VOL I

ESTUDOS LATINO-AMERICANOS SOBRE MÚSICA

Javier Albornoz

(Organizador)

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The E-book "Estudos Latino-Americanos sobre Música" compiles top-notch research in a rich collection of works that contribute to the study of music from a multicultural approach.

The book focuses on a plurality of themes anchored in academic findings by Latin-American scholars, presented in a didactic and concise language that is accessible to both professors and students.

This series of articles presents the reader with knowledgeable insight that connects music and the modern world through varied methods and perspectives. The articles are organized into two volumes, integrating theory and practice, and encompassing a wide range of topics without losing sight of specificity.

Volume I focuses on the impact of music on society and includes studies on the complex history of music throughout Latin America and beyond, as well as the fascinating genre of electroacoustic music.

Volume II provides thought-provoking studies that focus on the performance of music and the various techniques involved in its creation, along with new ideas in the fields of music education and music therapy.

As a composer and educator, it is always at the forefront of my goals to promote the arts and the study and development of music. It is with great pleasure that I accepted the invitation to organize this book, a composite of works written by my esteemed colleagues.

I hope the reader enjoys its content as much as I did!

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O E-book "**Estudos Latino-Americanos sobre Música**" reúne pesquisas de ponta em um rico acervo de obras que contribuem para o estudo da música a partir de uma abordagem multicultural. O livro enfoca uma pluralidade de temas ancorados em descobertas acadêmicas de estudiosos latino-americanos, apresentados em uma linguagem didática e concisa que é acessível a professores e alunos.

Esta série de artigos apresenta ao leitor uma visão bem informada que conecta a música e o mundo moderno por meio de métodos e perspectivas variadas. Os artigos estão organizados em dois volumes, integrando teoria e prática, abrangendo uma ampla gama de tópicos, sem perder de vista a especificidade.

O Volume I enfoca o impacto da música na sociedade e inclui estudos sobre a complexa história da música na América Latina, bem como o fascinante gênero da música eletroacústica.

O Volume II contém estudos instigantes focados na performance e nas várias técnicas envolvidas em sua criação, juntamente com novas idéias nos campos da educação musical e da musicoterapia.

Como compositor e educador, é sempre minha prioridade promover as artes e o estudo e desenvolvimento da música. É com grande satisfação que aceitei o convite para organizar este livro, um conjunto de obras escritas pelos meus estimados colegas.

Espero que o leitor goste de seu conteúdo tanto quanto eu!

Javier Antonio Albornoz

SUMÁRIO

CAPÍTULO 1

REVOLT AND AMBIVALENCE: MUSIC, TORTURE AND ABSURDITY IN THE DIGITAL ORATORIO THE REFRIGERATOR

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ABSTRACT: The digital oratorio *The Refrigerator* (2014) is a composition that reflects on my own experience of torture as a 17-year-old political prisoner during the Brazilian military dictatorship. This paper examines the existential and artistic contexts underlying the conception of the piece including the connection to my previous work. The investigation focuses on intermedia composition—electroacoustic music, live-electronics, audiovisual composition—and its relation to the subject of the torture. The paper aims, from a philosophical point of view, to build bridges between a phenomenological experience, the music, and the technology of sound synthesis. *The Refrigerator* expresses the conscious revolt struggling with the ambivalence of the torture and its acceptance as a path of illumination and transcendence. The experience of torture is approached from the perspective of Albert Camus' philosophy of absurdity and the mythical character of Sisyphus, who embraces absurdity through his passion as much as through his suffering.

RESUMO: O oratório digital *A Geladeira* (2014) é uma composição que reflete sobre minha própria experiência de tortura como preso político, aos 17 anos de idade, durante a ditadura militar brasileira. Este artigo examina os contextos existenciais e artísticos subjacentes à concepção da peça, incluindo o vínculo com o meu trabalho anterior. A investigação se concentra na composição intermídia – música eletroacústica, eletrônica em tempo real, composição audiovisual - e sua relação com o tópico da tortura. O artigo visa, do ponto de vista filosófico, construir pontes entre uma experiência fenomenológica, a música e a tecnologia da síntese sonora. *A Geladeira* expressa a revolta consciente que luta contra a ambivalência da tortura e sua aceitação como caminho de iluminação e transcendência. A experiência da tortura é abordada a partir da perspectiva da filosofia do absurdo de Albert Camus e da figura mítica de Sísifo, que abraça o absurdo tanto pela sua paixão quanto pelo seu sofrimento.

Introduction

My own experience of torture as a 17-year-old political prisoner during the Brazilian military dictatorship in 1971 is the subject of the digital oratorio *The Refrigerator* [*A Geladeira*] (2014) for two singers (mezzo-soprano and baritone), instrumental ensemble (violin, viola, cello, piano and percussion), electronic sounds, live-electronics and interactive visual projection. Commissioned by the Centro Cultural São Paulo and the ensemble "Núcleo Hespérides", the work was premiered on April 8, 2014 as part of an event for the 50th anniversary of the Brazilian military coup of 1964.[1] The "refrigerator" referenced in the work was a cubicle especially designed and equipped for torturing with sound. It was an environment designed for acoustic experience meant to be physically and mentally destructive. Many years later, I described this experience as follows:

> I was arrested for collaboration with opposition groups. Arriving in the military prison, I was put in the 'refrigerator', a small room, acoustically isolated, and completely dark and cold. Various noises and sounds (hauling oscillators, rumbling generators, distorted radio signals, motorcycles, etc.) shot from loudspeakers, hidden behind the walls. Incessantly, the electronic sounds filled the dark space and overwhelmed my body for three long days. After a [certain] time, I lost consciousness. This auditory and acoustic torture was then a recent development, partially replacing traditional methods of physical coercion that killed thousands in Latin American prisons between the 1960s and 1990s. Such sounds injure the body without leaving any visible trace of damage. The immersive space of the torture cell, soundproofed and deprived of light, resonates in my memory as the perfect environment for experiencing the power of sound embodiment. (Chagas 2008, 120-1).

