Reworking Musical Strategies in the Digital Age

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This submission comprises of a folio of creative work. It includes four DVDs, three CDs, and a written commentary.

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Preface

There are various reasons why I think writing about music can be a difficult if not overwhelming challenge. First, I acknowledge that music can be examined from many different angles and by many disciplines given that music carries within itself a complex content of meaning. Furthermore, I accept that music can be analyzed by the elaborate—social, cultural, political, economic and historical—conditions in which it is created and received. These conditions at the same time are revealed within music and therefore music can also be studied by looking at how its wider context may be traced through what happens within music itself. At the same time, music can be studied as a vital human act that is deep-rooted in our evolutionary past and which performs important functions that are closely related to human behavior and emotions. I am convinced that it is for this reason that music has drawn a lot of interest from the scientific community, which has led to extensive research about the impact of music on human experience: how it affects the human body and the brain. I also recognize that within the act of music-making lies in essence a collective experience in which intricate human relationships are formed. Music can therefore be studied for the types of relationships that are established between people involved in creating, performing and experiencing music. Furthermore, music is broadly considered as an autonomous discipline—music is studied independently as a subject that has developed its own music theory based on technical and aesthetic considerations (regarding how music is conceived, performed and received) from the musician's perspective. Therefore, music can be examined according to very different criteria: music can be studied for the (social, economic, evolutionary, etc.) functions it performs, for the type of relationships that are formed through music, as well as for the way in which it follows certain considerations and models that are exclusive to music. Moreover, I believe that during the last century it has become apparent that music can also be studied for its potential to inspire new forms of thought in other areas of human endeavor based on the reconfiguration and redefinition of its own considerations and models. I believe these criteria for examining music can be more effectively scrutinized through philosophical inquiry and critical reflection. In my view, writing about music can be a daunting task considering the diverse criteria by which it can be examined, the variety of disciplines that can be involved in studying music and

the complexity of meanings that are revealed through music.

For me, this commentary involves an even greater challenge, mainly, writing about my own music. I am aware from being immersed within my own creative process of its highly associative, multilayered and subjective nature. As a musician who is involved in music practice, I am also extremely aware that music can have multiple meanings—not only the definition of music is contingent on social, historical and philosophical conditions, but also music as it is perceived and experienced can convey a multiplicity of meanings and emotions—a self-evident fact that for me is impossible to ignore. For that reason, I am not attempting to adopt a reductionist approach (which would focus only on a limited area of musical enquiry through rigorous empirical investigation) to writing this commentary, to avoid the risk of ignoring the intuitive character of my own creative process and the complex nature and meaning of music. Instead, I decided to write in a style that is multidisciplinary and combines self-reflective and speculative arguments with specialized practical and technical information regarding how the submitted music was created and performed. I consider this approach to writing better suited to describing the type of critical reflection that goes on as part of my creative process, which at some points deals exclusively with problems concerned with practical and technical aspects of how music is created and performed, while also trying to understand the creative work and the musical result within a larger context. I would like to think that my practice-based work is informed and inspired by wider—cultural, political and philosophical—concerns. At the same time, I also recognize that, while attempting to write about these complex issues related to my creative process as well as to the interconnections between the multiple meanings of music, I am running the risk that my argumentation may lose accuracy, methodological rigor and empirical validity and that some of my claims at times may sound overambitious or as sweeping statements. Still I am convinced that this style of writing can tackle at best my aesthetic and musical concerns. Therefore, I am embracing the difficulty that lies in writing about my own music while simultaneously been aware of the impossibility of examining all aspects of my work. However, I also understand the importance of attempting to open up some of the concerns related to my creative work to others. I also believe that the process of writing itself might become self-reflective about my own creative process and might help me to better understand my own musical practice and aesthetic direction.

Each chapter of this commentary deals with a different overarching theme that pertains (in part or as a whole) to the submitted work. I decided to take this approach partly due to the nature of the work submitted, which does not necessarily follow the characteristics of the work expected from a composer—the final output of my work does not involve ordinary scores or music that necessarily correspond with the traditional notion of a 'finished' composition. In my view, much

of the submitted work is concerned with reworking certain musical strategies regarding the way in which we create, perform and experience music. I consider that this kind of work needs to embrace an experimental approach to music-making, which in my view should also include documenting failed and unfinished experiments. In my opinion, this type of experimental practice calls for a type of meta-commentary that explains the background and motivation of the submitted work as well as its underlying reasoning, preoccupations and concerns. Therefore, the first four chapters of this commentary serve as a meta-commentary to the submitted work, covering different subjects and engaging in a variety of discussions that deeply relate to my creative process. The first two chapters are introductory and deal with the background and motivation behind the musical output. Chapter 1 gives a theoretical background based on Jacques Rancière's work on the relationship between aesthetics and politics which in my view clarifies certain misunderstandings that are usually ascribed to the notions of so called 'modernism' and 'postmodernism' as it pertains to music. In Chapter 2, I explore the motivation behind the submitted work which embraces the notion that today it is possible to assume a positive and uncompromising attitude towards musical experimentation and innovation based on radically reworking the fundamental aspects of music-making. The following two chapters engage with two vast musical subjects that are closely connected to my work. Chapter 3 evaluates the potential of using recent technological developments to challenge conventional views on how music is created, performed and experienced. In Chapter 4, I consider appropriation as a strategy, first by examining artistic and musical practices that explicitly and deliberately appropriate existing work by others and then by contemplating which strategies have the potential to achieve something new through appropriation. The last two chapters, are more descriptive in nature and deal more exclusively with specific technical and practical considerations regarding the submitted work. Chapter 5 describes the computer programmes that were developed as part of the creative work and discusses their implementation. Chapter 6 aims at describing the submitted portfolio, going through the different musical results by briefly discussing them.

The conclusion of the research is the work itself. . . .

Acknowledgements

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Chapter 1

Background

In this chapter, I will attempt to give the philosophical and historical background necessary to understand the aesthetic preoccupations and ideas behind my work. I will endeavor to do so by closely examining the theoretical edifice of French philosopher Jacques 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 concepts that are too often misused (or misunderstood) in discussions about art. My central interest is in 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 art'. Having given the theoretical tools necessary examination, I will attempt to clarify some of the misunderstandings and misconceptions that are usually ascribed to modernism in music. In doing so, I will discuss certain elements about the work of early twentieth-century composers, whose innovations shook up the musical statusquo, 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 tonality and 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. As the concepts of emancipation and utopia became scrutinized as a result of the fall of the communist block, this link contributed to the 'decline' of the modernist aesthetic in music. Finally, I will discuss the musical stance (sometimes attributed to the term *postmodern*

music) which encouraged a break with everything that modernism stood for, but more recently, has become associated with something more than a criticism of musical modernism.

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.

1.1 Rancière and the Re-evaluation of the Notion of Modernity

Jacques Rancière's 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 aesthetic modernity—which according to him is specific to a single regime of the arts—is often confused with the departure from representation of images through figurative means. Rancière defines a single regime of the arts as "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 latter".[1] If one is to think about the confusion that is associated with 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 her/him by the community in 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.

1.1.1 The Distribution of the Sensible

Before starting the discussion on the notion of modernity and its political and aesthetic consequences, I will first 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'. The distribution of the sensible refers to an abstract notion that describes

[1] Rancière (2004), p. 20.

a system of division of spaces, times and forms of activity that defines aesthetics and is also at the heart of politics. But 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".[2] 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 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".[3] Consequently, 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. 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. The notion of the distribution of the sensible therefore implies a commonality between different ways of distributing existing forms.

> 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.[4]

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.

> These 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

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

> of aesthetic distribution such as theater, the page, or the chorus. There 'politics' obey 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 there lies 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.

1.1.2 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 in which societies are organized with respect to the arts.

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 uses images as 'true' imitations of the original which are distributed and valued by their purpose of educating the community in accordance to its social order. 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,

[5] Ibid., pp. 14–15.

> a fold that renders the arts visible. It is not an artistic process but a regime of visibility 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, one must first remember that music not only has different social functions and visibility but within its unique organization, it has particular 'ways of doing and making' that are specific to its 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's definition, 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 its 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 its 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 be considered within more than one regime simultaneously.

Music that falls within the *poetic regime* is that which is appreciated for its own *substance* but still follows or imitates a model.[7] Namely, music that is judged by its own 'musical' qualities, and that is made with the main purpose of being listened to and evaluated according to its 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' falls in this modality in that it is made, heard and valued for its 'musical' qualities and judged as good or bad, adequate or inadequate, satisfactory or not, dependent on how the performer or composer follows certain models—in the case of the performer, models of performance practice,

[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.

and in the case of the composer, compositional models such as chord 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 now 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*? At this moment, I will not draw any conclusions about this enquiry as one needs first to examine other aspects of Rancière's postulation in order to fully understand the consequences of this difference. However, in the following chapter I will come back to this question and look at the possible reasons and implications of this disparity.[8] Nevertheless, for the moment I will continue the discussion by examining the *aesthetic regime of art* to have a better understanding of Rancière's thesis.

