Re-working the Sensible in the Age of Digital Music

Federico Reuben París

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This submission comprises of a folio of creative work. It includes two DVDs, two CDs, musical scores, accompanying materials and a written commentary.

I want to thank my mommy! and my daddy! and my little friends and colleges and my supervisors and my and my and my...

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Chapter 1

Preface

A little introduction to my work before PhD. Concerns at the begining of the PhD an how they evolved in time. Explanation of the way I'm writing the commentary and why. etc. etc.

In the first chapters, I will attempt to tackle different concerns regarding a single question that I consider to be central to my approach in recent years to the way I compose, perform, listen and think about music. This question being: *what is radical music today?* The idea of *radical music* has fundamentally changed in recent years and today it is hard to think of any music as being radical. This is partly due to the fact that for some years now the prevailing ideology in thinking and writing about music has been one of skepticism and indifference towards radical ideas and innovation in how we make, present and perceive music. By radical ideas and innovation, I do not mean music that is technologically ground breaking or innovative only in specific considerations to a particular set of musical parameters or new ideas that are relevant only to a specialist's theoretical interest. What I mean is music that is perceived as radical in our contemporary culture and redefines what *music is* to the community, what it means to us, how it is perceived and defined. Another obstacle in redefining *radical music* has been the recent trend to find new terminology for practices that relate to sound that defy conventional definitions and functions of music. New terms such as Sonic Arts, Sound Art, Audio Arts, etc., have emerged in an attempt to justify these new practices. It has been precisely the cultural resistance and unwillingness toward accepting *radical music* that has motivated the invention of new definitions that try to identify these sonic practices as 'other' arts and not as music. The reluctance to widening the definition of *what music is* has motivated some to search for new definitions that they believe will give some acceptance and legitimacy to their practices. Instead of embracing this approach, I prefer to struggle a bit more with the concept of music and I am of the opinion that one should strive to redefine *what music is* rather than following the recent trend to find new names for recent practices relating to sound. This is important, I think because. . . .

-Division of Music and Music Tech/Sonic Arts, etc. -Technological Innovation is not equal to Radical or Innovation in Music!

Chapter 2

Background

In this chapter, I will attempt to give a philosophical and historical context that outlines some of the most important aesthetic preoccupations of my work. I will endeavor to do so by closely examining the theoretical edifice of french philosopher Jaques Rancière. I have chosen Rancière's work as I think it successfully rethinks the relationship between art and politics as well as invigorating the concept of *aesthetics*. It does so by clarifying crucial concepts, explaining important aesthetic questions and demystifying misconceptions about certain notions and views that are too often carelessly thrown around in discussions about art. My central interest is how Rancière's concepts relate to music and more specifically to the musical discourse of western avant-garde composers.

I will start by addressing some concerns and questions regarding the notion of modernity and how it manifests in music as compared to other artistic disciplines, particularly that of the fine arts. Then, I will attempt to explain Rancière's idiosyncratic and revealing view on aesthetics and its relationship to politics—later going into a more in-depth analysis of what he calls the 'regimes of arts.' Having given the theoretical tools necessary, I will attempt to clarify some of the misunderstandings and misconceptions that are usually ascribed to the notion of modernism in music. In doing so, I will discuss certain elements about the work of early twentieth century composers, who's innovations shook up the musical status-quo—focusing on Schönberg's departure from tonality. I will analyse these developments in relationship to the initial premises of the modernist project that later would come to be simplified and misunderstood by the next generation of avant-garde composers who embraced the rejection of references to other music as one of their central premises. In addition, I will argue that a link was established between 'modernist' composers and the idea of a political revolution that became scrutinized by the fall of the communists block and weakened the idea of emancipation and utopia not only in the political domain, but also within music. Finally, I will discuss the so called *postmodern* position in music that attempted to break against everything that *modernism* stood for

but more recently has developed into something more than a criticism of *modernity*.

The aim of this chapter is therefore to contextualize the situation in which the music that is being submitted was conceived. The ideas that are presented actively informed the composition of the works but most importantly encouraged reflection regarding the urgency to find new approaches to some of the problems that are exposed by Rancière's analysis.

2.1 Rancière and the Reevaluation of the Notion of Modernity

Jaques Rancière in his book *The Politics of Aesthetics* examines the relationship between the concept of modernity and the break from figurative representation in the visual arts. He argues that the departure from representation of images through figurative means is often confused with aesthetic modernity, which is specific to a single regime of the arts. That is, "a specific type of connection between ways of producing works of art or developing practices, forms of visibility that disclose them, and ways of conceptualizing the former and the later."[1] If one is to think about this confusion that is associated with the concept of *modernism* in the realm of music, some questions come into mind: Does this confusion apply to the musical domain when compared to the other arts and if so how does it manifest itself? Is it possible to talk about representation in music and if so within what context? Could one compare the breaking from figurative representation to the departure from tonality at the beginning of the twentieth century? Has 'the musician' gone through a corresponding redefinition of *what is expected* from him by the community the same way as 'the fine artist' has through the process of modernisation?

In the following discussion, I will attempt to read Rancière's text as applied to music not only with the purpose of tracing parallels and discrepancies between music and fine art, but to try to find out something particular about music itself. Also, I will venture to examine the limitations of the notion of modernity within music and its relationship to the wider modernist political project.

2.1.1 The Distribution of the Sensible

Before starting the discussion on the notion of modernity and its political and aesthetic consequences, first I will try to examine the relationship of aesthetics and politics in the work of Rancière. According to Rancière, the political and the aesthetic spheres are intrinsically linked through what he calls 'The distribution of the sensible.'

[1] Jaques Rancière, 'The Distribution of the Sensible,' in *The Politics of Aesthetics*, Trans. Gabriel Rockhill, London: Continuum, 2004, p. 20.

> I call the distribution of the sensible the system of self-evident facts of sense perception that simultaneously discloses the existence of something in common and the delimitations that define the respective parts and positions within it. A distribution of the sensible therefore establishes at one and the same time something common that is shared and exclusive parts. This apportionment of parts and positions is based on a distribution of spaces, times, and forms of activity that determines the very manner in which something in common lends itself to participation and in what way various individuals have a part in this distribution.[2]

It is precisely this system of division of spaces, times and forms of activity that defines aesthetics and is also at the heart of politics. Therefore, aesthetics takes part in the political act of governing and in determining who the rulers are and how they come to power; as well as how the commons are distributed within a community. Here though, Rancière points out, that in order to make the relationship between politics and aesthetics, one must understand aesthetics "in a Kantian sense—re-examined perhaps by Foucault—as the system of *a priori* forms determining what presents itself to sense experience."[3] Aesthetics therefore should be seen here beyond the conventional view as strictly belonging to the confines of art and should not be seen merely as the 'aesthetic practices' manifested in different artistic disciplines. In contrast, in order to think of aesthetics in a context that could be applied outside of the arts, it requires its abstraction as modes of action, production, perception and thought; a system of "delimitation of spaces and times, of the visible and the invisible, of speech and noise, that simultaneously determines the place and the stakes of politics as a form of experience."[4] Therefore, through the work of Rancière, it is possible to think of aesthetics in politics with a broader understanding of aesthetics as the distribution of the sensible. Moreover, for Rancière, 'aesthetic practices' that disclose visibility in artistic practices reveal 'ways of doing and making' that exist and have visibility within the community. There are different manifestations of these practices that confine an aesthetic distribution.

> This forms define the way in which works of art or performances are 'involved in politics,' whatever may otherwise be the guiding intentions, artists' social modes of integration, or the manner in which artistic forms reflect social structures or movements. . . . In this way, a sensible politicity exists that is immediately attributed to the major forms of aesthetic distribution such as theater, the page, or the chorus. There 'politics' obey

[2]Ibid., p. 12.
[3]Ibid., p. 13.
[4]Ibid.

> their own proper logic, and they offer their services in very different contexts and time periods.[5]

Consequently, it could be argued that there is an inherent political core in the way these artistic forms are constituted. Moreover, within each major aesthetic discipline lays a political project that renders a distribution of 'ways of doing and making,' an internal mode of organization and a delimitation of what remains visible or invisible.

2.1.2 The Regimes of Art

In order to understand Rancière's reevaluation of the notion of modernity one must first understand what he calls the three 'regimes of art,' which are modes of identification and articulation between 'ways of doing and making' and forms of visibility, as well as their conceptualization. In other words, the 'regimes of art' simply distinguish different ways of making and thinking about 'art' and how it is perceived.

The Ethical Regime of Images and the Poetic Regime of Art

To begin with, Rancière defines the *ethical regime of images* as the Platonic notion of the use and distribution of images in relationship to the community's *ethos*. This regime therefore uses images as 'true' imitations of the original and are distributed and valued by their purpose of educating the community in accordance to it's social order. Therefore, within this regime 'art' is not evaluated by qualities within itself but by their purpose in the community. He goes on to define a *poetic regime of art* (also referred to as *representative regime of art*) as that which breaks away from the *ethical regime of images* and values the arts in terms of their own *substance*.

> I call this regime *poetic* in the sense that it identifies the arts—what the Classical Age would later call the 'fine arts'—within a classification of 'ways of doing and making,' and it consequently defines proper 'ways of doing and making' as well as means of assessing imitations. I call it *representative* insofar as it is the notion of representation or *mimēsis* that organizes these ways of doing, making, seeing and judging. Once again, however, *mimēsis* is not the law that brings the arts under the yoke of resemblance. It is first of all a fold in the distribution of 'ways of doing and making' as well as in social occupations, a fold that renders the arts visible. It is not an artistic process but a regime of visibility

[5] Ibid., pp. 14-15.

regarding the arts.[6]

If one is to apply Rancière's notion of the 'regimes of art' to music and understand the difference between the *ethical regime of images* and the *poetic regime of art* outside the domain of the visual and fine arts, first one must remember that music not only has different social functions and visibility, but within it's unique organization, it has particular 'ways of doing and making' that are specific to it's own discipline. Even though music occupies a different and particular position in the ways of distributing the sensible, I will continue to argue that it is still possible to refer to the *ethical* and the *poetic* regimes in music.

Following Rancière categorization, I will refer to music within the *ethical regime* as music that is made, heard and judged for its purpose within the community. By this, I mean music that is not assessed by it own qualities—or as Rancière would say 'by it's own *substance*'—but by the purpose it performs within the community. Examples of this in western tradition would include church, court and military music, to mention just a few. It is easy to find music that falls within the *ethical regime* in other cultures where in some cases music is not even differentiated from other disciplines, like dance or storytelling, and is performed (in some cultures everyone partakes in music-making) and valued by members of the group by it's communal and ceremonial purposes (celebration, mourning, war, etc). Of course, one can still find many examples of the *ethical regime* today in music for theater, dance, television, films and religious purposes. Here, I want to make clear that I am not attempting to devalorize or make a value judgment about music that falls within the *ethical regime*. Furthermore, some music might also qualify within more than one regime simultaneously.

I will define music that falls within the *poetic regime* as that which is appreciated for its own *substance* but still follows or imitates a model.[7] Namely, music that is judged by it's own 'musical' qualities, and that is made with the main purpose of being listened to and evaluated by it's own subject matter. This music would be *representative* insofar as it imitates or resembles a musical model (for example rules of harmony, counterpoint or sonata form, to mention just a few). A lot of western 'concert music' would follow in this category in that it is made, heard and valued for it's 'musical' qualities and judged as good or bad, adequate or inadequate, satisfactory or not, based on how the performer or composer follows certain models—in the case of the performer, models of performance practice, and in the case of the composer, compositional models such as chord

[6] Ibid., p. 22.

[7] By model I not only mean the written but also the unwritten rules in music performance and composition. The written rules could be for example treatises of harmony and orchestration whereas the unwritten rules could be performance practices and conventions in composition and improvisation, to name a few.

progressions, voice-leading, musical themes, variations, etc.

It is interesting to note that within the visual arts the breaking from the *ethical regime of images* and the establishment of the *poetic regime of art* is what separates the 'fine arts' from other modes and techniques of production (of images, shapes, objects, etc), whereas within music there is not such a change in definition. That is to say, in the visual arts this break between *ethical* and *poetic* regimes identifies the arts as such but in music it does not change its identification. Why is it that in the musical domain it is still plausible to call the 'ways of doing and making' in both regimes *music*? Why within western culture someone who designs billboards is not considered to be a *fine artist* (it probably would fall into graphic design) while someone who writes jingles for television commercials is still a *musician*? Later, I will come back to this question and look at the possible reasons and implications of this difference. However, before drawing any conclusions about the consequences of this disparity, first I will examine the *aesthetic regime of art* to have a better understanding of Rancière's enquiry.

The Aesthetic Regime of Art and the Shortcomings of the Notion of Modernity

Rancière calls the *aesthetic regime of art* that which liberates art from the *poetic regime* by breaking with its identification as the division of 'ways of doing and making.' The *aesthetic regime* therefore puts an end to the models used by the *poetic regime* and breaks the barriers of identification in the arts. It does so by distinguishing art as an occupation that establishes, questions and alters the concept of what art is, it's hierarchies, subject matter and genres.