Being tortured as a political prisoner was an absurd experience. It occurred at a time when I became interested in music and, soon after, I began to study music composition formally. After graduating from the University of São Paulo (1979), I travelled to Europe to pursue a Ph.D. in Musicology with the composer Henry Pousseur in Liège, Belgium and to study electroacoustic music composition at the Music Academy in Cologne, Germany. It seems a paradox that I devoted myself to electronic music, which draws its artistic potential from noise: electroacoustic music has extended the awareness of noise to the whole musical experience. The feeling of absurdity emerges from the ambivalent role of noise as both instrument of political pressure as well as subversive creation. As Attali claims (1985, 6), "noise is the source of purpose and power". Noise represents disorder and music is a tool used to rationalize noise and exert political pressure in order to consolidate a society. Attali describes musical evolution in terms of the relationship between music and noise. Music controls noise, but at the same time gives birth to other forms of noise that are incorporated in the political economy of music to become music themselves, which,

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1   The video documentation of the first performance of *The* Refrigerator is available at: https://youtu.be/KH_EnKlttHM (accessed on June 30, 2020).

when established, reveal other forms of noise, and so on. Noise is absurd violence and music is absurd revolt, "a constant confrontation between man and his own obscurity" (Camus 1955, 54). Listening to music is accepting the presence of noise in our lives: it "is listening to all noise, realizing that its appropriation and control is a reflection of power, that it is essentially political" (Attali 1985, 6).

Suffering and violence—and the ambivalent feelings we experience towards these things—have been a constant thematic of my work, especially my audiovisual and multimedia compositions. For example, in *Francis Bacon* (1993), work inspired by the life and work of the British painter Francis Bacon (1909-92), I composed music that acknowledges the feelings of desperation and unhappiness and the role of affliction in his creative expression. The piece is written for three singers (soprano, countertenor and baritone), string quartet, percussion and electronic music and was commissioned by the Theaterhaus Stuttgart for the choreographic theater by Johannes Kresnik and Ismael Ivo.[2] Another example that addresses the ambivalence toward and fascination with war, power and violence is the techno-opera *RAW* (1999).[3] *RAW* has no plot in the traditional sense. The libretto combines excerpts from Ernst Jünger's autobiographic books describing his experiences as a soldier fighting in World War I, with quotations form the theoretical work "On War" by the Prussian General and philosopher Carl von Clausewitz, and poetic texts on the Yoruba deity Ogun, the African and Afro-American god of iron worshiped as warrior, builder and destructor. The Yoruba is one of the ethnic groups in today's Nigeria, whose ancestors were deported in large number as slaves to the American continent. Their religious and philosophical traditions are kept alive today in West Africa and Latin America. The opera is written for five singers and a reduced orchestra of three percussions and three keyboards playing live-electronic music inspired by techno and Afro-Brazilian religious music. The work was commissioned by the Opera Bonn.

These two projects and many others devoted to similar subjects laid the groundwork for me to be able to back and make sense of my own experience of torture. It seems that the requisite level of maturity needed to deal with such a sensitive theme had to be gradually acquired. The transition period between the last years living in Germany and the first years relocating to California (2003-5) provided the opportunity to grasp the absurdity of torture from an artistic perspective. The first experiments were made in the international workshop *Interaktionslabor* (www. interaktionslabor.de), conceived and organized by the German choreographer and director Johannes Birringer. It was held in the site of the abandoned coalmine of

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2   The audio recording of *Francis Bacon* is available at https://soundcloud.com/paulocchagas/sets/francis-bacon-1993 (accessed on June 30, 2020). The video of a later version of the choreography "Francis Bacon (Reenactment)" is available at: https://youtu.be/QY5zsGtjmds (accessed on June 30, 2020).
3   The video documentation of *RAW* is available at: https://youtu.be/JkQK1FMP-ts (accessed on June 30, 2020).

Göttelborg (Saaland) and attracted artists, musicians, dancers and engineers. The works produced in the workshop explored interdisciplinary connections between art, digital technology and the deprived environment of the mine. The site, with its imposing buildings, machines and equipment remaining virtually intact, was a silent witness of the fading industrial landscape and emerging post-industrial society. We felt as strangers living in a sort of exile, "deprived of the memory of a lost home or the hope of a promise land. This divorce between man and his life, the actor and his setting, is properly the feeling of absurdity" (Camus 1955, 6).

In 2004, the second year I attended the Interaktionslabor, I begun a collaboration project with Birringer inspired by the novel *Blindness* by the Portuguese author and Nobel Prize winner José Saramago (1997). The book tells the story of a city hit by an unexplained epidemic of blindness afflicting all of its inhabitants with the exception of one woman, who was left with sight in order to help the others to deal with their despair and suffering. The government tried to take control of the epidemic by incarcerating the blind individuals in an asylum that became like a concentration camp. But as the blindness epidemic spread in the outside world and affected the whole population, social life turned into disorder, violence, and chaos. In the deprived landscape of the mine, we found a suitable setting for interpreting Saramago's novel. The interactive installation *Blind City* (2004) explores the relationship between sound, gesture and movement through the use of sensors for actors and singers representing characters affected by the mysterious blindness. In the following year, the dancer Veronica Endo joined us for the creation of *Canções dos Olhos/Augenlieder* (2005), a work that combines electronic music with a digital video-choreography exploring the sensory deprivation of a woman who suddenly finds herself in an imaginary city where people have become blind and disappeared.[4] The dancer in the silent landscape of the mine reveals the absurd confrontation of this irrational world with the "wild longing for clarity whose call echoes in the human heart" (Camus 1955, 21).

Blindness, Technology and Interactivity

Saramago's *Blindness* is an allegory for not being able to see. The novel is the metaphor of the feeling of absurdity that springs from recognizing the irrational fragility and vulnerability of society. As much as we try to control ourselves—and the imperialistic powers try to take hold of world—we become aware that society provides no unlimited guarantee of stability. We live on the verge of collapsing and chaos, under the threat of collective blindness that can quickly lead to barbarity. Having lived through dictatorship and revolution, Saramago fears the obscure forces that free the beast within us, reinforcing selfishness and ignorance, unleashing violence and cruelty.

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4   *Canções dos Olhos/Augenlieder* is available at: https://youtu.be/e68oPnEdh4g (accessed on June 30, 2020).

Reading *Blindness* allowed me to relate it to my personal experience of torture. For 21 years, Brazilians have lived in a state of collective blindness of a brutal military dictatorship and learned to survive the mechanisms of oppression, fear and violence. Yet the Brazilian dictatorship is not an isolated incident in human history, and the blind absurdity is not restricted to the spheres of power and politics. Currently, we experience a dramatic change of our existential feelings driven by technology. The digital machines of information and communication take hold of our body and deterritorialize our cognitive functions, affecting our sensory experience—auditory, visual, spatial, and tactile—and transforming the way we live and relate. Yet we also experience the ambivalent dimension of technology: on the one side, it reveals a new kind freedom based on networking dialog (e.g. social media); on the other side, it presents the potential to reinforce authoritarian tendencies of individual and collective control. This paradox unveils techno-absurdity.