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, its 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.[9]

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] See pp. 29–31.
[9] Ibid., p. 23.

At this point, I want 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 of as a regime that makes music independent from its 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.[10] In the history of music, it is easy to think of examples of music that breaks with the musical practices of its time and redefines itself. 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 has been challenged throughout history, it was not until the twentieth-century that the concept fully emerged of 'the musician' as someone who creates music as whatever he considers suitable and is not expected to follow traditional formulas of music-making. To this day, this concept of music and 'the musician' is not widely accepted in any contemporary society.[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 applied to what truly should be referred to as 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]

[10] 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*.

[11] See pp. 28–31, 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', 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]

1.2 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 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 led 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 music innovation and there-

[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.

fore these developments are mostly attributed 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 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 its 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*. Stravinsky's *Le Sacre du Printemps* (1913), 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 orchestral 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 renunciation of tonality. Stravinsky's use of folk-music, primitive rhythms, asymmetric structures and orchestral textures was music never heard before and stretched the definition of orchestral music as well as proposing new ways of organizing its subject matter, freeing music from specific 'ways of doing and making'. At the same time Stravinsky invents new rules and defies

[15]See Badiou (2001), p. 41–42, and Badiou (2009), p. 46, 79–85, for a further discussion on what he calls the Schönberg-event. See also pp. 22–24, for a further discussion about Badiou's philosophy of the *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.

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 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[18], timbre and gesture. In his essay entitled *A Self-Analysis*, Schönberg describes how his methods 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".[19] This attitude clearly separates him from the next generation of composers who embraced his twelve-tone system and whose main compositional objective focused on the organization of these twelve pitches.

1.2.1 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 simply to 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.

> 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,

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

[19] Schönberg (1984), p. 77.

> 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.[20]

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 were related to traditional styles and genres—especially 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 on 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.[21]

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.

> 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.[22]

[20] Ibid., p. 214.
[21] Boulez (1991), pp. 212–213.
[22] Ibid., p. 212.

It was through the development of serialism in the fifties and sixties—led 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 of the formal capabilities of music and sound. The confusion caused by the establishment of the *aesthetic regime* that identifies *modernity* only with the autonomy of art and which led to an anti-mimetic revolution became endemic in postwar European avant-garde music. Serialism thus would seek through its 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 its influence over the avant-garde and *modernist* composers across the world should not be overlooked. Even composers who did not adhere 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.[23]

1.2.2 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.[24] The aesthetic revolution was confused with its 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 its ideals of egalitarianism, solidarity and liberty. Leftist politics were 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 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 from the jargon of politics. Thus mildly progressive works of art, literature or even

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

[24] It is important to note here that this association was only made by a number of composers (such as Luigi Nono, Stephan Wolpe, Hans Werner Henze, Frederic Rzewski, Cornelius Cardew, Christian Wolff and Alvin Curran). Many dominant figures of modernism in music remained indifferent or critical towards this idea. In some cases, important 'modernist' composers were known to be apolitical (most notably Boulez) and in some cases even politically conservative.

[25] See Rancière (2004), pp. 60–66.

> 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 were made between modernism 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 were 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 to 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*: on the one hand his work uses many 'extra-musical' references to address political concerns; on the other hand his music fits within the modernist aesthetic that was on the most part anti-mimetic and avoided 'musical' references that could have been used to appeal to the proletariat and identify music with the class struggle and political revolution.

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

[26] Schönberg (1984), 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 Nono (1975), pp. 34–40.

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, Wolff, and groups such as the Italian-American MEV *(Musica Elettronica 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 just questions the effectiveness of these two approaches within the political and aesthetic spheres.[29] Despite the ineffectiveness of their strategies, the contribution of this group

[28] Born (1995), pp. 58–59.

[29] Isn't the way in which this group improvisation was implemented more characteristic of our liberal democratic model than a true form of egalitarianism? The idea that everyone in the group can improvise and play 'freely' giving the appearance of a permissive mode of performance is highly questionable. Even though it is implied that every improviser could play whatever they want, in practice there are many unwritten rules in this kind of group performance. For example, in many of these groups anti-mimetic principles dominate the improvisational setting and it is not allowed to play a recognizable tune or musical quotation. Therefore, within an apparent freedom these improvisers might actually have many prohibitions that are imposed by the unwritten rules of each group. Another problem of this position is that it presupposes that each player will have an equal voice in the group and that no structures of power will emerge. To assume that a collective form of organization will be egalitarian just by giving the appearance that everyone within the group has an equal voice is deceiving and the idea that these improvisations are 'free' is naive and misleading.

of composers to the association between a leftist political revolution and modernism in music should not be underestimated.

The Fall of Communism and the Critique of Utopian Thinking

Given the association between musical modernism and the Marxist revolution, the result of 'the fall of Communism' was that modernist aesthetics, too, was called into question. The aesthetic revolution in music and its ontological model came under scrutiny and close examination. The corruption and abuses that came 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 itself in other aesthetic practices. Richard Taruskin, one of the prominent critics of utopianism 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 its 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

[30] Taruskin (2009), p. xii.

[31] See Said (1992), pp. 1–34.

classical music, Said suggests, has gone so far as to displace the composer from the center of classical music. Despite the dominance and relative popularity of these 'superstar' performers, the influence of classical music in western culture has declined, even within the intellectual elite.[32] According to Taruskin, it is precisely the unyielding and militant attitude towards utopianism that has caused the classical establishment's loss of relevance to contemporary culture. The futile search for autonomy and authenticity in classical music has consequently resulted in a musical practice based for the most part on correctness and sterility and an attitude where performance is assessed for its historical value and not for its social functions. This attitude has had a negative impact on performance practice as it has sacrificed music's ethical functions for utopian aesthetic considerations. For this reason, most people cannot relate to these practices and classical music has lost relevance for them.

In twentieth-century composition, utopian thinking may be associated with the other main misunderstanding of musical modernism 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 on music's formal aspects and the capacities of its 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 its 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 for 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 on 'life support' and one cannot but avoid noticing their nostalgic attitude and unyielding acceptance of defeat—they remain as vigilant victims of a lost utopia, endlessly waiting for a comeback that will never take place. Taruskin points out that this attitude of continuing new music's 'quiet' presence in contemporary culture in the hope that one day it becomes more widely recognized

[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 Babbitt's famous article 'Who cares if you listen'. See Babbitt (2003).

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]

1.3 Postmodern Music

The musical stance that later would become associated with the term *postmodern music*,[36] 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 were 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".[37] 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 who started to reintroduce references to other existing music in his work. Most notably in the third movement of *Sinfonia* (1968-1969), 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 (Sixth and Ninth Symphonies), Berg (Violin Concerto and *Wozzeck*), Berlioz (*Symphonie fantastique*), Boulez (*Pli selon pli*), Brahms (Violin Concerto and Fourth Symphony), Debussy (*La Mer*), Globokar (*Voie*), Hin-

[35] See Taruskin (2009), p. xiv.

[36] Here, I am not going to attempt to determine whether this term is appropriate or not in relationship to this musical stance, as I believe it is out of the scope of this commentary. I will be using the term only inasmuch as it is widely used by scholars and music critics to refer to the attitude here described.

[37] Rancière (2004), p. 28.

demith (*Kammermusik Nr.4*), Mahler (Second, Fourth and Ninth Symphonies), Pousseur (*Couleurs croisées*), Ravel (*La Valse* and *Daphnis et Chlo*), Schönberg (*Fünf Orchesterstücke, Op.16*), Stockhausen (*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 these scores is treated carefully by Berio taking into 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 pay 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 who 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 challenged the integrity of each one; 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 attacked 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 *postmodern music* 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 genres, the hybridization between pop, world, jazz and classical music, the disregard

[38] See Osmond-Smith (1985), pp. 39–71, for a detailed analysis of the third movement of *Sinfonia*.
[39] Osmond-Smith (1985), p. 7.
[40] Rancière (2007), pp. 21–22.

for stylistic consistency and the joy of simulacra, the glorification of music primarily 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 only as entertainment. That is to say, the avant-garde attitude towards achieving something new within music itself was ignored, in favor of music that is created only to entertain and 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]

Postmodern music 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 so called *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, Lyotard also links the recognition of the impossibility of emancipation to a historical break, in a similar fashion to the modernist association of the autonomy of art to a particular his-

[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 (2004), p. 28.

[43] Lyotard (1992), p. 40.

torical period; it is precisely for this reason that his argument loses legitimacy as one can interpret the 'end of grand narratives' as a 'grand narrative' in itself.

