwise. And indeed, in 3D, the negative parallax space, a living space haunted by cinematic images, is perhaps the perfect *space*, an “any-space-whatever”, to illustrate war-experiences carried back to US terrain and traumatic experiences which are characterized by the duality of “it happened”, “it didn’t happen”, and which the passage of time and the distance from Europe fail to abate.
To conclude, the discussion of fifties’ 3D cinema through the prism of Deleuze’s work reveals that this cinema was bearing signs of the image-action crisis, thus further tying it to WWII. Its unique characteristic of forming any-spaces-whatever in its negative parallax space afforded fifties’ 3D cinema with the potential to engage with war-time, traumatizing experiences carried back to US soil.

5.2 Deleuze and Digital 3D Cinema

D3D cinema of the new millennium has been discussed in relation to Deleuze’s cinema books by several scholars who either relegated this cinema to the time-image, or argued that it harbinger a new cinematic image. Elsaesser, for example, suggests viewing 3D cinema as “a different kind of mental image (or ‘crystal image,’ to use Gilles Deleuze’s terminology)” (Elsaesser 2013:218). Patricia Pisters analyses Avatar as an example of what she terms the development of Deleuze’s time-image into the “neuro-image”, a cinematic image which came into being following 9/11 and which “develop[s] the neuro image as a new dimension of time – the future” (Pisters 2012:23). M. Ross draws on Deleuze to argue that whereas the 2D version of Avatar is dominated by SAS (Situation-Action-Situation) and ASA (Action-Situation-Action) patterns associated with the movement image, stereoscopic close ups in the 3D version of Avatar are arresting points which break these patterns (M. Ross 2012:389, 2015:39). Yong Liu draws on Gravity and Prometheus (Ridley Scott, 2012) to suggest “that digital 3D cinema is capable of ‘relaunching’ the time-image” (Liu 2018:101).

I, however, would like to suggest in contrast to the scholars cited above, that while D3D presents unfamiliar situations and bodies which may suspend the sensory-motoric schema, this suspension is only momentary and serves to re-enforce and re-instate a renewed and rejuvenated sensory-motor schema. Hence while D3D cinema of the new millennium demonstrates
potential for a new engagement with temporality in cinema, it eventually retreats to re-enforce
the reassuring linear temporality and corporeal connection of individuals to the world.

In *Avatar* everything on Pandora maintains a relation of SAS and ASA as everything is
touched, responds, and touches back. Pandora is a world which glorifies sensory-motor links,
and so do the Navi. The vegetation of Pandora reacts to Sully’s touch as he explores Pandora
for the first time: the plants respond to his touch by lighting up, or closing and shrinking into
the ground. When Neytiri and Jake run through the forest the ground lights up under their feet.
Moreover, the Navi maintain their relation to the environment through touch. They form a
corporeal bond with animals and plants, connecting with them literally and physically through
their long braids of hair.

M. Ross finds that the stereoscopic close up of Jake’s face in the opening of *Avatar* breaks
SAS and ASA links since “3D films allow the attraction quality of their close-up to take
precedence over narrative development” (M. Ross 2015:143-144). Deleuze, however, posits the
close-up of the face as an affection image: “that which occupies the gap between an action and
a reaction, that which absorbs an external action and reacts on the inside” (Deleuze [1986]
2013:217). In 3D however, the close up of Sully’s face becomes as noted earlier, “a landscape”,
site for exploration (Kehr 2010); hence in 3D even the affection-image is inscribed with the
potential for explicit reaction, eliciting SAS connections between viewer and image. The
inscribing of the close up and the affection images with “a call for action” (i.e. explore!) further
demonstrates that suspensions of sensory-motor schema are only momentary in D3D and are
quickly dissolved through action.

Moreover, in fifties’ 3D cinema the negative parallax space functioned as an “any-space-
whatever.”, an “emptied space” and a “disconnected space”, in which audiences were on the
receiving side of actions that opened up gaps and caesuras in the continuity of the diegesis.
Contrary to this, the negative parallax space in D3D of the new millennium promotes action.
Gentle protrusions invite audiences to explore intruding images in an intimate manner and stereoscopic debris creates “palpable screen spaces” (M. Ross 2015:13). These distinct poetics of D3D cinema allow for the creation of a continuous diegetic space across the gulf between the audience and the screen (see M. Ross 2015). M. Ross refers to stereoscopic debris as “visual excess” which suspends narrative progress. However, I find that the tangible space created by stereoscopic debris allows audiences to hyper-haptically engage with the diegesis. As stereoscopic debris extends the diegesis to the movie theatre, it allows audiences to embody the space in which the protagonist operates. Audiences’ bodies can better “understand” the actions of protagonists, thus allowing embodied simulation and kinaesthetic empathy to resonate more strongly in D3D than in 2D cinema, or in fifties’ 3D cinema. In this manner, the negative parallax space which in fifties’ 3D cinema emphasised emptiness, passivity and disconnectedness, becomes a site eliciting actions from the audience in D3D. Thus, while in fifties’ 3D cinema the negative parallax space was resonating with the action-image crisis, in D3D the negative parallax space abides closer to the movement-image, resurrecting its dominating sensory-motor schema.

5.3 Letting Go of a Traumatic Past, Reaching for the Future?

Whereas according to Pisters the time-image and the movement-image pertain to the past and to the present respectively, the neuro-image, she argues, is oriented towards the future (See Pisters 2012:25). In what follows I explore the temporality of the future in Avatar, Gravity and Life of Pi and argue that while Avatar, Gravity and Life of Pi indeed engage with letting go of a traumatic past, they look not to the future, but to a return to the past which predates the trauma.

The organizing argument for Pisters’ work rests on the observation that as we now “literally enter brain-worlds in cinema […] a transdisciplinary encounter between film, philosophy, and neuroscience is not only important, but also necessary to pursue” (Pisters
INCREDIBLE BUT VERY REAL

Since the diegetic world of these films is a “brain-world”, Pisters employs an analytical framework of schizoanalysis in which “in contrast to psychoanalysis, schizoanalysis does not so much return to the past […] rather it is directed toward the future, to experimenting with producing new models, new subjectivities, with uncertain outcomes not based on pre-established diagnoses” (Pisters, 2012:39). According to Pister’s argument “with the neuro-image we quite literally have moved into characters’ brain spaces. We no longer see through characters’ eyes, as in the movement-image and the time-image; we are most often instead in their mental worlds” (2012:14).

Pisters finds Avatar to be an example of the neuro-image primarily because it is oriented towards the future. In the third synthesis of time, the future, Pisters suggests that “the present and the past are dimensions of the future” (Pisters 2012:138). This is articulated in Avatar as it takes place in “the year 2154, a perspective from the future typical for the third synthesis of time, in which the colonization of distant planets is under way” (Pisters 2012:180). And it is from the perspective of the future, that “Avatar’s references to contemporary concerns about the ecology of the world are obvious but at the same time very powerful” (Pisters 2012:181). Pisters also finds Avatar to be oriented towards the future because the film is a “technological and aesthetic milestone of cinematographic imagination, offering a breathtaking celebration for the senses” (2012:180), and since it revolves around a “mythological narratives about the human desire to leave ‘the cradle’ and begin anew” (2012:180). Finally, Pisters draws on Avatar as an example of the neuro-image because the film’s images are “quite literally the product of Jake’s mind (the Avatars are called ‘dream walkers’) […] the images at every level reproduce our neural system […]” (Pisters 2012:181).

I, however, find Avatar to be a problematic fit for the characteristics of the neuro-image. Primarily, I don’t perceive the images of the film as a product of Jake’s brain. Unlike other examples Pisters cites (Fight Club [David Fincher 1999], Inception [Christopher Nolan 2010],
and *Source Code* [Duncan Jones 2011]; see Pisters 2012:27), in *Avatar*, Pandora is a concrete world acknowledged by all characters with no character having privileged, subjective access to this world. Jake is seen by the other character and the images are not “a product of his mind”. Hence I find Pandora does not constitute a “brain world”.

Furthermore, the orientation of *Avatar* towards the future is contested by Sean Cubitt. Drawing on Adorno and Bloch (1988), Cubitt writes “to ascribe content to utopia would be to define it, to carry the premises of the present into the future and so deny the radical difference from the present which defines the future as future” (Cubitt 2012:231). Hence, in engaging with contemporary problems from the perspective of the future, the third synthesis of time according to Pisters, is precisely where the idea of utopia disintegrates, because it implies carrying premises of the present into the future. Cubitt finds in *Avatar* a utopia of connectivity which in turn rests on two classical utopian dreams which the film melds together: an ecological utopia, and a romantic utopia. Both these utopias according to Cubitt are inherently oriented towards the past. Along with the use of voiceover and the emphasis on Jake’s human, paralyzed body lying in the canister during a lovemaking scene between Neytiri and Jake, the potential future suggested in *Avatar*, of harmonious connectivity, is, according to Cubitt already closed. He writes:

This is perhaps the most conflicted region of the film’s utopian possibilities: love’s utopia is, it seems, always in the past. This is too often the case with ecotopias more generally: once there was wilderness, and once we lived in harmony with nature, but now no more […] *Avatar* plays out this orientation towards the past as an ending, told in voiceover by one who has already lived it, like a film noir. This is perhaps the moment of greatest betrayal: to have raised the spectre of utopia, not only as wish-fulfilment but as the not-yet outcome of a still evolving condition, the
situations of network societies and their potential, and to have placed it not in the unknowable future but in the already-over (Cubitt 2012:235).

