**VIRTUAL REALITY AESTHETICS AND BOUNDARIES
IN NEW MEDIA ART PRACTICES**

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Abstract

This dissertation maps out the epistemological and political coordinates of contemporary Virtual Reality (VR) aesthetics through a hybrid inquiry that combines conventional academic research practices with artistic experiments. Since its inception, both conceptually and technologically, VR has emerged as a model for a techno-utopic paradigm that seeks to construct an autonomous image not only from the mediation of artist, but also from the material, spatial, and by extension social and political determinations of reality. With the differences in the formal techniques and strategies of each instance of the media constellation that this teleological paradigm conglomerates such as cinema, early proto-cinematic devices, stereoscopic 3D, and cybernetics, the objective is always the same: to develop an immediate and autonomous interface shorn of limitations configured according to the subjective and bodily conditions of the viewer.

In both practice and theory this dissertation attempts to problematize the question of autonomy and by extension heteronomy, which have been distributed in a binary opposition in 20th century artistic practices. I contend that aesthetic practices emerge within the dynamic and interlocked relation between heteronomy and autonomy. Neither artistic practices nor image technologies are autonomous from the political and historical context in which they became possible both technologically and conceptually. Moreover, I argue that artistic practices become critical insofar that the question of autonomy appears sensibly as a problem. Through a threefold inquiry on the question of autonomy and heteronomy, this dissertation has aimed to problematize the very context that made it possible. First, I problematized the autonomy of art purported to be the grounding gesture of the critical nature of research-creation; second, the autonomy purported to be inherent to VR as an immersive and interactive image technology was called into question; and third, as the extension of the second, I problematized the autonomy of the viewer and virtual images in the VR experience that constitutes the artistic experiment component of the dissertation.

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1 Introduction

1.1 Beyond Autonomy: Virtual Reality, Art and Boundaries

My first encounter with virtual reality (VR) was an immersive 360-degree documentary called NOMADS: MAASAI,[1] which follows the mundane life of the semi-nomadic Maasai people in Eastern Africa, during the Hot Docs Festival in 2015. Despite its problematic colonialist substrata, its visual structure was radically different from my previous experience with media, and the level of freedom and power I felt as a viewer was so immense that it eclipsed the narrative unfolding within the documentary. Amidst my shattered and fragmented memories, the most vivid image I can recall was a scene where dozens of men, both young and old, were performing a dance ritual. Located in the epicenter of the circular dance performance, I was given the freedom to look at or follow whichever points I wanted, yet for some reason I was fixated on one particular child, especially on his hands. There was nothing particularly interesting about him; he did not have a specific role in the ritual, nor any moves or clothing that set him apart. He was neither the youngest nor the eldest. Still, there was something extraordinary about the visual experience: an invisible surplus that unfolded itself in the ordinariness of this child and his hands. It was a sense of immediacy, of the freedom of visual organization and of lack of mediation that is typically present in the cinematic experience or in other screen-based image technologies.

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[1] Felix Lajeunesse, and Paul Raphael. Nomads: MAASAI. FELIX & PAUL STUDIOS, 2015.

Image 1. Screenshot from *Nomads: MAASAI*, Felix, Lajeunesse, and Paul Raphael, 2015

Immediately after watching NOMADS: MAASAI, and before I had the chance to ponder its bewildering effect, I experienced another VR documentary. Seated in the same chair, in the same room that was assigned for the DocX section of Hot Docs 2015, I viewed NOMADS: HERDERS.[2] With a very similar structure to the previous film, this one depicted the everyday life of Mongolian nomads. Again, I have only fragmented memories of the documentary, yet I have a vivid recollection of one particular scene which had an immense effect on me: As with the previous film, it was a mundane scene in which a Mongol family was sharing a meal, but then something extraordinary captured my attention. I was struck by a feeling of shock, both due to the level of perceptual realism and the fractional disavowal inherent to this very realism—while I could see and hear even their most minuscule gestures, my virtual counterparts were not able to see me.

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[2] Felix Lajeunesse, and Paul Raphael. Nomads: HERDERS. FELIX & PAUL STUDIOS, 2015.

While I had absolute power in the visual field in the sense that nothing could escape my vision, I, myself, was invisible not only to them but also to myself. Despite the immediate feeling of presence due to the advanced level of immersion, there was something essentially missing in the scene: the missing element was me. While bestowing the viewer with purported power, as result of purported lack of the mediation of the artist and the limitations unique to early media practices, the intended political and aesthetic results of these documentaries was happening at the price of my erasure.

Image 2. Screenshot from *NOMADS: HERDERS*, Felix, Lajeunesse, and Paul Raphael, 2015

My naïve reaction to these two documentaries, similar to the reaction of early cinema audiences, became the defining feature of each VR work I later experienced and was the point of departure for my own artistic experiment in VR. This initial reaction compelled me to revisit the conventions of VR aesthetics. Despite their fascinating visual

regime, which dissociates the classical distributions of spectator and spectacle inherent to other media experiences, the intended aesthetic outcomes struck me as rather problematic in their artistic and political assumptions pertaining to the immediacy claim.

From this context, this dissertation takes up the immediacy and autonomy claim in VR in a threefold examination, through a holistic inquiry that combines conventional academic research practices with artistic experiments: first, conducting research on VR; second, carrying out artistic practices in VR; and third, developing a method to bridge the two. This process, however, has never been linear. Oscillating between the dichotomous positioning of research and creation, theory and practice, and text and image, the relative position of each component (i.e., textual, visual and methodological) in writing and making this dissertation has gone through a tumultuous trajectory that has involved constant revision of each component according to the experiments and funding that emerged in the others. Different in language, methods and means, each one was regulated and redefined ultimately in and by each other. Thus, the central task of this project gradually became attempting to reconfigure and deconfigure the relation between historically and conceptually polarized concepts. This goal provided a conceptual connection that traverses all three aspects of this dissertation. It is the question of autonomy—and by extension heteronomy—that each component of this dissertation attempts to problematize: first, autonomy in art, which is purported to be the grounding gesture of the critical nature of research-creation; second, the autonomy purported to be inherent to VR as immersive and interactive in its contemporary conventions; and third, as an extension of the second, the autonomy of the viewer and virtual images in the VR experience that constitutes the experimental artistic component of this dissertation.

1.2 Autonomy in Art

The first part of the threefold study addresses the question of autonomy in the context of research-creation. According to three schemata (that of Manning-Massumi, that of Springgay-Irwin-Kind, and that of Chapman-Sawchuk) developed in the Canadian context, the power of research-creation and, by extension, aesthetic creation, stems from its "anti-essentialist essence." Due to the impossibility of subsuming it under a universal formula, research-creation is posited as autonomous from any pre-given external principle and therefore as a method of critical inquiry. However, I argue, the schemata reinforce dualism and essentialism in their attempts to establish the anti-essentialist and anti-dualistic nature of research-creation. In order to break the circle of essentialism and anti-essentialism, dualism and anti-dualism, autonomy and heteronomy, my dissertation works to historicize research-creation. It consists of two instances of historicization: first, mapping the historical background of the grounding presumptions of research-creation, and second, attempting to implement historicity in the processes of research and creation. For the former moment of historicization, I argue that the autonomy claim of research-creation as a methodology is an extension of an aesthetic paradigm that emerged in the late 19th century and became the defining point of 20th-century aesthetic debates. To illustrate, I argue that three instances (Deleuze, Badiou and Rancière) of philosophy in the 20th century where cinema was taken as a model political paradigm and present a remarkable similarity to the aesthetic and political presumptions of research-creation. Common to the work of these three figures is the conception that cinema is first of all a hybrid art with its temporal structure, image regime and its relation to other art genres. In fact, what constitutes cinematic expression is the hybridization or juxtaposition of that

which is incompatible. Therefore, it is postulated that with its hybrid structure, much like research-creation, cinema is anti-metaphysical and is, by extension, anti-dualist and anti-essentialist. In other words, for each of these three figures, cinema, with its temporal and image construction, is a hybrid art, which can be mobilized as a means to dismantle hierarchical models of dualism. However, the problem in both the research-creation schemata and philosophical conceptualization of cinema that I analyse is one of essentialism: namely, that each of these approaches reinforces the very essentialism they aim to expostulate. They further presuppose an essential link between the hybrid structure of cinema and research-creation and their critical, political and aesthetic functions.

I contend that the formalist supposition that links the political function of research-creation to its inner structure is trapped in the false dichotomy of autonomy and heteronomy, similar to aesthetic debates starting from the 19th century where the narratives of autonomy and heteronomy were posed as mutually exclusive. However, following Schiller, Adorno and Cavell, I argue that artistic practice emerges through a reciprocal interlocking of autonomy and heteronomy. Artistic practices are always predetermined by pre-existing and preestablished clichés, which are the result of the material and technological constraints of the given medium and the historical paradigm in which the medium itself becomes technologically possible. They emerge within the dynamic and interlocked relation between heteronomy and autonomy. Following Lütticken, I argue that "artistic practice becomes properly aesthetic practice when problematizing the limits of art and of artistic autonomy."[3] The task then is to push artistic practice to its limit where the very question of autonomy is problematized:

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[3] Sven Lütticken, "Autonomy as Aesthetic Practice." *Theory, Culture & Society* 31, no. 7–8 (December 1, 2014): 81–95. https://doi.org/10.1177/0263276413496853.

If the aesthetic problematizes the relationship of autonomy and heteronomy, then this means that an act can be termed aesthetic insofar as it lets autonomy appear sensibly as a problem—in a world where subjectivities and objectifications are profoundly entangled, where different agencies coexist and collide.[4]

My method thus amounts to inverting the discursive operation that deploys the false dichotomy of autonomy and heteronomy to explain what an artistic practice is. In other words, the false dichotomy that is often used to explain artistic practices are what my artistic practices, in turn, set out to grapple with. In a more radical sense, I argue, what defines artistic practices in general is to problematize the distribution of concepts such as freedom and constraint, or autonomy and heteronomy. In order to make the question of autonomy emerge as a problem, I argue that it has to engage both with the historical conventions and the technological determination of the medium in question. It is for this reason, after engaging with the VR convention in a historical fashion, that I attempt to engage with the technological structure of VR as well. Thus, the next instance that informs my artistic practice is the Cavellian idea of creating medium. For Cavell, in the process of artistic creation, what constitutes the artist's practice is to invent a new medium. However, invention as he defines it is not to create a medium from scratch but to redistribute the association and disassociation that defines the artistic program as both discourse and technology. As Diarmuid Costello stated in "Automat, Automatic, Automatism: Rosalind Krauss and Stanley Cavell on Photography and the Photographically Dependent Arts,"[5] the Cavellian program seeks "new ways of securing value within their medium, that is, new ways of using its resources and thereby

[4] Ibid., 11.

[5] Diarmuid Costello, "Automat, Automatic, Automatism: Rosalind Krauss and Stanley Cavell on Photography and the Photographically Dependent Arts." *Critical Inquiry* Vol.38 (2012): 819–54.

extending-by-transforming the tradition they inherit."[6] It is to reconfigure what is given in the medium both technologically and conceptually in order to allow a new medium to "emerge through a process of gradual accretion, revision, translation, and cross-fertilisation."[7]

I therefore argue that to some extent each research-creation dissertation is in its essence an attempt to problematize the very research-creation itself. Each dissertation not only has to embrace the internal impasse of hybrid methods but also posit it as a problem. Each must problematize the departure points that define the artistic strategies of the medium in question. It is a circular process wherein both the artistic practice and research are interrelated; they affirm and negate and problematize one another. However, this circular structure can go beyond the self-regulating process by implementing historicity in the research. The critical character of research-creation is never a given; it is an intentional process of mapping out political and aesthetic coordinates of the elements that collide and coexist in the process of creation.

1.3 Autonomy in VR

The second part of the threefold study is an analysis of the hyperbolic discourses of empathy and immediacy in VR, where the question of autonomy is crystallized. Since its inception, VR has emerged both conceptually and technologically as a model for a techno-utopic paradigm that seeks to construct an autonomous image, not only from the mediation of the artist but also from the material, spatial, and, by extension, social and political determinations of reality. Even with differences in the formal techniques and

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[6] Ibid., 24.
[7] Ibid., 32.

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strategies of each instance of the media constellation that this teleological paradigm, such as cinema, early proto-cinematic devices, stereoscopic 3D, and cybernetics, the objective has always been the same: to develop an immediate interface that is organized according to the subjective and bodily conditions of the viewer. Phantasmagorical in its strategies to construct the illusion of immediate and unlimited imagery, in this particular visual paradigm, the objective limitations of the image are concealed beyond the subjective limitations of the viewer to the extent that the visual field contains only those limitations which are inherent to the viewer's vision. In this context, I have analysed two fundamental operations that serve to realize the claim of immediacy purported to be inherent to VR. The first one consists of analyzing VR's immersive strategies: in general, given the supposed absence of any visible spatial boundary in its objectivity, VR ostensibly provides the unlimited character of reality in terms of spatiality. Accordingly, this presumed limitlessness of VR is delegated to the viewer as the power to perform her or his own selections. Concomitant to the absence of spatial limitation, as is the case in screen-based image systems, the viewer is presumed to be emancipated from the mediations of an artist whose fundamental operation is to limit the image in time and space. It is presupposed that, free to look wherever she or he wants, the viewer in VR is given power and control over the image itself. Therefore, VR, as the result of this putative absolute immersion, is considered to be an immediate image. This is since, first, it represents the unlimited character of reality, and second, it cancels out the mediation of the artist. However, VR constructs its claim to immediacy and autonomy by concealing the means of production beyond the peripheral vision of the viewer. The general mechanism of the autonomy claim in these image technologies can be boiled down to one

single discursive and technological operation: cancelling-by-concealing boundaries that defines visual structure. Thus the locus of this immediacy claim—as autonomous from the mediation of the artist and objective determinations of the medium itself—is the very finitude of the viewer. It assigns to the finitude of human vision a dual role as both the condition and means to transgress these limitations. Similarly, with respect to interactivity, VR doubles the function of the viewer both as the subject and object or the viewer and maker at once. By integrating the viewer into the image through her or his bodily determinations and aiming to increase the viewer's control through the visual and temporal structure of the image, interactivity enforces a circular experience where the viewer can experience power over the image, as both a maker and viewer.

These strategies, I argue, are the result of an episteme unique to modernity in which the subjective conditions of vision, particularly the bodily limitations of the subject, became the defining point of visual culture starting in the 19th century. Integrating corporeal determinations of the viewer into image technologies, the function of the viewer in this paradigm is doubled in the sense that she or he becomes both external to the image as a viewer and an integral part of its construction. For instance, as part of this paradigm where the viewer is integral part of the image as interface, stereoscopic 3D constructs the depth impression through the binocularity of the viewer, or in cinema it is the subject which constructs the illusion of continuity of the discrete frames. Similarly, as N. Katherine Hayles (Hayles, 1996) states, by the second half of the 20th century, this neutral interface—which enables an immediate representation of the world—was replaced by an idea of auto-generating autonomous systems. The emphasis on autopoiesis in the third wave of cybernetics (i.e., that which VR instantiates) has enabled a shift

towards understanding VR as being autonomous from the logic of representation altogether. As an extension of this emphasis on autonomy, it has become a commonly expressed idea that what is unique to VR is that it enables a disembodied experience where the viewer transcends its bodily determinations. To take one rather obvious example, the VR work *Gender Swap* claims to render an experience where two viewers of the opposite sex experience each other's bodies. With the conspicuous reduction of gender difference to a digital image, this experience works, at best, as an allegory. While recognizing the allegorical value of the work, I contend that its affiliation with techno-utopic discourses is problematic. In fact, its claim that viewers can experience bodily or gender difference must necessarily fail, lest the project fall into a techno-utopic discourse that reduces social, political and material differences to mere visual ones, thereby implying that gender difference can be overcome through technological means. In my view, the allegorical value of the piece is only valid if it fails to realize its false promise to abolish the sexual or gender chasm.

From this foundation of empathy and autonomy claims in VR, I move to excavate the epistemological background of formal strategies that define both the technological and aesthetic conventions of contemporary VR practices. Echoing Foucault's analysis of modernity,[8] I argue that VR originates in a particular episteme that is unique to modernity, one where the very limitations of the subject become the means of transcending these limitations. In this double logic of modernity, as Foucault frames it, the subject emerges as a condition for the laws to comprehend the external world. Trapped in a logical impasse of this specific episteme, which "offends or reconciles,

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[8] Michel Foucault, *The Order of Things: An Archaeology of Human Sciences*. (New York: Vintage Books, 1994.)

attracts or repels, breaks, dissociates, unites or reunites; it cannot help but liberate and enslave," Foucault argues, "man appears in his ambiguous position as an object of knowledge and as a subject that knows: enslaved sovereign, observed spectator."[9] Furthering Foucault's critique into the context of neo-liberalism and the contemporary political subject, Byung-Chul Han underlines the paradoxical reconfiguration of freedom in the era of the internet, which has been celebrated as a medium of boundless liberty. Caught in a tragic moment, the contemporary subject, deemed to be "free of external and alien limitations,"[10] Han argues, subjugates "itself to internal limitations and self-constraints, which are taking the form of compulsive achievement and optimization."[11] Equipped with new discursive and technological apparatuses, the subject becomes at once its own master and slave. Similar to Foucault's "enslaved sovereign" or "observed spectator," for Han the contemporary subject is trapped in the duality of freedom. He thus maintains that the very freedom that is epitomized as absolute political purpose is now producing coercion.[12] What is more striking in this idea of freedom, where the subject auto-exploits itself in its isolation, is that "no political *We* is even possible that could rise up and undertake collective action."[13] Echoing both Foucault and Han, I argue this is why the political claim to develop an understanding of the other in the purportedly democratic site of VR is, in its essence, individualist, self-regulating, and self-exploiting

1.4 Reinstating Boundaries

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[9] Ibid., 340.

[10] Byung-Chul Han, *Psychopolitics: Neoliberalism and New Technologies of Power*. Translated by Erik Butler. (London: Verso, 2017.) 7.

[11] Ibid., 7.

[12] Ibid., 7-8.

[13] Ibid., 12.

The third and final part of this dissertation engages with the question of autonomy through my artistic experiment in VR. The general mechanism of the autonomy claim in VR can be boiled down to one single discursive operation: cancelling-by-concealing boundaries that defines visual structure. Therefore, in order to respond to this set of conventions, I set out to reinstate the boundary as a problem. I argue that "boundary"—in the sense of a limit or threshold and as a technology that both separates and juxtaposes elements—is a unique aesthetic means to re-examine the associations and disassociations within concepts that define the artistic experience in VR, for example, autonomy and heteronomy, real and image, and actual and virtual. Boundary separates as soon as it brings elements together, associates and disassociates, bounds and unbounds at once. It is the locus that neither belongs to any of those it brings together nor depends on them. It is the touchstone where two elements express difference and sameness at once. It is neither autonomous nor heteronomous but both at once.

Therefore, my intention is to push the immediacy claim to its limits to create a crisis in its conventions in such a way that the question of autonomy become visible as a problem. In order to do that, following the Cavellian formula, I have reconfigured the technological structure of the VR headset. To re-examine the associations and disassociations of the core concepts that define contemporary VR conventions—e.g., autonomy and heteronomy, immediacy and mediation, passivity and activity, and invisibility and visibility—my VR experience formally deploys immersive and interactive techniques that aim to problematize the concept of boundary. I aim to make both the perceptual boundaries of the viewer and the boundary that separates the actual space from the virtual visible as problems through the very construction of the immersive

and interactive aspects of the VR experience I have developed. While the former is deployed as an aesthetic means to unfold narrative structure and interactivity, the latter is deployed to push the discursive fabric of an unlimited image where real and actual becomes indiscernible into the extreme.

1.5 Practice and Literature Review

This section will provide an overview of the diverse ways in which VR has been deployed and considered in both artistic practices and in research in the academic context. I argue that two fundamental streams, each of which is quite diverse and complex, can be identified: the first one, which will be analyzed in depth in this dissertation, aims to use the immersive and interactive features of VR to achieve realistic representation of events, subjectivities from different walks of life, and places, while the second one encompasses the diverse aesthetic attempts to employ VR to present alternative perceptual regimes that are not immediately given in reality and existing media practices. In this context, I will call the first one the "representational regime" and the second the "presentational regime."

The first tendency falling within the representational regime is the journalistic use of VR that is employed by several media organizations in order to diversify their means of representation. In general, in the journalistic context, VR serves as a means to provide direct and affective engagement with extraordinary places, individuals and events. Initiated by the New York Times (NYT), which distributed over a million cardboard viewers to its print subscribers and created a high-end VR-specific smartphone application, many organizations such as VICE, the Wall Street Journal, PBS Frontline,

and the Guardian have experimented with the medium as a journalistic tool. The NYT

has produced dozens of VR films to explore topics including remote places such as

Antarctica (*Under A Cracked Sky*,[14] *Three Six Juliet*,[15]), Northern California's redwood

forest (*Be Still Among the Redwoods*[16]) and Pluto (*Seeking Pluto's Frigid Heart*[17]) as

well as civil rights issues including the ongoing war in the Nuba Mountains of Sudan (*We

Who Remain*[18]) and the stories of three child refugees (*Displaced*), or to provide a multi-

media experience which traces the history of the Olympic Games by incorporating

archival photographs from the start of modern Olympics in 1896 to present time (*The

Modern Games*[19]). Similar to the NYT, the Guardian has been experimenting with the

medium and produced several 360-degree videos and VR experiments that engage with

different social and political issues spanning from an immersive journey through

Patagonia (*Wilderness*[20]), a 360 film about the mating season of frogs (*The Joy of

Frogs*[21]), a virtual experience of a forensic investigation (*Crime Scene*[22]), and

documentaries about autism (*The Party*[23]) and solitary confinement (*6x9*[24]). The last

[14] "Under a Cracked Sky," YouTube Video, 09:47 posted by "The New York Times," May 18, 2017,
https://www.youtube.com/watch?v=ecmGq5LGNx8

[15] "Three Six Juliet," YouTube Video, 11:20 posted by "The New York Times," May 18, 2017,
https://www.youtube.com/watch?v=sNr7B4ecbQU

[16] "Be Still Among the Redwoods," The New York Times Video, 05:00, October 7, 2016.
https://www.nytimes.com/video/well/100000004693124/be-still-among-the-redwoods.html.

[17] "Seeking Pluto's Frigid Heart," The New York Times Video, 07:43, September 20, 2016.
https://www.nytimes.com/video/science/100000004657443/seeking-plutos-frigid-heart.html

[18] "We Who Remain," The New York Times Video, 15:00, March 13, 2017.
https://www.nytimes.com/video/magazine/100000004980989/we-who-remain.html

[19] "The Modern Games," The New York Times Video, 08:38, September 20, 2016.
https://www.nytimes.com/video/sports/100000004652044/the-modern-olympic-games.html

[20] "Wilderness," The Guardian Video, 06:03, June 04, 2018.
https://www.theguardian.com/environment/video/2018/jun/04/wilderness-an-immersive-360-journey-into-patagonia-video

[21] "The Joy of Frogs," YouTube Video, 06:03, posted by "The Guardian" March 29, 2018.
https://www.youtube.com/watch?v=itxS75ftx4Q

[22] The Guardian, Crime Scene, The Guardian VR, v. 5.1, The Guardian, October 4, 2018.

[23] "The Party," YouTube Video, 07:21, posted by "The Guardian" October 07, 2017.
https://www.youtube.com/watch?v=OtwOz1GVkDg

experience, for example, combines former prisoners' testimonies and a virtual reality prison in order to replicate the experience of solitary confinement. However, despite its higher perceptual realism, journalistic use of VR has raised many ethical questions due to its mutable nature that can be manipulated for "ideological or sensational ends." For instance, in their work, *Ethics Guidelines for Immersive Journalism,*[25] Ana Luisa Sánchez Laws and Tormod Utne underline the paradoxical practices in journalism to increase the authenticity claim of the content, such as deleting the tripod in post-productions of 360-degree videos.

The second tendency employs the higher perceptual realism inherent to VR for travel documentaries and tourism videos. Here, in general, the attempt is to use the medium to provide visual access to sites that do not allow immediate access. One specific sub-type within this constellation worth noting is the use of VR as a means to enable an embodied and visual experience of places to which actual access would have disastrous effects: dark tourism. For instance, as Marina Hassapopoulou analyzed in her text *Playing With History: Collective Memory, National Trauma, And Dark Tourism In Virtual Reality Docugames*,[26] the recently released docugame *Chernobyl VR Project*[27] "capitalizes on the morbid appeal of dark tourism by turning the site of the 1986 Ukrainian nuclear power plant explosion into a game of historical exploration." Another

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[24] "6x9," YouTube Video, 02:50, posted by "The Guardian" April 27, 2016. https://www.youtube.com/watch?v=odcsxUbVyZA

[25] Ana Luisa Sánchez Laws and Tormod Utne. "Ethics Guidelines for Immersive Journalism." *Frontiers in Robotics and AI* 6 (2019). https://doi.org/10.3389/frobt.2019.00028.

[26] Marina Hassapopoulou. "Playing with History: Collective Memory, National Trauma, and Dark Tourism in Virtual Reality Docugames." *New Review of Film and Television Studies* 16, no. 4 (October 2, 2018): 365–92. https://doi.org/10.1080/17400309.2018.1519207.

[27] The Farm 51, Chernobyl VR project, Oculus, v. 1.4, The Farm 51, September 28, 2017, Rift, Rift S.

VR game, produced by Polish production company The Farm 51, follows the same premise to create realistic access to Chernobyl, a site to which an actual visit could engender fatal outcomes. Another similar instance of representationalism in VR is the use of the medium for the purpose of live or non-live streaming of collective events such as concerts, sports, theatre performances, etc. This subcategory aims to democratize collective events such as performances by Coldplay and Paul McCartney, sports events from boxing to basketball (as offered by different channels such as Fox Sports and ESPN which now have streamed content available on Oculus TV), and the Welsh National Opera's performances of Mozart's The Magic Flute and Puccini's Madam Butterfly, which can be experienced in VR.

The final instance of representationalism is in the use of VR for education and training purposes. This instance, in fact, is the subject of the majority of VR research in both the academic and industrial contexts. What is unique to this category is that it generally capitalizes on the possibility of overcoming the shortcomings of other media used in the fields of education (Hwa, 2016; Lieu et al., 2017; Gulsun and Hakan, 2017; Malespina, 2016; Hiltz, 1994; Frerich et al., 2017; Seidel and Chatelier, 2013), psychology (Riva, 1998; Giuliana, 2018; Riva, 1997; Riva et al. 2004; Hofmann, 2017; Wiederhold and Bouchard, 2014), manufacturing (Ong, 2013, Banerjee, 1999; Banerjee and Zetu, 2001; Khan, Raouf and Cheng, 2011; Bartolo, 2007), engineering (Brice, 1997; Warwick, Gray, Roberts, 1993; Talaba and Amditis, 2008; Mihelj and et al., 2013), medicine, (Riener and Harders, 2012, Peters and et al., 2018), and architecture (Bertol and Foell, 1997, Whyte and Nikolić, 2018; Thomsen, 1994; Wang and Schnabel, 2008), among many others. With its capacity to create direct experience with the objects in the

fields with which these disciplines engage, VR has been used to enhance the educational experience.

The second stream, the presentational regime, is much more radically complex in its strategies, and classifying and identifying conceptual links between its various instances is likewise more challenging. However, I argue that this regime, in general, attempts to find ways in which VR can serve as a means to access events to which perceptual access is not possible via other media practices, and which transgress human perception. For instance, in psychology, VR has been considered as a means to re-enact a traumatic event of the past, to which access is impossible, in order to overcome it (Brandt, 2013; Westwood, 2001, Garrick and Williams, 2014; Meek, 2011; Safir and et al., 2014.). It is generally used in "exposure therapy," in which patients with anxiety-related conditions such as post-traumatic stress disorder (PTSD) are repeatedly confronted with the re-enacted version of the cues that trigger their stress reactions. For instance, in one of the programs, JoAnn DiFede, a professor of Psychology in Psychiatry at Weill Cornell Medical College at Cornell University, employed VR in her research to accelerate recovery, creating virtual scenarios for combatants returning from the Gulf War and Afghanistan who are experiencing symptoms of acute stress response and PTSD.[28]

Another instance of presentationalism in VR is the research and artistic endeavours that focus on how the body can be re-contextualized in virtual images. For some, it troubles the Cartesian dualism of body and mind (Hansen, 2001; 2006; Char 2001; 2002;

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[28] JoAnn DiFede, "Enhancing Exposure Therapy for PTSD: Virtual Reality and Imaginal Exposure with a Cognitive Enhancer." Weill Medical College of Cornell University New York United States, October 1, 2016. https://apps.dtic.mil/docs/citations/AD1024462.

2003; 2004; Katherine 1999). For instance, the work of Char Davies, one of the early VR artists, has been the initial departure point in the discussions around embodiment and disembodiment and continuity and discontinuity in VR. In her work *Osmose*,[29] an experience that combines a "head-mounted display and a motion capture vest with breathing and balance sensor," she says that she "is motivated by the desire to heal the Cartesian split between mind/body, subject/object, which has shaped our cultural values and contributed to the West's dominating stance towards (and estrangement from) life. In this context, *Osmose* seeks to re-sensitize—reconnecting mind, body and world." Unlike Davies, Rachel Rossin, another pioneer in VR art practices, has put forward the thesis that that VR is an aesthetic device that creates visual experiments where physical bodies become irrelevant and redundant. Generally considered to be hyperbolic, the discourse of disembodiment in VR has been criticized by many scholars. For some, despite its intention to invert Cartesian dualism, it is in fact the literal re-enactment of Cartesian ontology and is guided by the techno-Utopian ideology of liberation from the body by dissolving into the machine (Coyne, 1994, Sardar, 1995, Hayles, 1996). In fact, for some, what ultimately defines the VR experience is the very central function of the body. Along with its central function to synthesize VR image as interface, the body has been considered to be a means to construct the narrative structure through interactivity. For instance, in his work *Hospital With One Entrance And Two Exits*,[30] Deniz Tortum argues that VR enables an interactive regime where the body is the constitutive locus, and he coins the concept of "embodied montage," which, for him "is the decoupling and

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[29] Deniz Tortum, *Hospital With One Entrance And Two Exits,* 04:00, (2016), Virtual Reality
[30] "Osmose*,*" YouTube Video, 16:55, posted by Immersence, June 03, 2014.
https://www.youtube.com/watch?v=54O4VP3tCoY

recoupling of action and perception in virtual reality experiences in order to generate new meanings, similar to montage in film."

The final moment of VR in this category encompasses the different works that feature interplay between the continuity and discontinuity of actual and virtual spaces in site-specific art practices. They generally deploy VR in order to engage with the politics of space. For instance, in *Biidaaban: First Light,*[31] an interactive virtual reality experience produced by Lisa Jackson, users navigate through "familiar spaces overgrown by vegetation while being immersed in the original languages of Tkaronto." As an interplay between actual space and its virtual presentation, *First Light* is a reflection on the space as a juxtaposing of different modalities in language, time and space. Employing a similar strategy, VR has also been mobilized to induce reflection on global warming, which is an event that is distributed in time and space so diffusely that it defies human perception as a singular occurrence. It is believed that VR will help to make climate change's invisible causes visible, its distant effects immediate, and the nebulous harm it causes highly personal by allowing viewers to visualize it within their personal space. While there is abundant data on the impacts and causes of global warming, making such data accessible and relevant to people's everyday lives is a challenge for which VR is believed to be particularly well-suited. By bringing data into personal space, VR is employed to enable a unique opportunity to make the problem perceptible. For instance, *Living Rocks: A Fragment of the Universe,*[32] by Australian artists James Darling and Lesley Forwood, immerses visitors in the Earth of 3 billion years ago to get them to imagine the future. Presented by the Art Gallery of South Australia, the work is an

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[31] Lisa Jackson, *Biidaaban: First Light,* 06:00-08:00, (2018), Virtual Reality
[32] James Darling and Lesley Forwood in collaboration with Art Gallery of South Australia, *Living Rocks: A Fragment of the Universe,* May 08, 2019 - November 24, 2019.

installation of a large pool of water and rocks against the backdrop of digital screens depicting the early days of an uncontaminated planet. Another example is the *This is Climate Change*[33] virtual reality series from Danfung Dennis and Eric Strauss from the VR studio Condition One. The first film in the series provides a birds-eye view of the Amazon rainforest which is subjected to aggressive deforestation to make room for the cattle industry. The second deploys VR to enable the viewer to experience the struggle of California's Department of Forestry and Fire Protection during tumultuous wildfires that recently occurred. A third film depicts the direct effect of global warming in Somalia and nearby African countries which suffer from widespread famine.

In general these two tendencies in contemporary VR practices differ from each other in their approach to real and virtual continuity. While the first one attempts to employ aesthetic strategies to increase perceptual realism and sense of presence, the other, I argue, capitalizes on the discontinuity between actual and virtual in time, space and bodies in order to inspire reflection through difference. The representational regime and its intended political outcomes will be analyzed in this dissertation through critical engagement with the concepts such as immediacy, autonomy and empathy. And the aesthetic strategy that defines the presentational regime as an interplay between the associations and disassociations within concepts, events and activities that define the aesthetic experience in VR will be a defining point of the artistic component of this dissertation.

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[33]Danfung Dennis and Eric Strauss. *This Is Climate Change*. Virtual Reality.. http://www.imdb.com/title/tt8278166/.

1.6 Chapter Summaries

Chapter One critically engages with three research-creation schemata that have been developed in the Canadian context: that of Manning-Massumi, that of Springgay- Irwin-Kind, and that of Chapman-Sawchuk. Common to these schemata, due to the indefinite character of the relationship between the elements that they bring together, research-creation is deemed to be conceptually impossible to subsume under a universalist and essentialist formula: in other words, it is always autonomous from any external discursive regulations. This is why, according to Manning-Massumi's schema, research-creation is not even a method. It is, in her words, "against method, active in its refutation of pre-existing modes of existence."[34] In Springgay-Irwin-Kind's schema of a/r/tography, the very function of research-creation is "to resist to the formation of specific criteria" as "it is a research process that is fluid, uncertain, and temporal."[35] For Chapman-Sawchuck's schema, research-creation is not a fixed methodological approach, but "each and every research-creation project also carries the possibility of acting as an intervention in its own right."[36] Due to its hybridity, this autonomy from universalizing and essentialist external discourses is what conditions the very function of research-creation; to accommodate the elusive and excessive character of aesthetic creativity—which is by definition anti-essentialist and beyond existing discourses, models, formulas, concepts and means—research-creation must be posited as autonomous.

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[34] Erin Manning, "Ten Propositions for Research-Creation." In *Collaboration in Performance Practice: Premises, Workings and Failures*. (New York: Springer, 2016.): 138.

[35] Stephanie Springgay, Rita L. Irwin, and Sylvia Wilson Kind. "A/r/Tography as Living Inquiry Through Art and Text." *Qualitative Inquiry* 11, no. 6 (December 1, 2005): 898.

[36] Owen B. Chapman, and Kim Sawchuk. "Research-Creation: Intervention, Analysis and 'Family Resemblances.'" *Canadian Journal of Communication* 37, no. 1 (April 13, 2012): 23.

Therefore, in this doubling logic where the possibility of research-creation is simultaneously conditioned by its impossibility, it is postulated that the internal contradiction of research-creation as a hybrid methodology is what grounds its critical function against given knowledge production processes. This formula, I argue, bears the risk of suggesting that the autonomy of research-creation automatically functions as an antagonistic and critical method. To put it a different way, these schemata risk falling into an automatism or essentialism in the sense that each research-creation project has to either translate or radicalize the internal impasse of research-creation into practice in order to challenge the hierarchical knowledge model of academia. The means of challenging the universalizing, determinist, objectivist and binary logic of academia is *a priori* given in its very hybrid essence, which is automatically or essentially beyond binary logic. However, in order to dislodge the essentialism they aim to expostulate, they seem to create another: the essentialist link between the autonomy of research-creation and the critical or creative function given in its hybridity. In fact, identifying an "anti-essentialist essence" with its critical function, this automatic antagonism and creativity that is supposed to be inherent to research-creation is possible only insofar as research and art are posited as oppositional both historically and essentially. I therefore maintain that the schemata reinforce and assume the very dualism and binary distribution of creativity and research that they aim to trouble. Moreover, the idea that the autonomy of research-creation inevitably performs critical and creative action on given knowledge production processes is not only essentialist but also eliminates the possibility of critique. In this sense, it risks negating its original critical intentions: it reduces the institution or the act of critique to a unilateral protocol.

Following this discussion, I further historicize research-creation in its aesthetic and political presumptions. My analysis consists of two instances of historicization as both scholarship and methodology: while the former attempts to map the historical background of the doubling logic of present research-creation schemata in contemporary philosophy of art, particularly in the context of cinema, the latter consists of implementing historicity as a defining character of research-creation. The latter is discussed in greater detail in Chapter Four; going beyond the false dichotomy of autonomy and heteronomy, which are dynamically related elements of the creative process, I argue that art in general and media in particular have to critically engage with the historical and material context in which they become possible. More precisely, my aim is not simply to recognize the simultaneity or indiscernibility of autonomy and the heteronomy of art or of medium but to radicalize the tension between them. I deploy them against each other, in the sense that the autonomous character of medium as technological organization is mobilized against the historical discursive pattern which engendered it as both technology and artistic medium.

Chapter Two maps out the historical background of the discursive fabric that defines contemporary VR aesthetics and its connection to cinema and stereoscopic 3D (S3D). Since its inception, VR has been an integral part of and the model for a particular paradigm of cinema. Defined by a paradoxical telos where two ostensibly antithetical meanings of *end* overlap, this paradigm seeks to realize the essential promise of cinema: its abolishment. It is in this context that the first chapter provides archaeological research on the recurrent topic of *future cinema*, of which VR is the latest iteration.