The concepts and historical background that I have elaborated in this chapter are crucial in understanding the motivations behind the submitted work, which I attempt to discuss in the following chapter. Moreover, the notions examined previously not only informed the arguments elaborated in the remaining chapters of this commentary, but also inspired, influenced and intrigued me during the creative process which led to the music here presented. I hope that Rancière's theoretical work is as exciting and fascinating to the reader as it certainly is to me and I am holding to the conviction that in attempting to explain some of its postulations within a musical context, it will reveal some of the problems inherent in holding too close to the 'anti-mimetic' ideals of *modernism* and to simplistic notions of utopianism, and at the same time disclose that behind a considerable amount of recent music under the *postmodern* label, lies a cynical and even 'conservative' attitude which diminishes and undermines the significance of accomplishing something new or radical through music.

Chapter 2

Motivation

The present chapter formulates a theoretical framework in which concepts described in Chapter 1 are elaborated further in an attempt to establish a discourse that clarifies the motivations behind the submitted creative work. Taking into consideration the philosophical and historical background previously elaborated, I will therefore undertake the difficult task of proposing a new attitude towards music creation that at once takes into consideration the shortcomings ascribed to the notion of *modernism* and simultaneously acknowledges the importance of the original vision of the avant-garde. The musical stance I propose also recognizes the misguided intentions of the modernist anti-mimetic position and the consequences it brought to musical discourse—a criticism now credited to the first generation of artists that became associated with the label of *postmodernism*. At the same time, I acknowledge that so called *postmodern music* has recently started to signify an artistic approach which encourages false notions of plurality and open-mindedness and—by aimlessly questioning notions of progress and universality in music—promotes a deceiving impression that nothing new can be achieved through musical creativity. I will contend this position first, by introducing Rancière's idiosyncratic notion of the avant-garde and by pointing to the relationship that exists between music and other forms of subjectivity. I will therefore explain Rancière's concepts of the *strategic* and *aesthetic* types of avant-garde with the purpose of suggesting that the confusion between these two kinds of avant-gardes is what has led to the ideas behind the development of the notions of modernism and postmodernism in music. Moreover, I will attempt to apply Rancière's concepts regarding the types of avant-garde to music with the purpose of clarifying misunderstandings regarding the relationship between politics and music. Additionally, by looking at the ethical functions of music and the role they take in basic human endeavors, I will propose that there is an implicit ethical core in the definition of music. I will further argue that the shared purpose that music and language have—which is to convey emotion and meaning through sound—makes music a vital human act

that is deep-rooted in our evolutionary past. This points to the understanding that music conveys knowledge, thoughts and feelings that are not exclusive to music, but relate to other forms of human action and experience. Moreover, the ethical functions attributed to music also compromise the attempts at expanding the definition of *what music is* that is characteristic of the *aesthetic regime of art*. As a consequence of the relationship that exists between new types of music and new forms of human experience, innovation in music is often seen skeptically by most people if it ceases to perform its ethical functions. Nevertheless, I will propose that there is an ethical function *in itself* in music that lies within the *aesthetic regime*, that is: to inspire new sensible forms that relate to other aspects of human activity. I will therefore argue that an important role of the *musical avant-garde*[1] today is to reestablish an agreement of trust with a wider range of contemporary society by demonstrating through music that the purpose of new musical forms, concepts and definitions is to inspire new ideas, opinions, desires and emotions and not to undermine the ethical function music already performs.

Finally, I will argue that if an agreement of trust is to be regained between the *musical avant-garde* and a wider range of society, it is important to recognize the 'basic' *ethical* functions that music performs at the same time as acknowledging the significance of music that lies within the *aesthetic regime*. I will therefore propose that this can be achieved by reworking musical strategies from the past to create new *aesthetic* forms. That is to say, after critically examining and reevaluating musical strategies from past traditions, we should consider altering and modifying the fundamental aspects by which they function with the purpose of creating new musical forms and structures as well as challenging conventional notions and definitions of music.

2.1 Redefining the Musical Subject?

I will start explaining the basic motivations surrounding the submitted musical output by considering a position I believe to be prevalent today between people concerned with music. This dominant position is characterized by a skeptical and often cynical attitude towards new forms of thought in music. However, this attitude is dominant not without a reason: it has to do with the notion that today music is—as Alain Badiou has stated—'negatively defined'. Badiou expresses this view in his essay entitled 'Scholium: A Musical Variant of the Metaphysics of the Subject'.

> Today, the music-world is negatively defined. The classical subject and its romantic

[1] From now on I will use italics to refer to the *musical avant-garde* as group of individuals dealing with music that have a joint *strategic* and/or *aesthetic* purpose, in contrast with Rancière's idiosyncratic notion of the avant-garde which refers rather to two different ideas that constitute two kinds of 'avant gardes'. I will explain Rancière's notion of the avant-garde in more detail later in this chapter.

> 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'.[2]

Here, Badiou precisely delineates the situation in which music is created and received today, where the only two main options for the *musical avant-garde* seem to embrace either the joyful and permissive attitude towards mixing genres and styles now commonly ascribed to *postmodern music* or the desolate notion of modernism that, for over thirty years, has heroically stood in 'life support'. These options also seem unable at the present time to inspire profound change in the way in which we create, perform, perceive and think about music. In order for the music-world to be positively redefined, I believe it needs to discover a new musical subject—a set of musical notions, theories and subjectivities that will constitute a new 'system of believes' in music. Only by following a new musical subject will the *musical avant-garde* regain confidence in itself and produce *events*[3] that will constitute far-reaching change in the way we make and experience music. To become a true alternative from the two other options that currently dominate the music-world, I also believe that this new musical subject needs to reintroduce as its core principles notions of emancipation, logic, universality and risk.[4].

The skepticism regarding innovation in relationship to music creation today is related not only to the perceived notion of failure associated with the aesthetics of modernism in music, but to the argument put forward by the so called *postmodern* position, which questions the idea that it is possible

[2] Badiou (2009), p. 89.

[3] Here, I am referring to an *event* as conceptualized by Badiou's philosophy of the event. In very simple terms, an *event* as described by Badiou consists of a perfunctory force that happens as a combination of chance and a structural fragility in a situation that enables its temporary manifestation. It may take place for example as a political revolution, two people falling in love, or an artistic invention, which might trigger subsequent fidelity amongst people who understand the implications of such an *event*. According to Badiou, an *event* reveals the inconsistency of being within a situation and staying faithful and true to an *event* can motivate and generate actual change to the situation prior to the *event*. An *event* therefore provides the possibility of rethinking and redistributing the elements of a situation considering the new truth revealed by the *event*. See Hallward (2008).

[4] This argument stems from the philosophical position Badiou puts forward in his article 'Philosophy and Desire'. See Badiou (2006), pp. 30–35.

to achieve something new through music. However, the problem with the position associated with postmodernism is that it reduces music only to a mediation of already existing musical styles and forms and to a multiplicity of musical 'games' that aimlessly *mix* and *remix* past notions of music and musical thought.[5] This concept of music also ceases to respond to the original premise of the modernist vision of the avant-garde, which establishes a connection between new forms of music and new types of subjectivity. I think Rancière's analysis gives us strong theoretical tools to imagine an alternative which would involve reinvigorating the modernist idea of the avant-garde in music without falling back to the misunderstandings that led to the 'crisis of modernity'. Nevertheless, Rancière's notion of the *avant-garde* is considerably different from the conventional one, and in order to understand his definition and relate it to music it is important to separate it from its former association to a particular movement in music history. Even though the idea of the avant-garde in music emerged as it became associated to a group of 'modernist' composers, the concept remains useful to us now only as a way of understanding the importance of the *aesthetic regime* in the relationship between music and other types of subjectivity and forms of thought. Additionally, Rancière's idiosyncratic notion of the avant-garde is also at the center of his attempt to establish a link between aesthetics and politics.

2.2 Rethinking 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 is 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".[6] 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

[5] This position is also inspired by Badiou. See Ibid. pp. 35–42.

[6] Rancière (2004), p. 29.

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 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.[7]

The ideas that have led to the notions of modernism and postmodernism in the arts—as well as to the 'crisis of art' as ascribed by many—have therefore developed as a consequence of the confusion caused by a division which exists between the *strategic* and *aesthetic* conceptions of the avant-garde as manifested in art. This division of the avant-garde is also to be found within the political sphere and is in fact considered as two different forms of political philosophy, which not only clarifies the presence of aesthetics in politics, but also the inherent politicity within the artistic disciplines.[8]

Here, I would like to attempt to explain how these two kinds of 'avant-gardes' can be found in music with the purpose of conceptualizing not only the differences between the two, but also to point at how one might relate to the other. I think that the link between the two avant-gardes might also help to understand the importance collectivity and relationships may have on the *aesthetic* result in music. Moreover, the distinction between the two types of avant-garde can also be useful in clearing certain confusions that might arise when thinking about the relationship between music and politics.

