HETEROTOPIAS— OPTICAL MASTICATION AND SPATIAL RECONFIGURATION

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Abstract

Heterotopias is an interactive virtual reality experience based on Michel Foucault's influential lecture, *Des espaces autres*. The experience leverages eye-tracking technology to transform users' blinks into cinematic cuts. With every blink, the virtual space alters, producing variable configurations of stereo-360 footage and computer-generated models. Throughout the experience, disembodied voices whisper selected phrases drawn from the original recording of Foucault's 1967 lecture in French, as well as from readings of Jay Miskowiec's 1984 English translation. To complement the ungrounded transformation of space, the user is suspended in a hanging chair.

Introduction

The heterotopia is capable of juxtaposing in a single real place several spaces, several sites that are in themselves incompatible. (Foucault, 1984)

This quote became the anchor for our exploration. Michel Foucault's lecture anatomizes the idea of the heterotopia, defined as a space that is both real and virtual, physical and mental. Heterotopias are neither utopias nor dystopias, they are spaces defined by otherness, which function in non-hegemonic conditions. We followed Foucault's attempt to develop a heterotopology as we formed our own workflow in virtual reality. Our virtual reality experience, combines numerous spaces, including a well, a theater, a garden, a cemetery, and a mirror room. These spaces, central to Foucault's discussion, are made virtually inhabitable. Through experimentation, we observed that virtual reality itself functions as a heterotopia in so far as it allows for this type of juxtaposition of spaces.

When we embarked on this exploratory research project, neither of us had experience working with virtual reality. We found ourselves in the dark; we didn't know where we were headed. Fittingly, the first perspective we constructed was from the bottom of a well. Gradually the viewer is drawn upward toward the light and more complex configurations of space. To

generate more content we set out with a Jaunt camera and captured a range of spaces in Los Angeles. Each one was chosen because of its exemplary status in Foucault's lecture. As we moved in the city and read and reread the translation of his lecture our understanding of its meaning transformed.

Figure 1 Prototype of installation (© Szilvia Ruszev + Noa Kaplan)

Sound plays a vital role in *Heterotopias*. Releasing any narrative scaffolding, we aimed to build an experience that sets up an intimate and explorative relationship with the audiovisual content. The voice over combines the

clips from the recording of Foucault's original lecture with translations into English by Jay Misowiec; whispered voices utter insights throughout the experience. In the first scene, the voices function as guides, but as the experience progresses, they become increasingly ambient. The voices fade from semantic to purely rhythmic elements. Using the potentialities of 360º spatialization, the sound design aims to alter the user's perspective on how narration occupies space.

In *Heterotopias*, physical furniture transforms the way that users experience visuals and sound (Figure 1). Before putting on the head mounted display, each user sits in a hanging chair. The immediate result is a sense of weightlessness. The body's gentle motion mediates the camera motion and audio attenuation. Additionally, we have received extensive user feedback that the absence of a virtual representation of the body feels natural as the user's feet are not planted firmly on the ground. The hanging chair alters the proprioperception of the user. Once comfortable, he or she has precise control over the amplitude of movement, facilitating the body's self-assertion into the virtual space of *Heterotopias*.

Foucault's lecture situates social theory in the context of geographic analysis. He discusses the difficulty of producing a systematic description, or heterotopology, of heterotopias. Our artistic approach in creating this virtual reality essay is an experimental one, based on our understanding of art as a reflexive practice, as an independent form to produce aesthetic knowledge. Our aim was to create an aesthetically driven heterotopology where each user's encounter with Foucault's theory is mediated, even constructed, by that user's particular body.

Ritual Entry

> *Heterotopias always presuppose a system of opening and closing that both isolates them and makes them penetrable. In general, the heterotopic site is not freely accessible like a public place. Either the entry is compulsory, as in the case of entering a barracks or a prison, or else the individual has to submit to rites and purifications.* (Foucault, 1984)

To experience virtual reality, the viewer must perform certain rituals of entry, strapping on a head mounted display, dawning headphones, and in our case sitting in a hanging chair. The viewer, blindfolded and suspended, becomes vulnerable to the outside.

