

# Eternal Return

Contemporary Theatre Dance and Dramaturgy

***Synchronised Touch; a hybrid (syn)aesthetic composition in Eternal Return.***

How to choreograph (synchronised) touch?



Henriëtte Wachelder (5965942), August 2020

Supervisor: Dr. Sigrid Merx / Second reader: Dr. Liesbeth Groot Nibbelink

## Abstract

This thesis explores the notion of “synchronised touch” in mixed reality performance, exemplified in the case study *Eternal Return*, which exists of three autonomous parts: *The Fugue*, *The Stromatolite* and *The Memor*. I approach this performance, following Josephine Machon, as a (syn)aesthetic composition. This allows me to pay attention to the multitude of entangled levels that are at play in this performance.

Researching the performance of the senses is central in this thesis, in particular the underexposed sense of touch. What happens if touch synchronises with other senses, objects and humans, when the spectator is simultaneously in a virtual and a physical space? The Swedish artists Lundahl & Seidl make use of synchronising touch in their internationally acclaimed work, but this specific terminology is to the best of my knowledge less commonly used as a theoretical concept in performance theory.

I distinguish three overlapping ways of synchronisation, three levels of touch *and* the interdisciplinary character of the work, which altogether, in an intricate, complex way, produce the specific spectator experience that I wish to examine. This particular spectatorship experience consists, among other things, of a very specific sense of presence for the spectator: the feeling of being present in the virtual world and the physical world *at the same time*. Therefore I also devote a chapter to feelings of presence in performance in order to analyse how this sense of presence is produced. In many virtual environments full immersion is typical. However in the discourse on immersion in relation to mixed reality the embodied aspect of immersion is addressed. In my research, I particularly try to draw attention to immersion as an embodied experience in *Eternal Return*. Furthermore, I pay attention to the way in which touch between performer and spectator is ‘choreographed’ in the performance, either in a functional, directive way (to guide the spectator through the performance) or in a more playful, explorative way (to allow ‘here and now’ encounters between performer and spectator to unfold).

*Eternal Return* creates a double experience for the spectator sucked into the virtual world and occasionally brought back into the physical world through the entangled process of synchronisation of touch. Lundahl & Seidl create and play between the physical and the virtual, the spectator and performer and the senses, generating a form of immersion in mixed reality where performance as a medium becomes essential.

## Acknowledgement

My gratitude goes to my supervisor Dr. Sigrid Merx, for her clear insights and helping me focus. Also to all who helped me to improve my insights of contemporary performance, academic English writing or gave emotional support: Anne Smeets, Savanne Klop, Feras Nasser, Arianne Koeleman, Renée Römken, Frank Coenders, Jan van Emmerik, teachers at the MA Contemporary Theatre Dance and Dramaturgy, roomies and employer at Hogeschool de Kempel. And to my loved ones at home: Kees, Lisan and Mirte Klop.

## Table of Contents

<b>ABSTRACT</b> .....	<b>1</b>
<b>ACKNOWLEDGEMENT</b> .....	<b>2</b>
TABLE OF CONTENTS .....	3
<b>INTRODUCTION</b> .....	<b>4</b>
METHODOLOGY AND THEORETICAL FRAMEWORK .....	7
RELEVANCE.....	11
<b>CHAPTER 1: <i>ETERNAL RETURN</i>: MIXED REALITY PERFORMANCE</b> .....	<b>13</b>
<i>ETERNAL RETURN</i> ; A MIXED REALITY PERFORMANCE .....	14
GENERATING HYBRID SPACE .....	19
VIRTUALITY CONTINUUM .....	20
'TINKLE BALL' AS A GUIDE IN THE VIRTUALITY CONTINUUM .....	21
CONCLUSION .....	22
<b>CHAPTER 2: TACTILE (SYN)AESTHESIA</b> .....	<b>24</b>
(SYN)AESTHETICS .....	24
INTERPLAY OF TOUCH AND VISUALITY .....	25
INTERPLAY OF TOUCH, VISUALITY & 3D SOUND.....	26
INTERPLAY OF TOUCH, VISUALITY, 3D SOUND & PROPRIOCEPTION.....	27
CONCLUSION .....	30
<b>CHAPTER 3: FEELINGS OF PRESENCE</b> .....	<b>31</b>
ENVIRONMENTAL PRESENCE.....	32
ECOLOGICAL PROCESSES IN <i>ETERNAL RETURN</i> .....	33
CONCLUSION .....	35
<b>CHAPTER 4: NAVIGATING IN <i>ETERNAL RETURN</i></b> .....	<b>37</b>
TRAJECTORY: WAY OF NAVIGATION .....	38
THREE FUNCTIONS OF TRAJECTORIES.....	39
CHOREOGRAPHING SYNCHRONISED TOUCH .....	41
CONCLUSION .....	43
<b>CONCLUSION</b> .....	<b>45</b>
<b>BIBLIOGRAPHY</b> .....	<b>49</b>

## Introduction

*Virtual reality glasses are placed over my head and replace my vision with darkness. The noise cancelling over-the-ear headphones dim the sounds around me. I overlook a virtual environment, which is spacious, glowing and never-ending as a desert. I see a light in front of me; a small light cloud, the size of a tennis ball, consisting of tiny light points. It moves. A voice over the headphones urges me to follow the light. I slowly and cautiously walk around in a hilly area. When the light disappears, I stop and automatically start looking around in this virtual space. As I explore the environment, a piano, hovering in the air, suddenly floats towards me. The sounds change into classical piano music that becomes louder, as the virtual piano comes closer. My hand wants to touch the inviting piano keys. I look down at the piano, my hands groping in the dark, I try to touch the virtual piano, but without success. Unexpectedly, I am tapped on the shoulder. Suddenly, I am reminded of someone else's physical presence. Being touched reminds me of the fact that I am simultaneously in two places, both in a physical and a virtual reality. Another short, soft touch makes me reflexively look over my shoulder and turn around. There is the light ball again. It leads me to the piano. Someone gently grasps my hand and puts it on the piano key. This is magical! A real piano... My hand touches a key and it feels real.<sup>1</sup>*

The experience described above is my experience in *The Fugue*, one part of the three-part mixed reality performance *Eternal Return*, by the Swedish artistic duo Lundahl & Seidl, formed by Christer Lundahl (visual artist) and Martina Seidl (choreographer), attended at STRPfestival Eindhoven in 2019. For this project they intensively collaborated with co-artists employed at ScanLAB Projects (creative studio). In this one-on-one performance an invisible performer guides the spectator through a mixed reality environment. Touch - the spectator both being touched and invited to touch – is employed as an important theatrical means and artistic strategy to enable the spectator to explore, sense and make sense of this mixed reality

---

<sup>1</sup> Lundahl & Seidl, *Eternal Return*, points to Friedrich Nietzsche's concept of "eternal recurrence". This is the idea that, with infinite time and a finite number of events, material will recur again and again infinitely. In other words, the idea of endless repetition. [videofragment](#)

environment and to connect the different perceptual sensations (visual, auditory, proprioceptive) that are evoked by the virtual reality on the one hand and the physical reality on the other. Lundahl & Seidl refer to this strategy as 'synchronised touch' and consider it to be fundamental to their artistic practice. They use 'synchronised touch' as a technique to destabilize the experience of the spectator in a process of multisensory stimulation and sensory deprivation.<sup>2</sup> Their work can be seen as part of a longer line of so called 'touch performances'. Roughly from the 1960s onwards, a genre of performance arose in which performers experimented with variations of touching each other, the performers on stage, as well as touch experiments between performer and spectator.<sup>3</sup>

Josephine Machon, writer and practitioner in contemporary performance, describes how Lundahl & Seidl's artistic practice is: "...firmly rooted in a haptic methodology that relies on tactility and sound to activate imagination". Referring to how the spectator is carefully guided through the mixed reality environment, Machon suggests that: "Seidl's choreography involves the most delicate interplay of touch between performer and visitor; hand to hand, fingertip to fingertip, palm to palm, hand to shoulder, palm to back."<sup>4</sup> With these characterizations, Machon points out some interesting aspects of Lundahl & Seidl's work and practice that I wish to further explore in this thesis. What does this haptic methodology entail? Furthermore, there is the "interplay of touch between performer and visitor", defined by Machon as *delicate*. I am curious what this delicacy precisely entails and interested in how the spectator's feeling/perception of [their own] presence is influenced and/or changed through touching objects in a virtual space.

In this thesis, I wish to explore synchronised touch as an artistic practice and to unpack it as a concept. Using *Eternal Return* as a case study I will argue how synchronised touch can be considered a *synaesthetic* phenomenon, as defined by Machon in her book

---

<sup>2</sup> Lundahl & Seidl about Technique, Interview Bermanfestivalen, 4 June 2012. Accessed 12 May 2020, <https://www.youtube.com/watch?v=tbTrd02KoWs>

<sup>3</sup> Erika Fischer-Lichte, "The performative generation of materiality" in *The Transformative Power of Performance. A new aesthetics*, translated by Saskya Iris Jain (New York, Abingdon: Routledge, 2008), 62.

<sup>4</sup> Josephine Machon, "Audience improvisation and immersive experiences. The Sensuous World of the Body in the Work of Lundahl & Seidl" in *The Oxford Handbook of Improvisation in Dance*, ed. Vida L. Midgelow (Oxford: University Press, 2019), 671-686.

*(Syn)Aesthetics: Redefining Visceral Performance*.<sup>56</sup> Central in synaesthetic phenomena is the meaningful relation between the senses. 'Synaesthetic' points to how *sense* is precisely being produced in the interplay between the different senses. The term 'synaesthesia' means 'together-perception' or 'together-sensation'. In medical terms synaesthesia refers to how the perception of one sensory stimulus can be fused with the perception of another sensory experience. Different stimuli can transfer into different perceptions. It is this transmission and interplay of the senses that evokes continuity and/or discontinuity among the senses. In the context of this thesis, I am interested in the role and potential of touch, as one of the five senses, in this synaesthetic process.

Artists such as Lundahl & Seidl deliberately play with the senses of spectators, shifting between them and connecting them in multiple and unexpected ways, as an aesthetic means to create a meaningful corporeal experience which is often intense, unstable and perceptually disturbing. Such intense corporeal sensations within the context of performance are also researched by other scholars using terms such as: 'gap' (White), 'in between' (Di Benedetto) or 'becoming' (Giannachi), to describe a critical phase in the process of the transition between the senses. All argue one way or another how performances can produce feelings of perceptual unease in a spectator, provoke a heightened perceptual awareness and invite spectators to 're-sense' their senses.

In *Eternal Return* this perceptual disturbance is brought about by a mixed reality world, in which the spectator experiences both the virtual world and the physical world at the same time. *Eternal Return* can be defined as a mixed reality performance in which physical and virtual worlds are merged and physical and digital subjects and objects co-exist in real time. Mixed reality performance typically employs immersive technology, such as VR technology, to create a hybrid reality. Neither taking place exclusively in virtual space nor in physical space, mixed reality performances such as *External Return* can be located in the middle of the so called 'virtuality continuum'; a scale ranging between virtuality and reality.

---

<sup>5</sup> Josephine Machon, "Defining (Syn)aesthetics." In *(Syn)aesthetics - Redefining Visceral Performance* (London & New York: Palgrave Macmillan, 2009), 13-33.

<sup>6</sup> Machon, "Defining (Syn)aesthetics," 13.