Following Erkki Huhtamo's media archaeology schema, built upon Michel Foucault's and Friedrich Kittler's discourse analysis, the first section of this chapter outlines the methodology used. I argue that, as a recurrent topic, future cinema can serve as a means to analyze the complex and uneven trajectory of VR within the media landscape. In the second section, I outline the conceptual framework of the first future cinema model, which was considered to be stereoscopic 3D. Particularly evident in early film theory such as that of Hugo Münsterberg, Béla Balázs and Sergei Eisenstein, S3D was promoted as a technological model for future cinema that would realize the artistic promise of cinema. Through its spatial capacity to blur the limit between screen and proscenium, according to these schemata, it would reveal the artistic essence of cinema, whose promise was to create an image where spectacle and spectator, image and reality, would reach a state of indiscernibility. However, S3D has a double position in the history of cinema: it was considered to be both the origin and the future of cinema. The next section engages with Jonathan Crary's and André Bazin's analyses of S3D, which posited it was the inaugural technology of the visual paradigm in the 19th century and culminated in the invention of cinema. The fourth section engages with a second instance of future cinema, which I associate with VR. Abolishing the limitations inherent to cinema as an image technology, VR is linked to utopic political models that aim to eliminate difference in favour of social harmony. I conclude the chapter by outlining the main technological and aesthetic operations inherent to future cinema as a discursive machine.

Chapter Three consists of two sections: The first works to examine the formal and political presumptions of contemporary VR aesthetics. Built upon the hyperbolic presumption that VR enables a non-mediated experience wherein the viewer can interact

or identify with different subjectivities, contemporary VR aesthetics is in large part characterized by the concept of empathy. It is believed that with its higher perceptual realism relative to cinematic image with its immersive and interactive structure, VR enables not only a technological utopia where ontological differences between image and reality are suspended, but also a democratic site where social, class, gender and racial differences can be eliminated. In the second part of this chapter, I historicize the formal tenets of empathy discourse through an examination of early architectural and pictorial immersive media and also cybernetics.

I argue that empathy discourse is not only false in its technological presumptions but that it is also problematic in its techno-utopic political program. It is, I argue, the result of a techno-utopic paradigm that began in modernity, which aims to develop a neutral interface to transform the world into immaterial visual information in order to control it. Echoing Rancière, I argue that the main problem of empathy discourse stems from its claim to unification—namely, that it can bridge the ontological split between real and imaginary and build harmony in society through empathetic understanding between different social-political categories. Moreover, the empathy/immediacy discourse, as I discussed above and expand upon in Chapter Two, is the result of an ongoing techno-utopic paradigm that seeks to develop a universal, all-encompassing and omniscient interface that can enable us to control matter, the world, and nature, and therefore the subjectivities that inhabit them. This paradigm in large part assumes an immediate interface where the world and its representation, image and reality, spectator and spectacle become variable realms. Its fundamental operation can be boiled down to eliminating the ontological, social and epistemological boundaries that serve as a

discursive technology that constructs difference. Inferred from the spatial structure of VR as a limitless image, which is itself hyperbolic presumption, this model aims to translate the unbounded formal structure of VR into a political program.

Chapter Four consists of three complementary sections. It first outlines the methodological framework that defines my artistic experiment in VR. Based on the critique of three research-creation schemata, which I argue are trapped in the false dichotomy of the autonomy and heteronomy of art, I contend that artistic practices in general and media in particular communicate and embody the discursive fabrics in which they become possible. Following the analysis of four aesthetic discourses on artistic autonomy that go beyond this false dichotomy— Kant, Schiller, Adorno, and Cavell—I maintain that the autonomy of art can only be posited when its heteronomous nature is constructed as a limit to transgress. Art in general and any medium in particular are both autonomous and heteronomous with respect to the discursive fabric that defines their aesthetic, technological and political coordinates. They are heteronomous in the sense that each medium communicates, materializes and embodies the very epistemological paradigm in which it becomes possible as a technology, and they are autonomous in the sense that they cannot be reduced to essentialist definitions of the epistemological and aesthetic paradigm in which they emerge. However, my aim is not simply to recognize the simultaneity or indiscernibility of the autonomy and heteronomy of art or of a given medium but to radicalize the tension between these dynamically related elements. They are, after all, inherent to the material organization of the medium, in the sense that the autonomous character of a medium as technological and material organization, and I

mobilize this against the historical paradigm which culminated in its invention as both technology and artistic means.

The second section, following this methodological framework, sets out to historicize the formal strategies of contemporary VR. Though VR is generally idealized as an immediate and unlimited image system that transgresses the limits which separate image from reality, and by extension from the viewer, the matter, and so on, I argue that contemporary VR conventions embody an *episteme* developed in the 19th century which operates through the double function of the subject through its limitations. Crystallized in the immersive and interactive features of VR, the immediacy and, by extension, freedom claim of conventional VR aesthetics, I argue, require visual and corporeal limitations of the viewer as a precondition. For instance, with respect to immersion, concealing the means of production beyond the peripheral vision of the viewer, the phantasmagoric effect of the unbounded image system that defines VR as shorn of spatial and material limitations is only possible by the bodily limitations of the viewer. It assigns to the finitude of human vision a dual role as both the condition and the means to transgress these finitude. With respect to interactivity, VR doubles the function of the viewer as both subject and object, or viewer and maker, at once. In its technological configuration as both an immersive and interactive medium, VR communicates this peculiar idea of freedom where it is the viewer's finitude in its visual and corporeal configuration that allows it to experience this freedom. Similar to Foucault's critiques of modernity, this purported freedom presupposes a double function of viewer as both the subject and the object of the image. I argue that, as the extension of a particular idea of subjectivity that emerged in modernity, the visual regime claimed to be inherent to VR communicates a

double logic where viewer is both an "enslaved sovereign" and "observed spectator," as Foucault formulates. The hyperbolic claims of autonomy both from the mediation of the artist and from reality gesture towards an aesthetic program where the viewer is trapped in an illusion of self-regulating omnipotent political power. Finally, following Han's critique of freedom in the context of neo-liberalism, I argue that this political power that is deemed to be inherent to VR, and particularly to 360-degree documentaries, which aim to induce empathy, reinforces the a political subjectivity that regresses into its own isolated and hermetic omnipotence.

The last section provides an overview of formal techniques that I develop in my VR experience as a response to my conceptual analysis of VR conventions. My intention is not to use VR as a medium to communicate a specific social, cultural, subjective or geographical event, subjectivity, or character; on the contrary, it is to engage with the medium itself through both theoretical critique and artistic experimentation, mobilizing a medium against the dominant paradigm that rendered it technologically possible. Parallel to the critique that I develop in the previous sections of this chapter, I address the ways in which the question of the viewer's autonomy in VR is subverted through the immersive and interactive experience I developed. Therefore, in order to respond to this set of conventions, I reinstate the boundary as a problem in virtual space. As a technology which both separates and juxtaposes the elements that it mediates, boundary, I argue, is a unique aesthetic means to re-examine the associations and disassociations of the sets of concepts that define the artistic experience in VR such as autonomy and heteronomy, real and image, and actual and virtual. I problematize two different boundaries: The visual boundaries of the viewer, and the boundaries between the actual and virtual

environments. While the former is deployed as an aesthetic means to unfold the narrative structure and interactivity, the latter is deployed to push the discursive fabric of unlimited image where real and actual becomes indiscernible into the extreme.

2 Research-Creation: Historicizing Creativity

2.1 Introduction

> Art does not exist in itself; it is an outcome of a complex
> set of relationships between what one is allowed to say, to

> perceive, and to understand. Events and objects only exist within the fabric of discourse, and are perceived as art, or a revolution in art, only within this fabric. – Jacques Rancière[37]

Dr. Nobel Price, the most tragic character on Sesame Street, is a committed inventor who lives in his far-off island laboratory. In each episode, after a lengthy description, Dr. Price unveils his latest invention to the public; however, what makes him tragic is that his creations are always something which has already been invented — only the names he gives them are different. For instance, his *foot snuggles* are just a pair of socks, his *talky stick* is a microphone, his *tinker table* is a piano, the *Sky Finder* is a helium balloon. It is clear that as a researcher he possesses the high level of technological means and understanding to develop and execute a concept. However, his creations lack something very essential: creativity. Unfortunately, his problem is not easy to solve, since by definition it is beyond the existing models, tools, concepts and means; it's excessive and elusive. In fact, to frame creativity is a paradoxical undertaking. What is created has to be radically different from the given means, strategies, styles and conventions which in turn condition it. It starts with the clichés and predetermined criteria in order to transgress or subvert them. It has to invert the conditions in which it becomes possible. Thus it requires the inventor or the artist to have a historical understanding of the very context in which they operate. This is what Dr. Price is missing. He has a high level of technological skill, but in his autonomous and isolated life on his far-off island he fails to develop the understanding of the historical context in which his creative activity is embodied. He is a good technologist but a bad historian.

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[37] Jacques Rancière. "The Politics of Art: An interview with Jacques Rancière." Interview by Anna Wójcik, *Verso Books Blogs*, November, 2015.

As a hybrid inquiry method that integrates a creative process, research-creation fundamentally grapples with the same problem, but in the context of academia, to move beyond traditional text-based dissertations in order to embrace the complex discourses possible within the arts. However, as a result of engaging with the indefinite and dynamic third site, that of the relationship between seemingly incommensurable concepts or activities such as art and science, theory and practice, image and text, etc., it has been widely considered as a paradoxical mode of inquiry. For the opponents of research-creation, since it cannot be governed by pre-established rules and cannot be judged according to predetermined criteria, it is an impossible endeavour (Sinner et al. 2006). For proponents, this impasse is the very promise of research-creation, since the universal formula pertaining to methods for creative research processes is what research-creation aims to call into question (Chapman and Sawchuk, 2012; Manning and Massumi, 2014; Springgay et al. 2006). Thus, inverting the internal impasse of research-creation, they charge it with mobilizing its grounding dilemma, which stems from the coupling of that which is deemed to be paradoxical, in order to generate new forms of knowledge that exceed and destabilize the horizon of existing methodologies, epistemological procedures and power relationships. According to this schema, therefore, each art-based dissertation has to embrace this grounding impasse inherent to research-creation as an exploratory and experimental epistemological model. This is why it has been called an "epistemology of ambiguity,"[38] "liquid knowing,"[39] "material thinking,"[40] "living inquiry,"[41] etc. For

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[38] Tom Barone, *Touching Eternity: The Enduring Outcomes of Teaching*. (New York: Teachers College Press, 2001.)

[39] Robin Nelson, *Practice as Research in the Arts: Principles, Protocols, Pedagogies, Resistances*. 2013 edition. (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2013.)

[40] Kathleen Vaughan, "Research creation as material thinking: Reflecting on the context of making of projects by two doctoral students at Concordia University, Montreal, Canada" *Studies in Material Thinking*, Vol. 3 (November 2009)

instance, Elliot W. Eisner, one of the pioneers of research-creation scholarship, in his text "The Promise and Perils of Alternative Forms of Data Representation," argues that using non-textual forms of expression can provide what might be called "productive ambiguity."[42]

Thus, according to the proponents, the very promise of research-creation is to mobilize its internal impasse in order to challenge the universalizing and essentialist definitions of the relationship between research and art, theory and practice etc. I contend that this logic where the possibility of research-creation is doubled with its impossibility is not only contradictory but also problematic in its political and aesthetic presumptions in the sense that it postulates that the hybrid nature of research-creation, *in its essence*, functions as an anti-essentialist methodology. Along with the risk of being trapped in a vicious circle of self-determination and self-evidence, the schemata that I will scrutinize in this chapter presuppose that research-creation is autonomous from the historical context in which it emerged due to its hybrid structure. However, this purported paradoxical nature, which enables its autonomy from the historical context in which it became possible, I contend, is historically connected to the 20th century aesthetic paradigm. In other words, its claim to be trans-historical due to the very impossibility of subsuming it under any external criteria that historically precedes it is, I contend, the extension of an aesthetic paradigm that was already operative in the 20th century. In this context, this dissertation will work to historicize research-creation in its aesthetic and

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[41] Stephanie Springgay, Rita L. Irwin, and Sylvia Wilson Kind. "A/r/Tography as Living Inquiry Through Art and Text." Qualitative Inquiry 11, no. 6 (December 1, 2005): 898.

[42] Eisner writes "By productive ambiguity, I mean that the material presented is more evocative than denotative, and in its evocation, it generates insight and invites attention to complexity. Unlike the traditional ideal of conventional research, some alternative forms of data representation result in less closure and more plausible interpretations of the meaning of the situation." (Elliot W. Eisner, "The Promise and Perils of Alternative Forms of Data Representation." *Educational Researcher* 26, no. 6 (1997): 4–10.)

political presumptions. It examines two instances of historicization: as scholarship and methodology. I will first map the historical background of grounding presumptions of research creation, and then attempt to implement historicity in the very process of research and creation of this dissertation. This methodological intervention will be addressed in detail in the last chapter, where I frame the specific conceptual approach to the methodology of this dissertation. As for the historicizing of research-creation scholarship, I will first outline the aesthetic and political presumptions of three research-creation schemata in the Canadian context; subsequently I will map out their conceptual connection with a specific aesthetic paradigm in which, I argue, cinema is the ultimate model. I will specifically look at three models (Deleuze, Badiou and Rancière) where cinema, similar to research-creation, is framed as an aesthetic means to dismantle the dualist and essentialist episteme of Modernity.

2.2 Three Models for Research-Creation in Canadian Context
2.2.1 Family Resemblances

The first model I will analyze was developed by Owen Chapman and Kim Sawchuk, both in Communication Studies at Concordia University. With its non-textual components (i.e., different modes of artistic expression), research-creation, for them, is primarily a methodological and epistemological challenge to "the text-based bureaucratic culture," "the logico-deductive or analytic forms of argumentation or presentation," and "formulaic representations of the academic genre and the production of knowledge in print cultures."[43] However, instead of simply contrasting it with traditional methods,

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[43] Ibid., 6.

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which, according to them, amounts to "reinforc(ing) the binary thinking that is at the root of the state of affairs they are lamenting,"[44] they develop a model unique to research-creation's conjunctive possibilities. In order to do this, they suggest four different subcategories that differ from each other in terms of how the articulation of research and creation is realized: 1) "Research-for-creation"; 2) "Research-from-creation"; 3) "Creative presentations of research"; and 4) "Creation-as-research."

They model this set of articulations after the concept of "family resemblance" which Wittgenstein developed in *Philosophical Investigations*.[45] For Wittgenstein, clusters of objects to which a word refers cannot be conjoined by "essential similarity" or "a universal significance," instead, concepts, with their "blurred edges" traverse "a complicated network of multiple similarities overlapping and criss-crossing."[46] This is why he suggests "family resemblance" as a better allegory to grasp the meaning of a word, which traverses sets of relations that are constituted not only by "what is akin, but also what is different."[47] Modeled after "family resemblance," Chapman-Sawchuk's schema brings together different articulations between research and creation as a particular instance of family resemblance that defines the multimodal relationship between them. This is why subcategories are not mutually exclusive, "not easily separated," and in fact are connected to each other at various points. However, I argue that these articulations presuppose an initial separation of research and creation. In other words, the coupling of research and creation is only possible when research and creation are positioned in an asymmetrical relation, in the sense that the traditional forms of

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[44] Ibid., 12.
[45] Ludwig Wittgenstein. *Philosophical Investigations* (New Jersey: John Wiley & Sons, 2010,): 66.
[46] Ibid., 66.
[47] Owen B. Chapman, and Kim Sawchuk. "Research-Creation: Intervention, Analysis and 'Family Resemblances.'" *Canadian Journal of Communication* 37, no. 1 (April 13, 2012): 13.

research lack creativity, and that creativity is an autonomous event that is not pursued by any type of research in and of itself. Reproducing and reiterating the binary logic that they criticize, their articulation is only possible by reinforcing the binary logic that distributes research and creation as exclusive activities.

For instance, the first category, "*Research-for-creation*" defines the inquiries where the main outcome is the creative work, and the research is a preliminary study which "involves an initial gathering together of material, ideas, concepts, collaborators, technologies, et cetera, in order to begin."[48] With its sequential ordering of research and creation, this subcategory misleadingly suggests that the activities associated with research (such as gathering data, formulating ideas and concepts etc.) are exclusively objective in nature and do not require any creativity. However, in order to overcome obstacles at every stage of conducting scientific research, there is a constant need for new, imaginative, and creative methods, means, formulations and even problems. This subcategory, like the others as we will see, first isolates research and creation in order to articulate them. Therefore their existence is only possible via a dualistic logic, which distributes research and art as exclusive activities: research as objective, uncreative, non-imaginative and art as ahistorical, self-generating and the sole site of creativity.

In the second subcategory, *Research-from-creation,*" the creative work itself is "used to generate information on user-responses to help build the project in question, as well as future initiatives."[49] Here, inverting the ordering of the first subcategory, they imply that the creative work constitutes a self-generating origin, whereas research data is

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[48] Ibid.,15.

[49] They write "Research is not only part of developing art projects that then stand on their own; rather, performances, experiences, interactive art works, et cetera can also be ways of generating research data that can then be used to understand different dynamics." (Ibid., 16.)

subsequently produced on this already-given artwork. However, to be able to create artwork, there is obviously a need for an initial research to define the framework, means, problem etc. The third articulation between research and creation in their cluster of family resemblances is *"Creative presentations of research"* which defines the inquiries where the presentation of traditional academic research is realized "in a creative fashion." Very similar to the first one, this subcategory is based on the erroneous notion that not every presentation employs creative means, and that there are means of presentation that are objective and neutral. It dismisses the alterations that can occur with any given presentation method. The aesthetic means that are employed in the presentation, this subcategory alludes, do not add anything to the content or to the research result; they amount simply to an aesthetic choice that does not alter the process. The last one, "*Creation-as-research*" seems to be a combination of the previous three, "where creation is required in order for research to emerge."[50] It is a creative process as research practice that can redefine "the very concepts of theory, creativity, and knowledge."[51] Instead of aligning them sequentially, as is the case of the previous three, it aims to accomplish "a production of theoretical knowledge not through, but as creation."[52] According to Chapman and Sawchuk, in this subcategory, the methodology, research and theory are examined and redefined through the process of creation. I believe this subcategory is more comprehensive and does not commit the error of reproducing what they criticize. It does not place research and creation in sequential and binary order.

However, this only serves to highlight the "irony at the very core of this article,"

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[50] Ibid., 19.
[51] Ibid., 21.
[52] Ibid., 19.

which they recognize.[53] That is, these subcategories can only operate simultaneously, and in fact I argue that they can function only by outdoing and complementing each other at the same time. Furthermore, their method consists of two discursive operations that are oppositional and cancel each other: the separation of research and creation and the undoing of this separation through their articulation. I am not trying to state the obvious in the sense that research and creation can only be articulated if initial isolation is taken as a given. The problem is that the primary operation on which they establish the discursive fabric of their methodology as articulation of research and creation is the very separation of research and creation. In other words, they first isolate them in order to overcome the isolation.

2.2.1 Sense Lab

Developed by Brian Massumi and Erin Manning through their work at the Senselab at Concordia University, the second schema I will examine is framed primarily as an "immanent critique" within research-creation practices, which, according to them, bear the risk of developing "troubling alignments with the neoliberal economy."[54] Explored through ten propositions in "Propositions for Thought in the Act" (in *Thought*

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[53] Recognizing this paradox within their text they conclude as follows: "We are also aware of an irony at the very core of this article, which has taken a traditional academic tone and style, to argue for the uniqueness of research-creation as a complex approach and intervention into the way knowledge is constructed and understood, and to interrogate the present and potential relations between creativity and scholarly practice. This is deliberate, at least in this instance. Finally, our 'approach' and construction of a set of inter-related categories is not meant to be definitive. It is intended to invite a playful consideration of the family resemblances between these different aspects of what is often condensed together into a hyphenated term, research-creation." (Ibid., 22.)

[54] Their approach on the one hand attempts to develop a new model (metamodel as they call it) "for rethinking the very question of what is at stake in pedagogy, in practice, and in collective experimentation," and on the other hand it is an attempt to develop a response to the neoliberal paradigm of the high-turnover, innovation-driven "knowledge economy." Erin Manning and Brian Massumi. *Thought in the Act: Passages in the Ecology of Experience*. (Minneapolis: Univ Of Minnesota Press, 2014.)

in the Act: Passages in the Ecology of Experience[55]), this "immanent critique" is a combination of two similar ontologies: the radical empiricism of William James, and Alfred North Whitehead's procedural ontology that emerged as a critique of the idealist and dualist worldview of late modernity. Moreover, these two epistemological references not only frame the conceptual background of the relational, conjunctive,[56] procedural, multimodal and open-ended structure of research-creation, they all are ultimately called upon to "explore new economies of relation" and "forces of life."

According to Manning and Massumi's schema, the fundamental function of research-creation is to register and reproduce what William James calls "pure experience" as the immanent relationship of terms that is not subsumed under an external, teleological or original transcendental concept/discourse/program/aim. In fact, they state that they assume the very challenge of "radical empiricism" as the function of their schema.[57] Radical empiricism, as explicated in *The Meaning of Truth,* for James, is a doctrine which postulates that the only things that can be part of a philosophical project are "things definable in terms drawn from experience."[58] In other words, James explains, "things of an unexperienceable nature may exist ad libitum, but they form no part of the material for philosophic debate."[59] By this postulate, he arrives at a statement of fact: "the relations between things, conjunctive as well as disjunctive, are just as much matters of

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[55] Erin Manning and Brian Massumi. *Thought in the Act: Passages in the Ecology of Experience.* (Minneapolis: Univ Of Minnesota Press, 2014.)
[56] Erin Manning writes "The conjunction is at work, actively adjusting the always immanent coupling of research and creation, asking how the thinking in the act can be articulated, and what kind of analogous experience it can be coupled with, asking how a making is a thinking in its own right, asking what that thinking might be able to do." (Erin Manning, "Ten Propositions for Research-Creation." In *Collaboration in Performance Practice: Premises, Workings and Failures.* (New York: Springer, 2016): 137.
[57] Erin Manning writes "Let us be up to the challenge of radical empiricism as that which begins in the midst, in the mess of relations not yet organized into terms such as 'subject' and 'object.'" (Ibid., 134.)
[58] William James, *The Meaning of Truth.* (Mineola: Dover Publications, 2013): 6.
[59] Ibid., 36.

direct particular experience, neither more so nor less so, than the things themselves."[60]

Life as an "immediate flux" consists of both things and also the relations between them, and relations, conjunctive or disjunctive, are "as real as the terms united by them."[61] Finally, he develops a conclusion out of the postulate and states that "the directly apprehended universe needs, in short, no extraneous trans-empirical connective support, but possesses in its own right a concatenated or continuous structure."[62] Similarly, rejecting the idea of "trans-experiential agents of unification, substances, intellectual categories,"[63] Manning-Massumi, for instance, in their fourth proposition ("Dwell in the transversal"), frame research-creation as a relational, experiential and open-ended process that cannot be defined according to a pre-constructed program. Instead it is a process that mobilizes the relational fields of terms to destabilize existing methods.

The second figure that informs their model is Alfred North Whitehead and the procedural ontology which he proposed. His ontology is built on the critique of Hume's empiricism in which the succession of events[64] is not determined according to a causality principle. As in the famous example of the billiard ball,[65] for Hume, there is no objective or rational principle that will provide us with a formula to connect a cause with a reason, but rather it is only human "*habit*" which connects these separated elements. However,

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[60] Ibid., 136.

[61] William James. *Essays in Radical Empiricism*. (Massachusetts: Courier Corporation, 2003.): 107.

[62] William James. *The Meaning of Truth*. (Mineola: Dover Publications, 2013): 173.

[63] William James. *Essays in Radical Empiricism*. (Massachusetts: Courier Corporation, 2003.): 43.

[64] Hume writes: "All events seem entirely loose and separate. One event follows another; but we never can observe any tie between them. They seem conjoined but never connected." (David Hume, *An Enquiry Concerning Human Understanding*. (Simon & Brown, 2011.): 74.

[65] Hume writes "When I see, for instance, a billiard-ball moving in a straight line towards another; even suppose motion in the second ball should not by accident be suggested to me, as the result of their contact or impulse; may I not conceive, that a hundred different events might as well follow from that cause? May not both these balls remain at absolute rest? May not the first ball return in a straight line, or leap off from the second in any line or direction? All these suppositions are consistent and conceivable. Why then should we give the preference to one, which is no more consistent or conceivable than the rest? All our reasonings a priori will never be able to show us any foundation for this preference." (Ibid., 19.)

Whitehead rejects the notion that events in themselves are ever merely "loose and separate," or that the world can be reduced to "local matters of particular fact." For him "there is nothing which 'simply happens.'"[66] There are no isolated data, because in every act of experience "the datum includes its own interconnections." [67] Referring to Whitehead, Manning-Massumi emphasize the process which is subjected to constant change that emerges from the interconnectedness of events: "research-creation is less about an object than a mode of activity that is at its most interesting when it is constitutive of new processes."[68] For instance, they suggest in their fifth proposition [Be Speculatively Pragmatic (Enjoy the Process)] that the value which can be produced in research-creation is the process itself. [69]

Ultimately the procedural, experiential and relational epistemologies to which they refer to define research-creation are used to frame theoretical and artistic practices as a response to "the capitalist value production" and to its fundamental mechanism of a monetary system that creates a formal relation through exchange value. Subsuming everything under its quantitative logic of a monetary system, capitalism, for them, divides the flux of life into units that can be exchanged. It is a quantitative and formal economy that aims to "capture" the force of life. However, unlike the "capitalist logic of quantitative capturing," research-creation can restore the informal and qualitative

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[66] Alfred North Whitehead, *Symbolism: Its Meaning and Effect. Revised* ed. edition. (New York: Fordham University Press, 1985.): 38.

[67] Alfred North Whitehead, *Process and Reality*. Corrected edition. (New York: Free Press, 1978.): 113.

[68] Erin Manning, "Ten Propositions for Research-Creation." In *Collaboration in Performance Practice: Premises, Workings and Failures*. (New York: Springer, 2016): 134.

[69] They write "Research-creation: the value produced is the process itself, is its very qualitative autonomy." (Ibid., 141.)

economy of the relational and procedural structure of life.[70] With its emphasis on procedural, relational, multimodal,[71] collective, pre-linguistic, affective and material expressions, research-creation diverges from the monetary economy that divides, captures and controls the perpetual and creative forces of life:

> An altereconomics of research-creation, understood as a practice of the event, is informal. It is unquantifiable. Its valuations directly concern qualities of life... Its process is autonomous in the sense that it is self-propagating. What propagates is an evolving form-of-life that partners thinking and making at the emergent level where they already come co-causally together. This is a polyrhythmic economy of germinal forms attuning – of *forces of life* finding new collective expression not for what it leaves behind but for its appetite to always begin anew.[72]

Therefore what constitutes the fundamental motivation of their schema is to restore qualitative forms of life, to create new forms of knowledge and experience through conjunctions that research-creation is capable of generating. However, they recognize that there are no pre-given methodologies for "generating new forms of experience." This is why, as they state,[73] their research-creation schema is not even a method because, according to them, methods serve to discipline "the very question of what constitutes knowledge."[74] Instead it is an open-ended process that undoes the given methodologies.

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[70] They write "Research-creation as we propose to practice it is a polyrhythmic attuning of mutually composing autonomous activities that collectively resist definitive capitalist capture and affirm value in terms that cannot be quantified." (Erin Manning and Brian Massumi. *Thought in the Act: Passages in the Ecology of Experience*. (Minneapolis: Univ Of Minnesota Press, 2014.): 123.)

[71] They also refer to Guattari and his metamodel which defines the multimodality of their research-creation conceptualization. Meta-model prepossesses the multiplicity of models without any hierarchical order. As a critique of the Lacanian structuralist and dualistic model, Guattari calls for a "metamodeling capable of taking into account the diversity of modeling systems" which creates new encounters that can undo the outcome projected by the existing models.

[72] Erin Manning, "Ten Propositions for Research-Creation." In *Collaboration in Performance Practice: Premises, Workings and Failures*. (New York: Springer, 2016): 140.

[73] They write "Research-creation does not need new methods. What it needs are techniques that enable modes of valuing the process, techniques that enable the tuning to technicity of a practice." Ibid., 138.

[74] Ibid., 134.

Rather than a method, they suggest developing what they call "technique" which is a singular set of constraints, which "has to be invented for each process."[75]

Similar to the Chapman-Sawchuk model, the discursive operation of restoring the unity of what has been isolated by the quantitative logic of capitalism is the ultimate function of research-creation. Historically and artificially divided, the flux of life can be restored by the conjunctions that research-creation can facilitate. However, it is not clear exactly how this will be realized and what the appropriate means for undertaking this project are, and this lack of clarity is the premise of research-creation. The very function of research-creation is to abolish itself and its mediation. They suggest developing what they call "enabling constraints." Since their experience showed them that "unconstrained interaction rarely yields worthwhile effects,"[76] they develop limitations that are positive in their dynamic effect, to avoid rendering their research-creation activities "anything goes." Therefore their open-ended non-methodology presupposes enabling constraints, a double operation of opening and limiting. Once again, oppositional operations that cancel each other are employed to restore the immediate method capable of registering the perpetual flux of life.

2.2.3 A/r/tography

The third schema, called a/r/tography, was developed mainly at the University of British Columbia through the collaboration of several artists and researchers. This sparse literature is organized by Rita L. Irwin, Sylvia Wilson Kind and Stephanie Springgay in

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[75] Ibid., 136.
[76] Manning, Erin, and Brian Massumi. *Thought in the Act: Passages in the Ecology of Experience.* (Minneapolis: Univ Of Minnesota Press, 2014.): 93.

their article "*A/r/tography as Living Inquiry Through Art and Text.*"[77] For them, A/r/tography is relational aesthetic inquiry "envisioned as embodied understandings and exchanges between art and text and between and among the roles of artist/researcher/teacher and the viewer/reader."[78] As is made clear in their definition, it is also built on the conjunctive mechanism of research-creation which essentially serves to trouble the existing disciplinary structure of academia.

In their schema, the epistemological model to which they refer is the Deleuzian concept of *rhizome* as a multiple and non-hierarchical mode of knowledge and representation. In the introduction to *Thousand Plateaus*, Deleuze and Guattari use the analogy of rhizome to define on the one hand the very methodology that their book is based on, and on the other their political, epistemological and ontological project. Rhizome,[79] Deleuze and Guattari state:

> "connects any point to any other point, and its traits are not necessarily linked to traits of the same nature; it brings into play very different regimes of signs, and even nonsign states… It has neither beginning nor end, but always a middle *(milieu)* from which it grows and which it overspills… In contrast to centered (even polycentric) systems with hierarchical modes of communication and pre-

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[77] Stephanie Springgay, Rita L. Irwin, and Sylvia Wilson Kind. "A/r/Tography as Living Inquiry Through Art and Text." *Qualitative Inquiry* 11, no. 6 (December 1, 2005): 897–912. https://doi.org/10.1177/1077800405280696.

[78] Ibid., 900.

[79] There are 6 principles that define rhizome book. "1 and 2. Principles of connection and heterogeneity: any point of a rhizome can be connected to anything other, and must be." (Deleuze, Gilles, and Felix Guattari. *Thousand Plateaus: Capitalism and Schizophrenia*. 2 edition. (Minneapolis: Univ Of Minnesota Press, 1987.) It's a heterogeneous whole in which all elements are connected to one another and where there is no fixed order or fixed point that can be subsumed under a single image. "3. Principle of multiplicity: it is only when the multiple is effectively treated as a substantive, "multiplicity," that it ceases to have any relation to the One as subject or object, natural or spiritual reality, image and world." With this principle they characterize a multiplicity that is not defined according to a unity structured in the object or in the subject. "4. Principle of asignifying rupture: against the over-signifying breaks separating structures or cutting across a single structure." By this principle they suggest that rhizome is never posited as fixed trans-temporal essence; it can be re-organized by the radical ruptures. "5 and 6. Principle of cartography and decalcomania: a rhizome is not amenable to any structural or generative model." As is clear in the definition, these are the final principles stating that rhizome is not defined according to original reason or a teleological model. (Gilles Deleuze and Felix Guattari. *Thousand Plateaus: Capitalism and Schizophrenia*. 2 edition. (Minneapolis: Univ Of Minnesota Press, 1987.))

established paths, the rhizome is an acentered, nonhierarchical, nonsignifying system without a General and without an organizing memory or central automaton, defined solely by a circulation of states."[80]

With its multimodal, nonhierarchical and acentric structure, rhizome-book is contrasted to two different types of books, "tap-root book" and "fascicular-root book." Positioning itself as an external and transcendental coherence, the taproot-book represents the world by imposing its internal unity on the world. Deleuze and Guattari say: "the tap-root book is organized around a single principle of coherence or meaning (often the intention, genius, or authority of the author) in order to represent the world or a privileged perspective on it."[81] The fascicular-root is the analogy for the books where the chaotic multiplicity of the world is represented through the unity of the book. In this case the world as multitude is a given but the very chaos in the world is represented by the book as having coherent unity. However, rhizome-book does justice to the chaos of the world without referring to any external coherence. It is a form of representation that is ultimately linked to their political program, which aims to trouble "transcendence," and "hierarchical" and "despotic" models.

Based on Deleuze and Guattari's rhizome, Irwin, Kind, and Springgay suggest six renderings, instead of a criterion-based model. These six renderings (*contiguity, living inquiry, openings, metaphor/metonymy, reverberations, and excess)* in their rhizomatic and aesthetic interconnectedness, inform the multimodal, heterogeneous, open-ended nature of research-creation as "aesthetic inquiry." For instance, the first rendering, *contiguity*, marks "the contiguous interaction" that constitutes the conjunctive nature of

[80] Gilles Deleuze and Felix Guattari. *Thousand Plateaus: Capitalism and Schizophrenia*. 2 edition. (Minneapolis: Univ Of Minnesota Press, 1987.): 21.
[81] Eugene W Holland, *Deleuze and Guattari's A Thousand Plateaus: A Reader's Guide.* (London: A&C Black, 2013.): 38.

research-creation, particularly *between* art and "graphy." A/r/tography, first of all, is the doubling of "visual and textual wherein the two complement, extend, refute, and/or subvert one another."[82] With this doubling mechanism it "refuses absolutes; rather, it engages with a continual process of not-knowing, of searching for meaning that is difficult and in tension."[83] Second, it is a *living inquiry*: since the process of research-creation cannot be separated from the experience of artist/researcher/teacher, a/r/tography pays special attention to "memory, identity, autobiography, reflection, meditation, story telling, interpretation, and/or representation, artists/researchers/teachers expose their living practices in evocative ways."[84] As "an embodied encounter constituted through visual and textual *understandings and experiences* rather than mere visual and textual *representations*," it "lingers in the liminal spaces between *a(artist)* and *r(researcher)* and *t(teacher)*."[85]

The third rendering is *openings*. Engaging with that which is *between* renders a/r/tography open and porous. It creates openings, which "leave room for encounters between artist/ researcher/teacher and reader/viewer entangling experience(s)."[86] The fourth rendering is the doubling of *metaphor* and *metonymy*: taking metaphor and metonymy as techniques of doubling (between similarities and between whole and part), they emphasize "a displacement in the subject/object relation."[87] They argue, through the intertwined relationship of metaphor and metonymy, that "meaning un/does itself." The

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[82] Stephanie Springgay, Rita L. Irwin, and Sylvia Wilson Kind. "A/r/Tography as Living Inquiry Through Art and Text." *Qualitative Inquiry* 11, no. 6 (December 1, 2005): 900. https://doi.org/10.1177/1077800405280696.
[83] Ibid., 902.
[84] Ibid., 903.
[85] Ibid., 902.
[86] Ibid., 904.
[87] Ibid., 904.

fifth is *a reverberation*: A/r/tography is "an interplay between the new and the customary,"[88] it unsettles traditional research practices by evocation of the new. And finally *excess*: A/r/tographer through writing reveals excess of affects such as "fears, inhibitions, desires, and pleasures."[89]

2.2.4 Epistemological Impasse as Political Function

According to these three schemata, research-creation's capacity to trouble the disciplinary, ideological, and historical boundaries that define academia and also hegemonic discourses stems from its heterogeneous structure. Its task is "simply" to implement/export/translate/mobilize its hybrid mechanisms to destabilize the binary logics of hegemony. Given in its hybrid form, its promise is to eliminate the mediation of hierarchical power models constructed by binary logic. There are three problematic presumptions that establish this argument.

First, they presuppose an essentialist link between research-creation's formal mechanism and the political or epistemological function of this formal mechanism. It is clear that the crisis that stems from the conjunction of concepts which are deemed to be oppositional and antonymous does not necessarily serve to upset hegemonic structures. In fact, at least historically, artistic alignments with contemporary power forms are not uncommon; each artistic discourse and artwork bears this risk, since there is no essentialist link between the form of art and the effect that it elicits. But more importantly, due to its very grounding premise -the impossibility of regulating its

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[88] Ibid., 906.
[89] They say "to write from within and through the body is a writing of excess. Excess is a way to re-image ourselves into being; re-assembling the mundane of our experiences. Excess is the flesh of being, the space-between interiority and exteriority, where touching touches and touches back in continual reverberations" (Ibid., 907.)

indeterminate nature by external criteria- research-creation annuls this possibility of being linked to any political program. As Schiller formulates, the freedom -independence from any external law- that defines the aesthetic domain and by extension research-creation, does not lead to any specific result; it does not produce a definite kind of action, whether moral or immoral. What art in general, and research-creation in particular, give us, then, is not a political program but rather the freedom to produce a political action. However, art offers no inherent criteria to transform this political action into a critical or emancipatory one.

Second, these schemata not only presuppose the initial historical, cultural or linguistic fragmentation of concepts between which they claim to restore unity, but also reproduce it in their attempt to destabilize it. As I noted earlier, to be able to realize the conjunctions of research and creation, theory and practice etc., research-creation first isolates them. It performs the very negation of its premise, which is to trouble binary oppositions of research and creation, and misleadingly suggests that the creative process is ahistorical, and does not involve any research practices, and that the research process is in itself is neutral, objective and does not involve any creative means and tools in the process of problem-framing, formulating an approach, etc. In a more radical sense, it bears the risk of reducing art to a rupture that only a genius is capable of, and reducing research to ahistorical objectivity determined by universal eternal laws.