> The aesthetic regime of the arts is the regime that strictly identifies art in the singular and frees it from any specific rule, from any hierarchy of the arts, subject matter, and genres. Yet it does so by destroying the mimetic barrier that distinguished 'ways of doing and making' affiliated with art from other 'ways of doing and making,' a barrier that separated its rules from the order of social occupations. The aesthetic regime asserts the absolute singularity of art and, at the same time, destroys any pragmatic criterion for isolating this singularity.[8]

Hence, the *aesthetic regime* establishes the autonomy of art and at the same time makes art independent of its own forms. As a result, the artist becomes a practitioner of a discipline specific to whatever falls into the category of art.

[8] Ibid., p. 23.

At this point, I suggest to examine the *aesthetic regime* in the domain of music. I will propose that music that falls within this regime is music that challenges the *poetic regime* and the very notion of *what music is* at a given point in time. It should also be thought as a regime that makes music independent from it's own subject matter, rules, conventions and genres, and frees it from specific 'ways of doing and making.' It changes music's visibility and makes it autonomous from the very notion of itself, from its expected 'musical' and social functions.[9] In the history of music, it is easy to think of examples of music that break with the musical practices of its time and redefines itself[10]. It is even possible to think of brief historical periods before the twentieth century where one can observe some form or manifestation of the *aesthetic regime* in music. Nevertheless, it is difficult to think of music as an autonomous discipline, freed from its own *substance*. That is to say, even though the definition of music has changed and was challenged on several occasions, it was not until the twentieth century that the concept fully emerged of 'the musician' as someone who creates music as whatever he conceders suitable and is not expected to follow traditional formulas of music-making. Even to this day, I think that this concept of music and 'the musician' is not completely widespread within the community.[11]

Rancière, goes further to examine the limitations of the notion of modernity and its relationship to the *aesthetic regime of art*. He describes what is commonly referred to as *modernism* in art as an 'incoherent' label designated instead of what truly should be attributed to the *aesthetic regime of art*. There is a sort of simplicity ascribed to the notion of modernity that is viewed as a clear line of transition or rupture from the old to the new and in the case of the visual arts between figurative and non-figurative representation. Rancière argues that the break from figurative representation is a confusion that emerged from the simplistic view that this break would mean a rupture from the *poetic regime of art*.

> The basis for this simplistic historical account was the transition to non-figurative representation in painting. This transition was theorized by being cursorily assimilated into artistic 'modernity's' overall anti-mimetic destiny. . . . However, it is the starting point that is erroneous. The leap outside of *mimēsis* is by no means the refusal of figurative representation.[12]

[9]Here, I refer to 'social functions' not as in the purpose or use of music within the *ethical regime*, but the social functions it performs within the *poetic regime*.

[10]There are too many examples for me to list them here.

[11]See p. 23-24 for a further discussion on the possible reasons for this problem.

[12]Ibid., p. 24.

Therefore, the break from figurative representation does not mean the establishment of a new visibility for art nor a break from the mimetic barrier. Moreover, Rancière asserts that the contradiction of the *aesthetic regime of art* which on the one hand establishes the autonomy of art and on the other hand questions the distinction between art and other activities leads to two big misunderstandings of the notion of modernity. The first confusion was to simply associate the modernist movement with the autonomy of art. The modernist project was therefore reduced only to an anti-mimetic[13] movement that concentrates on the idealistic concept of stripping away from all references to previous art forms and works in order to reveal art's 'purity' of form and reach its 'essence.' They attempted this by exploring only the formal aspects of art by focusing on the capabilities of its own medium. The second big confusion, according to Rancière, is the idea that the forms of the *aesthetic regime of art* were somehow related to other forms that would materialize by accomplishing a task or fulfilling a destiny specific to modernity. In other words, the revolution that rendered autonomy to art became the example for the Marxist revolution. The failure of both the anti-mimetic principles of modernism and the political revolution resulted in a 'crisis of art' caused by these paradigms of modernism. Modernism in art therefore "became something like a fatal destiny based on a fundamental forgetting."[14]

2.2 Modernity and Music: Misconceptions and Misunderstandings

I will propose that a similar confusion has taken place in western music, which leads to analogous misunderstandings regarding the so called modernist project. However, in order to avoid simplifications, one should first remember certain aspects about the state of western music at the end of the nineteenth and beginning of the twentieth centuries. It is important first of all to realize that due to certain developments in western music by the end of the nineteenth century there was a clear specialization of musicians—some were trained specifically as performers and others as composers. This division of occupations in music lead to a greater dichotomy in the 'ways of doing and making' music. The specificity of the performer's creative decisions therefore became mostly linked to the realization of a given score. The composer's role, on the other hand, was to provide a score to the performers and establish certain directions and instructions on parameters such as pitch, rhythm, musical form and instrumentation. During this time, the role of the composer became more prominent concerning

[13]From now on, I will use the term 'anti-mimetic' as referring to the *erroneous* modernist notion that associates *mimēsis* with figurative representation in the visual arts and tonal music as well as references to other musical styles and traditions in music

[14]Ibid., p. 27.

music innovation and therefore most of these developments are attributed mostly to composers in western music. Hence, I will mostly refer to composers when attempting to explain the limitations of the notion of modernity in music. Nevertheless, by no means am I attempting to discredit or ignore the performers' role—I am just referring to the more widespread view of these developments. Later in this chapter, I will explain how this division of occupations in western music has been questioned and how performers have also attempted to establish themselves within the *aesthetic regime* but first, I will analyse the work of some composers that reflect the misunderstandings usually ascribed to the modernist project.

At the end of the nineteenth century, composers such as Wagner, Mahler and Debussy, to name a few, were already expanding the tonal system through what became widely known as the 'emancipation of dissonance,' signaling what was to become a radical break in western music—that is, Schönberg's moving away from the tonal system altogether and starting to compose freely. This *event*—as Alain Badiou would describe it[15]—signals a step towards the *aesthetic regime* in that this gesture attempts to free music from previous models thus venturing to unleash music from it's own *substance*. Schönberg, in his period of so called "free atonality"[16] and later with his twelve-tone method[17], breaks away from the convention that a composer should follow previous models of composition and starts to define a new notion of the composer as someone who decides what he considers music to be and chooses how it is to be organized. Therefore, the rupture from the tonal system at the beginning of the twentieth century challenges the definition of music in western society and contributes to redefine 'the musician' as someone who does not follow existing models, but can invent his own modes and systems of music-making. However, it is important to note that the break from tonality by no means represents the establishment of an *aesthetic regime* in music nor a leap outside representation and the *poetic regime*. Stravinski's *Le Sacre du Printemps*[18], is a clear example of a work that points towards the *aesthetic regime* but does so not by abandoning tonality, but by breaking with other models of concert music. The radicality of *Le Sacre du Printemps* comes from developments in musical parameters such as rhythm, tonality (polytonality, etc), timbre and form, but not from a complete renounce of tonality. Stravinsky's use of folk-music, primitive rhythms, asymmetric structures and orchestral textures was music never heard before and stretched the defi-

[15]See Alain Badiou, 'The Ethics of Truths' in *Ethics: An Essay on the Understanding of Evil*, Trans. Peter Hallward, p. 41-42, and Alain Badiou, 'Scholium: A Musical Variant of the Metaphysics of the Subject,' in *Logics of Worlds: Being and Event II*, Trans. Alberto Toscano, p. 46, 79-85, for a further discussion on what he calls the Schönberg-event.

[16]The period between 1908 and 1923 in which Schönberg abstained from using tonality and did not adhere to a systematic method of pitch organization.

[17]Devised by Schönberg in 1921 and first described to his inner circle in 1923.

[18]Premiered in Paris, 1913.

nition of concert music as well as proposing new ways of organizing it's subject matter, freeing music from specific 'ways of doing and making.' At the same time Stravinsky invents new rules and defies traditional genres and styles, which are all characteristics of the *aesthetic regime*.

Schönberg's importance in the establishment of the *aesthetic regime* is also not to be discredited and I believe that by departing from tonality, he certainly redefined *what music is* and questioned music's subject matter. Moreover, through his revolutionary shock on the community's notion of music, he certainly contributed to changing the notion of 'the musician' as someone who produces what *he considers music to be*. It is also compelling to see that Schönberg's use of dissonance was not with the purpose of centering his musical discourse around pitch organization or being non-referential to previous styles and genres. Paradoxically, even though his way of organizing pitches was radically new, he was fairly traditional in his use of other musical parameters such as form[19], timbre and gesture. For Schönberg, the methods used to organize notes or achieve atonality were not very important elements in his work.

> I personally do not find that atonality and dissonance are the outstanding features of my works. They certainly offer obstacles to the understanding of what is really my musical subject.[20]

This separates him from the next generation of composers that embraced his twelve-tone system and who's main compositional objective focused on the organization of these twelve pitches.

2.2.1 Anti-mimetic Tendencies and the Influence of Serialism

It is by trying to understand this next generation of serialist composers' work that Ranciére's analysis of the confusion of the notion of modernity becomes useful. It is crucial to remember the first confusion, which is to simply seek the autonomy of art through anti-mimetic strategies. In the case of music, this was attempted by focusing on formal aspects of music such as how to organize pitches, rhythms, dynamics and all other possible 'musical' parameters. By giving importance to the formal aspects of the compositional medium, they sought to stretch music's capabilities and to seek music's autonomy by stripping away all references to other musics. It is fascinating to read that when Schönberg showed his twelve-tone method to his associates in 1923, he already noticed the potential problems of looking at music only in terms of the formal techniques implemented to compose it.

[19] He constantly used traditional forms such as sonata form, suite and theme and variations.

[20] Arnold Schönberg, *Style and Idea*, Trans. Leo Black, Los Angeles: University of California Press, 1984, p. 77.

> What I feared, happened. Although I had warned my friends and pupils to consider this as a change in compositional regards, and although I gave them the advice to consider it only as a means to fortify the logic, they started counting the tones and finding out the methods with which I used the rows. Only to explain understandably and thoroughly the idea, I had shown them a certain number of cases. But I refused to explain more of it, not the least because I had already forgotten it and had to find it myself. But principally because I thought it would not be useful to show technical matters which everybody had to find for himself and could do so. This is also the error of Mr. Hill. He also is counting tones and wants to know how I use them and whether I do it consequently.[21]

Schönberg's use of the twelve-tone method did not have an anti-mimetic purpose and he devised it to be able to have a systematic approach to form and to compose melodies, themes, phrases and chords. He also made clear his abandonment of the tonal system was not more important than other aspects of his work. It is important to note as well that after the invention of his method, he relied on gestures, orchestration and structures that where related to traditional styles and genres—specially those of the germanic tradition. Therefore, Schönberg's invention of the twelve-tone method was mostly pragmatic and did not have the purpose of not referring to other musics or focusing only in music's formal aspects. It is precisely these aspects of Schönberg's use of dodecaphony that later Boulez would criticize in his article "Schönberg is dead."

> From Schönberg's pen flows a stream of infuriating clichés and formidable stereotypes redolent of the most wearily ostentatious romanticism: all those endless anticipations with expressive accent on the harmony note, those fake appoggiaturas, those arpeggios, tremolandos, and note-repetitions, which sound so terribly empty and which so utterly deserve the label 'secondary voices'; finally, the depressing poverty, even ugliness, of rhythms in which a few tricks of variation on classical formulae leave a disheartening impression of bonhomous futility.[22]

For what interested Boulez in the twelve-tone system were the formal aspects of the *series*—an approach closer to Webern's dodecaphony. One can already see here in Boulez's position an anti-mimetic preoccupation to avoid clichés and references to pervious traditional music as well as a modernist concern towards the formalization of music through the capabilities of serialism.

[21] Ibid., p. 214.

[22] Pierre Boulez, 'Schönberg is dead,' in *Stocktakings from an Apprenticeship*, Oxford: Oxford University Press, 1991, pp. 212-213.

> It has to be admitted that this ultra-thematicization is the underlying principle of the *series*, which is no more than its logical outcome. Moreover, the confusion between theme and series in Schönberg's serial works is sufficiently expressive of his inability to envisage the world of sound brought into being by serialism. For him dodecaphony is nothing more than a rigorous means for controlling chromaticism; beyond its role as regulator, the serial phenomenon passed virtually unnoticed by Schönberg.[23]

It was through the development of serialism in the fifties and sixties—lead by Boulez and Stockhausen—that composers would seek music's pure form through the serialization of all conceivable 'musical' parameters, thus focusing only in an exploration the formal capabilities of music and sound. The confusion caused by the establishment of the *aesthic regime* that identifies modernity only with the autonomy of art and which lead to an anti-mimetic revolution became a major force in postwar european avant-garde. Serialism thus would seek through it's self-contained system an ideal of music that would avoid any external or 'impure' elements and would attempt to escape any reference to other existing music. The scope of the serialist movement and it's influence over the avant-garde and 'modernist' composers across the world should not be overlooked. Even composers that did not adhere themselves to the serialist camp were influenced by the leading focus on the abstract organization of sound and 'musical' parameters and they too adopted the anti-mimetic ideal as an important aesthetic principle.[24]

2.2.2 The Political Revolution and the Crisis of Modernism in Music

Another misconception of the notion of modernity in music was the association of the *aesthetic regime* with the fulfillment of a Marxist revolution. The aesthetic revolution was confused with it's materialization in the social and political domains. Therefore, the revolution that attempted autonomy for music was identified with the modernist political project and the social application of it's ideals of egalitarianism, solidarity and liberty. Leftist politics was associated with the artistic avant-garde and a misleading link was formulated between modernism in music and the political revolution. Curiously enough, Schönberg again detected the fallacy of establishing a direct relationship between serialism and leftist politics—in fact, with any other political association—and like Rancière,[25] makes the

[23] Ibid., p. 212.