While full immersion is often the ultimate goal for many virtual environments, *Eternal Return* makes the visitor aware of their dual presence in the physical and virtual spaces.<sup>7</sup>

It is in and across this hybrid reality that *Eternal Return* plays with the senses of the spectator. In this thesis I set out to investigate the choreographed interplay of touch in *Eternal Return* between artist and spectator in multiple mediated situations which stimulate the senses. Through my analysis of *Eternal Return*, I aim to critically discuss the nature of (syn)aesthesia in mixed media performance. The main-question of this research is: **How does 'synchronised touch' function as a (syn)aesthetic composition in *Eternal Return*?** The following five sub-questions will help me discuss my main research question:

- What does synchronised touch as an artistic strategy in mixed reality performance entail?
- How can synchronised touch be understood as a (syn)aesthetic composition?
- How does synchronised touch produce a sense of presence in *Eternal Return*?
- What role does synchronised touch play in how the spectator navigates through space?
- How does synchronised touch give the spectator a sense of heightened perceptual awareness?

## Methodology and theoretical framework

The main methodology of this thesis consists of a performance analysis. The emphasis in this performance analysis is on 'spectatorship', in particular the relationship between composition and spectator. I will analyse how synchronised touch is deployed to invite the spectator to engage with the mixed reality composition of *Eternal Return*. I will include fragments of my personal experience of visiting this performance, written in first-person, and simultaneously reflect in theoretically perspective on the immediate and subjective nature of interaction.

---

<sup>7</sup> Machon, "Defining (Syn)aesthetics," 13.



The Cambridge Dictionary defines the word 'synchronise' as a verb, which means: to cause something to happen in a planned way at exact times.<sup>8</sup> In a technical sense, it means to cause to coincide in time; to operate simultaneously or in synchronisation. Touch plays the connecting role in the synchronisation process in *Eternal Return*. This means touch functions as a kind of 'marker' in connecting the physical world and the virtual world, causing the spectator to feel simultaneously present (synchronised) in both worlds. However, synchronisation is only one side of the aesthetic medal. Organised de-synchronisation to deliberately disturb the experience of a spectator is of equal importance to create an aesthetic experience. In this thesis the notion of synchronisation is examined both ways, since both synchronisation and de-synchronisation are employed in *Eternal Return*.

The notion of synchronised touch is fundamental in this thesis. I discuss how synchronised touch is employed as an artistic tool in the performance *Eternal Return* on three different levels: 1. Synchronisation of the physical and virtual reality (chapter one). 2. Synchronisation of the senses (chapter 2). 3. Synchronisation between the spectator and the performer (chapter 4). Above all however, I investigate which active role 'touch' plays in bringing about this synchronisation. Therefore, I will elaborate on three ways in which touch takes shape in *Eternal Return*: spectators touching objects, performers touching spectators, and the spectator experiencing touch without being physically touched, established by the hybrid character of the space in *Eternal Return*. All these different forms of touch happen in combination with other senses or with a notable absence of certain senses.

This subdivision of synchronisation and touch allows a systematical analysis of different fragments from the performance. Despite the fact that this analysis is based on only a handful of fragments from the performance, it makes it possible to answer the main research question by elaborating on how each fragment is related to a specific level of synchronisation and mode of touch.

The analysis in this thesis is based on various kinds of data. At STRP festival 2019 I attended all three parts of *Eternal Return*, spread out over a few days. Because I was present for 8 days, I observed the performers and spectators in this performance every day for at least two hours and had several conversations with the artists. I briefly talked with spectators

---

<sup>8</sup> Definition synchronisation. Opgehaald 7-4-2020 <https://dictionary-cambridge-org.proxy.library.uu.nl/dictionary/english/synchronize?q=synchronized>

about their experiences before and after the performance. I also attended an interview between the curator of the festival and the artists, the transcript of which I add as an appendix. A document on *Eternal Return*, received and drawn up by the artists, provided information about the work. It included part of the script used by the voice (heard through headphones), which was useful for this research in order to explain the interplay between touch, visibility and the spoken text. The website and Facebook page of Lundahl & Seidl contains information about their (former) work as well as (short) video impressions of *Eternal Return*. Several long interviews with the artists, posted on Youtube, provided valuable information about their working methods and application of techniques. These data and information from blogs and tweets that reference to this work contributed to finding the answers to my research questions.

In the first chapter, I will elaborate on the first sub question: *what does synchronised touch as an artistic strategy in mixed reality performance entail?* For my understanding of mixed reality performance I draw from Steve Benford's and Gabriella Giannachi's book *Performing Mixed Reality*.<sup>9</sup> Mixed reality performance, as defined by Benford and Giannachi, is a term that aims to express how in such performances the real and the virtual are mixed, and live performance and interactivity are combined. Mixed reality performances involve multiple spaces, shifting roles between performer and participator, and extended time scales, all of which are connected in multiple ways through diverse forms of interface.<sup>10</sup> I argue how the virtual entity 'Tinkle ball' functions as a guide in the "virtuality continuum" and with use of Benford and Giannachi's conceptual framework, I will argue how *Eternal Return* can be understood as an instance of mixed reality performance.

In the second chapter I draw on Machon's definition of "(syn)aesthesia" and elaborate on the role and meaning of touch in how humans perceive and understand the world and how touch relates to and calibrates with other senses. Furthermore, I elaborate on Jennifer Fisher's notion of "immersive touch" where she states that touch can be both visible (as an actual gesture) and invisible (sensed as corporeal positionality, also referred to as proprioception).<sup>11</sup> Due to its focus on this invisible aspect of touch, the concept underlines

---

<sup>9</sup> Benford and Giannachi, *Performing Mixed Reality* (London: The Mit Press, 2011).

<sup>10</sup> Benford and Giannachi, "Introduction: Designing Mixed Reality." In *Performing Mixed Reality*, 7.

<sup>11</sup> Jennifer Fisher, "Tangible acts. Touch performances." In *The Senses in Performance*, ed. Sally Banes and André Lepecki (Oxon & New York: Routledge, 2007), 174-176.

the specific importance of proprioceptive awareness in performances where tactility and visuality are interrelated. In this chapter, I will answer the second sub question: *How can synchronised touch be understood as a (syn)aesthetic composition?*

The leading question in chapter 3 is: *How does synchronised touch produce a sense of presence in Eternal Return?* In order to explore how the interplay between spectator and performer and between the physical and virtual world shapes the spectator's experience of her own presence, I will use different theories about presence in performance taken from the collection of articles *Archaeologies of Presence* edited by Gabriella Giannachi, Nick Kaye and Michael Shanks.<sup>12</sup> In these articles, the writers address two relevant aspects of presence during a performance: 'Being there' and 'Being before'. 'Being there' stands for the active existence of the spectator in the theatrical environment of the performance. 'Being before' approaches presence as a performative process, in which something becomes present or someone makes themselves present to the viewer. The production of feelings of presence in this case is examined through the interaction of these two aspects of presence during the performance. Additionally, I use Giannachi's concept of "environmental presence". Giannachi describes presence in performance as an interactive process between the performance and the spectator, constituted in the complex network of relationships the subject establishes with the physical and/or digital world they inhabit.<sup>13</sup> There is a strong emphasis on the importance of the performative environment in creating and experiencing presence and the subject (the spectator) as an acting agent in and in relation to that environment. Approaching *Eternal Return* as an ecological process, meaning a complex and layered system in which subjects and objects interact, influence and are influenced by the senses of the spectator, I will explain how synchronizing touch with materials in this performance triggers the synaesthetic process and in consequence creates disturbing feelings of presence and therefore evokes a feeling of double presence.

In chapter four, I will focus on the question: *What role does synchronised touch play in how the spectator navigates through space?* With this analytical question, I elaborate on the notions of proprioception and kinesthesia in *Eternal Return*, based on Susan Leigh Foster's

---

<sup>12</sup> Gabriella Giannachi, "Environmental Presence." In *Archaeologies of Presence* ed. Gabrielle Giannachi, Nick Kaye and Michael Shanks (New York: Routledge, 2012), 50-63.

<sup>13</sup> Giannachi, "Environmental Presence", 50-63.

explanations in *Choreographing Empathy. Kinesthesia in Performance*.<sup>14</sup> With our sense of proprioception we sense position, balance and velocity of the body. Due to this sense, often referred to as our 'sixth sense', we know exactly where our body is in space without looking at it. We do not have to think about how to walk or keep balance, until we are deprived from sensory information. The VR glasses that are used in *Eternal Return* do not allow the spectator to perceive the physical space in which they are standing. This deprivation has consequences for the spectator's sense of position, balance and velocity, therefore it influences one's sense of proprioception. Kinesthesia is a sense mediated by receptors located in muscles, tendons, and joints and stimulated by bodily movements and tensions. It is a mysterious sense, in comparison to our other senses such as seeing, hearing and touching, we are largely unaware of it in our daily activities. In the absence of vision we know where our limbs are but there is no clearly defined sensation that we can identify. Furthermore, I point out how Benford and Giannachi use the concept of 'trajectories', with which they suggest that knowledge is gained through processes of movement and navigation. With the term 'trajectories', Benford and Giannachi refer to a prestructured journey which guides the spectator's experience. Synchronised touch in the performance can be approached from the scripted side of the author as well as the intuitive side of the spectator. My last sub question, *how does synchronised touch give the spectator a sense of heightened perceptual awareness*, will be answered throughout all the chapters.

Finally, in the conclusion of this thesis, I offer a summary of my research findings based on my observations with respect to the five sub questions. I will build a concluding argument that reflects on what the 'effect' of synchronised touch in *Eternal Return* might be, including its limits and potential, and discuss possibilities for further research.

## Relevance

This thesis pays attention to new developments at the interface of theatre, performance and the visual arts, especially when it comes to the use of digital technologies and the use of touch, an often underrepresented sense in performance. Under the influence of new technology, performance has changed and consequently so has perception in performance.

---

<sup>14</sup> Susan Leigh Foster, "Kinesthesia." In *Choreographing Empathy. Kinesthesia in Performance* (London & New York: Routledge, 2011), 73-125.

This changed perception is still challenging for both spectators and performers. Through a combined approach of theory and case study this thesis produces knowledge for practitioners and theorists about how theatre, technology and the sensorial, especially touch, might play together to create disturbances or synchronisation in the spectator's perception, focussing on the embodied aspect of immersion.

With this research I hope to contribute to the existing academic discourse on the role of sensory perception in performance, more particularly in (virtual) immersive environments. Whereas others, like Stephen Di Benedetto and Chris Salter<sup>15</sup> have a strong focus on visuality/on all of the senses combined, I hope this analysis can offer a relevant perspective due to its focus on the sense of touch. Above all, in the discourse on immersion in relation to mixed reality, the added value of my research is expressed in the attention to the embodied aspect of immersion.

I have written this thesis in the year 2020, in which the Corona pandemic has the world in its grip. After experiencing quarantine and having to practice social distancing, the importance of touch becomes even more evident. I hope to contribute to the further development of a theoretical understanding of this undervalued and underestimated sense in performance theory.

---

<sup>15</sup> **Stephen Di Benedetto** is an associate professor and an editor for drama, dance and performance. In 2010 he wrote *The Provocation of the Senses in Contemporary Theatre*.

<https://people.miami.edu/profile/sdibenedetto@miami.edu>

**Chris Salter** is an artist, writer and professor of computation arts. Salter's work explores the borders between the senses, art, design and new technologies through large-scale installations as well as books, critical writings and lectures on the international scene. His immersive and physically experiential works are informed by theatre, architecture, visual art, computer music, perceptual psychology, cultural theory and engineering and are developed in collaboration with anthropologists, historians, philosophers, engineers, artists and designers.