Ambivalence lies at the core of the relation between man and machine, which is framed by the notion of interactivity. The so-called "interactive art" tries to achieve a more "organic" relationship between bodies and digital media in the artistic performance through the use of computers, interfaces and sensors, and even involving the spectator in the work (e.g. interactive installations). However, the interactive forms do not necessarily accomplish the dialog in the creation process. In opposition to the dominant discourse of interactivity, focused on the physicality and materiality of the relationship between body and technology, I have defined interactivity as the "embodiment of the collaborative experience that materializes the creation process in the form of the work itself" (Chagas 2006, 126). This view of interactivity embraces both the set of heterogeneous media and the dynamics of personal relationships involved in the artistic process. Beyond dealing with systems of devices, interactive art has to find a meaning and depth in it, a being-in-the-world that goes beyond technological stunning and illusion. The interactive model of communication should bring about the ethical understanding of the relation of man/machine that critically reflects on the formal structures of power in society.

The digital oratory *Corpo, Carne e Espírito* [*Body, Flesh and Spirit*] (2008), another collaboration with Johannes Birringer, is an example of the dialogical approach to interactivity in digital art. The work was commissioned by and premiered in the International Festival of Theater FIT in Belo Horizonte, Brazil.[5] Based on the music I composed in 1993 for the choreographic theater *Francis Bacon*, the vision of the piece is an intermedia translation of Francis Bacon's paintings. According to Deleuze (2004), they constitute "*a zone of indiscernibility or undecidability* between man and animal", where the body appears as mediation between the flesh and the spirit (2004,

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5   The video documentation of *Corpo, Carne e Espírito* is available at: https://youtu.be/Tc77BiRCskw (5:44 min) and https://youtu.be/-EWfu5W2XO8 (12:11 min) (accessed on 30 June, 2020).

20). Birringer develops the concept of "choreographic scenarios": sequences of digital images projected onto three screens hung beside each other on the back of the stage above and behind the performers. The main motive of the visual composition is "soundless" bodies that interact with the music, not as visualization of the music, but as independent and asynchronous objects and events. Birringer explores the spatiality of the image projection by treating the digital triptych as a cinematographic video sculpture, "a kind of orchestral spatialization of images" controlled in real time (Birringer 2009, 245). The music develops an "aesthetic of distortion" that explores extended techniques for the string quartet such as strongly pressing the bow against the string in order to produce noise, or phonetic distortions with the voices by articulating vowels and consonants in an unusual way. The composition operates with figures and their deformations that give birth to abstract forms that turn into *complex zones of indiscernibility*. The deformations contract and extend the figures, activate rhythms, gestures, resonances, and create contrasts as well as contrasts within contrasts (Chagas 2014, 239-47). Music and visual projection are treated as two separated yet integrated levels. *Corpo, Carne e Espírito* constitutes an emblematic example of *intermedia* polyphony, an aesthetic orientation driving my audiovisual composition (see below).

The Refrigerator: Libretto

The composition of *The Refrigerator* (39 min) was accomplished in a very short time—less than two months—in the beginning of 2014. The first step was to write a libretto that was thought to be both a poem to be interpreted by the mezzo-soprano and the baritone, as well as a script for the whole composition. The libretto elaborates a multi-layered narrative offering multiple perspectives for observing my personal experience of torture and the reality of torture more generally. Torture is associated with the darkness of ignorance, with pain and suffering; the "refrigerator" is presented as a torture machine that stands for the logistics of violence and cruelty in society. The piece takes explicit distance from a political interpretation of torture, such as denouncing the torture as a form of oppression and abuse of power, or drawing attention to the torture in the context of the Brazilian military dictatorship. Beyond acknowledging the inhuman and degrading reality of torture, *The Refrigerator* reflects on my evolution as human being and my own path of commitment with human values. More than a political action, the journey emerges as a movement of transcendence, an aspiration of elevation aiming to illuminate darkness and overcome ignorance.

The Refrigerator brings back memories of the torture I suffered—impressions, situations, emotions and feelings—but at the same time invites us to look into the reality of torture that exists in the world outside the refrigerator. Torture is not a

privilege of dictatorships or oppressing regimes, it is not practiced exclusively by abject individuals. The cruelty of torture does not occur only in extreme situations, it is widespread in normal prisons— for example in Brazil—and is also a tool of imperialism, such as the torture practiced by the US military forces and intelligence services against international "terrorists". Physical torture, psychological torture and other forms of torture were incorporated into "the banality of evil" to use an expression introduced by Hannah Arendt in the context of the Holocaust. Torture is not an isolated act; it is something that exists within us, a universal feature of the human race, which reinforces the limitation of our selfish life. We need a large-scale movement, a transcendent aspiration to transform our consciousness and nature, free ourselves from the darkness of ignorance, inertia, obscurity, confusion and disorder. The barbarity of torture is not the darkness of our origin as vital being, but an intermediate stage of human evolution. The path I propose in *The Refrigerator* is a journey of sacrifice ascending to the transcendence of the ineffable. The eight scenes represent the steps of this journey. Here is an overview of the large formal structure:[6]

Prolog:	Personal Statement
Scene 1:	Introduction: The Darkness of Ignorance
Scene 2:	Electricity: The Machine of Fear
Scene 3:	Noises: Immersion into Chaotic Vibrations
Scene 4:	Cold: The Breath of Death
Scene 5:	Guilt: Witnessing the Torture of a Loved One
Scene 6:	Pain: The Feeling of Finitude
Scene 7:	Forms of Torture: The Invisible Torture
Scene 8:	Peace: Music that Lives Un-Sung

Prolog: Personal Statement and Soundscape

In June 1971, I was seventeen and would turn eighteen in August. They got me at my house while I was sleeping, and I was taken to the Military Police headquarter at the "Barão de Mesquita" street in the neighborhood of "Tijuca". I was brought there, and put in the refrigerator, which was a new thing. I know it was new because I could smell the fresh paint. It was a very small cubicle, must have been about two meters by two meters or so, dark and soundproofed, with air conditioning, quite cold. I stayed there a long time, which I believe was about three days. The main particularity of this refrigerator is that it had speakers built behind the walls, and there was communication between the captive and the torturers. Then the torturers were outside and they were talking to you and threatening you, they kept making jokes and being grotesque. Then, at a certain moment they began to play sounds, noises. This was in 1971, when the recording technology was something still very much incipient, and we didn't have the kind of noises that we have today. But there was, for example, one thing I remember well, which was a then common noise of an AM radio receiver when the station was changed —few people today know that, right? In the past you had that kind of noise [*hissing phonemes*] when