[24] Some examples of composers that were influenced by these ideals at some point in their career include John Cage, Morton Feldman, Alvin Lucier and Earl Brown in America and Pierre Schaeffer, Iannis Xenakis, György Ligeti, Helmut Lachemann and Cornelius Cardew in Europe.

[25] See Rancière, 'Politicized Art,' in *The Politics of Aesthetics*, pp. 60-66.

point that progressive artistic innovation can produce developments within art but bears no direct correspondence in the political sphere.

> It has become a habit of late to qualify aesthetic and artistic subjects in terms borrowed form the jargon of politics. Thus mildly progressive works of art, literature or even music might be classified as 'revolutionary' or 'left-wing,' when they only evolve artistic possibilities. . . . No wonder, then, that there are people who call the method of composing with twelve tones 'bolshevik.' They pretend that in a 'set of twelve tones,' upon which such compositions are founded, since there is no tonic nor dominant, every tone is considered independent, and consequently exerts equal functions. This is wrong in every respect. . . . Whether this concept is an advantage or a handicap to the composer or to the listener, certainly it has nothing in common with 'Liberty, Equality and Fraternity,' neither with the bolshevik, fascist, nor any other totalitarian brand.[26]

Despite Schönberg's warning, many associations where made between modernity in music and the Marxist revolution. This notion was also fueled by the political affiliation of many composers and by their general plea for revolution in both the aesthetic and political spheres. Marxist themes where also incorporated in music identified as modernist using leftist texts, images and sounds based on the struggle of the proletariat, student demonstrations and other revolutionary events. Luigi Nono most notably was engaged with political activism and at the same time used Marxist dialectics and other themes related to leftist ideology in his compositions. Nono viewed music as a form of activism and at the same time embraced strategies related with the aesthetic revolution. Many of his works use titles and texts that are politically engaged and at the same time reject musical representation. He viewed his work as a continuation of the developments of the Second Viennese School and his approach to musical material can be closely linked with serialism and the Darmstadt School—despite certain differences he had with Boulez and Stockhausen.[27] Consequently, there is an interesting contradiction inherent in Nono's *oeuvre* between on the one hand the use of many 'extra-musical' references to address political concerns and on the other hand an anti-mimetic stand which avoids 'musical' references that could be associated with leftist politics and ideology.

Other composers that followed a leftist political affiliation but used strategies that were considerably different to the serialist approach were a group who's most prominent figures included Rzewski, Cardew, Wolff and Curran. Some of their compositions rejected the modernist notion of

[26] Schönberg, pp. 249-250.

[27] Nono was against Boulez and Stockhausen's interest in the music of John Cage and the use of indeterminism and chance operations. See Luigi Nono, *Texte. Studien zu seiner Musik*, ed. Jürg Stenzl, Zürich: Atlantis, 1975, pp. 34-40.

an anti-mimetic ideal with the purpose of introducing political themes as musical material in their compositions and others questioned the division of occupations imbedded in western music-making. Georgina Born argues that these composers were more politicized than what she calls the 'postserialist camp.'

> Beginning in the later 1960s, inspired in part by Marxist-Leninism or Maoism, there emerged out of this a set of experimental composers, including Wolff, Cardew, Frederic Rzewski, and their followers, who were more frankly politicized than those in the postserialist camp. In some cases they attempted to produce political effects through the use of or by reference to, revolutionary popular musical material or lyrics. Another strategy, developed by some of the same composers but more widely influential, extended the critiques of the musical division of labor. Composers such as Cardew, Wolf, and groups such as the Italian-American MEV *(Musica Eletronica Viva)*, the British Scratch Orchestra, and AMM, emphasized changes in the social relations of music production and performance in their attempt at a new interactive, collective, and nonhierarchical group practice. The social dimension of music was seen as a crucible for experiments in collective and democratic social relations.[28]

According to Born, the later strategy as implemented by these groups questioned the power structures and division of occupations in western music through collective compositional strategies based on group improvisation as a method of creating music. By avoiding hierarchical forms of composition and performance these groups attempted to challenge the traditional roles of composer, conductor and performer. Their purpose was to pursue an ideal of an egalitarian division of the group and democratic relations between musicians. Born suggests that there was a conscientious attempt by these groups to invigorate the principle of equality and freedom within the politicity of western music production and performance. Nevertheless, a counter-argument could easily be raised against Born's position if one would just questions the effectiveness of these two approaches within the political and aesthetic spheres.[29] Despite how effective their strategies where, the contribution of this group of composers to the association between a leftist political revolution and the notion of modernity in music should not be underestimated.

[28] Georgina Born, *Rationalizing Culture : IRCAM, Boulez, and the Institutionalization of the Musical Avant-Garde*, Berkley: University of California Press, 1995, pp. 58-59.

[29] See p. 33-35 for a further discussion on free group improvisation as a political model.

The Fall of Communism and the Critique of Utopian Thinking

Given the association between musical modernity and the Marxist revolution, 'the fall of Communism' was later conceived as a failure of modernist aesthetics. The aesthetic revolution in music and it's ontological model came under scrutiny and close examination. The corruption and abuses brought with the implementation of Marxist ideals in communist countries brought disillusionment and skepticism toward utopian ideals in politics and contributed to a further examination of utopia as it manifests in other aesthetic practices. Richard Taruskin, one of the prominent critics of utopia in music, asserts that the fundamental problem of utopia is that it imagines a 'perfect world' instead of a 'better world.'

> But what utopians envision is not a better world. It is a perfect world—or in Kant's two-centuries-old formulation, "a perfectly constituted state"—that utopians wish to bring about. And that is what makes them dangerous, because if perfection is the aim, and compromise taboo, there will always be a shortfall to correct—a human shortfall. . . . When communism "fell," the intellectual world divided into two camps: those who said it was time to go back to the drawing board and those who said it was time to get rid of drawing boards. I am utterly of the latter persuasion.[30]

According to Taruskin, there is a gap between the imagined state of perfection and it's implementation in reality. It is this gap that is dangerous as it depends on a deficit that has to be corrected and that may result in human casualties and suffering.

He argues that one of the shortfalls of utopian thinking has been the decline in popularity and dominance of classical music in contemporary culture. This has been partly attributed to the dominance of utopian ideals in modern performance-practice that has been the governing attitude of professional performers in their rendition of classical music's 'masterpieces.' Edward Said has written about how musical performance, with the specialization of musicians and the division of labour in western classical music during the twentieth century, has become what he calls an 'extreme occasion.'[31] The phenomenon of viewing an abstract piece of music as represented in a score as a 'utopia' gives the performer the 'heroic' opportunity to display their virtuosity and physical dexterity in their attempt at a 'perfect' rendition of the composition. This extreme musical practice in classical music, Said suggests, has gone as far as to replace the composer from the center of classical music. Despite the dominance and relative popularity of these 'superstar' performers, the influence of classical

[30] Richard Taruskin, 'Against Utopia,' in *The Danger of Music*, Berkley: University of California Press, 2009, p. xii.

[31] See Edward W. Said, 'Performance as an Extreme Ocation,' in *Musical Elaborations*, London: Vintage, 1992, pp. 1-34.

music in western culture has declined, even within the intellectual elite.[32] It is precisely the fact that western music performance has focused primarily on the utopian practice of giving renditions to music from the past that has resulted in the classical establishment's loss of relevance to contemporary culture. The scores that are more wildly performed in classical concert music are almost exclusive to music written in the eighteenth and nineteenth century and that fit Said's description of the performance as an extreme occasion. Hence, western music performance has taken a similar role of that of the museum—the musical works are taken out of their original and historical context and are exposed and presented in an artificial environment for the public to admire—and therefore might be seen as something that is not relevant or can not relate to the current condition.

In twentieth century composition, utopian thinking may be associated with the other main misunderstanding of musical modernity that I have previously discussed. That is, the utopian ideal of an aesthetic revolution that would seek music's autonomy by stripping it away from all possible references to other types of music.[33] This was attempted by focusing in music's formal aspects and the capacities of it's own medium in order to attempt music's 'perfect' construction. One of the shortfalls of this utopian way of thinking was that contemporary composition became extremely unappealing to a general public that was not educated in the formal aspects of music and found this music extremely difficult as it also lacked any reference to any other music that was familiar to them. This resulted in an unfortunate seclusion of the musical avant-garde that found it's main refuge in academia, which became a comfortable yet alienated new home for composers to test their musical 'experiments'—composition at universities consequently became an academic specialization[34] which on the most part focused on technical aspects of music.

The failure of the anti-mimetic principles of modernity in combination with the 'fall of Communism' resulted in a major crisis in music that was caused by the decline of modernist aesthetics and the loss of confidence in utopian thinking. After this crisis, musical modernist tendencies remain to this day 'in life support' and one can not but avoid noticing their nostalgic attitude and unyielding acceptance of defeat—they remain as vigilant victims of a lost utopia, endlessly waiting for a futile comeback. Taruskin points that this attitude of continuing new music's 'quiet' presence

[32]Said refers to an annecdote about Michel Foucault commenting to Pierre Boulez about the ignorance that contemporary intellectuals have about popular and classical music. See Ibid., p 15.

[33]This was mostly true in regard to making reference to other existing western music as some modernist composers looked for alternatives to the western aesthetic by researching non-western musical traditions.

[34]Here, one can not avoid making reference to Babitt's famous article 'Who cares if you listen.' See Milton Babbitt, "The Composer as Specialist," in *The Collected Essays of Milton Babbitt.* ed. Stephen Peles, Princeton: Princeton University Press, 2003. pp. 48-54.

in contemporary culture in hope that one day it becomes more widely recognized as important or relevant—an attitude according to him dominant in academic circles—is yet another consequence of utopian thinking that he associates with communist revolutionary ideals and to the Soviet order.[35]

2.3 The Postmodern Label

The first music that later would become labeled as *postmodern* came as a reaction to everything that modernist composers stood for: the formalization of music's subject matter, the quest for non-resemblance, the desire for musical progress and emancipation, the association of the aesthetic and political revolutions, and the search for music's 'essence' and 'purity' of construction. Therefore, at the beginning, composers who where identified as *postmodern* pointed to the confusion ascribed to the notion of modernity and the *aesthetic regime* and attempted to rectify it by reversing all modernist ideals in music. Rancière attributes postmodernism, at first to "the name under whose guise certain artists and thinkers realized what modernism had been: a desperate attempt to establish a 'distinctive feature of art' by linking it to a simple teleology of historical evolution and rupture."[36] In other words, these thinkers and artists detected that there was no necessity to link the realization of a fundamental characteristic of art as represented by the *aesthetic regime* to a historical break or a beginning of a new era. Consequently, *postmodernism* at first aimed to give an alternative to the drawbacks of the modernist position. This was first attempted in music by breaking away from the 'abstract' treatment of musical parameters by reintroducing tonality and references to other traditional and popular music either by quotation or resemblance.

Luciano Berio was one of the first european avant-garde composers that started to reintroduce references to other existing music in his work. Most notably in the thrid movement of *Sinfonia*[37], Berio uses quotations as well as different treatments of material by other composers as a driving force for his compositional discourse. In this movement, Berio uses most prominently the scherzo from Mahler's Second Symphony against quotations and transformations from excerpts of works by many composers including: Bach (First Brandenburg Concerto), Beethoven (Ninth Symphony and Sixth Symphonies), Berg (Violin Concerto and *Wozek*), Berlioz (*Symphonie fantastique*), Boulez (*Pli selon pli*), Brahms (Violin Concerto and Forth Synphony), Debussy (*La Mer*), Globokar (*Voie*), Hindemith (*Kammermusik Nr.4*), Mahler (Second, Fourth and Ninth Symphonies), Pousseur (*Couleurs croisées*), Ravel (*La Valse* and *Daphnis et Chlo*), Schönberg (*Fünf Orchesterstücke, Op.16*), Stock-

[35] See Tarusking, p. xiv.

[36] Rancière, 'The Distribution of the Sensible,' p. 28.

[37] Composed in 1968-1969 for orchestra and eight amplified voices. Premiered in New York, October 1968.

hausen (*Gruppen*), Strauss (*Der Rosenkavalier*), Stravinsky (*La Sacre du printemps* and *Agon*), Webern (*Kantate*), as well as other unknown sources and Berio's own music.[38] The material derived from the variety of scores is treated carefully by Berio taking in consideration its 'musical' qualities—such as pitch and rhythm—as well as its semantic characteristics—all the quotations are related to Berio's own interpretation of Lévi-Strauss's *Le cru et le cuit*.[39] It is precisely the semiotic value of the musical references that attracted Berio to use already existing music as material for his own work and this itself was a step against the principles of so called 'modernist' composers. In his book *The Future of the Image*, Rancière has discussed a similar phenomenon that is usually ascribed to the *postmodernist* label in the visual arts, that is, the reintroduction of images and representation.