Finally, research-creation's claim to restore "the natural relation inherent to life" between terms that are positioned in binary asymmetry is also problematic. Particularly evident in a/r/tography as "living inquiry" or the SenseLab schema, which is modeled after "forces of life," this claim bears the risk of suggesting that the relations generated in

the research-creation project are natural. However, following the Deleuzian formula, I contend that every relation is external to the terms, and whether conjunctive, disjunctive or dialectical, each relation in itself is a product of historical and ideological context. The relations -binary or non-binary- that research-creation uses to explain the terms that it brings together also have to be explained. In other words, the claim of restoring the natural harmony of oppositional terms has to be examined through political and historical lenses. It is the condition of "emancipatory politics," as Mark Fisher formulates, which "must always destroy the appearance of a 'natural order', must reveal what is presented as necessary and inevitable to be a mere contingency, just as it must make what was previously deemed to be impossible seem attainable."[90]

However, all of the three above-mentioned models recognize the irony of their respective conceptualizations pertaining to research-creation: the conjunction of these seemingly oppositional terms can be realized in an unlimited manner and cannot be subsumed under one schema. This is why, according to Manning-Massumi's schema, research-creation is not even a method. It is, in their words, "against method, active in its refutation of pre-existing modes of existence."[91] In a/r/tography the very function of research-creation is "to resist to the formation of specific criteria. It is a research process that is fluid, uncertain, and temporal."[92] In Sawchuk-Chapman's schema, research-creation is not a fixed methodological approach, "but each and every research-creation

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[90] Mark Fisher, *Capitalist Realism: Is There No Alternative?* (Winchester: Zero Books, 2009.): 17.
[91] Erin Manning and Brian Massumi. *Thought in the Act: Passages in the Ecology of Experience.* (Minneapolis: Univ Of Minnesota Press, 2014.): 138.
[92] Stephanie Springgay, Rita L. Irwin, and Sylvia Wilson Kind. "A/r/Tography as Living Inquiry Through Art and Text." *Qualitative Inquiry* 11, no. 6 (December 1, 2005): 900. https://doi.org/10.1177/1077800405280696.

project also carries the possibility of acting as an intervention in its own right."[93] Thus, to accommodate the conceptual, aesthetic and historical frameworks unique to the specific art form in question, each art-based dissertation has to embrace the very identity crisis or conceptual impasse inherent to research-creation. Therefore in this doubling logic where its possibility is conditioned by its impossibility, it is postulated that the internal contradiction of research-creation as a hybrid methodology is what grounds its critical function against given knowledge production processes. I argue this doubling logic is not only contradictory but also problematic in its political and aesthetic presumptions in the sense that it postulates that the hybrid nature of research-creation in its essence functions as an anti-essentialist methodology. The idea that research-creation, due to its autonomous position from external criteria, inevitably performs critical and creative action against given knowledge production is not only essentialist but it also eliminates the possibility of any critique. This is why I argue that these schemata are trapped in a vicious circle of self-determination and self-evidence as a result of the ahistoricism that is found at the very heart of each schema. Therefore, the next section will work to map out the conceptual connections of research-creation with a particular aesthetic paradigm which, I argue, is crystalized in the philosophical conceptualization of cinema in the 20th century.

2.3 Historicizing Research-Creation: Cinematic End of Metaphysics

Similar to research-creation, cinema, particularly evident in its philosophical

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[93] Owen B. Chapman, and Kim Sawchuk. "Research-Creation: Intervention, Analysis and 'Family Resemblances.'" *Canadian Journal of Communication* 37, no. 1 (April 13, 2012): 7. https://doi.org/10.22230/cjc.2012v37n1a2489.

conceptualization by Deleuze, Rancière and Badiou, is posited as an aesthetic-political means to challenge the binary oppositions on which the idealist or metaphysical framework of Modernity is based. For instance Deleuze, in the cinema courses he led in Vincennes, in order to highlight the anti-dualist nature of cinema, brings forward the question of whether there is any coincidence between the advent of cinema and the emergence of new philosophical undertakings — such as Bergsonism and Phenomenology — that set out to overcome the dualism of mind and body which grounds the metaphysical and idealist framework of western philosophy. For Deleuze, it is not a mere coincidence; in fact, cinema is the expression of a particular image that can be deployed to dismantle not only the binary distribution of body and mind but also image and matter, past and present, actual and virtual, real and imaginary. Similarly, for Badiou, cinema is anti-metaphysical, or more precisely "is the art of the end of metaphysics" which has been "defined in terms of the use of opposite categories, basically in terms of a dualism, of major oppositions: finite and infinite, substance and accident, soul and body, sensible and intelligible, and so on." [94] Moreover, Badiou argues that cinema's philosophical and political promise is to create "new syntheses" that bring together "terms that are foreign to each other."[95] And for Rancière, cinema is the fulfillment of an aesthetic paradigm that emerged in the 19th century which aims to disrupt the separation of image and text, the sensible and the intelligible. This aesthetic regime, in Rancière's understanding, subverts the consensual distribution of roles and functions in philosophy of art where art has been subjugated under regulative rules.

However, cinema is not unique in that sense: in fact it is part of a larger aesthetic

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[94] Alain Badiou, *Cinema*. Reprint edition. (Cambridge: Polity, 2013.): 213, 211.
[95] Ibid., 202.

schema common to Deleuze, Badiou and Rancière which is characterized by the inversion of modernity's subordination of art to philosophy. Inverting the hierarchical model of modernity, this set of philosophers, first of all, considers art as one of the many thought processes amongst which there is no hierarchical order. Secondly, the antithetical structure of art, which resulted in its dismissal in Modernity and ancient Greece, is the central philosophical means to redefine the given fabric of philosophical and political discourse. Thirdly, they defend the idea that art's mission is neither to represent an external truth nor to construct a material experience as non-speculative experience, but rather to create crises within the dominant social, political and cultural context. Therefore cinema, due to its doubling mechanism, is essentially a heterogeneous rendering of truth and marks the end of the metaphysical and hierarchical structure of modernity.

For instance, for Deleuze, particularly evident in the structure of crystal-image, cinema presents time's fundamental operation, which is to split itself as the present and the past. Present, according to Deleuze, is no longer a homogeneous limit between past and future but a two-facade image like a crystal. This is why crystal-image creates what Deleuze calls "the zones of indiscernibility,"[96] a heterogenic locus wherein multiple entities are subjected to a process of alterity either by converging physically in a real space or virtually in imaginary space and therefore the metaphysical and binary distributions of oppositions are cancelled. Rather than being mere confusion that emerges in the mind of spectators, *crystal-image* is an "objective illusion" that creates paradoxical situations and crises within the formal and metaphysical model of Truth. Similarly, in

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[96] Zone of indiscernibility amounts to a certain type of heterogenic reality wherein multiple entities are subjected to a process of alterity either by converging physically in a real space or virtually in imaginary space.

Badiou, cinema's temporal structure is one of several mechanisms by which it can create situations which he calls "philosophical situations" where incompatible elements coexist. As "the relationship between terms that usually have no relationship with each other"[97] they compel us to find common measure between the oppositional elements that are foreign to each other. In a similar context, Rancière also argues that the modernism in cinema takes parataxis[98] -the aesthetic technique of 19th century literature- as its model, which is based on the juxtaposing of oppositional terms.

Similar to cinema's capacity to create heterogeneous and paradoxical associations by *montage* and by its *temporal structure*, its regime of image also functions as a doubling of elements which are deemed to be oppositional. For instance, in Badiou's understanding, cinematic imagery is at once "absolutely false" in its reality claim and "absolutely real" in its manifest falsity. In Badiou's own words: "cinema simultaneously offers the possibility of a copy of reality and the entirely artificial dimension of this copy. With contemporary technologies, cinema is capable of producing the real artifice of the copy of a false copy of the real, or again, the false real copy of a false real."[99] In a similar vein, Rancière also points out cinema's capacity to create double bindings in terms of its regime of image. For him, it is one of the operations that organize the relation between sayable/language/narrative/thought and visible/material/silent/unthought within sensibilia

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[97] Alain Badiou, *Cinema*. Reprint edition. (Cambridge: Polity, 2013.): 202.
[98] Parataxis -derived from a Greek word which means to place side by side- is a literary technique which juxtaposes phrases or clauses. In this respect, for Rancière, cinema, via sentence-image, undertakes "chaotic force of the great parataxis" (Jacques Rancière, *Aesthetics and Its Discontents*. 1 edition. (Cambridge, UK; Malden, MA: Polity, 2009.): 46.) by bringing together the "phrasal continuity" and the "imaging power of rupture" (Ibid., 46). Instead of organizing the terms in a harmonious way, cinema manufactures "effects of disturbance, while maintaining some semblance of meaningful connectivity or "measure" between the different elements" (Jean-Philippe Deranty, *Jacques Ranciere: Key Concepts*. 1 edition. (Durham: Routledge, 2014.): 164.)
[99] Alain Badiou, *Cinema*. Reprint edition. (Cambridge: Polity, 2013.): 233.

and the distribution of sensible[100] which form the core of Rancière's aesthetic and political conceptual framework. Rancière also claims that cinema is the realm of heterological structures; in this sense, cinematic imagery resides on the limits that design the very relation between these dichotomies with a unique type of image which is called *sentence-image*. Sentence-image is not simply bridging the sayable and visible; it is the undecidable positioning of continuity and fragmentation, articulation and inarticulateness, the dialectic and the symbolic, consensus and chaos, *logos* and *pathos*, lethargy and energy. It is an oscillation between two radical approaches: the first one is the modern idea of representational art which presupposes a supremacy of the narrative over non-linguistic imagery, and the second is the modernist, purist idea that artworks are the manifestation of their material and technical properties. As for Deleuze, cinema does not provide representation of a movement that is external to it; rather, movement is nothing but the image itself. Following the Bergsonian schema,[101] matter is identified with image and movement. This identification not only nullifies the distinction between movement and image but also dissolves the limits between the cinematic image and the real in the Deleuzian image regime.[102] Cinematic imagery in this sense is not a representation of what is external to it but the expression of the change and difference of that which is immanent to it.

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[100] According to Rancière, politics and art are composed of the norms that condition the very sensory fabric of community that determine the perceptual forms of inclusion and exclusion.

[101] According to Deleuze, the advent of cinema coincided with a crisis in philosophy at the end of the 19th century. He points out in one of his cinema lectures that this crisis stems from the impossibility of retaining the modern idea of a fractured world which is based on a distribution of things in such a way that the images are located in the mind and movement in the body. In this sense there is parallelism between Bergson's project, along with phenomenology, in terms of overcoming the binary positions (matter and image) and cinematic operations.

[102] Deleuze writes "What we see in the crystal is always the bursting forth of life, of time, in its dividing in two or differentiation." (Gilles Deleuze, *Cinema II: The Time-Image*. Reprint edition. (London ; New York: Bloomsbury Academic, 2013.): 91.)

Similar to research-creation, according to these three figures (Deleuze, Badiou and Rancière), cinema is first of all conceived as a hybrid art with its temporal structure, image regime and its relation to the other art genres. In fact, what constitutes cinematic expression is the hybridization or juxtaposing of that which is incompatible. Therefore it is postulated that with its hybrid structure, like research-creation, cinema is anti-metaphysical and by extension anti-dualist and anti-essentialist. In other words, common to these three figures, cinema, with its temporal and image construction, is conceptualized as a hybrid art, which can be mobilized as a means to dismantle hierarchical models of dualism. However, the problem inherent to both the research-creation schemata and the philosophical conceptualizations of cinema that I have analyzed is that they reinforce the essentialism that they aim to expostulate. They presuppose an essential link between the hybrid structure of cinema and research-creation and their critical, political and aesthetic function.

2.4 Conclusion

Essentially connected to the 20th century aesthetic definition of cinema, research-creation is therefore not autonomous from the historical context in which it emerged. Despite their attempts to challenge the historical distribution of research and creation, and by extension the diverse elements which are historically deemed to be oppositional, I argue that these schemata, in their autonomy claim from the historical context in which they became possible, carry the risk of becoming self-regulating. I argue that aesthetic activity can only be creative through critical engagement with what has historically been served to and emerged within hegemonic power structures. It is defined by the very crisis

that it causes within the given distribution of the material world, along with its concepts, events, and social positions, including those of race, gender and class. It must always trouble the appearance of a natural order. This is why, following Deleuze's formulation, I argue that creativity, and by extension research-creation, is *resistance*. Creativity whose nature is not immediately apparent can only be understood as resistance/opposition against what is historically deemed to be true, natural and right. Certainly the idea of resistance that defines creativity cannot be reduced to historical resistance; in fact, one can argue that creativity resists the creator, and even creation itself. As Agamben notes, it is not "only as an opposition to an external threat" but also "the resistance must be internal to the act of creation."[103]

It is in this context that my dissertation seeks to develop a critique within the discursive fabric in which VR became possible as a technology. Unique to research-creation as a hybrid methodology, it will be realized both visually and textually. It will engage in the double action of research-creation: it seeks to use formal techniques specific to VR in order to develop a critique that defines the artistic, technological and political tenets of VR. Therefore, in the following chapters, I will first historicize the discursive fabric in which VR is embedded. Second, I will analyze the politico-aesthetic coordinates of this discursive fabric in order to develop a conceptual critique. Thus the research that I aim to pursue seeks to answer the following questions: What are the ideological tenets and the formal strategies that define the contemporary aesthetics of VR? What are the techniques specific to VR that can challenge the conventions of VR?

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[103]Giorgio Agamben, "Resistance in Art." YouTube video, 43:12 posted by European Graduate School, 2014. https://www.youtube.com/watch?v=one7mE-8y9c.

3 Archaeology of Future Cinema

3.1 Introduction

Since its inception, the speculations on cinema's future, which are consubstantial to debates on its artistic value, have been polarized in the equivocality of the term *end* in its multiple resonances as ending, death, finitude, but also as purpose, telos, finality.[104] For

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[104] Erin Obodiac, 'Autoimmune Cinema' (Spiral Film and Philosophy Conference, "Thinking Space" Toronto, ON, May 11, 2018.)

some, for instance for Louis Lumiere, "cinema is an invention without a future;"[105] for others, it is in the future where cinema will unfold its artistic essence, as was stated in *The Futurist Cinema* manifesto, "…the immense artistic possibilities of the cinema still rest entirely in the future."[106] These two polarized camps have re-emerged every time new technological developments have been added (including sound, S3D, color, digital, computer and VR etc.) at numerous points throughout the history of cinema, where the subsequent transformations have been considered so radical that many were moved to declare that cinema had reached its end, and proclaimed it dead. For many other theorists, however, thanks to the proliferation of different platforms that incorporate moving image technology, cinema is more alive, more abundant, and more omnipresent than ever.[107] However, this chapter seeks to map a third approach, where two ostensibly antithetical meanings of *end* converge in a teleological program concerning the technological essence of cinema. According to this teleological program, these two possible future scenarios converge in a paradoxical outcome: the death of cinema as its essential promise, such that the very task of cinema is to abolish itself. It charges cinema with cancelling the ontological boundaries that separate it from its outside in favour of immediacy and transparency, or with expanding the image by multisensory and interactive strategies into its transparency to the extent that the image and its outside are transformed into variable/interchangeable realms.

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[105] James Naremore, *An Invention without a Future: Essays on Cinema*. First edition. (Berkeley: University of California Press, 2014.)

[106] Scott MacKenzie, ed. *Film Manifestos and Global Cinema Cultures: A Critical Anthology*. First edition. (Berkeley: University of California Press, 2014.)

[107] André Gaudreault and Philippe Marion. *The End of Cinema?: A Medium in Crisis in the Digital Age.* Translated by Timothy Barnard. (New York: Columbia University Press, 2015.)

With its emphasis on hyperbolic concepts such as transparency and immediacy, VR is purported to be the latest technology that fulfils this cinematic *telos*. It is purported to be not only the "future of cinema" at large but also of esports,[108] advertising,[109] pornography, [110] education, [111] architecture/engineering/construction (AEC) [112] and design.[113] Likewise it is proclaimed to be the ultimate medium that can eliminate the boundaries between different media technologies as well. For instance, according to Palmer Luckey, "the genius" behind the last wave of VR revolution is that "VR is the ultimate medium. It's not just its own thing, it can also hypothetically work to perfectly simulate every other medium."[114] This frenzy is not new; in fact, since its inception, both conceptually and technologically, VR has been posited as a model for cinema and image culture in general. It has been both an integral part of and the model for the techno-utopic program that seeks to construct an omnipotent image system that is self-regulating in the sense that it is autonomous not only from the mediation of artist, but also from the material, spatial, and by extension social and political determinations of reality. In this context, this chapter seeks to map out the aesthetic, technological and ideological tenets of the "future cinema" as a recurrent topic, which is purported to be fulfilled by VR.

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[108]Rebecca Hills-Duty, "Is VR The Future of Esports?" *VRFocus* (blog). Accessed August 21, 2019. https://www.vrfocus.com/2017/07/is-vr-the-future-of-esports/

[109] "Is Immersive VR The Future Of Advertising?" The Drum. Accessed August 21, 2019. https://www.thedrum.com/news/2017/06/19/immersive-vr-the-future-advertising.

[110] Brian Heater, "VR Is the Future of Porn, and It's a Creepy Future Indeed." *TechCrunch* (blog). Accessed August 21, 2019. http://social.techcrunch.com/2016/06/20/vr-porn/.

[111]Steven Wesley, "Virtual Reality (VR) Is The Future of Education in Classrooms." *VU Dream* (blog), February 22, 2018. http://www.vudream.com/virtual-reality-vr-ar-is-future-education-school-classrooms/.

[112]Joana Simoes, "Virtual Reality: VR Is the Future of AEC – Masonry Design." Accessed August 21, 2019. http://www.masonrydesignmagazine.com/virtual-reality-vr-future-aec/.

[113] Laura Snoad, "VR: Is It the Future of Design?" Creative Bloq. Accessed August 21, 2019. https://www.creativebloq.com/features/vr-is-it-the-future-of-design.

[114]Palmer Luckey,"Virtual Reality: The Road Ahead" YouTube Video*,* 23:53 posted by Variety, February 12, 2014. https://www.youtube.com/watch?v=cs58OrTG6LU.

Following Erkki Huhtamo's media archaeology schema, built upon Michel Foucault's and Friedrich Kittler's discourse analysis, the first section of this chapter outlines the methodology used. As a recurrent topic, future cinema will serve as a means to analyze the complex and uneven trajectory of VR within the media landscape, particularly cinema and stereoscopic 3D, and the conceptual framework of several hyperbolic discourses such as transparency, invisibility, immediacy, disembodiment, and presence/telepresence that defines the discursive fabric in which VR is embedded. In the second section, I will outline the conceptual framework of the first future cinema model, which was considered to be stereoscopic 3D. Particularly evident in early film theory such as that of Hugo Münsterberg, Béla Balázs and Sergei Eisenstein, S3D would reveal the artistic essence of cinema, whose promise is to create an image where spectacle and spectator, image and reality will reach a state of indiscernibility. In this context S3D was posited to be the future of cinema due to its spatial capacity to blur the limit between screen and proscenium. However, S3D has a double position in the history of cinema: it was considered both to be the origin and the future of cinema. The following section will engage with Jonathan Crary's and André Bazin's analyses of S3D, which posited it to be the inaugural technology of the visual paradigm in the 19th century, culminating in the invention of cinema. The fourth section engages with a second instance of future cinema, which has been largely associated with VR. As a result of the advent of the computer, VR is purported to be the ultimate technology that can abolish the boundaries inherent to screen-based image technologies, and by extension eliminate difference in favour of social harmony.

3.2 Methodology: Topoi of Media

This dissertation in general will follow the media archaeology outlined by Erkki Huhtamo in his article "From Kaleidoscomaniac to Cybernerd: Notes Toward an Archaeology of the Media"[115] and his book "Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles."[116] Built in large part upon Michel Foucault's[117] and Friedrich Kittler's[118] discourse analysis, it primarily attends to the discursive fabric in which the artefact is embedded. Instead of tracing the deterministic and isolated history of media artefacts, it suggests mapping the network of discourses in which a particular technology is connected to other technologies simultaneously and diachronically. However what is unique to Huhtamo's methodology is that it emphasizes the "recurring" discursive patterns that traverse different artefacts within the media landscape despite their technological, conceptual or functional differences. Rather than following "the chronological and positivistic ordering of things centered on the artifact"[119] or engaging in an historical ordering of technoculture as a constant progress, proceeding from one technological breakthrough to another, it emphasizes cyclical

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[115] Erkki Huhtamo, "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," *Leonardo* 30, no. 3 (1997): 221-24.

[116] Erkki Huhtamo, *Illusions in Motion: Media Archaeology of the Moving Panorama and Related Spectacles*. 1st edition. (Cambridge Massachusetts: The MIT Press, 2013.)

[117] As indicated in "What Is Media Archaeology?" by Jussi Parikka, one of the main contributions that Foucault initiated with the archaeology of knowledge and culture was to develop a methodology for excavating conditions of existence. Stating that technological inventions are a result of historical contexts determined by concepts, ideas or ideological teloi, media archaeology attempts to define the background reasons why "a certain object, statement, discourse or, for instance in our case, media apparatus or use habit is able to be born and be picked up and sustain itself in a cultural situation." (Jussi Parikka, *What Is Media Archaeology?* (Cambridge: Polity Press, 2012.): 6.

[118] Kittler differs from Foucault in the sense that "such conditions of existence not only are discursive, but relate to media networks, as well as scientific discoveries. Kittler wanted to look at technical media in the way Foucault was reading archives of books and written documents. Of course, such archaeological questions are closely related to what Foucault later started to call 'genealogy'" (Ibid., 6.)

[119] Huhtamo Erkki, "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media," *Leonardo* 30, no. 3 (1997): 221-24.

elements in the history of media. Media archaeology, for him, is "a way of studying recurring cyclical phenomena that (re)appear and disappear and reappear over and over again in media history, somehow seeming to transcend specific historical contexts."[120]

For Huhtamo, these cyclical phenomena are more than coincidences produced "indigenously by conglomerations of specific circumstances."[121] Instead, they all consist of certain commonplace elements or cultural motives.[122] They can therefore be employed as a means of examining wider narratives that define the cultural sphere and can serve "as connectors to other cultural spheres; as commentaries and elaborations of media-cultural forms, themes, and fantasies; or as formulas deliberately used for profit or ideological indoctrination."[123] Different from a linear or chronologically conceived history of media, he suggests the symptomatic analysis of the ideological tenets of technological progress in the media environment through these recurrent topics:

> …first is the study of the cyclically recurring elements and motives underlying and guiding the development of media culture. Second is the "excavation" of the ways in which these discursive traditions and formulations have been "imprinted" on specific media machines and systems in different historical contexts, contributing to their identity in terms of socially and ideologically specific webs of signification. *This kind of approach emphasizes cyclical rather than chronological development and recurrence rather than unique innovation.[124]*

Huhtamo defines such recurring, cyclical phenomena as topoi: "the formulas, ranging from stylistic to allegorical, serving as systematically organized conventions or constituting clichés."[125] However with their recurrent character, topoi are hyperbolic narratives "closer to the field characterized by Foucault somewhat contemptuously as the

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[120] Ibid., 222.
[121] Ibid., 221.
[122] Huhtamo writes "They may serve to reveal the ideological and cultural patterns as much as realized artefacts." Ibid., 221.
[123] Ibid., 221.
[124] Ibid., 221.
[125] Ibid., 223.

history of ideas."[126] For Foucault, *history of ideas* is the study of those "age-old themes that are never crystallized in a rigorous and individual system, but which have formed the spontaneous philosophy of those who did not philosophize [...] The analysis of opinions rather than of knowledge, of errors rather than of truth, of types of mentality rather than of forms of thought."[127] Recounting "the by-ways and margins of history," they mainly diverge from the history of the sciences, and recite the history "of imperfect, ill-based knowledge" like "the history of alchemy rather than chemistry, of animal spirits or phrenology rather than physiology."[128] Parallel to the history of ideas, Huhtamo's methodology suggests mapping sets of discourses, which are generally problematic in their technological, aesthetic and political presumptions and composed of literary formulas as well as pseudoscientific and paradoxical discourses, hyperbolic projections and imaginary solutions.

For instance, he suggests that this method can be used to analyze the discursive link between television, virtual reality and telectroscope, a discursive device believed to have existed in the late 19th century. Telectroscope was a conceptual model of an electro-optical device which aimed to increase the range of users' visions. It was believed to be the early model (albeit discursive) for the telephone, television or videophone. For Huhtamo, the discursive pattern initiated by the telectroscope can be interpreted as a utopian projection of the "hopes raised by electricity and particularly by the telephone, and realized decades later in the form of television."[129] However, while television found

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[126] Ibid., 224.
[127] Michel Foucault, *The Archaeology of Knowledge & The Discourse on Language*. Reprint edition. (New York, NY: Vintage, 1972.): 153.
[128] Ibid., 153.
[129] Erkki Huhtamo, "From Kaleidoscomaniac to Cybernerd: Notes toward an Archaeology of the Media." *Leonardo* 30, no. 3 (1997): 221–24. https://doi.org/10.2307/1576453.

its dominant form in broadcasting, which was very different from the role offered by the telectroscope, this topos is reactivated in Jaron Lanier's utopian vision of VR more than a century later. For Huhtamo, Lanier's model for VR "as the telephone, not as the television of the future"[130] can thus be seen as another incarnation of this well-known topos of the 19th century.[131]

Therefore, following Huhtamo's media archaeology methodology, in this chapter I will map the artistic and political coordinates of future cinema as a discursive pattern in which VR is embedded. Transgressing the constraints of screen, incorporating the spectator's bodily movement and enabling interaction with objects in its visual field, VR has been purported to have realized a technological telos that has haunted cinema from the beginning. Apparent in Eisenstein's, Münsterberg's and Balázs' ideas on Stereoscopic 3D, Bazin's Total Cinema, Youngblood's Expanded Cinema, and Heilig and Sutherland's media utopias, this recurrent telos presupposes that cinema's very promise is to realize a particular form of image where the limit that separates it from its outside will be cancelled to the extent that image and reality are transformed into variable/interchangeable realms. Moreover, according to this recurrent discourse, not only will future cinema realize this immediate relationship between the world and its image, but also social harmony will be restored by means of the immediacy purported to be inherent to the visual regime of possible cinema of the future. Embedded in the same discursive fabric, contemporary VR aesthetics also prioritize immediacy, transparency and empathy, and in general is considered to be a democratic site where the material,

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[130] Ibid., 221.
[131] More interestingly, Huhtamo suggests a particular research project that is similar to what I am conducting in this dissertation: "the discursive formations which enveloped and molded the emergence of virtual reality technology around the turn of the 1980s and 1990s would provide an appropriate subject of study for the kind of an approach I have been trying to delineate." (Ibid., 224.)

spatial, and by extension social and political determinations of reality are eliminated in favour of the immediate encounter.

3.3 S3D: The Future That Never Happened

Even before technologically available,[132] stereoscopic cinema, initially, emerged as a model for both the technological development of cinema and for the aesthetic conventions of the "flat" films in the early 20th century. For instance, the experiments involving *flat,*[133] as Ray Zone[134] indicates, were generally guided by the idea of reproducing the effects associated with stereoscopy: compositional elements such as moving objects rushing toward or away from the camera. Camera movements and depth of field were generally proclaimed to be attempts to incorporate "stereoscopic effects" into cinema in order to realize an illusion of depth. Beyond these aesthetic associations in terms of strategies to increase depth illusion in cinematic image, stereoscopy also was a technological model for cinema. As the common denominator for early film theory, along with sound and colour, it was the technological telos in which cinematic imagery was purported to unfold its artistic essence.

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[132] Zone writes "Shortly after the turn of the century, inventors started to work on stereoscopic attachments for existing cameras that could produce three-dimensional pictures. The use of alternating left- and right-eye frames with a shutter in the viewing device became a commonplace idea after the turn of the century." Ray Zone, *Stereoscopic Cinema and the Origins of 3-D Film, 1838-1952*. (Lexington, Ky: The University Press of Kentucky, 2007.): 87.

[133] Particularly evident in Actuality Films and Phantom Rides, the experiments were generally on the movements within the image either through the movement of the object or through camera movements on the z-axis. For detailed discussions about early film conventions see Ray Zone, *Stereoscopic Cinema and the Origins of 3-D Film, 1838-1952*. (Lexington, Ky: The University Press of Kentucky, 2007.):

[134] Zone gives a very detailed of history of S3D's influence on early film theory. For instance, movement of the camera itself was increasingly characterized as "stereoscopic effects." Furthermore, any attempt to increase the depth information in cinema was associated with 'stereoscopic effects' and they were concerned with how a sense of depth and three-dimensionality might be achieved in the cinematographic image. (Ibid., 77)

3.3.1 Münsterberg: The Triumph Of The Mind Over The Material

Münsterberg argued that by adding stereoscopy, cinema could fulfill its artistic promise, which is to reproduce the subjective vision of the viewer. Inspired by Kantian subjective idealism, [135] cinema, for Münsterberg, finds its artistic possibilities by overcoming objective reality and by materializing the inner/subjective reality of the spectator. For instance, our attention is objectified by the mediation of close-up, or our memory with flashback, etc. However, not only does cinema reproduce the mental processes of the viewer, it also presupposes the spectator's mental mechanism to create the impression of continuity and of depth in the very image itself. [136] Therefore subjectivity of the spectator, or the subjective vision, a post-Kantian notion that is both a product and constituent of modernity, has a double function in the cinematic process. Cinema, on the one hand, is the triumph of the mind over the objective world through its capacity to materialize the subjectivity of the spectator, and on the other hand is only possible through participation of the spectator's mental processes. The subject is the condition of cinematic image and cinematic image is the extension of subjectivity.

However, in Münsterberg's view one particular shortcoming of cinema had to be overcome: cinema has to incorporate "the complete appearance of depth" of the subject. Even though it is capable of creating depth impression through monocular depth cues

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[135] Münsterberg is generally located within the school of neo-Kantism that emerged at the beginning of the 20th century and Gestalt theory. As Dudley Andrew writes: "Following Kant, Münsterberg employs an entirely different kind of analysis when he turns from psychology to aesthetics. Psychology is part of a scientific mode of thought. It tries to explain aspects of what Kant called the phenomenal realm, the realm of sense experience where things are linked in time, space, and causality." (J. D. Andrew, *The Major Film Theories: An Introduction*. (London ; New York: Oxford University Press, 1999.): 105.)

[136] For instance, it is the spectator who furnishes frames –which are flat and immobile in their selves- depth and movement by his or her mental processes: "…we furnish to them more than we receive, we create the depth and the continuity through our mental mechanism." (Münsterberg, Hugo. *Hugo Munsterberg on Film*: *The Photoplay: A Psychological Study and Other Writings*. Edited by Allan Langdale. 1 edition. (New York: Routledge, 2001.): 30.

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(such as relative size, occlusion and intrinsic movement in frame etc.), it lacked the impression of depth as complete as the subjective vision of the spectator. Here Münsterberg prescribes the convergence of film and stereoscopy technologies in order to obtain "plasticity" of human depth impression and says: "It may be said offhand that even the complete appearance of depth such as the stereoscope offers would be in no way contradictory to the idea of moving pictures. Then the photoplay would give the same plastic impression which the real stage offers. All that would be needed is this."[137] Thus stereoscopic 3D is the model to realize the very promise or the essence of cinema: to materialize the inner mental mechanism and corporeal conditions of the subject, hence the triumph of the mind over the material and objective world through the aesthetic means of reproducing the subjective vision. Bringing together objectivity and subjectivity, S3D is the technology that will unfold the artistic essence of cinema.

3.3.2 Béla Balázs: Aesthetic Unity

The same teleological approach can be found in Béla Balázs' work as well. S3D is described in a remote paragraph, in his book entitled *Theory Of The Film (Character And Growth Of A New Art)*[138] as being more "filmic" in comparison with two-dimensional film: "We must also remember that the stereoscopic film which produces the illusion that the figures on the screen are three-dimensional and protrude into the audience, will break up even more that traditional closed composition of the picture which was from the birth of the film a specific trait of the new art. In this respect the stereoscopic film will be even

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[137] Ibid., 66.
[138] Béla Balázs, *Theory of the Film: Character and Growth of a New Art.* (New York: Dover Publications, 1970.)

more 'filmic' than the two-dimensional film."[139] In fact S3D will widen even further the aesthetic rupture in art history that cinema gives rise to. For him the aesthetic of cinema, which identifies and couples the loci of the spectator and of the filmic universe through perspective,[140] inner movement of the film, etc.[141] deviates from the European art tradition,[142] which presupposes "that there is an external and internal distance and dualism between spectator and work of art."[143] Therefore, due to its spatial structure, where screen space and proscenium become indiscernible, stereoscopy, for him, would enable a more filmic experience. Thus, parallel to Münsterberg, S3D is the future of cinema, since the very telos of cinema is to annihilate the limit between oppositional terms such visible and invisible, text and image, etc.

3.3.3 Eisenstein: Annihilation of Class Society

The third instance where stereoscopic 3D is posited as the future cinema in a more enthusiastic and utopic manner is Eisenstein, who says, "To doubt that tomorrow belongs to stereocinema is just as naïve as it is to doubt about the very coming of tomorrow!"[144] Eisenstein maintains that S3D can re-establish "the original unity" of spectator and spectacle that was dismantled during the history of theatre by the advent of stage

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[139] Ibid., 244.

[140] Film fuses two "physiognomies -one is that of the object, its very own, which is quite independent of the spectator- and another physiognomy, determined by the viewpoint of the spectator and the perspective of the picture." (Ibid., 91.)

[141] Balázs argues, "In the cinema the camera carries the spectator into the film picture itself. We are seeing everything from the inside as it were and are surrounded by the characters of the film. The camera carries my eye into the picture itself." (Ibid., 48.)

[142] Balázs describes this tradition in these words: "The work of art is separated from the surrounding empiric world not only by the frame of the picture, the pedestal of the statue, the footlights of the stage." (Ibid., 49.)

[143] Ibid., 49.

[144] Sergei Eisenstein, "On Stereocinema." in *3D CINEMA AND BEYOND*. (Public. Toronto; Bristol; Chicago: Intellect Ltd, 2014.): 20.

organizations such as *rampe*[145] etc. Inherently, for him, this spatial organization resulted

in a type of egoism based on the artificial disintegration of the natural unity of reality-

fiction, actor-participant etc. However, he argues that the history of spectacle reveals the

telos in its unfolding which is to "bridge the gap." Therefore S3D –with its capacity to re-

unite oppositional terms- can overcome this chasm by blurring the screen's limits.

Moreover, S3D, through its spatial organization, is the telos of the spectacle insofar as

history proceeds to reach a certain synthesis[146] where the origin of spectacle lost long ago

is resuscitated. Thus, naturally, S3D, as a microcosm of the universal history which

proceeds towards a certain state of synthesis of oppositional terms (in a Hegelian way),

will bring together not only spectator and spectacle, fiction and reality or image and

world, but also by extension it is the ideal image technology that will render it possible to

abolish the limits between the oppressor and the oppressed, in order to restore the

classless society as an original state:

> Above we have outlined a few general ideas that seem to support our assertions
> about the "viability" of stereoscopic cinema, which we have shown to be—strictly
> on account of its unique technical properties—an aesthetic reflection of one of the
> deepest and most powerful drives of humanity, in its transition toward the
> annihilation of class society and its transformation into a classless society… No
> wonder then that the bourgeois West has responded with either indifference or
> hostile irony to the stereoproblem in cinema, a problem to which the research-
> and-development genius of the Land of the Soviets, along with its government
> and the leaders of its film industry have devoted so much attention.[147]

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[145] For Eisenstein, *rampe* is the result of a long history of "the tendency toward the separation between stage and audience." (Ibid., 30.)

[146] This synthesis is the unique possibility of S3D film for Eisenstein. He argues: "If we were to put this question to a Taoist philosopher of ancient China, he would surely tell us that the very essence of the two universal principles—the positive and the negative, which, in their union and interpenetration, drive and sustain the whole system of universal phenomena— may be glimpsed most vividly in the unique character of stereocinema." (Ibid., 26.)

[147] Ibid., 55.

Although more utopic in its political and artistic assumptions, Eisenstein's model is defined by the same formal operation as Münsterberg's and Balázs': eliminating the limit that separates oppositional terms. Like subjectivity-objectivity in Münsterberg and text-image in Balázs, cancelling the unnatural limit between spectator and spectacle, and by extension the classes to restore the original unity of society is linked to the formal possibilities of stereoscopy. However, this utopian future of a classless society and of S3D has never come to pass. Instead, S3D became the principal gimmicky strategy[148] of Hollywood to increase theatrical income. Yet despite the constant failure of teleological discourses around S3D, the idea that it is the future cinema has continued to re-emerge periodically throughout the last century.

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[148] This failure in itself merits another comprehensive study but far exceeds the scope of this dissertation. Mainly determined by the Hollywood boom strategy (Mitchell, 2004; Elsaesser, 2011 and 2013), the history of S3D cinema can be subdivided into three periods during which theatrical income was decreased by the advent of different platforms or technologies that sent the movie-going experience into a dramatic financial crisis. The first one coincides with the advent of television, the second one with the advent of videotapes and the third with the rise of piracy. It is general consensus (Johnston, 2013; Klinger, 2012; Higgins, 2012, Sara Ross, 2012; Miriam Ross, 2012) that the way in which Hollywood engages with stereoscopy depends on the pop-up effect of negative parallax, which is based on the violation of screen limits of classical 2D cinema in the form of intrusion: sometimes an abyssal or an extraterrestrial monster, an animal, or a bandit that comes from beyond the horizon which separates not only some spatial categories such as here and there, ocean and land, space and earth, but also some social categories such as human and animal, culture and nature, innocence and guilt. Encompassing more than fifty films released between 1952 and 1955, the first wave was initiated by Bwana Devil (1952), and included films such as House of Wax (1953), It Came from Outer Space (1953), Robot Monster (1953) and Creature from the Black Lagoon (1954). Not only did these films narrativize the entities beyond, they also re-determined the conventions of motion picture frame of the time (Academy aperture). Designed to recoup the large budgets involved in their production, the films of the second S3D boom –of which Comin' at Ya! (1983), Friday the 13th Part III (1982), Jaws 3-D (1983) and Amityville 3-D (1983) are exemplary ones - were usually produced as blockbusters in tested genres (action, horror, sci-fi, film-noir, etc.) However, by the third wave, particularly within the works of Wim Wenders (Pina, 2011), Peter Greenaway (3x3D, 2013), Jean-Luc Godard (Goodbye to Language, 2014) and James Cameron (Avatar, 2009), a different usage of S3D emerges: (1) to translate the stage arts experience to cinematic experience, such as concerts, dance, and theater performances or (2) to narrativize several themes related to corporeality, affectivity and movement in the form of pornography, dance, and flying travel films. Moreover the "hypo-stereo" and "hyper-stereo" are used more than the previous periods. These effects, along with changing the depth volume in the stereo image, also enable the spectator to experience the visuality of a body which has either greater or smaller interaxial distance than the human one.