Hence Cubitt acknowledges the potential of a future in Avatar’s Pandora, however deems that the film does not follow through on this potential rather it situates the possible future in the “already-over”. Following Cubitt it seems Avatar is in fact oriented towards a nostalgic past, a past which predates the action-image crisis. It is in this past that the connectivity of subjects to the world is whole as is their sensory-motor schema. This utopia is in turn extended to the audience through the employment of 3D which allows the viewers to embody, and to a certain extent connect with a past predating the action-image crisis.

What the competing arguments of Pisters who finds Avatar to be oriented towards the future, and Cubitt who finds Avatar to betray the possibility of a future largely ignore is the role of 3D in Avatar. To discuss the possibility of the future in 3D cinema and the temporalities 3D cinema gives rise to more generally, I draw on the work of Roland Barthes, and particularly on his concept of the “punctum”. For Barthes “a photograph’s punctum is that accident which pricks me” (1981:27). Gregor Stemmrich provides a useful clarification stating that “the punctum is what a photograph can show without being intended by the photographer, or even being capable of being intended” (2003:154 qtd. in Fried 2005:546).

More importantly, and directly connected to the subject, is the temporality of the punctum – the future (see Fried 2005). The punctum is afforded with the temporality of the future as it is the future viewer who will see the punctum. Put differently, the punctum necessarily “becomes visible in it [the photograph], only after the fact” (Fried 2005:560). However, the temporality of the punctum is the future also because the accident it incites disturbs the temporality of the “that has been” and extrapolates the past subject into the future. Thus, for example, for Barthes news photographs don’t have a punctum (Barthes 1982:41). Barthes does
not elaborate on the reason for the lack of the punctum in news images, but I suggest that it is because their function is to report a past event. Hence, they do not extend into the future. In contrast, when Barthes discusses the photograph of Queen Victoria sitting on horseback he finds the punctum in the hands of “a kilted groom holding the horse’s bridle” and goes on to extrapolate the future of the image - “I can see his [the groom] function clearly: to supervise the horse’s behaviour: what if the horse suddenly began to rear? What would happen to the queen’s skirt, *i.e.to her majesty?* [sic] (Barthes 1982:57). Barthes also argues for a punctum which is shared by most photographs which is: the subject is going to die –

by giving me the absolute past of the pose (aorist), the photograph tells me death in the future. What pricks me is the discovery of this equivalence. In front of the photograph of my mother as a child, I tell myself: she is going to die […] Whether or not the subject is already dead, every photograph is a catastrophe” (1982:96).

The death to come, or the death that has already come to is connected to future of the past captured in the photograph directly through operation of the punctum:

This punctum […] is vividly legible in historical photographs: there is always a defeat of Time in them: *that* is dead and *that* is going to die. These two little girls looking at a primitive airplane above their village (they are dressed like my mother as a child, they are playing with hoops) – how alive they are! They have their whole lives before them: but also they are dead (today), they are *already* [sic] dead (yesterday) (1981:96).

Arguing that the punctum is something the viewer adds but which is nonetheless already in the image, Barthes finds that the punctum is lacking from cinema because cinema is composed of a stream of images which passes. Thus the cinema does not allow time for the viewer to locate
the punctum in the image, nor to ponder about the subject outside of what is represented in the image (see Barthes 1981:55; see also Fried 2005:568). Fictional narrative 3D cinema accentuates this further. As stereoscopic images elicit embodied responses from audiences, be it through the negative parallax space, through the implication of the audience in the genesis of the diegesis, or through the embodied effort to orient oneself in 3D diegesis with infinite depths, the viewer is tied down by corporeality, recognizing the presentness of her body. Hence the viewer is even further removed from the pensive state required in order for the punctum to rise in the image, and further removed from the possibility to project the subject in the image, as well as the viewer’s thoughts, into the future. Thus I find, similarly to Cubitt, and contrary to Pisters, that while Avatar, and D3D cinema more generally, reverberate with the potential to engage with the temporality of the future it does not follow up on this potential and is ultimately oriented towards the past.

Such is the case not only in Avatar, but also in Life of Pi and Gravity. Avatar ends with Jake’s spirit leaving his human body which is paralyzed by trauma and migrating into a Navi body. Both Life of Pi and Gravity, are, on the surface, similarly oriented towards the future as an attempt at letting go of a traumatic past which haunts the protagonists of Life of Pi and Gravity. The journey these protagonists embark on, to let go of their traumatic past, also carries an allegoric meaning. In the post-traumatic zeitgeist of US society following 9/11 letting go of a traumatic past resonates with the struggle of US society to find a way to let go of the trauma of the September 11 attacks, heal, and move forward, without forgetting those who died.

Letting go is evident first in the dialogue of Life of Pi when in the film’s final minutes Pi concludes his story to the Canadian writer by stating: “I suppose, in the end, the whole of life becomes an act of letting go”. In this Pi sums up having to let go of his life in India, and of his family, as well as of the killing of the cook, if indeed such a killing took place. Similarly,
Gravity’s theme is very much based upon Stone’s attempt to “let go” of the death of her daughter, who while playing catch at school, slipped, hit her head and died when only four years old.

This theme of “letting go” in Gravity is evident both in scenes and dialogue. Purse (2017) and Whissel (2016) have noted that “letting go” in Gravity is enacted corporeally by Stone. Stone begins the film tethered to different objects and by the film’s end regains her agency, free and untethered. However, as evident in Stone’s backstory, this freeing is endowed with a temporal quality, one of letting go of a traumatic past. A scene in which Stone holds onto Kowalski’s tether keeping him from drifting into space enacts the theme of letting go both corporeally and metaphorically. The dialogue in the scene is as follows:

STONE: Got you. You just hold on, and I'm gonna start pulling you in.

KOWALSKI: Hey, doc.

STONE: Just hold on. Hang on. I’m gonna pull you in.

KOWALSKI: Ryan, listen. You have to let me go.

STONE: No.

KOWALSKI: The ropes are too loose. I'm pulling you with me. Let me go or we both die.

STONE: I'm not letting you go!

[...]

KOWALSKI: Ryan, let go.


KOWALSKI: It's not up to you.
At that Kowalski untethers himself and drifts away from Stone and into space. As he drifts away radio contact is maintained between him and Stone. Stone tells Kowalski she will come after him, however Kowalski rejects the offer rendering such an attempt as futile:

STONE: I'm gonna take the Soyuz and come get you.

KOWALSKI: No, you're not.

STONE: I'm coming to get you.

KOWALSKI: I've got too much of a head start.

STONE: I'm coming to get you.

KOWALSKI: I'm afraid that ship already sailed. Ryan, you're gonna have to learn to let go.

The subtext of Kowalski’s statement alludes to Stone letting go not only of her attempt at saving him, but also, of the guilt she feels over her daughter’s death. This subtext is made explicit later in Stone’s dream, when Kowalski tells Stone:

Do you wanna go back or stay here? I get it, it's nice up here. You can just shut down all the systems, turn out all the lights, and just close your eyes, and tune out everybody. There's nobody up here that can hurt you. It's safe. I mean, what's the point of going on? What's the point of living? Your kid died. Doesn't get any rougher than that. But still, it's a matter of what you do now. If you decide to go, then you gotta just get on with it. Sit back, enjoy the ride. You gotta plant both your feet on the ground and start living life.

On the subject of letting go Liu argues that the letting go of a traumatic past as means of turning to the future is enacted by the poetics of *Gravity* in two distinct scenes which give rise to two crystal-images. The first takes place in Stone’s dream in which Kowalski returns to the Soyuz,
the second in what Liu refers to as the “teardrop sequence”, in which Stone’s tear floats into the negative parallallax space, during the scene where Stone forms a radio connection with Aningaaq, an Inuit man.

Liu’s argument for the emergence of a crystal-image in the “teardrop sequence” hinges on the capacity of “depth-staged subjective stereoscopic time space [...] [to] open up the sheet of Dr. Stone’s traumatic past from within her present plight, hence fusing the actual passing present and the virtual preserving past indiscernibly in a stereoscopic crystal-image” (Liu 2018:105-106). The dream scene, Liu argues, functions as a crystal-image by giving rise to a “subjective stereoscopic timespace” in which “we cannot […] determine if this is actual or virtual because the transition from Dr. Stone falling asleep to the present scene is rendered very smoothly in one continuous shot. The sheet of exchange between the virtual and actual is thus invisible” (Liu 2018:106).