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6   For a detailed analysis of the structure and the scenes of *The Refrigerator* see Chagas (2016).

you were searching for a station, tuning—so this was one of the main noise, trying to tune in a radio station and not being able to do so and it made this mess. It was a very big noise, which is the noise of the ether, the radio waves that live in the ether. The radio receivers decode these modulations: AM, which is amplitude modulation and FM, which is frequency modulation. So AM makes [*imitating amplitude modulation*], and FM makes [*imitating frequency modulation*]. And this was very loud. Imagine yourself in space that is totally acoustically isolated and being subjected to such radio noises that are extremely loud. In addition there were other noises: motorcycle noise, engine noise, saw noise, and other things that they had there and they were having fun [*laughing*], they were laughing and making these noises. But it was too loud, too loud, loud to the point that you got really hurt. Because being subjected to sounds, to sound vibrations, your whole body might collapse. Not only do you become deaf, but it turns you into a state that affects and transforms your consciousness. So this sound torture was something that was quite sophisticated and few people knew about it. The peculiar thing is that it does not leave the slightest mark. It means, sound is unique in that it invades your body, it gets hold of your body and puts the body in motion, and if you apply noise the movements will be chaotic. You start feeling destroyed physically and psychically.

The prolog was not originally conceived for the composition but added afterwards. A couple of days before the premiere, I gave an interview to the web radio of the Cultural Center São Paulo (CCSP). In a very informal conversation with Angela Voicov Rimoli, I talked, among others, about how I was tortured in the refrigerator. The concert curator, Dante Pignarati, decided to play an excerpt of interview as a personal statement before the piece, in order to introduce the subject to the audience. When I heard it for the first time in the dress rehearsal I was very surprised with the result: it was not just a statement, but a kind of soundscape made of my voice and other sounds. The author of this radio composition, Marta de Oliveira Fonterrada, designed a playful narrative evoking the sounds I heard in the cabin of torture, especially the radio tuning sounds that kept resonating in my memory. Radio is the sound of electromagnetic energy transformed into acoustic energy, which, as Kahn (2013, 1) says, "was heard before it was invented". The turbulence of electromagnetic waves, captured by the analog radio receptors and heard as disturbance noise, was part of the radio listening culture. Digital technology has almost eliminated the radio noise as it has also suppressed the noise of vinyl records. The scratching and other noises of old records reappeared as material for loops and rhythms in the DJ-culture of sampling and remix. But radio noise has virtually disappeared from the contemporary soundscape. In the torture sessions inside the refrigerator, the analog radio receiver turned into an instrument of torture; by manipulating the tuning button, the torturer produced noise not just to be heard but also to inflict pain and suffering. The concept of soundscape introduced by Murray Shafer (1994) accounts for the ethical implication of the relationship between man and the acoustic environment. From the point of view of soundscape studies, the refrigerator can be viewed as an absurd soundscape designed to create a disruptive connection between man and sound in order to make the individual vulnerable.

The radio piece of the prolog is a playful commentary of my statement aiming to provide clues for understanding the piece. Form a cybernetic point of view, it can be analyzed as an "observation of second order", an observation that observes the narrative of my personal experience of torture. The sounds added to the speech regard what the observer is saying.[7] The radio piece provides stereotypes or redundant sounds that reinforce the linguistic message, as in the case of the sounds of amplitude modulation and frequency modulation for illustrating the radio tuning noise. Sometimes, however, the soundtrack creates its own meanings, commenting or opposing the linguistic message. The radio soundscape observes the personal experience of torture and at the same time, prepares the listener to dive into the immersive audiovisual environment of *The Refrigerator*.

Electroacoustic Music: Gunshot Degradation

After the prologue, the digital oratorio begins with an acousmatic piece (5 min) made of a single material, the sound of a gunshot, or the detonation of a bullet. It is an explosive sound with a length of approximately 900 ms (milliseconds). Like a percussive sound, it has a very short attack, a fast decay, a sustaining segment and a long release starting at 600 ms that gradually fades out into silence. The sound envelope evokes the shape of an arrow tip (see Fig. 1). Just as with an arrow, the bullet of a gun is an object with a blunt tip that enters the body in order to cause damage or destruction. The gunshot sound has a strong symbolic character; it is actually a cliché. We are used to hearing (and seeing) a variety of guns in war movies, westerns, thrillers and video games. The detonation of a revolver also belongs to the aesthetics of electronic music. It is part of a family of explosive and penetrating sounds, distortions and overdrive effects, obsessive rhythms, and other sonic representations of violence in the audiovisual media culture.

Figure 1: Visual representation of the gunshot sound

00:00:00.00000   00:00:00.10000   00:00:00.20000   00:00:00.30000   00:00:00.40000   00:00:00.50000   00:00:00.60000   00:00:00.69998   00:00:00.80000   00:00:00.8999
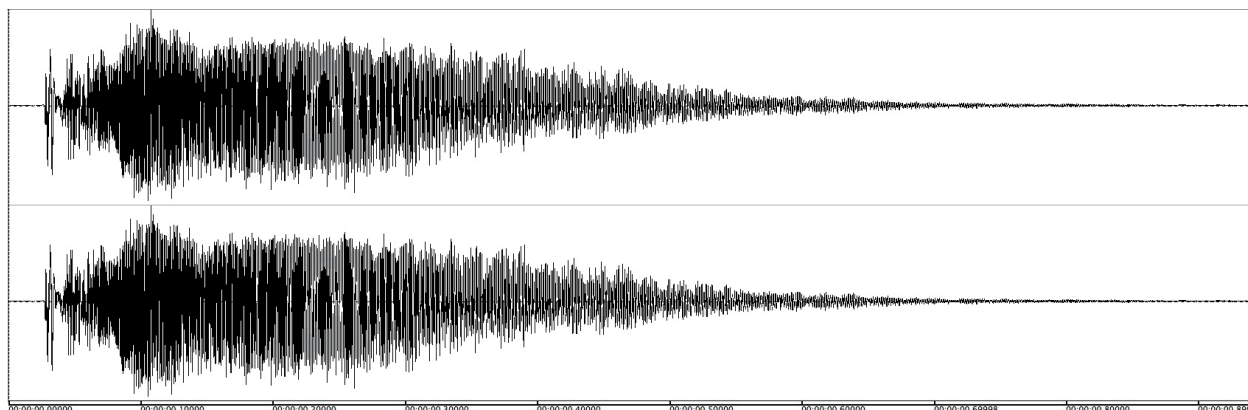
The electroacoustic composition develops temporal expansions— *time stretching*—of the gunshot sound. This technique is an application of the Fast Fourier

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7   For an application of the concepts of observation of first order and observation of second order in the system of art, see Luhmann (1997; 2000).