3.4 S3D: The Origin of Cinema

What is even more striking about S3D is that it has a double position in the history of film theory: not only is it promoted as the future cinema, it has also been considered to be the origin of cinema. Several film and media theorists, such as Bazin (2104), Sadoul (1946) and Crary (1988), emphasize the conceptual, historical and possibly even ontological link between cinema and S3D. They share the view of S3D as the most important of the devices –among the proto-cinematic devices such as thaumatrope, phenakistoscope and zoetrope- which emerged as the result of a new visual paradigm in the 19th century that culminated in the invention of cinema.[149] I believe the two approaches (positing S3D as the future and as the origin of cinema respectively) are complementary in regard to the conceptual framework upon which future cinema, as a discourse, has been built. Therefore, in this section, I will outline the conceptual framework of two approaches that position stereoscopic 3D as the origin of cinema.

3.4.1 Body as interface

The first approach that I will engage with is Jonathan Crary's historical recounting of 19th century image culture, in which he positions S3D as the most significant visual

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[149] As Crary observes, stereoscopy was one of the first optical devices that was designed by modeling human perception within the research on optics that focused on the comprehensive articulation of subjective vision: the study of afterimages, of persistence of vision, peripheral and binocular vision which initiated the invention of a series of apparatus - stereoscope, the kaleidoscope, the phenakistiscope, and even the diorama- where the spectator becomes a constituent element of the device by its very corporeal capacities. This paradigm, under the influence of the epistemological linage of the 19th century -Kant's subjective idealism, Goethe's color theory, Newton's optic, undertake to map out the visual experience in which "the body itself produces phenomena that have no external correlate." Crary, Jonathan. *Techniques of the Observer: On Vision and Modernity in the 19th Century*. (Cambridge, Mass. u.a.: The MIT Press, 1992.) 71.

form.[150] What makes S3D important for him is not the abundance of stereograms that dominated the second half of the 19th century,[151] but rather the scientific and technological context in which S3D is embedded, which is linked to the larger paradigm that traverses the cultural, political and visual culture of the last two centuries. In fact, for him, the history of S3D in the 19th century, which fluctuated between being abundant and redundant, is a case study which provides insight into the visual paradigm of a particular form of power.

Crary, in his book *Techniques of the Observer: On Vision and Modernity in the Nineteenth Century* (1990), attempts to map an epistemological shift in vision science that initiated the proliferation of optical devices beginning in the 1820s (not only cinema and S3D but also several proto-cinematic devices) and how they are linked to the philosophical paradigm of modernity that positions the subject as the condition of knowledge. He characterizes this turn as the "passage from geometrical optics of the seventeenth and eighteenth centuries to physiological optics, which dominated both scientific and philosophical discussion of vision in the nineteenth century."[152] Particular evident in Johann Wolfgang von Goethe's[153] colour theory, this shift constitutes a turning towards the subjective and corporeal conditions of vision rather than studying the

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[150] Crary writes "The most significant form of visual imagery in the nineteenth century, with the exception of photography, was the stereoscope." (Ibid., 96.)

[151] It is estimated that between 1870 and 1910 "tens of millions of stereographic cards were sold annually and hundreds of millions were in circulation." Leon Gurevitch, "The Birth of a Stereoscopic Nation: Hollywood, Digital Empire and the Cybernetic Attraction." *Animation* 7, no. 3 (November 1, 2012): 239–58. https://doi.org/10.1177/1746847712456255.

[152] Jonathan Crary, *Techniques of the Observer: On Vision and Modernity in the 19th Century.* (Cambridge, Mass. u.a.: The MIT Press, 1992.): 71.

[153] Goethe writes "Let the observer look steadfastly on a small colored object and let it be taken away after a time while his eyes remain unmoved; the spectrum of another color will then be visible on the white plane . . . it arises from an image which now belongs to the eye." (Johann Wolfgang Von Goethe, *Theory of Colours*. Translated by Charles Lock Eastlake. (CreateSpace Independent Publishing Platform, 2015.): 21.)

objective conditions[154] of a rectilinear propagation of light rays. The invention of stereoscopy and cinema is thus the result of this paradigm shift, where corporeal mechanisms of vision such as retinal afterimages, peripheral vision, binocular vision, and thresholds of attention became the dominant subject of vision studies.

Built on the Foucauldian[155] observation that the body becomes a field of research in modernity, Crary argues that the paradigm shift in optics is the extension of an epistemological rupture initiated by Kant and carried on by Schopenhauer. This rupture resulted in a move towards studying how the subject and its corporeal conditions determine knowledge. For instance, for Kant, knowledge isn't merely determined by an external cause, rather, it is synthesized by the subject through *a priori forms*; that is to say, the image of an object is only possible through the synthesis realized by a priori forms (time and space) and categories given in the subject.[156] However, in Schopenhauer, who "seeks to rectify Kant", this shift, Crary argues, tends to study the physiological basis of perception by shaping the Kantian transcendental subject in flesh and bones. For instance, Schopenhauer says, "A philosophy like the Kantian, that ignores entirely [the physiological] point of view, is one-sided and therefore inadequate. It leaves an immense gulf between our philosophical and physiological knowledge, with which we can never

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[154] Crary writes "Dominant theories of vision, whether those of Alberti, Kepler, or Newton, all described in their own fashion how a beam of isolated light rays traversed an optical system, with each ray taking the shortest possible route to reach its destination." (Jonathan Crary, "Techniques of the Observer." *October* 45 (1988): 8.)

[155] Foucault writes "There are those that operate within the space of the body, and –by studying perception, sensorial mechanisms, neuro-motor diagrams, and the articulation common to things and to the organism– function as a sort of transcendental aesthetic; these led to the discovery that knowledge has anatomo-physiological conditions, that it is formed gradually within the structures of the body, that it may have a privileged place within it." (Michel Foucault, *The Order of Things*. (New York: Routledge, 2005.): 347.)

[156] Kant writes "We have therefore wanted to say that all our intuition is nothing but the representation of appearance; … as appearances they cannot exist in themselves, but only in us." (Immanuel Kant, *Critique of Pure Reason*. Edited by Paul Guyer and Allen W. Wood. Cambridge: (Cambridge University Press, 1999.): 168.)

be satisfied."[157] Different from late 19th and 20th century philosophy (Friedrich Nietzsche, Gilles Deleuze, Henri Bergson, and even Maurice Merleau-Ponty) where the body was conceptualized as an indeterminate mediation with its affective structure to defy the rationalist control mechanisms inherent to power, for Crary, the 19th century paradigm is linked to a paradigm shift in power formation, where subjects were studied in order to determine quantifiable norms and parameters. In a Foucauldian sense, the emergence of stereoscopy and film technologies is the result of the quantifying of human perception, attributing it to a mechanic, rationalized structure in order to simultaneously allow new forms of control and standardization of vision.

However, even though stereoscopy became the dominant form of visual culture in the 19th century as an extension of the control mechanism of power, Crary states that it was defeated by photography,[158] and cinema by extension. The reason behind this ostensible disappearance,[159] for him, is that S3D "was insufficiently phantasmagoric"[160]

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[157]Arthur Schopenhauer, *The World as Will and Representation*. (Massachusetts: Courier Corporation, 2012.): 273.

[158] The first stereoscopic apparatus, which was invented by Wheatstone, used hand drawings (Gurevitch 2012, Brown, 2012; Crary 1988; Sandifer, 2011). Almost simultaneously, Sir David Brewster developed the first portable 3D viewing device using photographic images. This lenticular stereoscope, using photographs instead of drawings, provided a template for all later stereoviews that became popular in the Victorian era and for the Viewmaster of the 1960s (Gurevitch and Ross, 2012).

[159] There are several new studies that show how S3D came into existence in different technologies such as View Master after the ostensible obliteration that Crary claims occurred. For instance, in "STEREOSCOPIC MEDIA Scholarship Beyond Booms and Busts" by Leon Gurevitch and Miriam Ross, they study how S3D was again popularized by View Master. In his book 3D: History, Theory and Aesthetics of the Transplane Image, Jens Schröter argues that, unlike a history concatenating the mediums sequentially, S3D in particular, and media history in general, follows a history that is oriented "more spatially and topologically where several media are related synchronically to each other in a systematic relationship or exist and develop diachronically within a specific constellation." (Jens Schröter, *3D: History, Theory and Aesthetics of the Transplane Image*. Revised edition. (New York: Bloomsbury Academic, 2014.)

[160] Mobilized mainly by Adorno and Benjamin, phantasmagoric effect is used to mark a shift in visual paradigm and in the ways in which power operates: "the occultation of production by means of the outward appearance of the product." Criticizing Wagner's aesthetic program (Gesamtkunstwerk), Adorno asserts that this image form "can lay claim to the status of being. Its perfection is at the same time the perfection of the illusion that the work of art is a reality sui generis that constitutes itself in the realm of the absolute

in the sense that it fell short of concealing the means of production since it "was dependent on a physical engagement with the apparatus which became increasingly inconvenient and unacceptable, but more importantly, the abstract and synthetic nature of the stereoscopic image could never be fully effaced." [161] However, though S3D has never fully become the future form of cinema, it has never disappeared, and came to exist in different media forms throughout the last two centuries. Despite his inaccurate account of the historical trajectory of S3D, I believe Crary's statement is still relevant to understanding the paradigm that I define as future cinema. In fact it is the first moment of future cinema and by extension of VR aesthetics: it constructs its immediacy and autonomy claim through an immediate interface organized according to the subjective and bodily conditions of the viewer. Phantasmagorical in its strategies to construct the illusion of immediate and unlimited imagery, in this paradigm, the objective limitations of the image are concealed beyond the subjective limitations of the viewer to the extent that the only limitations left in the visual field become the ones inherent to the viewer's vision. Moreover it deploys the ways in which the function of the viewer is doubled both as the subject and object, or the viewer and the maker at once.

3.4.2 Bazin: Total Cinema

without having to renounce its claim to image the world." (W. Theodor Adorno, *In Search of Wagner.* (London: Verso, 2005.)

[161] Supposedly S3D was capable of replacing the spatial limitations of screen inherent to cinematic imagery in favour of a greater perceptual realism. However, S3D does not annihilate the limitations of screen; stereoscopic imagery is still conditioned by several constraints such the boundary of the screen and the relative positioning of spectator and image (Zone, 2007). As Zone indicates, stereoscopic imagery requires a certain distance and angle between screen and spectator to be able to merge the stereo images. Furthermore, while it is true that transgression of the limit is possible in the case of the limit that separates the screen and proscenium, the vertical and horizontal limit of the S3D screen is still "defined by the relative position" of each stereo image.

In *Myth of Total Cinema*, Bazin also maintains that S3D is the earliest image technology that initiated the paradigm in which cinema was invented. In fact, for Bazin, both cinema and stereoscopy are the result of an ideal that traverses image technologies starting in the 19th century. This ideal, which Bazin calls the Total Cinema, precedes and determines not only the invention of cinema but also image culture in general in the 19th century. However, what is unique about total cinema is that it is a teleological program or ideal that charges image culture with a utopic objective to represent the world in an immediate way. Both the origin and the telos at once, Total Cinema is thus the early reiteration of the teleological paradigm that this chapter seeks to map out. It is the myth where two ostensibly antithetical concepts, realism and idealism, converge in a teleological program concerning the technological essence of image culture. For instance, while in *The Ontology of the Photographic Image*, Bazin states that cinema is objectivity in time due to its photographic nature which has *"the power to lay bare the realities,"*[162] in *Myth of Total Cinema*,[163] he identifies another vocation of cinema, which lies in its relation to idealism: "The cinema is an idealistic phenomenon."[164] Difficult to discern at first glance, the connection between the two vocations may seem irrelevant or incidental; however, it is crucial to understanding the epistemological paradigm that traverses Bazin's corpus and also the recurrent topic of future cinema.

Before embarking on Total Cinema and its technological coordinates in contemporary image culture, I will briefly outline his methodology which I believe mirrors the methodology I employ in this chapter in particular and in this dissertation in

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[162] André Bazin and Hugh Gray. "The Ontology of the Photographic Image." *Film Quarterly* 13, no. 4 (1960): 8. https://doi.org/10.2307/1210183.

[163] André Bazin, "The Myth of Total Cinema." In *What Is Cinema?: Volume II*, edited by Dudley Andrew and Francois Truffaut, translated by Hugh Gray, 1 edition. (University of California Press, 2004.)

[164] Ibid., 234.

general. Particularly in *Myth of Total Cinema,* Bazin, instead of recounting the technological chronology of the process that culminated in the invention of cinema, attempts to excavate the *discursive context* that enabled the invention of cinema. Parallel to the *discourse analysis* that has been modeled after Foucault and Kittler in media archaeology, Bazin analyzes the discursive fabric that defines the *condition of existence*[165] of the artefact rather than "the account of the cinema that was drawn merely from the technical inventions that made it possible."[166] Similar to Foucault's emphasis on excavating "the conditions of existence" through the analysis of discourses and Kittler's focus on media networks, Bazin's method bear a striking similarity to media archaeology approach which operates through, as Jussi Parikka frames, "digging the background reasons why a certain object, statement, discourse or, for instance in our case, media apparatus or use habit is able to be born and be picked up and sustain itself in a cultural situation."[167] This is why, for Bazin, the idea precedes the invention and hence is superior to the technical means used to achieve it. For instance, total cinema already existed as an idea before the invention of cinema: "There are numberless writings, all of them more or less wildly enthusiastic, in which inventors conjure up nothing less than a total cinema that is to provide that complete illusion of life which is still a long way away." [168]

It is in this context, as Tom Gunning suggests, from Sadoul's chronology of the invention of cinema, that Bazin, in *Myth of Total Cinema,* abstracts and formulates the

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[165] Foucault writes "The analysis of the discursive field is orientated in a quite different way; we must grasp the statement in the exact specificity of its occurrence; determine its conditions of existence, fix at least its limits, establish its correlations with other statements that may be connected with it, and show what other forms of statement it excludes." Michel Foucault, *The Archaeology of Knowledge & The Discourse on Language*. (Reprint edition. New York, NY: Vintage, 1972.): 28.

[166] André Bazin, "The Myth of Total Cinema." In *What Is Cinema?: Volume II*, edited by Dudley Andrew and Francois Truffaut, translated by Hugh Gray, 1 edition. (University of California Press, 2004): 234.

[167] Jussi Parikka, *What Is Media Archaeology?* (John Wiley & Sons, 2013.): 6.

[168] André Bazin, "The Myth of Total Cinema." In *What Is Cinema?: Volume II*, edited by Dudley Andrew and Francois Truffaut, translated by Hugh Gray, 1 edition. (University of California Press, 2004): 235.

idea which he considers to be the transcendental conditions that define the origin and technological progress of cinema. As Gunning states, he finds "less a description of scientific and technological progress than evidence of an obsessive fascination with achieving a complex and "total" mimesis of the world."[169] Aiming at "recreating the world in its image" this idea or ideal, which Bazin calls *Total Cinema,* is the guiding myth "inspiring the invention of cinema, [it] is the accomplishment of that which dominated in a more or less vague fashion all the techniques of the mechanical reproduction of reality in the nineteenth century, from photography to the phonograph, namely an integral realism, a recreation of the world in its own image, an image unburdened by the freedom of interpretation of the artist or the irreversibility of time."[170] This is why for Bazin, as an embodiment of the idea, cinema, for him, is "an idealistic phenomenon" and only consequently technical. In its invention, development and future, cinema is coloured or marked by this idea. Therefore both the origin and the future of cinema, *Total Cinema* is an idea that inverts deterministic causality between future and present. For instance, for Bazin the history of cinema is a progressive trajectory toward an ultimate goal, but this goal is the reversal of the historical order of causality where the "telos itself becomes the origin." Bazin brings his essay's rhetoric of reversal to a climax as he charts film's technological development not simply as a linear progression, but as actually circling back to fulfill the original ideal: "Every new development added to the

[169] Tom Gunning, "The World in its Own Image: The Myth of Total Cinema." In *Opening Bazin: Postwar Film Theory and Its Aftermath*. Eds. Dudley Andrew and Hervé Joubert-Laurencin. (New York: Oxford University Press, 2011.): 121.

[170] André Bazin, "The Myth of Total Cinema." In *What Is Cinema?: Volume II*, edited by Dudley Andrew and Francois Truffaut, translated by Hugh Gray, 1 edition. (University of California Press, 2004): 235.

cinema must, paradoxically, take it nearer and nearer to its origins. In short, cinema has

not yet been invented!"[171]

The very ideal that defines the emergence of cinema essentially, in fact, aims to

represent the world shorn of the mediation of artist: "an image unburdened by the

freedom of interpretation of the artist or the irreversibility of time."[172] Therefore, as

Gunning suggests, Total Cinema, as the original idea, aims to be more than merely an

artistic means to express a subjective view of the world; it is an immediate image of the

world: "The myth of cinema's origin does not primarily concern artistic expression, as

the theorists of cinema in the '20s (articulating the achievements of that decade's

filmmakers) would claim. Rather, at the point of its invention cinema pursued not only

the possibility of a complete mimetic presentation of the world but also the creation of an

image beyond the manipulations and interpretations of artists, not a particular artist's

image of the world, but the 'world in its own image'."[173] In this context cinema finds its

realist vocation: it aims to create an image that can stand for reality as a whole. In fact,

cancelling the artistic mediation that essentially functions through limiting the image in

time and space is identified with the cancellation of the limitation at large in order to

create an unlimited image system that can imitate the very unlimited character of reality.

The connection between the realist and idealist vocation of cinema is more visible

in *The Evolution of the Language of Cinema,*[174] where Bazin states that the montage

cannot fulfill the realist vocation of cinema as much as the depth of field. Since montage

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[171] Ibid., 236.

[172] Ibid., 236.

[173] Tom Gunning, "The World in its Own Image: The Myth of Total Cinema." In: *Opening Bazin: Postwar Film Theory and Its Aftermath.* Eds. Dudley Andrew and Hervé Joubert-Laurencin. (New York: Oxford University Press 2011): 123.

[174] André Bazin, "The Myth of Total Cinema." In *What Is Cinema?: Volume II*, edited by Dudley Andrew and Francois Truffaut, translated by Hugh Gray, 1 edition. (University of California Press, 2004) 235.

functions to organize movement in a rational and fragmented ordering, it eliminates the "ambiguity" inherent to reality as a "perpetual flux"[175] which defies any limitation. However, in cinematic montage, the world is represented in a fragmented temporal structure by disrupting the unity inherent to things and men.[176] This is why montage, as a way of fragmenting the world in time, is less realistic for Bazin. Cinema can nonetheless fulfill its essence by eliminating montage and its fragmenting representation of reality and deploying depth of field as a spatial organization that can conglomerate events, beings and humans in the totality of image. Therefore, the ultimate operation that defines realism in cinema is to eliminate fragmentation or construct unlimited image in it is temporality. Moreover, along with temporal configuration of movement in a limitless manner, as Thomas Elsaesser underlines, Total Cinema is "a kind of self-abolition of cinema in the dialectic between "spectacle" and "event", whose overcoming—rightly or wrongly—he associates with De Sica's film: "No more actors, no more story, no more sets, which is to say that in the perfect aesthetic illusion of reality, there is no more cinema."[177] Pushed to the extreme, the aesthetic and technological operations that define Bazanian realism pertaining to cinema and Total Cinema converge in the idea of abolishing the limits that condition the cinematic image in its temporal and spatial organization.[178] In short, the realist vocation of cinema can be subsumed under the operation of cancelling any mediation in order to create "an immediate mediation."

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[175] Clearly inspired by Bergsonian ontology, the grounding gesture of reality, for Bazin, due to the objective mechanism inherent to time, is ambiguity.

[176] In short, montage by its very nature rules out ambiguity of expression.

[177] André Bazin, "Bicycle Thief." In *What Is Cinema?: Volume II*, edited by Dudley Andrew and Francois Truffaut, translated by Hugh Gray, 1 edition., 47–60. (University of California Press, 2004.) 60.

[178] However, unlike Bergson, who considers cinema to be an illusion, Bazin sees a possibility to reintroduce ambiguity through depth of field: "depth of focus reintroduced ambiguity into the structure of the image if not of necessity—Wyler's films are never ambiguous—at least as a possibility." (André Bazin, *What Is Cinema? Volume I*. (University of California Press, 2005.): 36.)

However in his text *The World in Its Own Image: The Myth of Total Cinema*, Tom Gunning points out that Total Cinema, as a discursive operation of cancelling the limit specific to the ways in which representation is produced, does not aim at a "crowning synthesis" as a Hegelian telos. He asserts that it is not an image without a limitation but an image "bounded by a horizon" which is in constant expansion: "total cinema offers more than a complex process of duplication. Bazin calls this something more: "the world in its own image." I read this phrase as equivalent to the phenomenological concept (used by both Merleau-Ponty and Heidegger) of the worldhood of the world. The worldhood of the world forms the ultimate referent of the myth of total cinema. Thus total cinema does not posit a Hegelian universal totality but rather the phenomenological image of the world as bounded by a horizon, and it is in the nature of a horizon to be expanded."[179] Introducing horizon, Gunning emphasizes the utopic aspect of total cinema; however, he also gestures towards what I call the main operation of future cinema "…Bazin's total cinema strives to achieve 'the world in its own image'. This unique image seeks precisely to overcome the distinction between subjectivity and objectivity, and even between materialism and idealism."[180]

Complementary in their conceptualizing of cinema, both approaches which posit S3D as the future of cinema and as the origin of cinema reveal the discursive fabric that has traversed image technology starting from modernity to the contemporary media landscape in which VR emerged. There are two fundamental operations that define future cinema: first, eliminating the boundaries that condition image to the extent that the

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[179] Tom Gunning, "The World in its Own Image: The Myth of Total Cinema." In: *Opening Bazin: Postwar Film Theory and Its Aftermath.* Eds. Dudley Andrew and Hervé Joubert-Laurencin. (New York: Oxford University Press 2011): 125.
[180] Ibid., 125.

elements distributed in binary oppositions such as spectator and spectacle, image and reality, subjective and objective are unified. Second, it aims to integrate subject as an interface to the image construction to the extent that the boundaries are determined by the subjective limitations defined by the viewer's body.

3.5 Second Instant of Future Cinema: VR and Technological Utopianism

With the advent of the computer, future cinema models developed in the 1960s shifted towards a more utopian trope in their political and aesthetic presumptions. They are marked by the hyperbolic beliefs and hopes that arose following the emergence of the computer as a meta-media that could incorporate and assimilate different media platforms in favour of universalism/globalism.[181] Moreover, different from the stereoscopic models that sought to overcome the spatial limitations of the screen, the future cinema models of the 1960s and 1970s focused mainly on interactivity and multisensory strategies. Unlike the previous model that posited stereoscopic 3D as the future cinema which would fulfill the artistic essence of cinema, these models were primarily linked to a political program in which social harmony or universal peace could be restored by translating the harmony inherent to the formal structure of future cinema. The question was more about how cinema in the future could realize, with the help of the computer, a new reality that could function as an alternative to the present one: a reality that would transgress the

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[181] Similar to utopic discourses that previous technological inventions such as the railroad, steam, electricity, telephone, airplane, nuclear power etc. enabled, the political promises that emerged by the advent the computer as Langdon Winner emphasizes "The basic conceit is always the same… new technology will bring universal wealth, enhanced freedom, revitalized politics, satisfying community, and personal fulfillment." (Langdon Winner, "Technology today: utopia or dystopia?" *Social Research* 64.3 (1997): 989- 1017)

differences between image and reality, image and matter, spectator and spectacle, and hence transgress social differences.

More importantly, these techno-utopic models of the '60s most often emerged from the research related to VR. They generally converged in the idealization of VR as a future cinema model. In this section I will look at four figures who have been widely acknowledged to be the fathers of VR. The first figure is Ivan Sutherland, a scientist and inventor of the first headmounted VR display. For him, future cinema, which he calls Ultimate Display, can change the ways in which we define reality by eliminating the differences between image and matter. For Morton Heilig, a former cinematographer, the future cinema is a multisensory device that can respond to technological developments in science to restore universal peace. Jaron Lanier, artist and researcher, who coined VR, also maintains that VR can restore the sense of being part of a community by its unlimited imagery in which social differences are cancelled. Finally, for Myron Krueger, computer artist, technological developments in terms of interactivity can be used to create a new aesthetic paradigm where technology can generate new philosophy based on "contingency" in order to invert the epistemological paradigm of given narrative structures.

3.5.1 Sutherland: Ultimate Display

As a researcher and one of the early figures who shaped the conceptual framework in which VR was invented, Ivan Sutherland focused mainly on enhancing the interaction between human and computer. Working on interactive and immersive systems beyond the technologies of the day, such as keyboard, light pen, and joystick, he completed the first prototype of a headmounted display in 1970 at the University of Utah, and named it

ironically "Sword of Damocles" because of its gigantic structure that threatened to decapitate the user. He was also the creator of one of the most influential computer programs in computational visual media called *Sketchpad* which allowed users to visualize and control program functions. His contributions became the foundation for computer graphics, computer operating system interfaces, and software applications that are used widely in modern technology, and he introduced concepts such as 3-D computer modeling, visual simulations and computer-aided design.

In 1965 Sutherland presented a research paper entitled "Ultimate Display" in which he proposed three main points related to the novelties that a computer could generate. First of all, as an extension of the '60s utopic environment, he argued that the computer can be used to change the ways in which we conceptualize reality beyond empirical science. He suggests that the mathematically organized visual world of computers can enable a modeling of phenomena that are beyond the reach of empirical science. This particular visual regime, a computer display, for him, is "a looking glass into a mathematical wonderland"[182] where the concepts that are not realizable in the physical world can be modeled. For instance, such a display will be able to visualize "the forces on charged particles, forces in non-uniform fields, the effects of nonprojective geometric transformations, and high-inertia, low friction motion."[183] Therefore *ultimate display* is an aesthetic means to go beyond the limits of empirical science:

> There is no reason why the objects displayed by a computer have to follow the ordinary rules of physical reality with which we are familiar. The kinesthetic display might be used to simulate the motions of a negative mass. The user of one of today's visual displays can easily make solid objects transparent - he can "see through matter!" Concepts which never before had any visual representation can be shown, for example the "constraints" in Sketchpad. By working with such

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[182] Ivan E. Sutherland, "The Ultimate Display." In Proceedings of the IFIP Congress, 506–508, 1965.
[183] Ibid., 506.

displays of mathematical phenomena we can learn to know them as well as we know our own natural world. Such knowledge is the major promise of computer displays.[184]

Furthermore, for him the computer will lead to less textual interaction by involving multiple senses: "If the task of the display is to serve as a looking-glass into the mathematical wonderland constructed in computer memory, it should serve as many senses as possible."[185] Finally, with its conspicuous similarity to future cinema as discursive machine, *Ultimate Display* will enable a new visual regime which, more importantly, will reshape the distribution of the material world as well:

> The ultimate display would, of course, be a room within which the computer can control the existence of matter. A chair displayed in such a room would be good enough to sit in. Handcuffs displayed in such a room would be confining, and a bullet displayed in such a room would be fatal. With appropriate programming such a display could literally be the Wonderland into which Alice walked.[186]

Thus *ultimate display,* as the first model for VR, attempts to alter the ways in which empirical science conceptualizes reality, and more importantly it is ultimately modeled in such a way that it will abolish the limit between image and matter.

3.5.2 Morton Heilig: The Cinema of the Future

In the case of the second figure, Morton Heilig, this connection between VR and future cinema as a discursive model is much more obvious. Parallel to Sutherland, Heilig also conducted his research on VR in search of possible future models for cinema. Originally a Hollywood cinematographer, Heilig was the first person to attempt to create what we now call virtual reality. He attempted to design "a reality machine," as an

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[184] Ibid., 507.
[185] Ibid., 508.
[186] Ibid., 508.

extension of cinema, that might succeed in stimulating the entire sensory spectrum of human perception. However, unable to find support in Hollywood for this utopic invention, Heilig moved to Mexico City in 1954, where he elaborated on the multidisciplinary concepts found in his essay, "The Cinema of the Future."[187] As a result of this text, which I will look at shortly, two different technologies came into existence: the first was the "Telesphere Mask," which was an early version of head-mounted displays, and the second was the "Sensorama" which immersed viewers in multisensory excursions through the streets of Brooklyn. The Sensorama was able to display stereoscopic 3-D images in a wide-angle view, provide body tilting, supply stereo sound, and also had tracks for wind and aromas to be triggered during the film.

Reductive in his analyses of how human perception and action work, in *The Cinema of the Future,* he undertakes to develop, first of all, a taxonomy of the cultural sphere in which he defines three modalities which cover the whole of human activity: art, science and industry. For him, art, which is "slow" to respond to the developments in science and industry, needs a mathematical and scientific methodology. As articulated in his text, the very task of future cinema, which is the ultimate art, is to control the multisensory stimulation of the audience with the illusion and sensation of absolute immersion. In order to do so, future cinema has to model itself after consciousness, which is in turn a "composite of all the sense impressions conveyed to the brain by the sensory part of the nervous system."[188] Therefore future cinema is not simply occulting reality

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[187] Heilig Morton, "The Cinema of the Future." In Multimedia: *From Wagner to Virtual Reality, Expanded edition.* (New York: W. W. Norton & Company, 2002.)
[188] Heilig writes "And this is because, as yet, art has evolved no clear-cut methodology to make it as efficient as science and industry in creating its product. Art is now struggling feverishly to achieve this, and only in the light of this struggle and the laws it seeks to establish will we be able to understand the innovations that prompted this article." (Ibid., 242.)

with fully immersive imagery but has to respond to the subjective conditions of viewers'

visual capacities and hence their consciousness.

Furthermore, he also distinguished between two forms of art: pure arts and combined arts. The history of art, for him, is a constant progress from pure arts to combined arts. Accelerated by cinema,[189] which can combine sound and light, this new dominant paradigm of art can serve to control the distribution of senses in accordance with human perception: "the laws of art, like those of science and industry, lie hidden in the subconscious of man. But this was not possible till the advent of machine into the domain of art which has been realized by cinema."[190] With the help of the mechanistic nature of cinema, this new art form can create an immersive and multisensory image where "each basic sense will dominate the scene in roughly the same proportion we found them to have in man. That is, sight, 70%; sound, 20%; smell, 5%; touch, 4%; and taste, 1%."[191] Similar to Münsterberg's schema, where the viewer and its subjective conditions become the reference point, the very task of future cinema, for Heilig, is to generate an image "devoted to the revelation of the laws of his psyche and the invention of better means."[192]

3.5.3 Jaron Lanier: Restoring the Social

The third and most unique figure in the history of VR is Jaron Lanier. With his research company, *VPL Research*, which stands for Virtual Programming Languages, he

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[189] "It is the addition of sound that represents the really great "revolution" in the history of cinema. For with addition of sound, cinema stepped irrevocably out of the domain of the "pure arts" into the camp of the "combined arts"." (Ibid., 245.)

[190] Morton Leonard Heilig,. "EL Cine Del Futuro: The Cinema of the Future." *Presence: Teleoperators and Virtual Environments* 1, no. 3 (January 1, 1992): 279–94. https://doi.org/10.1162/pres.1992.1.3.279.

[191] Ibid., 245.

[192] Ibid., 245.

invented early forms of the devices that have been the model for the VR aesthetic such as The Data Glove - a device which uses a glove as a form of input, the EyePhone -a head-mounted display unit which is used to visually immerse its user into a virtual environment, and the Data Suit - a full-body outfit with sensors for measuring the movement of arms, legs, and trunk. Furthermore, he is the one who coined the term virtual reality, and most importantly, his approach to VR aesthetics became the root of the contemporary conventions of VR as an "empathy machine." For him, VR as technology can restore the lost sense of being part of a shared experience as a society. As a platform of communication that eliminates the constraints of the material world, social identities, and above all the limitation inherent to linguistic structures, VR is "the ultimate gadget" for generating post-symbolic communication.

In an interview, he explains why he preferred virtual reality when he coined the term instead of using artificial or synthetic reality. For him, *virtual* is much more convenient, since it underlines this new technology's capacity of overcoming the material constraints of reality as an electronic representation.[193] This liberation from constraints extends to a more hyperbolic definition of VR: "it's a reality in which anything can be possible, provided it's part of the external world. It's a world without limitation, a world as unlimited as dreams."[194] Therefore the very essence of VR is that it abolishes the

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[193] Lanier writes ""Virtual" means something that exists only as an electronic representation, which has no other concrete existence. It's as if it were there even if it isn't." Will. Kurt, "An Interview with Jaron Lanier." Serials Review 33, no. 3 (September 1, 2007): 190–95. https://doi.org/10.1016/j.serrev.2007.05.009.
[194] Ibid., 119.

limit [195] as differentiating technology [196] and as a result of that, it generates a neutral/democratic platform where social differences are also eliminated:

> Virtual Reality is the ultimate lack of class or race distinctions or any other form of pretense since all form is variable. When people's personalities meet, freed of all pretense of that kind in the virtual plane, I think that will be an extraordinary tool for increasing communication and empathy. In that sense it might have a good effect on politics. [197]

This set of arguments, based on the unboundedness of VR, for him, culminates in the ultimate function of VR, which is to go beyond language structures and create a new language that is post-symbolic. [198] This is why, for him, "VR's deep mission… was to find a new type of language, or really a new dimension of communication that would transcend language as we know it." [199] Therefore since there are no linguistic, material and social limits, it is the ultimate gadget to realize a shared sense of community. It will restore "the mystical altered sense of reality that is so important in basically every other civilization and culture prior to big patriarchal power." [200] Here he argues that, shorn of mediations, it can enable random relations, improvisation, unpredictable encounters that can be used to invert hegemonic communication structures. For instance, as an ultimate model for 20th century art, VR is "a fusion of the three great arts of the twentieth century:

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[195] Lanier writes "In the virtual world there is absolutely no difference between a thousand-dollar bill and a one-dollar bill; they are simply two different graphic designs and they are both as plentiful as you can make them." (Ibid., 120.)

[196] Lanier writes "Well, physical reality is tragic in that it's mandatory. Virtual Reality is multiple channel. People can choose and switch which Virtual Reality plane they're on. They can also simply take off their clothing if they want to get out of it." (Ibid., 121.)

[197] Lanier writes "It has a tendency to bring up empathy and reduce violence, although there's certainly no panacea ultimately." (Ibid., 123.)

[198] Lanier writes "Now, Virtual Reality is just the opposite. First of all, it's a network like the telephone where there's no central point of origin of information. But, much more importantly, since nothing is made of physical matter, since it's all just made of computer information; no one has any advantage over anyone else in their ability to create any particular thing within it." (Ibid., 124.)

[199] Ibid., 124.

[200] Lanier writes "It's the ultimate gadget. It's the culmination of gadgetry in many ways. I think that it will bring back into western experience something that has been lost. Why that is so is a big topic.It will bring back a sense of the shared mystical altered sense of reality that is so important in basically every other civilization and culture prior to big patriarchal power." (Ibid., 124.)

cinema, programming, and jazz."[201] Jazz in this context is that which corresponds to the improvisational possibilities of VR. Moreover he states that VR is an image system where pure consciousness can be experienced: "VR lets you feel your consciousness in its pure form. There you are, the fixed point in a system where everything else can change."[202] With social, political and linguistic identities stripped away, the viewer becomes the invariable term of image, which is the series of variable visual organizations, and will experience self-awareness in its purest form. This is why VR, for Lanier, is the extension of the telephone, rather than of cinema or television, which found their ultimate function in *reducing* empathy because broadcasting them creates a sense of a world "in which [viewers] can't act or have responsibility or meet each other."[203] Therefore, not only is VR the ideal device to enable post-symbolic and democratic language due to its unlimited imagery, but, according to Lanier, it can also mobilize users within its interactive visual regime. This paradigm, with which I will engage in the fourth chapter, has informed the contemporary conventions of VR and 360 video documentary aesthetic.

3.5.4 Myron Krueger: Response is the Medium!

The last of the fathers of VR is Myron Krueger, an American computer artist who developed early interactive environments which became the model for the immersive and interactive strategies of VR. These works have been very influential in computer science in terms of interactivity and have been considered to be the precursor of virtual reality.

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[201] Ibid., 125.

[202] Ibid., 126.

[203] Lanier writes "They cease to function as a responsible or social person during the time that they're simply perceiving media." (Ibid., 126.)

As an artist, Krueger produced early interactive closed image systems that he called responsive environments such GLOWFLOW, METAPLAY, MAZE and PSYCHICPACE, and most importantly VIDEOPLACE. Different from headmounted VR displays, these works are organized in a way such that users experience an immersive and interactive image that is projected onto the walls of the room they are in. In his text *Responsive Environments,* beyond the aesthetical outcomes of interactive art, he focuses on how technology can be mobilized for new means of thought process. For him, the purpose of technology is not only to solve problems but also to create "concepts and philosophy."[204] In this text, he outlines the paradigm that defines the ways in which the human-technology interaction can alter and enhance art along with education, communication and psychotherapy.