Strategic and *Aesthetic* Types of Avant-garde in Music

The *strategic* type of avant-garde as manifested in music is an idea that serves as a driving force that leads particular individuals involved in music (composers, performers, critics and other people who make, think and/or listen to music) to consolidate themselves as a group (musical institution, movement, ensemble, etc.). It is important to remember that this idea holds a core set of values that have a common ideological position which sums up a type of subjectivity which triggers the conception of this group.[9] On the other hand, the *aesthetic* type of avant-garde as manifested in

[7] Ibid., p. 30.

[8] See Rancière (2009), *Aesthetics and Its Discontents*, pp. 19–44, for a further discussion about the relationship between the 'aesthetics of politics' and the 'politics of aesthetics'.

[9] Slovoj Žižek has repeatedly emphasized how ideology is not an abstract notion or theory one simply ascribes to, but a type of subjectivity that is reflected in the way we act, on how we behave and carry ourselves on a day-to-day

music is an idea that—through new ways of thinking and making music as expressed by the creation of new musical forms and structures—has the capacity to inspire and encourage new forms of thought about the life to come. Furthermore, it is crucial that the *strategic* type of avant-garde is not confused with the *aesthetic* type in as much as it will lead to further misunderstandings within the music-world.

It is important to notice that we can find these two kinds of ideas or 'types of avant-gardes' both in the musical and political spheres (as well as in the other artistic disciplines). Additionally, as they manifest themselves in music, the *aesthetic* and *strategic* types of avant-garde are intrinsically related; but only in as much as music is concerned. This relationship becomes evident in the causality that exists between musical groups, institutions and movements; and the creation and reception of music that lies within the *aesthetic regime*. In other words, the ideas that prompt the formation of a group relate to the idea of the aesthetic type of avant-garde only in as much as they may contribute in the consolidation of the conditions of exchange necessary for the creation of new forms of subjectivity for the future. The *strategic* avant-garde as manifested in music is therefore useful to the political sphere only as much as it contributes to the *aesthetic* avant-garde—specifically as it provides a platform for the creation of 'new sensible forms and structures'. Hence, the way in which the two types of avant-gardes dwell within music can not be directly compared to the way in which they reside in politics. Here lies another vital point we can induce from Rancière's enquiry: the *strategic* type of avant-garde manifests itself *differently* in music as it does in politics. In other words, the ideas that give rise to the establishment of groups in music and politics are different from each other and do not reflect a relationship between the two disciplines. From this, we can conclude for example that the activism of a musician or group of musicians as they become directly involved in politics does not reflect a relationship between music and politics, but only the involvement of a group of people—which happen to have the same occupation—in a political movement. The true relationship between music and politics is rather reflected in the *aesthetic* type of avant-garde. This argument makes evident why it is misleading to attempt to identify a movement with concerns that are specific to music with a particular political affiliation or party. The position put forward by some critics of modernism in music—which concludes that the emancipatory project which seeks the autonomy of music leads to totalitarianism—is therefore flawed.

Moreover, I will claim that it is very important to consider the intrinsic relationship between the two types of avant-gardes, exclusively as they manifest themselves within music. The basis of this way

basis. Therefore, a musical 'movement' doesn't necessarily have to be one in which there is a 'conscious' or openly declared agenda that follows a particular position of objectified consensus. See Žižek (2006), *The Žižek Reader*, 'The Spectacle of Ideology', pp. 53–86, for Žižek's own examination of the concept of *ideology*.

of thinking stems from the assertion that the *strategic* type of avant-garde has a considerable effect on the *aesthetic* type precisely because the subjective force that brings a group together influences the aesthetic forms it produces. Furthermore, the *strategic* type of avant-garde is responsible for the creation of specific forms of collectivity which might serve as a platform for the creation of new *aesthetic* forms in music. Put briefly, the relationship between the two types of avant-garde stems from the fact that the *strategic* type of avant-garde motivates the creation of the groups necessary for the development of the *aesthetic* type of avant-garde. This argument evidently assumes that the impact musical movements, institutions, ensembles and other organized groups of musicians and people dealing with music have on the actual musical results is significant. This assumption however is often underrated by people involved in creating (particularly composers in my experience) and experiencing music who avoid or forget how these forms of collectivity condition and influence the aesthetic result. Contrary to this position, I will go as far as to suggest that in music the type of subjectivity that is synthesized in these groups is reflected or 'embodied' in the musical result. In other words, the ideology of the people involved in the creation, presentation and dissemination of music is expressed in the musical modes of action, production, perception and thought. Furthermore, the notion that the composer is the only person whose ideology is reflected in the music and that the *musical work*[10] is the only carrier of meaning—an idea that up to this moment is still widespread in western culture—is also misleading. Thus, to avoid misunderstandings I will introduce the notion of a *musical result* (as opposed to the more limited concept of *musical work*) as that which describes the complex set of percepts given by all aspects of a musical experience. These include for example: all sorts of aural and visual elements in music performance; the space and time in which music is performed; the way in which music is presented to the audience (including their role and participation in the musical experience); different modes of action in performance (performance practice) and composition (act of composing); the relationships established between composer, performer and audience; the context (cultural, sociological, political) in which music is presented; the way music is created, consumed and distributed; etc. A particular kind of *musical result* consequently discloses a type of collective subjectivity which encompasses the ideology of the people involved in the music.[11] Additionally, within the *musical result* lies a system of elaborate symbols that synthesizes the relationships between the people involved in the collective act of music-making.

[10] See Goehr (2007) for a thorough discussion on the philosophy of musical works.

[11] I am not implying however that the ideology of *all* the people is represented *equally* in the *musical result*. The question of how much an individual is represented widely depends on the role they take within the *musical result* and the audience's interpretation of it.

Musicking

According to Christopher Small, the set of complex relationships that are formed between people involved in music is that which gives meaning to music. His interest lies particularly on the collective action surrounding music and defines this activity as *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.[12]

By giving priority to the verb *to music*, as opposed to the noun *music*, he also questions the notion of the *musical work* and gives emphasis to the human action of *musicking*. Small argues that music is not an object and that *musical works* only give material for the musicians to perform, in contrast to the notion (developed as a consequence of western concert music) of performance only as a presentation of a *musical work*. He also defines the verb *to music* to include any type of action that contributes to a musical performance, which includes performing, listening, practicing, composing and dancing. He goes as far as to include actions such as selling and collecting tickets and cleaning the concert hall after a performance within his notion of *musicking*. Therefore, *musicking* encompasses all social relationships and actions that are related to music-making. Furthermore, he argues that *musicking*, together with speaking, are characteristics that are at the very core of what makes us human.

> I am certain, first, that to take part in a music act is of central importance to our very humanness, as important as taking part in the act of speech, which it so resembles (but from which it also differs in important ways), and second, that everyone, every normally endowed human being, is born with the gift of music no less than with the gift of speech.[13]

Recent scientific studies in a variety of specialities including neuroscience, psychology, archaeology, anthropology and cognitive musicology have also pointed towards the same hypothesis. The idea put forward by Steven Pinker that music is 'auditory cheesecake'—that it is only a byproduct of evolution and has no biological value for humans[14]—has been challenged recently within the scientific community. These studies have shown how music plays an important role, amongst other

[12] Small (1998), p. 13.
[13] Ibid., p. 8.
[14] See Pinker (1998), pp. 528–538.

things, in human communication, social bonding, cooperation, sexual selection, conveying emotions, phycological well-being, development of coordination and motor skills, expression of empathy, communication between infants and parents and exercising intelligence.[15] In addition, various theories have emerged regarding the relationship between music and language; some of them even suggesting that 'proto-language'[16] (the predecessor of language) was a pre-linguistic, non-verbal form of communication that was a 'musical' form of action and thought.[17] It appears that language and music have a similar evolutionary starting-point and the common purpose of communicating emotion and meaning through sound. From this research we can infer that Small is correct in suggesting that *musicking*, like speaking, is at the core of being human and performs important social, cultural and biological functions.

2.3 The Definition of Music and the *Ethical Regime*

The important functions music performs in the development of individuals and the way in which they establish and nurture relationships within a community is what defines music as a vital human act. Perhaps this is the reason why in the musical domain—going back to Rancière's notion of 'the regimes of art'[18]—music is still defined as such within the *ethical regime*. In other words, if we go back to the question of why within music there is no change of identification with the break between the *ethical* and *poetic* regimes; I will suggest that it is because there is a strong ethical core implicit in the very meaning of *what music is*. That is to say, as opposed to the definition of the other arts, the definition of music has been tied to the ethical functions that it performs for individuals and their communities. It is worth mentioning that only dance, like music, can also be defined as such within the *ethical regime*, which points towards the deep-rooted relationship between both disciplines. On the contrary, other artistic disciplines including 'fine' art, poetry and theater are identified as such only with the break between the *ethical* and *poetic* regimes.