> And the time came when the semiologist discovered that the lost pleasure of images is too high a price to play for the benefit of forever transforming mourning into knowledge. Especially when this knowledge itself loses its credibility, when the real movement in history that guarantied the traversal of appearances itself proved to be an appearance.[40]

Similarly in music, for composers that were interested in semiotics like Berio, the price to pay for only focusing on 'abstract' musical thought and anti-mimetic ideals was too high.

Other strategies were also attempted by so called *postmodern* composers who wanted to break away from everything that modernism stood for: the reintroduction of melody, ornamentation and intervalic consonance that violated the consistency and functionality of serial techniques; the use of improvisatory elements which blurred the line between composer and performer; the crossing between artistic disciplines which questioned the integrity of each artistic and musical disciplines; the break from notation which disturbed the focus on abstract musical models which depend on notation; the search for alternatives to the concert hall by presenting work in different venues not designed for contemporary music concerts destroyed the ideal of musical performance in a sterile and specifically designed acoustic environment that would be perfect for listening to the intricacies of crafted compositions.

Nevertheless, very quickly *postmodernism* started to signify something more than a criticism of the modernist aesthetic. The music created by the next generation of composers labeled as 'postmodern' started to be characterized by a permissive attitude in the mixing of all different musical styles and

[38] See David Osmond-Smith, 'In ruhig fliessender Bewegung' in *Playing with Words: a Guide to Luciano Berio's Sinfonia*, London: The Royal Musical Association, 1985, pp. 39-71 for a detailed analysis of the third movement of *Sinfonia*.

[39] David Osmond-Smith, '*Sinfonia* and its Precursors' in *Playing with Words: a Guide to Luciano Berio's Sinfonia*, London: The Royal Musical Association, 1985. p. 7.

[40] Jaques Rancière, *The Future of the Image*, Trans. Gregory Elliot, London: Verso, 2007, pp. 21-22.

genres, the hybridization between pop, world, jazz and classical music, the disregard for stylistic consistency and the joy of simulacra, the glorification of music only as a path for entertainment and primal enjoyment. The permissive attitude of the *postmodern* composer produced in some cases results that reinvigorated the idea of the musical performance as a spectacle. That is to say, the avant-garde attitude towards achieving something new within music itself was forgotten by some, in favor of music that is created only to please its audience.[41] This is precisely why Rancière argues that art under the label of *postmodernism* "came to challenge the freedom or autonomy that the modernist principle conferred—or would have conferred—upon art the mission of accomplishing."[42]

The *postmodern* artistic discourse thus embraces Lyotard's notion of the 'decline of grand narratives' by questioning the modernist concept of achieving an ideal of emancipation.

> In the course of the past fifty years, each grand narrative of emancipation—regardless of the genre it privileges—has, as it were, had its principle invalidated. *All that is real is rational, all that is rational is real*: "Auschwitz" refutes the speculative doctrine. At least this crime, which is real, is not rational. *All that is proletarian is communist, all that is communist is proletarian*: "Berlin 1953," "Budapest 1956," "Czechoslovakia 1968," "Poland 1980" (to name a few) refute the doctrine of historical materialism: the workers rise up against the Party. . . . *Everything that promotes the free flow of supply and demands is good for general prosperity, and vice versa*: the "crisis of 1911 and 1929" refute the doctrine of economic liberalism. . . . The investigator records the names of these events as so many signs of the failing of modernity. The grand narratives have become scarcely credible. One is then tempted to give credence to a grand narrative of the decline of the grand narratives.[43]

The *postmodern* position is therefore one of mourning metanarratives as identified in scientific postulations, theology, the ideas of self-emancipation and utopia in politics and aesthetics. For this reason, *postmodernism* became a celebration of that which is unattainable and impossible to reduce, identify, rationalize or define. The establishment of the *aesthetic regime*—which signifies the emancipation or autonomy of art—consequently comes under scrutiny under Lyotard's viewpoint. Nevertheless, his argument is delegitimized by the fact that he also links the recognition of the impossibility of

[41] This type of music has also become a commodity in a consumer society in which the musician produces with the aim of seducing the consumer to buy a product and make profits.

[42] Rancière, 'The Distribution of the Sensible,' p. 28.

[43] Jean-François Lyotard, 'To Mathias Khan' in *The Postmodern Explained to Children: Correspondance 1982-1985*, Trans. Julian Pefanis and Morgan Thomas, London: Turnaround, 1992, p. 40.

emancipation to a historical period in a similar fashion that *modernism* associates the autonomy of art to a historical break.

Alain Badiou has also been a vivid critic of postmodern thought and of Lyotard's position. Badiou argues that Lyotard's concept of the 'end of metanarratives' is linked to the end of the idea of truth as put forward by classical philosophy. Therefore, what postmodern thought proposes instead of truth is the idea of a plurality of meanings which is indisputably related to language. Badiou denounces the reduction of the function of philosophy to a meditation on language and a multiplicity of language games as well as a premature proclamation of the end of the search for truth and the questions that philosophy has being involved with for a long time. Therefore, Badiou's criticism of postmodern thought is prompted by its insufficiency to "give philosophy the means to sustain its desire under the quadruple form of revolt, logic, universality and risk."[44]

2.4 Re-thinking the Avant-garde

Rancière has persuasively argued that if there is a connection to be established between the aesthetic and the political, it is suggested by the original *modernist* vision of the avant-garde. The basis for this association is not the connection between artistic innovation and politically motivated change, but the suggestion of a link between two different kinds of 'avant-gardes.' The first kind being characterized by an abstract and militant notion of a movement that symbolizes a force that chooses a historical direction and ideological position—the embodiment of a type of subjectivity (political or artistic) to a specific form (a party or an artistic movement). The second kind of avant-garde is rooted in Schiller's model of *aesthetics* as a projection of the future. The meaning of the avant-garde in the *aesthetic regime of art* is therefore not that of artistic innovation as seen by a particular movement that links artistic subjectivity to a determinate form, but the idea of "the invention of sensible forms and material structures for a life to come."[45] This is where the aesthetic avant-garde may inform, inspire and encourage the political avant-garde and bring about transformations in the anticipation of the future. Moreover, Rancière makes a very interesting theoretical observation when he draws a parallel between these two kinds of avant-garde and two forms of political philosophy:

> The history of the relations between political parties and aesthetic movements is first of all the history of confusion, sometimes complacently maintained, at other times violently

[44] Alain Badiou, 'Philosophy and Desire' in *Infinite Thought*, Trans. Oliver Feltham and Justin Clemens, London: Continuum, 2006, p. 35.

[45] Rancière, 'The Distribution of the Sensible,' p. 29.

> denounced, between these two ideas of the avant-garde, which are in fact two different ideas of political subjectivity: the archi-political idea of a party, that is to say the idea of a form of political intelligence that sums up the essential conditions for change, and the meta-political idea of global political subjectivity, the idea of the potentiality inherent in the innovative sensible modes of experience that anticipate a community to come.[46]

The ideas that have led to the notions of *modernity* and *postmodernity* in the arts—as well as to the 'crisis of art' as ascribed by many—have therefore developed as a consequence of the confusion between these two forms of political philosophy. Rancière points that this confusion is expected but rejects Lyotard's explanation that the emancipation of art leads to totalitarianism. The confusion has been rather caused by a division which exists between the *strategic* and *aesthetic* conceptions of the artistic avant-garde. This division can also be found in the political avant-garde, which not only clarifies the presence of aesthetics in politics, but also the inherent politicity within the artistic disciplines.[47]

[46] Ibid., p. 30.

[47] See Jacques Rancière, 'Aesthetics as Politics' in *Aesthetics and Its Discontents*, Trans. Steven Corcoran, Cambridge: Polity, 2009, for a further discussion about the relationship between the 'aesthetics of politics' and the 'politics or aesthetics.'

Chapter 3

Introduction

> Today, the music-world is negatively defined. The classical subject and its romantic avatars are entirely saturated, and it is not the plurality of 'musics'—folklore, classicism, pop, exoticism, jazz and baroque reaction in the same festive bag—which will be able to resuscitate them. But the serial subject is equally unpromising, and has been for at least twenty years. Today's musician, delivered over to the solitude of the interval—where the old coherent world of tonality together with the hard dodecaphonic world that produced its truth are scattered into unorganized bodies and vain ceremonies—can only heroically repeat, in his very works: 'I go on, in order to think and push to their paradoxical radiance the reasons that I would have for not going on.'[1]

3.1 Radical Music Today?

- Zizek on Fukuhiama. Crisis of Capitalism. Ecological Catastrophy. Unsustainability. Need for Radical Reform in Politics? Critique of liberal democracy - need for new alternatives. - ethical regime - defined as music - elaborate. . . Close relationship to culture and musiking. - aesthetic regime in music - still pending - emancipatory potential?

3.2 Technology, Appropiation and Postproduction

"Consumption is simultaneously also production, just as in nature the production of a plant involves the consumption of elemental forces and chemical material" K. Marx

Sound Transformations:

[1] Badiou, 'Scholium: A Musical Variant of the Metaphysics of the Subject', p. 89.

"With the power of the computer, we can transform sounds in such radical ways that we can no longer assert that the goal sound is related to the source sound merely because we have derived one from the other." (T. Wishart)

In my work, sound transformations are used for the transformation of existing music.

Why transformation of musical sources? Because they may carry complex cultural symbolism.

The amount of processing can affect our ability to recognize the source sound or musical sample. Therefore, there is a wide palette of derivative music available to us: from the radically processed less recognizable source more 'abstract' extreme; to the less processed more recognizable source more 'referential' and quotation type music.

Performance practice and other sonic characteristics of many original musical sources is lost in the transcription to a fully notated score for ensembles of western classically trained musicians. Many aspects of sound production (intonation, groove, spectral characteristics of instruments/voices, etc) is lost via this process.

Process of derivation and sound transformation is not directly apparent to the audience. The act of appropriation is not transparent.

Nicolas Bourriaud: Postproduction, 2002.

"Starting with the language imposed upon us (the system of production), we construct our own sentences (acts of everyday life), thereby reappropriating for ourselves, through these clandestine microbricolages, the last word in the productive chain."[2]

"By listening to music or reading a book, we produce new material, we become producers. And each day we benefit from more ways in which to organize this production: remote controls, VCRs, computers, MP3s, tools that allow us to select, reconstruct, and edit. Postproduction artists are agents of this evolution, the specialized workers of cultural reappropriation."

"Throughout the eighties, the democratization of computers and the appearance of sampling allowed for the emergence of a new cultural configuration, whose figures are the programmer and DJ. The remixer has become more important than the instrumentalist, the rave more exciting than the concert hall. The supremacy of cultures of appropriation and the reprocessing of forms calls for an ethics: to paraphrase Philippe Thomas, artworks belong to everyone. Contemporary art tends to abolish the ownership of forms, or in any case to shake up the old jurisprudence. Are we heading toward a culture that would do away with copyright in favor of a policy allowing free access to works, a sort of blueprint for a communism of forms?" (N. Bourriaud)

[2]Nicolas Bourriaud, *Postproduction. Culture as Screenplay: How Art Reprograms the World*, New York: Lukas and Sternberg, 2005.

3.2.1 The postmodern condition and 'the society of the spectacle'

resurgence of image / music quotations/references - first as reaction to the anti-mimetic later with digital technology, easy reproduction, etc, etc =¿ the use of images becomes the same as before the establishment aestetic regime : commodification, capitalism, DJ culture, digital quotations (in hip-hop, sound libaries, etc, etc)

3.2.2 critisisms

3.2.3 The liberal-comunists: Open Source, etc.

There is no music by John Oswald on the net free to download. Hypocrisy from the appropriator? Or does he fall into the logic of late-capitalism - no communism of forms? I plunder but dont plunder me. Or, at least not for free?

I propose an attitude towards music appropriation similar to that of hacker communities and the open source initiative. Not with the purpose of suggesting a communist utopia, but of being consequent with my creative process. By giving away my music, recorded sounds and experiments, code, etc, through the net, I will hopefully instigate others to do so as well. If this attitude is followed, it could promote the organization of music cyber communities that would plunder, engage with and promote each other, hopefully producing more subversive types of music.

We are far from the Bourriauds utopia. The only people how have access to (artistic) shareware are commoditized people, mostly in western countries. Isnt the DJ approach towards plunderphonics one that appropriates to make more profit and diminish costs only to thereafter feed back their product into the music industry system?

3.3 Radical Musics: Resurecting the modernist political project?

The distribution of the sensible. Ranciere. The Emancipated Spectacle. Did Music break with the mimetic regime? Is it still expected for a musician or composer to do something? Micheal Hard - instead of coming with new concepts ('Art' Music, Sonic Arts, Sonology, etc), why don't we struggling with the old one?

3.3.1 Institutions, Music Industry, etc

3.4 Computer-Mediated Musicking

Christopher Small argues that music is not a thing or an abstract concept, but a human activity that he calls *musicking*, meaning all individual and collective endeavors in the process of music making. Moreover, Small questions the notion that a musical work is what gives meaning to *musicking*.