Transformation (FFT), an algorithm that describes any sound as a system of periodic vibrations defined as multiples of a fundamental frequency. The *Discrete Fourier Transformation* (DFT) is a digital implementation of the FFT algorithm. Digital sounds may be transformed by means of DFT in either the time domain or frequency domain. It is a process of analysis and synthesis, in which the sound is broken down into a sequence of sinusoidal periodic signals and later reassembled. It allows changing the duration of the sound while maintaining the relations of frequency and amplitude of its partials that determine the spectrum. The quality of the time stretching depends on the parameters of analysis and synthesis such as the FFT window size that determines the fundamental frequency of the spectrum. A typical window size consists on 4096 samples, which in a sampling rate of 44.1 kHz allows a fundamental frequency of 53 Hz.

In this specific case, the FFT algorithm was used in an unconventional, 'subversive' manner: I sought to obtain a sound of low quality. The goal was to *degrade* the gunshot sound. For this purpose, I use very small FFT windows for the time stretching algorithm—such as 128 and 64 samples allowing fundamental frequencies of 1772 Hz and 3445 Hz respectively—so that the analysis eliminated the low frequencies and the synthesis processed the higher register of the spectrum, producing a variety of digital artifacts that significantly changed the gunshot timbre. The result was a distorted and degraded sound, which is thought of as a metaphor for the torture, a sonic representation of humiliation and dishonor of human dignity driven by the practice of torture. The gunshot remains a symbol of violence and destruction of the human being, which is accomplished by a single movement, the gesture of pulling the trigger. However, from a spectral point of view, the sound of the gunshot has the quality of the noise, which is a "rich" sound consisting of all virtual frequencies of the audible spectrum. But the time stretching accomplished with small window sizes changed the quality of the timbre and destroyed the virtual richness of the noise. The sound of the bullet coming out of the barrel of the revolver lost its imposing quality of firearm; it was depraved, perverted and corrupted. The gunshot noise was stripped of its "dignity"; the explosive and percussive quality of its attack and the richness of its noisy spectrum were lost; it remained a residue of sinusoidal waves, a monotone and amorphous vibration sounding like a banal background noise.

The temporal expansions of the gunshot sound also evoke the noise of the analog radio receiver tuning a station. As mentioned above, the radio disturbance became the symbol of the sound torture I suffered inside the refrigerator. The electronic music thus anticipates a leitmotif of the digital oratory: the "station that is never tuned" (see libretto). Moreover, the electronic monotony provokes a psychoacoustic irritation due to preponderance of high frequencies and repetition. Torture, as a gradual corruption of the physical and moral integrity of the human being, is a repetitive process.

Figure 2 shows the different segments of the acousmatic composition: the first temporal expansion of the gunshot has a low amplitude and a short duration, 1:28 "(0"–1:28")"; the second time-expansion, is much more louder and longer, 2:50"(1:28"–4:18")"; finally, the third expansion is shorter and softer, 47" (4:18"– 5:05")"; we hear it as a moaning sound, evoking a fading voice. The predominance of high frequencies hurts the ears and causes monotony; the repetition of the same type of sound is irritating and painful, especially because the second expansion has a long decay and doesn't introduce any novelty. The sense of boredom and discomfort are intentional. The electroacoustic music immerses the listener in an unpleasant acoustic environment evoking the noise of the torture chamber; one should feel annoyed and injured listening to it.

Figure 2: Visual representation of the electronic music

00:00:00.00000   00:01:00.00000   00:02:00.00000   00:03:00.00000   00:04:00.00000   00:0
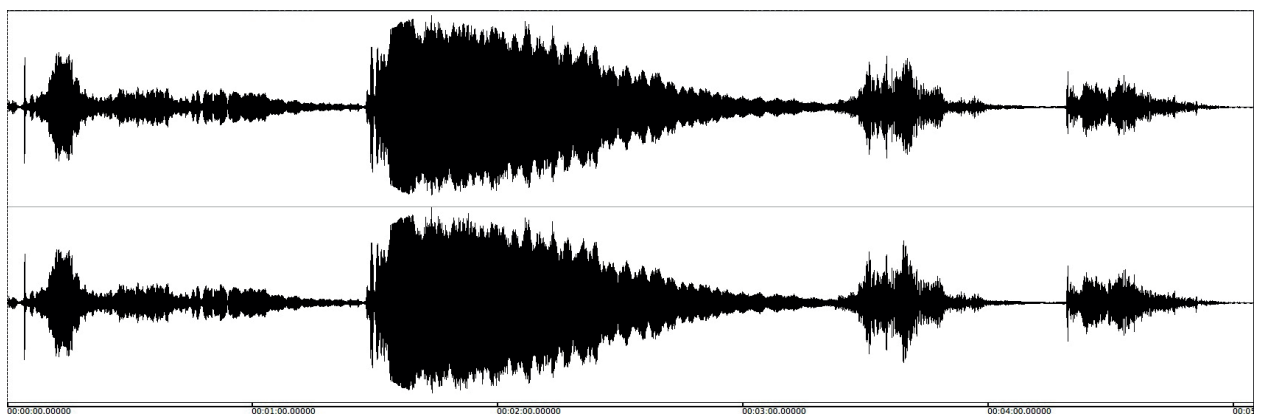
Intermedia Composition: Live-Electronics and Visual Projection