The ability that human beings have to communicate and perceive emotion and meaning through music is also tied to music's identification and to the ethical functions it performs. It is by no coincidence that already in Ancient Greece Aristotle observed that music has an immense power to change people's state of character and that different types of music affect audiences in different ways. According to Aristotle, music represents various types of emotions and actions that closely resemble

[15] See Mithen (2006) for an overview of these studies.

[16] Mithen prefers the term 'Hmmmmm' over 'proto-language' as it better describes the system of communication of Early Humans, which he claims was—holistic, multi-modal, manipulative, musical and mimetic. See Ibid., p. 172.

[17] Ibid., pp. 147–150.

[18] See pp. 4–8.

those that the listener undergoes in reality as a result of the performance.[19] It is as a consequence of this link between music and human experience, emotion and action that communities have attempted to regulate and evaluate music according to the ethical functions it performs. One could consequently argue that music that lies within the *ethical regime* is evaluated for its ability to affect people in a way that is considered appropriate by the community, given a particular situation. This argument also points towards one of the reasons why labeling music as different 'styles' or 'genres' seems to be a dominant practice within communities: by knowing what kind of music to expect from a specific 'style', it is possible to anticipate the type of experience the audience will go through. This is also one of the reasons why innovation in music has been discouraged and even censured by communities for centuries. The modification of musical styles within the perspective of the *ethical regime* implies an unexpected change in our experience and a potential threat to the community's consensus of what is considered to be the appropriate way in which people are to be affected by music. Furthermore, innovation in music has been perceived as a political threat in the past since new forms of music produce new experiences that might stimulate behavior outside the political order.

Plato, in his *Republic* already warns about the danger that innovation in music might pose to the order of the State:

> Put briefly, then, those charged with care of the city must hold fast to this, so that the city may not be corrupted unawares; but beyond all else, they must guard against innovation in gymnastic and music contrary to the established order, and to the best of their ability be on guard lest when someone says that people care more "for the newest song on the singer's lips", the poet may be understood to mean not new songs but a new style of singing, and to comment it. One must not praise such a thing, nor so interpret the poet, but guard against changing to a new form of music, as endangering the whole. For styles of music are nowhere disturbed without disturbing the most important laws and customs of political order—as Damos says and I believe.[20]

The Platonic view regarding innovation in music is that it is threatening to the social agreements and political organization of the State. Even though the idea that innovation in music might endanger the political and social contracts of the community today might seem hard to imagine, it still gives us a clue towards an attitude that up to this day is still widespread, that is: that innovation in music regarding its own rules, hierarchies, subject matter and genres is still received with reservation, suspicion and even fear amongst the community (if compared to the visual arts for example). In my

[19] See Aristotle (1995), pp. 309–310.

[20] Plato (2006), p. 117.

opinion, this is due in the most part for to two main reasons. First, considering the implication that music performs certain ethical functions, innovation can be seen with skepticism as it could lead to confusion, uncertainty and even irritation, if music ceases to perform the functions expected by the community successfully or does so less efficiently. Secondly, given the immersive and participatory (either by listening or performing) aspects implied by the definition of music that establishes a link between music and human action and experience, innovation in music can be associated with new and unpredictable experiences and behavior. Therefore, it is not surprising that some people would be distrustful in allowing themselves experience something they are not familiar with or are uncertain about.[21]

2.4 An Ethical Function within the *Aesthetic Regime*?

Going back to Rancière's notion of the regimes of art, if we consider the ethical core implicit in the definition of music simultaneously with music that falls within the *aesthetic regime*, we might run into a deadlock: if music is to be evaluated *only* by the functions it already performs within the community (and innovation in music is seen as a disruption of these functions), music that lies within the *aesthetic regime* appears as having no apparent noble purpose. To resolve this problem we need to point towards the relationship that exists between music and other forms of human endeavor. If music is evaluated and appreciated for its capacity to inspire new ideas, opinions, beliefs and desires, then one can argue that there is an ethical position implicit in music that falls within the *aesthetic regime*. In other words, there is an ethical function *in itself* in breaking with previous models of music making and in questioning the very notion of *what music is*. This function is precisely that of imagining and experiencing through music, new forms of action, production, perception and thought.

The ethical function within the *aesthetic regime* in music is also related to Theodor W. Adorno's notion of 'autonomous' music having a *secondary social function*.[22] Adorno, in his *Introduction to the Sociology of Music* claims that autonomy in music—music that is independent from a primary or immediate social function[23]—has another type of social function.

> In a society that has been functionalized virtually through and through, totally ruled by

[21] On a related note: according to recent research in cognitive science, most people stop acquiring new musical tastes by the time they are around twenty years old. This might be as a result that as people grow older, they seem less open to new experiences. See Levitin (2006), pp. 231–233.

[22] See Paddison (1996) for a good introduction to Adorno's writings on music.

[23] Music that has a 'primary social function' would be close to music that lies within the *ethical regime*, using Rancière's terminology.

> the exchange principle, lack of function comes to be a secondary function. In the function of functionlessness, truth and ideology entwine. What results from it is the autonomy of the work of art itself: in the context of social effects, the man-made in-itself of a work that will not sell out to that context promises something that would exist without defacement by the universal profit.[24]

Put briefly, functionless music has a social function in itself. According to Adorno, the social function of autonomous music (and *art* in general) lies in its own fetish character, which sets music 'against its bourgeois functionalization, which is perpetuated in art's undialectical social condemnation.'[25] In other words, autonomous music may serve as subjective social criticism by opposing functionalization. Even though there is a clear relationship between Adorno's position and the one I am attempting to put forward in that both ascribe a secondary function to 'autonomous' music, there are also key differences between the two positions, the first being what the secondary function is in itself. Adorno argues that a secondary function of functionless music is that it provides social criticism by opposing bourgeois functionalization. On the other hand, the position I put forward is that the secondary function of autonomous music follows Schiller's model of *aesthetics* as a projection of the future (which in itself is an *ethical* function). In other words, my argument is that the secondary function of autonomous music is not that of social criticism but of delivering new sensible modes of experience. The second distinction between the two positions is how this secondary function is achieved. Adorno argues that it is achieved through the fetish character of functionless music that subjectively denounces functionalization brought by modernist society. Nevertheless, I will argue that as a consequence of the development of modernism in music it was realized that the resistance of autonomous music towards functionalization might also become a futile gesture as a denouncing strategy if the avant-garde isolates itself extensively from the wider society, instead of rendering itself visible as an opposing force to bourgeois and consumer culture. Therefore, autonomous music through its own fetishism might just become another suppressed and unheard voice in a society dominated by entertainment culture. Through the institutionalization of musical modernism and the self-exile of autonomous music within academic and other exclusive circles, functionless music—instead of opposing consumer culture—reassures it by strengthening capitalist values of individualism and diversity and becoming just another specialized product in a liberal and diversified market. What I will suggests is that the secondary function of autonomous music is not achieved through its own fetish character, but through the wider understanding of different modes of music appreciation. That

[24] Adorno (1976), p. 41.
[25] Adorno (1997), p. 227.

is to say, autonomous music achieves its secondary function, not by standing in direct opposition to consumer society by isolating itself from it, but instead by giving visibility to a specific form of sensibility and musical appreciation that encourages the interpretation of new forms of music in relationship to new forms of thought, experience, production and action which can be associated to other types of human endeavor.

Nevertheless, the establishment of the *aesthetic regime* in music—which redefines the 'musician' as a practitioner of whatever falls into the category of 'music'—and the understanding of its secondary ethical function, have still not been spread out through a wider range of contemporary society. The reason, I believe, is that the agreement of trust between the wider public and the *musical avant-garde* has been weakened as a consequence of practices which can be associated with the notion of modernism (mainly, those seeking music's 'purity' in composition through anti-mimetic principles and those advocating 'authenticity' and 'sterility' in performance). These practices have also generated an attitude commonly held by many musicians today, which avoids addressing the most basic ethical functions that the community associates with music while pursuing only their individual (and sometimes fetishist) musical priorities. If the *aesthetic regime* in music is to be acknowledged and appreciated widely, an agreement of trust needs to reestablished between the *musical avant-garde* and the wider public. Considering the ethical core implicit in music's definition, it is likely that the community will be unwilling to be open to new musical experiences if they fear that the ethical functions music already performs within the community will be disrupted or negatively altered. The *musical avant-garde* needs to demonstrate that the purpose of creating new music is not to betray its ethical functions, but to inspire and experience new forms of subjectivity—*and this in itself has an underlying ethical function.* Additionally, if this accommodation with a wider range of contemporary society is to be reached, it needs to be embedded within the *musical result* and cannot only be expressed theoretically through verbal and written forms of public dissemination.