> The act of *musicking* establishes in the place where it is happening a set of relationships, and it is in those relationships that the meaning of the act lies. They are to be found not only between those organized sounds which are conventionally thought of as being the stuff of musical meaning but also between the people who are taking part . . . relashionships between person and person, between individual and society, between humanity and the natural world. . . . (Small, 1998)

The music we compose and perform can convey our thoughts and express our feelings. As listeners we interpret . . . make us feel and think. Empathy. Exchange.

3.4.1 Compositional Stratergies based on reshaping relationships in music making

Gilius piano pieces.

3.4.2 Reshaping relationships in music making through technology?

The introduction of electroacoustic resources into live musical performance has changed the relationship between the composer and the performer.

The use of computer technology has also fostered new collaborative possibilities between performers of different cultures.

Musicians of different backgrounds (improvisation and notated music) and traditions (Western and non-Western) may now share the stage simultaneously and productively through technology; in spite of previously incompatible performance conventions.

Real-Time computer processing allows the possibility of using the audio signal (as well as other information - like MIDI) from several live performances simultaneously as building blocks for a composition.

3.4.3 Evaluating Human and Machine Performance

Iteration

Generative Music + AI

3.5 Appropriation as a Compositional Strategy

3.5.1 Musica Derivata and Plunderphonics

"A good composer does not imitate; he steals" I. Stravinsky

Musica Derivata:

"music that is compositionally based on other music" (K. Barlow)

Plunderphonics:

John Owald, 1985. "Plunderphonics, or Audio Piracy as Compositional Prerogative"

Use of audio samples as a technique for composition.

Different from Musica Derivata in that it appropriates the recording of the original musical source. Information from recording (tibre, rhythm, performace practice, etc) is plundered from the original source to create a new composition.

"As a listener my own preference is the option to experiment. My listening system has a mixer instead of a receiver, an infinitely variable speed turntable, filters, reverse capability, and a pair of ears. An active listener might speed up a piece of music in order to perceive more clearly its macrostructure, or slow it down to hear articulation and detail more precisely."[3]

3.5.2 Redefining the 'Real' in Real-Time: A Lacanean reading of Live-Electronic Performance

Much has been written about the problematics of live electronic music performance using computers.[4] Most of the discussion seems to be centered in how to define what 'live' means in a performance using computer technology which escapes the "well-understood Newtonean mechanics of action and reaction, motion, energy, friction and damping."[5] The problem of what appears to be *real* regarding a computer performance is a continuing source of debate. There are some with the position that the relationship between physical action and sonic reaction must remain for a performance to continue to

[3] John Oswald, "Plunderphonics, or Audio Piracy as a Compositional Prerogative," in *Wired Society Electro-Acoustic Conference*, Toronto, 1985. URL: http://www.plunderphonics.com/xhtml/xplunder.html.

[4] See Barrett(2008), Croft(2007), d'Escriván(2006) and Emmerson(2007)

[5] (Emmerson, 2007).

have 'liveness' and meaning (Croft, 2007)[6] while others argue that a new generation of musicians are satisfied with having no apparent correlation between physical effort and sound output (d'Escriván, 2006)[7].

- Barrett's position.
- Simon Emmerson Real and Imaginary Relationships
- Lacanean 'Real', 'Imaginary' and 'Simbolic'

3.5.3 plunderphomes, ideology and the use of references

Ranciere:

> And the time came when the semiologist discovered that the lost pleasure of images is too high a price to pay for the benefit of forever transforming mourning into knowledge. . . .
>
> While some start up a prolonged lamentation for the lost image, others reopen their albums to rediscover the pure enchantment of images- that is, the alterity of the *was*, between the pleasure of pure presence and the bit of the absolute Other.
>
> Evidence of exhibitions devoter to 'images', but also the dialectic that affects each type of image and mixes its legitimations and powers with those of the other tow.

Plunderphones reflect ideology . . . Žižek/Adorno but. . . . The artist can present their own view of these references by rearranging them modifying them. The plunderphonics artist doesn't necessarily adheres to the ideology of the appropriated material, but reflects it by the use of the plunderphones - how are they presented, modified, etc?

3.5.4 On Appropriation

What?

Code, compositional tecniques, what piece of music? Do we plunder from the "flea market or (the) airport shopping mall"? (N. Bourriaud). From the top 20 list - J. Oswald approach-, or from the hidden CDs at the back of the music store?

[6] 'Theses on liveness'. *Organised Sound* 12(1), p. 59-66. 2007 Cambridge University Press.

[7] 'To sing the body electric: Instruments and effort in the performance of electronic music', *Contemporary Music Review*, Volume 25, Issue 1 and 2 February 2006, pages 183-191

Who?

Music Industry? Pop/commercial? Historical (dead composers)? Music from different cultures?

Appropriation of the Other. What relationship do we want to establish with the Other? Impersonal like the 1st/3rd World relationships?

Liberal multiculturalists approach? "Other deprived of its Otherness (the idealized Other who dances fascinating dances and has an ecologically sound holistic approach to reality, while features like wife beating remain out of sight)?" (Slavoj Žižek, 2003)

Why?

For the meaning of the cultural object you are appropriating? For its symbolism? To suggest a metaphor?

For its use? "Dont look for the meaning, look for the use" - L. Wittgenstein - for example for the sonic qualities of the appropriation (intonation, groove, etc.)

How?

3.5.5 Real-Time Plunderphonics

Appropriation of audio signals from live music performances as material for a new composition

Creates a cognitive dissonance between audio and visuals.

The amount of processing of the audio signals is visible. The more processed the performances are, the more contrasting they will look in relationship with what is heard through speakers.

In contrast to acousmatic tradition, Real-Time Plunderphonics makes the process of appropriation transparent to the audience through the cognitive association between audio and visuals.

Changes relationship with the appropriated Other: The performer becomes an accomplice in the process of appropriation (or themselves).

Deals with the problematic of the lack of visual clues and theatrical elements in electronic music performance by introducing a dynamic group of live performers and an interesting and unusual visual scenario.

Some ideas of how to plunder

Get to know what and who you are plundering and figure why your are doing so before you decide how to plunder.(Know your performers, their music and why you want to work with them)

Appropriate and plunder yourself.

Plundering not as central purpose of the creative process, but rather a tool for creating new idiosyncratic audio/visual result.

Use “from raw to cooked” (Lévi-Strauss) techniques to create a narrative that navigates, in literary terms, between the real (actual performance) and the ‘surreal’ (extreme processed audio).

Combinations of Real-Time Plunderphonics, (Real-Time) Musica Derivata and Sound Transformations

Use plunderphones as data: reprogram, not just remix.

Micro and macro plundering.

Use also Non Real-Time tools (Scores, Samples, etc.) if suitable.

Using plunderphones as data

An example: Use FFT data of your plunderphone to trigger samples of recorded instruments.

Micro and Macro Plundering

Microplunderphonics

Plundering just microelements of sound. Not the whole spectrum of the original sound file.

Generate noise with your plunderphones and use it instead of white noise for sound synthesis

Macroplundering

Appropriate a compositions form. Use the structure as blueprint for a new composition.

Use variables of the appropriated piece (pitch, dynamics, etc.) as control structures for new output.

3.5.6 Crossing Cultural Borders?

A discussion of Simon Emmerson’s Crossing Cultural Boundaries through Technology. Žižek’s view of Multiculturalism.

3.5.7 Interpassivity

> Interpassivity, like interactivity, thus subverts the standard opposition between activity and passivity: if in interactivity (or the cunning of Reason), I am passive while being active through another, in interpassivity, I am active while being passive through another. More precisely, the term interactivity is currently used in two senses: (1) interacting with the medium, that is, not being just a passive consumer: (2) acting through another agent, so that my job is done, while I sit back and remain passive, just observing the game. While the opposite of the first mode of interactivity is also a kind of interpassivity, the mutual passivity of two subjects, like two lovers passively observing each other and merely enjoying each others presence, the proper notion of interpassivity aims at the reversal of

the second meaning of interactivity: the distinguishing feature of interpassivity is that, in it, the subject is incessantly (frenetically even) active, while displacing on to another the fundamental passivity of his or her being.[8]

[8]From The Fantasy in Cyberspace by Slavoj Žižek

Chapter 4

Computer Applications

In recent years, my approach to composing and performing music has reached a point were the development of computer applications runs simultaneously with my aesthetic and creative research. From the very start of composition and conception until the performance and realization, the computer applications that are developed and the artistic output merge within the same creative process. Therefore, my artistic practice is deeply connected to computer programming and the use of computer applications. It is worth mentioning that the applications developed as part of this process are vital to the musical results of the compositions and encompass an important aspect of the compositional process. In addition, these applications were developed for an artistic purpose and understanding how they work might give an insight into my compositional output. Moreover, they do not serve a function beyond the realization of the idiosyncratic elements that constitute my creative process. That is to say, these applications do not represent a contribution to the scientific community in relationship to the technological developments of computer music but instead represent a set of tools and documentation that other artists, musicians and composers might find useful for their own practice.

In the previous chapter, I explained some of the potential that technology has brought to music and how even though technological advancements do not necessarily represent artistic developments, they do provide with new possibilities for artistic innovation. It is because of these possibilities that I have become recently interested in using digital technology to create music. I am particularly interested in using technology for...

In this chapter, I will explain in detail a number of important computer applications that were developed together with my compositional practice. These applications were written in the SuperCollider[1] programming language. I decided to use SuperCollider as a platform to develop these computer applications because it integrates a powerful audio synthesis server using state-of-the-art

[1] James McCartney, SuperCollider, 1996. URL: http://www.audiosynth.com/

technology with the versatility and capabilities of an object-oriented-programming (OOP) language. I chose SuperCollider over other data flow programming applications like Max/MSP and Pure Data (Pd) because of its robust synthesis server and the advantages of abstraction of a high-level OOP language.[2] Another advantage I saw in using SuperCollider is the fact that it is an open source application, which means that the code in which it is written is available for free and can be modified. Most of the computer applications I developed and which will be discussed in this chapter are written as SuperCollider classes,[3] but some of them are extensions of already existing classes or code that can be evaluated in real-time in the interpreter. The applications discussed in this chapter were used in various of the works submitted and constitute compositional strategies that reflect some aesthetic concerns that are recurrent in my work.

4.1 Spectral Tracking

In previous chapter, I briefly explained how spectralism and C. Barlow: *Synthrumentation* influenced my work.

Fast Fourier Transform (FFT)[4]

MIDI[5]

Spectrum analysis for dynamics, pitch and rhythm extraction.

4.1.1 PartialTracker

PartialTracker is a SuperCollider class for real-time partial extraction that diminishes the amount of FFT data by selecting the loudest bins and discarding the softer magnitudes with the purpose of having a limited amount of values to be returned as simple arrays for frequency and magnitude. It does so by taking an incoming audio signal, performing an FFT analysis and discarding spectral data in two ways: either by passing only the bins that are above a given magnitude threshold or by selecting a value that returns the strongest number of bins. For this purpose, I used the PV_MagAbove and

[2]See James McCartney, "Rethinking the Computer Language: SuperCollider", in *Computer Music Journal*, volume 25, number 4, pp. 61-68, 2002, for a discussion about the differences between SuperCollider and Max/MSP, Pd and Csound.

[3]SuperCollider classes are descriptions of the structure and implementation of a set of objects that represent the instances of the class.

[4]See Curtis Roads, *The Computer Music Tutorial*, Cambridge, MA: MIT Press, 1996, pp. 533-609 for more information about spectrum analysis, including FFT.

[5]See Ibid. pp. 969-1016 for more information about MIDI

PV_MaxMagN[6] phase vocoder unit generators. In order to have access to this data in the language side of SuperCollider, I used PV_MagBuffer and PV_FreqBuffer[7] to store this information into a buffer. Ones stored in a buffer, the information can be accessed as an array and be manipulated freely. Nevertheless, the buffer stores all of the bins of the FFT and therefore the bins with the magnitudes that were not empty have still to be collected and indexed to access the corresponding frequency values. The resulting arrays therefore only constitute the number of strongest bins, which can be defined by the user. The following code shows an example of the frequency and magnitude arrays for the ten strongest bins:

```
[ 128.37791442871, 154.57292175293, 140.25003051758, 246.26268005371, 253.09353637695,
 364.92492675781, 396.52267456055, 1035.068359375, 1037.1043701172, 1241.3063964844 ];
 //array of frequencies

[ 1.8754153251648, 4.5471153259277, 5.3137745857239, 2.6146886348724, 1.2295168638229,
  2.5435922145844, 3.215939283371, 2.0944044589996, 2.6014709472656, 2.0559096336365 ];
 //array of magnitudes
```

The purpose of this class is to have easy access to relevant FFT information with the aim to convert frequencies and magnitudes either as MIDI messages or as data to be used to control synthesis definitions[8]. The incoming signal can be a live input in a performance situation, or a sound file. Lastly, this class also provides the feature of saving the spectral information trigged by an onset detector with the objective of creating a MIDI file by storing time values and converting the frequency and magnitude data to MIDI notes and velocities.

4.1.2 FFTFilter

FFTFilter inherits functionality from PartialTracker and uses the information of the frequency array to control the bandwidth and center frequency of a two pole resonant filter. This FFT controlled filter is designed to be used to filter a signal with a rich spectral content, such as different types of noise, with the information given by an FFT analysis of another signal that should be more limited in its frequency range. A function is evaluated in a loop in which an argument that can be changed by the user represents the time value between each iteration. This function accesses the highest and

[6] PV_MaxMagN is part of JoshUGens by Joshua Parmenter, which is part of the sc3-plugins project.