Contrary to Liu, I do not find that these scenes give rise to crystal images. For a crystal image to appear two conditions must take place. Firstly, the images must be cut off from their motor extension, and secondly, the actual image must “crystallize with its own virtual image” (see Deleuze 1985:69). What follows such crystallization is indiscernibility in which the virtual is not simply mistaken for the actual, but rather the virtual and the actual are caught in perceptual exchange. Deleuze writes:

the confusion of the real and the imaginary is a simple error of fact, and does not affect their discernibility: the confusion is produced solely 'in someone's head'. But indiscernibility constitutes an objective illusion; it does not suppress the distinction between the two sides, but makes it un-attributable, each side taking the other's role in a relation which we must describe as reciprocal presupposition, or reversibility” (Deleuze 1997:69).
Liu argues that “indiscernibility is one of the key words needed to understand and interpret Deleuze’s crystal-image” and clarifies that “‘the actual’ and ‘the virtual’ do not align with ‘the true’ and ‘the untrue,’ but are rather inclined towards ‘the real’ and ‘the unreal,’ or ‘the imaginary’” (Liu 2018:101). However, Deleuze states “the imaginary is the crystal-image. […] the imaginary isn’t the unreal; it's the indiscernibility of real and unreal. The two terms don't become interchangeable, they remain distinct, but the distinction between them keeps changing round” (Deleuze, 1995:66).

Finally, Liu’s tying of the crystal image with the subjective timespace is problematic because Deleuze states that “the signs of the crystal go beyond all psychology of recollection or dream, and all physics of action” (Deleuze 1986:274). Instead, what we see in the crystal is no longer the empirical progression of time as succession of presents, nor its indirect representation as interval or as whole; it is its direct presentation, its constitutive dividing in two into a present which is passing and a past which is preserved, the strict contemporaneity of the present with the past that it will be, of the past with the present that it has been. It is time itself which arises in the crystal, and which is constantly recommending its dividing in two without completing it, since the indiscernible exchange is always renewed and reproduced (274)

Considering the centrality Deleuze affords to temporality in his discussion of the crystal-image I find that retaining focus on temporality provides a better path to understanding the crystal-image, and why it does not manifest in Gravity. The difference between the actual-image, and the virtual-image, for Deleuze, lies in the temporality and the function of the two images: “the image has to be present and past, still present and already past, at once and at the same time […] the present is the actual image, and its contemporaneous past is the virtual image, the image in
a mirror” (Deleuze 1989:79). The dream sequence does not qualify as a crystal image because it does not allow for an interchanging between the virtual and the actual, but rather provides a short instance in which the viewer may mistake Kowalski’s presence as true. Considering that the formation of the crystal-image is dependent upon the suspension of action, and with the interchangeable state of the virtual and the actual, I doubt that the negative parallax space of D3D cinema is capable of producing crystal-images. This is because when one reaches out to an image in the negative parallax space the forging (if such forging occurs between the actual and virtual) dissolves instantly, whereas the forging of the virtual and actual in the crystal-image is continuous. Moreover, considering that the negative parallax space elicits action, and the crystal-image is dependent upon the suspension of action, the viability of crystal-images in the negative parallax space once more comes under question.

D’Aloia, Purse and Whissel have argued that Gravity constantly frustrates action, suspends the sensory-motoric schema and thus reverberates with the potential for new connections to arise. However, Gravity does not fulfil this potential. As in Stone’s dream, the suspension of action in Gravity yields not a new mental image, but rather a rejuvenated, reworked, and rediscovered sensory-motoric schema which allows Stone to complete her journey to Earth. Hence Gravity does not open up the possibility of the future, but rather re-instates a condition of the past, restoring sensory-motor links.

Considering the dialogue and narrative emphasis on letting go of past traumas evident in Gravity, Avatar and Life of Pi, it becomes tempting to align these films with new cinematic mental images, ones oriented towards the future. However, while on the surface these films are oriented towards the future, they effectively do not open up a new dimension of time, rather they re-instate the sensory-motor schema in the present. Avatar explicitly draws on the preservation of habitual memory which lies dormant until it finds a body in which its potential can re-instate itself. Gravity similarly depicts Stone’s rediscovery of her bodily potential. In Pi’s
telling of his ordeal the only two “tenses” possible are the present and the past. From the diegetic present, older Pi speaks of the past. From the diegetic past, younger Pi can only look to the diegetic present as a future. Put differently, Life of Pi does not offer a future which extends beyond the diegetic present, in which older Pi tells his story to the writer, that is it is effectively caught in the retelling of the past.

Viewed in the cultural context of US society post 9/11 the drawing on memory to reinstate a rejuvenated, rediscovered sensory-motor schema as means to incite action can be seen as an allegory for the translation and mobilization of the trauma of 9/11 and the commemoration of it into military action in the form of “The War on Terror”. As Sara Ahmed argues, the response to terror was to travel, that is to reinforce the sensory motoric schema not just in relation to one’s immediate surroundings, but rather to travel as manner of pushing against boundaries of fear, of stasis (see Ahmed 2014:62-80). Therefore, discussing D3D cinema in relation to Deleuze’s cinema images reveals that while D3D reverberates with potential to open up the image to the dimension of time it does not live up to its potential. Instead, I suggest that D3D cinema is caught up in re-enacting the different temporalities of trauma. This is evident not only in D3D but also in fifties’ 3D cinema. I turn now to explore the temporalities of 3D cinema, and the ways in which they engage with the different temporalities of trauma.

5.4 The Temporalities of Trauma and 3D Cinema
Discussion of temporality in cinema in relation to trauma pertains mostly to the narrational progress of time in films. Luckhurst argues that the non-linear temporality of post classical cinema, which presents “plots presented backwards, in loops, or disarticulated into mosaics that only retrospectively cohere – is partly driven by attempts to convey the experience of traumatized subjectivity” (Luckhurst 2013:178). While I will engage with the narratives of the
THE TEMPORALITIES OF 3D CINEMA AND THE TEMPORALITIES OF TRAUMA

films discussed here, in what follows I am particularly interested in the ways in which 3D cinema gives rise to spaces that can enact the temporality of trauma.

3D cinema has the potential to give rise to different temporalities tightly connected to trauma and trauma narratives. These temporal structures, disruptions of temporal flow, are achieved through the negotiation of the unique spaces of stereoscopic cinema in relation to narrative. In affording the spaces of 3D cinema temporality in relation to the films’ narratives I am following Aylish Wood’s concept of the “timespace” (2002), and Liu’s application of the timespace to 3D cinema (Liu 2018). Wood suggests the timespace as a useful concept to think about spectacular cinema as it keeps “in place the idea of the relative relationship between time and space, and how they can both make contributions to the progression of a narrative” (Wood 2002:374). For a space to be considered a timespace, according to Wood, it must hold a significant contribution to the narrative. Wood’s focus is on digital visual effects which she divides into those that introduce a “dynamism, and hence temporality, to spatial elements” and those which “secure the illusion of reality” (Wood 2002:374). In my analysis I focus on Wood’s first category and identify it both in D3D and fifties’ 3D cinema, hence demonstrating that timespaces are not inherent to the digital image, but may operate in earlier cinema as well.

The temporal structures of 3D cinema are enacted along the Z axis. The negative parallax space constitutes the temporal space of the present and the positive parallax space constitutes the temporal space of the past. I refer to the negative parallax space as the inscribed with the temporality of the present as it is the space of the living, a space inhabited by the audience, and because images which inhabit this parallax space prompt the audience to act: by flinching at the content coming towards them or reaching out to try and touch the ghostlike images. Henri Bergson argues “my present is that which interests me, which lives for me, and in a word, that which summons me to action” (Bergson [1911] 2004:176). Whether audience reactions to images in the negative parallax space are nascent movements which are resisted or fully
performed actions is less relevant, as both are processes that take place in the present. Moreover, the activity of the audience is foregrounded in relation to images in the negative parallax space as these highlight the implication of the audience in their very being – if the spectator takes her glasses off these images disintegrate. Admittedly, the cinema audience is also involved in the genesis of the motion in cinema through the persistence of vision, in which a series of still frames projected at the speed of 24 frames per second is translated in the viewer’s mind into continuous motion. However, the persistence of vision is a covert process in which our eyes are “tricked” (see Bordwell 2017:9). Conversely, the audience consciously participates in the genesis of stereoscopic depth through the physical act of of donning the 3D glasses, and later remains aware of their role in the illusion through the awareness of the presence of these glasses on their noses. The instability of images in the negative parallax space further emphasizes the connection between the negative parallax space and present temporality considering the ever-nascent, fleeting quality of the present.