Comprised of sensing, display and control, his *environments* are aesthetical means to express the relationship between action and response, and for him the "beauty of the visual and aural response is secondary."[205] Embodied in his famous formula, "response is the medium!"[206] his approach attends to the ways in which the artist intervenes between the participant's action and the results perceived. The very space of expression, for him, is the interval between input and output which is arbitrary and variable. Therefore his responsive environments do not seek to simulate the physical world but to "define arbitrary, abstract and otherwise impossible relationships between action and result."[207] Hyperbolically based on the idea that interactive art was different from non-interactive art

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[204] Krueger writes "The design of such intimate technology is an aesthetic issue as much as an engineering one." Myron W. Krueger, "Responsive Environments." In *Proceedings of the June 13-16, 1977, National Computer Conference*, 423–433. AFIPS'77. New York, NY, USA: ACM, (1977.) https://doi.org/10.1145/1499402.1499476.
[205] Ibid., 15.
[206] Ibid., 14.
[207] Ibid., 16.

in an absolute manner which overdetermines the relationship between the artwork and viewer, his responsive environments can create contingencies that cannot be subsumed under the established form of art and knowledge procedures. The very task of interactive art is to create an open image system that is not determined by narrative structures. Therefore, the virtual environments, for Krueger, can eliminate the overdetermining narrative structures which presuppose the binary distribution of spectator and spectacle. His model presupposes a certain idea of a freedom in its immediacy claim, where users/viewers are posited as both the maker and the viewer of the virtual environment. In other words, it aims to dismantle the limit that distributes the viewer and maker in binary opposition as is the case in non-interactive image technologies.

3.6 Conclusion

Where these hyperbolic future cinema schemata converge is in the idea that the essence of cinema is to abolish its mediation to the extent that it represents the world in an immediate manner. Cinema is charged with the task of eliminating its objective boundaries in order to construct an image autonomous not only from the mediation of artist, but also from the material, spatial, and by extension social and political determinations of reality. In other words, concomitant to the purported absence of spatial limitation, as is hyperbolically claimed to be inherent to the visual regime of S3D and VR, in the future, cinema will realize its founding telos in which the viewer is presumed to be emancipated from the mediations of an artist whose fundamental operation is to limit the image in time and space. Furthermore, as the result of this putative unbounded image system, it is assumed that future cinema will reconstruct reality in its unlimited

character. More importantly, this unlimited character of future cinema models is linked to a techno-utopic political program where differences in race, class, gender, language etc. are cancelled in favour of a democratic encounter. Ultimately, the schemata that I have analyzed aim to restore a supposed lost unity: for Münsterberg it's the unity between subject and object in order to establish the subject's control over the object; for Balázs it's the aesthetic unity disrupted by western art; for Eisenstein it is the harmony between spectator and spectacle, and by extension the emergence of a classless society; for Sutherland it's the unity of matter and image; for Heilig harmony between the senses; for Lanier it is social harmony; and for Krueger action and reaction.

Paradoxical and hyperbolic in its conceptualization, utopic in its political project, future cinema and by extension VR therefore aims at an aesthetic paradigm that prioritizes immediacy. It's paradoxical in the sense that the very concept of immediacy connotes its negation. The ultimate function of that future cinema, as a recurrent topos whose teleological program has haunted cinema and VR from the outset, presupposes a continuous progression of eliminating the boundaries between not only image and reality, but also the senses, between different media and hence between subjects in the political sphere. Diverse in their technological presumptions (cancelling the ontological boundaries that separate the cinematic image from its outside, or expanding the image via polysensory strategies into its transparency, to the extent that the image and its outside are transformed into variable/interchangeable realms), these projections ultimately converge in a utopian and also paradoxical model: a cinema without limitation, or, more radically, a cinema without an outside. It aims to create a visual regime where the viewer and image, at once, become autonomous not only from the mediation of artist but also the

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difference that conditions image. More importantly, it is posited as necessary progress since it is the very essence of cinema: it aims to restore the natural mediation between oppositional terms, a mediation that is pure, natural, neutral and therefore a historical necessity. However, following the Deleuzian formula, I contend that every relation is external to the terms, and whether conjunctive, disjunctive or dialectical, each relation in itself is a product of historical and ideological context. Therefore the very claim of immediacy is the product of a particular political program, which has to be examined as well. The following chapter will thus critically engage with conventional VR aesthetics which is promoted as "an empathy machine," along with the question of immediacy in a larger context, and provide a detailed analysis of its political and ideological tenets.

4 Contemporary VR Aesthetics VR: Immediacy, Disembodiment, and Immateriality

4.1 Introduction

This chapter endeavours to examine the political coordinates of contemporary VR aesthetics. Built upon the hyperbolic presumption that VR enables a non-mediated experience where the immersant can interact or identify with different subjectivities from all walks of life, contemporary VR aesthetics is in large part characterized by the concept of empathy. It is believed that with its higher perceptual realism relative to cinematic image and its absolute control over representation which is structured as digital information, VR enables not only a technological utopia where the ontological difference between image and reality is suspended, but also a democratic site where social, class, gender and racial difference can be eliminated in favour of a utopic political and aesthetic

program. However, I contend that this program is based on several technological presumptions that are problematic.

First of all, the supposed non-mediated experience that makes up VR imagery is not defined by technological features inherent to VR itself but rather is inferred from the relative higher perceptive realism it offers in comparison with cinema. From this relative position, this view takes a considerable leap of faith to the conclusion that VR can stand in for what it represents. Second, as digitally structured information, the virtual image is defined as an unbounded image that is freed not only from the spatial constraints of cinema but also from material and temporal determinations inherent to reality. Third, this high perceptive realism extends beyond the ontological distinction between image and technology: it is presupposed that the virtual representation of a subject and virtual avatar with which the user identifies can exhaust and transcend the complex network of socio-political determination in which a subject is embedded. Complementary to this hyperbolic argument in regard to virtual representation, it is also presupposed that immersion in virtual space is capable of stripping away from immersants their bodily determinations, and by implication their socio-political background. Finally, based on these technological, aesthetic and political presumptions, VR is posited as a utopic site that can facilitate the construction of a democratic and neutral platform where the boundaries that define material, spatial, gender, racial and class difference can be abolished and replaced with a harmonious alternative reality.

In the second part of this chapter, after examining the formal tenets of empathy discourse, I will historicize it within early architectural and pictorial immersive media and cybernetics. Since I have already analyzed in detail the relation between cinema and

VR in the previous chapter, this one will springboard from an analysis of early pictorial and architectural immersive image organizations to cybernetics. My intention is to show that empathy discourse is not only false in its technological presumptions, but also problematic in its techno-utopic political program. It is, I argue, the result of a techno-utopic paradigm that began in modernity, which aims to develop a neutral interface to transform the world that subjects inhabit into immaterial visual information in order to control it.

4.2 Contemporary VR Aesthetics: "VR is the Ultimate Empathy Machine"

4.2.1 Documenting Empathy

In a TED Talk[208] in 2015, explaining their motivation for using VR for the award-winning 360-degree documentary, *Clouds over Sidra,*[209] a panorama of the Zaatari Refugee Camp in Jordan which has provided shelter to 130,000 Syrian refugees, filmmaker Chris Milk makes a claim which would induce polarized reactions: "VR is the ultimate empathy machine."[210] Both highly criticized and praised by many VR filmmakers and academics, the empathy discourse governs *Clouds over Sidra* not only in its formal and immersive strategies, but also its content. In fact, I argue, besides its salient motivation to stimulate affective engagement with the harsh conditions of refugees, it can

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[208] Chris Milk, "How Virtual Reality Can Create the Ultimate Empathy Machine." YouTube video, 10:26 Posted by "TED" April 22, 2015, https://www.youtube.com/watch?v=iXHil1TPxvA.

[209] Gabo Arora and Barry Pousman. *Clouds Over Sidra*, 2015. http://www.imdb.com/title/tt4396650/.

[210] Defining VR as the ultimate empathy machine which can be used for awareness-raising for firsthand experiences from different walks of life, Milk in fact reiterates the techno-utopic discourse pertaining to immersive and interactive technologies. For instance he argues that "[Virtual reality] connects humans to other humans in a profound way I've never before seen in any other form of media, and it can change people's perception of each other." Reiterating the techno-utopic discursive fabric that connects VR with cinema and cybernetics, Milk argues "That is why I think virtual reality has the potential to actually change the world." (Ibid.)

serve as an allegory for an emblematic illustration of the empathy claim in its content as well. For instance, to increase immediacy effect, the documentary follows a narrative through both the eyes and the voiceover of a resident of the camp: Sidra, a "charming 12-year-old girl" who guides the viewer through the mundane and immediate daily life in "her temporary home" while she is "eating, sleeping, learning and playing in the vast desert city of tents." However, instead of using subtitles for translating Sidra's voiceover, creators of the film opted for a questionable strategy: they dubbed her voice. It is clear that this choice of dubbing aims at enhancing immersion for an English speaking audience, but it is done at the expense of adding another layer of mediation to Sidra's narrative. What is more striking about the choice of dubbing is that the voiceover, with seemingly perfect, though simplified, English, has an accent, probably a Syrian-Arabic one. While silencing Sidra's voice, or at best concealing it as background noise, the voiceover imitates an accent, presumably her accent, in order to increase the immediacy effect. I believe this choice serves as a very emblematic illustration of empathy discourse: the voiceover with accent is used to increase the effect of the illusion of non-mediation at the expense of immediacy.

Image 3. Screenshots from *Clouds Over Sidra,* Gabo Arora and Barry Pousman. 2015.

The other striking point in *Clouds over Sidra* is the parallelism between the description of the camp and the utopic discourses around VR and cyberspace. The UNHCR camp, as described by Sidra, seems to achieve the replication of her own home back in Syria: even the clouds that cover the sky of the camp come from Syria. In fact, in some respects, her new life in the camp seems to outstrip the one she had in Syria. For instance, the camp is more developed in terms of technological accessibility: there is an internet café where residents have access to computers. It's also more advanced in terms of social structure: the girls can have access to a soccer field, which is almost impossible in Syria, a non-secular country wracked by war. Her description reaches a more utopic level when she utters, while kids run around in the background footage, "Sometimes I think, we [kids] are the one in charge." Her description of the camp, almost like a utopia governed by children, represents a conspicuous parallelism to the techno-utopic discourses inherent to VR as an alternative reality that can not only represent "the old world" in its entirety but also can outstrip it by eliminating the flaws that transformed it into an uninhabitable site.

In this respect, *Clouds over Sidra* points towards a conceptual framework of the empathy discourse both in its content and its formal presumptions. However, instead of

undertaking a more extended analysis of documentaries in terms of their content, since this would far exceed the purpose of this chapter, my intention is to analyze the formal conventions of the empathy discourse. To briefly explain, overcoming the limitations of previous images systems, specifically those of cinema, such as editing and framing, VR, for the proponents of this discourse, is the ultimate technology to create a non-mediated relationship between image and reality, seer and seen. It's believed that, equipped with the power to select where and when to look, and to interact with the virtual object, VR "immersants" occupy a particular position where the visual field is fully accessible to them. The visual field within this immediate relationship between virtual image and spectator is determined by nothing other than the subjective choices of the viewer who will, in turn, be stripped of social, cultural, political and gender determinations by "entering" a hermetically closed-off image space. Not only will the active viewer condition the visual field as an interface, it will thereby overcome the passivity that the cinematic image imposes on itself. As a result, emancipated from the constraints of both the objective world and those inherent to cinema, and its own subjective socio-political positioning, this omnipotent, omnivoyant and therefore omniscient viewer will enter an ethical site through this immediate imagery where it can exercise its power towards an altruistic and humanitarian activity. Through the perceptual freedom and realism of VR, then, the mobilized spectator is intended to develop not only an understanding of different perceptual realities but also empathy with different people from all walks of life - for instance, with Syrian refugees, inmates in solitary confinement, people in war zones, or with differing sexual identities and performances etc.

4.2.2 Virtual Experiments in Empathy

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For detailed analysis of the formal tenets of the empathy discourse, I will scrutinize the works of Jeremy Bailenson in his lab, the Virtual Human Interaction Lab at Stanford University, where he has been working on different virtual scenarios to measure and create empathy between different subjectivities since 2003. The experiments involve different scenarios where VR can serve to create an immediate exchange between subjectivities which differ in terms of gender, race, age etc. For instance, the one on ageism is structured in a way such that two different groups of young adults interact with or, as Bailenson frames it, "wear" a virtual avatar. While the first group interacts with an avatar that resembles them in gender and in age, the second group's avatars are older than the users. After their interaction with the avatar, subjects were asked to perform a memory exercise. Bailenson states that "the subjects who wore the elderly avatar used more positive words to describe the elderly in general, compared to those who wore a younger avatar."[211] Another experiment was developed to induce empathy for animals, specifically with cows in a slaughterhouse. In the "cow simulator," college students experienced "a day in the life of a cow, drank from a virtual trough, ate virtual hay, and finally were prodded to a truck headed for the virtual slaughterhouse."[212] Again Bailenson states that compared to other subjects who just watched the cows walk around and get shocked, those who "became a cow gained more empathy for the plight of cattle."[213]

In his subsequent book, *Experience on Demand*, Bailenson elucidates the conceptual background and formal approach of these experiments, which, for him lead to

[211] Jeremy Bailenson, *Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do*. 1 edition. (New York: W. W. Norton & Company, 2018.): 171.
[212] Ibid., 204.
[213] Ibid., 204.

changes in perceptions of self and others. First of all, similar to the grounding approach to VR in general, the reason he cites for specifically choosing VR, as I discussed in the first chapter, is an extension of a recurrent discourse claiming that it's the ultimate image technology that can overcome the shortcomings of cinema, which fails to realize its grounding promise of immediacy. Presenting striking similarity with McLuhan's formula that "the content of a new medium is always older medium," what makes virtual image an immediate representation is inferred from its relatively higher perceptual realism in comparison to cinema. He argues that, with the advent of virtual image systems, "the gap between 'real' experience and mediated experience is about to get a whole lot smaller," and VR "allows us to instantaneously conjure experiences at the click of a button."[214] Unlike cinema, which is defined by "the two-dimensional flatness of the image, the framing of shots, the unnatural camera movements, the cuts and other editing tricks, and perhaps most importantly, the unusual perspectives created by the camera placement,"[215] VR, with its interactive and immersive capacities, provides a more immediate image. Therefore it can go beyond the mere representational regime that is inherent to cinema and can be used for "sharing the experiences of others, to deepening our understanding of lives outside our own."[216] This formula reiterates the typical leap of faith: based on the difference in degree of perceptual realism between cinema and VR, he shortcuts to the idea that the immediate representation of reality (ultimate promise of cinema) is achieved by VR. However, I contend that, despite the relative enhancement offered by its reality effect, VR does not provide an immediate image, and it is hyperbole to argue that its relatively higher perceptual realism compared to cinema makes VR as real as reality

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[214] Ibid., 16.
[215] Ibid., 90.
[216] Ibid., 152.

itself. Despite this enclosable gap between image and reality, this argument takes a leap of faith, and it rules out numerous mediations that condition the production and the experience inherent to virtual image.

For instance, based on the idea that the virtual immersive image is not conditioned or limited by a single camera perspective, as is the case in cinema, Bailenson jumps to the conclusion that VR is an unbounded image system, and by extension that there is no selection in its production. However, both in VR and 360-degree videos, image is produced by mediation based on selection. Particularly evident in 360-degree videos, multiple cameras are used to register reality in a fragmented way. Synchronically but separately recorded "flat" images are then brought together in the process called stitching. In most cases, the stitching lines are visible; the achievement of seamless stitch is only possible for limited ideal cases. Moreover, these reassembled images construct an immersive image viewed from one central point where the camera is located. Occupying this transcendental locus of the camera, viewers, however, cannot navigate in the immersive image and the only freedom they have is to change perspective by circular head movements that are inscribed on this specific point. More importantly, interaction with the virtual objects and subjects is almost impossible. As for VR images produced digitally by using 3D modeling interfaces, even though spatial organization and interactivity with the virtual objects and the effect of immersion are more realistic, they lack the photorealism of 360-degree videos. Moreover, despite the fact that the effect of perceptual realism is achieved visually, the lack of tactility, or the presence of different mediations such as headsets, controller etc. to increase tactility are a constant reminder of the mediation inherent to the virtual experience. In fact, the very obvious limitations of

VR headsets in terms of the field of view, framerate, screen refresh rate, resolution, pixel fill density, and persistence are an ongoing challenge for higher perceptual realism. My intention here is not to state the obvious, but to underline the leap of logic involved in constructing the hyperbolic arguments around VR. For instance, this considerable leap results in the technologically problematic claim that, in immersive and interactive virtual images,

> …there are no interfaces, no gadgets, no pixels. One second you are strapping on an HMD and the next you are somewhere else. That sensation of "being there," wherever the program you are running takes you, is what researchers call psychological presence, and it is the fundamental characteristic of VR. When it happens, your motor and perceptual systems interact with the virtual world in a manner similar to how they do in the physical world.[217]

As matter of fact, for Bailenson, VR is not even a medium since it's an experience that is not mediated, "not as a media experience, but as an actual experience."[218] He reiterates the contradictory formula that "VR technology is designed to make itself disappear."[219]

Following this technologically hyperbolic presumption of immediacy, he claims that virtual avatars can also allow one to experience or inhabit different bodily formations. Virtually constructed avatars can exhaust what they stand in for and allow viewers "to take ownership of bodies that are not their own."[220] They facilitate alignment with the perspective of different subjectivities. Referring to Adam Galinsky's work at

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[217] Ibid., 41.

[218] However this is only true for the ideal cases, Bailenson writes: "When VR is done right, all the cumbersome equipment—the goggles, the controller, the cables—vanishes. The user becomes engulfed in a virtual environment that simultaneously engages multiple senses, in ways similar to how we are accustomed to experience things in our daily "real" lives. This is distinctly different from other media experiences, which only capture fragmented aspects of what our senses can detect. For instance, the sounds you hear in good VR don't come from a speaker rooted in one place. Instead, they are spatialized, and they get louder or softer depending on the direction you are facing (or if you are in a tracked environment, how close you move to the source of the sounds). When you look at something in VR, it is not framed by the dimensions of a monitor, or television set, or movie screen. Instead, you see the virtual world as you see the real one. When you look to the left or right, the virtual world is still there." (Ibid., 88.)

[219] Ibid., 89.

[220] Ibid., 169.

Columbia Business School, suggesting that "perspective-taking causes empathy," Bailenson again jumps hastily to the claim that VR can be used as an empathy-inducing platform. However, as Deborah Levitt reminds us, virtual alignment with the subjective vision with which we are intended to empathize does not equal seeing through their eyes, since "perception is inextricably bound to forms of embodied experience that are absent and/or untranslatable; this includes smell, taste, touch (though "haptics" can include some of these multisensorial experiences), and individual habits of kinesthesia and proprioception. But perhaps most importantly, this definition disavows individual histories and frames of reference as they co-constitute our perception of a world." [221] I contend that VR, isolating the subject in a virtual avatar, detaching it from the invisible elements in its subject formation, as Erick Ramirez argues, following Thomas Nagel, at best reveals the ways in which this subject appears for *the other* to have these experiences. What is created is not the actual experience of being that or this subject but the reproduction of an external gaze, which in turn cannot be isolated from the network of socio-political power relations in which it is embedded. This has in fact proven to be the case in one of the virtual experiments that Bailenson developed where white participants "wore" black avatars: the results rebut the expected outcome. Instead of creating empathy, as Bailenson states, "wearing a black avatar primed more racial stereotypes" and "reinforced stereotypes and made them more salient."[222]

Finally, linked to the immersive aspect of VR which is hyperbolically framed as "a

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[221] Deborah Levitt, "Five Theses on Virtual Reality and Sociality." Public Seminar (blog). Accessed April 15, 2019. http://www.publicseminar.org/2018/05/five-theses-on-virtual-reality-and-sociality/.
[222] Jeremy Bailenson, *Experience on Demand: What Virtual Reality Is, How It Works, and What It Can Do.* 1 edition. (New York: W. W. Norton & Company, 2018.): 174.

hermetically closed-off image space"[223] that isolates the viewer perceptually from the space that she or he inhabits and by extension from the complex network of social, class, race and gender etc., the immediacy claim presupposes that VR is capable of abolishing the very mediation of the viewer. It isolates users from their own reality within the virtual environment that "simultaneously engages multiple senses, in ways similar to how we are accustomed to experience things in our daily "real" lives." Therefore the "immersant," when entering the virtual space, leaves behind what defines its subjectivity as a socio-political construct. However, as Erick Ramirez suggests, "perception is something we actively *do*, not something we passively experience." [224] Our subjective positions, expectations, along with other background processes, such as race, gender, class etc. serves as a determining factor for "how we understand the things that we see, hear, feel and think, and these processes vary from person to person. They are powerful enough to affect even seemingly nonconscious empathic processes (such as mirror-neuron activation)."[225] Similarly Robert Yang states: "VR can't actually offer any embodiment, transparency, or immediacy to anyone. At best, VR can only offer the illusion of empathy."[226] Problematic in its technological presumptions, I argue that VR is not the technological breakthrough which has enabled the empathy/immediacy discourse, but is itself the result of an ongoing ideological and technological paradigm that seeks to develop a universal, all-encompassing and omniscient interface that can enable control of matter, the world, and nature and therefore the subjectivities that inhabit them.

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[223] Oliver Grau, *Virtual Art: From Illusion to Immersion*. (Cambridge, Mass.: The MIT Press, 2004.): 5.
[224] Eric Ramirez, "Can Virtual Reality Make Us More Empathetic?" December 2, 2018. https://theweek.com/articles/804958/virtual-reality-make-more-empathetic.
[225] Ibid.
[226] Robert Yang, "'If You Walk in Someone Else's Shoes, Then You've Taken Their Shoes': Empathy Machines as Appropriation Machines." Accessed April 15, 2019. https://www.blog.radiator.debacle.us/2017/04/if-you-walk-in-someone-elses-shoes-then.html.

4.3 Immersion in the Classical Era

Maintaining that installing an observer in a hermetically closed-off image space "did not make its first appearance with the technical invention of computer-aided virtual realities,"[227] in his book *Virtual Art: From Illusion to Immersion*, Oliver Grau investigates early examples of immersion strategies starting from the classical period. For him, the large-scale architectural illusions such as Villa dei Misteri in Pompeii, the garden frescoes in the Villa Livia, the Gothic fresco room, the Chambre du Cerf, and Renaissance illusion spaces, such as the Sala delle Prospettive are early examples of contemporary immersive technologies not only in their formal strategies but also in their aesthetic and political function. Concealing their means of production and detaching the observer from reality with formal strategies such as keeping the medium beneath the perceptive threshold of the observer, extending the image beyond the limits of the observer's sightline, and covering the visual space entirely, Grau argues that immersive image systems, in general, aim to eliminate the critical and aesthetic distance between the image and observer in order to maximize the intensity of the message or content being conveyed.

Based on this conceptual and historical continuity, he subsumes immersion strategies under two different categories: 1-) large-scale spaces of illusion that fully integrate the human body, such as rooms with 360 frescoes, the panorama, IMAX cinemas, or the CAVEs and 2-) apparatuses that are positioned immediately in front of

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[227] These immersive technologies are "Ranging from Wagner's idea of a Gesamtkunstwerk to Monet's water lilies panorama, Prampolini's plans for a Futurist Poly-dimensional Scenospace, Eisenstein's theories of multisensory Sterokino, Youngblood's Expanded Cinema, Heilig and Sutherland's media utopias, to the hype of the California Dream and beyond." (Oliver Grau, *Virtual Art: From Illusion to Immersion*. (Cambridge, Mass.: The MIT Press, 2004.): 5.)

the eyes such as stereoscopes, Sensorama, or head-mounted displays like VR. While the former are spatial or architectural organizations into which the observer enters with its full body, the latter deploys apparatuses that the spectator puts on in order to cover its sight. In both cases the aim is not only to create "a hermetically closed-off image system"[228] but also to occult reality or detach the spectator perceptually or spatially from reality. What is technologically different in computer-based virtual reality as compared to the architectural and spatial endeavours employing poly-sensory illusions can be characterized by three principal motives. First, VR attempts to create illusion in dimensions, color, proportions, plasticity, and lighting of images; second, it incorporates the element of movement in image itself; and third, it creates "interaction with dynamic, continually recalculated images, which target increasingly more of the senses."[229] However, despite these differences, the ultimate aim for both immersive strategies is to blur the boundaries between image and its outside in order to transform them "into variable realms." He states:

> As a general rule, one can say that the principle of immersion is used to withdraw the apparatus of the medium of illusion from the perception of the observers to maximize the intensity of the message being transported. The medium becomes invisible.[230]

For instance, the Great Frieze in the Villa dei Misteri at Pompeii, created ca. 60 B.C., which simulates a Dionysian ritual, is designed according to the same aesthetic purpose: covering the visual space in order to detach the observer from reality. The events depicted on the walls and the very spatial organization of the hermetically closed chamber aims to create "the ecstatic state" similar in intention to the ritual. It is intended

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[228] Oliver Grau, *Virtual Art: From Illusion to Immersion.* (Cambridge, Mass.: The MIT Press, 2004.): 5.
[229] Ibid., 350.
[230] Ibid., 349.

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to function in the same way intoxicants and other trance-inducing techniques (such as dance and music) are used to remove inhibitions and social constraints of the individuals. The immersion here aims at bringing gods and humans together on the same pictorial level by emotionally arousing the observer to ecstatic participation, and realizing the psychological fusion of observer and image in the cult. Grau writes that the chamber functions as "a gateway, which allows the gods to enter the space of the real, and, in the other direction, transports their mortal assistants into the picture."[231] Stripping away the viewer from the real world to intensify the ecstatic participation, it seeks to stimulate an illusion of transcendence.

Image 4. The Great Frieze in the Villa dei Misteri at Pompeii, created ca. 60 B.C.

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[231] Ibid., 29.

The other immersion strategy he examines is the panorama war paintings; particularly *The Battle of Sedan* by Anton von Werner (1883) where the Sedan war is depicted in a way such that the observer is "left entirely alone and powerless in their confrontation with the suggestive force of this enveloping, *potential totality* of the image."[232] Like the majority of battle panoramas, *The Battle of Sedan*, Grau argues, is aimed at releasing the observer from inner distance and conscious attitude. Canceling the aesthetic distance between the image and the observer, it abolishes the democratic participation of the observer, immures and subjugates it formally to the content of the image in order "to 'educate' through a powerful model—not of democratic thinking, but of unquestioning obedience."[233]

Image 5. *The Battle of Sedan* by Anton von Werner, 1883.

Therefore, Grau argues, what governs these two architectural and pictorial immersive organizations, like any new media in general, is the intent to subjugate to the logic of image and by extension to enhance the power of the powerful. In fact, from classical antiquity to the revolution of digital images, he reads each new development in media culture, particularly in immersive media, as the aesthetic attempt at "maintaining

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[232] Ibid., 122.
[233] Ibid., 125.

power and control or maximizing profits."[234] And each new image medium, as a rule, is "the defense of existing hegemony under changing social conditions, the marketability of products."[235] This is why VR, for him, and its image culture cannot be considered as an isolated phenomenon; in fact, VR is primarily the result of "the new alliance of art and technology in the economy and military technology."[236] Initiated by military research projects,[237] VR primarily emerged as a means to extend the power of American interventionism. The conspicuous parallelism between the cross-border operations of the USA exercising power beyond state boundaries and the technophile conceptualization of VR as a means to cross boundaries is very striking; however, exploring it in detail far exceeds the scope of this research.

Ultimately, for Grau, the aesthetic regime that VR enables can be linked to a political and technological paradigm which aims to reach "a symbiosis of human being and computer image, where contact is effected via a polysensory interface that ultimately is not perceived by the human user and fades from consciousness."[238] Abolishing boundaries, this paradigm seeks to develop immersive and interactive image systems where "the artwork and technical apparatus, the message and medium of perception,

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[234] Ibid., 339.
[235] Ibid., 340.
[236] Ibid., 169.
[237] Grau expands on how VR originated in military research projects: "In the 1980s, the McDonnell Douglas Corporation developed an HMD, which enabled pilots to double their quota of "kills." The U.S. Air Force has used flight simulators for years in pilot training, and even back in 1991, these were capable of such realism that the pilots' adrenalin levels were higher in the simulators than when flying real missions during the Gulf War. In addition to this staple application in military aviation, simulation models were also developed for the navy and the army by Bold Beranek and Newman Inc., largely supported by funds from the defense budget: The SIMNET network allows U.S. forces to simulate battles in which over 1000 tanks are deployed. Before combat in the Gulf War and the intervention in Somalia, the armed forces practiced simulated maneuvers. A similar network was installed for the U.S. Air Force, the Aircrew Combat Mission Enhancement Network (ACME). The German Bundeswehr uses the AGPT system, which provides simulations after the manner of SIMNET but with better quality graphics. Installed in mobile containers, it can be transported to anywhere in the world." (Ibid., 171.)
[238] Ibid., 350.

converge into an inseparable whole."[239] However, referring to Arnheim's notion of the role of selective perception as a means of exercising intelligence, he criticizes this paradigm, in which the ultimate function of immersive strategies is to abolish aesthetic distance and the conscious participation of the observer. Abolishing this ontological difference between image and reality, actual and virtual, immersive media in large part, for him, is an undemocratic spatial organization in which the observer, unable to exercise a selective viewing act "in a total image, since everything is image"[240] goes through an experience that erodes the inner distance between image and viewer. The perfected illusion, he states, perceptually deceives the viewer and compels it "to act or feel according to the scene or logic of the images."[241] Referring to Foucault, he argues that, the disciplinary surveillance model of Panopticon is reversed in the Sedan panorama and in the Great Frieze: the observer, for him, becomes the object of political control. Building on this critique, the ultimate task of artistic and critical engagement with VR, for him, is to dismantle the unconscious participation of the observer into illusion and "rediscover the criterion of self-reflection, the awareness of inner distance and perception."[242]

4.4 Computation and Cybernetics

4.4.1 Cybernetic Totalism and Hyperreality

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[239] Ibid., 349.
[240] Ibid., 111.
[241] Ibid., 17.
[242] Ibid., 347.

This section will map out three streams of historical research that align VR with computation and cybernetics. The first one is developed by Melanie Chan in her book, *Virtual Reality: Representations in Contemporary Media*, where she studies the ways in which VR is connected to the political and economic agenda of hegemonic discourses in the context of computation and cyberculture. For her, VR is an integral part of a paradigm shift "towards knowledge-based economies." [243] Particularly evident in Sutherland's conceptualization of VR as an immediate interface between the world and its image, these discourses, which she calls "cybernetic totalism" following Lanier's conceptualization, aim to reorganize the material world in its totality as mathematically constructed visual information. This technological totalitarianism ultimately aims to abolish the difference between image and the world in order to transcend "the limitations of the physical realm."[244] For her, technology appears to offer the possibility of escaping from earthly problems by immersing us into a virtual world in which time, space and embodiment are no longer constraining. Aligning VR historically with different mechanical forms of computation, she argues that the technological discourse that constitutes cybernetic totalism ultimately originates in Cartesian dualism, which seeks to transcend the deceptive bodily inputs of human sensations. In fact, she suggests that the Roman Catholic background of Cartesian dualism wherein the soul and mind are thought to be eternal and logical has been re-contextualized within the discourses around cyberspace and virtual reality. Within the techno-utopic climate of the 1960s, for Chan, "transcendence from embodiment is no longer regarded as a metaphysical or religious

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[243] Melanie Chan. *Virtual Reality: Representations in Contemporary Media*. (New York: Bloomsbury Academic, 2014.)
[244] Ibid., 182.

concern; instead, it is often represented as something which can be achieved through technology."[245]

Moreover, drawing upon Baudrillard's critique of late capitalism characterized by an abolishing of the distinction between reality and representation in favour of consumerism, she argues that the cyber totalism that defines contemporary VR aesthetics enforces what Baudrillard defines as hyperreality. Different from early systems of sign structured by "the principle of the equivalence of the sign and of the real,"[246] hyperreality, or simulation for Baudrillard, marks a radical turn in late capitalism. Enabled by the pervasiveness of new image technologies, the consumerism of late capitalism enforces a perpetual exchange of signs detached from material or external references through the simulations of reality that replace the real, producing an over-encompassing simulacrum completely disconnected from reality. Utopian in its technological presumptions, this radical shift aims to dismantle any referential conditions that define the image externally.[247]

However, Baudrillard's critique is problematic in the sense that he seems to put forth hyperbolic claims that an unbounded image system has already been realized and even perfected. For instance, in *Art and Artefact*, Baudrillard states that the teleological program that has defined VR from the outset has been fulfilled: "The image cannot imagine the real any longer, because it has become the real. It can no longer transcend

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[245] Ibid., 108.

[246] Jean Baudrillard, *Simulacra and Simulation*. Translated by Sheila Faria Glaser. (Ann Arbor: University of Michigan Press, 1994.): 6.

[247] In general, Baudrillard's position is very hyperbolic. For instance he writes: "It is no longer a question of imitation, nor of reduplication, nor even of parody. It is rather a question of substituting signs of the real for the real itself, that is, an operation to deter every real process by its operational double, a metastable, programmatic, perfect descriptive machine which provides all the signs of the real and short-circuits all its vicissitudes… A hyperreal henceforth sheltered from the imaginary, and from any distinction between the real and the imaginary, leaving room only for the orbital recurrence of models and the simulated generation of difference." Jean Baudrillard, *Selected Writings*. (Stanford University Press, 2001.): 170.

reality, transfigure it, nor dream it, because it has become its own virtual reality."[248] However, Chan contends the existence of Baudrillard's critique points to its very failure. If his argument that "simulacra has annexed reality in its entirety" is valid, there would be no critique of it.[249] Similarly, N. Katherine Hayles argues, in *In Response to Jean Baudrillard*, [250] that hyperreality, with its internal paradox, is a fictional conceptualization: it is as utopic as what it criticizes. In fact, the discourses around hyperreality and Baudrillard's critique of it converge in disavowing the ontological difference between image and reality that is defined by boundary. "Every existing simulation" Hayles contends, "has boundaries that distinguish it from the surrounding environment. Virtual reality environments are limited by the length of the cables attaching the body apparatus to the computer. Only when these boundaries do not exist, or cease to signify that one has left the simulation and entered reality, does the dreamscape that Baudrillard evokes shimmer into existence."[251] This is a grounding difference marked by border or threshold that conditions the image and it can not be erased "for they exist whether we recognize them or not; it [hyperreality] only erases them from our consciousness."[252]

For Chan, this gap that discredits the hyperbolic arguments of cybernetic totalism around VR and the hyperreality of Baudrillard is the corporal conditions of viewer. She opposes the hyperbolic claims of disembodiment in VR and the idea of technological transcendence from the physical body via immersion in virtual image since it is based on

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[248] Jean Baudrillard, *Art and Artefact.* Edited by Nicholas Zurbrugg. 2nd edition. (London ; Thousand Oaks, Calif: SAGE Publications Ltd, 1998.): 4.
[249] Chan adds: "if there were no difference between simulacra and reality, if the hyperreal was perfected, then there would not be a critical space for such debates about simulation and reality." (Ibid., 45.)
[250] N. Katherine Hayles, "In Response To Jean Baudrillard (Hayles, Porush, Landon, Sobchack, Ballard)." Accessed August 2, 2019. https://www.depauw.edu/sfs/backissues/55/forum55.htm.
[251] Ibid.
[252] Ibid.

a misleading dichotomy of mind versus body. Referring to Hansen's phenomenological critique, she contends that the perception and the mind cannot be separated from the body, which comes into play when we experience the world around us. Therefore, for her, the persistence of body in regard to image serves as the guarantee of impossibility of hyperreality and virtual totalism.

4.4.2 Boundary Discussions

A second instance of historical research that engages with the discursive fabric of contemporary VR conventions in relation to cybernetics is N. Katherine Hayles's work, as found in her article "Boundary Disputes: Homeostasis, Reflexivity, and the Foundations of Cybernetics"[253] where she unpacks contemporary VR conventions within historical developments in cybernetics. For her, the research in cybernetics on information, feedback loops, human-machine interfaces, and circular causality paved the way for "the terminology and conceptual framework that made virtual reality a possibility."[254] In fact, three hyperbolic discourses that define the contemporary conventions of VR can be traced back to three successive and interwoven periods within cybernetics, from the immediate post-World War II period to the 1990s. For instance, the idea that VR is "the technological means to displace materiality"[255] originates in the quantitative approach developed in the foundational stage of cybernetics between 1945 and 1960, in which human and machine were equated as information processors. An extension of this first approach, the second recurrent discourse in which VR is posited as

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[253] N. Katherine Hayles, "Boundary Disputes: Homeostasis, Reflexivity, and the Foundations of Cybernetics." *Configurations* 2, no. 3 (September 1, 1994): 441–67. https://doi.org/10.1353/con.1994.0038.
[254] Ibid., 464.
[255] Ibid., 443.

an image system into which users enter by leaving their bodies behind comes from the subsequent period in cybernetics, where the body is defined as a techno-bioapparutus or prosthesis to human sensorium. Finally, the techno-futuristic discourse that traverses the contemporary cultural environment, beginning in the 1990s, where the ontological distance between human and machine is presumed to be abolished and it is posited that we are now in a post-human era is, for her, instantiated by VR in the third wave of cybernetics. VR is an integral part of posthumanist or trans-humanist discourses in regard to the correlation of human and machine.

Even though all three periods converge in focusing on how humans and machines are to be reconstituted through the common technological "denominators of feedback loops and signal transmission,"[256] the first one, according to Hayles, has a more conservative approach in its purpose. Based on a quantitative approach, in this period, information is structured "as a mathematical function, without reference to its meaning to a receiver"[257] and detached from "the context in which it is received and understood."[258] Considered to be unscientific and unquantifiable, the subjective inputs in the system are eliminated in favour of an "efficient transmission of messages through communication channels."[259] Moreover, what conceptually links human and machine as information processors in this quantitative formation is that they both are defined as systems that seek to reinstate the conditions that they are given as natural position. Coupling both human and machine as organizations that tend toward homeostasis "where they are functioning correctly," this paradigm privileges "constancy over change, predictability over

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[256] Ibid., 441.
[257] Ibid., 448.
[258] Ibid., 448.
[259] Ibid., 448.

complexity, equilibrium over evolution."[260] In fact, for Hayles, this approach is the result of the historical context in which it emerged, and "reflected the desire for a 'return to normalcy' after the maelstrom of World War II."[261]

There are two technological devices that instantiate this conceptual framework where information processors are modeled to find an inverse function to reinstate an equilibrium state. The first one, developed by Claude Shannon, is the electronic rat, a maze-solving machine. In this early example of a machine learning device, a rat was designed to search through the corridors of a maze until it reaches a target. The machine is structured in such a way that it could remember previous search patterns and identify the choices that allowed it to advance towards the target. The presuppositions embodied in the electronic rat are the idea that both humans and cybernetic machines are "goal-seeking mechanisms learning through corrective feedback to reach a stable state."[262] The second model was Homeostat, developed by W. Ross Ashby, a device that sought to reinstate its initial state when it was affected by an input changing its configuration. Unlike the electronic rat, in Homeostat, the state of equilibrium is the original state of the machine, and it was designed to search for the configuration of variables that would return it to its initial condition.