[7] PV_MagBuffer and PV_FreqBuffer are part of JoshUGens.

[8] Synthesis definitions, or SynthDefs in SuperCollider represent a description of a set of Unit Generators (UGens) that perform synthesis algorithms in the SuperCollider server.

lowest frequency values from the array calculated by the PartialTracker functionality every time the loop is evaluated. Since the purpose is to make a smooth line instead of discrete points, the signal must be lagged exponentially to produce a continuous control signal. By following this procedure, it is possible to approximately track the contour of the frequencies that have a stronger presence, given that the settings for the amount of strongest bins and magnitude threshold are appropriate for the specific spectral characteristics of the signal. Figure 4.1 shows a spectrogram of speech and

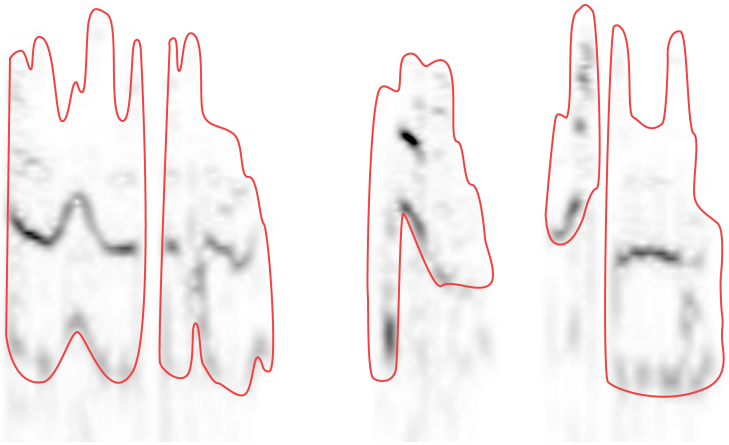

Figure 4.1: FFTFilter: Spectral mapping of vocal contour.

how the FFTFilter maps the contour of the vocal signal. Given that the vocal signal has a strong presence in a narrow frequency range, it is ideal to control the filter. FFTFilter therefore uses the continuos signal of the highest and lowest frequencies of the array to calculate the bandwidth and center frequency for the resonant filter. Figure 4.2 shows a visual representation of a fairly noisy signal that has been filtered by the resonant filter following the vocal contour as seen in Figure 4.1. Ones the trajectory of the filter is set by the frequency data extracted from the FFT, an envelope follower maps the amplitude of the sound that was used as the FFT input to control the amplitude of the resonant filter. By combining the amplitude envelope and frequency contour of one sound to control a resonant filter that is applied to another sound, it is possible to incorporate characteristics of the analyzed sound to the filtered sound source.

4.1.3 SpearToSC

SpearToSC is a class that takes data from the open source software application called SPEAR[9] and transfers it to an array in SuperCollider. SPEAR uses a variation of the traditional McAulay-

[9]Michael Klingbeil, SPEAR, 2005, URL: http://www.klingbeil.com/spear/.

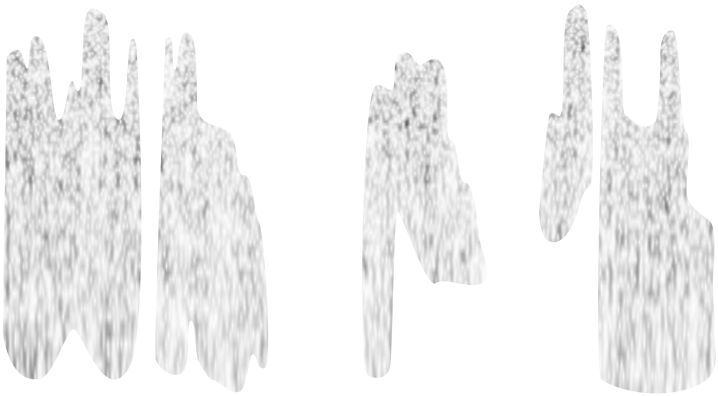

Figure 4.2: FFTFilter: Noise filtered by vocal contour.

Quartieri procedure and "attempts to represent a sound with many individual sinusoidal tracks (partials), each corresponding to a single sinusoidal wave with time varying frequency and amplitude."[10] SPEAR provides a graphical representation of a sound[11] (as seen in Figure 4.3) in which it is possible to select the individual sinusoidal tracks and allows to isolate and access the information for each individual partial. The amplitude and frequency information of each partial is given by frame

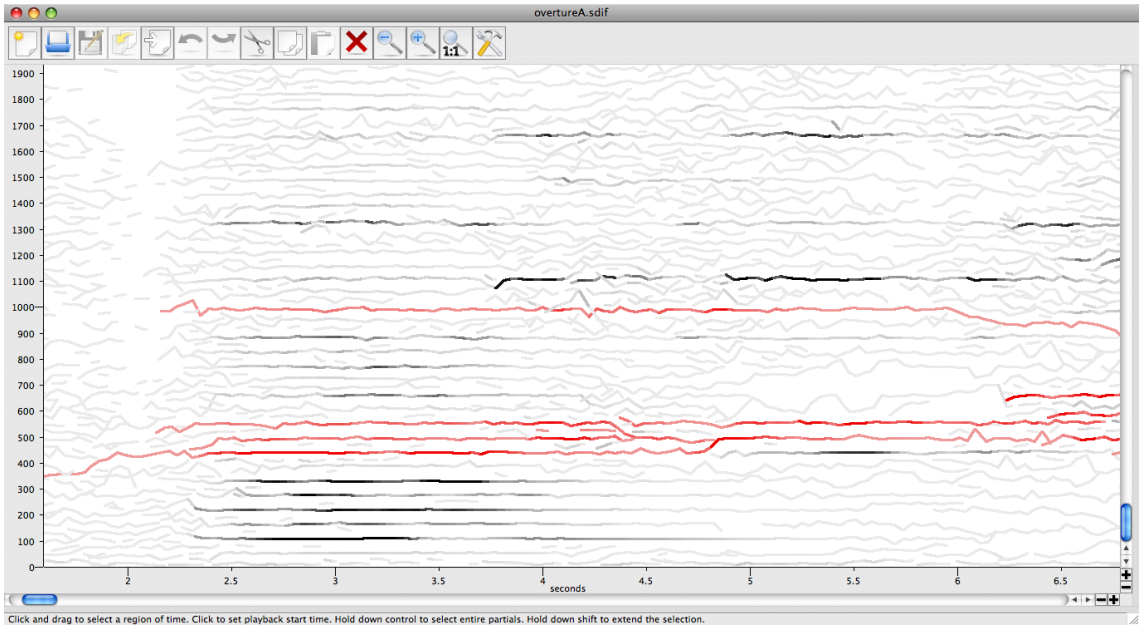

Figure 4.3: SPEAR graphical interface.

[10]Michael Klingbeil, M. 2005. "Software for spectral analysis, editing, and synthesis." in *Proceedings of ICMC*, vol. 2005, 2005. URL: http://www.klingbeil.com/papers/spearfinal05.pdf.

[11]Spectral analysis, where the y-axis represents frequency in hertz and the x-axis represents time in seconds.

and can be stored in a text file. SpearToSC reads the text file produced by SPEAR[12] as a string and strips it into a multidimensional array in SuperCollider. It is therefore possible to access and manipulate this data within the SuperCollider language and server and re-synthesize this information not only with sinusoidal waves, but with any type of unit generator.

4.1.4 SpearToMIDI

SpearToMIDI is a class that inherits functionality from SpearToSC and reduces the information given by SPEAR to be used as data to produce a MIDI file or to control SuperCollider synthesis definitions. The purpose of this class is to reduce the spectral information to an amount of data that can later produce notated material for a written score, a MIDI file or a control system to be used for triggering synthesis algorithms. The data in the text file generated by SPEAR is available by frame and gives too much information for this purpose. Therefore, SpearToMIDI reduces this data in four stages: First, it takes a magnitude threshold argument which gets rid of all of the partial information that lies bellow this value (as seen in Figure 4.4). In other words, it breaks the partial in different groups

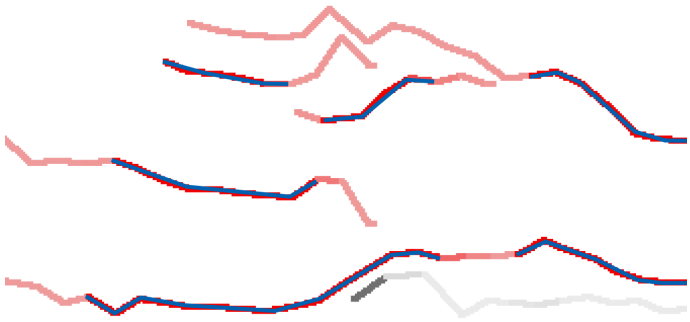

Figure 4.4: SpearToMIDI: Amplitude threshold selection.

by introducing silences instead of the data that lies bellow the threshold and at the same time keeps track of the beginning and the end of each group.

The second stage reduces data with a frequency modulation threshold. Each group is taken as a line and the computer only stores the points in the line which cross a given interval (the modulation threshold). For example, Figure 4.5 shows how the lines representing the groups in Figure 4.4 are traced by selecting the points that cross a given interval.[13] If the interval is of one semitone then the

[12] SpearToSC reads SPEAR text files in the *Text - Partials* format only.

[13] The grid represents the intervals as shown in the y-axis. For the purpose of simplification, the diagram doesn't show a logarithmic representation of frequency.

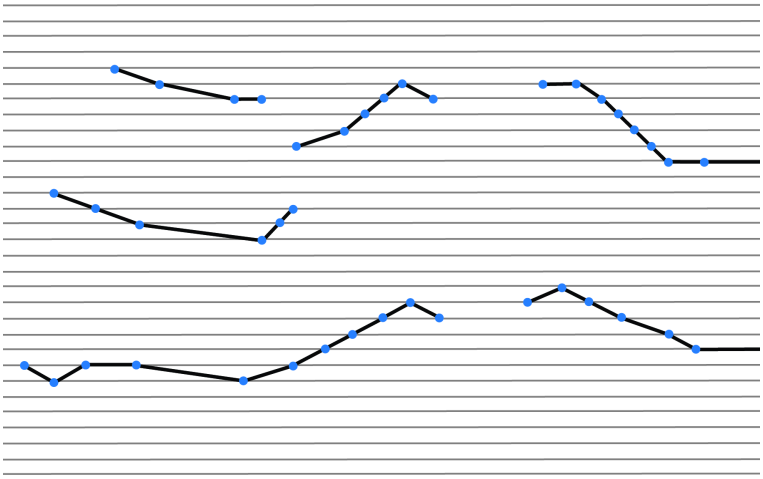

Figure 4.5: SPEARToMIDI: Point selection through frequency modulation threshold.

frequencies are averaged to the closest chromatic note. It is possible to make microtonal divisions of the equal-tempered scale by using floating point values for the modulation threshold. The magnitude, frequency and time values of each point are stored as a collection of data. This collection can then be accessed and used to control synthesis definitions externally by generating envelopes, which gradually change frequency to produce glissandos and amplitude for gradual volume change. After these first two stages, the original data from Spear is reduced considerably by disregarding details that are not vital for the given purpose.

The third stage, takes the points of the lines that were obtained in the previous stage and translates them into single notes with a start and an end and that do not change in frequency and amplitude while playing— in other words, a format that is compatible with the MIDI note-on and note-off paradigm. The points are then considered as representing note-on messages and the note-off messages are calculated depending on whether the point is followed by another new point or if the point is the last of the group, in which case a silence would proceed. In other words, a note-off is inserted before a new note-on or just before a silence. Figure 4.7 shows the note representation derived from Figure 4.5, where the notes are seen as green lines, the note-on messages as blue points and the note off messages as green points. The results of this stage can be used to generate a MIDI file[14] with the intention of either using it to trigger a sampler or to import it into a notation software to create a written score. The user can input the time signature and tempo for the MIDI file as well as an interval value that divides the MIDI note range into different MIDI tracks. By doing this, the notes are separated into different tracks depending on their value in relationship to each other with

[14]Using the SimpleMIDIFile class that is part of wslib by Wouter Snoei, which is can be obtained as a Quark.

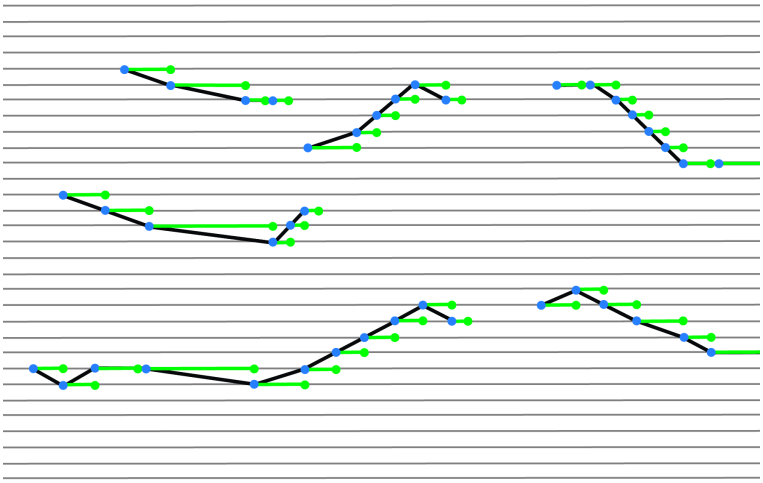

Figure 4.6: SPEARToMIDI: Note representation.

the purpose of not having too many notes in the same track. Furthermore, these results can be used to create a list of Open Sound Control (OSC)[15] commands that can be sent to the SuperCollider server for Real-Time-Synthesis and Non-Real-Time-Synthesis. Extra arguments can also be added to control other values in the synthesis definition, which can be set individually by using a function to be evaluated for each instance of the definition.