Accessed 18 June 2020, <https://www.chrissalter.com/about/>

## Chapter 1: *Eternal Return*: mixed reality performance

*The performer asks me to take off my glasses, shortly introduces herself and invites me, with a slow, gentle hand gesture, to step into the event. "Is it alright if I put the headphones on?" I nod and stand still as she carefully puts the headphones over my ears. Nonverbally, she asks if she can put on the other equipment, a belt bag and 6DoF VR glasses, and asks if the technical material fits well. I nod again. I realize that the headphones are not plugged in yet because I hear dimmed sounds coming from the festival space in the Klokgebouw. She carefully places the VR glasses over my eyes. Virtually, I am seeing a snowy image, a television disconnected to the cable. Then, a ball starts moving in front of my eyes, about the size of a tennis ball, a point cloud consisting of tiny dots. The following moment, I do not hear the sounds of the festival anymore, realizing there is only the twirling ball in this stillness. A female voice says: "Look around! Can you see..."<sup>16</sup>*

In this chapter I elaborate on the first sub question: *what does synchronised touch as an artistic strategy in mixed media performance entail?* I go into the notion of synchronisation of the physical and virtual reality and illustrate how I will use this in relation to Steve Benford's and Gabriella Giannachi's concept of "hybrid space" in the construction of space in *Eternal Return*. Furthermore, their concept of the "virtuality continuum" is helpful to gain insight into how a spectator in *Eternal Return* travels through two separate worlds, the real and the virtual, at the same time, where touch has the synchronising role. But first I provide information on this performance, which I experienced in April 2019 at STRPfestival and describe the two worlds, the real and the virtual, that the spectator encounters upon entering.

---

<sup>16</sup> This text describes the moment right before entering the performance. Important because in this moment the performer calibrates with the spectator to create trust, necessary to gain approval for touching them as well as to gather information through body language. How does the spectator's body react? Tense, cooperative, waiting...?

### *Eternal Return*; a mixed reality performance

The Klokgebouw is an old Philips factory and no daylight permeates the space, the hall is completely dark. On the smooth floor various 3D sculptures can be seen standing on or hanging from a construction of thin steel rods. Furthermore other small objects (a stone, a hammer, a blowing fan) have a perceptible function in the performance. All sculptures are illuminated by theatrical light and therefore immediately catch the eye. They are organic in shape and aesthetically pleasing, each a little artwork in itself. Furthermore, they aren't recognizable as everyday objects. This is important because, as we will see later, every physical object has a counter object in the virtual world. Meaning, each 3D printed object stands for a recognizable everyday object in the virtual world, like a ceiling, a door, a mug and a piano.

Objects and scenes in *Eternal Return* take on a multitude of experiential modes; physical, virtual, and emotional. There is not a linear narrative and each part can be experienced in random order. The main artistic strategy of synchronised touch is likewise applied in each part in which a couple, consisting of a spectator and a performer, engage in a one-on-one performance. Although performed simultaneously, the three performances are autonomous, named *The Fugue*<sup>17</sup>, *The Stromatolites*<sup>18</sup> and *The Memor*<sup>19</sup> and take place in three different spaces in the physical and virtual worlds. Each performance has a pre-recorded script, lasts approximately 20 minutes and has a clear start and end. Two technicians of ScanLAB Projects<sup>20</sup>, who created the virtual 3D environment, stand by and only come in if the technology fails.

In this paragraph I will briefly describe the three parts of *Eternal Return*. Inside *The Fugue*, the virtual pianist Cassie Yukawa-McBurney performs J.S. Bach's Fugue. In medical terms 'fugue' or 'fugue state' refer to conditions that involve disruptions or breakdowns of memory, awareness, identity, or perception. In general the piece refers to the fuga (a music instrument) and also means 'flight or escapade'. The central part of *Eternal Return* is *The*

---

<sup>17</sup> Lundahl and Seidl, *The Fugue*.

<sup>18</sup> Lundahl and Seidl, *The Stromatolites*, attended life and as observer, April 2019. [videofragment](#)

<sup>19</sup> Lundahl and Seidl, *The Memor*, [videofragment](#).

<sup>20</sup> ScanLAB Projects, accessed several times, 2019/2020, <https://scanlabprojects.co.uk>

*Memor*: a room that reminds one of a carpentry shop. It is the workplace of the piano builder, with a workbench full of stuff, in which the spectator can freely roam around and explore. *The Stromatolites* connects a spectator with the past by handing the spectator a 3,5 billion years old Stromatolites-stone, telling the spectator through the earphones that she is now holding 3,5 billion years in their hands. Stromatolites or stromatoliths are layered rocks that were originally formed by the growth of layer upon layer of cyanobacteria, a single-celled photosynthesizing microbe. Fossilized stromatolites provide records of ancient life on Earth. Implicitly, this encounter refers to the smallness of our own existence in relation to the huge history that we will eventually become a part of.

All three parts together entail Lundahl & Seit's, *Eternal Return*. With this name the artists points to Friedrich Nietzsche's concept of "eternal recurrence". This is the idea that, with infinite time and a finite number of events, material will recur again and again infinitely. In other words, the idea of endless repetition. For the quality and quantity of the embodied experience it is not necessary to participate in each part. A spectator can also experience only one part to get the idea of this mixed reality work. I have searched for different experiences from all parts and therefor a small number of fragments is sufficient to function as examples. It is necessary to mention the significantly different spatial experience in *The Fugue*. Here the participant experiences a vast space in all directions as I described in the opening of the thesis. In this part the only tangible as well as movable 3D object is the piano, which is connected to the virtual space by touch. For me this natural space stands for 'being outside' where the other two parts, *The Stromatolites* and *The Memor*, show spaces that are 'inside'. In which one of these inner spaces evokes the suggestion of being under water (sunken corridor and sleeping cabin of the Titanic). In the inside parts, the spectator finds herself in a kind of room with walls, floors, doors and endless everyday objects such as mugs, workbenches, paintings, curtains, lamps, etc. For me, *Eternal Return* connects the spaces that humans could encounter in life.

Each spectator starts of by waiting on one of the three seats on the side of the installation. After putting on the 6DoF VR glasses<sup>21</sup>, the spectator finds herself in a large

---

<sup>21</sup> 3DoF vs 6DoF - Virtual Reality (VR) Introduction, Accessed December 2019, [https://youtu.be/Hfzkfi\\_RMeI](https://youtu.be/Hfzkfi_RMeI) Six degrees of freedom (6DOF) refers to the specific number of axes that a rigid body is able to freely move in three-dimensional space. It defines the number of independent parameters that define the configuration of a mechanical system.



colorless space, in many shades of black and white.<sup>22</sup> Degrees of freedom (DoF) is an essential technology in virtual reality that allows human movement in the physical world to be converted into movement within the VR environment. The higher the number of degrees of freedom, the more one is able to engage with movement, creating a heightened sense of realness. In all three virtual worlds, there is a visible depth to all sides of the space, including the floor and the ceiling, therefore creating a life-like feeling of spaciousness. Furthermore, the space emerges only when the spectator looks directly at it: it is not ever-present and stable, but emerges and disappears with the glances of the spectator.

The pictures below give an impression of what the performance looks like for a viewer from the outside looking in and photo 4 is a visual impression of what a spectator sees from inside.



Photo 1: Hanna Wetzels, April 2019. The spectator, wearing 6DoF glasses and headphones, is touching a 3D printed sculpture, while the performer, wearing white headphones, is carrying a stick, producing a virtual ball, and keeping that ball up high in virtual sight of the spectator. In the background a waiting spectator.

---

<sup>22</sup> 3D environments are due to the technical capacities only representable in black and white. 4D environments are full color.



Photo's 2-3: Henriëtte Wachelder, April 2019. The spectator (Mirte) and the performer are interacting in the virtual and physical space. In the photo above, the performer touches Mirte with her wrist, choreographing 'Tinkle ball' – the virtual ball produced by the end receptor, with her right hand. On the other picture, Mirte tries to touch something she is seeing in the virtual world.



Photo 4: Point of view in the black and white virtual environment in *The Memor*, based on pointcloud data.

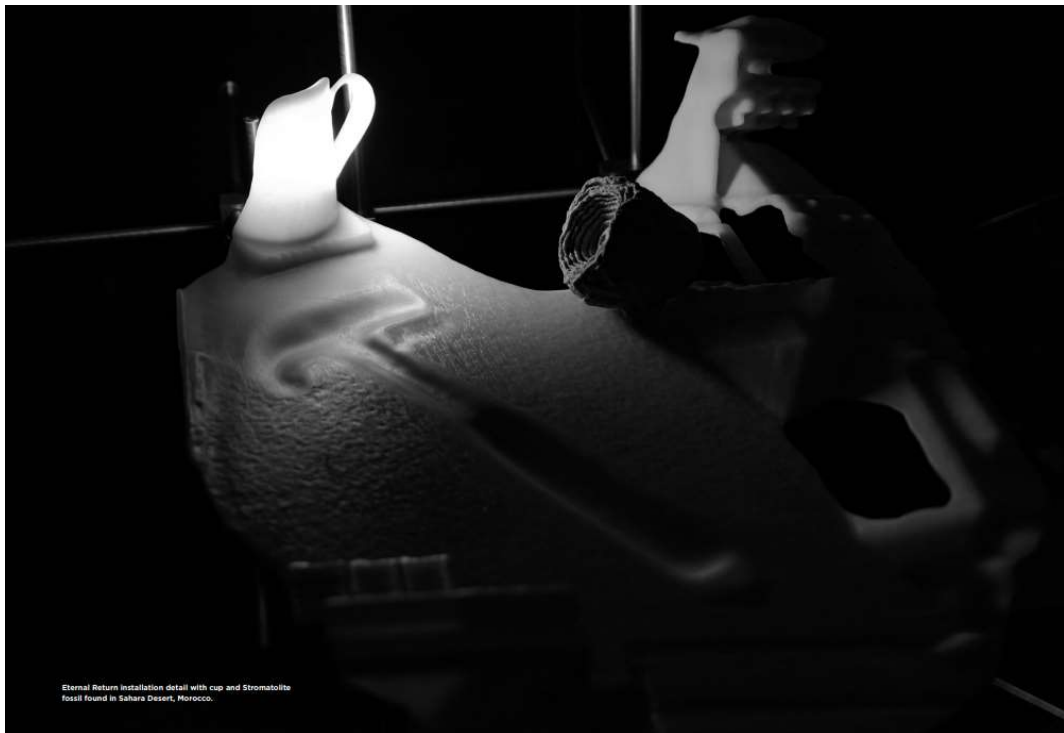


Photo 5: *Eternal Return*, installation detail with cup and Stromatolite fossil.

(Both pictures, 4 and 5 are taken from the booklet [Eternal Return – The Memor](#) written by Malin Zimm in 2019)

Inspired by the influence of new technology, the artists, who worked over a decade on creating immersive experiences within the contemporary arts in theatre and social innovation contexts, find that virtual reality experiences typically – despite their enormous potential – lack a deeper understanding of embodied experience. The artists challenge this perception and explore embodied experience to describe the immersed subject's (the spectator's) total sensory and mental processing taking place while inside *Eternal Return*. Being particularly interested in the corporeal experiences of the spectator they position the following questions: who/ what is really present or absent in the constructed place, and how to invite the spectator to experience that an embodied engagement has no fixed or binary approach?

As mentioned in the introductory chapter, synchronisation can be localized in three ways in *Eternal Return*. In this chapter, I investigate how synchronisation takes place on the level of the construction of space between the real and the virtual world. Synchronising space is fundamental in the construction of space in *Eternal Return* and highly dependent on the technology used in this performance.

### Generating hybrid space

In *Eternal Return* we can distinguish two spaces. The physical space, comprising of the physical installation with the abstract 3D printed sculptures and the virtual space, where the spectator encounters the digital counterparts of the 3D printed sculptures in the form of objects such a door handle, a railing, a chandelier and a piano keyboard, create a hybrid space. Benford and Giannachi define hybrid space as follows.

Hybrid space is both a space where *real* events occur and a space of *performance*. Characteristically the two spheres contaminate each other, so that participants remain unsure as to what is real and what is performed. This disjunction, and the uncertainty it raises, constitutes one of the mechanisms by which hybrid space can be experienced as uncanny, that is, as something that is both familiar *and* estranging (in the Brechtian sense of *Verfremdung*).<sup>23</sup>

---

<sup>23</sup> Benford and Giannachi, "Hybrid Space: Between Real and Virtual, Local and Global." In *Performing Mixed Reality*, 45-46.