However, the second period tends toward another conceptual approach unlike the essentialist tendencies of the first one. Characterized by Humberto Maturana's phenomenological approach, as a result of his work on visual processing in frogs' cortex, it differs from the first approach in incorporating the observer with its corporeal organization into the system. Maturana, in his research on frogs' visual

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[260] Ibid., 446.
[261] Ibid., 446.
[262] Ibid., 454.

systems, observes how the frog's visual cortex responds to stimuli in ways "dictated almost entirely by the internal organization of the its sensory receptors and central nervous system."[263] As a result of this observation, he develops a phenomenological approach, which is revolutionary for Hayles, in which perception is framed as "already encoded by the perceptual apparatus of the observer."[264] In this circular epistemology, the observer and the environment constitute the system, and the system unites them as its components.

As a result, unlike the first period in which organisms are defined according to an essential state where they function correctly, the second period frames the organism not only as self-organizing procedures (coded in the mutual interaction between observer and environment), but also as autopoietic or self-making. This is why, for Hayles, the second approach privileged change over constancy, evolution over equilibrium, complexity over predictability, instead of the closed circle of corrective feedback of the first period. Similar to the first approach, the second period is also a technological response to the historical context in which it emerged: it seeks to develop a conceptual framework that "points toward to the open horizon of an unpredictable and increasingly complex postmodern world."[265]

These two periods constitute two recurrent and interwoven discourses on VR: first, VR as an image system that can displace materiality within information space, and by extension the second "as a disembodied realm of information that humans enter by leaving their bodies behind."[266] The first one is grounded in Claude Shannon's approach

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[263] Ibid., 460.
[264] Ibid., 461.
[265] Ibid., 446.
[266] Ibid., 464.

of conceptualizing information "as a pattern distinct from the physical markers that embody it."[267] It is particularly evident in Sutherland's conceptualization of VR as mathematical organization that can control the existence of matter. The second period of cybernetics, characterized by Maturana's phenomenological approach, is grounded in the idea that VR can replace the bodily organization of the observer, as a result of the conceptualization of body as prosthesis that can be reproduced in a virtual environment.

However, similar to Chan's argument, Hayles contends that "the VR body-suit is a wrinkle in the fabric of human life, hardly to be mistaken as an alternative form of embodiment."[268] In fact, the perceptual coupling that VR provides as prosthesis to the "natural" sensorium employs "interfaces between the retina and the stereovision helmet, between the helmet and the computer through data transmission cables, between the incoming data and the CTR display via computer algorithms, and between the algorithms and silicon chips through the magnetic polarities recorded on the chips" and therefore it is still far from realizing the immediate sensorium of embodied perception of any organism. Moreover, she contends that "the self-sufficiency of a virtual world of information is deeply problematic, for this illusion, like everything that exists, has its basis in the very materiality it would deny."[269]Hayles writes:

> In fact, of course, we are never disembodied. Simulated worlds can exist for us only because we can perceive them through the techno-bioapparatus of our body spliced into the cybernetic circuit. The reading of cyberspace as a disembodied realm is a skeuomorph that harks back to the first wave of cybernetics, which in turn is a reading of information that reinscribes into cybernetics a very old and traditional distinction between form and matter. These residues, echoing in a chain of allusion and reinscription that stretches back to Plato's cave, testify to the importance of excavating the sedimented history of artefacts and concepts, for

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[267] Ibid., 464.
[268] Ibid., 466.
[269] Ibid., 442.

they allow us to understand how the inertial weight of tradition continues to exert gravitational pull on the present.[270]

Finally, in the third period, the emphasis shifted to emergence and immersion and fostered "the idea of a virtual world of information that coexists with and interpenetrates the material world of objects."[271] VR is posited as a technical means to overcome material constraints to elicit self-sufficient and self-organizing information space. She claims that the larger narrative inscribed in the final period beginning in the 1990s displays a techno-utopic character in regard to the relation between human and machines. It assumes that the ontological gap between human and machine is now abolished in favour of posthumanism. Dichotomous positioning of machine and human is cancelled in favour of a technological utopia where "humans will contribute to the partnership pattern recognition, language capability, and understanding ambiguities; machines will contribute rapid calculation, massive memory storage, and rapid data retrieval."[272]

4.4.3 Metaphysics of Virtual Reality

Finally, the last moment that I will address is the one that Michael Heim developed in his book *Metaphysics of Virtual Reality*, where he unpacks historical discourses that culminated in techno-utopic VR discourses, tracing the technological "progression from digital to virtual reality."[273] He argues that hypertext marks a fundamental shift in cultural logic that culminated in VR. With the intention of transforming knowledge and matter into information through abstraction, the guiding logic in this process originates in

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[270] Ibid., 464.
[271] Ibid., 442
[272] Ibid., 467.
[273] Michael Heim, *The Metaphysics of Virtual Reality*. Reprint edition. (New York: Oxford University Press, 1994.): XIII.

Leibnizian metaphysics, which seeks to fabricate a universal and omniscient technology that can accommodate conflicting human thoughts. For him, the technological developments that made VR and cyberspace possible were initiated by the digitalization of print culture. With the advent of word processors in the late 1970s, transforming print culture into immaterial information, the computer incited the techno-utopic illusion of total text. For Heim, epitomized by hypertext as an aggregate of multiple texts, and also of images, videos etc., this ontological shift "breaks with the linear sequence of ordered thought demanded by the printed word."[274] Therefore freed from the material and temporal constraints of print culture, hypertext enabled a nodal, nonlinear, free-associative structure and thus favoured the illusion of total information which can incorporate that which is deemed to be incompatible in the linear ordering of print culture. It is in this context that hypertext, as a "total text", is an early iteration of the technological paradigm wherein cyberspace, and by extension VR, are posited as a means to represent the universe in its totality.

For Heim, this technological paradigm originates in Leibniz's "logic, metaphysics, and notion of representational symbols"[275] which seeks to develop a universal computation system that can "encompass all the combinations and permutations of human thought."[276] Particularly evident in his *"calculus ratiocinator,"* a universal computation system that "would compile all human cultures, bringing human languages into a single shared database,"[277] his encyclopaedic project represents epistemological parallelism with the techno-utopic discursive fabric in which VR and cybernetics is

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[274] Ibid., XII.
[275] Ibid., 92.
[276] Ibid., 94.
[277] Ibid., 94.

embedded. For instance, in order to construct this all-encompassing system, Leibniz first seeks to develop a universal medium, which can address every problem and in which conflicting ideas could thus coexist and interrelate. It employs a universal language, in the form of pasigraphy or ideographic language, which he calls *characteristica universalis,* ultimately operating through an interface that "translates all human notions and disagreements into the same set of symbols."[278] Structured similarly to the digital information process, Heim argues, Leibniz's *characteristica universalis* operates through a binary logic, as "an artificial language remote from the words, letters, and utterances of everyday discourse." [279] More importantly, similar to the defining paradigm in cyberspace, it aims to transform the means of statement into "the terms of a logical calculus, a system for proving argumentative patterns valid or invalid, or at least for connecting them in a homogeneous matrix."[280] However, for knowledge to become manipulable and transmissible as information, it must first be reduced to homogenized units. By a double operation, dividing knowledge into units and then bringing them together in different combinations, Leibniz aims "to mechanize the production of new ideas." [281] Therefore with its neutral interface, devoid of material and subjective determinations, *characteristica universalis* will, for him, enable us to emulate divine knowledge, which has "no temporal unfolding, no linear steps, no delays."[282] In other words, the omniscient God's knowledge serves as a model for *calculus ratiocinator,* and by extension, Heim argues, for "the virtual world constituted by bits of information."[283]

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[278] Ibid., 36.
[279] Ibid., 94.
[280] Ibid., 93.
[281] Ibid., 93.
[282] Ibid., 95.
[283] Ibid., 94.

The parallelism between his conceptualization of VR and cyberspace and Leibniz's project is more conspicuous in his "monadology." Monads for Leibniz are the non-extensive, non-divisible simple substances that potentially or virtually represent within themselves the entire universe in concentrated form. It is a microcosm which contains the macrocosm. Similar to VR, they are posited as an immediate, unbounded image system that can represent in itself the entirety of the world; for monads there is no externality.

This is why, according to Heim, the conceptual framework that defines VR and cyberspace as an unbounded image system devoid of material constraints originates in this all-encompassing and omniscient *"calculus ratiocinator."* Connected to this paradigm, he argues that there are seven divergent concepts currently guiding the VR research aesthetic: Simulation, Artificiality, Immersion, Telepresence, Full-Body Immersion (interactive environments in which the user moves without encumbering gear) and Networked Communications. For him, they all converge in developing a technological means that is similar to Leibniz's *calculus ratiocinator* in their techno-political purposes, which amount to the conquest of nature by abstracting it from material determinations. In fact, for him, VR has been represented as the Holy Grail, which is a symbol of the quest for a better world, and Heim writes: "Conquering nature meant regulating the earth as a harmonious system. It meant balancing nature so that all life-forms could thrive together in harmony."[284]

However, Heim contends, the artificial harmony that VR can develop offers the possibility of surveillance. Similar to Leibniz's metaphysics, where all the finite monadic units are harmonized by the Central System Monad, virtual harmony, for him, is only

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[284] Ibid., 93.

possible with the Central System Operator (sysop) which in turn operates as a transcendental figure that has absolute control of all members of the network. He writes: "The infinite CSM holds the key for monitoring, censoring, or rerouting any piece of information or any phenomenal presence on the network." Furthermore, he also contends that the grounding principle of duplicating reality as digital information to create harmony results in pacifying: "This very realism may turn into irrealism, in which virtual worlds are indistinguishable from real worlds, virtual reality becomes bland and mundane, and users undergo predominantly passive experiences akin to drug-induced hallucinations."[285] Therefore he suggests that the potential of VR as a technological and artistic means lies in its capacity to express difference from and within reality. He states, "A virtual world needs to be not-quite-real or it will lessen the pull on imagination. Something-less-than-real evokes our power of imaging and visualization." [286]

4.5 Conclusion

The postulation that interacting with a social issue or different subjectivity in a non-mediated environment is a sufficient condition for political mobilization is problematic in the sense that it presupposes an essentialist link between immediacy and political or ethical action. However, VR is not unique in this sense; as Rancière points out, it is inherent to contemporary political art in general. In his analyses of the modernist theatrical programs of Bertolt Brecht and Antonin Artaud, Rancière outlines the paradoxical premises of this rhetoric:

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[285] Ibid., 134.
[286] Ibid., 133.

According to the Brechtian paradigm, theatrical mediation makes them conscious of the social situation that gives rise to it and desirous of acting in order to transform it. According to Artaud's logic, it makes them abandon their position as spectators: rather than being placed in front of a spectacle, they are surrounded by the performance, drawn into the circle of action that restores their collective energy. In both cases, theatre is presented as a mediation striving for its own abolition.[287]

Through this abolition of mediation, theatre is intended to transform the passive spectator into an active participator not only in the play itself but also in the struggle over the political issues that the play represents. However, for Rancière, these formulas are based on the binary distribution of concepts such as seeing and action, truth and passivity. Rancière writes:

It is these principles that should be re-examined today. Or rather, it is the network of presuppositions, the set of equivalences and oppositions, that underpin their possibility: equivalences between theatrical audience and community, gaze and passivity, exteriority and separation, mediation and simulacrum; oppositions between the collective and the individual, the image and living reality, activity and passivity, self-ownership and alienation."[288]

Echoing Rancière, I argue that the main problem of empathy discourse stems from its claim to cancel the ontological split between real and imaginary in order to restore the natural unity between them, and by extension harmony in society as result of empathetic understanding between different social-political categories. Moreover, the empathy/immediacy discourse, as I discussed in the first chapter and in this one, is the result of an ongoing techno-utopic paradigm that seeks to develop a universal, all-encompassing and omniscient interface that can enable us to control matter, the world, and nature and therefore the subjectivities that inhabit them. This paradigm in large part aims at immediate interface where the world and its representation, image and reality,

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[287] Jacques Rancière. *The Emancipated Spectator*. Reprint edition. (London: Verso, 2011): 8.
[288] Ibid., 37.

spectator and spectacle become variable realms. Its fundamental operation can be boiled down to eliminating the ontological, social and epistemological boundaries that serve as discursive technology to construct difference. Inferred from the spatial structure of VR as limitless image, which is in turn hyperbolic presumption, this model simply aims to translate the unbounded formal structure inherent VR to a political program. Based on these historical analyses, this dissertation will perform a visual and conceptual critique to challenge the immediacy, empathy and harmony claims that have defined VR conventions. Instead of developing an immediate image where the immersant is equipped with omnipotence in unbounded image, it will seek to reflect upon the possibility of boundaries and disharmony within VR.

5 Beyond Autonomy and Heteronomy: Archaeology of Freedom in Virtual Reality

5.1 Introduction

This chapter will function to map the conceptual connection between the methodology and theoretical context in which my artistic practice in VR will be realized. What defines each component of this dissertation (methodology, theory and practice) is the question of autonomy. Consisting of three complementary sections, this chapter will first outline the methodological framework that defines my artistic experiment in VR. Based on the critique of three research-creation schemata, which I argue are trapped in the false dichotomy of autonomy and heteronomy in art, I contend that artistic practices in general and media in particular are never absolutely autonomous; rather, they

communicate and embody the discursive fabrics in which they became possible. Following the analysis of four aesthetic discourses on artistic autonomy (Kant, Schiller, Adorno, and Cavell) that go beyond this false dichotomy, I maintain that the autonomy of art can only be posited when its heteronomous nature is constructed as a limit to transgress. Art in general and any medium in particular are both autonomous and heteronomous with respect to the discursive fabric that defines their aesthetic, technological and political coordinates. They are heteronomous in the sense that each medium communicates, materializes and embodies the very epistemological paradigm in which it becomes possible as a technology, and also autonomous in the sense that they cannot be reduced to the essentialist definitions of the epistemological and aesthetic paradigm in which they emerged. However, my aim is not simply to recognize the simultaneity or indiscernibility of the autonomy and heteronomy of art or of a given medium but to radicalize the tension between these dynamically related elements inherent to the material organization of the medium, in the sense that the autonomous character of a medium as technological and material organization will be mobilized against the historical paradigm which culminated in its invention as both technology and artistic means.

The second section, following this methodological framework, will set out to frame the question of autonomy that is purported to be inherent to VR spectatorship and it will historicize the formal strategies of contemporary VR conventions. Generally convergent in idealizing VR as an immediate and unlimited image system the immediacy and, by extension, autonomy claim of conventional VR aesthetics, I argue, require the visual and corporeal limitations of the viewer as a condition. For instance, in terms of immersion,

concealing the means of production beyond the peripheral vision of viewer, the phantasmagoric effect of unbounded image system that defines VR as shorn of spatial and material limitations, is only possible by the very bodily limitation of the viewer. It assigns to the finitude of human vision a dual role as both the condition and the means to transgress these limitations. With respect to interactivity, VR doubles the function of the viewer both as the subject and object, or the viewer and the maker at once. In its technological configuration both as an immersive and interactive medium, VR communicates this peculiar idea of freedom where it is the viewer's finitude in its visual and corporeal configuration that allows it to experience this freedom. I argue that contemporary VR conventions embody an *episteme* that first emerged in the 19th century which operates through the double function of the subject through its limitations. Similar to Foucault's critiques of modernity, this purported freedom of the immediate imagery of VR presupposes a double function of viewer as both the subject and the object of the image. As the extension of a particular idea of subjectivity that emerged in modernity, the visual regime claimed to be inherent to VR, with its freedom and autonomy claims, I argue, communicates a double logic where viewer is both "enslaved sovereign" and "observed spectator" as Foucault formulates. The hyperbolic claims of autonomy both from the mediation of artist and from reality gesture towards an aesthetic program where the viewer is trapped in an illusion of self-regulating omnipotent political power. Finally, following Han's critique of freedom, I argue that this political power deemed to be inherent to VR and particularly to 360-degrees documentaries, which aim to induce empathy, reinforces the contradictory political subjectivity that regresses into its own isolated and hermetic omnipotence.

The last section will provide an overview of formal techniques that I develop in my VR experience as a response to my conceptual analysis of the conventions. My intention is not to use VR as a medium to communicate a specific social, cultural, subjective or geographical event, subjectivity/character etc.; on the contrary, it is to engage with the very medium itself through both a theoretical critique and artistic experiments. However, mobilizing the very medium itself against the dominant paradigm that rendered it technologically possible, parallel to the critique that I have developed in the first two sections of this chapter, I will address the ways in which the question of the autonomy of the viewer purported to be inherent to VR will be subverted in the immersive and interactive experience I will develop. The questions that I will pursue are the following: What is the origin of the technological and aesthetic paradigm that VR communicates? What would be the limit case of which VR is capable that can drag its conventions into crisis?

5.2 Autonomy of Art in Research-Creation

> "The painter does not paint on an empty canvas, and neither does the writer write on a blank page; but the page or canvas is already so covered with pre-existing, preestablished clichés that it is first necessary to erase, to clean, to flatten, even to shred, so as to let in a breath of air from the chaos that brings us the vision." —Gilles Deleuze[289]

Research-creation, according to the three schemata which I analyzed in the first chapter, is posited as ambiguous or at times paradoxical research practice due to its hybrid structure which juxtaposes incompatible and oppositional elements such as art and

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[289] Gilles Deleuze and Félix Guattari. *What Is Philosophy?* (New York: Verso, 1994.): 204.

science, theory and practice etc. In fact, due to the indefinite character of the relationship between those elements that it brings together, research-creation is deemed to be conceptually impossible to subsume under a universalist and essentialist formula: in other words, it is always autonomous from any external discursive regulations. This is why, according to Manning-Massumi's schema, research-creation is not even a method. It is, in their words, "against method, active in its refutation of pre-existing modes of existence."[290] In a/r/tography the very function of research-creation is "to resist to the formation of specific criteria. It is a research process that is fluid, uncertain, and temporal." [291] For Sawchuk-Chapman's schema, research-creation is not a fixed methodological approach "but each and every research-creation project also carries the possibility of acting as an intervention in its own right."[292] However, this very autonomy from universalizing and essentialist external discourses due to its hybridity in turn is what conditions the very function of research-creation. To accommodate the elusive and excessive character of aesthetic creativity, which is by definition anti-essentialist and beyond the existing discourses, models, formulas, concepts and means, research-creation has to be posited as autonomous. However these schemata, as Rancière points out, echo the same paradox of the claims about artistic autonomy: "Conversely, all the new, *aesthetic* definitions of art that affirm its autonomy in one way or another say the same thing, affirm the same paradox: that art is henceforth recognizable by its lack of any distinguishing characteristics — by its indistinction. Its products perceptibly manifest a

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[290] Erin Manning and Brian Massumi. *Thought in the Act: Passages in the Ecology of Experience.* (Minneapolis: Univ Of Minnesota Press, 2014.): 138.

[291] Stephanie Springgay, Rita L. Irwin, and Sylvia Wilson Kind. "A/r/Tography as Living Inquiry Through Art and Text." *Qualitative Inquiry 11*, no. 6 (December 1, 2005): 898. https://doi.org/10.1177/1077800405280696.

[292] Owen B. Chapman and Kim Sawchuk. "Research-Creation: Intervention, Analysis and 'Family Resemblances.'" *Canadian Journal of Communication* 37, no. 1 (April 13, 2012): 13. https://doi.org/10.22230/cjc.2012v37n1a2489.

quality of a thing that is *made* that is identical with the *not made,* a *known* thing identical to the *unknown,* a *willed* thing identical with the *unwilled.* In short, the specificity of art, finally nameable as such, is its identity with non-art."[293]

Therefore, in this doubling logic where its possibility is conditioned by its impossibility, it is postulated that the internal contradiction of research-creation as a hybrid methodology is what grounds its critical function against given knowledge production processes. This formula, I argue, bears the risk of postulating that the autonomy of research-creation from any external formula automatically functions as an antagonistic and critical method. To put it a different way, these schemata risk falling into an automatism or essentialism in the sense that each research-creation project has to simply translate or radicalize the internal impasse of research-creation into practice in order to challenge the hierarchical knowledge model of academia. The means of challenging the universalizing, determinist, objectivist and binary logic of academia is *a priori* given in its very hybrid essence, which is automatically or essentially beyond binary logic. However, to replace the essentialism of academia that they aim to expostulate, they seem to postulate another one: the essentialist link between the autonomy of research-creation and the critical or creative function given in its hybridity. In fact, identifying its "anti-essentialist essence" with its critical function, this automatic antagonism and creativity supposed to be inherent to research-creation is possible only insofar as research and art are posited as oppositional not only historically but also essentially. This is why I maintain that they reinforce and presuppose the very dualism and binary distribution of creativity and research that they aim to trouble. Moreover, the

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[293] Jacques Rancière, *Aesthetics and Its Discontents* (Cambridge: Polity, 2009.): 66.

idea that the autonomy of research-creation inevitably performs critical and creative action on given knowledge production processes is not only essentialist but it also eliminates the possibility of any critique. In that sense it bears the risk of negating its original critical intentions: it reduces the institution or the act of critique to a unilateral protocol.

I argue that research-creation and artistic practices are both autonomous and heteronomous in the sense that each creative process is determined by the historical, technological, material, social and cultural context that renders it possible and autonomous in the sense that it cannot be reduced to these conditions. Thus, in order to overcome the circular logic, I suggest that the autonomy of art and, by extension, of research-creation can only function when its heteronomous nature is posited as a limit to transgress. Going beyond the false dichotomy of autonomy and heteronomy which are both dynamically related elements, aesthetic creation must engage critically with the historical and material context that precondition the artistic practice and the medium in question. In this context, the next section will address different aesthetic discourses that go beyond the false dichotomy of autonomy and heteronomy in order to delineate the methodological framework that this dissertation employs.

5.2.1 Historicizing Autonomy: Kant, Schiller, Adorno and Cavell

> Art does not exist in itself; it is an outcome of a complex set of relationships between what one is allowed to say, to perceive, and to understand. Events and objects only exist within the fabric of discourse, and are perceived as art,

or a revolution in art, only within this fabric. —Jacques Rancière[294]

The question of artistic autonomy, and by extension the peculiar relation between art and the discourses on art, whether speculation on the artist's political or aesthetic strategy, critical analysis, research by academics or historians, or speculation by philosophers, is an ongoing challenge and follows a conflicted trajectory in aesthetic theory. As Day argues, generally trapped in the false dichotomy of "autonomy" and "heteronomy,"[295] there are many conflicting functions and usages of the term.[296] While in some cases it connotes an absolute independence from any external discursive program, and prioritization of singular art works in their material and technological particularities, as is evident in the modernist paradigm Greenberg frames,[297] for others artistic autonomy is the withdrawal from the logic of market, utility, the regulation of institutions, political

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[294] Jacques Rancière, "The Politics of Art: An Interview with Jacques Rancière." Versobooks.com. Accessed June 24, 2019. https://www.versobooks.com/blogs/2320-the-politics-of-art-an-interview-with-jacques-ranciere.

[295] The infamous platonic ostracism against art is the earliest attempt to determine art's nature in accordance with that which is external to it. For Plato "all art is mimesis" in fact it is the imitation of an imitation, a third degree mimesis. For instance in Book X of Republic, Plato compares the three different creative act of God, craftsman and painter. While God is the creator of Idea of the particular object, for instance a bed, the craftsman's role is the materializing of this Idea, as a particular object in nature and artist imitates this particular object that craftsman has created. Therefore the way a painter produces an image of an object into visibility is farther from the Idea of the object than the way the carpenter produces it. This is why the mimetic act of artistic production finds its possibility in that which is external to itself: the second degree of imitation of craftsman. It's preconditioned by both poesies of God and technê of the craftsman. This very heteronomy of art which makes it deceptive in its configuration of Idea results in the infamous ostracism of Plato against art: "the artist knows nothing worth mentioning about the subjects he represents, and that art is a form of play, not to be taken seriously." Similarly deviated from the ostracism that Plato directed towards art, late modernity has revisited the position of art in relation to truth. The aesthetic schema in Hegel undertook to assimilate art into an idealist and transcendental philosophical framework. In this schema art is no longer considered a deception as it is framed in Plato; however, it does not possess the same qualities as philosophy in terms of its relation to truth. Due to its hybrid nature where antonymous concepts and events coexist, art has to be regulated by the universal, objective and rational means of philosophy. Art, with its paradoxical nature, presents a certain antagonism within the systematic universe of thought. This is why Hegel assigns to philosophy the task of re-organizing the aesthetic experience to solve the paradoxes it elicits.

[296] Gail Day, "The Fear of Heteronomy." *Third Text* 23, no. 4 (July 1, 2009): 393–406. https://doi.org/10.1080/09528820903007677.

[297] For Greenberg, artistic modernism meant that art develops by making and challenging its own rules, reflexively, according to its own inner logic and "learning processes."

functions, artistic motivations of the author, conventions of traditions, styles and genres etc. However, in most cases the notion of the autonomy of art has always been framed within its dynamic relation to the idea of heteronomy. This section will analyze four instances of aesthetics which go beyond this false dichotomy.

In general the debates around the autonomy of art are thought to have been initiated by Kant's idea that fine arts are fabricated according to a purpose which in turn has to be purposeless. For Kant, both fine arts and aesthetic judgments are autonomous from an interest or desire connected to a utilitarian or pragmatist conceptualization. Due to their paradoxical nature, which brings together what is considered to be contradictory, such as universal and subjective, fine arts are founded neither on a concept, in the sense that there is no universal and a priori regulation of their indeterminate character, nor on a telos in the sense that there is no external pursuit for utilitarian purposes.[298] However, for Kant, without any regulation, art is not possible. To solve this problem, Kant introduces *genius* which supplies a rule that is applicable to single instances of artistic practice: "Consequently fine art cannot of its own self excogitate the rule according to which it is to effectuate its product. But since, for all that, a product can never be called art unless there is a preceding rule, it follows that nature in the individual (and by virtue of the harmony of his faculties) must give the rule to art, i.e., fine art is only possible as a product of genius."[299] Therefore defined by the rules created by the genius who "is a

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[298] Rancière frames the autonomy of art in Kant as follows: "It is disconnected with respect to the law of understanding, which subordinates, sensory perception to its own categories, and also with respect to the law of desire, which subordinates our affections to the search for a good. The form apprehended by aesthetic judgement is neither that of an object of knowledge nor that of an object of desire… The beautiful is that which resists both conceptual determination and the lure of consumable goods." (Jacques Rancière, *Dissensus: On Politics and Aesthetics.* (London: Bloomsbury Publishing, 2015.): 173.)

[299] Immanuel Kant, *Critique of Judgment.* (Cosimo, Inc., 2007): 137.

talent for producing that for which no definite rule can be given,"[300] fine arts are autonomous from the regulations of understanding and also from utilitarian telos and they are heteronomous to rules that are given by the talent of genius. However, as Rancière points out, "the genius cannot know the law under which he or she operates,"[301] thus to acknowledge the dual character of art as both autonomous and heteronomous, the Kantian model mystifies and reduces the artistic procedure by linking it to the autonomy of the individuality of genius.

Inspired by Kant,[302] Schiller furthers this dynamic relationship by locating it in the very essence of artistic creativity instead of in mystified genius. Maintaining that art is both autonomous and heteronomous at once, the schema that Schiller develops suggests that art's political importance stems from its capacity to achieve harmony by restoring the unity of human nature, which is essentially divided into oppositional impulses: the sense impulse and the form impulse.[303] Fundamentally grounding, limiting and operating only

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[300] Ibid., 189.

[301] Jacques Rancière, *Dissensus: On Politics and Aesthetics*. (London: Bloomsbury Publishing, 2015.): 174.

[302] In fact this is mostly inspired by Kantian moral autonomy. For Kant the moral autonomy that each subject is given functions as the freedom to delimit itself. It consists in the double sense of freedom as independent from any external/empirical determinations and as the capacity to impose its own law. Kant's notion of moral autonomy of the will thus involves, as Andrews Reath has written, "not only a capacity for choice that is motivationally independent, but a lawgiving capacity that is independent of determination by external influence and is guided by its own internal principle–in other words, by a principle that is constitutive of lawgiving" (Reath 2006). Therefore rational agents can act autonomously by imposing "upon themselves –to legislate for themselves– the moral law." In this context moral act is both free and determined; Kant uses the concept heautonomy which means that subject legislates its own activity as autonomous subject.

[303] Citing several dichotomies that define the dualistic human nature, such as person-condition, physical-rational etc., Schiller specifies two fundamental impulses that define the human condition. The first of these impulses is the "sense impulse" and the second "the form impulse." While the first one "proceeds from the physical existence of Man," and furnishes particulars and singular cases to human Mind, and requires variation, the form impulse proceeds "from Man's rational nature," the universal laws and necessity, and requires no variation. While one brings what is necessary within us to reality, the other subjugates what is real outside us to the law of necessity. Fundamentally grounding, limiting and realizable only through each other, these impulses orient humanity in oppositional directions. Protecting the sensuous aspect of humanity against the tyranny of reason, and rationality against the transgressive nature of sense, Schiller explains, both impulses "are equally earnest in their demands" while "the sense impulse relates in its cognition to the actuality, the latter to the necessity, of things; while in its action the first is directed

through each other, these impulses, both heteronomous and autonomous at the same time, orient humanity in oppositional directions. While the sense impulse "proceeds from the physical existence of Man,"[304] furnishes particular and singular cases to the human Mind, and requires variation, the form impulse proceeds "from Man's rational nature," the universal laws and necessity, and requires no variation. Harmony between these impulses is only possible through a third impulse which he calls "play impulse." Combining both impulses that constrain the human mind either through laws of Nature (sense) or through laws of Reason (form), the play impulse "will compel the mind at once morally and physically; it will therefore, since *it annuls all mere chance, annul all compulsion* also, and set man free both physically and morally"[305] (emphasis added). Therefore, harmony has to be established in a way that is neither indeterminable nor determinate, and both indeterminable and determinate at the same time. As Beiser states, the term "play"[306] has a crucial role here, since it alludes to the paradoxical fact that play is neither necessary nor arbitrary: "not necessary, because we do not play from need but do it for its own sake; not arbitrary, because our actions still conform to rules."[307] This is the context in

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towards the maintenance of life, the second towards the preservation of dignity—both, that is to say, towards truth and perfection." (Ibid., 78.)

[304] Friedrich Schiller, *On the Aesthetic Education of Man.* Edited by Alexander Schmidt. Translated by Keith Tribe. (London: Penguin Classics, 2016.): 118.

[305] Ibid., 74.

[306] Giving form to the material world, the play impulse, for him, generates what he calls "living shapes" which, he argues, "serve to denote all aesthetic qualities of phenomena and in a word—what we call Beauty in the widest sense of the term." (Ibid., 76.) Thus the very interaction of two opposing impulses in the play impulse is the origin of Beauty, "whose highest ideal is therefore to be sought in the most perfect possible union and equilibrium of reality and form." (Ibid., 78.) Beauty is the oscillation between the opposites, a middle state between the contradictory elements.

[307] Frederick Beiser, *Schiller as Philosopher: A Re-Examination.* (Oxford: Oxford University Press, 2008.): 141.

which Schiller states his famous formula: "Man plays only when he is in the full sense of the word a man, and he is only wholly Man when he is playing."[308]

Therefore the task of culture is twofold for him: unification has to be realized while preserving the differences between conflicting impulses. Schiller, as Frederick Beiser demonstrates in the following syllogistic form, reaches the conclusion that beauty consists of freedom: "1-beauty consists in wholeness, the full realization of the sense and form drives, 2- wholeness, the full realization of the sense and form drives, consists in freedom, 3- therefore Beauty consists in freedom."[309] What constitutes the freedom in beauty is not simply the autonomy of art as a "mere chance" which does not have any objective determination, or the heteronomy of art as "absolute necessity" which has no variation. It is autonomous and heteronomous at the same time, as the concept of play alludes.[310] It is only through determination that indetermination can function. Beauty is dualistic and holistic at the same time. It does not mandate any aim, program or interest; however, it is not absolutely contingent, either. Conditioned and unconditioned, it can accommodate difference and necessity. With its hybrid structure, art in itself is inclusive; it is the condition for a more inclusive society.

Similarly, Adorno also maintains that art is both independent and dependent to the external social and historical conditions in which it emerged: "Art is autonomous and it is

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[308] Friedrich Schiller, *On the Aesthetic Education of Man*. Edited by Alexander Schmidt. Translated by Keith Tribe. (London: Penguin Classics, 2016.): 80.

[309] Frederick Beiser, *Schiller as Philosopher: A Re-Examination*. (Oxford: Oxford University Press, 2008.): 92.

[310] Through this determinable and indeterminate unity of oppositions, Beiser formulates the inclusive character of freedom in Beauty as following: "the aesthetic condition does not lead to any specific result; it does not produce a definite kind of action, whether moral or immoral….What beauty gives us, then, is not a moral or intellectual result—a good action or a true proposition—but the freedom to produce a good action or a true proposition….Just as those are right who say that beauty is fruitless, because it leads to no specific result, so those are correct who say that beauty is fruitful, because it can lead to any specific result. Insofar as beauty does not favor any specific function of humanity exclusively, it is favorable to all of them." (Ibid., 155.)

not; without what is heterogeneous to it, its autonomy eludes it."[311] For him, the historical developments in art have freed it from the heteronomous models, which deployed it in the service of religious and ritualistic function in early artistic practices, or the modern discourses such as socialist realism that subsumes art under an external political program. However, the radical rupture that emerged in late modernity, which presupposes the autonomy of art, he argues, resulted in subjugating it to the logic of market or more precisely to commodity fetishism. Adorno argues that these two polarized camps are based on the false dichotomization of heteronomy and autonomy:

> Today the nomenclature of formalism and socialist realism is used, with great consequence, to distinguish between the autonomous and the social essence of art. This nomenclature is employed by the administered world to exploit for its own purposes the objective dialectic that inheres in the double character of each and every artwork: These two aspects are severed from each other and used to divide the sheep from the goats. This dichotomization is false because it presents the two dynamically related elements as simple alternatives.[312]

The final model that informs my approach is the one developed by Stanley Cavell, who posits artistic creativity as a dialectical act that oscillates between freedom and constraints. In his book *The World Viewed*, he frames artistic creation as not "to produce another instance of an art but a new medium within it."[313] However, what Cavell attempts to do is in no way to undertake the modernist programs like Greenberg's prioritization of medium specificity, which is defined by the material and technological determinations inherent to the medium itself. As Rodowick points out, in Cavell, a medium "combines multiple elements or components that can be material, instrumental, and/or formal."[314] Cavell terms these elements that preconditions each art *automatisms* – such as forms,

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[311] Theodor W Adorno, *Aesthetic Theory*. (Univ Of Minnesota Press, 1998.): 8.
[312] Ibid., 346.
[313] Stanley Cavell, *The World Viewed: Reflections on the Ontology of Film*, Enlarged Edition. (Cambridge: Harvard University Press, 1979.): 103.
[314] David Norman Rodowick, *The Virtual Life of Film*. (Boston: Harvard University Press, 2009.): 41.

conventions, or genres that arise creatively out of the existing materials and material conditions of given art practices, which are both historical and ontological. However, automatisms have a double position in art: the creation of a medium is the creation of automatisms. Therefore the Cavellian model posits automatisms as both the condition and the result of artistic creativity. In fact, as Rodowick writes, automatisms "in turn serve as potential materials or forms for future practices…What constitutes these elements is unknowable prior to the creative acts of artists and the analytical observations of critics— this is why they are considered potentialities or virtualities expressed in the history of a medium and its uses."[315] Therefore Cavellian automatism does not simply suggest prioritizing the material conditions or historical conventions of a medium; on the contrary, the ultimate task of the artist is to create a new medium by responding to these historical and ontological conditions and limitations. Artistic creation, as Lisa Trahair points out, is "an exploration of the dialectic of freedom and constraint, while the investigation of automatism makes art self-conscious, autopoietic, and autonomous."[316] Therefore the autonomy of art, as Cavell framed it, is based on a concentric action of affirming, negating and recreating the preconditions of the medium itself in both its historically and materially determined conditions.

Following these models, I argue the autonomy of art in its conceptualization (Schiller), in social function (Adorno) and in its material and historical conditions (Cavell) can only be posited when its heteronomous nature is given as a limit to transgress or as Adorno suggests "without what is heterogeneous to it, its autonomy

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[315] Ibid., 42.
[316] Lisa Trahair, "Being on the Outside: Cinematic Automatism in Stanley Cavell's The World Viewed." *Film-Philosophy* 18, no. 1 (2014): 128–146. https://doi.org/10.3366/film.2014.0009.

eludes it."[317] In this context, art in general and any medium in particular are both autonomous and heteronomous, pertaining to the discursive fabric that defines its artistic, technological and political coordinates within the contemporary cultural environment. Specifically in the case of a medium, it is heteronomous in the sense that each medium communicates, materializes and embodies the very epistemological paradigm in which it becomes possible as a technology and also autonomous in the sense that it cannot be reduced to the essentialist definitions of the epistemological paradigm in which it emerged. Therefore art in general and media in particular are neither independent from the historical context that defines their conditions nor a site of absolute freedom. They operate through the historical and material constraints that they both affirm and negate at the same time. Each artwork has to develop a singular relationship with the pre-existing discourses that define its clichés and conventions. However, my aim is not simply to recognize the simultaneity or indiscernibility of the autonomy and heteronomy of art or of medium but to radicalize the tension between them. I will mobilize its autonomous character given in its technological and material organization against the historical discursive pattern, which engendered it as both technology and artistic medium. In order to do so, in this chapter I will conduct archaeological research on the origin of the formal conventions of VR. Deploying the medium itself into its limit case, I aim to reveal its supposed inner logic and its political and aesthetic affiliations.