4.2 Real-Time Scoring

Interpassivity. Improvisation, etc. Display as score. Score animations... Computer conductor. Computer-aided conducting... Human decides in real-time sections, etc.

4.2.1 AlgorithmicScore

AlgorithmicScore is a class that visualizes different types of notation in real-time. It is programmed as a graphical user interface (GUI) in SuperCollider but receives no input in the GUI window itself. Instead, this class only displays notes, letters, symbols and other visual aids for real-time scoring from code that can be evaluated in the interpreter, or within a compiled class in the SuperCollider language. It displays traditional musical symbols including notes, accidentals, clefs and dynamics that are available as fonts[16] in combination with non-standard notations. Stems and flags are purposely not implemented so that too much visual information is not given to the performer while following the score. Note-heads can be of different type and color. There are four types of different clefs that

[15] See http://opensoundcontrol.org/introduction-osc for more information on OSC.

[16] The fonts I used for the AlgorithmicScore class are MusiSync by Robert Allgeyer and Sonora by Christian Texier.

are implemented: treble, bass, alto, tenor. If a clef is selected, a staff is generated in which the notes will appear. The information to be placed in the score can be evaluated in an array consisting of the note position from left to right, staff number, note-head type, note, accidental and color. There are three array types that can be used which respond to different notation modes: free, enharmonic and chromatic. In the free mode, notes are selected by a number that does not correspond to the clef but to the position from top to bottom starting with zero as the first leisure line bellow the bottom line of the staff. Moreover, the note value can not only be negative but also a float number, which results in a position in between notes. This mode can be useful for conveying movement if the score were to be animated. The enharmonic mode, takes a string representing the note and octave—were c4 equals middle C—and positions the note according to the selected clef. It is also possible to select the type of accidental between flat, sharp and natural. If the note exceeds four leisure lines, the programme places an *8va* sign and if it is exceed it by yet another octave, it places a *15ma* sign. The chromatic mode, is similar to the enharmonic, but only uses sharps as accidentals and places a natural in front of each note that is diatonic. This mode is useful to receive note information as MIDI numbers. In addition, it is possible to place written directions with different colors in the score.

The following code example produces a score in real-time if evaluated from the interpreter window:

```
a = AlgorithmicScore.screenBounds; //start class
a.score([\bass, \treble, \treble]); //3 staffs
//[pos, [staff, noteType, note, acc, color]]:
~staff1 = [[0, [0, 1, "c3"]], [1, [0, 0, "b3", \flat, \blue]]];
~staff2 = [[0, [1, 0, "d5", \flat]]];
~staff3 = [[0, [2, 1, "a3", \nat, \red]]];
a.enharmonic(~staff1 ++ ~staff2 ++ ~staff3); //writes notes
a.expression("p"); //expression for dynamics
a.text("Improvise with pitch material", "Helvetica", 30, 30, 200, color: Color.rand);
//string, fontType, letterSize, inLeft, inTop, color
```

The code generates a new window and three staffs with one bass and two treble clefs. The separate arrays correspond to each staff[17] and are concatenated to respond to the enharmonic mode. In addition, an expression to play *piano* and a text description are added. Figure 4.7 shows the GUI that the AlgorithmicScore class creates when the code above is evaluated.

[17]Note that the first value is for the position of the note from left to right and that the values are already scaled so that in the entire length of screen can fit 24 notes.

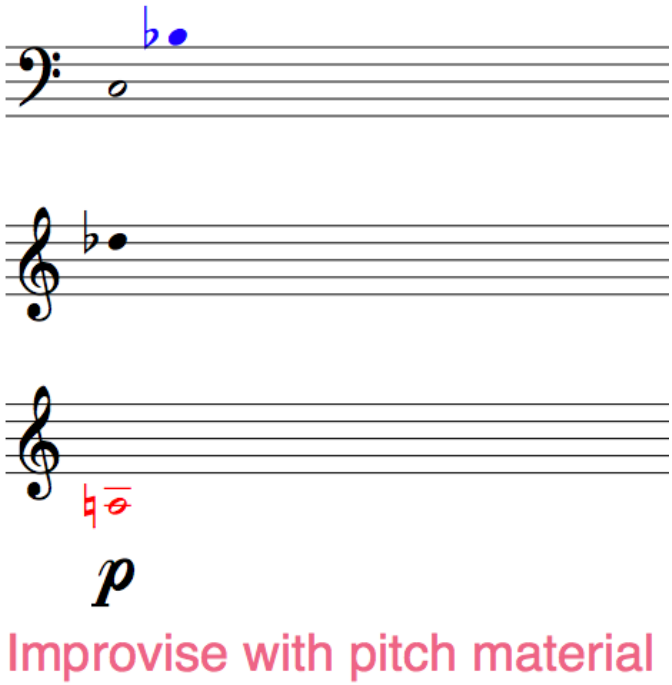

Figure 4.7: AlgorithmicScore: Enharmonic mode.

Another feature of the application is a piano clef type which instead of creating only one staff that responds to the corresponding clef, it produces two staffs with one treble clef on the top staff and one bass clef on the bottom staff. In this clef type, the note is placed on the treble clef staff if it is higher or equal to middle C and if it is lower than middle C, it is placed on the bass clef staff. Furthermore, it is possible to score in real-time by evaluating an array of MIDI note numbers. The class takes the MIDI numbers and translates them to the correct pitch type and octave in the chromatic mode. This procedure is a very convenient form of sending MIDI values to be scored in real time. The following example of code takes sixteen random notes from f1 to g6 and chooses one of them randomly and changes its color to red:

```
a = AlgorithmicScore.screenBounds; //start class
a.score([\piano]); //piano staff
~notes = Array.fill(16, {rrand("f1".notemidi,"g6".notemidi)});
//random notes between f1 and g6
~color = Array.fill(~notes.size, \black).insert(rrand(0,15),\red);
//all notes black, except a random red note
a.notes(~notes, color: ~color);
```

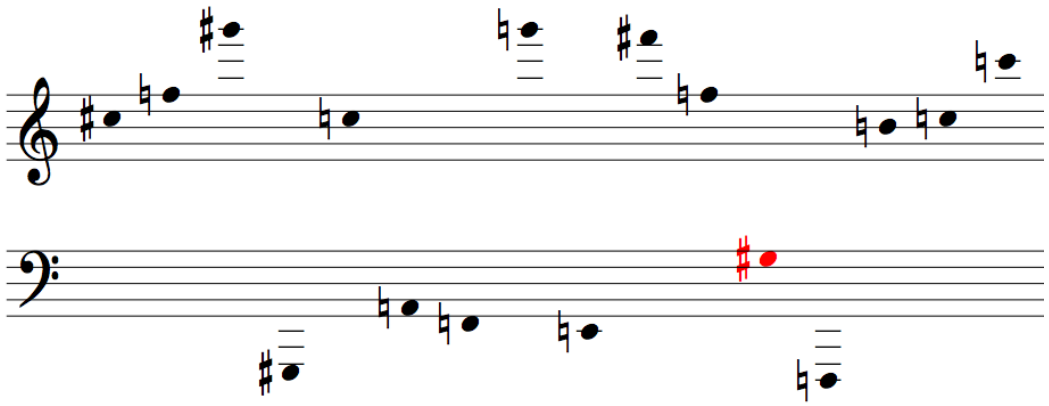

Figure 4.8: AlgorithmicScore: Chromatic mode.

The *notes* message[18] takes as input one array of notes, one of positions and one of colors. If the array of positions is not specified, the computer arranges the positions equally from left to right. Figure 1.8 shows the resulting score generated by the code. Note that the notes are spread between the treble and bass clefs because the piano clef type is selected.

This method for generating scores can be very useful to notate pre-composed and aleatoric material in real-time. Moreover, this application is ideal to to visualize pitch or rhythmic information derived from machine listening techniques such as partial tracking. Real-time scoring is specially relevant when using machine listening applications because the material that is notated is extracted from sound characteristics that are specific to the moment and space of the performance. Figure 1.9 shows an example that uses the PartialTracker class to extract MIDI note numbers from the strongest twenty partials of a spectrum. The resulting score is therefore generated in real-time and is specific to the space and time in which the partials are extracted.

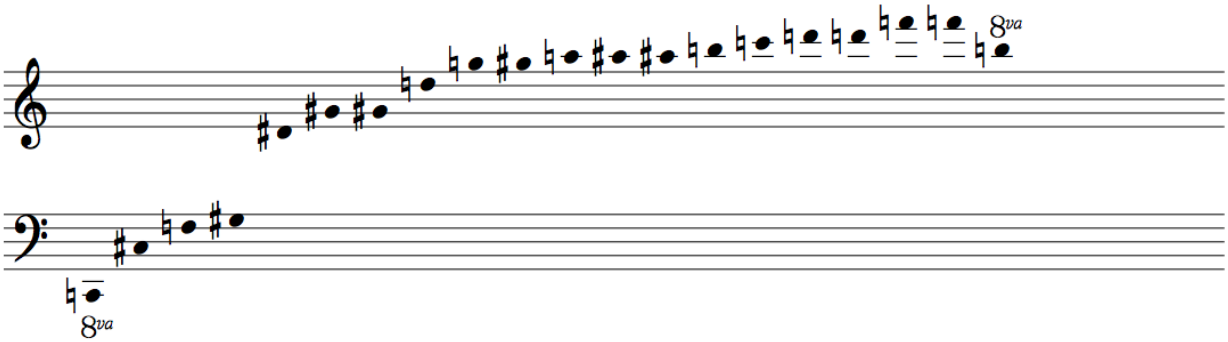

Figure 4.9: AlgorithmicScore: PartialTracker to Notes.

[18] A message is the type of operation that the class performs depending on the type of message it receives.

A sense of movement can be generated using the AlgorithmicScore class if the notes and other graphics are imbedded within a *routine*.[19] Therefore, it is possible to animate the graphical user interface including the notation elements for different purposes. One purpose for using score animations is to convey a sense of gesture by animating the notes so that they appear to be moving in specific directions. It is possible then to make notes appear as if they are skipping or jumping by changing note values every time an element of the *routine* is evaluated.[20] It is also possible to achieve a sense of a note gradually moving horizontally by gradually changing the numbers for the position of a note. In addition, one can animate the direction vertically by gradually changing the note values in free mode.[21] Furthermore, generating movement in real-time scoring can express timing and other conducting cues and gestures. The AlgorithmicScore class gives the possibility of scheduling a mixture of written directions, notation, chronometers, arrows and other graphics. Visual cues can be given through the computer display to signal the beginning and end of sections as well as other important timing instructions. The use of colors to indicate silence and new sections is also possible when using this class.[22]

Given that the AlgorithmicScore class does not use note stems and flags as an element of notation, rhythm may be expressed visually as well as aurally. Rhythm might be expressed with score movement using visual triggers that turn *on* and *off* symbolizing the onset and release of a note—this class has circular triggers that switch between bright colors (*on*) and light grey (*off*) to covey rhythm.[23] Another strategy to express rhythm through score movement is by changing the color of only one note at a time within a sequence of notes—the logical movement being from left to right.[24] Aural triggers may be added to indicate both rhythm and pitch by producing sounds that will serve as guide to the performer. The sounds would account for an aural score that the performer would receive through headphones and might enhance the visual elements of the AlgorithmicScore class.

Additionally, it is possible to import any type of image and video within the class and therefore create a wide variety of non-standard graphical indications. This application also provides the option to import scores written traditionally in standard notation programmes and combine them with the more expressive potential of the AlgorithmicScore class. Finally, by using human interface devises (HIDs) such as MIDI controllers and pedals the performer may interact with the score. This might

[19] Routines in SuperCollider are functions used for scheduling timed events using a clock that can be specified.

[20] For example, see URL: http://www.youtube.com/watch?v=QhJdffgLhZA.

[21] See URL: http://www.youtube.com/watch?v=m5GBfeUDeUA for an example of notes gradually moving horizontally and vertically.

[22] See the *Zizek!?* Score for an example of this application of real-time scoring.

[23] For example, see URL: http://www.youtube.com/watch?v=Rw58E_y3GT4.

[24] For example, see URL: http://www.youtube.com/watch?v=sCE6rLJgdwk.

be helpful for example to trigger score animations or turn pages with a MIDI pedal. Other examples of human-to-score interaction include controlling tempo and conducting cues with human gesture and triggering spectral data extraction to be displayed in the computer display with different types of sensors.