Whereas the negative parallax space is the space of the present the positive parallax space is the space of the past, a dead space, as it is where images “come from”, where images reside. The relation between death and the image has been extensively theorized by Roland Barthes in Camera Lucida, where he argues for the noeme of the still image to be “that has been”, which inherently implies, that which is no longer (Barthes 1981). Notably, there is a marked difference between the still image Barthes discusses and the cinematic image. Christian Metz draws on Barthes’ work and argues that while the still image is characterized by a “that has been”, in 2D cinema the “cinematic spectator is absorbed by a sense of ‘there it is’” (Metz, 1991:6). Metz argues that due to motion and the “segregation of spaces” between the cinematic diegesis and the space of spectator, the 2D cinematic image enjoys a sense of presentness that composes its “impression of reality”. Discussing the segregation of spaces Metz writes: “the space of the diegesis and that of the movie theatre (surrounding the spectator) are incommensurable. Neither
includes or influences the other, and everything occurs as if an invisible but airtight partition were keeping them totally isolated from each other” (Metz 1991:10-11). It is here that a significant difference between 2D and 3D cinema is evident. 3D cinema conforms neither to the segregation of spaces, nor to the “there it is” formulation Metz argues for in relation to the 2D cinematic image. As 3D images protrude into the auditorium they are not “there”, but rather “here”. Moreover, as images protrude into the negative parallax space the “airtight partition” between the diegesis and the space of the movie theatre dissolves.

As the space of the diegesis intrudes into the space of the movie theatre a relational attitude is developed towards stereoscopic images. Images protruding towards the negative parallax space disintegrate on the shores of the present, against the presentness of my body (On the integrity of viewer’s body in 3D cinema see Paul 1993:344). In doing so, for a fleeting moment before they disintegrate these images are present in the “world” that is the space of the auditorium and share the temporality of the movie theatre, the present. Against the ongoing presentness of my body and the fleeting presentness of the images which disintegrate in the negative parallax space, the “un-presentness” of stereoscopic images in other depth planes is emphasized. Hence, stereoscopic images in the positive parallax are neither here, in the auditorium, nor operating in the present. As a result of this relational attitude, these images assume the past temporality traditionally associated with still images, their “that has been”. It should be noted that Deleuze also discusses depth of field in relation to temporality and memory:

most of the occasions where depth of field appears wholly necessary are in connection with memory. And here again cinema is Bergsonian: it is not a case of a psychological memory, made up of recollection-images, as the flashback can conventionally represent it. It is not a case of a succession of presents passing according to chronological time. It is a case either of an attempt to evoke, produced
in an actual present, and preceding the formation of recollection-images, or of the exploration of a sheet of past from which these recollection-images will later arise. It is an on-this side-of and a beyond of psychological memory: the two poles of a metaphysics of memory [...] [depth of field] then gives rise to all kinds of adventures of the memory, which are not so much psychological accidents as misadventures of time, disturbances of its constitution (1997:109-110).

Deleuze attributes the depth of field with the potential to give visibility to memories in the form of “sheets” of past, as well as to the process of evoking memories: “depth retains its full importance, beyond a technique, if we take it as a function of remembering, that is, a figure of temporalization” (Deleuze 1997:110). Deleuze, drawing on Bergson, poises the past as preserved in its entirety, in the form of the sheets of the past. Memory for Deleuze is the act in which one plungers herself into a region of the past in which she hopes to find a recollection image corresponding to an actual image of her perception. The depth of field according to Deleuze, gives visibility to this process: “depth of field sometimes shows us evocation in the act of occurring and sometimes virtual sheets of past that we explore in order to find the recollection sought” (1997:109).

Deleuze emphasizes that the temporality observed in the time-image and in its crystal-images is not tied to one subjectivity or another but rather reflects the metaphysics of temporality. I, however, conceptualize the stereoscopic depth as allowing visibility to the psychological temporality of trauma and post-trauma. Thus, it is on this point that while drawing on Deleuze my argument departs from his. In what follows, drawing on the formulation of temporality along the Z axis I argue for several traumatic temporal structures 3D cinema gives rise to: the moment time stopped during the traumatic event; the temporality of intrusion
in which the past haunts the present; the repetitious temporality of trauma; and finally, a temporal collapse in which one is lost in the present.

5.4.1 The Positive Parallax Space and The Traumatic Event

A shot which affords distinct visibility to the relation of the positive parallax space to the past and to traumatic memory is evident in *Life of Pi* when Pi watches the Tsimtsum sink. After Richard Parker climbs onto the lifeboat Pi jumps overboard and is quickly submerged by an enormous wave. The camera accompanies Pi underwater, his limbs thrashing and churning as he comes dangerously close to a shark frantically swimming nearby. Enthralled by the aquatic environment Pi turns his back on the audience. As he pivots, still underwater, he encounters the spectacle of the sinking Tsimtsum. The submerged ship is ironically luminous, all of its lights turned on, glowing, as it sinks down towards the dark depths of the ocean. In this shot Pi is positioned in negative parallax space whereas the sinking ship is positioned deep in positive parallax space. As Liu writes:

Filmed in deep focus, this scene shows Pi ‘way outside’ in the negative parallax, while the sinking ship is placed deep in the positive parallax; an enlarged wave of seawater serves as a huge obstruction that prevents Pi from reuniting with his family on the foundering ship [...] the choreographed staging of depth along the Z-axis indicates that Pi can do nothing but helplessly watch his family members drown in the ship, thus accentuating the sense that this traumatic moment will completely change his fate. Lee thus stages a dramatic interaction among Pi, the obstructive seawater and the sinking ship, placing Pi’s traumatised facial expression, the cause of his trauma and the obstacle preventing him from intervening together in one single shot (Liu 2018:129).
In line with Liu I concur that the distance between Pi and the ship accentuates the helplessness of Pi and that the focus of this shot is indeed the traumatic moment. However, I wish to take this analysis further and note that firstly in this long take, contrary to Liu’s argument, we do not see Pi’s face. Secondly, Liu mentions that this shot “functions as a dynamic stereoscopic timespace” (2018:129), however he does not elaborate this further, nor does he attribute distinct temporalities to the different spaces. This shot, I argue, resurrects timespaces which conform to the temporality I identified above. Situated in the negative parallax space Pi shares the audience’s space, that is the space of the living, the present. Conversely, his family and the overwhelming majority of passengers and crew of the sinking Tsimtsum are positioned in the positive parallax space, the space of the past, of the dead.

The resonance of this shot and the temporality it constructs with the temporality of trauma is further emphasised due to the camera lingering on the moment in which Pi notices the sinking Tsimtsum. Upon glancing at the drowning ship, Pi, who until now was focused on surviving and navigating the aquatic environment, freezes. He floats motionlessly, his limbs extended, limp, dangling from the sides of his body as if the sight of the sinking ship has paralyzed him (see figure 25). The camera, positioned behind Pi, lingers, as if holding on to the sight of the Tsimtsum for the last time. For a duration of 15 seconds the camera depicts Pi in this limp posture in the negative parallax space with his back to the audience, and the Tsimtsum in the positive parallax space. This lingering enacts the temporality of the traumatic moment, it creates a gap, a rupture in the temporality of the scene. In doing so the temporality of the shot of the sunken ship enacts the temporality of the traumatic moment which is described as the moment that time stopped. For Lyotard, for example, “trauma freezes time” (see Luckhurst 2008:80). Herman argues that traumatic memories are structured from “fragmented components of frozen imagery and sensation” (Herman 1992:177). Amidst the action packed storm sequence the
lingering on the composition described above feels longer, and is thus endowed with the temporality of trauma, a moment which in a sense freezes in time.

After Pi manages to break away from the sight of the sinking Tsimtsum he turns and swims to his left and then upwards towards the surface. The camera follows Pi’s movements through a pan left and then a tilt up, however it stays behind, in a sense frozen in place. The place where Pi witnessed the sublime traumatic moment, the glorious spectacle of the sinking ship and its horrifying accompanying meaning. Moreover, as Pi swims upwards towards the surface and the camera lingers behind he is framed as swimming upward into the positive parallax space. While the scene affords the sensation that Pi is just beneath the water’s surface, Pi’s swimming upwards reveals how deep beneath the water’s surface he really is. Pi, the camera, and we the audience, are indeed submerged. Hence, I suggest that a split in time is created. There is a part of Pi’s subjectivity, enacted by the camera, which has been tethered to him throughout, that is shattered upon witnessing the sinking Tsimtsum. It stays behind. The framing of the camera which situated the Tsimtsum in the positive parallax space now situates the water surface in the
positive parallax space. Hence a dual movement is created: Pi is swimming upwards to survive, but this framing and the insistence on the long take also signals that his survival will, for now, be tethered to the depth of the screen, the positive parallax space, the space of the past.

This shot encapsulates the theme of *Life of Pi* which revolves entirely around delving into the past. The centrality of the past in *Life of Pi* is evident explicitly as older Pi tells the writer about his past ordeal, and metaphorically as Pi negotiates his position in relation to Richard Parker, who in line with my suggested analysis in the previous chapter, stands for Pi’s traumatic past.