The oratory is a hybrid genre combining vocal and instrumental music. Though it is not a genuine theatrical genre like opera, it has a scenic dimension resulting from the live performance of singers and instrumentalists. Bach's oratorios and passions, for example, are stage interpretations of the stories of the Bible; the performance of soloists, choir and orchestra evokes visual representations of Christianity strongly influenced by Baroque painting. The digital oratory is a contemporary genre that extends the hybrid principle of oratory to the digital media. It is thus an *intermedia* form. The concept of *intermedia* arises from the extension of polyphony to other domains of perception and experience. While polyphony articulates plurality and identity within the acoustic media—vocal and instrumental, "intermedia composition explores artistic connections between different media such as sound, image, speech, movement, gesture, and space while interacting with technical and media apparatuses" (Chagas 2014, 211). Intermedia art is also linked with the concepts of *plurality and heterogeneity*. Guattari proposes a polyphonic analysis of subjectivity on the basis of the "ethic-aesthetic paradigm", which emphasizes the relations of *alterity* between individual and collective units and offers an alternative to scientific and philosophical

models. Guattari's *polyphonic subjectivity* embraces the idea that subjectivity is not restricted to human consciousness, but is at the crossroads of "heterogeneous machinic universes" framing the interaction between human beings and technology. In Guattari's terms, subjectivity shifts from the human consciousness to the "machinic assemblages" of contemporary society.[8]

The foundation of the *The Refrigerator* is the music written on the basis of the libretto for the two soloists (mezzo-soprano and baritone) and the instrumental ensemble (violin, viola, cello, piano and percussion). The live-electronics and visual projection create additional layers of intermedia composition. In opposition to the vocal and instrumental music, which is determined by a notated, "fixed" score, the live-electronics and visual projection execute computer algorithms programmed with Max software (www.cycling74.com), which introduces layers of randomness in the work. The random processes of the intermedia composition are manually controlled by an "interpreter" that manipulates an interface (Behringer BCF2000) for changing the parameters of the electronic music and visual projection. The interpreter of the intermedia composition acts like an improviser and plays a decisive role in the performance. *The Refrigerator* articulates thus the opposition between the determination of the vocal/instrumental "score" and the indeterminacy of the intermedia (sound/image) "program". This opposition is a space of *freedom* that makes each performance of the work unique and differentiated.

The material of the electronic music consists of sound impulses. The impulse is basically a noise with a very short duration, a condensation of acoustic energy with a broad spectrum of frequencies. The Max patch program uses a single impulse processed through a feedback-loop circuit consisting of five delays, which generates rhythmic and granular sound structures. The rhythm and texture of these structures depends on the individual frequencies of the delays. For example, applying a frequency of 1000 ms (milliseconds) to all five delays results in a pulsing and regular rhythm beating with the rate of 1 s (second); a frequency of less than 20 ms applied to all five delays generates a continuous sound, perceived as a timbre. By applying different frequencies for each of the five delays, we obtain an irregular rhythm or a colorful timbre depending on the values of the frequencies. The feedback-loop circuit can generate an infinite variety of rhythms and timbres, from which only few were used.

After the feedback-loop of delays, the impulses are further processed by resonance filters that transform the noises in pitched sounds ("notes"). Each of the five delays is connected to a different filter, resulting in a sequence of five different pitches. The sequences of impulses acquire thus a harmony quality that depends on the speed of the individual delays; they can be perceived either as arpeggios or as chords. Finally, after being processed by delays and filters, the impulses are

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8   For an account of "machinic heterogenesis" and "machinic assemblage" see Guattari (1992; 1993); see also my article "Polyphony and Technology in Interdisciplinary Composition" (Chagas 2007).

modulated by oscillators that change the sampling rate of the digital signal. Reducing the bandwidth of the impulses—a process known as *downsampling*—affects the quality of the impulses: they turn into distorted and degenerated sounds. The idea of "degradation", associated with torture, is projected into the core of digital signal processing. The sampling rate determines the quality of the sound; downsampling a digital signal generates a "low quality" creating connotations such as "crude" and "inferior". This depreciation translates the idea of torture as depravation and corruption of human dignity. The performer of the live-electronics manipulates the faders and interface buttons of the interface (Behringer BCF2000) to adjust mix between the "normal" sounds (delay + filter) and the "degraded" sounds (downsampling).

The material of the visual projection contains low quality images of prison, torture and people taken from the internet, which have a "negative" connotation. The pictures of people are original high quality photos taken by Paula Sachetta, which have a "positive" connotation. The pictures were assembled thematically into three different videos, whereby each photo represents a frame of the video: the first video has 48 images of prison, the second 26 images of torture, and the third 59 images of people. In the visual composition, the pictures (frames) of each video are randomly selected and processed by three types of digital effects: (1) *rotations* in the vertical and horizontal axes that create fluid textures in constant motion; (2) *pixelations* that create granular textures by changing the size of the individual pixels; and (3) *zoom* movements that create pulsating rhythmic and textures. The Max patch uses a single image to generate three simultaneous and independent effects, so that the visual composition is conceived as a triptych with three different transformations of the same material.

The concept of a visual triptych is inspired by *Corpo, Carne e Espírito* (see above). Ideally, the images are to be projected on three screens hanging in the back of the stage behind and above the singers and musicians. However, for the premiere of *The Refrigerator*, there was only one screen available, so the three images were combined into one single image with three columns and projected in one screen. As for the live-electronics, the "interpreter" controls the visual projection operating the Behringer BCF2000, and has the choice between the three videos, mixing the different effects and modifying the parameters of the effects of pixelation and zoom. The visual composition oscillates between the categories of concrete and abstract. Within the category of the concrete are the perceived motifs of the pictures of prison, torture and people such as objects, bodies, faces and places. Within the category of the abstract are digital processes that alienate the motives of prison, torture and people. Abstract elements such as forms, colors, movements and pulses predominate the visual composition, while the concrete elements emerge as flashes of motives. The sequence of the three videos in the digital oratorio—first the video with pictures of prison, second the video with pictures of torture, and finally

the video with pictures of people—supports the path of elevation: it emerges from ignorance, darkness and suffering symbolized by prison and torture and moves into transcendence, enlightenment and happiness symbolized by human beings.

The Max patch provides a kind of "macro-pulse" for synchronizing the electronic music with the visual projection. The pulse consists of 8 different durations ranging from 5 to 40 s that are randomly permuted in the course of the piece. With each new pulse, the patch modifies the parameters of the electronic music and selects a new image to be processed by the visual effects. In addition, the Max patch provides another tool for synchronizing sound and image, inversely correlating the amplitude of the audio signal to the feedback effect of the three images combined in three columns: whereas the amplitude of the audio signal decreases the visual feedback increases, so that the absence of audio signal—silence—corresponds to the maximum feedback— white image. The effect depends on the duration of the pulse: after the attack the sound decays proportionally to the duration and eventually fades out while the colors and shapes become blurred and lose their definition until the image eventually turns into white color. With short durations the effect may be almost imperceptible. Indeed, this correlation amplitude/feedback emphasizes the multimodal perception of auditory and visual stimuli, which is a significant principle of intermedia composition.