I have contended that the formalist presupposition that links the political function of research-creation to its inner structure is trapped in the false dichotomy of autonomy and heteronomy, similar to aesthetic debates that began in the 19th century where the "narratives of autonomy and heteronomy" are posed as mutually exclusive. However,

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[317] Theodor W Adorno, *Aesthetic Theory*. (Univ Of Minnesota Press, 1998.): 8.

following Schiller, Adorno and Cavell, I argued that artistic practices emerge in the reciprocal interlocking of autonomy and heteronomy. Artistic practices are never autonomous; they are always predetermined with the "pre-existing, preestablished clichés" which are results of the constraints that are defined both by the material and technological organization of the given medium and the historical paradigm in which the very medium itself became technologically possible.[318] As Lütticken suggests, autonomy is not a fact that the artist can possess; on the contrary, it "is an exceptional occurrence in the realm of established, factual relations – including art and its institutions."[319] In fact, aesthetic practices emerge within the dynamic and interlocked relation between heteronomy and autonomy. More radically, I argue, again following Lütticken, that artistic practice becomes properly aesthetic practice when it problematizes the limits of art and of artistic autonomy. The task is to push the artistic practice to its limit where the very question of autonomy is sensibly problematized:

> If the aesthetic problematizes the relationship of autonomy and heteronomy, then this means that an act can be termed aesthetic insofar as it lets autonomy appear sensibly as a problem – in a world where subjectivities and objectifications are profoundly entangled, where different agencies coexist and collide.[320]

Therefore my method amounts to inverting the very discursive operation that deploys the false dichotomy of autonomy and heteronomy to explain what the artistic practice is. In other words, the false dichotomy that is used to explain the artistic practices themselves are what my artistic practices, in turn, set out to grapple with. In a more radical sense, what defines artistic practices in general is their problematizing of the

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[318] Furthermore not only the autonomy claim is hyperbolic, in the sense that the claim to be independent from historical and formal constraints that defines the conditions of both emergence of individual artworks and the medium in question, and from the institutional and political affiliations of artist is impossible, but also, as Lütticken suggests, it can "lead straight into heteronomy logic of market." (Lütticken, Sven. "Autonomy as Aesthetic Practice." *Theory, Culture & Society* 31, no. 7–8 (December 1, 2014): 3)
[319] Ibid., 3.
[320] Ibid., 11.

very distribution of concepts such as freedom and constraint, or autonomy and heteronomy. In order to make the question of autonomy emerge as a problem, I argue that it has to engage both with the historical conventions and the technological determination of the medium in question. It is for this reason that, after engaging with VR conventions in a historical fashion, I attempted to engage with the technological structure of VR as well. Therefore the next approach that informs my artistic practices is the Cavellian idea of creating medium. For him, as noted previously, in the process of artistic creation, what constitutes the artist's practice is to invent a new medium. However, invention as he defines it is not to create a new medium from scratch but to redistribute the association and disassociation that defines the artistic program as a discourse and also as technology. As Diarmuid Costello states in his text entitled "Automat, Automatic, Automatism: Rosalind Krauss and Stanley Cavell on Photography and the Photographically Dependent Arts" where he analyzed the Cavellian program, it is "to seek out new ways of securing value *within* their medium, that is, new ways of using its resources and thereby extending-by-transforming the tradition they inherit."[321] It's the reconfiguration of what is given in the medium both technologically and conceptually in order for a new medium to "emerge through a process of gradual accretion, revision, translation, and cross-fertilization."

My intention is to push the immediacy claim to its limits to create a crisis in its conventions in such a way that the question of autonomy becomes visible as a problem. In order to do that, following the Cavellian formula, I reconfigured the very technological structure of the VR headset. To re-examine the associations and disassociations of the

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[321] Diarmuid Costello, "Automat, Automatic, Automatism: Rosalind Krauss and Stanley Cavell on Photography and the Photographically Dependent Arts." *Critical Inquiry* Vol.38 (2012): 819–54.

concepts of autonomy and heteronomy that define contemporary VR conventions along with immediacy and mediation, passivity and activity, visible and invisible etc., my VR experience formally deploys immersive and interactive techniques that aim to problematize the concept of boundary. It sets out to make the boundaries of the very viewer appear as a problem in the very construction of the immersive and interactive aspects of the VR experience that I have developed. There are two different boundaries that I problematize: the visual boundaries of the viewer and the boundaries between the actual and virtual environment. While the former has been deployed as an aesthetic means of unfolding the narrative structure and interactivity, the latter is deployed to push to the extreme the discursive fabric of unlimited image where real and actual becomes indiscernible.

5.3 Unbounded Image

...In that Empire, the Art of Cartography attained such Perfection that the map of a single Province occupied the entirety of a City, and the map of the Empire, the entirety of a Province. In time, those Unconscionable Maps no longer satisfied, and the Cartographers Guilds struck a Map of the Empire whose size was that of the Empire, and which coincided point for point with it. The following Generations, who were not so fond of the Study of Cartography as their Forebears had been, saw that that vast map was Useless, and not without some Pitilessness was it, that they delivered it up to the Inclemencies of Sun and Winters. In the Deserts of the West, still today, there are Tattered Ruins of that Map, inhabited by Animals and Beggars; in all the Land there is no other Relic of the Disciplines of Geography. — Suarez Miranda, Viajes de varones prudentes, Libro IV, Cap. XLV, Lerida, 1658

As Hayles stated, virtual reality "did not spring, like Athena from the forehead of Zeus, full-blown from the mind of William Gibson;"[322] on the contrary, it has been both an integral part and model of an ongoing paradigm that has traversed the media landscape from the 19th century onwards. This paradigm, pushed to the extreme, can be defined as the totality of the technological and aesthetic attempts at creating an image system that can replace reality in its entirety by cancelling the ontological boundaries that separate the image from its outside, occulting reality/the world via hermetically closed imagery systems, or expanding image via polysensory strategies into its transparency, to the extent that image and its outside are transformed into variable/interchangeable realms. Traversing and haunting the landscape of image technologies, starting from magical and religious use of the image to Renaissance perspective to cinema, Imax and S3D, to Sensorama etc., this paradigm, I argue, aims at developing not only an immediate interface that can represent reality in its entirety but also a transcendental image that can ultimately outstrip the material, social, spatial and even ontological conditions inherent to reality. As a teleological paradigm, in its state of freedom from the spatial, material and even ontological determinations of previous image technologies and reality at once, it aims to increase the power of the viewer over reality/nature/world through increasing her or his power on and in the image itself. However, I contend that this paradigm is both paradoxical in its discursive structure, and hyperbolic and problematic in its political presumptions.

For instance, as a discourse, there lies an epistemological paradox in its very foundation, since the mediation that is aimed for connotes its own negation or functions

[322] Hayles, N. Katherine. "Boundary Disputes: Homeostasis, Reflexivity, and the Foundations of Cybernetics." *Configurations* 2, no. 3 (September 1, 1994): 441–67. https://doi.org/10.1353/con.1994.0038.

as its own negation. The claim of immediacy that grounds the purported power and freedom in immersive and interactive image technologies, as Hegel points out with reference to immediacy as a concept, is "a one-sided determination" since its very conceptualizing "does not contain it alone, but also the determination to mediate itself with itself, and thereby the mediation being at the same time the abrogation of mediation."[323] In fact, trapped in its circularity, this paradox is what defines the fundamental discursive operation in different media technologies haunted by this paradigm: coupling the elements that essentially negate and cancel each other. For instance, as is evident in the Bazinian concept Total Cinema, this paradigm is both the origin and the telos of image technologies starting from the 19th century, where cinema, with its fundamental promise to represent the world in its entirety, is a model. In fact, future cinema as a teleological discourse, as I discussed in the first chapter, not only couples origin and future, it has also oscillated within the equivocality of the term *end* in its multiple resonances: ending, death, finitude, but also as purpose, telos, finality. It charges cinema with the task of abolishing itself. Thus the discursive operation that defines this paradigm is to cancel the difference between the elements that it brings together: it seeks to cancel, blur or eliminate the limits that mark material, technological, cultural, historical and social differences, among others. For instance, as I discussed in the first and third chapters, in early immersive technologies such as the Great Frieze in the Villa dei Misteri at Pompeii or the panorama war paintings, as Grau argues, the ultimate aim of the immersion is the coupling of "the artwork and technical apparatus, the

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[323] Georg Wilhelm Friedrich Hegel, as cited in Bolter, J. David, and Richard A. Grusin. "Remediation." *Configurations* 4, no. 3 (September 1, 1996): 311–58. https://doi.org/10.1353/con.1996.0018.

message and medium of perception"[324] which converge into an inseparable whole. Similarly, stereoscopic 3D[325] is also shaped by the same paradoxical operation in the sense that it is charged with cancelling the boundaries that separate reality and image, and by extension spectator and spectacle, subject and object etc. Likewise, this paradigm as it re-emerged in cybernetics, which I have analyzed in its connection to the discursive pattern that defines VR, seeks to develop a mediation that can function as the immediate interface between human and machine.

Therefore I argue that what the VR conventions are organized to communicate is this fundamental operation of the coupling of that which is deemed to be oppositional. Particularly evident in empathy discourse, VR generally is employed to create an immediate platform or interface where that which and those who are deemed to be incompatible coexist: it is presupposed to be an immediate and democratic encounter between those from distant and diverse walks of life, differing in age, sex, gender, race, class etc. There are two fundamental and complementary technological operations in VR that embody this discourse as coupling what is essentially incompatible: immersion and interactivity. I argue that each of these, as part of this hyperbolic paradigm, attempts to develop an illusion of freedom and autonomy, and by extension the power given to the viewer, by assigning a dual role to the position of the viewer.

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[324] Oliver Grau, *Virtual Art: From Illusion to Immersion*. (Cambridge, Mass.: The MIT Press, 2004.)

[325] For instance, in the case of Münsterberg, due to both the photorealism of cinematic image as mechanic representation of reality and cinematic possibilities to reorganize the mechanical reproduction in time through editing according to the subjective conditions, cinema serves to double subject and object. In this cinematic organization, for Münsterberg, doubling serves to establish the triumph of the mind over the objective world. For Eisenstein, the doubling that S3D is capable of is mobilized to dismantle the binary distribution of spectator and spectacle, therefore by extension can serve to dismantle the unnatural limit between the classes in order to restore the original unity of society. For Balázs, the very telos of cinema is to trouble the limit between oppositional terms such as visible and invisible, text and image, etc.

5.3.1 Immersion

Throughout their historical development, immersive media have deployed different strategies, from shutting off the viewer perceptually from the actual world in hermetically closed rooms -as in the case of early architectural organizations such as the Great Frieze in the Villa dei Misteri at Pompeii, or the 20th century virtual environments such as CAVE- to expanding the image to beyond the visual field of the viewer to the extent that the viewer is surrounded by the image in its entirety, such as panoramic image and Imax. However, what makes VR unique and different from previous attempts is that it would seem to have perfected the concept of absolute immersion: given the supposed absence of any visible spatial boundary in its objectivity, VR is considered to provide the unlimited character of reality in terms of spatiality. Concomitant to the absence of spatial limitation as is the case in screen-based image systems, the viewer is presumed to be emancipated from the mediations of an artist whose fundamental operation is to limit the image in time and space. Free to look wherever she or he wants to, it is presupposed that the viewer in VR is given power and control over the visual perception. Accordingly, this presumed limitlessness of VR is delegated to the viewer as the power to perform her or his own selections. Therefore VR, as the result of this putative absolute immersion, is considered to be immediate image since, first, it represents the unlimited character of reality, and second, it cancels the mediation of the artist.

However, even in perfected cases where this utopic claim of unbounded image system is supposed to be realized, or even if we ignore the material limitations inherent to computer processers or headsets which are technologically far from realizing this

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hyperbolic promise, one limitation persists: that is, the limitations of human vision in its optical organization. The purported limitlessness of image cannot be experienced as unlimited at once; on the contrary, the experience is always conditioned by the optical limitations of the viewer. In fact, I argue that it is the limitation of human vision through which the unlimitedness claim of VR image is established. Immersion in the visual regime of VR can be posited as unlimited only insofar as it transgresses the peripheral vision of the viewer, to the extent that it occults the material limitations of the computer.[326] For instance, referring to the early state of technology, N. Katherine Hayles argues that "every existing simulation has boundaries that distinguish it from the surrounding environment. Virtual reality environments are limited by the length of the cables attaching the body apparatus to the computer."[327] Therefore the claim of limitedness is only possible with phantasmagoric mechanisms which, as Adorno points out, operate through the occultation of production by means of the outward appearance. The perfection of higher perceptual realism as unlimited image is the perfection of the illusion that the work of art is a reality *sui generis*.[328] Therefore inverting the negative connotations of subjective finitude, immersive strategies in VR require the finitude of the viewer as the condition of limitlessness and of freedom.

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[326] Concealing the material conditions of virtual space which is in fact determined by the limitation inherent to power and speed of computer. For instance as a physical device, it can process only a limited amount of information due to the constraints of energy and the amount of information that it can process is limited by the number of degrees of freedom it possesses.

[327] N. Katherine Hayles, "In Response To Jean Baudrillard (Hayles, Porush, Landon, Sobchack, Ballard)." Accessed August 2, 2019. https://www.depauw.edu/sfs/backissues/55/forum55.htm.

[328] Theodor W Adorno, *In Search of Wagner*. (New York: Verso, 2005.)

5.3.2 Interactivity

Similar to the spatial organization of the visual field in accordance with the limitations of subjective vision, interactivity in VR also doubles the function of viewer by integrating it into image through its bodily determinations. Aiming to increase the control of the viewer/user on the visual and temporal structure of image, interactivity enforces a circular experience where it allows the viewer to experience its power over image, as both the maker and the viewer. Even though VR is considered to be realizing a more advanced level of interactivity than previous technologies, which are confined either to altering the temporal ordering of narrative structure or the visual organization, it still presents the same logic of doubling the function of viewer as both the subject and the object. For instance, tracing the historical background of interactivity in the 19th century, in her book *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*,[329] Marie-Laure Ryan argues that hyperlink as an early interactive medium has promoted the double function of user where it is both the reader and the writer at once. She writes: "The history of Western art has seen the rise and fall of immersive ideals, and their displacement, in the twentieth century, by an aesthetics of play and self-reflexivity that eventually produced the ideal of an active participation of the appreciator—reader, spectator, user—in the production of the text."[330] Similar to

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[329] Marie-Laure Ryan, *Narrative as Virtual Reality: Immersion and Interactivity in Literature and Electronic Media*. 1 edition. (Baltimore, Md.: Hopkins Fulfillment Service, 2003.)
[330] Furthermore she argues that hypertext "transposes the ideal of an endlessly self-renewable text from the level of the signified to the level of the signifier. In hypertext, the prototypical form of interactive textuality (though by no means the most interactive), the reader determines the unfolding of the text by clicking on certain areas, the so-called hyperlinks, that bring to the screen other segments of text. Although this process is restricted to a choice among a limited number of well-charted alternatives— namely, the branching

many approaches that have been discussed in this dissertation, she argues, "in the literary domain, no less than in the visual arts, the rise and fall of immersive ideals are tied to the fortunes of an aesthetics of illusion, which implies transparency of the medium."[331] Delegating the creative process to the user or displacing the author within the interactive unfolding of narrative structure, interactivity has been framed as an immediate experience that couples reader and writer. While it creates an illusion of freedom where the reader can exercise its power on the text, this freedom is only possible with "the limitation of the reader's movements to the paths designed by the author."[332]

Even though in VR the user/viewer goes beyond the power of altering the narrative structure or temporal distribution of the virtual image, it also enforces the same illusion of freedom in its immediacy claim where the user/viewer is posited as both the maker and the viewer of the virtual environment. It assigns a dual role to the viewer with its bodily determinations in the sense that it is an integral part of the image, as interface or as the transcendental condition of the image, but it is also external to the image as an observer. This double function of viewer, in fact, as Crary argues, following Foucault's analysis,[333] is the result of a 19th century paradigm where the bodily condition of the subject is integrated into image making. Initiated by Kant's transcendental subject, in this paradigm shift in the optics and visual culture which developed in the 19th century, Crary argues, the image becomes perceptible to the extent that it corresponds to the conditions of the

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possibilities designed by the author—this relative freedom has been hailed as an allegory of the vastly more creative and less constrained activity of reading as meaning formation." (Ibid., 2.)
[331] Ibid., 4.
[332] Ibid., 9.
[333] Foucault defines that shift as follows: "There are those that operate within the space of the body, and – by studying perception, sensorial mechanisms, neuro-motor diagrams, and the articulation common to things and to the organism – function as a sort of transcendental aesthetic; these led to the discovery that knowledge has anatomo-physiological conditions, that it is formed gradually within the structures of the body, that it may have a privileged place within it…" Foucault, Michel. *Archaeology of Knowledge.* (Psychology Press, 2002.): 153.

body as interface. For instance, the emergence of proto-cinematic devices, stereoscopic 3D and cinema is the result of this paradigm, which quantifies human perception and corporeal mechanisms such as binocularity and retinal afterimage. Thus doubling the function of subjective limitations, I argue, the immersive and interactive strategies inherent to VR communicate a certain idea of freedom and subjectivity that first emerged in the 19th century. In the next section I will map the discursive fabric inherent to this paradigm that Foucault terms "analytic of finitude."

5.4 Doubles of Subject: Analytic of Finitude

For Foucault, as is epitomized in the first sentence[334] of Kant's *The Critique of Pure Reason,* in the governing *episteme* of modernity "man is possible only as a figuration of finitude."[335] Delimited by the conditions in which it emerges, Foucault argues, man in modernity "is marked by the spatiality of the body, the yawning of desire, and the time of language"[336] yet these limitations are "expressed not as a determination imposed upon man from outside, but as a fundamental finitude which rests on nothing but its own existence as fact, and opens upon the positivity of all concrete limitation."[337] For instance, in the Kantian model, knowledge is both transcendental and empirical at once in the sense that it finds its possibility through the synthetic operations of human

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[334] Kant writes "Human reason has the peculiar fate in one species of its cognitions that it is burdened with questions which it cannot dismiss, since they are given to it as problems by the nature of reason itself, but which it also cannot answer, since they transcend every capacity of human reason." Kant, Immanuel. *Critique of Pure Reason.* (Cambridge University Press, 1998.): 99.
[335] Michel Foucault, *The Order of Things: An Archaeology of Human Sciences.* (New York: Vintage Books, 1994.): 346.
[336] Ibid., 343.
[337] Ibid., 343.

understanding and intuition.[338] While the latter furnishes us with the external sensations through *a priori* forms such as space and time, the former supplies *a priori* categories that function to structure the formless inputs received from the sensible world.[339] For Foucault, this double nature of knowledge, as a middle ground of idealism and empiricism, is one of the three doubles[340] of man that construct the dominant logic of modernity where subject is both "constituting and constituted in relation to exteriority."[341] Determined by the empirical conditions that are external to itself and posited as the transcendental subject that determines them, the subject is the synthetic locus with its finitude in its body, language and labour. Moreover, while the subject is limited by the natural laws that transcend it, it also furnishes the transcendental grounds of them. Trapped in a logical impasse of this specific *episteme* which "offends or reconciles, attracts or repels, breaks, dissociates, unites or reunites; it cannot help but

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[338] This is why, in the Kantian model, thought that is produced by human understanding without the content of the sensible world is empty, and intuitions that are received from the sensible world that are not subsumed under concepts are blind. For instance, reason can construct ideas of the soul, of the world as a whole and of God; however, these three ideas are the source of a transcendental illusion, because they are merely subjective ideas as the product of human understanding and they cannot be experienced empirically.

[339] Moreover, in terms of morality, Kant has a peculiar way of defining human morality as the freedom to delimit itself. Moral autonomy consists of a double sense of freedom as independent from any external/empirical determinations and as the capacity to impose its own law. Kant's notion of autonomy of the will thus involves, as Andrews Reath has written, "not only a capacity for choice that is motivationally independent, but a lawgiving capacity that is independent of determination by external influence and is guided by its own internal principle–in other words, by a principle that is constitutive of lawgiving" (Reath 2006). Therefore rational agents can act autonomously by imposing "upon themselves –to legislate for themselves– the moral law."

[340] The other doublet is the mutual dependence of thought and the unthought, in the sense that in modernity the thought is conditioned by the unthought. In contradistinction to the self-transparency that marked the Cartesian cogito, Foucault claims that the modern cogito is conditioned by the unthought such "that all attempts at self-knowledge are necessarily blurred and marked by regions of opacity." (Murphy, Ann V. "The Double." In *The Cambridge Foucault Lexicon*, edited by Leonard Lawlor and John Nale. Cambridge University Press, 2014.) The third and final double relates to the relationship between historicity and subjectivity in the modern episteme; this double concerns the return and retreat of the origin. In his discussions of the origin, Foucault references the fact that man is marked and determined by a history that is not transparent to him, even as he is charged with rendering this history intelligible; hence man is the product and origin of history at once. As the main characteristic of modernity man as finitude is a breakthrough from philosophical models of the Classical age, where for instance the Cartesian model presupposes the transparency of cogito.

[341] Ann V. Murphy, "The Double." In *The Cambridge Foucault Lexicon*, edited by Leonard Lawlor and John Nale. (Cambridge University Press, 2014)

liberate and enslave," Foucault argues, "man appears in his ambiguous position as an object of knowledge and as a subject that knows: enslaved sovereign, observed spectator."[342]

Building upon Foucault's analysis, I argue that this same logic constitutes the immersive and interactive strategies inherent to VR as doubling the function of subjective finitude. As discussed in the previous section, the immersive strategies that VR deploys towards its claim of being an unlimited image system stems from the doubling of the function of the limitations of viewer. Concealing the material and spatial conditions of image beyond the sightline of the viewer in order to create the illusion of limitedness, the autonomy claim of VR requires a certain idea of subjectivity whose limitation functions to open towards its outside. It is the subjective interiority with its limitations that constructs the very exteriority that is limitless and unformed in its objectivity. In its phantasmagoric structure that conceals the material limitations of VR, the presupposed power of the viewer is only possible because of the finitude of the viewer. The subject is liberated through its limitation. Similarly, in its claim of freedom and immediacy in terms of interactivity, VR also doubles the function of viewer as subject and object at once. This is why I argue that what VR communicates is this paradoxical logic of modernity where the limitation is the condition of unlimited image experience. In its technological configuration as an immersive and interactive medium, VR embodies this peculiar idea of freedom where it is the viewer's finitude in its visual and corporeal configuration that allows it to experience this freedom.

Moreover, following Byung-Chul Han's problematization of the contemporary

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[342] Michel Foucault, *The Order of Things: An Archaeology of Human Sciences*. (New York: Vintage Books, 1994.): 340.

political subject in the context of neo-liberalism, I argue that the formal structure of VR as an immersive and interactive medium communicates a similar idea of freedom, where the subject is trapped within its own internal limitations. Epitomized by the internet, which, for Han, "was celebrated as a medium of boundless liberty,"[343] the neo-liberal idea of freedom in general and the contemporary media environment in particular promote the illusion of transparency and "unlimited freedom and mobility." However, this subject is caught in a tragic moment: the new subject that turns itself into a *project* deemed to be "free of external and alien limitations" subjugates "itself to internal limitations and self-constraints, which are taking the form of compulsive achievement and optimization." Equipped with new discursive and technological apparatuses, the subject becomes both its own master and slave. Similar to Foucault's "enslaved sovereign" or "observed spectator," the contemporary subject is trapped in the duality of freedom: "But now freedom itself, which is supposed to be the opposite of constraint, is producing coercion."[344] In fact, for Han, this new paradigm of neo-liberalism where freedom functions to produce coercion, which is different from the disciplinary power of the late 19th century, results in a proliferation of the psychological maladies that stem from the impossible task of self-management: "Psychic maladies such as depression and burnout express a profound crisis of freedom."[345] However, according to Han, what is more striking in this idea of freedom, where the subject auto-exploits itself in its isolation, is that "no *political We* is even possible that could rise up and undertake

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[343] Byung-Chul Han, *Psychopolitics: Neoliberalism and New Technologies of Power*. Translated by Erik (Butler: Verso, 2017.): 8.
[344] Ibid., 2.
[345] Ibid., 2.

collective action."[346] Given power through its limitation, this new tragic subject is an enslaved sovereign in its hermetical limitations to act and to see. I argue that this political power that is deemed to be inherent to VR and particularly to 360-degree documentaries which aim to create empathy reinforces the contradictory subjectivity that regresses into its own isolated and hermetic omnipotence.

5.5 Conclusion: Reinstating Boundaries

The third section of this dissertation, which addresses the question of autonomy through my artistic experiment in VR viewership, will critically engage with the theoretical and methodological framework I have developed throughout the dissertation. This particular section aims to develop a conceptual link between the way that I have addressed the methodology and the archaeology of VR conventions. For instance, the general mechanism of the autonomy claim in VR can be boiled down to one single discursive operation: "cancelling-by-concealing boundaries that define visual structure." Therefore, in order to respond to this set of conventions, I reinstate the boundary as a problem in virtual space. As a technology which both separates and juxtaposes the elements that it mediates, boundary, I argue, is a unique aesthetic means to re-examine the associations and disassociations of the sets of concepts that define the artistic experience in VR such as autonomy and heteronomy, real and image, actual and virtual etc. Boundary separates as soon as it brings elements together, associates and disassociates, bounds and unbounds at once. A boundary is always double, but this doubling is neither determinate nor indeterminate. It is the locus that neither belongs to

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[346] Ibid., 6.

any of those that it brings together, nor is dependent from them. It is the contact point where two elements express difference and sameness at once. It is neither autonomous nor heteronomous but both at once. Therefore, problematizing the boundary will also function to problematize the question of autonomy, as I have suggested in the methodological model that I have developed. Since I provide a detailed description of my VR experience supported with visuals in the report that is attached as an appendix, here I will simply outline the general formal structure.

In this context, my intention is to push the immediacy claim to its limits to create a crisis in its conventions in such a way that the question of autonomy becomes visible as a problem. In order to do that, following the Cavellian formula, I have reconfigured the very technological structure of the VR headset. To re-examine the associations and disassociations of the concepts of autonomy and heteronomy that define contemporary VR conventions, along with immediacy and mediation, passivity and activity, visible and visible etc., my VR experience formally deploys immersive and interactive techniques that aim at problematizing the concept of boundary. It aims to make the boundaries of the viewer and the very boundary that separates the actual space from the virtual space appear as a problem in the very construction of the immersive and interactive aspects of the VR experience that I have developed. There are two different boundaries that are problematized: the visual boundaries of the viewer, and the boundaries between the actual and virtual environment. While the former has been deployed as an aesthetic means to unfold the narrative structure and interactivity, the latter is deployed to push to the extreme the discursive fabric of unlimited image where real and actual becomes indiscernible.

The first instance of the problematizing of boundary in virtual space, that is, the one which belongs to the viewer, is inspired by a VR game called *Sightline: The Chair*[347] to which I was introduced in Graham Wakefield's course. Produced by Tomáš Mariančík in 2015, the game is based on a simple idea, yet is radically different in terms of interactivity and immersion from any other VR installation that I have experienced. It deploys a "gaze-detection" mechanism, which enables a shocking effect in the sense that visual changes in the virtual space occur only when the user looks away from the location where changes happen. Located on a chair, in this game the viewer is immersed in a room populated with mundane elements such as a desk, a computer, a plant, and a box of doughnuts sitting on the right-hand corner of the desk. At first glance nothing appears to be changing. However, at a seemingly unremarkable moment, when the viewer looks away from the doughnuts sitting on the table and then looks back again, the doughnuts have been replaced with an apple and some bananas. This displacement technique then governs the whole narrative unfolding of the game. Each of the elements in the room starts to disappear or is displaced with a new one, and gradually, with the continuous effect of shock and surprise, the viewer in the room finds itself on a lush hill, and in the next moment in the middle of a street. Toying playfully with the viewer, *The Chair* elicits claustrophobia one minute and an immense sense of scale the next.

This surrealist effect that Mariančík and his team developed was very unique; it abnegates the postulated power given to the subject in VR conventions as both omnivoyant and omnipotent subject. What was even more unique was that the visual limitations of the viewer were that which defined the narrative unfolding, and the locus of

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[347] Tomáš Mariančík, "SightLineVR on Steam." Accessed June 26, 2019. https://store.steampowered.com/app/412360/SightLineVR/.

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change was beyond the visual field. They had managed to incorporate the invisible areas in VR as the main element of the experience. The whole visible area was dictated by something that was beyond visibility. Unlike conventional VR works, which are based on the false promise of absolute transparency and accessibility of the visual field, in *The Chair*, it was the invisible which was governing the visible. This incorporation of invisible sections of virtual image revealed the phantasmagorical mechanism inherent to VR. However, more importantly, despite the fact that the displacements and replacements occur depending on the head movement of the viewer, it creates the opposite effect of classical interactive games: the viewer never knows the next result of her or his interaction. The transparent and direct relationship between the bodily movement of viewer and the alteration of image was replaced with this new opaque and obscure relationship. It is as if there is something beyond the control of the viewer and beyond its peripheral limits like the deceitful malin génie of Descartes.

My VR experience will further "the gaze-detection mechanism" into a limit case. Instead of altering one virtual space to another or displacing the virtual object in the virtual space as is the case in *The Chair*, my work will radicalize the effect in the sense that the gaze-detection mechanism will work to switch between the live images from the cameras attached to the headset and a realistic 3D design of the actual space in which my VR experience will be taking place. Switching between different modalities of immersive media technologies (MR to VR), I aim to conceal the transition between these two images to crystallize the hyperbolic effect of unbounded image, whose ultimate promise is to create an image system where reality or the actual world becomes indiscernible from its image. The transition will be realized gradually: it will first displace the elements in

actual space such as the people in the room who are watching the actual VR viewer. When the gradual transformation from live image (from the front camera) to virtual 3D design is completed, the same gaze detection will be deployed to alter the virtual image. Contingent to the user's head movement, it will change the position of elements in the room such as chairs and table.

The VR experience starts with the live image from the camera attached on the front of the headset. Using the gaze-detection mechanism it will then switch to a 3D design of the actual room. When the gradual transformation from live image (from the front camera) to the virtual 3D design is completed, the same gaze detection will be deployed to alter the virtual image. First the elements that are in the actual room such as chairs and the sensors will disappear. Following that, again using the gaze detection mechanism, the structure of the room is altered. It will then gradually trace the same alteration back to the initial image that is provided by the camera. Therefore the headset, which normally functions to conceal or occult reality by shutting off the viewer perceptually, is transformed into a transparent mediation. In other words, I push to its limits the transparency argument that defines purported autonomy in VR as medium. The VR headset, which normally functions as the boundary between real space and the virtual environment as limitation from within, with the attachment of a camera, will be problematized. This is the second instance of problematizing the question of boundary. Aiming to encourage the viewer to reflect upon the immersive possibilities of VR, my virtual experience will take transparency rhetoric -by attaching a camera that feeds the live image to the headset- to a limit case. Even though the live feeds from both cameras are not the immediate image of reality in its visual structure, their temporal immediacy

(their "aliveness") and indexical nature will be allegorically used as the reference image to reality. Concealing the effect of transition from the live feeds from the cameras to a 3D design of the actual space, I aim to create an allegory that VR can manipulate reality (the reference images from the camera).

Started as a research-creation project that would engage with Stereoscopic 3D and later re-tooled to focus on VR as a research object, this project, from the outset, has always been informed by one specific methodological approach: that is, to engage with cinematic ontology from without. In other words, methodologically, instead of configuring an essentialist definition of cinematic image, I would engage with the technologies that can be considered to be on the periphery of cinema itself such S3D and VR. Indeed, this was the finding of my early research on the artistic and technological character of cinema in its historical development. Following an uneven trajectory, cinema's identity has never been given at once in its historical development; in fact, it becomes more indistinct through its encounter with new technological development, and this constant transformation in its inner organization as technology has resulted in a permanent identity crisis. This is why I believe cinema can only be defined by its limit cases which both transgress and affirm it at the same time. In this context, VR, as the most recent periphery of the cinematic media landscape, struck me as an excellent opportunity to circumscribe cinema from without.

This blurring of the lines between cinema and non-cinema is quite apparent in the recent media landscape. Rather than being an isolated locus within the recent media landscape, the expanded territory of cinema defines a broader scale of intersections of different platforms (theatres, smartphones, TV and computers), distribution methods

(Blu-ray, VOD, piracy), narration strategies (videogames, interactive media, etc.) and technological syntheses that constitute the larger system of the cinematic media landscape such as S3D, VR, AR, TV, etc. This expansion has been so radical that cinema, or at least the normative form of cinema, has reached a crisis point where it has become impossible to identify it as one singular practice. Nevertheless, for many theorists, thanks to the very proliferation of different platforms that incorporate moving image technology, cinema is more alive, more abundant, and more omnipresent than ever (Gaudreault and Marion, 2015). Moreover, it is impossible to take either its origin – or at least a particular instance from the history of cinema — or its future as the privileged reference point. In fact, the historical development of cinematic technology, as Jens Schröter observes, is oriented "more spatially and topologically where several media are related synchronically to each other in a systematic relationship or exist and develop diachronically within a specific constellation."[348] That is, as a process, which can be defined by neither an origin nor a future, cinema follows a non-linear history in which its identity becomes more indistinct through its encounter with each new technological development (sound, colour, S3D, TV, Digital etc.). In other words, the historical development of cinema results in a permanent identity crisis.

Moreover, this identity crisis inherent to cinema as a technology not only marks its historical development, but it has been the ultimate defining gesture in its artistic practices since its inception. Cinema, I argue, functions as a sensible means to create crisis between the concepts, events and activities that it brings together with its temporal structure and image regime; it is an artistic means that reconfigures the relations between

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[348] Jens Schröter, *3D: History, Theory and Aesthetics of the Transplane Image.* Revised edition. (New York: Bloomsbury Academic, 2014.)

the terms (image and reality, spectator and spectacle, temporal and spatial etc.) that it brings together through an aesthetic, epistemological, political and ontological crisis. As defined in my methodological approach, however, these relationships are always singular, and therefore they only emerge as sensible crises within the pre-existing model. In other words, the identity crisis that emerges through cinema's technological development is also what defines its aesthetic promise. In fact, cinema has been charged with the task of dragging into crisis the very language in which it has been located within the dominant social, political and cultural context. In this context, I aimed to capitalize on VR as an instance of identity crisis of the cinematic medium; I argue VR is cinematic in the sense that it affirms the very identity crisis that defines cinema. In other words, as an epistemological model, cinema — hybrid in its historical development, its technological determinations and its aesthetic strategies — has provided me with the conceptual and the historical framework to investigate the possible crisis that VR is capable of producing.

However, despite this initial motivation, I discovered that VR is technologically organized as a means to develop a realistic image, and defies the established methods of generating crisis within the associations and disassociations in cinematic language. In fact, my experimental attempts informed by cinematic identity crisis in VR appeared to be technological problems rather than an aesthetic one. For instance, in my early attempt to communicate the headset and the camera attached to the headset, I discovered that VR, in its most recent configuration, does not allow such a process. First, it proved impossible to integrate the image registered from the camera into VR image without loss in image quality; there was almost no way to accommodate classical cinematic image. Second, it was impossible to imitate the low image quality of the camera within VR image in terms

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of resolution, contrast or brightness. VR is technologically organized to provide only great quality image in terms of these parameters for high perceptual realism. More importantly, this connection ultimately created discomfort in my VR installation. In fact, I discovered that most of the technological research on VR aims to eliminate these uncomfortable results such as headache, stomach awareness, nausea, vomiting, pallor, sweating, fatigue, drowsiness, disorientation, and apathy. My attempts to push the technological configuration of the VR headset to its limits cannot be accommodated in VR, not due to an aesthetic problem but rather as a technological problem that resulted in the phenomenon called "virtual reality sickness." As embodied experience, VR does not permit most artistic practices that are established in cinema which engage with the inner mechanism of image production, as in the case of the medium-specific approaches of Stan Brakhage, Michael Snow or Zbigniew Rybczyński which informed my artistic practice. Therefore, despite the conceptual connection between VR and cinema that informed my historical research, my artistic practices in VR ultimately revealed the ways in which it differs from medium-specific approaches in cinema which are generally organized according to certain audiovisual-centric applications. Despite its conceptual and historical connections with cinema, it is not possible to translate the conventions of modernistic approaches in cinema to VR.

6. Conclusion

> What is it […] that divides the atmosphere from the water? It is necessary that there should be a common boundary which is neither air nor water but is without substance, because a body interposed between two bodies prevents their contact, and this does not happen in water with air. […] Therefore a surface is the common boundary of two bodies which are not continuous, and does not form part of either one or the other, for if the surface formed part of it, it would have divisible bulk, whereas, however, it is not divisible and nothingness divides these bodies the one from the other. — Leonardo da Vinci[349]

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[349] Leonardo da Vinci, *Notebooks*. Edited by Irma A. Richter and Martin Kemp. (OUP Oxford, 2008.): 120.