Tangentially, we became interested in the often ignored suite of products that have been created as part of the virtual reality purification rites. For instance, sanitary masks, which we initially offered viewers. We also discovered a range of cleansing wipes and sprays to alleviate fears of contagion. While virtual reality sometimes feels isolated and remote, in an

exhibition setting, the apparatus is in actuality a series of shared surfaces, which collect layers of bodily residue.

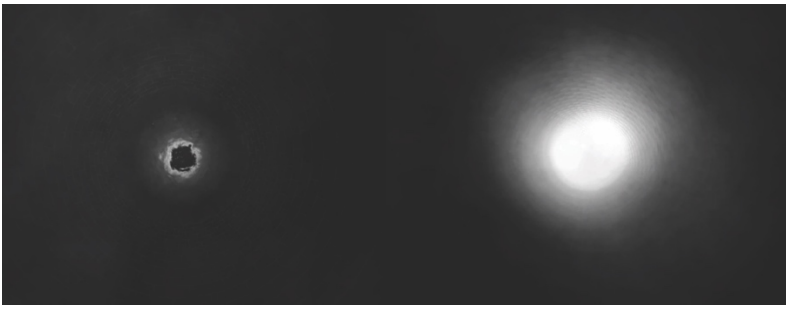

Figure 2 The Well (© Szilvia Ruszev + Noa Kaplan)

These somewhat absurd products lead us to consider other types of rituals related to the eyes, the most essential being the act of blinking: blinking keeps the eye lubricated and removes irritants from the surface. Foucault's description takes on new meaning in the context of the blink:

> *To get in one must have a certain permission and make certain gestures. Moreover, there are even heterotopias that are entirely consecrated to these activities of purification—purification that is partly religious and partly hygienic.*
> (Foucault, 1984)

We often forget about this ritual, as our minds edit out our blinks to create a continuous flow of perception. With the exception of assistive technologies, new eye tracking applications (particularly in virtual reality) tend to designate blinks as 'noise' in the system; blinks are considered a waste of space, so this information is expelled from the database. In our case, however, blinking is the primary mode of interaction.

Blinking as Optical Mastication

> *Outside and inside form a dialectic of division, the obvious geometry of which blinds us as soon as we bring it into play in metaphorical domains. It has the sharpness of the dialectics of yes and no, which decides everything.*
> (Foucault, 1984)

Heterotopias is built for the experimental FOVE head-mounted display, which enables eye-tracking. Usually, users' blinks are considered 'noise' in the system, additional data that is edited out. In our case, however, blinking is the primary mode of interaction. With the increasing precision of

infrared sensors, even unconscious blinks, lasting around 300-400 milliseconds can be reliably separated. In *Heterotopias*, each blink triggers a new arrangement of visual and sonic elements; consequently, space is continually redefined on all sides. The user unconsciously performs the cognitive work of assembling the audiovisual experience, turning the concept of montage upside down.

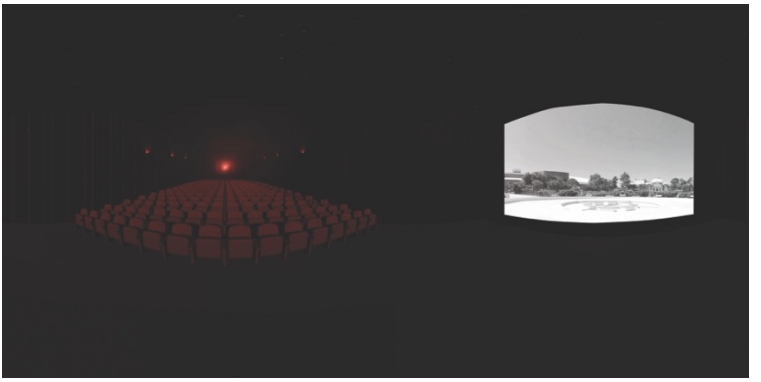

Figure 3 The Cinema and The Garden (© Szilvia Ruszev + Noa Kaplan)

In *Heterotopias,* the blinking interaction forces users to passively (or actively) control the configuration of spaces. One notable observation from testing this interactive mechanism is that many users did not realize that their blinking was shaping the experience unless explicitly told. Once told, however, blinking, normally invisible or imperceptible, became the focal point of the experience.