This image of the sunken Tsimtsum will come to lie at the very bottom of Pi’s memory. This is evident in a surrealist sequence which is composed of Pi’s memories. The viewer embarks on this journey through the reflection of Richard Parker’s face. Following shots depicting Pi and Richard Parker each staring into the depths of the ocean the film cuts to a frontal close up of the reflection of Richard Parker’s face on the ocean’s surface. The camera then glides forward into the depth of the ocean and the positive parallax space, signalling the beginning of the surreal sequence. First, we witness a giant squid squashing a whale which as it implodes, gives birth to an array of animals: a rhinoceros, a giraffe, a zebra, a crocodile and many more. The camera movement keeps pushing down into the depths of the ocean and the positive parallax space, past a stream of air bubbles that takes the shape of a lotus flower first, and then of Anandi’s face (Shravanthi Sainath, Pi’s love interest in his childhood town Pondicherry), until finally arriving at the Tsimtsum shipwreck, sunk at the bottom of the ocean. After resting on the image of the sunken ship the camera retreats in fast motion backwards into a fade to black which dissolves into a zoom out of Pi’s face. What we find in this sequence is a layering of the past, that is an existence of the sheets of past in the positive parallax space corresponding to Deleuze’s and Bergson’s conceptualization of the past as preserved in its entirety in the form of “sheets”. Moreover, these sheets of past exist not in a chronological
order, rather they occupy different regions of the ocean’s depths. The founding region of Pi’s past, the one that lies furthest from this stream of recollection images, is the one of the drowning Tsimtsum.

5.4.2 Intrusion and the Temporality of the Z Axis

Above I demonstrated how the positive parallax space can relate to the past, memory, and trauma, achieved by establishing a stable relation between the different parallax spaces, where objects keep to the parallax spaces in which they are depicted. When movements are enacted along the Z axis parallax spaces are traversed, and another traumatic temporality is afforded visuality – the temporality of intrusion.

In chapter three I discussed the representational qualities of the intruding image as one of the defining characteristics of PTSD in relation to 3D cinema. Intrusion, however, also holds a distinct temporal aspect which I now turn to explore. Luckhurst describes the post-traumatic symptom of intrusion as an “unbidden flashback that abolishes time and re-immerses you in the visual field of the inaugurating traumatic instant” (Luckhurst 2008:147). Herman’s understanding of how intrusion affects the traumatized individual further clarifies the temporal characteristics of intrusion: “Long after the danger is past, traumatized people relive the event as though it were continually recurring in the present […] The traumatic moment becomes encoded in an abnormal form of memory, which breaks spontaneously into consciousness, both as flashbacks during waking states and as traumatic nightmares during sleep (Herman 1992:37).

A common cinematic means to depict traumatic intrusion is the flashback (see for example Turim 2001, Luckhurst 2008:180). 3D cinema has this tool but its added depth, through the Z axis, affords it with a style that is particularly privileged to engage with post-trauma symptoms of intrusion. Firstly, the Z axis in 3D cinema introduces images which protrude into the auditorium and literally intrude and impose themselves on the audience’s
space. Secondly, the Z axis articulates the distinct temporal qualities of intrusion in which, simply put, the past overtakes the present, by depicting the movement of images from the positive parallax space into the negative parallax space. I have argued that the negative parallax space is a living space, and the positive parallax space, a dead space, however, it is important to stipulate that the border between the positive and negative parallax spaces is not easily distinguishable in 3D cinema. M. Ross argues that in 3D cinema “the screen as surface may continue to exist, but a combination of negative and positive parallax explodes any singular plane of action based on the flat screen” (M. Ross 2013:406). Drawing on M. Ross I suggest that as the screen cannot be clearly situated, the living space of the auditorium and the dead space of the image intermingle, bringing forward the temporal characteristic of trauma where the present and past blur into one another.

An example of the way in which 3D cinema affords visibility to the temporality of intrusion can be observed in *Life of Pi*. Recalling that Richard Parker is a symbolic representation of Pi’s traumatic memory, the tiger’s behaviour in relation to Pi becomes embedded with the temporality of trauma. Herman writes that the traumatized person “finds herself caught between the extremes of amnesia or of reliving the trauma, between floods of intense, overwhelming feeling and arid states of no feeling at all, between irritable, impulsive action and complete inhibition of action” (1992:47). Drawing on Herman, Richard Parker’s prowling on the edge of the negative parallax space symbolizes episodes of intrusion, of traumatic memory rising into consciousness, as the tiger which stands for past trauma threatens to invade the present by intruding on the negative parallax space. On the other hand, there are episodes where the tiger is lethargic, resting on the boat, or even hiding under the canvass. This symbolizes the other pole in Herman’s articulation of the pathology of trauma in which the traumatic memory is suppressed, forgotten, yet living just beneath the surface.
The temporality of intrusion is also evident in fifties’ 3D cinema, however in a different manner. Whereas *Life of Pi* enacts the temporality of intrusion in relation to the protagonist who has witnessed a traumatic event, *Creature from the Black Lagoon* and *House of Wax* enact the temporality of intrusion in an allegoric manner, pointing to the way in which war-time memories of WWII haunts US society. *Creature from the Black Lagoon* provides two distinct moments in which the temporality of the Z axis, where the past haunts the present, can be witnessed: twice the creature’s fossilized hand is shown extending across the Z axis into the viewer’s space. The creature’s fossilized hand is as dead as an object can be, one whose origins lie far in the past. It is framed in a motionless, still shot, thus further engulfing the image of the fossilized hand in stillness and death. However, this “dead as can be” fossilized hand extends into the auditorium, into the negative, living parallax space, the space of the audience. It is this positioning of the fossil across the Z axis which inscribes it with the movement and temporality of the past haunting the present. Through the inherent temporality of the Z axis which bridges between past and present, a metaphor is constructed reiterating an important theme of the film: as the scientific expedition will soon discover, the monstrous past that is thought to have settled in the form of fossil samples and relics is neither dead, nor settled, but in fact very much alive.

Considering that the image of the fossilized creature’s hand along the Z axis is emblematic of the film’s theme and portrays the temporality of the past returning to haunt the present, I wish to argue further that the fossilized hand can be read as a figurative and literal figure of Gilles Delueze’s concept of the “radioactive fossil”, and more particularly, of Marks’ development of the term. Deleuze uses the radioactive fossil to describe “certain kind of images with the power to revive memories” (Marks 2000:22), images which are “strangely active fossils, radioactive, inexplicable in the present where they surface, and all the more harmful and autonomous. Not recollections but hallucinations” (Deleuze 1989:113, qtd. in Marks 2000:51). Marks employs the radioactive fossil to emphasize “cinema’s disturbing ability to
recreate its object in the present” (Marks 2000:22). By the merit of the image’s indexical quality, radioactive fossils offer ways in which “intercultural cinema” allow lost memories of oppressed and displaced individuals and communities to oppose and challenge official cultural memory (Marks 2000:51-53, 84-85).

*Creature from the Black Lagoon* is a fiction film made in Hollywood and thus the creature’s fossilized hand does not revive repressed or lost cultural memories of oppressed groups as radioactive fossils in intercultural cinema do. However, in depicting a fossil, an epitome of indexicality, extending into the negative parallax space, floating, as if haunting the auditorium, the film visually and metaphorically manifests the power of indexical traces to haunt the living. The fossil in *Creature from the Black Lagoon* acts out the temporality Deleuze will argue for approximately thirty years later: it recreates the past in the present, by extending from the positive parallax space, the space of the dead, the past, to the negative parallax space, the space of the living. This metaphorical interpretation of the fossilized hand as a radioactive fossil is supported by the film’s narrative: the discovery of the fossilized creature’s hand, an indexical relic of the past which cannot be accounted for within official scientific knowledge and history, serves as the inciting moment in the film. An expedition is formed to trace the origin of the fossil and aims to settle it within official history. However, this exploration of the past excavates not a past settled in the form of fossils, but a monstrous past very much alive in the form of the Gill Man. The expedition’s mission to place a fossil within hegemonic scientific knowledge thus becomes greatly complicated as the Gill Man resists all attempts of capture, all attempts to place it within hegemonic knowledge.

Metaphoric radioactive fossils can also be found in *House of Wax*. In this case, the radioactive fossils are the remains of dead individuals embalmed in wax around which Jarrod creates historical figures and scenes. First, the embalming process in *House if Wax* resembles the fossilizing process, as wax layers are sculptured and formed around a relic of a dead
individual. Secondly, I suggest this process exposes the place of personal trauma within vast defining historical narratives and cultural trauma. The wax figures Jarrod creates represent historical events and figures. However, at their core we find a personal, silenced individual trauma, for example, the corpse of Burk at the core of the wax figure of John Booth and the corpse of Cathy at core of the wax figure of Joan of Arc. In other words, over-arching, master historical narratives are set around silenced, overlooked, personal and individual traumas as exemplified by the individuals murdered so they can “stand in” for historical wax figures. Thus at the nucleus of official history we find the remains of individuals. Once attention shifts from the wax figure as a representation of a historic figure to the corpse of the individual murdered, the importance of the wax figures as representing official history becomes secondary. For example, once Cathy’s corpse is discovered embalmed in wax as Joan of Arc, the story of Joan of Arc is cast aside and becomes irrelevant. Thus I suggest that these wax figures metaphorically embody Deleuze’s and Marks’ term of the radioactive fossil - once the personal trauma of the survivors cries out and is unearthed (the body of Cathy), the hegemonic historical narrative is disturbed and becomes secondary (the importance of the representation of Joan of Arc).