2.5 Reworking Musical Strategies

In my view, if the agreement of trust between the *musical avant-garde* and the community is to be regained, it is important for musicians to consider the ethical core implicit in the definition of music in parallel with a strong desire towards innovation and change in the fundamental aspects of music-making. In other words, while acknowledging the audience and their perception of what the ethical functions of music are (by providing an experience that they would associate with their own understanding of music-making), we should also attempt to challenge the very notions implied

by traditional definitions of music. Consequently, if we ascribe to this position, we should strive to examine and rethink the most basic notions of how music is created, experienced and evaluated in combination with an awareness of what is expected from music. Moreover, I think that it is particularly important to contemplate how the strategies dealing with fundamental aspects of music-making (both in western and non-western musical traditions) can be reconsidered to produce new *aesthetic* forms. In other words, while considering the *ethical* functions performed by music, I propose it is vital for the *musical avant-garde* to engage in rethinking and modifying past traditions of music-making that sometimes come to be viewed as immovable, standardized, authoritarian and unchangeable. Furthermore, in addition to the more conventional model of the avant-garde where musical innovation is seen as a continuation or development of past traditions—in which one attempts to stretch the boundaries within a given musical practice—I suggest we should also consider an alternative 'bottom to top' model, where after a significant reexamination of past traditions one seeks innovation by altering fundamental aspects of a given musical practice (including the most elementary ways in which music is created, performed and experienced) in order to produce a new *musical result*. However, this approach requires a fair amount of *unlearning the already learned*, in order to *relearn it*. That is, having thoroughly studied and practiced past musical traditions and considered their underlying *ethical* function, we should step back and up to a certain point forget the acquired musical knowledge and practices in order to reevaluate them. At this point, we should evaluate how can we accomplish something new by reusing, modifying and relearning the strategies of past traditions. Put briefly, we should contemplate the possibility of reworking musical strategies of the past to produce new *aesthetic* forms.

In my view, this approach should actively seek to creatively rework different modes of performance, composition, presentation and dissemination of music and rethink the relationships between composer, performer and audience. I believe that this approach should also attempt to provide alternative musical experiences at the same time as providing certain *ethical* functions that audience expects from music. In attempting to do so, it is vital to consider the type of audience as well as the context, time and space where music is to be presented as this too has a direct influence in the *musical result* and its visibility, and plays a significant part in the disclosure of a particular type of experience. Furthermore, I accept that it is fundamental to take into consideration how people relate *with* and *through* music and that music is a collective experience in which elaborate human relationships are formed. I also acknowledge the significance that musical groups (ensembles, institutions, industry, movements, etc.) have over the *musical result*, and the considerable potential that exists in devising musical strategies that deal explicitly with reshaping the way that these forms of

collectivity function. These strategies, in my view should consider how we can achieve new forms of music-making by rethinking, altering and modifying how musical groups operate traditionally. I believe this also involves a thorough evaluation of the role musical groups might have in the *musical result*. Once we have evaluated the way these groups function, we should determine whether and how they can contribute in the creation of new *aesthetic* forms. At this point we should contemplate the possibility of reworking how these groups operate if we believe that by doing so we might achieve a new *aesthetic* forms. I am convinced that changing the dynamics and relationships within musical groups can have a profound effect on the *musical result* in interesting and innovative ways if the underlying purpose is to challenge past notions of music-making while acknowledging the *ethical* functions of music.

The arguments elaborated in this chapter have been the motivating force that resulted in the submitted work. The ideas and notions previously examined influenced the direction of my creative process and informed my aesthetic decisions and choices. The following two chapters also stem from the preoccupations discussed in this chapter and attempt to develop the notion of reworking, modifying and relearning previous musical practices as a creative tool. These chapters also describe certain approaches towards thinking about and creating music that I consider embrace the 'bottom to top' model described earlier. They also give several examples of how we can rethink and alter certain fundamental aspects of how we make and experience music. In Chapter 3, I contemplate the possibility of reworking musical strategies through digital technologies to challenge traditional notions of how we create, perform and experience music. I will also give some ideas of how through technology we might challenge the relationships between composer, performer and audience as well as how musical groups conventionally operate. In Chapter 4, I examine the possibility of using appropriation as a strategy to rethink and modify past traditions of music-making. I particularly focus on strategies that explicitly appropriate existing music and, in my opinion, accomplish something new within music by reworking past notions of music-making. In my view, the way in which I have approached the rest of the subjects I examine in the next chapters in one way or another relates to the rationale elaborated in this chapter. I also hope that the reader, by understanding the concerns of this chapter, can better grasp the motivation and justification of the submitted work.

Chapter 3

Technology and Strategy

In this chapter, I will critically examine recent technological developments that I consider had considerable impact on the musical strategies implemented during the creation of the submitted work. Technological advancements will be discussed not for their scientific value nor for their implementation in the creation of already existing models of music-making; my interest rather lies in how preconceived notions of *what music is* may be redefined through strategies that use technology to challenge fundamental aspects of how we create and experience music. I will particularly focus on how technology may have an impact on musical strategies that are concerned with the relationships established in music-making. I will therefore examine musical strategies that use technology to alter relationships established traditionally through well-known conventions in performance-practice and composition. In addition, I will analyze how recent technology brings new opportunities to imagine new ways in which music may be performed and presented. Considering the particularities of the electronic medium, the causality between human action and sounding result found in traditional music for acoustic instruments may not be apparent to the audience in live electronic music. Therefore, new opportunities exist in live electronic performance to form new types of perceptual relationships between an agent's action and a sounding result as well as between the human performer and the technological object. Moreover, technology might serve as tool to encourage new ways of thinking about the relationship between musicians and audience. Musical strategies mediated through technology might be utilized to consider new conditions of exchange and new types of audience participation. However, I will argue that these strategies by themselves do not guarantee an active involvement from the listener and for this reason, I will advocate for an approach to these strategies that promotes audience engagement through critical thinking and reflection. Furthermore, I will explore how musical strategies that employ technology can foster new approaches to composition and how real-time computation and interactive systems pose challenges to the conventional

distinctions between performance/composition and composition/improvisation. Finally, considering the emergence of new compositional practices through the use of computers, I will suggest that the role of the composer in live electronic performance is changing and his/her practice is becoming more varied to include activities as diverse as composition, performance, improvisation, musical direction, instrument building, postproduction and computer programming.

3.1 Technological vs. Musical Innovation

Before discussing my views on how technology might have an important function in rethinking musical strategies, I would like to examine some problems that might arise regarding the use of recent technology in music. As a musician, one of my concerns regarding the relationship between technology and music is that on many occasions scientific innovation and technological curiosity are given priority over musical creativity and aesthetics. Luciano Berio has eloquently expressed the same position:

> If in the past—even the distant past—music was often the testing bench and the stimulus for scientific research, and thus music tended to draw scientific knowledge to it, in more recent years you get the impression that it's now science that draws music to it and takes possession of it. Indeed, you often get the impression that a scientific creativity applicable to music has substituted itself for musical creativity, and that musical thought has regressed to the level of the (invariably squalid) opinions that an electronic engineer from Bell Telephone or a Stanford "software man" may have about music.[1]

The attitude of giving more importance to technological (as opposed to musical) innovation while creating music has also increased with the complexity and development of the tools themselves. Scientists and technologists often create music with the sole purpose of demonstrating new developments in music technology. Additionally, musicians who are interested in using technology to a higher level of sophistication very often need to immerse themselves in intricate technological subjects. These circumstances can be misleading for the musician if his priorities shift from a position in which technology is researched and developed for its creative potential in music, to a position in which technological innovation becomes the driving force behind musical creativity. The shift of attention might even happen without the musician's awareness as a consequence of the effort one needs to go through in understanding the complexity of the technological tools and research deve-

[1] Berio (1985), p. 121.

loped in this field. This can be deceiving and even 'dangerous' if music becomes just a showcase of new technological advancements.

The experience gained by musicians during the second half of the twentieth-century who worked closely with technology can also be very valuable to us today as a warning of the possible problems that working with technology might lead to. Looking back at Berio's account of his experience on this issue, one can grasp how the notion that new technological developments lead to important musical progress is erroneous; he describes how the advancements which permitted the creation of new sounds with electronic means did not by themselves produce any meaningful musical results.

> Thus many of the more sensitive musicians quickly realized that it was as easy as it was superfluous to produce new sounds that were not the product of musical thought, just as it's easy nowadays to develop and 'improve" the technologies of electronic music when these are devoid of any real and profound *raison d'être*.[2]

He goes on to describe how music that was motivated by technological developments instead of musical thought resulted in a display that did not address the complex set of relationships and conventions that take place in music.