Naming an artwork is an emblematic moment where the tension that traverses the entire process of research-creation inquiry, is crystallized. In this process of naming the artwork, pushed to the limit, the artist-researcher has to engage, at least symbolically, with the fundamental challenge of the hybrid dissertations that is to define a relationship between an artwork and a text that functions as name. But how a text functions as a name is a puzzling process. A name always has a double position: it is external to that which it supplements but also an integral part of it. Once it emerges it divides itself, both as complement and supplement. It's a complement, as Derrida formulates, an "addition [that] comes to make up for a deficiency."[350] But what is deficient in an artwork that its name claims to make up for? Or can a work of art ever be said to be completed? A name is also a supplement that comes after the artwork; however, it supplements something that is already present in the artwork. While it adds to it, it also claims to be in the place of it or speak on behalf of it. At the same time, while demonstrating and exposing the artwork, the name, as complement and supplement, is, in return, exposed by the artwork as well. As Nancy suggests, both the artwork and its name discern themselves in the other. The name demonstrates both itself and that which it supplements or complements. In fact, as Nancy suggests, signalling the common etymological background of "demonstrate" and "monstrous," the name and image "show that there are at least two kinds of showing, heterogeneous and yet stuck to one another, collated, pressed and compressed together (like the stones in an arch), attracting and repelling one another. Each is monstrative and

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[350] Jacques Derrida, cited in, Spivak, Gayatri Chakravorty "Preface" in Derrida, Jacques. *Of Grammatology*. Edited by Gayatri Chakravorty Spivak. (Corr edition. Baltimore: Hopkins Fulfillment Service, 1998.)

monstrous to the other."[351]

It is through this constant negotiation, tension and monstrous double operation that this dissertation has unfolded. Its uneven and spiral structure oscillated within the dichotomous positioning of research and creation, theory and practice, text and image etc. In writing and making it, the relative position of each component (textual and visual) in regard to the other has gone through a tumultuous trajectory that has involved constant revision of one component according to the experiments and funding that emerged in the other. Different in language, methods and means, each one was regulated and redefined ultimately in and by the other. While they complement each other in problematizing each other, they converge in addressing the relation between historically polarized concepts. Ultimately the central problem has been to re-examine the associations and disassociations between the concepts, events and methods of the conventions of both research-creation scholarship and VR aesthetics. Through a threefold inquiry on the question of autonomy and heteronomy, this dissertation has aimed to problematize the very context that made it possible. First, I problematized the autonomy of art purported to be the grounding gesture of the critical nature of research-creation; second, the autonomy purported to be inherent to VR as an immersive and interactive image technology was called into question; and third, as the extension of the second, I problematized the autonomy of the viewer and virtual images in the VR experience that constitutes the artistic experiment component of the dissertation.

For instance, the ultimate question in research-creation, due to its hybrid structure, is to re-examine how the events and concepts which are historically deemed to be

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[351] Jean-Luc Nancy, *The Ground of the Image*. (Fordham Univ Press, 2005.): 64.

incompatible and oppositional, such as theory and practice, research and creation, and image and text, are related to each other. Each schema I scrutinized attempts to set a framework for the relationship between the incommensurable elements whose connection is impossible to subsume under a universal and essentialist formula. This is why, for them, research-creation is an experiential, procedural, liquid inquiry method; in fact, according to these schemata it is not even a method: it is essentially anti-essentialist. With its inherent impasses, tensions and paradoxes it is posited as being autonomous from external criteria, and in fact its task is to challenge universalist, determinist, hierarchical and essentialist formulas. However, the problem is that, pushed to the extremes, research-creation's critical function stems from its supposed hybrid essence that is supposed to be autonomous from the precedent means, formulas, genres and concepts etc., or in general from the historical context in which it became possible as a scholarship and methodology. It is thus impossible to frame what research-creation is; yet this very impossibility is both its necessity and possibility.

However, this autonomy claim that guarantees its possibility is not only paradoxical but also problematic. First, the schemata I examined reinforce a certain essentialism wherein research-creation functions as critical due to its anti-essentialist essence. Since in its very essence it's anti-essentialist and anti-dualist due to its hybrid nature, it is claimed that each research-creation project is a rupture from the academic knowledge production process and from forms which are defined by an essentialist, dualist and binary logic. However, these schemata reinforce binary logic in order to dismantle it. For instance, they have to first distribute elements in binary positions in order to bring them together: the binary distribution has to be established not only historically but also essentially.

More precisely, in order to frame the hybrid nature of research-creation as autonomous from a given historical context, the schemata have to posit those elements as essentially oppositional and therefore autonomous from each other. However, research and creation are in fact never separate: they can only emerge in the mutual dynamic relationship between activities and concepts which are both autonomous from and heteronomous to one another, such as theory and practice, art and science, sensuous and material, subjective and objective, universal and particular etc.

In this context, I argue that autonomy is not a given; it can only emerge as a problem. In fact, as Lütticken suggests, autonomy is not a fact that the artist-researcher can possess, and more radically, artistic practices ultimately aim to problematize the question of autonomy. In other words, the creative task is to problematize the conventions claimed to be inherent to the medium itself in order to challenge the historical, material, social and ideological context in which it became possible. For this reason, I argue that the very task of research-creation is to excavate the political, aesthetic and social coordinates of the artistic practices and their technological and material conventions within the historical context in which they emerged. Thus this dissertation consists of three moments of historicizing. First, I historicized the autonomy claim of research-creation. I mapped out its conceptual connections within one specific instance of the autonomy claim in aesthetic theory, which, I believe, is crystallized by cinema. I specifically looked at the philosophical conceptualization of cinema in the work of three figures of post-war philosophy: Deleuze, Rancière and Badiou. Similar to research-creation, cinema's critical function, according to these three figures, stems from its hybrid nature. Due to its temporal structure and its visual regime that congregate in

different art forms, cinema is posited as an event that drags the truth into crisis. It is therefore an anti-essentialist and anti-metaphysical art form. However, I contend that there is no essential link between the hybrid nature of cinema and its critical function. The critical function is never *a priori* given, nor guaranteed in the material structure of the medium. For this reason, artists first and foremost are archaeologists in a Foucauldian sense. Their ultimate task is to excavate the conditions of existence of their artistic practices in their material, aesthetic and socio-political determinations.

The second moment of historicizing consisted of mapping out the historical background of the very aesthetic, technological and political conventions of VR which emerged as both a model and an integral part of a particular techno-utopic paradigm that seeks to develop an image system autonomous from both the mediation of artist and the material and socio-political determinations of reality. I specifically scrutinized three instances of this paradigm: early immersive architectural and pictorial images, cinema, and cybernetics. For instance, within the history of cinema, VR emerged as a future model that can realize the promise of cinema. In this context, the second chapter of this dissertation is dedicated to mapping out the aesthetic coordinates of future cinema whose last iteration was VR. The early model for future cinema, particularly in early film theory such as that of Münsterberg, Balázs and Eisenstein, was stereoscopic 3D which was supposed to realize the artistic promise of cinema. Through its spatial capacity to blur the limit between screen and proscenium, according to early schemata, it would reveal the artistic essence of cinema, whose promise was to create an image where spectacle and spectator, image and reality, would reach a state of indiscernibility. Similar to S3D, the early approaches to VR also converge in the same objective: to eliminate the boundaries

that separate oppositional elements. The other instance where VR is posited as a model is in cybernetics, particularly the third wave of cybernetics that Hayles argues is instantiated by VR. With the advent of the computer, research in cybernetics, particularly in the postwar era, has focused on developing autopoietic or autonomous images which VR instantiated with its immersive and interactive structure.

In general, the aesthetic coordinates of VR conventions prioritize the ideas of empathy, immediacy, and by extension, autonomy. Given the supposed absence of any visible spatial boundary in its objectivity, VR ostensibly provides not only the unlimited character of reality in terms of spatiality, but also this presumed limitlessness of VR is delegated to the viewer as the power to perform her or his own selections. Concomitant to the absence of spatial limitation, as is the case in screen-based image systems, the viewer in the virtual environment is presumed to be emancipated from the mediations of an artist whose fundamental operation is to limit the image in time and space. It is presupposed that, free to look wherever she or he wants, the viewer in VR is given power and control over the image itself. Therefore, VR, as the result of this putative autonomy, is considered to be an immediate image. For instance, for Sutherland, VR can change the ways in which we define reality by eliminating the differences between image and matter; for Lanier it can restore the sense of being part of a community through its unlimited imagery in which social differences are cancelled; for Heilig it can function as the ultimate medium that can bring together other media and eliminate the difference between image technologies; for Krueger, as an interactive medium, it can function to dismantle the limit that distributes the viewer and maker in binary opposition as is the case in non-interactive image technologies.

Similarly, within the contemporary media landscape, VR has been framed as the ultimate image that can, first, represent the unlimited character of reality, and second, cancel out the mediation of the artist. Built upon the hyperbolic presumption that VR enables a non-mediated experience wherein the viewer can interact or identify with different subjectivities, contemporary VR aesthetics is in large part characterized by the concept of empathy. It is asserted that, with its higher perceptual realism relative to cinematic image and its absolute control over representation through digital information, VR enables not only a technological utopia where ontological differences between image and reality are suspended, but also a democratic and autonomous site where social, class, gender and racial differences can be eliminated. The general mechanism of the autonomy claim can be boiled down to one single discursive and technological operation: cancelling-by-concealing the boundaries that define visual structure. The locus of this immediacy claim—as autonomous from the mediation of the artist and objective determinations of the medium itself—is the very finitude of the viewer. It assigns to the finitude of human vision a dual role as both the condition and means to transgress these limitations. It is only an unlimited image system insofar as it conceals its means of production beyond the very visual field of the viewer. Therefore the autonomy claim is not only phantasmagorical but also there is no necessary link between the autonomy of VR and its projected political outcomes. More importantly, it reinforces a certain illusion that immersion in virtual space is capable of stripping away immersants from their bodily determinations, and by implication their socio-political background and the complex network of socio-political determination in which a subject is embedded. Complementary to this hyperbolic argument in regard to virtual representation, VR is posited as a utopic

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site that can facilitate the construction of a democratic and neutral platform where the boundaries that define material, spatial, gender, racial and class difference can be abolished and replaced with a harmonious alternative reality. However its political claim to restore the lost community through technological means is ultimately non-communitarian. It enforces a circular logic where the subject is re-configured as omnipotent and omnivoyant through its own finitude and charged with allegorical political activity where freedom functions as self-regulation and self-exploitations. It enforces a certain illusion that with the right technologies, which regulates the image according the subjective conditions of viewer, subjects can experience certain freedom in order to develop an altruistic understanding autonomous from the power relations that made the very technology itself possible.

It is in this context that I problematize the boundary as an aesthetic means to re-examine the associations and disassociations of the core concepts that define contemporary VR conventions—e.g., autonomy and heteronomy, immediacy and mediation, passivity and activity, invisibility and visibility. My VR experience formally deploys immersive and interactive techniques that aim to reinstate boundary within the virtual environment which has been epitomized as a shorn boundary. Appearing as a problem, boundary—both the perceptual boundaries of the viewer and the boundary that separates actual space from the virtual—serves to critically engage with contemporary VR conventions. While the finitude of subject (determined by its visual boundaries) is deployed as an aesthetic means for the interactive structure of my VR experience, the boundary between the image and reality is deployed to push the discursive fabric of the unlimited image into the extreme in order for it to emerge as a problem. Therefore the

entire dissertation—in its methodology, its theoretical and historical research and artistic practices—attempts to find a specific formal strategy to challenge the conventions of the contemporary VR aesthetic. It oscillates within the dynamic relationship between what is heteronomous and what is autonomous in the very configuration of its artistic practices, and from there it abstracts and distils one specific concept and technique –boundary- that can enable a new configuration of the concepts, the events and the activities that define its conventions. It is with all of these considerations in mind that the VR experience that I made evocates its name: Boundaries.[352]

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Appendix: Boundaries Project Development Dossier
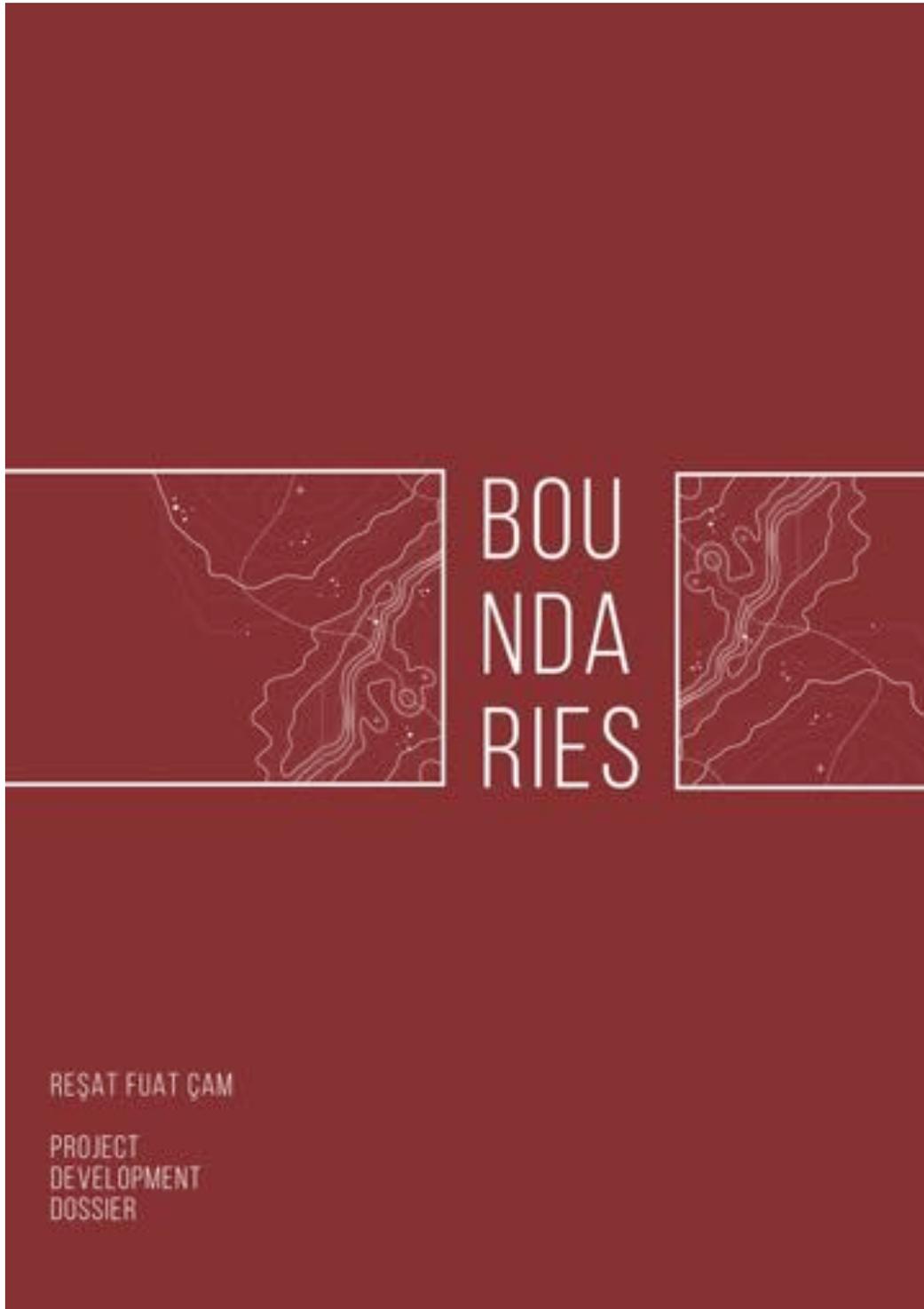
1 OVERVIEW

As part of my dissertation, this project engages with the question of boundary in Virtual Reality (VR), a medium whose technological and artistic conventions generally prioritize immediacy and autonomy. The general mechanism of the autonomy claim in VR can be boiled down to one single discursive operation: cancelling-by-concealing the boundaries that define visual structure. In order to respond to this set of conventions, I set out to reinstate the boundary as a problem. I argue that "boundary"—in the sense of a limit or threshold and as a technology that both separates and juxtaposes elements—is a unique aesthetic means to re-examine the associations and disassociations within concepts that define the artistic experience in VR, for example, autonomy and heteronomy, real and image, and actual and virtual. I aim to make both the perceptual boundaries of the viewer and the boundary that separates the actual space from the virtual visible as problems through the very construction of the immersive and interactive aspects of the VR experience I have developed. While the former is deployed as an aesthetic means to unfold narrative structure and interactivity, the latter is deployed to push to the extreme the discursive fabric of an unlimited image to the point where real and actual become indiscernible from each other.

My intention is not to use VR as a medium to communicate a specific social, cultural, subjective or geographical event, subjectivity/character etc.; on the contrary, it is to engage with the very medium itself through both a theoretical critique and artistic experiments. However, mobilizing the medium itself against the dominant paradigm that rendered it technologically possible, parallel to the critique that I have developed in my dissertation, I will address the ways in which the question of the autonomy of the viewer claimed to be inherent to VR will be subverted in the immersive and interactive installation I will develop.

2 OVERVIEW

WHAT DO BOUNDARIES DO?

Boundary separates as soon as it brings elements together, associates and disassociates, bounds and unbounds at once. It is the locus that neither belongs to any of the components it brings together nor depends on them. It is the touchstone where two elements express difference and sameness at once. Thus by problematizing the very boundary itself, this VR installation engages with several dichotomous couples:

TRANSPARENCY VS. OPACITY

By attaching camera to headset, this installation aims to emphasize its presence by transforming into a transparent boundary between the viewer and actual space. Through the simultaneous operation of recording and displaying, the headset, which in general serves to shut off the viewer perceptually from the actual world within a hermetically closed image, will oscillate between transparency and opacity.

VISIBLE VS. INVISIBLE

This project aims to instrumentalize the invisible areas in the virtual environment that are beyond the sightline of the viewer. The changes that will happen in the virtual environment will be visible to the viewer only after they happen. Initially invisible to the viewer, the changes will only become visible to the viewer when he or she looks back at the elements.

INTERACTIVITY VS. INTERPASSIVITY

Unlike the conventions of interactive media where the user is given the power to control the visual field, in this project the user will be a passive observer of his or her own actions. Breaking the chain of action and reaction by concealing the direct effect of the action in invisible areas of the virtual environment, it aims to dissociate the logic of interactivity.

ACTUAL VS. VIRTUAL

By reproducing the actual space in the virtual environment, this VR piece aims to problematize the boundary between actual space and its representation. Concealing the transition from the actual image from the camera to VR, and vice versa, it oscillates between two regimes of image.

FINITE VS. INFINITE

Using the areas beyond the sightline of the viewer, this project will emphasize the function of the visual finitude of the viewer in VR, which in general is considered to be an infinite image system.

AUTONOMY VS. HETERONOMY

Finally, the project is an allegorical take on the discursive pattern that has defined VR conventions, which has promoted the idea that VR is autonomous both from the mediation of artist and also the material, social and spatial determinations of reality.

3 OVERVIEW

THE PURPOSE OF THE PROJECT

This project aims to critically engage with the formal operations of contemporary conventions of VR aesthetics, which in general prioritize empathy and immediacy. As mentioned before, the immediacy claim in VR is established according to a specific discursive pattern, "cancelling-by-concealing boundaries that define visual structure." It is in this context that BOUNDARIES aims to reinstate boundaries as an aesthetic means.

SUMMARY

Combining VR, MR, and site-specific art practices, this project is an interactive installation that instrumentalizes the very space in which the piece itself takes place. Starting with a live image of the actual image, it will then switch to a digital reproduction of the actual space. Contingent to the user's head movement, it will change the position of elements in the room such as chairs and table.

WHAT WILL PARTICIPANT CONTROL?

In direct contrast to interactive art conventions, this project aims to challenge the idea of the omnipotent viewer/user. Therefore the narrative unfolding of the installation will emerge according to a certain mechanism that conceals the effect of the user's action. While it will be realized according to the head-movement of the user, the results of the user's actions will be concealed or will be exposed only after they happen.

DURATION

While there is no exact duration, since the narrative unfolding is contingent to the user, we anticipate that it will be around 3 minutes. Also, since it aims to create a perceptual discrepancy between real and image, there is a possibility that it may induce motion sickness. Therefore we aim to keep the duration of the experience at a comfortable level.

USER INTERFACE

There will be no user interface added to the actual image of the webcam and its reproduction in order to increase the transparency effect.

SOUND

Since it aims to increase the presence effect, there will be no sound other than the actual sounds. In fact, one could argue that this is a silent image.

LOCATION

The installation will take place at Gamma Gallery in the Toronto Media Arts Centre (32 Lisgar St, Toronto, ON M6j 0C9).

THE TECHNOLOGY

This installation will use a VR headset, specifically Oculus Rift, and sensors.

4 OVERVIEW

THE STORY

BOUNDARIES is about the very moment of defending my doctoral research which I conducted at York University; more specifically, it is a site-specific art installation that instrumentalizes the dissertation defense setting and its location. Starting with the feed from the webcam attached to the headset, initially the user will see the real room. There will be six chairs assigned for each participant in the dissertation defense, specifically my defense committee members. After a while, the viewer will observe the environment through a webcam attached to the headset, and the audience sitting on the chairs on both sides of the room will have disappeared. Following this, there will be changes in the number and position of the chairs. First, the numbers of chairs on the right side will change so that there are five chairs, and eventually every chair in the room will disappear. Then the pillars that are located in the two corners of the room will be replaced and displaced according to the head movement of the viewer. Once each of the pillars disappears, the position of the stairs/hallway exit that is behind and to the left of the user will have appeared on the wall that is in front of the viewer. End

WORLD

ROOM: GAMMA GALLERY, TMAC

The installation will take place at Gama Gallery in Toronto Media Arts Centre (32 Lisgar St, Toronto, ON M6J 0C9).
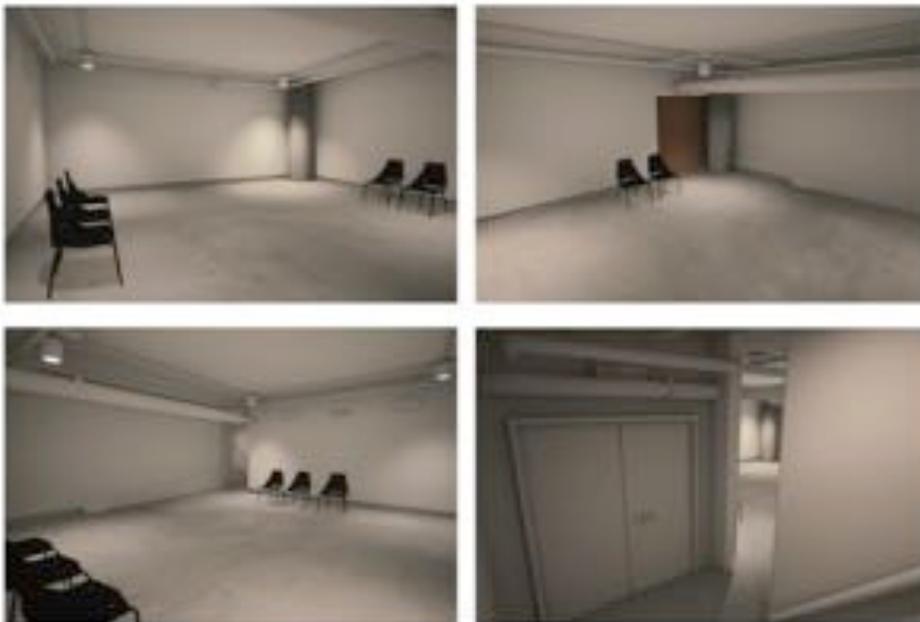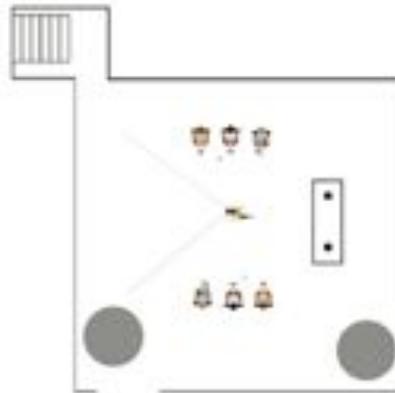
STORYBOARD
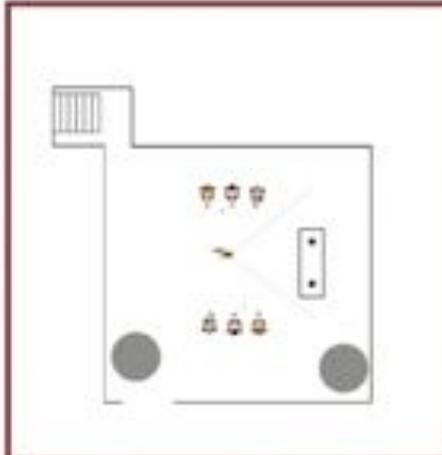
Participants are asked to sit in the centre of the room facing West (the blank wall). Chairs for the observers are on the North and South walls.
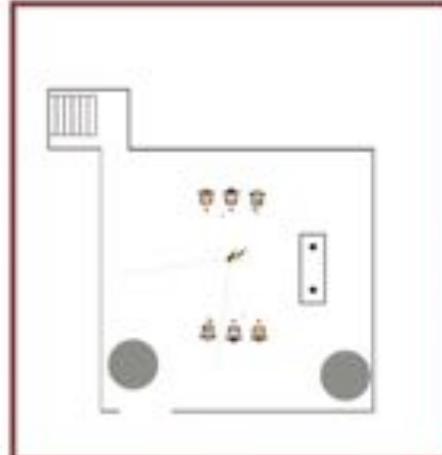
They are given enough time to adjust to the envorinment and to observe the around through webcam.
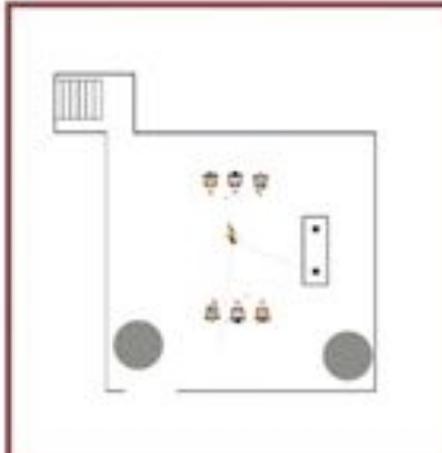
They look around and see the observers in their chairs on either side.
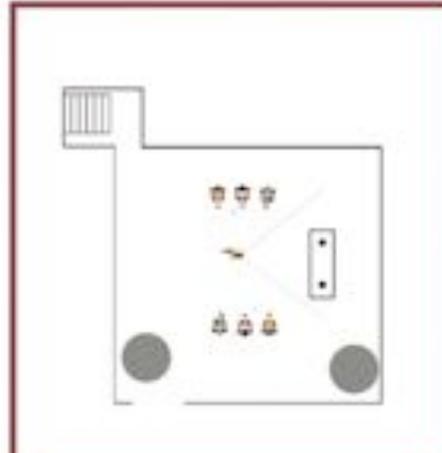
When participants face towards the empty wall it swichtes to VR reproduction of the room. When the gaze of the participant is centred on the wall, the transition to baked lighting happens.

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STORYBOARD
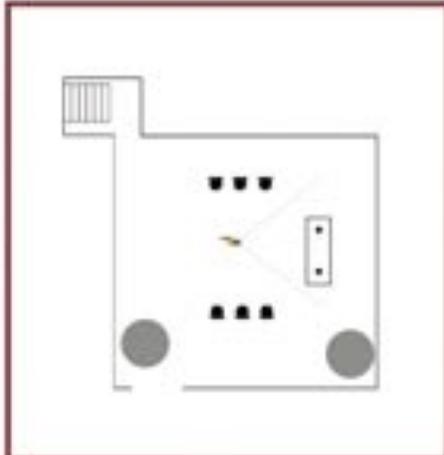
The baked-lighting room has the same layout as the real-world room.
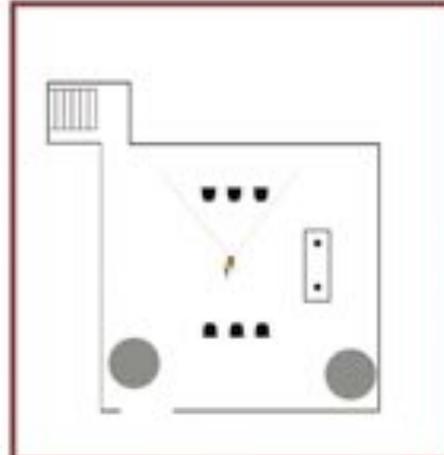
Viewer will see the 6 chairs are now empty (without people)
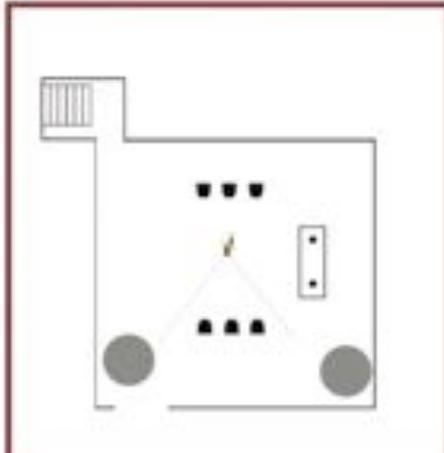
Viewer will see the 6 chairs are now empty (without people)
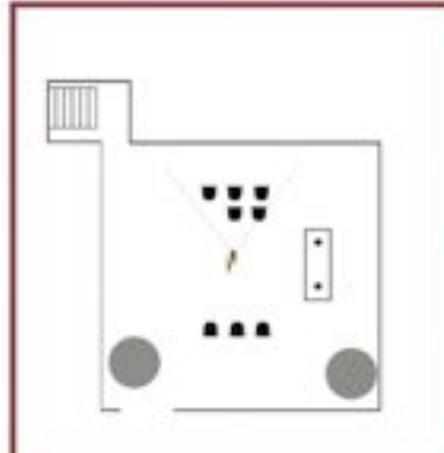
Participants see, on the second view on either side, five chairs.

STORYBOARD
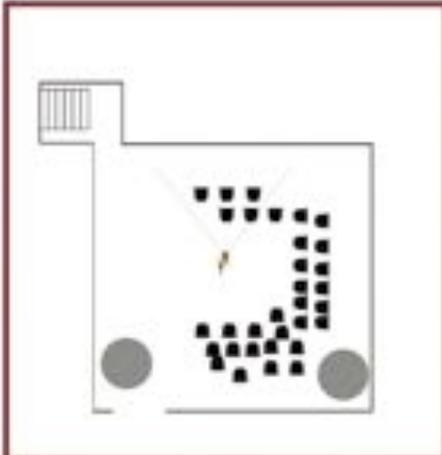
Then look around: room is lined with chairs (starting from natural peripheral area)
Note: basically, looking to have chairs appear immediately outside field of vision
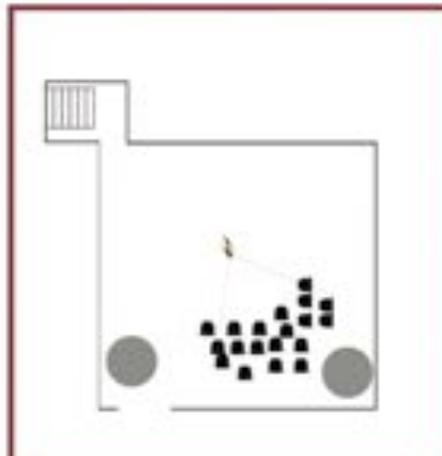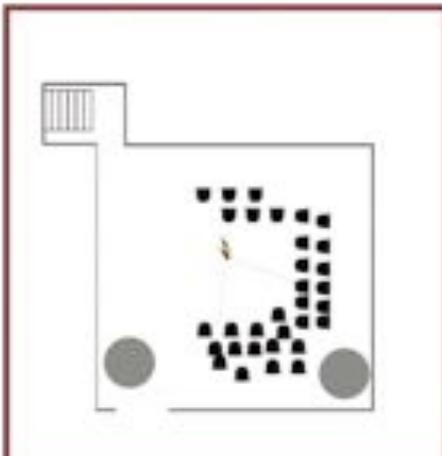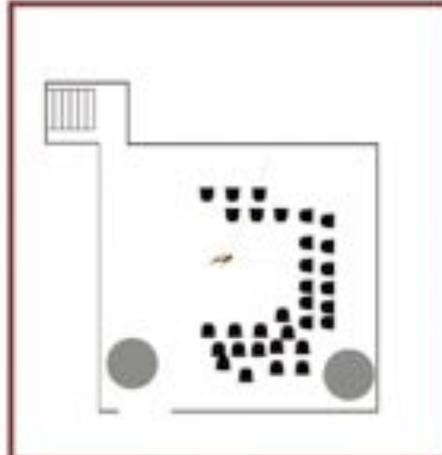
Turn head to the other side and the chairs on the peripheral will be gone.

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STORYBOARD
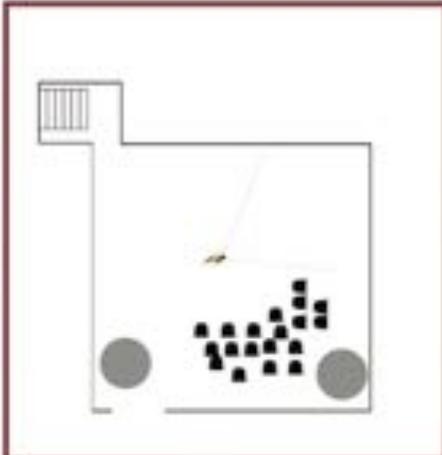
Turn head to the other side and the chairs from on the peripheral will be gone.
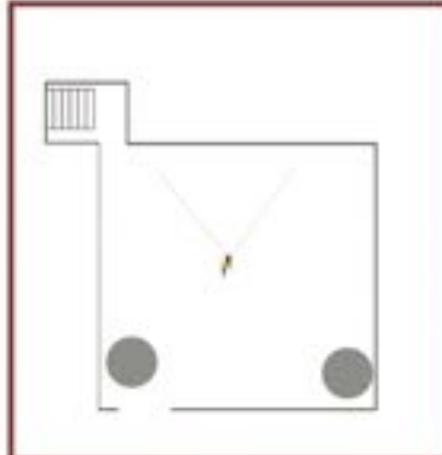
Look to the other side and the chairs are gone on the other side.
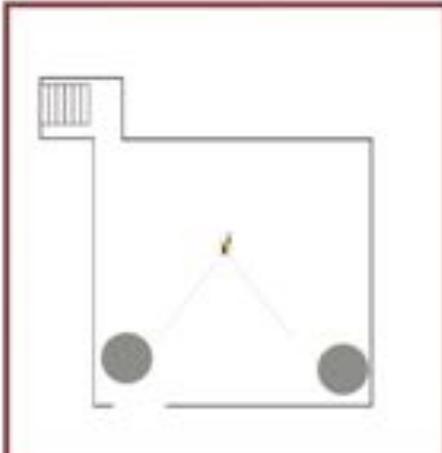
Look to the other side and the chairs are gone on the other side.
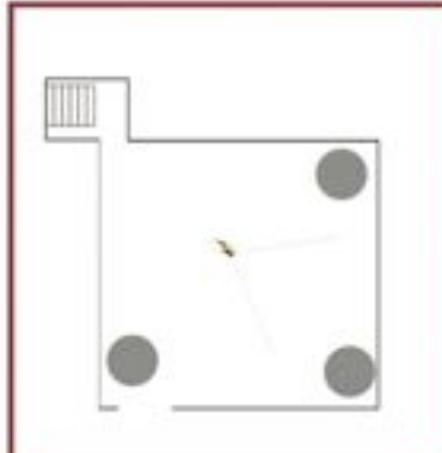

Swap the pillar from its original corner to the opposite.

STORYBOARD
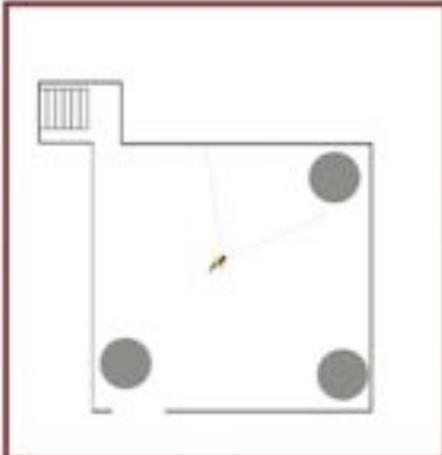
Swap the pillar from its original corner to the opposite.
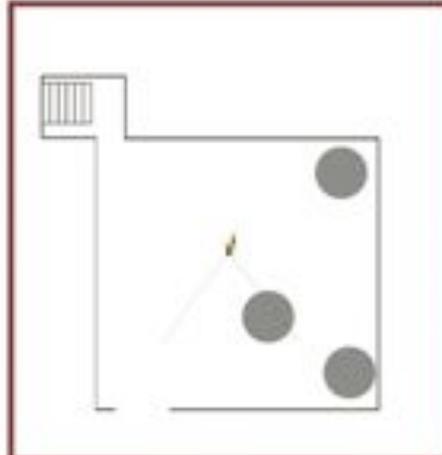
Look to the other side and the chairs are gone on the other side.
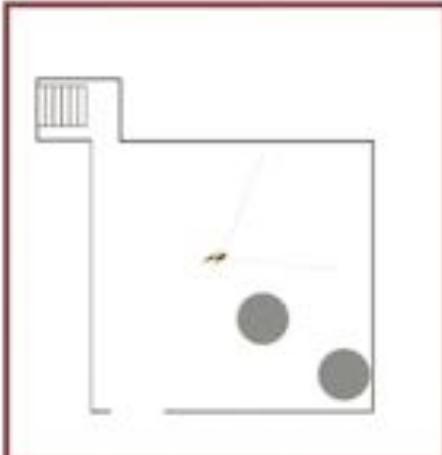
Move head back: no pillar

Move head back: no pillar

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STORYBOARD

Move head back to centre: see the hallway
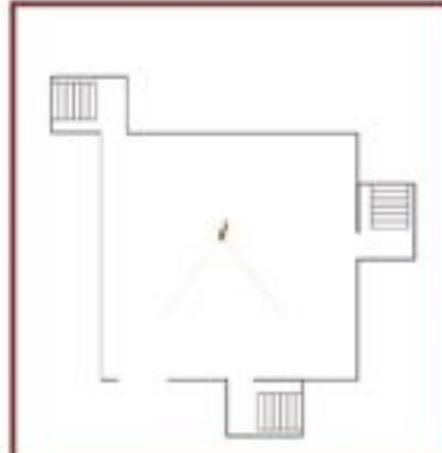
Move head back to right: see hallway.

Move head back to the left: see hallway.

Move head to centre: blank

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STORYBOARD

Move head to right: blank

Everything is white/blank

When the user turns towards the west wall the room turn 90 degrees.

THE END