In *Eternal Return*, however, the hybridity of the space has not so much to do with the question of what is real and what is performed, but more with what is virtual space and what is physical space and how these contaminate each other. Hybrid space in this performance can be seen as a construction of space that spans both the physical and virtual world, which mutually influence each other and generate meaning by being combined through the sense of touch.<sup>24</sup> Once she is wearing the VR glasses, the spectator can connect with both environments; she can step inside the virtual world and through the 3D printed sculptures come into physical contact with this new space.

The previously 'incomplete' space – which is initially only visible as an installation with 3D prints – will start to make sense once the VR glasses are activated. The 3D printed objects transform into totally different objects from the ones seen before. Exemplary is my encounter with the piano, as described in the introduction. Seeing the 3D printed sculpture before experiencing the VR space, no spectator recognizes a piano in this sculpture. Touching the objects synchronised the real and virtual world. A spectator touches a 3D object – visible for everyone watching in the physical world, and at the same time this spectator touches a virtual piano that is only virtually visible. Touch functions as interface in this hybrid space. However, after the experience, I immediately recognized the shape of a piano because my memory of the VR space helped me to fill in the blanks.<sup>25</sup> In this example, the importance of touch in the process of synchronisation becomes evident. Synchronisation does not only take place when I touch the piano, but when I look back as well, as I take off the VR glasses and synchronise the 3D object with the virtual memory.<sup>26</sup>

### Virtuality Continuum

Benford's and Giannachi's notion of the "virtuality continuum" is useful when analysing the hybrid spaces of *Eternal return*.<sup>27</sup> That notion entails a framework that encompasses both physical and virtual elements and is therefore useful to analyse environments like the ones in

---

<sup>24</sup> Benford and Giannachi, "Hybrid Space: Between Real and Virtual, Local and Global." In *Performing Mixed Reality*, 45-46.

<sup>25</sup> After my experience with the piano in *The Fugue*, I started a small research, questioning about 20 visitors who bought a ticket for *The Memor* or *The Stromatolites*, what they saw looking at the designed sculpture in *The Fugue*. I would not spoil anything upfront, therefore I only asked visitors who did not experience *The Fugue*.

<sup>26</sup> Nobody recognized the piano in the sculpture without virtually seeing it. The same goes for most other sculptures.

<sup>27</sup> Benford and Giannachi, "Introduction: Designing Mixed Reality." In *Performing Mixed Reality*, 1-25.

this performance, in which physical and digital objects cohabit and interact in real time.<sup>28</sup> This notion is helpful as an analytical tool since it makes it possible to position a spectator on the continuum. It is not about a dichotomy between 'real' and 'unreal' - unreal meaning 'virtual' in this context. Experiencing *Eternal Return* is like travelling across a "virtuality continuum". Physical reality lies on one side of this continuum, merging into augmented reality. On the other side lies virtual reality. How in *Eternal Return* the spectator travels across this continuum, can be exemplified by my personal experience of the following moment in *The Stromatolites*

*I am in the corridor of the Titanic. My hand glides over the virtual bannister and I walk down the corridor, wondering what life was like over a hundred years ago. Then, all of a sudden, I feel an actual bannister. Round, smooth and the actual size of a normal bannister.*<sup>29</sup>

Wearing VR glasses and the headphones, I am fully immersed in this virtual corridor. Therefore, I am completely on the virtual reality side of the continuum. When touch becomes prominent, such as when touching the actual bannister, I experience reality through my sense of touch while simultaneously being immersed in virtual reality. At such a moment, I suddenly shift to a point somewhere in the middle of the continuum. In *Eternal Return*, the physical reality side of the continuum is hardly emphasised, because the spectator is constantly invited to look, walk around, and touch objects in that virtual world, which results in increasing the immersive feeling. A spectator is constantly 'travelling' between the middle and the virtual reality side of the virtuality continuum. Lundahl & Seidl added another artistic tool to guide the spectator, her name is 'Tinkle ball'.

### 'Tinkle ball' as a guide in the virtuality continuum

An appropriate example, besides the spectator, of an element being simultaneously in the physical and virtual world is a light ball that accompanies the spectator while traveling in the

---

<sup>28</sup> Benford and Giannachi, "Introduction: Designing Mixed Reality", 3.

<sup>29</sup> This experience is from *The Stromatolites*.

virtual environment. A spectator sees this ball as a tiny point cloud<sup>30</sup> in the virtual world. The performer, invisible for the spectator, carries a stick, conducting the movement of the light ball and therefore guiding the spectator's attention. The presence of this ball, which through technical use is simultaneously present in the virtual as well as the physical world, connects the spectator and the performer. This ball feels like a 'traveling living being', which travels with the spectator in these two worlds. Like the tiny helpful elf named Tinkerbell in *Peter Pan*, that suddenly arises and disappears. To me, this light ball seemed to have an animistic quality. I knew it was a virtual object, and at the same time I realized it had to exist in the physical world in some way because it responded to my movements. Because the ball reminded me of Tinkerbell, I will address this remarkable and crucial element as 'Tinkle ball', underlining the artistic function of this element in *Eternal Return*. These elements, the spectator's body and 'Tinkle ball', as well as the 3D objects, all serve as interfaces between the physical and the virtual environment. The spectator is connected by touch to the 3D objects and because it responds to my movements I *feel* connected to 'Tinkle ball'.

## Conclusion

In this chapter I elaborated on the first sub question: *what does synchronised touch as an artistic strategy in mixed media performance entail?* In summary, I analysed how the double space in *Eternal Return* can be seen as a hybrid space, in terms of Benford's and Giannachi's theory about hybrid space. In this hybrid space there is no moment in which the virtual space is seen in its totality. Parts of the space become visible depending on the movements of the spectator and on whether the VR glasses are used or not. By actively looking around and traveling in the space a spectator pursues her or his own spatial trajectory.

This hybridity involves several crucial elements. First of all the spectator experiences a virtual and physical space simultaneously. Experiencing two different places at the same time, touching objects and being touched, the spectator's body functions as interface. A performer uses the spectator's body to evoke feelings between reality and uncanniness. The experience of the hybrid space generates reflection on the possibilities *and* the limits of the

---

<sup>30</sup> Point clouds are datasets that represent objects or space and are generally produced by 3D scanners. These points represent the X, Y, and Z geometric coordinates of a single point on an underlying sampled surface. Point clouds are a means of collating a large number of single spatial measurements into a dataset that can then represent a whole. When colour information is present, the point cloud becomes 4D.

used technology. Furthermore, the ubiquitous technology in this performance points to how intensely our lives are interwoven with technology and how much we are dependent on it to function in daily life. Through the uncanny experience of the hybrid space, the spectator literally gets 'in touch' with technology, making the 'invisible' technology tangible through an embodied experience. Meanwhile, the performer guides the spectator by using 'Tinkle ball', a traveling point cloud, and invites the spectator to touch objects, all artistic strategies to connect both worlds (physical and virtual reality) of the virtuality continuum. By denying the spectator the sense of sight in the physical world, which I would playfully like to refer to as 'ab-sense', re-directing her sight through VR glasses, other senses are foregrounded that enable the spectator to not only feel present both in the physical and virtual world, but also to feel present in them *simultaneously*. In *Eternal Return*, this feeling of simultaneous presence is mainly evoked by the interplay of sight, sound, touch and proprioception. I elaborate on this interplay and touch as another key-concept in this thesis in the next chapter.



## Chapter 2: Tactile (syn)aesthesia

As mentioned in the introduction, there are three levels of synchronisation. In this chapter I discuss the level of synchronisation of the senses. Because of the great emphasis on sensory experiences, I consider *Eternal Return* to be a sensory based performance. Navigating through this performance, the artistic combination of tactility and visibility creates specific sensorial awareness for the spectator. Interested in the role and potential of the sense touch, I draw on Machon's theory about the (syn)aesthetic process to illustrate how the interplay of senses in *Eternal Return* highlights touch and how this synchronises with other elements in this performance. I argue that *Eternal Return* can be seen as a 'synaesthetic' composition. Furthermore, I draw on Fishers idea of "immersive touch" and unravel (in)visible touch fragments in *Eternal Return*. Therefore I am able to answer my second question: *How can synchronised touch be understood as a (syn)aesthetic composition?*

### (Syn)Aesthetics

In her book *(Syn)Aesthetics: Redefining Visceral Performance*, Josephine Machon defines (syn)aesthesia as a derivative of 'synaesthesia'.<sup>31</sup> The Greek word 'syn' means 'together' and 'aesthesia' is translated as 'sensation or perception'. By putting the brackets around 'syn' in (syn)aesthesia, Machon playfully underlines the artistic use instead of the medical term synesthesia. In a medical context the term is used to describe a cognitive and neurological condition in which, when one sense is stimulated, it automatically and simultaneously causes a stimulation in one or more other senses. For example, a taste or a sound that can cause an image and a sensation of a tactile shape or a colour. In other words, Machon understands (syn)aesthesia as senses coupled in a defamiliarised way and the sensorial effects that occur due to this new perceptive experience. According to Machon, the aesthetic is located in the relational and fusing qualities of 'visceral performance', as she terms sensory-based performance. Playing with the senses evokes interplay between the senses related to feelings

---

<sup>31</sup> Josephine Machon, "Defining (Syn)aesthetics." In *(Syn)aesthetics - Redefining Visceral Performance* (London & New York: Palgrave Macmillan, 2009).

that “make sense” because sensory perception and emotional processes to sensemaking are connected to the world in general.<sup>32</sup>

Jennifer Fisher, writer of the article “Tangible Acts: touch performances” in *The Senses in Performance*, interprets immersive touch as the visceral engagement of body-to-body contact where the positioning of the performer to the spectator is crucial and where tactile art stands as a caution to the escapist disembodiment promised by virtual worlds.<sup>33</sup> “Tactile effect during the sensorial mediation necessitate a more synesthetic conception of the senses.”<sup>34</sup> She considers the role of “tactile synesthesia” as the counter-representational device “to interrogate technologies of vision” in performance.<sup>35</sup> On the same topic, Isabella Choinière, Enrico Pitozzi and Andrea Davidson wrote *Through the Prism of the Senses*, in which they argue that creating touch experiences is a “fracturing of the monopoly of the visible”.<sup>36</sup> Touch performances pose a unique challenge to conventional visual aesthetics. They dissolve the separation of artist and audience and frame the space between the bodies of a spectator and performer. The spectator often co-creates the piece, as visual apprehension gives way to the immediacy of kinaesthetic involvement. All theories point to the relationality between the senses, in this case between tactility and visuality, that can create possibilities for new experiences of embodied perception. In the upcoming chapters I will analyse the interplay of the senses using several exemplary fragments from *Eternal Return*.

### Interplay of touch and visuality

*I see a beautiful large monumental door without a door handle. My hands glide over this virtual door. Suddenly I feel the deep notches in an actual wooden door. I gently push against it and notice that the door opens.*

In this example of the door, experienced in *The Memor*, I am implicitly invited to search how to open it, since it has no handle. Again, I become aware of being simultaneous in two spaces.

---

<sup>32</sup> Machon, “Defining (Syn) aesthetics,” 14.

<sup>33</sup> Fisher, “Tangible acts. Touch performances”, 174-176.

<sup>34</sup> Fisher, 176.

<sup>35</sup> Banes and Lepecki, 5.

<sup>36</sup> Choinière, Pitozzi and Davidson, “Touch and Merleau-Ponty’s notion of ‘flesh’ in a technological era.” In *Through the Prism of the Senses. Mediation and New Realities of the Body in Contemporary Performance*, 117.