Through research, we learned that there are three types of blinks: Spontaneous blinking occurs without external stimuli or internal effort. This type of blinking is conducted in the premotor brain stem and happens without conscious effort, like breathing and digestion. A reflexive blink occurs in response to an external stimulus, such as contact with the cornea or objects that appear rapidly in front of the eye. A voluntary blink has a larger amplitude and makes use of all three divisions of the orbicularis oculi muscle. Voluntary blinks are far less common that spontaneous and reflexive blinks.

Interestingly, users who were not told about the interactive mechanism, reported that they did not know their blinking triggered change. Their blinks were spontaneous and reflexive; however, those who were told of the mechanism ahead of time, blinked voluntarily and reported that they were hyper-aware of their blinks over the course of the entire ten-minute experience.

Experiencing the Virtual Tract

The user enters *Heterotopias* at the bottom of a well. The effects of blinking are most subtle here, simply changing the sonic quality of dripping water. When the narrative countdown starts, the user starts to move up toward the opening of the well, ultimately dissolving into total whiteness.

In the second scene, the whiteness resolves into a beam of light emanating from a projector in a movie theater. When the user turns, there is an image of a garden on the screen. The user can switch (by blinking) between the site of the cinema, where the garden is a projection, and the garden itself. This scene alternates between confinement and freedom, illusion and awareness of the world.

> *The cinema is a very odd rectangular room, at the end of which, on a two-dimensional screen, one sees the projection of a three-dimensional space. The garden is the smallest parcel of the world and then it is the totality of the world.*
> (Foucault, 1984)

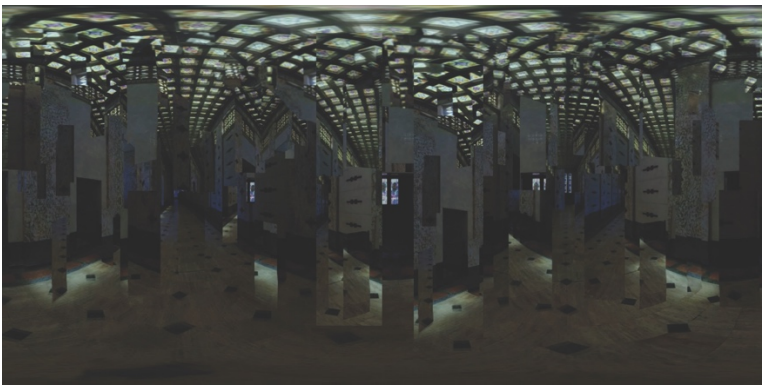

Figure 4 The Mirror Room (© Szilvia Ruszev + Noa Kaplan)

The experience concludes in a mausoleum filled with mirrors–a virtual space composed of both 360º cinematic footage and CG mirrors–referring both to the real and the simulacra. In this space, blinking alters the number and position of the virtual mirrors that surround the user. The ever-changing mirrors create cognitive dissonance; the user is never given the opportunity to comprehend the space in its wholeness. The mirror room is the end of the journey, bringing the user back to the dark and intimate space of the self.

> *In the mirror, I see myself there where I am not, in an unreal, virtual space that opens up behind the surface; I am over there, there where I am not, a sort of shadow that gives my own visibility to myself, that enables me to see*

> *myself there where I am absent: such is the utopia of the mirror*. (Foucault, 1984)

Conclusion

Ultimately, *Heterotopias* asserts that virtual reality fulfills the criteria of Foucault's 'other spaces'. In fact, it extends his heterotopology to digital space. The physical site of experience is visually replaced, and in the case of *Heterotopias*, even the sensation of solid ground underfoot vanishes. The body adapts to an unfamiliar, suspended experience. Most importantly, the blinking interaction reminds the user that each body has the potential to shape space, consciously or unconsciously.

> *If we look at the body as the constitutive source of our world experience, concepts like "internal" and "external", "subject" and "object" become nothing but verbal placeholders for the dynamic relation our body entertains with the world.*
> (Gallese, 2017)

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