> It was recognized, for example, that the spectacle of a public gathered together to listen to loudspeakers was not a particularly cheerful one, and that, yet again, the experience of public musical listening was made up of many different conventions, and was rooted in many different aspects of social and cultural life: it was not made up merely of a piece, a musical object to listen to, even if it proposed "new sounds". By its very nature, a piece of music by itself cannot easily transform listening conventions and socio-musical relations in general.[3]

The lesson to learn from Berio's statement is clear: musical and technological innovation are inherently different from each other and if one's interest lies in creating music, one needs to guide technological interests and development with priorities that will be relevant to the desired *musical result*. That is not to say, of course, that scientific research or technological development regarding music is not valuable. On the contrary, my position is that technology can have a vital role in musical innovation if it is developed with a critical approach and considering the complex social, cultural and philosophical aspects inherent in music's definition. Moreover, if technology is developed imagina-

[2]Ibid., p. 122.
[3]Ibid., pp. 122–123.

tively with the purpose of creating new musical strategies for the future, it might help reshaping the way in which we make and experience music.

3.2 Reshaping Relationships in Music Through Technology

Although technology may play a key role in rethinking many aspects that form part of a *musical result*, here I will focus specifically on new strategies concerning the relationships between composer, performer and audience. I am not going to go into detail into subjects that are not related to this specific area of interest as this would be out of the scope of this commentary. Nevertheless, I belive that there is huge potential and work to be done in these areas, which include concerns such as: how technology may radically change the way in which musical institutions operate; the visual elements related to the performative aspects of music; how music is recorded, distributed, advertised and consumed. However, what I will concentrate on here is how technology brings a unique opportunity to envision new compositional and performative strategies based on reshaping relationships that have been established traditionally through compositional and performance-practice conventions. I will therefore start by examining the possibilities technology could bring in revising the way in which musical knowledge is transfered by imagining a new type of score that would combine oral and visual traditions within a multimedia experience.

3.2.1 The Score in the Digital Age

By now, much has been written about the limitations and advantages of the traditional score as a form of communication between composer and performer in western music.[4] Through research in ethnomusicology and other music practices that incorporate improvisation, an increasing attention has been given to other forms of knowledge transfer in performance-practice that do not utilize a written score. These might include oral traditions that incorporate practices such as transferring music from one generation to another through a master-apprentice relationship or the now common convention of studying recordings as a method of learning a particular song, style, genre or performance-practice. It has also been argued that the score is a medium that is highly individual and 'isolates' the performer not only from the audience but also when playing within a group of musicians.[5] On the other hand, the idea of using notation has been defended as well for its capacity of capturing complex musical ideas and thoroughly worked structures, establishing a particular

[4] See, for instance Goehr (2007), Emmerson (2000), Small (1998), Wishart (1996) and Hamilton (2008).
[5] See Emmerson (2000), p. 121.

relationship between composer and performer, providing points of reference for the performer and making certain types of ensemble playing possible (for example, facilitating certain types of synchronicity and group playing within an ensemble).[6] My position regarding this matter is that the score is still a valuable tool for communicating with musicians trained within western tradition and it is worth expanding the notion of the score to include new strategies that can be developed through technology that might enhance or facilitate communication between composer and performer. In this respect, I completely agree with Simon Emmerson, who argues that there is still a need to develop new forms of notation through technology that are flexible enough to encapsulate different strategies of transferring musical knowledge.

> But we have one new invention which may hinder and help our endeavor: the computer. Its power was rapidly applied to western music . . . Composition, analysis, transcription, sound production, processing, storage and distribution are all now in one way or another within its domain. . . . An unaddressed need remains: the development of more flexible notation systems; these may also be stimulated by the development of a new generation of music interfaces. . . . We should dream of a technology which bypasses some of theses constraints: a combination of ear and eye—a new 'superscore'.[7]

Emmerson's idea of a 'superscore' combines oral and visual forms of communication within a multimedia object combining traditional notation, extended notation, recordings of example material from the live performer, electroacoustic materials, software for performance, patches for live electronic treatment, examples of live electronic treatment, an example recorded performance, written and spoken commentary, video performance material, video example material and graphical material.[8]

Taking Emmerson's idea further, one could easily imagine the 'superscore' as a package that combines performance materials with documentation—including video tutorials, audio examples (sampled mock-up performances or real performances), recordings, interviews, etc.—residing on the internet. Additionally, with the increasing accessibility of laptops, one could easily imagine replacing a score that is printed on paper with one that is displayed on a computer monitor. This would bring the

[6] See, for example, Ferneyhough (1995) for an in depth discussion not only about the difficulties implicit in the practice of notation (the impossibility of depicting sound as visual representation), but its potential as a vehicle to express ideological concerns and to achieve auto-instrospection, as well as the role it might have as a common denominator in different fields of musical interests. According to Ferneyhough, the score contributes to the *act of composing* as an exercise in self-analysis through the process of notation, and to the *act of performance* by establishing the (social and contextual) conditions of its realization.

[7] Emmerson (2000), pp. 121–122.

[8] Ibid., pp. 128–129.

opportunity of exploring the potential to communicate musical meaning through a computer display, which would add movement to the expressive palette of a conventional score. By using animated graphics, scores, pictures, as well as other types of visual cues and timed written directions, the composer could enhance the way in which he communicates musical ideas and knowledge through the computer display. In addition, the performer could receive other types of audio information through headphones complementing the visual input with an 'aural score'. This could comprise from spoken directions and sounding cues (click tracks, reference pitches, etc.) to recordings of acoustic or electroacoustic music that the performer would have to react to or improvise with. Moreover, with the development of real-time processing technologies and generative algorithms, the notion of a *fixed* score could also be contested by a score that is *dynamic*, thereby creating a composition that may change its content (pitches, rhythms, etc.) each time it is performed. Real-time scoring could be explored further by combining elements of real-time animation and graphics display with new advancements in machine listening and interactive technologies, thereby generating a score that not only responds to the sonic and acoustic context of a specific performance, but also reacts to the audience's immediate participation and response. The possibility of creating a network including several computers could also provide instant communication between performers and the option for the composer or conductor to send directions that would be specific to a particular performance. With the increasing popularity of wireless networks and new types of interfaces and gadgets, portable devices like the iPad or iPhone could be used to implement the 'superscore', making it easier to carry and even place on a music stand.

In addition to enhancing communication with musicians trained within the western tradition, the 'superscore' could also foster new collaborative possibilities between performers of different cultures.[9] By sending information that is specifically devised and customized for a particular type of performer, the 'superscore' could provide the opportunity for musicians from different backgrounds and traditions to share the stage simultaneously in a computer-mediated performance. A group of performers from mixed backgrounds could therefore play together within a predetermined structure by receiving different types of visual and aural stimuli.[10] The collaborative opportunities this could bring are

[9]It could also open up collaborations with artists from other disciplines (actors, film makers, dancers, choreographers and visual artists, etc.). However, these possibilities will not be examined in detail as this subject is outside of the main focus of this commentary. Nevertheless, I consider that there is significant potential to develop this subject for research that focuses on music and cross-arts collaboration.

[10]Here, I want to emphasize the importance of incorporating an aural element to the score, particularly for some non-western musicians that rely on oral traditions and are not used to performing with any type of notation. Nevertheless, at the same time one should not overlook that some musicians from non-western traditions actively seek alternative

considerable as technology could facilitate and even solve problems that until now have made it difficult (if not impossible) for musicians from different backgrounds to play together.

Crossing Cultural Borders?

Given the opportunities technology brings for a diverse group of musicians to share the stage despite previous incompatible performance conventions, important questions arise concerning the types of relationships established during collaboration. These relationships might become particularly sensitive if one is collaborating with musicians from different cultures. In his article *Crossing Cultural Boundaries through Technology*, Simon Emmerson already expresses some concerns as a composer when dealing with cross-cultural collaborations and 'ensembles with ethnic instruments'. He argues that the western composer often appropriates music from different cultures through 'strongly filtered sources' and cultural misunderstandings, frequently resulting in 'cultural murder'.

> There are plenty of examples of composers killing stone dead the spontaneity and vitality which they themselves admire in non-western music through insensitive appropriation of surface technique (usually, once again, through an inadequate notation system and inadequate formalized 'rules'). Too simple an understanding of acculturation may hinder the very process we aim to foster.[11]

Emmerson suggests the western composers should undergo a process that surpasses the initial first impression of the other culture's music—which is solely based on our previous expectations and experience—to develop a process where 'new measures of significance' are created. According to Emmerson, this stage is crucial: if the western composer declares intentions to define the meaning of the musical result (based on misconceptions and misunderstandings of the other culture), he might reinforce "the purely western basis for the evaluation of such projects thus defeating much of their object".[12] He therefore promotes a positive attitude towards 'successful acculturation' through education, practical experience, mutual understanding and respect.[13]

Even though Emmerson's position appears to be sincere and well-intentioned, a danger exists if it lends itself to an attitude analogous to the notion of *multiculturalism*, which Slavoj Žižek has rightfully criticized. According to Žižek, *multiculturalism* is a tendency that has spread in western nations

strategies that not only depend on oral traditions. In my experience, this constructive attitude is also sometimes contingent on the personal relationships involved in the 'intercultural' exchange.