Gliding over the virtual image I think there is no physical door, until I touch the 3D object, the counterpart to the virtual image. Like the earlier mentioned experience with the piano, I become convinced of the realness of this door the moment I touch it.

When the performer softly took my hand and put it on a 3D object - like in the example of the piano key, or the wooden door - she synchronises my tactile and visual sensorial experiences with each other. This synchronisation of touch created a strong feeling of presence of myself and the piano / door. I felt what I saw, and I saw what I felt, which gave the situation in the virtual world a heightened feeling of 'realness'. At the same time, the performer's touch reminded me that there was also still a physical world. So combining the process of touching objects and being touched by the performer can be seen as interplay. Here we see the sensorial process of being invited to touch and being touched by the performer in order to interfere and play with the focus of the spectator. Thus, the performer's touch on the one hand increases the immersion into the virtual world through synchronising the touch of the spectator with the objects she sees, but on the other hand it is also precisely the performer's touch that destabilises the immersive experience, because it serves as a reminder of the physical world.

The performer's touch also has a guiding role in the performance. Sometimes, the touch is intended to guide the spectator's hand to a physical object that corresponds to an object the spectator sees in the virtual space, and sometimes, the performer's touch is intended to change the direction in which the spectator orients herself in space, so that new parts of the virtual world can literally come into view. This last touch is often closely attuned to the movement of the 'Tinkle ball': the performer guides the spectator towards 'Tinkle ball', who invites the spectator to follow.

### Interplay of touch, visuality & 3D sound

*The voice in the headphones says: Follow the ball of light. Look around! Stretch your hand out in front of your eyes. You cannot see your hand, but you can feel it from the inside.*

Apart from the interplay/synchronisation between virtually seeing, actually touching objects, and being touched by the performer, there is also synchronisation of the audible sense, which

I have not discussed until now. Wearing the wireless headphones also blocks sounds from the real environment.<sup>37</sup> A spectator is deprived from sounds coming from the physical space, in addition to being deprived of sight. "Sounds are clearly located in a quasi-physical space, producing the seemingly naturalistic production of sound as experienced in the real world."<sup>38</sup> The 3D sound recording functions as a special technique to address the spectator: the 3D recorded voice plays with distance, it can come closer to you and speak in your right or left ear.<sup>39</sup> This creates the illusion that a person is really there traveling with you. In such examples of synchronisations (touch, seeing and sound) the voice can be described as an 'object' to enhance and direct the attention of the spectator in the performance.

There is another important point to consider. Playing with the voice (audible object) and 'Tinkle ball' (visual object in VR) creates another interplay in relation to the spectator. By saying "follow the ball of light" the artists link the voice to this virtual moving object. 'Tinkle ball' functions as an extension of the performer, leading the spectator through the virtual world. 'Tinkle Ball' itself exists in the perception of the viewer as a visual stimulus, a moving luminous point cloud that indicates direction and can direct both viewing directions and direction of movement, and as a haptic stimulus. 'Tinkle ball' responds and reacts to decisions of spectators. Younger spectators tried to grab the ball, for example. The performer challenged spectators by letting the ball get close, but also moving it away quickly when the spectator tried to grab the ball. In addition, the spectator and 'Tinkle ball' are the only entities moving around in the virtual world.

### Interplay of touch, visuality, 3D sound & proprioception

*As I stand on a hill, the ground is lifted up and changed into a high mountain. Seeing this movement of the ground I am standing on, creates feelings of fear of heights. Since*

---

<sup>37</sup> Rosemary Klich (2017) Amplifying Sensory Spaces: The In- and Out-Puts of Headphone Theatre, Contemporary Theatre Review, 27:3, 366-378, DOI: [10.1080/10486801.2017.1343247](https://doi.org/10.1080/10486801.2017.1343247).

<sup>38</sup> Ibidem, 370.

<sup>39</sup> Lundahl and Seidl, interview 11 April 2014, "Symphony of a Missing Room", accessed several times, latest 17 May 2020, <https://youtu.be/t6MiqLTDj2A>

*I have an extreme fear of heights, my body responds immediately, I start to tremble until this feeling creates so much uneasiness that I decide to sit on the floor.*

Not having a connection to anything in the physical world in that moment, this example shows the intensity of this created effect in a VR space. At this point the performer deliberately did not intervene using touch. Feeling the performer's actual touch at that moment would diminish this strong visual immersive experience. Before analysing the interplay here, I first elaborate on the specifics of the senses proprioception and kinesthesia.

The term proprioception was coined in 1906 by the neurophysiologist Sir Charles Sherrington and is derived from the Latin 'proprius' meaning 'one's own'. It refers to sensory information acquired from neural receptors embedded in joints, muscles, and tendons. Standing on our feet, we get information about our ankles, our knees, position of the arms, upper body, head... et cetera. We know exactly where our body is in space without looking at it.

In the chapter "Kinesthesia" in *Choreographing Empathy* Foster describes the historical development of the definition of kinesthesia.<sup>40</sup> This term, coined in 1880, is derived from the Greek 'kine', meaning 'movement', and 'aesthesia', meaning 'sensation'.<sup>41</sup> Years later perceptual psychologist James J. Gibson envisioned kinesthesia as a "system that integrates information about position, motion, and orientation with other visual, aural, and tactile information so as to construct a sense of one's location in the world."<sup>42</sup> Arguing that kinesthesia plays a central role in the integration process of the senses, he perceived perception as "an ongoing duet between perceiver and surrounding in which both are equally active."<sup>43</sup> Foster describes this procedure of self-location as follows:

In order to know where you are...it is necessary first to assimilate your visual perception. And this procedure of self-location entails a recalibration of internal and external sensing's of one's whereabouts.<sup>44</sup>

---

<sup>40</sup> Susan Leigh Foster, "Kinesthesia." In *Choreographing empathy. Kinesthesia in performance* (London/ New-York: Routledge, 2010), 73-125.

<sup>41</sup> Foster, "Kinesthesia", 74.

<sup>42</sup> Foster, 74.

<sup>43</sup> Foster, 116.

<sup>44</sup> Foster, 73.

To put it bluntly, kinesthesia refers to the movement of a body. The body is able to detect how it is moving, and that makes kinesthesia more behavioural. A spectator gets feedback from the body in motion because movement and sensation are inextricably linked. Deprived from seeing in the physical space my body becomes aware of its position and movement in the virtual space. As Fisher states on immersive touch: "touch is both visible as an actual gesture and invisible, sensed as corporeal positionality".<sup>45</sup> Following Fisher, by deliberately refraining from touching me or being touched in the fragment of my fear of heights, my body is immersed in the virtual world. I did not experience body-to-body contact and I was not invited to touch objects in the abovementioned fragment. My visual perception related entirely to the presented virtual environment. Although I knew that this experience was an evoked physical experience, I became aware of the overruling power of the interplay of the senses versus consciousness. Positioning spectators in these circumstances evokes personal but always strong corporeal experiences.

I will share another exemplary subjective memory, experienced in *The Memor*, illustrating Fosters procedure of self-location and the interplay of the senses.

*While I am in one of the rooms of the piano builder, the voice in the headphones asks me to lie down on the floor. Meanwhile, the present performer gently touches my elbow and softly navigates me towards the floor. When I lie down on a soft mat, the voice tells me to rest and stay comfortable. It is lovely to lie down.*<sup>46</sup>

Being invited to lie down, my body needs to calibrate, because I cannot rely on the physical environment. Having access to virtual vision only, it becomes impossible to orientate in physical space, resulting in a hyperawareness of my body and where it is in relation to the floor. Therefore, I became aware of my kinesthetic body and this makes my movements more cautious, slower, and conscious. This example also illustrates Fisher's earlier quote on corporeal positionality. In addition, as a dancer/ dance therapist, I could sense the sensitivity and conscious awareness of the performer towards me, while lying down. As a spectator I

---

<sup>45</sup> Fisher, "Tangible acts. Touch performances", 176.

<sup>46</sup> See photo 4 for an impression of this fragment on page 17.

became aware of the performer's proximity. Without touching me kinesthetically, I felt the energy and presence of the performer, which can be seen as a form of immersive touch.

## Conclusion

The elaboration in this chapter was helpful to my second question: *How can synchronised touch be understood as a (syn)aesthetic composition?* Unravelling the interplay of the sense touch perceived as a (syn)aesthetic phenomenon in a mixed reality performance, I took Machon's theory of (syn)aesthesia as a basis. Synchronisation of touch appears in *Eternal Return* in the multisensorial process in the spectator's body as well as in continuous interaction between performer and spectator. The question requires a complex answer because of the multisensorial process and those three different, often entangled, levels of touching that each play a part in *Eternal Return*.

Such entangled processes create hyperawareness throughout the body. This hyperawareness focuses on the awareness of the physical and virtual world, one's own body in both spaces, and the presence of other entities such as the 3D voice and 'Tinkle ball'. This hyperawareness can arise because of the simultaneous process of synchronisation as well as disturbance of the senses. Through touch, the presence in the virtual space and the feeling of being disembodied is disturbed. On the one hand this disturbance caused by touching the 3D sculptures makes virtual reality more tangible and therefore more real, but on the other hand the disturbance caused by the performer's touch synchronises the physical with the virtual world, which is mainly felt in the spectator's body, which serves as an interface. What is also disturbed is the idea of being alone in space, and what is intensified is the experience that something we cannot physically see is also there, like 'Tinkle ball', the voice, and the performer's presence when there is no touch involved.

In the next chapter I elaborate on the role of touch in feeling presence in mixed reality performance.

## Chapter 3: Feelings of presence

In the context of this study, it is important to mention that presence is not a clearly defined concept but a very versatile and controversial concept, which takes on different meanings and nuances in different contexts. I use articles from *Archaeologies of Presence* edited by Gabriella Giannachi, Nick Kaye and Michael Shanks, in which the writers address two relevant aspects of presence during a performance: 'Being there' and 'Being before'.<sup>47</sup> By analysing the interaction of these two aspects of presence I can examine the production of feelings of presence in this performance. Additionally, I use Giannachi's concept of "environmental presence".<sup>48</sup> With this concept I will explore how synchronising touch with materials in such an interactive process triggers the (syn)aesthetic process and in consequence creates disturbing and synchronising feelings of presence. Looking back at the previously described experiences with the objects, I will analyse how these moments lead to a heightened sense of presence in the spectator. Through this analysis, I wish to show that presence in these moments is constructed through an interactive process between performance, spectator and the environment and therefore can be regarded as a form of environmental presence. I will describe my experience with the cup and take that as my primary example.

Analysing *Eternal Return*, it seems relevant to explore in depth the specific implications of 'presence' in a virtual reality performance. Next to the spectator's physical presence, a performer is also physically present in *Eternal Return*. There is also the presence of the sound, including the actual recorded voice of one of the artists. Then there is the virtual and physical presence of objects, some of which are only present as virtual objects, others also as physical objects (the mug, the piano key, the door handle etc.). I will explore how on the one hand the interplay between spectator and performer and on the other hand the interplay between the physical and virtual world, shape the spectator's experience of presence. The leading question in this chapter is: *How does synchronised touch produce a sense of presence in Eternal Return?*

---

<sup>47</sup> Gabriella Giannachi, "Environmental Presence" in *Archaeologies of Presence* ed. Gabrielle Giannachi, Nick Kaye and Michael Shanks (New York: Routledge, 2012), 50-63.

<sup>48</sup> Ibidem.