4.3 Computer-Aided-Composition Tools

As part of my creative output, I have developed computer applications that served me as computer-aided-composition (CAC) tools during my research. This set of tools can be found in a library of SuperCollider classes and extensions called FedeLib. An important component to this library is a collection of extensions[25] to existing classes that perform a wide variety of tasks. These tasks include: mathematical operations on simple numbers and lists; musical calculations including different types of tuning systems, interval and pitch-class recognition, scale generation and voice leading; scheduling and time related applications; operations on strings; envelope generation; recurrent operations such as recording audio, handling MIDI, switching between servers, managing buffers and patterns; MIDI file analysis, transformation and triggering; and GUI creation. These tools aided me in the composition of the works submitted and might be useful to other composers. They too might reflect some of my compositional interests and methods. Nevertheless, I will not attempt to describe all extensions as it would be out of the scope of this discussion. Therefore, I will focus only on a few tools that I think are fundamental in my creative process as they are related with the concepts described in the previous chapters.

4.3.1 Score Visualization

During several years, I have developed pre-compositional tools that help me organize my music and think in terms of structure at different levels of abstraction. I normally start a composition with an idea of a macro-structure and then I gradually start considering the micro-elements of the end-result. That is to say, usually I first establish a foundation or blueprint that determines the structural decisions of a composition before I start working on the details that are related to smaller temporal intervals. As I became interested in deriving elements of existing compositions in my work, I decided to abstract other pieces of music by other composers that I consider excel in dealing with macro-structural elements. Therefore, I started by analyzing the score of these compositions and then tracing their phrase structure that I would use as a blueprint for my own composition. Each voice or

[25]These extensions can be found at URL: http://github.com/freuben/FedeLib/tree/master/Extensions/.

staff would be considered as different layers containing phrases that would start and end depending on where silences occur. I would then create as John Cage would say "empty containers" with the phrase structure of each voice of the appropriated composition. Ones I would have a blueprint of "empty containers", I would start thinking what sonic 'material' I would fill the containers with and how this 'material' would develop. Normally, I would also treat this 'material' by processing it with information derived from the melodic contour of the original phrases and relating it to the harmonic elements of the original composition. As I have become more experienced as a composer, I adhere less to this idea of thinking of music as controlled layers of sound or music and take more freedom in my interpretation of these blueprints. Nevertheless, I still always begin by reducing an existing score by another composer to its basic marco-elements as a starting point for my own composition.

Considering that this is a process that is recurrent in my compositional practice, I decided to programme an application in SuperCollider that takes information from a MIDI file and creates a visualization of its phrase structure.

4.3.2 MIDI Triggering

Chapter 5

E-tudes

E-tudes is a set of electronic études for six stage pianos, live electronics and Disklavier[1]. These compositions where written for the ensemble **piano***circus*[2] for a project that became a two-year collaboration and lead to two performances[3]. What initially attracted me to this ensemble was it's very particular instrumentation consisting of six electronic stage pianos. I thought this to be a suitable platform to experiment with the concept of *Real-time Plunderphonics*[4] considering that these instruments are electronic and therefore produce no considerable audible acoustic sound.[5] Therefore, if the original music that the pianists play would be processed by the computer, the live-treatment of the sounds would be the only audible result—it would not be necessary to deal with the acoustic sound that would sound regardless of the computer processing if the instruments were acoustic. In other words, the music being played would be hidden from the audience when stripped away from its original sound. Another advantage that I found in using these keyboards is that I could not only use audio signals, but also the MIDI messages as building blocks for the composition. Considering these opportunities for experimentation, I embarked in this large project which I plan to continue in the long-run.

Like a book of études from the repertoire, E-tudes consists of a set of pieces that can be performed

[1] In case a Disklavier is not available, it is possible to use an electronic stage piano or a sampler with piano sounds.

[2] The original six piano ensemble was formed in 1989 to perform Steve Reich's Six Pianos. Since then the original members have changed and now comprise of David Appleton, Adam Caird, Kate Halsall, Semra Kuruta, Paul Cassidy and Dawn Hardwic.

[3] Enterprise 08 Festival, The Space, London, 14 May, 2008, and The Sound Source, Kings Place, London, 9 July, 2009, sponsored by the PRS Foundation Live Connections scheme and Sound and Music.

[4] See pp. xx-xx for a discussion about this concept.

[5] The only acoustic sounds that can be heard are the keyclicks produced by the physical contact with the stage pianos while playing. This noise is slightly audible mostly when the sounds in the speakers are quiet or at moments where the speakers are silent.

together at the same event or individually as separate short pieces. At present time, I have completed four 'e-tudes', and as an ongoing project I will continue adding new pieces to the group. The way in which these 'e-tudes' are presented can also be modular: depending on the set of circumstances for a given event, they can be presented either as a concert performance or an installation with perforative elements. In the installation version, the audience walks into, out of, and around the area surrounding the musicians and has creative control over how they want to experience the performance. By choosing between listening to the speakers in the room or through headphones generating different outputs and distributed through the performance space, each member of the audience fabricates their own version of the piece. Therefore, in the installation version their are various possible outputs generated by the processing of the

Hello sentence.

simultaneously a performance and an installation. A single multilayered composition will be performed at various times over the course of the event.

The ensemble of six stage pianos is placed in hexagonal formation and divided into two subgroups. The first subgroup consisting of three pianists are asked to select études from the western piano repertoire [6] and are to play them in the order of their choice during the duration of the performance. The second subgroup consisting of the remaining three pianists perform together from *The Sixth Book of Madrigals* by Don Carlo Gesualdo da Venosa (1566-1613).

The pianists playing the madrigals send MIDI information to two laptops that will transform the audio signal from the etudes and schedule the digital signal processing events. The audience will not be able to hear in the room what the pianists are playing as the stage pianos do not produce an acoustic sound. The seventh performer -the composer himself- will speak the Madrigals' text through a microphone and the spectral information from this signal will be used to process the final audio output and to trigger other sound events. The composer will also play a MIDI controller and will not have a fixed score, leaving space for an improvisational element within the human/computer interaction. Finally, through the analysis of all the inputs the computers will send MIDI messages to a Disklavier (mechanical piano) that will play the role of "virtual soloist" for the performance. In the room one will be able to hear the final result of the creative process of combining the simultaneous performances in diverse arrangements. The headphones that will be spread through the performance space will portray the inner life of the performance sounding in the room and reveal the inner layers of computer processing as well as the appropriated compositions.

E-tudes also challenges the audience by questioning traditional performance practice and creating

[6] Examples of these are études by Chopin, Ligeti and Debussy, to mention just a few.

a cognitive dissonance: what you see is not necessarily what you hear, and certainly not what your past experience leads you to expect.

Piano Circus, an ensemble featuring six pianists: Kate Halsall, David Appleton, Adam Caird, Semra Kurutac, Helen Reid and Graham Rix, will perform the piece. They will be playing on Roland RD700 Stage Pianos. The composer, Federico Reuben, will join them performing live-electronics: laptops, midi-controllers, microphone and mixer.

The ensemble will stay in their usual hexagonal formation but will be divided into two subgroups. Three pianists will choose etudes that are established in the piano repertoire (Chopin, Ligeti, etc.) and perform them whenever they want during the duration of the piece. They will be monitored individually through headphones. The other three pianists will perform together from the 6th book of Madrigals by Don Carlo Gesualdo da Venosa (1566-1613) and will be able to hear each other through headphone monitoring. The pianists playing the Gesualdo will send MIDI information to two laptops that will transform the audio signal from the etudes and schedule the digital signal processing events. The audience will not be able to hear in the room what the pianists are playing as the stage pianos do not produce an acoustic sound. The seventh performer -the composer himself- will speak the Madrigals' text through a microphone and the spectral information from this signal will be used to process the final audio output and to trigger other sound events. The composer will also play a MIDI controller and will not have a fixed score, leaving space for an improvisational element within the human/computer interaction. Finally, through the analysis of all the inputs the computers will send MIDI messages to a Disklavier (mechanical piano) that will play the role of "virtual soloist" for the performance. In the room one will be able to hear the final result of the creative process of combining the simultaneous performances in diverse arrangements. The headphones that will be spread through the performance space will portray the inner life of the performance sounding in the room and reveal the inner layers of computer processing as well as the appropriated compositions.

The music will be specifically composed for this event and for Jerwood Space. Since the piece is conceived as an installation as well as a performance it is best suited to a space that encourages moving around and interacting with the work. In contrast to the concert hall, where the audience is locked to a single location, the space should promote interaction and invite the audience to pick up the headphones, which will be spread around. People should also be able to walk around and experience the piece from several locations and focus on various aspects of the different performances taking place. This venue offers all of these possibilities as well as giving the opportunity to go out and re-enter the space during the duration of the event. One can argue that these elements are fundamental for a piece that seeks to form a relationship with the listener and thus, it remains

important that this event take place in this type of setting.

E-tudes questions the traditional role and relationships between performer, composer and listener and gives a unique and innovative approach to the use of found objects. The composer in this piece does not communicate with the performers by writing a score or by teaching them the music by ear as in previous performance practice conventions. He even lets the performers decide which pieces to play within a given repertoire. Therefore, the creative role of the composer is not to provide the music the performer should play but rather, in Oswaldian terms, to plunder their audio signal. On the other hand, E-tudes differentiates itself from John Oswalds Plunderphonics in that the plundering occurs in a live situation and that makes the performer an accomplice in the process of appropriation (of themselves). In a way, since E-tudes appropriates several live performances simultaneously, it proposes the notion of plundering in real-time, or Real-Time Plunderphonics. It is therefore important that the event take place in a live situation, as the theatrical effect of being plundered will be evident visually in relationship to the audio. Consequently, the amount of processing of the audio signals will be visible to the audience and the more processed the performances are, the more contrasting they will look in relationship to what is heard through the speakers. In E-tudes, this premise is consciously used to create a narrative that navigates, in literary terms, between the real (actual performance) and the surreal (more extreme processed audio). In contrast with the acousmatic tradition (music presented through loudspeakers in a fixed medium where the sound sources are not visible), the live performance makes the process of appropriation transparent to its audience as a result of the cognitive association between audio and visuals. In an acousmatic approach, a sound that is radically processed loses its characteristics and therefore the cognitive relationship between source and result may be lost. On the other hand, if the source is exposed visually in a live performance, the audience will have more audio/visual links and one may suppose that the audio processing could be even more extreme without losing the association with the source. Furthermore, E-tudes approach is atypical in relationship to Plunderphonics or other music that borrows found material (for example, by musical quotation) in that plundering is not the central purpose of the creative process, but rather a tool for creating a new idiosyncratic audio/visual result. This difference is rather important since it addresses the question inherent in the ambivalence of plundering oneself to create something new as opposed to performing something new in an immediate and direct fashion. Therefore, the idiosyncratic result justifies the conscious participation of the performer in a piece in which what he or she plays is not directly heard by the audience. This position proposes a new relationship between performer and composer and it also presents a new approach to composition. The composers role is not to establish direct communication with the performer (through a score or oral tradition) but rather

to use live audio signals of existing music as building blocks to create a new work. All of this is achieved by writing computer software (using SuperCollider 3 a programming language specialized in audio applications) specifically for the piece. Moreover, E-tudes takes a didactic attitude toward the process of appropriation by giving the listener access to the processed and unprocessed building blocks to show the different layers within the composition, not with the intention of being explicit, but to engage and establish a relationship with the listener. Finally, this composition combines the use of improvisation and generative music to have an unfixed output that changes for each performance of the work. This enables the piece to run in a loop during a long extended time frame without repeating itself. Every time the piece will be played not only will the audiences experiences differ, because of their own choices, but also the content of the piece itself will vary. E-tudes takes many elements used before in electronic music and live performance such as improvisation, appropriation, generative music, installation and traditional performance practice, and by combining them points to a development in performing with live electronics. By introducing a dynamic group of live performers and an appealing and interesting visual scenario, this event deals with the problematic of the lack of visual clues and theatrical elements that live electronics performance has faced since its beginning. Hopefully, it will also encourage other creators that deal with live electronics to think seriously about the visual, theatrical and ritualistic aspects of performance. This composition will also contribute to instigating awareness within the contemporary music community on how the presentation of a piece can be as crucial as the sound. It also proposes that the creator is able to innovate by searching for new ways that the audience relates to the work. The event will also contribute to the creative development of the artists because it will give them the opportunity to try out and experiment on the various interactive and performative aspects of the piece and later examine and evaluate how these processes may be improved.

5.0.3 Other important aspects about E-tudes

Performance/Installation

Audience will have creative control over how they want to experience the performance.

By choosing between listening to the speakers in the room or through headphones they will fabricate their own version of the piece.

Didactic attitude towards appropriation: listener will access processed and unprocessed building blocks, not with the intention of being explicit, but to engage and establish a relationship with the audience.

Relational aspect: it proposes the idea that one may innovate by searching for new ways that the

audience relates to the work.

Elements of improvisation and generative music. Every time the piece will be played not only will the audiences experience differ, because of their own choices, but also the content of the piece itself will vary.

5.1 E-tude 1

5.2 E-tude 2

5.3 E-tude 3

5.4 E-tude 4

Chapter 6

On Violence

Chapter 7

Zizek?

Chapter 8

FreuPinta

8.1 Simulation Series

8.2 Occupation Series

8.3 Transgression Series

Chapter 9

Conclusion