Figure 3 shows the screenshot of the main window of the Max patch used for the intermedia composition. Each of the three objects named "4MIXR", mixes the three different visual effects (rotation, pixelation and zoom); the object named "FEEDR" processes the feedback of the three images combined. The electronic music is programmed inside the sub-patch "music" (left bottom), which is not displayed. In truth, the main window provides a very limited insight on the programing features of the patch.

Figure 3: Main window of the Max patch of *The Refrigerator*.
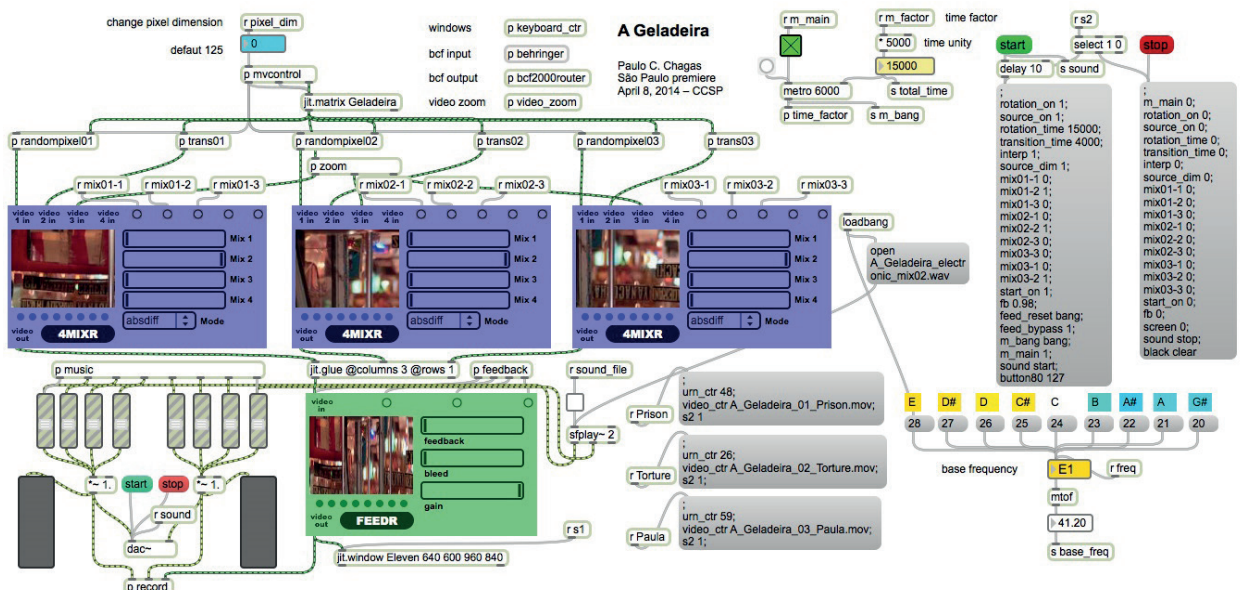
The Myth of Sisyphus

Camus' classic definition of the absurd in the *Myth of Sisyphus* is that which is born of the "confrontation between the human need and the unreasonable silence of the world" (1955, 28). In Camus' philosophy, absurdity is a conflict that emerges from the relationship between humanity and the world, from the "impossibility of constituting the world as a unity" (1955, 9). The nostalgia for unity and the absolute, he claims, is "the essential impulse of the human drama" (1955, 17). The absurd is "that divorce between the mind that desires and the world that disappoints, my nostalgia for unity, this fragmented universe and the contradiction that binds them together" (1955, 50). Camus criticizes the existential attitude of philosophers such as Chestov, Jasper Kiekergaard and Husserl who, recognizing the world's lack of meaning, tries to find a meaning and depth in it. It is impossible to know if the world has a meaning that transcends it, and it is impossible to reduce the world to a rational and reasonable principle: "Living is keeping the absurd alive" (1955, 54).

From the consciousness of the absurd, Camus draws three lessons for life: *revolt, freedom*, and *passion*. The *revolt* is a "perpetual confrontation between man and his own obscurity" (1955, 54), the insistence of an impossible transparency that questions the world at every instant. Camus frames the question of *freedom* in the realm of the individual experience. He criticizes the link between freedom and God as he denies the idea of eternal freedom and the belief of any life after death. In opposition, the absurd celebrates the freedom of action and increases man's availability to live fully in the present. The absurd freedom is an inner freedom, resulting from the attitude of acceptance that means to see and feel what is happening in the present moment and accept things just as they are. One has to give up certainty and be indifferent to everything except the "pure flame of life"—no illusion, no hope, no future and no consolation:

> The absurd man thus catches sight of a burning and frigid, transparent and limited universe in which nothing is possible but everything is given, and beyond which all is collapse and nothingness. He can then decide to accept such a universe and draw from it his strength, his refuse to hope, and the unyielding evidence of a life without consolation (1955, 60).

Accepting the absurd means that one lives in a perpetual opposition between the conscious revolt and the darkness in which it struggles. Man's individual freedom is what life has given to him, it is life's destiny: "what counts is not the best living but the most living" (1955, 61). Man has to plunge into the dark, impenetrable night while remaining lucid and perhaps it will arise "that white and virginal brightness which outlines every object in the light of the intelligence" (1955, 65). The absurd world requires not a logical, but an emotional understanding of the world driven by *passion*.

For Camus, Sisyphus is the absurd hero, the mythical character who embraces absurdity through his passion as much as through his suffering. The gods condemned Sisyphus "to ceaselessly rolling a rock to the top of a mountain, whence the stone would fall back of its own weight" (1955, 119). He was punished for daring to scorn the gods, challenging death and for his passion for life. According to Camus, Sisyphus' fate, his futile and hopeless labor, is not different from today's workers who work every day of their lives doing the same tasks. Sisyphus, the "proletarian of the gods, powerless and rebellious" (1955, 121), symbolizes the attitude of conscious revolt: "he knows the whole extent of his wretched condition" but, instead of despair, he accomplishes his job with joy. Camus concludes: "One must imagine Sisyphus happy" (1955, 123). Happiness and the absurd are inseparable: the absurd man's life, when he contemplates his affliction, is fulfilled by a silent joy.