## Environmental Presence

In the collection of articles *Archaeologies of Presence* (2012) edited by Gabriella Giannachi, Nick Kaye and Michael Shanks, fundamental questions about the phenomenon of presence are addressed. Their book is divided into three parts, titled 'Being there', 'Being before' and 'Traces: After presence'. The first two parts are relevant for my thesis. These two aspects of presence bundle the active existence of the spectator in the theatrical environment of the performance ('Being there') and presence as a performative process, in which something becomes present or someone makes themselves present to the viewer ('Being before'). In *Eternal Return*, the spectator is there and the performer, by means of touching the spectator and guiding the spectator through the performance with 'Tinkle ball', makes herself present to the spectator. Moreover, it is because of the particular form of this guidance – the performer leading the hands of the spectator to physical objects - that different objects in the virtual world become tangibly present. The production of feelings of presence in the case of *Eternal Return* is dependent on how these different forms of presence interact during the performance.

To discuss this interaction of presences it is interesting to have a closer look at Giannachi's concept of "environmental presence".<sup>49</sup> She describes environmental presence as an interactive process between performance and spectator constituted in the complex network of relationships the subject establishes with the physical and/or digital world they inhabit.<sup>50</sup> Regarding the notion of environment, she states that the relationship between organisms and their environments cannot be other than a process.<sup>51</sup> In order to be able to interact with an environment, however, a subject must be in that environment. In Giannachi's words "presence is the medium [...] through which the subject engages with an environment."<sup>52</sup> Based on this idea, Giannachi defines presence as an ecological process, drawing attention to the exchange and interaction between the subject and her environment. She also explicitly states that this concept of presence interacts with "other-than-human"<sup>53</sup>, which refers to how an environment can consist of other people, but also of objects, spatial

---

<sup>49</sup> Gabriella Giannachi, "Environmental Presence." In *Archaeologies of Presence*, 50-63.

<sup>50</sup> Ibidem.

<sup>51</sup> Giannachi, "Environmental Presence", 51.

<sup>52</sup> Giannachi, 52.

<sup>53</sup> Giannachi, 53.

structures, etc. One could say that by being present in this physical environment, a subjective environment is created, which, by definition, differs from subject to subject, because each subject relates differently to different elements in a physical environment. According to this approach, presence works both ways: not only is the subject present in an environment, the environment is also present for the subject. This reciprocity is fundamental for Giannachi's understanding of presence as a medium for interaction between a subject and her environment.

### Ecological processes in *Eternal Return*

What does this understanding of the phenomenon of presence mean for the production of presence in *Eternal Return*? First of all, this on- on-one performance is a virtual environment that entails a hybrid space. Consequently, a spectator is never a passive subject in such an environment. Actively relating to the environment in *Eternal Return* by 'stepping into it', the spectator becomes present *as a spectator*, and the environment becomes present to the spectator as a mixed media performance. Touching objects heightens feelings of presence because a spectator shifts on the virtuality continuum from virtual reality to the middle, where a spectator feels present while simultaneously knowing she is in a virtual environment. Being touched by the performer increases the sense of presence even more for a spectator. What can these ideas about the production and experience of presence mean for describing and understanding the presences of 'Tinkle ball', the performer, the spectator, the 3Dsound and the objects in *Eternal Return*? How can this notion of environmental presence help to think about how a feeling of presence is produced in the process of the performance?

*The room of the piano builder is full of objects. For a while my hands glide over the virtual stuff on the workbench. Then, the performer takes my hand and puts it on an object. Touching it, I feel the ear of a cup. Only the ear of the cup is synchronised with the virtual object, the other part of the cup is missing, meaning only virtually present. Weird, seeing a whole cup, feeling a half cup.<sup>54</sup>*

---

<sup>54</sup> Picture of this physical object (cup) on page 17.

Haptic interaction in a VR environment is only indirectly possible via special “end effectors”, which are only useful in specifically designed situations.<sup>55</sup> The 3D objects function as end effectors that make the synchronisation of objects existing in two spaces possible, as shown in the example of the cup. In *Eternal Return*, the performer is not visually present, because it is a VR performance. However, the actual touch of the performer - by hand, palm, fingertip - guiding the spectator, or the performer handing objects to the spectator, such as the stromatolites (layered rock), creates the most ambiguous feeling of being present in both the virtual world and the physical world.

As mentioned in the previous chapter, ‘Tinkle ball’ itself exists as a visual stimulus, but also as a haptic stimulus, because it responds and reacts to the movements and actions of the spectator. Through this play of action and reaction between the spectator and ‘Tinkle ball’ handled by the performer, the spectator encounters the feeling of ‘Being there’ with ‘Tinkle ball’ in the virtual world. Therefore, the synchronisation between this extended performer, ‘Tinkle ball’, and the spectator generates a feeling of presence in the virtual world. Here, ‘Tinkle ball’ becomes present (it is made present by the performer) to the spectator, which Giannachi et al. term as ‘Being before’, and starts to function as a communicative living being in the virtual space.

Additionally, the performer guides the spectator through sound: the performer’s voice is 3D recorded and synchronised with ‘Tinkle ball’. For example, when the voice says: “stretch your hand out in front of your eyes. You cannot see your hand but you can feel it from inside. Open your eyes.”<sup>56</sup> This example also shows the directive way in which the spectator is guided via the headphones: “...a bit more...and if you also move your body towards me...”.<sup>57</sup> The text is formulated and timed in such a way that spectators can follow the clearly given instructions. This representation of the performer’s voice is meant to create the “illusion that the performer walks with you” during the performance, as Lundahl & Seidl mention in an interview.<sup>58</sup> This feeling of the performer walking with you is reinforced through the touch of

---

<sup>55</sup> Dennis Allerkamp, “Introduction.” In *Tactile Perception of Textiles in a Virtual-Reality System* Cognitive Systems Monographs Volume 10 (Berlin-Heidelberg: Springer-Verlag, 2010), 1-4. Ed. Rudoger Dillmann, Yoshihiko Nakamura, Stefan Schaal, David Vernon.

<sup>56</sup> Text from presentation of the work *Eternal Return*, obtained during my internship at STRPfestival 2019.

<sup>57</sup> Ibidem.

<sup>58</sup> Lundahl and Seidl, interview 11 April 2014, “Symphony of a Missing Room”, accessed several times, latest 17 May 2020, <https://youtu.be/t6MiqLTDj2A>

the performer; the spectator knows the performer is staying close, because they regularly touch the spectator or grab their hand to touch 3D prints in the installation.

Looking back at the example of the performer's intervention at the start of this paragraph, it puzzled me why this immersed feeling was less intense – and therefore created strong feelings of being present in the here and now – compared to my feelings of fear of heights or the experience with the piano in *The Fugue*, mentioned earlier. Here the designed interplay of disturbance and synchronisation seemed simple and short. Firstly, the use of the hand to touch an object is obvious. The hand is a specific but small part of the body strongly related to touch and capable of detecting objects easily. Secondly, due to this quick detection and lack of durational interplay with the performer or object, as was the case with the piano, there was no continuous process of disturbance and synchronisation. Lastly, unlike the raising virtual floor in the example of the fear of heights, the cup was not moving and again the process of disturbance and synchronisation was lacking and the sense proprioception could not be activated.

## Conclusion

The leading question in this chapter is: *How does synchronised touch produce a sense of presence in Eternal Return?* Following the ideas of Giannachi et al. and Giannachi, I have argued that both the production and the experience of presence in the performance takes place in a process of interaction between the spectator, who as a subject actively relates to the performative VR environment, and the artists, who guide spectators using synchronised touch in a trajectory in the mixed reality performance. The experience of presence for the spectator in *Eternal Return* cannot be seen in isolation from the interaction of the spectator with the performer and the objects in both virtual and physical space. Touch plays a crucial role in this interaction. It is through touch - being touched and touching - that the spectator not only becomes aware of her own presence in the hybrid reality of *Eternal Return*, but also can interact with this hybrid environment. Being touched by the performer and touching objects makes the environment present for the spectator as both a virtual and physical reality. The spectator is simultaneously present in both of these realities and also experiences herself as being present in both of these realities.

Thus, presence in *Eternal Return* is revealed as something that is not stable, not fixed, but as something that is continuously produced in the interaction between a spectator and her environment. Since the sense touch has the unique capacity to create strong feelings and heightened awareness of presence, it is interesting to employ the sense touch in a virtual reality environment - because an experience of 'presence' is decisive for a successful VR experience – and simultaneously intertwine this experience with real life performance strategies. Constructing synchronisation of touch in this mixed reality performance evokes a consciousness of a doubleness of feelings of presence in the spectator's body. The spectator is actively there ('Being there'), touching, and sometimes making the performer herself or 'Tinkle ball' present ('Being before'). Not striving for full immersion - the ultimate goal for many virtual environments - but for a simultaneous awareness of two realities, this experience in *Eternal Return* reflects the essence of my research: attention for the embodied aspect of immersion.

## Chapter 4: Navigating in *Eternal Return*

In the complexity of this performance, one important aspect has not been discussed yet: the notion and function of navigation in visceral performances such as *Eternal Return*. Till now I have mainly discussed rather static moments in the performance (touching a piano key, pressing a door handle, feeling a fear of heights). But the experience of *Eternal Return* is largely determined by how as a spectator you move through the virtual and physical space. The aspect of moving with the body through the hybrid space is particularly relevant from a kinesthetic point of view, as moving with the body, as discussed previously, activates the sixth sense, proprioception. Mixed reality performance distinguishes itself from VR performances in how it allows the spectator to physically wander through the virtual space. This enables a very specific kind of embodied awareness. This wandering is carefully designed and, as we will see, touch plays a crucial role.

In *Eternal Return*, spectators are navigating the event through the use of touch in two different ways. Firstly, being touched functions as something that gives the spectator direction and determines how she should move through the performance. I will use Benford and Giannachi's concept of 'canonical trajectory' to elaborate on this. Secondly, touch functions as an exploratory, investigative phenomenon, in which there is no direct (guiding) purpose. Here a kind of *dance* arises between the spectator and the performer that feels like an improvised duet. Benford and Giannachi's concept of 'participatory trajectory' is useful to elaborate on the playful and improvisational part of this interaction between spectator and performer. Additionally, I will use Josephine Machon's article "Audience improvisation and immersive experiences. The Sensuous World of the Body in the Work of Lundahl & Seidl"<sup>59</sup> to illustrate how touch manifests in *Eternal Return* like a dance duet. In this chapter, I will answer my fourth sub question: *What role does synchronised touch play in how the spectator navigates through space?*

---

<sup>59</sup> Josephine Machon, "Audience improvisation and immersive experiences. The Sensuous World of the Body in the Work of Lundahl & Seidl", 671-686.

## Trajectory: way of navigation

Benford and Giannachi point out that mixed reality performances take their participants on a unique journey. Their theory on mixed reality performances is based on the idea that such artworks are constituted by embedded and emergent trajectories experienced by the participant.<sup>60</sup> An embedded trajectory stands for a trajectory that is already thought out and 'scripted' in the virtual world. On the other hand, an emergent trajectory refers to a trajectory that literally emerges 'in the moment', through the choices and actions of the spectator. Following Benford and Giannachi, as a concept 'a trajectory' suggests that knowledge – in particular knowledge about the environment - is gained through processes of movement and navigation. The spectator's experience is constituted by a 'journey', route or trajectory, through the mixed reality performance. Benford and Giannachi explicitly use the word trajectories because terms such as route or journey have the connotation of going from point A to point B. Navigation in our cars is exemplary for such determination of a route, whereas a trajectory intends to explicitly express the "itinerary of a body", as mentioned in the following quote:

Etymologically speaking, a trajectory differs from a line, journey, thread, or trace in that it implicates the act of throwing across (*trans jacere*) and therefore indicates the movement of a body or object through space and time. [ ... ] Trajectories express the progressive itinerary of a body or object as originated by an agent.<sup>61</sup>

Through synchronised touch the spectator experiences the trajectory and other emerging sensorial input and output. The itinerary of a spectator's body decides the actions of the spectator in each part. This emphasizes the subjective nature of the experience. After interviewing a dozen spectators who had seen *Eternal Return*, I realized that everyone experienced the performance differently. Once in the virtual space every person could decide for themselves where to start and in what direction to head of.