In the context of US society post WWII the propagating of a meta narrative which positioned the US as victorious and WWII as the “good war”, House of Wax allegorically alludes to the overlooked personal traumas within this hegemonic narrative. The enactment of the temporality of intrusion in fifties’ 3D cinema and D3D cinema, as well as the inclusion of metaphoric radioactive fossils within fifties’ 3D cinema, provide an additional way through which trauma permeates 3D films in these two periods, resonating with the post-traumatic zeitgeist in which 3D cinema thrives.
5.4.3 Folding the Z Axis – The Cyclic Temporality of Trauma

The temporality of trauma enacted in *Gravity* is of a different nature than that engaged with in *Life of Pi*, *Creature from the Black Lagoon* and *House of Wax*. While the death of Stone’s daughter is traumatic for her she did not witness the event in person. Hence, Stone’s trauma is not composed of intruding images and sensations, which, as we have seen, are enacted in 3D cinema through symbolic representations of the past breaching into the present, into the movie theatre. Instead, Stone’s trauma takes an orbital, circular shape. When Kowalski asks Stone about home, Stone tells him about the death of her daughter describing a temporality of trauma which is circular and repetitive: “I had a daughter. She was 4. She was at school playing tag. Slipped, hit her head, and that was it. Stupidest thing. I was driving when I got the call, so… Ever since then, that’s what I do. I wake up… I go to work… and I just drive.” Stone’s description attests to the repetition in which she is caught. Time in her description loses its singularity, its fragmented nature. For Stone, time becomes a homogenous mass, repetitious and mundane – she wakes up, goes to work and just drives.

Stone’s account brings to mind Sobchack’s description of being lost in the form of “walking around in circles”: “Informed with a specific temporal dimension, the experience of going round in circles is oriented toward the past since one finds oneself continually revisiting and relocating there. The present seems pale in comparison, and the future extremely remote, its achievement arrested and forestalled” (Sobchack 2004:23). Sobchack’s account of going around in circles is fitting for *Gravity*. Firstly, Stone relives the trauma of her daughter’s death by re-enacting the moment in which she received the news. She “just drives”, thus repetitively prolonging the action she was performing when trauma struck. In this Stone enacts the temporality in which one is oriented towards the past. Secondly, Sobchack’s description fits *Gravity* as it provides an apt description of Stone’s actions in space where action and achievement are indeed “arrested and forestalled”, or as D’Aloia puts it “*Gravity* is an action
film where action is progressively frustrated” (D’Aloia 2015:192). Finally, the poetics of *Gravity* echo this circular motion. All characters and objects in *Gravity* are caught in circular, orbital motion, constantly rotating both around their own axis and around earth. The temporal shape of cyclic repetition is evident from the onset, when after surviving the initial storm of debris Kowalski tells Stone to set her watch for 90 minutes, as the debris will hit them every 90 minutes, the time it takes for the debris to circle around earth.

The cyclic, orbital, motion which dominates *Gravity* is accentuated when Stone confesses to her personal loss. Stone was driving when she received the news of her daughter’s death. Ever since, she has been caught in that orbital motion, in the gravity field of trauma, which she enacts by driving around in circles. For Stone, it is as if time has stopped moving forward, trapping her in the motion in which she was partaking. The shape of her personal trauma is transferred to outer space where all objects are caught in a repetition compulsion of movement, circling the heavenly objects to which they are tethered. To survive and return to earth, Stone must take advantage of the orbital gravity force in order to break its trajectory and return to earth. When Stone shares the death of her daughter with Kowalski she is framed in a medium-close up, rotating upside down, and clutching with both hands the tether which connects her to Kowalski. The tether seemingly sprouts from the midsection of Stone’s spacesuit and as her hands clutch at it the tether creates a metaphorical umbilical cord which connects Stone to Kowalski, whom she is dependent on. The framing of the pair positions Kowalski in front, and Stone tethered to him, following in the background. After establishing the spatial relations of the two the scene employs classical editing patterns, cross cutting between Kowalski and Stone. Considering the positioning of the two the tether should have extended towards the negative parallax space, however such a breeching is avoided by letting the tether disappear off-screen prior to reaching the 0 point. The avoidance of breaching the negative parallax space through the tether allows for intimacy to ensue, as a tether dangling in front of the viewers would have
created a distraction. That said, when Stone confesses the death of her daughter the film makes creative use of the positive parallax space. Upon hearing Stone’s confession Kowalski draws out a small wrist mirror and holds it in his palm so that he can see Stone in this intimate moment. A point-of-view shot follows depicting the mirror in extreme close up. Next to the mirror a wrist watch decorates Kowalski’s wrist. In the mirror we see the upside-down figure of Stone, with the tether stretching in front of her (figure 26).

**Figure 26 – The reflection of Stone in Kowalski’s wrist mirror.**

In 3D this shot effectively folds the Z axis upon itself, affording visibility to the succession of time for the traumatized individual. This is since in the wrist mirror, the mirror image of the negative parallax space is reflected and extended into the positive parallax space. Recalling that the positive parallax space is the space of the past, of memory, and of the dead, and that the negative parallax space is the space of the living, the present, this composition projects the present into the past. The projection of the present into the past negates both present time and its contemporaneous past and gives rise to a past fixated upon, which overshadows the flow of time. Moreover, Stone’s reflection in the mirror is slowly drifting away from Kowalski, that is further into the positive parallax space, extending the distance between them. Such a movement, subtle as it is, comes as a surprise since the scene establishes the pair is moving in the same direction. Hence Stone’s movement affords visibility to the gulf her trauma opens up between her and Kowalski.
5.4.4 Severing the Z Axis – A Temporal Collapse

A third temporality of trauma, apart from intrusion and cyclic repetition, is described by Felman and Laub. They write “trauma survivors live not with memories of the past, but with an event that could not and did not proceed through to its completion, has no ending, attained no closure, and therefore, as far as its survivors are concerned, continues into the present and is current in every respect” (Felman and Laub 1992:69). Similarly, Susan J. Brison describes the temporal and spatial aspect of her personal trauma: “I can’t go, I can’t stay. All that is left is the present, but one that has no meaning, or has, at most, only the shifting sense of a floating indexical, the dot of a “now” that would go for a walk, if only it knew where to go” (2011:104, emphasis in original). Brison’s account and Felman and Laub’s argument describe an experience in which one is lost in the present, with future and past losing their meaning. Thus in this third temporality of trauma, temporality is not disturbed as in the previous examples, but the very concept of temporality collapses.

As evident in Brison’s account, an experience of being lost in the present is afforded a spatial aspect of a “dot” not knowing where to go. Sobchack further relates the experience of being lost in the present with spatiality, as she writes:

Not knowing where you are is not about the loss of a future destination or the return to a previous one; rather, spatially it is about a loss of present grounding and temporally about being lost in the present. This form of being lost seems an existential condition rather than a hermeneutic problem. Its structure is perilously open rather than hermetic, its horizons indefinite, its ground unstable, and its emphasis on the vertical axis (“forward” and “backward” are not the problem, but “here” most certainly is). The shape of “not knowing where you are” is elastic, shifting, telescopic, spatially and temporally elongated; one is orientationally
imperilled not so much on the horizontal plane as on the vertical [...] the primary temporal dimension of this form of being lost is the present—but a present into which past and future have collapsed and that is stretched endlessly.

*Life of Pi, Gravity* and *Avatar* all depict experiences of being lost, however the experience of “not knowing where one is” is present in them only for short periods of time, or otherwise underpinned by a larger reassuring spatial and temporal structure. The temporality of “not knowing where one is” entails, as Sobchack argues, the experience of being lost in the present. To enact a temporal collapse in which there is neither future nor past but rather a single plane of a haunting present, stereoscopic 3D cinema severs the spatial and temporal continuity of the Z axis. An example of this is evident in *Gravity* when after being hit for the first time by satellite debris, Stone is untethered and catapulted into deep space. Whissel writes of this moment “once she [Stone] loses radio contact with him [Kowalski], the camera no longer follows her as she drifts into the depth of space toward a distant galaxy” (Whissel 2016:240-241). As Stone drifts away from the camera and into deep space and the positive parallax space, her figure gradually becomes smaller and her white space suit begins to resemble one of the stars seen in the background. Suddenly, Kowalski’s voice is heard again over the radio. While the camera seems to assume the same floating yet relatively steady position that observed Stone drifting away from it and us, Stone now begins to spin toward us, in a peculiar pivot counter to the previous direction of her movement. As Whissel notes “when Kowalski’s voice become audible, her body inexplicably reverses course and appears to rotate towards the camera and Kowalski” (Whissel 2016:241). Two important observations in this capacity are that first, it takes the viewer time to realize that Stone’s trajectory has changed and that she is now moving towards the camera and the audience. Secondly, it is possible that the motion of Stone has not changed (as seen in figure 27, option A), but rather that through continuity and a “cut on action”
the camera has changed its position without the viewer noticing, and is now positioned in the path towards which Stone is drifting (as seen in figure 27, option B). Such a cut would be possible since there are no objects to afford any spatial coordinates to the void in which Stone is floating.