Thinking of Sisyphus as a happy man, according to the philosopher Sage (2002), reiterates the notion that happiness is a matter of self-realization. The person who embraces the absurd attains self-acceptance as it resolves the paradox of the convergence between the sense of alienation and the aspiration of unity: "The individual who lives the absurd realizes human existence to the full, and is therefore happy" (2002, 2). Camus' absurd rebellion, for Bower (2014), should not the understood as a rational concept but as practical, psychological and emotional disposition to resist against loss and violence. Yet, the absurd has an ambivalent potential in its refusal to affront violence and its desire for innocence, which, Bowen critically argues, undermines the ability to make loss meaningful. Declaring that the world is absurd perpetuates "a condition in which meaningful assimilation of loss is sacrificed for the sake of an innocence that the absurdist fears losing even more" (2014, 19).

Conclusion

The digital oratorio *The Refrigerator* recalls a series of tensions and dilemmas of my own life. My experience in adolescence was marked by the political activism fighting the authoritarian and oppressive regime of the Brazilian military dictatorship. In my high school days in Rio de Janeiro, I developed an intense political activity, participating in protests, demonstrations and actions organized by Marxist movements advocating ideas of socialist revolution and supporting the armed struggle against the dictatorial regime. Repression and torture reached their heights in Brazil in the beginning of the 1970s, when a growing number of activists were arrested. Hundreds of people were killed or disappeared by actions of the military repressive apparatus. Torture was a common practice and many political prisoners died or were badly injured because of the brutal practices of torture. Facing international pressure, the regime introduced "clean" torture methods that leave no marks, such as the 'refrigerator'. Being

tortured inside the refrigerator in 1971 was a frightening and terrifying experience, though not so destructive of human life as other torture techniques. The torture has impacted my life in the sense that it brought me into a whole new sphere of existence. The refrigerator didn't destroy me, though it may have claimed from me the nostalgia for innocence from the adolescent feelings of revolt.

An amazing excitement and energy propelling these feelings came from the cultural changes of the 1960s and its demands for greater individual freedom. The revolt provided unique perspectives for exploring new horizons in society and the passion for visual arts, cinema, and literature. It sparked a creative potential that seemed inexhaustible. Aside from political activism, I was particularly interested in drawing, painting and sculpture. I considered studying design or architecture initially, but wound up on a different path. At the time when I was put inside the refrigerator and absurdly tortured with noise, I had already been listening to Brazilian and international pop music—Beatles, Rolling Stones, Pink Floyd, and others—and was learning to play guitar. Very soon, music became a focus of my existential revolt. In 1972, I moved with my family from Rio de Janeiro to Londrina—my father found a new job in the industry of pesticides and fertilizers—and I found myself learning basic music skills and practicing with piano books for beginners. Despite being 19-years-old, I went to the local conservatory daily to take piano lessons together with the much younger children. In the following year, I moved to São Paulo to study music composition at the University of São Paulo. The rest of the story is contained in my résumé.

Looking back on the journey, it seems that music composition has become increasingly a channel to express the existential feelings of revolt, giving it a voice—a sound—that could convey the full acceptance of the inner struggle. The revolt, as Camus says, is a coherent attitude with which to accept the absurd. No matter what one chooses for his life, one has to confront himself with his own obscurity while seeking an impossible transparency. One has to find balance in the opposition between the "conscious revolt and the darkness in which it struggles" (1955, 61). The revolt "challenges the world anew every second" and "extends awareness to the whole of experience." But revolt "is not an aspiration, for it is devoid of hope" (1955, 54). In other words, we do what we have to do but we cannot expect to be rewarded for our efforts. The revolt is a constant solitary effort charged with extreme tension of conflicting desires. It is a mature and creative response to embrace the absurd, resist the desire of unity, and accept the tragic ambivalence, for which "Sisyphus straining, fully alive, and happy" (Aronson 2012, 19) is the suitable image. At this point of my life, after living in many different countries and cultures, it has become clear that absurdity is both an existential attitude for accepting loss, and a way to avoid melancholy.

The Refrigerator expresses the conscious revolt struggling within the darkness of torture: it is both the conscious revolt of what this particular fate represents in my life and the acceptance of torture as a path to illumination and transcendence. The digital oratorio makes the sound of torture reverberate through the polyphony of voices, instruments, electroacoustic music and live-electronics and the audiovisual forms of intermedia. It offers a multilayered, heterogenic perspective to enlighten the experience of torture against a background of darkness and silence. It introduces turbulent noise—disturbance from both sound and image—for channeling the qualities of oppression, violence and suffering attached to the reality of torture. The piece traces the contours of the invisible torture inside and outside the refrigerator. It makes torture meaningful while rendering it meaningless. It exposes the tensions emerging from my particular experience of torture and the ambivalent character of torture as a whole: the tortured and torturers are "neither victims nor executioners"[9] The composition of *The Refrigerator* occurred in a time of losses caused by illness and death of close family members. Living with loss means giving loss a meaning in reality. But we should not let loss turn into melancholy or take refuge in the narcissistic self. The absurd revolt accepts the tensions of the self and allows us to give up one's attachments to self-boundaries. It urges us to give up nostalgia for unity and narcissistic identification with the self. We must acknowledge that the experience is beyond one's comprehension and surrender the desire to understand the world and ourselves.

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9   *Neither Victims nor Executioners* [*Ni victimes, ni bourreaux*), was a series of essays by Camus published in *Combat*, the newspaper of the French Resistance, in 1946. As an intellectual and journalist, Camus fought for justice and human dignity

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SOBRE O ORGANIZADOR

Having marveled at the music of great film composers, **Javier Albornoz** began to study the clarinet and saxophone as well as experimenting with recording and MIDI technology at nine years of age. He found the enjoyment of creating music so fulfilling that it sparked the desire in him to pursue a career in the music field early on.

Javier has a bachelor's degree from Berklee College of Music and a Master's degree from the University of Miami and has worked in audio post-production for over a decade. He is also a proud member of The Alhambra Orchestra in Coral Gables, serving as assistant principal clarinetist and writing commissioned orchestral works premiered in 2015 and 2016.

In recent years, Javier has contributed dozens of works to a production music library, while also working with several Malaysian animation studios in the production of television pilots that have been featured at the Asian Animation Summit, MIPCOM, and other international conferences and markets.

Also versed in audio post-production and sound design, Javier has taught in the graduate music technology department at the University of Miami's Frost School of Music and works with students in the Animation and Game Development department and composition students at New World School of the Arts and Miami Dade College.

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