---

<sup>60</sup> Benford and Giannachi, "Trajectories through Mixed Reality Performance", 230-238.

<sup>61</sup> Benford and Giannachi, "Introduction: Designing Mixed Reality, 15.

### Three functions of trajectories

Regarding trajectories in an interactive experiential environment, three important aspects need to be mentioned, according to Benford and Giannachi. Firstly, an important function of trajectories is that they establish a sense of continuity.<sup>62</sup> Traversing hybrid spaces can be overwhelming and confusing and therefore it is important to create a “sense of coherence” when designing trajectories.<sup>63</sup> Secondly, there are “key *transitions*” in each trajectory. These key transitions are moments during the experience where continuity is at risk.<sup>64</sup> After studying various case studies, Benford and Giannachi concluded that key transitions mostly take place in the following situations: beginnings, endings, role and interface transitions, traversals between physical and virtual worlds, episodes and temporal transitions, transitions into physical resources, and transitions across seams in the infrastructure.<sup>65</sup> For this thesis two transitions are the most notable within the trajectories of *Eternal Return*: beginnings and traversals between physical and virtual worlds. Finally, there is a fundamental creative tension between an author’s ideal route designed through the experience and the spectator’s actual trajectory. Essential in interactive experiences is a degree of control: the possibility for the spectators to make their own choices and choose their personal routes. Benford and Giannachi term these trajectories of performer and spectator “canonical trajectory” and “participant trajectory”.<sup>66</sup>

Canonical and participant trajectories tend to repeatedly diverge and reconverge throughout an experience as participants make individual decisions that lead them away from the ideal (canonical) route, and then the artists’ work to bring them back at key moments.<sup>67</sup>

Based on this paragraph, I will look at how these three intertwined aspects; continuity, key transitions and creative tension are addressed in *Eternal Return*, in the next paragraph. To what extent is there an experience of continuity or deliberately endangered continuity

---

<sup>62</sup> Benford and Giannachi, “Trajectories through Mixed Reality Performance”, 230-231.

<sup>63</sup> Benford and Giannachi, 231.

<sup>64</sup> *Ibidem*.

<sup>65</sup> Benford and Giannachi, 232-234.

<sup>66</sup> Benford and Giannachi, 235-236.

<sup>67</sup> Benford and Giannachi, 236.



between the physical and virtual worlds, and where does that come from? Furthermore I will figuring out how this creative tension is employed in *Eternal Return*.

In *Eternal Return* the coherence can be discussed both on the level of the separate parts and on the level of the performance as a whole. In *Eternal Return*, the trajectory in each part is different because of the differently designed virtual spaces, each with their own objects and thematic implications. What is similar and provides coherence is how in every part of *Eternal Return*, the performer touches the spectator and handels 'Tinkle ball', letting it dance around the spectator, guiding her on this trajectory. The first important transition in *Eternal Return* is in fact the beginning, which is also the start of the trajectory according to Benford and Giannachi: "Beginnings must be designed to introduce the narrative, [...] define the spatiotemporal framework of the piece, but also to build suspense, brief participants, create affordance, establish the rules of the ritualization."<sup>68</sup> I already briefly described the 'rituals' that took place before I entered *Eternal Return* in chapter 1. The ritual was the same for each of the three parts I experienced. After booking a timeslot at the ticket office, participants were invited to wait on one of three chairs placed in a row. Because of the popularity and limited capacity of the performance, it was very hard to get a time slot. For this reason, every participant was early and sat down for a while looking at the performance from the outside. Waiting for the performance to start and looking at it from the outside, gave me confidence and put me at ease. When invited by the performer, I was asked to hand over my personal possessions, my glasses and scarf. This was followed by the performer carefully putting on the technical devices (headphones, VR glasses, belly belt). All that time the performer and spectator are close to each other. With this ritual, the spectator implicitly gives permission for the performer to touch them and the trained performer gains bodily information about the spectator. Is this person at ease or nervous, cooperative or passive and how does the body respond when touched during this ritual moment?

Doing the same trajectory over and over again gives the body information, which it can later use in similar situations. Over time, bodies can detect specific movements and execute them easily. This can be seen as the body teaching itself to be fluent in certain movements. Most people who have to get up in the middle of the night to go to the

---

<sup>68</sup> Benford and Giannachi, 232.

bathroom can do this task easily – even when they're drowsy and the house is dark - because they 'rehearsed' it frequently. This is important, because this is exactly where the chances for artists lie. Sally Banes and Andre Lepecki describe the body in the introductory chapter "The performance of the senses" as a "metamorphic body".<sup>69</sup> With this concept the authors refer to the body's capacity to adapt itself to situations when certain circumstances disturb the senses. All previously mentioned examples of synchronised touch are examples of a spectator's body being taught and challenged in the hybrid (syn)aesthetic. The diverging and reconverging process of the canonical and participant trajectories is helpful because it keeps the spectator's body away from a rehearsed trajectory.

### Choreographing synchronised touch

The performance *Eternal Return* includes elements of continuity, key transitions (beginnings and traversals between physical and virtual worlds) and creative tension between the trajectory of the performer and the spectator. This paragraph's function is to elaborate on the role synchronised touch plays in that context and enlighten how its role is written (choreographed). Synchronised touch can be approached from the scripted side of the author as well as the intuitive side of the spectator. Firstly, touch appears to guide a spectator through the performance – in a canonical trajectory. Secondly, touch functions without a direct sense or (guiding) purpose – in a participatory trajectory. Then, a kind of *dance* arises between the spectator and the performer that feels like an improvised duet. I will give an example of both ways the artists employ and therefore manipulate the degree of freedom of a spectator in a guiding or more intuitive way.

In *The Fugue*, when the virtual piano became visible, the performer pulled my attention away from the piano by touching me on the shoulder with her hand. As a result, I turned around, and this made it possible for the technician to roll in an object without me noticing. Then, the performer guided my hand gently to the object, which became a real piano key to me. This action, necessary to create the feeling of synchronised touch as I described earlier, was scripted in the canonical trajectory. Such scripted trajectories guide a spectator through the performance and can be observed in every spectator's trajectory. The

---

<sup>69</sup> Banes and Lepecki, "Introduction. The performance of the senses", 1.

moments in which 'Tinkle ball' is used to guide the viewer through the space in a targeted manner or to provoke a certain direction, this often happens in direct interaction with what can be seen in the virtual world combined with what the voice says to the viewer. "Can you touch me" is an example of one sentence the spectator hears. This asking sentence invites the spectator to handle - touching 'Tinkle ball' – and strongly suggests this entity is a person by using the word "me".

If children took part, it was mostly in *The Fugue*, because here the space seems to offer more playful interaction time. Because it is the part with only one object (piano) and here 'Tinkle ball' can be used to invite a spectator to move freely in and through space. About eight children I observed, started 'dancing' with this virtual entity. Seen from the outside it looked like the children's game 'hide and seek'. By using different heights, the performer also let the children move high and low and even jump when they wanted to touch the virtual ball. Such reactions are evoked by the performer. If a child's attention diminished or changed focus, the performer's deliberate and directing interaction transferred into passively observing and upholding the child's movements. During other moments the performer also deliberately did not interfere by touching me (or other spectators), knowing what the spectator was about to encounter in the virtual reality and wanting them to experience the experience without distraction or disturbance. Such moments could be found in all three parts of the performance; moments where the artists create time in their script for spectators to explore and move around in the 'here and now'. In such moments the performers, always focused on the movements of the spectator, opened up to that moment and improvised instead of guiding the spectator.

Such improvisation requires certain skills on the part of the performers. It is no coincidence that the performers in *Eternal Return* are trained professionals in different disciplines: Laban Movement Analysis, Yoga, Movement Therapy. The performers in *Eternal Return* are trained by Martina Seidl to be open and empathetic to the spectator, and open to the unexpected. This technique, as Machon explains, "is underpinned by Seidl's ongoing investigations into embodied experience [...] which involves deep observation of sensation and perception [...] the type of movement that can happen in stillness".<sup>70</sup> According to

---

<sup>70</sup> Machon, "Audience improvisation and immersive experiences. The Sensuous World of the Body in the Work of Lundahl & Seidl", 678.

Machon these performers are all “very receptive to different physical states” and the work of Lundahl & Seidl can be considered a form of dance.<sup>71</sup>

Therefore, although this possibility for the spectator to move freely through the space might seem to point to a participatory trajectory at first sight, it is actually highly scripted: the attention of the spectator is guided in a highly premeditated careful way through the use of the voice, the virtual world and especially the touch and the movements of ‘Tinkle ball’, handled by the performer. The performers are continuously sensitive and consciously involved in the movements of the spectator, resulting in an interaction that could be defined as a carefully choreographed ‘dance duet’.

## Conclusion

Formulating an answer to my fourth subquestion - *what role does synchronised touch play in how the spectator navigates through space?* - it becomes evident that navigation through space takes shape in the interaction and synchronisation between performer and spectator. The ‘script’ in *Eternal Return* is not a conventional text based script, and can therefore in my opinion be better referred to as a trajectory. The artists shape the different ways of touching, and the synchronisation of touch in a twofold way.

Firstly the spectator is quite literally guided by the performer and the objects. As a visual stimulus, ‘Tinkle ball’ seduces the spectator to follow her and move through the space, allowing the performer to choreograph the spectator to certain places and objects. Sometimes ‘Tinkle ball’ is also used to directly touch the spectator and turn the body in a desired direction so that the spectator sees something new that she wants to move towards, for example. This is often in close interaction and sometimes synchronised with what the spectator sees and hears. This is also a form of navigating.

Secondly, this scripted trajectory still leaves room for more spontaneous ‘here and now’ encounters between the performer and spectator. Sometimes it is quite consciously *not* touching, so that the spectator can decide for herself what she wants to do or where she wants to move to. The performers are trained to feel when they have to give the spectator

---

<sup>71</sup> Machon, “Audience improvisation and immersive experiences. The Sensuous World of the Body in the Work of Lundahl & Seidl”, 678.

space. These moments, in which intuitiveness and freedom of choice are determinant and form a contrast to the fixed technological character of the virtual world. During those moments the performer uses 'Tinkle ball' more as a playful invitation for the spectator to move without a specific goal or direction, but to move more in relation to each other. The extent to which this happens appears to depend on the need and character of the spectator; the performer responds to the way in which the spectator reacts to 'Tinkle ball'. At such moments of exploration a kind of improvised dance emerges, and two bodies *touch* each other without actually touching each other (immersive touch). This yields moments of 'moving together' which one could describe as a 'dance duet'.

## Conclusion

In this thesis the focus has been on the analysis of the artistic strategy of 'synchronised touch' and how the sensorial system of a spectator deliberately is disturbed and synchronised in a VR environment. Therefore the following research question has been discussed: how does 'synchronised touch' function as a (syn)aesthetic composition in *Eternal Return*? Disturbing the sensorial system is at the center of performances that can be seen as synaesthetic phenomena. I explored this by researching spectatorship in the case study *Eternal Return* designed by Lundahl & Seidl and Scanlab projects. The uniqueness of this specific visceral performance is revealed in the fact that tactile strategies are used to create a process of both disturbance and synchronisation of the senses in mixed reality. I investigated three levels of synchronisation in this performance: synchronisation between the physical space and the virtual space, synchronisation between the senses, and synchronisation between the performer and the spectator. In such synchronisation processes, I distinguished three modes of touch in this performance: the spectator touching objects, the spectator being touched by the performer, and the spectator experiencing touch without being physically touched. The latter is what Fisher beautifully terms 'immersive touch': touch that is sensed as a corporeal positionality.