Hence, in this shot, whether it is Stone who has changed her trajectory or the camera that changes position, directionality along the Z axis is thwarted, as well as the capacity to discern distance and space. As a result it is not possible to discern whether the shot is advancing towards the negative or positive parallax space, nor to spatially position oneself along the Z axis. Consequently, the spatiality and temporality of the Z axis are voided, movement along the Z axis becomes arbitrary and causal connections are severed.

Figure 27 – Possible camera positions that may be employed to depict the pivoting in Stone’s trajectory.

Examples of the collapsing of the Z axis are also evident in *Life of Pi* in the bird’s eye view shots. The bird’s eye view shots collapse the positive and negative parallax by depicting the skies reflecting on and intermingling with the ocean’s surface. In this manner Pi’s past and
present intermingle, both opaque, creating a temporal vortex. Possible planes of actions collapse into a singular plane and the only temporality available for Pi is his present.

Another shot which dissolves the temporality of the Z axis is evident in the scene where Pi provides the second account of his ordeal to the Japanese insurers. As Pi begins his second telling of the ordeal he is depicted sitting in his hospital bed, legs stretched forward in a wide shot (see figure 28). The camera slowly closes in on his face, leaving only the white curtains behind him as background (see figure 29). As Liu notes (2018:122), through employment of a digital floating window Pi’s face slightly intrudes on the negative parallax space. For Liu, this close up of Pi along with Pi’s face slightly intruding into the negative parallax space expose the technique of the stereoscopic floating windows to the viewer, rendering this second version of the events exploitive and less believable: “the audience is made to feel aware of the technique itself, and its potential for psychological manipulation. This technique therefore undermines the truth-effect of Pi’s revised story, making it seem less convincing than the earlier, more fantastical account” (Liu 2018:122). I concur with Liu’s account of the poetics at work in this scene, however I am uncertain that they render Pi’s second telling less trustworthy or exploitive. In my view the white background hinders any perception of depth, as Pi appears to be floating against a white featureless background (see figure 29). This is the only occasion in the film when Pi is framed against such a featureless background which confounds depth perceptions.
Considering that the positive parallax space is the space of the past, the white background creates a blockage. The past, along with positive parallax space vanishes, and the audience is left with only Pi’s words and his anguished face intruding into the auditorium, affording both Pi’s speech act and Pi himself the traumatic temporality of the present. Brison argues “narrative
memory is not passively endured; rather it is an act on the part of the narrator, a speech act that
defuses traumatic memory, giving shape and a temporal order to the events recalled,
establishing more control over their recalling, and helping the survivor remake a self” (Brison
1999:40). However, here the speech act is doubled, it creates two “presents”, the present in
which Pi recounts his ordeal for the writer, and a present in which Pi is telling his ordeal to the
insurers. Such a doubling of the present renders both past and future uncertain, as if Pi’s life
has been advancing along two parallel temporal axes. It inscribes presents not only to the
diegetic present, but also to the diegetic past.

Apart from the short periods of time analysed above in which protagonists “do not know
where they are”, the films discussed focus on turning experiences of “not knowing where one
is” into experiences of “not knowing how to get there”. In Life of Pi, Pi drifts aimlessly in the
ocean and “does not know where he is”. However, we must remember that Pi tells the writer
about his ordeal in retrospect from the convenience of his living room. Thus the film mitigates
the anxiety that might be brought up by the question of “where Pi is”, by subordinating it to the
question, of “how Pi got there”, that is to his living room in Montreal. In Gravity Stone is lost
in space for minutes only before Kowalski finds her. After Stone is found the film tells the
story of Stone’s attempts to traverse space and reach the Soyuz, then the Shenzhou, and finally
the Earth. In other words, Gravity becomes a narrative about resolution, about figuring out “how
to get there” (on the hermeneutic phenomenology experience of how to get there see Sobchack
2004:27-28). Similarly, in Avatar Jake is lost in Pandora for 25 seconds only before the
audience learns that he is watched by Neityri, via camera movement which reveals her
following him from the treetop as he wanders aimlessly, unaware of her presence. What is
evident here are the ways in which the narrative cognitively works to mitigate experiences of
being lost via different means.
The replacement of “not knowing where one is” with the experience of “not knowing how to get there” may be formulated in relation to Deleuze’s movement-image and time-image. In the existential dread of not knowing where one is, the very ontology of the body is undermined, as in such an experience the body no longer provides an anchor in the world. In such a condition the sensory-motor schema is suspended, as responding to action-images becomes pointless. This suspension of the action-image in turn offers potential to open up 3D cinema to other mental images. However, as argued earlier, D3D cinema does not follow this direction. The experience of not knowing where one is along with the suspension of the action-image which they entail, are quickly replaced with a goal oriented schema, how to get there.

In allowing only brief “brushes” so to speak with the dread of not knowing where one is, and turning this experience into a “hermeneutic problem” of “how to get there”, D3D post 9/11 enacts the temporality and spatiality of trauma as a “problem” to be solved and distanced from. Such an engagement resonates with the manner in which 9/11 was engaged with by mainstream US media and US government. Predominantly emphasizing the US refusal to become a “victim” through demonstrations of force, and through the “solving” of a traumatic problem.
CHAPTER 6 – CONCLUSION

Previous studies of 3D cinema have analysed it primarily within economic and technological frameworks. However, it should be clear by now that 3D cinema holds distinct potential to engage with trauma, and that this potential, along with its cultural significance have been overlooked. Through in-depth textual analysis and an interdisciplinary approach that applies trauma theory to 3D cinema as a critical tool, while also drawing on theories of embodiment, Deleuzian readings, and 3D scholarship, the ties of this cinema to trauma are uncovered.

It was not my initial intention to engage with trauma theory and its relevance to 3D cinema as a primary theoretical and analytical tool. What first drew my attention towards the engagement of 3D cinema with trauma were the narratives of D3D cinema which revolved around “paralysed” bodies unlocking dormant potential for action in hostile worlds, as can be seen for example in Avatar and Gravity. Soon after, using Victoria University of Wellington’s 3D film collection, I was able to view fifties’ 3D cinema and I once more noticed the engagement with trauma in narratives and dialogues. This was evident in a number of films, for example the failed attempt to photograph the Gill Man in Creature from the Black Lagoon, and Mark’s statement “they won’t believe it back home”, or in House of Wax, when Sue exclaims that Jarrod “was incredible but very real”, and Scott’s confession in the very last minutes of the film: “we’ll never forget you and your men, but every time I shave I still feel that guillotine blade”.

As I watched and re-watched different 3D films from the early fifties and D3D from the new millennium, and as my knowledge of trauma theory grew, I was surprised at how uniquely equipped 3D cinema is to engage with traumatic themes and post-traumatic symptoms. Following both WWII and 9/11 3D cinema was not focused on employing stereoscopy to “show” the traumatic event, rather 3D cinema engaged with and afforded visibility to the very
CONCLUSION

poetics of trauma and to trauma’s affect on US society during these two periods. What became
evident is how different fifties’ 3D cinema is from D3D cinema, and how despite the marked
difference, both D3D cinema and fifties’ 3D cinema engage with traumatic themes albeit in a
different manner.

The difference between D3D and fifties’ 3D cinema cannot be reduced to what Klinger
(2013) terms the parallax debates”, pertaining to the heavy reliance of fifties’ 3D cinema on the
negative parallax space and, conversely, D3D emphasis of the positive parallax space. Firstly,
because as Klinger shows, D3D makes ample use of the negative parallax space; and as I have
noted, fifties’ 3D cinema also employs the positive parallax space as a key part of the mise en
scène. But more importantly and beyond attempts to quantitate the use of the different
parallaxes by 3D cinema in the different periods, the added depth in 3D cinema, as this
dissertation demonstrates, is embedded in a cultural zeitgeist and holds cultural meaning. Put
differently, the added depth of 3D cinema is an aesthetic tool at the disposal of practitioners
and the way it is employed can, and should be, contextualized in relation to the culture in which
3D cinema is made and consumed. In relation to 3D cinema’s most visible periods, the early
fifties, and between 2009 and 2014, this means that the added depth of 3D cinema is embedded
in US culture marked by the traumas of WWII and 9/11 respectively.