The first and second chapter functioned as an exploration of these thesis' key-concepts: 'mixed reality performance', '(syn)aesthesia' and 'touch'. In the first chapter I explored the synchronisation between the physical and the virtual world, elaborating on the first question: *what does synchronised touch as an artistic strategy in mixed media performance entail?* Benford and Giannachi developed a new form of interactive experience that integrates digital media with physical settings and also combines interactivity with live action in their theory of trajectories. They term such experiences: mixed reality performance. I concluded in the first chapter that the layered and complex spatial, performative and interactional characteristics of the work *Eternal Return* may point to new kinds of applications in which digital technology and corporal embodiment are interwoven. This thesis positions the work *Eternal Return* at the cutting edge of theatre, live art and VR technology. With this technology the artists try to create a deeply imaginative and fascinating new form of interactive experience for spectators at the intersection of immersion and life performance.

In doing so, they are challenging existing conventions where synchronised touch can be seen as a multi layered artistic strategy in the hybrid spatial performance *Eternal Return*. In this hybrid space – the range between the physical and virtual space - the spectator's body functions as interface.

ScanLAB projects has designed a complex 3D virtual world which, in principle, has been designed in a linear, fixed way. It is interesting because it shows the new technological possibilities of VR. Being artists, Lundahl & Seit search for new possibilities and explore what kind of experiences this medium is best suited for. They do this by creating their performance *in* (e.g. interplay with 'Tinkle ball') and *around* (e.g. interplay by touching spectators) this virtual world. Firstly, they do so by having both performers as well as spectators present in the same physical space. Secondly, they have looked for ways to play and perform in virtual reality. The entity that I called 'Tinkle ball' plays a prominent part; her movements are determined by the interaction of the performer and the spectator in the physical world, but she only exists (or is perceptible as such) in the virtual world. The artists' goal is to travel with the spectator through the so called "virtuality continuum", increasing physical awareness in the spectator and placing the body in the center of the performance. Depending on the specific combinations during the interplay and the uniqueness of each personal corporal experience – the experience of realness or virtuality can shift in this continuum.

In the second chapter I elaborated on the second question: *How can synchronised touch be understood as a (syn)aesthetic composition?* I stress the importance of tactility, to emphasize how the three different levels of touch are vital in creating synchronisation of the sensorial interplay in this performance. As has become clear, touch cannot be separated from and is always in a continuous interplay with the other senses (especially with sight and hearing). Additionally, there is the so-called 'sixth sense': the sense proprioception, which plays an important part in the perception of touch without physical contact, immersive touch, and is important when moving through the work while being deprived from sensing the physical world. Thus touch appears as corporeal positionality.

In the third chapter I elaborated on the third question: *How does synchronised touch produce a sense of presence in Eternal Return?* The performance analysis in this chapter looked at how the three levels of touch in VR have the quality to increase or deminish the feeling of 'realness' of the bodily experience in the VR environment. The performer uses the

spectator's body to evoke such feelings through well-timed and scripted moments of several forms of touch and different levels of synchronisation. Being simultaneously in two spaces evokes feelings between reality and uncanniness. If a level of touch synchronises, the feeling of realness emerges. Touching 3D objects with end effectors in the VR environment increases the feeling of realness. Synchronising touch between the performer and spectator highlights the presence differently than synchronising touch between an object in physical space with its counterpart in VR. Both highlight presence but each in a different space. The touch sensed as corporal positionality, the existence of 'Tinkle ball' and the disembodied performer, highlights the feeling of being simultaneous in a double (VR and physical) space. Between those feelings of being present in the VR space, physical space or both and the duration of continuous interplay with the senses, I argued that the simultaneous awareness of two realities in *Eternal Return* reflects the essence of my research: attention for the embodied aspect of immersion.

In the fourth chapter I elaborated on my fourth subquestion: *what role does synchronised touch play in how the spectator navigates through space?* This chapter, that last level of synchronisation – synchronisation between performer and spectator - is at the core of the analysis. I argued that navigation through space takes shape in the interaction and synchronisation between performer and spectator. I also argued that *Eternal Return* can be approached as a trajectory. Being in a diverging and converging twofold trajectory (canonical and participatory) opens up creative space where there is room for improvisation for the spectator. These spontaneous encounters in which intuitiveness of both the performer and spectator is determining the present, also includes the entity 'Tinkle ball'. Actively looking around, traveling and sometimes dancing together in the VR environment connected by 'Tinkle ball', a spectator partly pursues her own spatial trajectory (participatory trajectory). Here, a kind of improvised dance duet emerges in the hybrid space where bodies and 'Tinkle ball' touch each other without actually touching, thus not visible but sensed as a corporeal positionality. Fisher terms this as immersive touch, designed in such a way that navigation and exploration can alternate and smoothly flow into each other.

My last sub question, *how does synchronised touch give the spectator a sense of heightened perceptual awareness*, unfolds through all chapters in the layered, interwoven and contrasting characteristics of 'synchronisation' and 'touch' that in sum become an entangled artistic strategy 'synchronised touch' in the mixed reality performance *Eternal Return*.



Sensory experiences are anchored in emotions and memory. The fact that I experienced a fear of heights, unlike other spectators, has to do with my kinesthetic memory. For further research I would attempt to elucidate the nature of kinesthetic memory. How its centrality to everyday movement and thereby its promotion of a cognitive and physical understanding of movement in every day life are related to new experiences, such as those possible in VR.

Reflecting on my central question, I hope to have convinced the reader with this research of how artistic work exploring virtual reality, creating interaction and interplay between the physical and the virtual, generates other forms of immersion than when we only focus on the virtual environment. Performance as a medium becomes essential in several ways. It adds meaningful content to the technical VR and a spectator's body, with all its unique feelings, becomes tangible. Furthermore, synchronised touch functions as an artistic concept. The way virtual reality is used in *Eternal Return* illuminates that touch brings something paradoxical to experiencing reality. On the one hand the synchronisation of touch with 3D objects and VR increases the experience of reality in VR, where immersion is the most important goal. On the other hand, the synchronisation of touch between the performer and/or entity 'Tinkle ball' and the spectator increases the experience of being present in two worlds simultaneously. This makes the virtuality continuum tangible and materialises this theoretical concept.

Finally, the addressed *delicacy* of the performer's touch (by Machon) in the synchronisation between the performer and spectator is essential and becomes sensible due to the well trained performers who are trained to subtly respond to different reactions, pick up subtle movements and guide all these stimuli in the process of synchronisation. Only professional bodies can choreograph touch and create a sort of dance duet with a spectator in *Eternal Return*.

## Bibliography

### Literature

Allerkamp, Dennis. "Introduction." In *Tactile Perception of Textiles in a Virtual-Reality System* Cognitive Systems Monographs Volume 10, eds. Rüdiger Dillmann, Yoshihiko Nakamura, Stefan Schaal, David Vernon, 1-4. Berlin-Heidelberg: Springer-Verlag, 2010.

Banes, Sally and André Lepecki. *The Senses in Performance*, edited by Sally Banes and André Lepecki, Oxon & New York: Routledge, 2007.

Sally and André Lepecki. "Introduction: The performance of the senses." In *The Senses in Performance*, eds. by Sally Banes and André Lepecki, 1-7. Oxon & New York: Routledge, 2007.

Benford, Steve and Gabriella Giannachi. *Performing Mixed Reality*, London: The Mit Press, 2011.

Benford, Steve and Gabriella Giannachi. "Introduction: Designing Mixed Reality." In *Performing Mixed Reality*, 1-25. London: The Mit Press, 2011.

Benford, Steve and Gabriella Giannachi. "Hybrid Space: Between Real and Virtual, Local and Global." In *Performing Mixed Reality*, 27-70. London: The Mit Press, 2011.

Benford, Steve and Gabriella Giannachi. "Trajectories through Mixed Reality Performance." In *Performing Mixed Reality*, 229-268. London: The Mit Press, 2011.

Choinière, Isabelle, Enrico Pitozzi and Andrea Davidson. "Introduction Through the prism of the senses." In *Through the Prism of the Senses. Mediation and New Realities of the Body in Contemporary Performance*, 1-19. Bristol & Chicago: Intellect, 2019.

Choinière, Isabelle, Enrico Pitozzi and Andrea Davidson. "Touch and Merleau-Ponty's notion of 'flesh' in a technological era." In *Through the Prism of the Senses. Mediation and New Realities of the Body in Contemporary Performance*, 116-123. Bristol & Chicago: Intellect, 2019.

Di Benedetto, Stephen. *The Provocation of the Senses in Contemporary Theatre*. New York: Routledge, 2010.

Fisher, Jennifer. "Tangible acts.Touch performances." In *The Senses in Performance*, edited by Sally Banes and André Lepecki, 166-178. Oxon & New York: Routledge, 2007.

Foster, Susan Leigh. "Introducing Choreographing Empathy." In *Choreographing Empathy*, 1-14. London & New York: Routledge, 2011.

Foster, Susan Leigh. "Kinesthesia." In *Choreographing Empathy*, 73-125. London & New York: Routledge, 2011.

Giannachi, Gabriella. "Environmental Presence." In *Archaeologies of Presence* edited by Gabrielle Giannachi, Nick Kaye and Michael Shanks, 50-63. New York: Routledge, 2012.

Klich, Rosemary. "Amplifying Sensory Spaces: The In- and Out-Puts of Headphone Theatre." *Contemporary Theatre Review* 27, no. 3 (2017), 366-378.

Machon, Josephine. "Introduction: Redefining Visceral Performance." In *(Syn)aesthetics - Redefining Visceral Performance*, 1-12. London & New York: Palgrave Macmillan, 2009.

Machon, Josephine. "Defining (Syn)aesthetics." In *(Syn)aesthetics - Redefining Visceral Performance*, 13-33. London & New York: Palgrave Macmillan, 2009.

Machon, Josephine. "(Syn)aesthetics in Practice." In *(Syn)aesthetics - Redefining Visceral Performance*, 54-80. London & New York: Palgrave Macmillan, 2009.

Machon, Josephine. "Audience improvisation and immersive experiences. The Sensuous World of the Body in the Work of Lundahl & Seidl." In *The Oxford Handbook of Improvisation in Dance*, edited by Vida L. Midgelow, 671-686. Oxford: University Press, 2019.

Schechner, Richard. "Rasaesthetics." In *The Senses in Performance*, edited by Sally Banes and André Lepecki, 10-28. Oxon & New York: Routledge, 2007.

White, Gareth. *Audience Participation in Theatre: Aesthetics of the Invitation*. Basingstoke: Springer, 2013.

## Performance

Lundahl & Seidl, *The Memor*, live experienced 31 March 2019. [videofragment](#)

Lundahl & Seidl, *The Fugue*, live experienced 2 April 2019. [videofragment](#)

Lundahl & Seidl, *The Stromatolites*, live experienced 3 April 2019. [videofragment](#)

## Webpages

ScanLAB Projects, accessed several times, 2019/2020, <https://scanlabprojects.co.uk>

Lundahl & Seidl, <http://www.lundahl-seidl.com/work/eternal-return> Accessed, accessed several times 2019, latest, 4 May 2020.

Lundahl & Seidl about Technique, Interview Bermanfestivalen, 4 June 2012. Accessed 12 May 2020, <https://www.youtube.com/watch?v=tbTrd02KoWs>

Cambridge Dictionary: 'synchronisation': <https://dictionary.cambridge.org.proxy.library.uu.nl/dictionary/english/synchronize?q=synchronized> Accessed 4 April 2020.

## Documentation STRP festival 2019

Lundahl & Seidl, *Eternal Return* documentation. A 16 pages document in which the artist describe their latest work *Eternal Return*. Accessed during internship March 2019.

STRP blog, Aaltjse & Robin. "Word on the street: Eternal Return", 4 April 2019.

<https://medium.com/heres-to-the-future/word-on-the-street-eternal-return-34452e6e4da6>

Transcription artist talk Lundahl & Seidl, STRP festival 4 April 2019.