Hence, for example, this dissertation finds that fifties’ 3D cinema’s emphasis of the
negative parallax space both afforded visibility to the post-traumatic symptom category of
intrusion, as well as allowed for a symbolic communal wound to be inflicted upon a unified
audience’s body. This experience allowed audiences to unite around a shared
phenomenological experience of bodily harm and resonated with themes prevalent in US
society in the early fifties, most significantly the rift between veterans and citizens. The fleeting
moment of unity offered by fifties’ 3D cinema provided a spectatorial experience which was
imbued with the mythology of the unified home-front. Audiences could once more experience
unity in face of in-coming attacks, similarly to the ideal propagated image of the home-front in US during the war years, in which the entire nation was united in its war efforts. This image which disintegrated in the post-war years, was resurrected by fifties’ 3D cinema.

Conversely, D3D following 9/11 employed its added depth not to “attack” or symbolically wound the audience but rather to elicit an affective experience of “empowering kinaesthesia”, which resonates with the message of refusing to be a victim of terror. Empowering kinaesthesia offers a mirror like affective experience of trauma: whereas trauma isolates and renders stimuli as intrusive are threatening, D3D showcases images which invite haptic, and hyper-haptic intimate explorations; whereas trauma paralyses and inspires stasis, D3D foregrounds the capacity of the body to act, adapt, change, and form novel configurations; whereas trauma renders the world hostile and dangerous, D3D implicates the audience in the very genesis of sublime diegetic worlds.

Thus, it is not that fifties’ 3D cinema used the added depth in a gratuitous manner and D3D employed it in a more aesthetic manner, but rather that the added depth in these two periods was employed to achieve different goals which resonate with their respective cultural climates. It is here, by framing 3D cinema within a cultural and historical context, that I hope this dissertation achieves a contribution to scholarship – the recovery of 3D cinema’s cultural significance. The recovery of 3D cinema’s cultural significance, was in turn made possible through the uncovering of previously unrecognized theoretical links between questions of representation and embodiment in trauma theory and 3D scholarship. Namely, 3D cinema holds distinct potential to afford visibility to the post-traumatic symptomatic categories of intrusion and constriction as well as to the “failure of representation” which lies at the heart of trauma’s un-representability.

Whereas the link between trauma theory and 3D cinema arose from watching the films themselves, the Deleuzian readings of 3D cinema from which I develop a discussion of
temporality originate in theoretical exploration. I found it peculiar that while Deleuze’s work was often drawn upon in relation to D3D cinema there has been no prior attempt to analyse fifties’ 3D cinema by employing a Deleuzian framework. To the best of my knowledge, this dissertation is the first attempt to analyse fifties’ 3D cinema in relation to Deleuze’s work on cinema, hence providing a further contribution to knowledge. Examining fifties’ 3D cinema and D3D cinema in these two periods from a Deleuzian perspective revealed that while both these cinemas, in my view, belong to the movement-image, highlighting impaired sensory-motoric schemas and limited potential for action on the part of protagonists, they achieve resolution in different ways which pertain directly to the cultural zeitgeist in which they are embedded.

In fifties’ 3D cinema the impaired sensory-motoric schema of protagonists bore the marks of the action-image crisis and was extended to the audience through the negative parallax space which gave rise to discontinuous, empty, any-spaces-whatever. This cinema offered resolution to the protagonists’ failed attempts at action via the intervention of officers of the state, who “save the day”, and reinstate the function of the state as a symbolic entity that protects the well-being of its citizens, thus offering a sense of inclusion within a group. In contrast, the paralysis of protagonists’ bodies in D3D cinema serves only as a point of departure for D3D narratives as, in fact, D3D cinema celebrates the potential for individual action. The emphasis on individual action purveys a powerful message considering that the terror attacks of 9/11 revealed the fragility of the illusion that the nation-state can guarantee the safety of its citizens. In D3D cinema, paralyzed protagonists discover a rejuvenated sensory-motoric schema, which restores their link to the world, and affords them agency in hostile unfamiliar terrains. In turn, the negative parallax and positive parallax spaces in D3D cinema similarly operate to include the viewer in the diegesis, hence restoring ties to the world as well as eliciting a self-reflexive recognition of the viewer’s potential for action.
Rejecting arguments that align D3D cinema with the time-image (M. Ross 2015, Liu 2018) or with the neuro-image (Pisters 2012), I offer a third contribution to scholarship by exploring the temporality of 3D cinemas in the early fifties and in the new millennium. Rooted in the movement-image, that is in the temporality of the past, I find that D3D cinema and fifties’ 3D cinema give rise to different time-spaces (to draw on Wood 2002) which reverberate with different temporalities of trauma. Drawing on Barthes (1981), Deleuze (1986, 1989), and Metz (1991), I formulate the temporality of 3D cinema along the Z axis positioning the positive parallax space as the space of the past, and the negative parallax space as the space of the present. Developing this formulation, I identify time-spaces enacted along the Z axis which afford visibility to different temporalities of trauma. For example, 3D cinema affords visibility to the repetitive, cyclic temporality of trauma, through the “folding” of the Z axis. Another example of a temporality of trauma 3D gives visibility to is that of intrusion in which the past haunts the present, and is evident in 3D cinema through images intruding onto the negative parallax space and through the formulation of symbolic “radioactive fossils” in *House of Wax* and *Creature from the Black Lagoon*.

Miriam Ross writes that “in each film viewing there are multiple complex layers that produce meaning, affect, audience investment, and diverse pleasures and displeasures” (M. Ross 2015:197). I have attempted to demonstrate in this dissertation how 3D films harness different layers, such as narrative and audience’s sympathy for characters, together with stereoscopic poetics in a manner which brings audiences close to trauma, and which allows 3D cinemas to engage with their cultural zeitgeist in a unique and distinct manner.

Notably, not all 3D films engage with traumatic themes. However, what this dissertation aims to demonstrate is that 3D cinema can be employed to engage with traumatic themes, and is particularly suited to do so, thus allowing 3D films from both periods to engage with traumatic themes prevalent in society in different ways.
Further Research

While the findings and arguments of this dissertation uncover the poetics which allow 3D cinema to engage with post-trauma in a unique and privileged manner and position 3D cinema’s surges to popularity following WWII and 9/11 in relation to a post-traumatic background, one may wonder what there is to be said about 3D cinema’s decline?

As in the explanations for the rise of 3D cinema to popularity, the discussion considering the demise of 3D cinema similarly rests on technological and economic frameworks. Bordwell and Staiger find that “production efficiency,” “product differentiation,” and “adherence to standards of quality” can account for any cinematic technological change (Bordwell and Staiger 2003:475). Following this formulation they argue that while 3D cinema of the fifties did provide product differentiation it “failed” because it could not “assure a high quality product at each screening, and another innovation, widescreen, seemed a more efficient way to provide the novelty the industry sought” (Bordwell and Staiger 2003:477).

Is it possible, however, that 3D cinema answers needs which originate in society itself, and that once it no longer fulfils these needs its popularity declines? Employing a cultural oriented approach, Crary examines the decline of the stereoscope and phenakistoscope in the 19th century and argues that “when the phenakistoscope and the stereoscope eventually disappeared, it was not as part of a smooth process of invention and improvement, but rather because these earlier forms were no longer adequate to current needs and uses [of culture]” (Crary 1994:132). “The stereoscope”, Crary argues, “was dependent on a physical engagement with the apparatus that became increasingly unacceptable, and the composite, synthetic nature of the stereoscopic image could never be fully effaced (Crary 1994:133). The stereoscope disappeared, and photography took centre stage as it propagated the “denial of the body, its pulsings and phantasms, as the ground of vision” (Crary 1994:136).
Moreover, an explanation towards the decline of 3D cinema rooted in a cultural approach would find resonance in trauma theory’s insistence on a “formal disturbance” (Luckhurst 2009:88). “Aesthetic experimentation,” Luckhurst writes, is valued as a means to engage with trauma “because it defies the habituation of trauma into numbing and domesticating cultural conventions” (Luckhurst 2009:89). Hence, when audiences become "accustomed" to stereoscopic motion pictures the potential of these images to engage with traumatic themes diminishes.

If, as this dissertation argues, 3D cinema provides a distinct cinematic aesthetic which allows it to engage with post-traumatic themes, through its dissolution of the screen, and its added depth, it may be also interesting to explore how other artistic and technological forms reacted to WWII and 9/11, and whether similar aesthetics can be identified within them. For example 3D cinema, Cinerama, and Cinemascope were all referred to interchangeably in the fifties as 3D technologies, resulting in an article published in Variety (Feb 24, 1953) titled “Clarify 3-D Systems” which aims to differentiate between the three. In the Democratic Surround (2013) Fred Turner identifies, following WWII, “a turn away from single-source mass media and toward multi-image, multi–sound-source media environments” which he terms “surrounds”, and which aim to “enable encounters with multiple point of views” (2013:2). How do these trends across different media and art forms relate to one another? And do they suggest a wider turn to aesthetics which are uniquely suited to engage with trauma and other themes prevalent in the US society in the post-war period? Did a similar trend emerge in the US following 9/11? These and other questions provide fertile ground for future research which will establish not only the importance of 3D cinema within a cultural zeitgeist, but also, its place within broader aesthetic movements.
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