[11] Ibid., pp. 126–127.

[12] Ibid., p. 126.

[13] Ibid., pp. 115–134.

through globalization that treats local (other) cultures with 'respect' and displays an interest in studying, understanding and preserving their traditions. Nevertheless, this arrangement is established through a hegemonic relationship—imposed by western nations and from a western perspective—by maintaing a condescending distance between the dominant and repressed cultures.

> Multiculturalism involves patronizing Eurocentrist distance and/or respect for local cultures without roots in one's own particular culture. In other words, multiculturalism is a disavowed, inverted, self-referential form of racism, a 'racism with a distance'—it 'respects' the Other's identity, conceiving of the Other as a self-enclosed 'authentic' community towards which he, the multiculturalist, maintains a distance rendered possible by his privileged universal position. Multiculturalism is a racism which empties its own position of all positive content (the multiculturalist is not a direct racist, he doesn't oppose to the Other the *particular* values of his own culture), but nonetheless retains this position as the privileged *empty point of universality* from which one is able to appreciate (and depreciate) properly other particular cultures—the multiculturalist respect for the Other's specificity is the very form of asserting one's own superiority.[14]

Emmerson's approach towards intercultural projects might become misleading if it is assumed that through a process of education and experience with music/musicians from 'other' cultures, these projects will lose their western basis and become productive or successful cultural exchanges. Moreover, this process of study and practical exchange might in itself become the basis of establishing a relationship of power and an attitude that reflects—as Žižek would say—the way 'the colonizer treats colonized people'.[15] I will therefore suggest that a more 'honest' form of exchange is to approach intercultural projects with skepticism and self-awareness; without distancing oneself from the musicians from 'other cultures' by treating them with special respect or with a fake notion of open-mindedness.[16] I would propose dealing with these musicians as one would deal with other musicians within our own culture (we are not usually particularly concerned with treating people within our own culture with special 'respect' or distance), by collaborating with them (without assuming a pa-

[14] Žižek (2006), *The Universal Exception*, 'Multiculturalism, or, the cultural logic of multinational capitalism', pp. 170–172.

[15] Ibid., p. 170.

[16] Here it is also important to mention that many 'intercultural' collaborations happen with non-western musicians who are nevertheless often second or third generation immigrants and therefore are already enculturated within western social relationships. It is also important to notice that some musicians who grew up or still live in non-western countries might also be extremely familiar and at ease and with western social relationships due to globalization and the prominence of western influence in some of these countries.

tronizing distance) towards one's desired musical result. One should also assume that there will be a struggle involved in the process of intercultural collaboration as there are always different types of violence and relationships of power that emerge during cultural exchanges.

The way in which we deal with music and musicians from different cultures underlines a wider problem, that is, how should we as creative musicians approach the act of appropriation. Nevertheless, before engaging in such discussion,[17] I would first like to consider how technology—and more specifically real-time computer processing—may offer new applications that challenge the conventional notion of a musical performance and the relationships established traditionally in music-making.

3.3 Live Electronic Music Performance

The introduction of the computer to live performance offers the possibility to establish new relationships regarding the way in which we perceive a musical performance. The causality inherent in traditional music produced with mechanical means,[18] which follows 'well-understood Newtonian mechanics of action and reaction, motion, energy, friction and damping,'[19] does not need to apply to live electronic music performance. In electronic music, the causal relationships found in our acoustic surroundings are usually not clearly revealed, given that sound may be produced with little evidence of mechanical production (with the exception of the vibrating cone of the loudspeaker). Nevertheless, considering that most of our sonic experience lies within our acoustic environment, we usually seek to form causal relationships, even within the electronic medium. Therefore, many efforts have been made to reestablish these causal relationships by suggesting that the human performer is clearly the agent producing the sound by 'playing' a technological object as one would an acoustic instrument. This has been attempted through the continuing development of interfaces that attempt to reestablish an instrumental approach to electronic music (for example synthesizers, Midi samplers, electric guitars, etc.). Nevertheless, electronic music performance also offers new opportunities to form other types of relationships as perceived by the listener. This specific feature of the electronic medium may challenge conventional notions of what a musical performance is as it may form new types of relationships that go beyond the traditional instrumental approach. Therefore, when dealing with electronic music performance, the composer may decide what types of relationships s/he wants to establish—for instance, how different sonic and visual aspects of a performance may relate with each other or how the human body and movement may be associated to sound.

[17] See Chapter 4, for a discussion about appropriation in music.

[18] This includes traditional means of producing vocal, instrumental and mechanical music.

[19] Emmerson (2009), p. xiv.

Simon Emmerson, in his book *Living electronic music*, describes different approaches the musician may take towards electronic music performance based on how the audience may perceive the actions of the human performer in relationship to the sounding result. First, he describes what he calls the 'Local/Field Distinction', in an attempt to conceptualize differently relationships that seem to have a perceived causality between a human performer's action and the sounding result, and those that don't.

> *Local* controls and functions seek to extend (but not to break) the perceived relation of human performer action to sounding result. *Field* functions create a context, a landscape or an environment within which *local* activity may be found. It is important to emphasize that the *field* as defined above *can contain other agencies*, in other words, it is not merely a 'reverberant field' in the crude sense but an area in which the entire panoply of both pre-composed and real-time electro-acoustic music may be found. . . . This definition aims to separate out the truly live element as clearly the 'local agency' in order to re-form more coherently the relationship with this open stage area, which may surround the audience and extend outside.[20]

This distinction is useful to the musician as it encourages reflection on how the presentation of electronic music performance—particularly aural/visual relationships concerning causality and human presence—might influence the listener's perception of the overall *musical result*. Additionally, given the particularities of the medium, the electronic musician is encouraged to rethink important aspects about performance (for instance, how it might look, what functions the musicians might perform onstage, what types of human/machine interaction might be established, etc.). This distinction can also be helpful if it is considered creatively as a parameter within a composition: the distinction between *local* and *field* could be emphasized or blurred according to the desired musical moment, the extremes could be alternated or even morphed between each other, an extreme might be embraced as the other is sublimated, etc. In addition, Emmerson also makes a difference between *real* and *imaginary* relationships that may be *local* or *field*. According to Emmerson, *real* relationships are also 'real-time' and have direct relation with the *real* cause as perceived by the audience (a sonic result that can be followed by the listener). This may include processing the 'live' sound, abstracting a gesture through an interface or sensor, or through other types of analysis (audio or video). *Imaginary* relationships, on the other hand, are 'prepared in advance (soundfiles, control sequences, etc.) in such a way as to *imply* a causal link of sound to performer action in the *imagination* of the

[20] Emmerson (2009), p. 92.

listener'.[21] Emmerson also emphasizes that the difference between *real* and *imaginary* relationships might be different for the listener from how they are for the composer (or as they are in reality). Even though I find Emmerson's terminology slightly confusing,[22] I think it points towards an issue that I think is important to anyone dealing with electronic music performance, that is, what should concern us is what *appears* to be real or not to the listener, and not whether technological processes are taking place 'in reality' (real-time) or have been prepared before hand. Consequently, the question of whether to use 'real-time' processing or not should stem from aesthetic concerns in relationship to the listener's perception of the performance and not from 'technical authenticity', or to cling to a set of technological concepts.

The opportunities that electronic music gives, in forming new relationships between the performer's action and the sounding result, gives the composer the option of thinking creatively about how a performance might be presented. The cognitive dissonance that might arise between aural and visual elements of the performance could be used as a performative element, creating meaning out of the apparent sensorial disjunction. This approach could even be exaggerated, for instance, by suggesting causal relationships that may be only observed and have no corresponding sounding result, or by creating a visually static performance while having a sounding result that would suggest frenetic activity. This slightly more idiosyncratic approaches towards the presentation of electronic music may also encourage people to reflect on the subject of how the performer relates to a technological object, which at the same time may prompt two important questions: what types of relationships we form with technological objects and how we as human beings relate with each other through technology.

3.3.1 Interactivity or Interpassivity?

The conventional viewpoint regarding the relationship between human beings and technological objects is that we relate with them through interaction. However, we should also consider the notion of *interpassivity* to describe a different type of relationship that might be formed between humans and technology. *Interpassivity* is a concept first coined by philosopher and cultural theorist Robert

[21] Ibid, p. 93.

[22] His distinction seems to make a link between *real* relationships with 'real-time' processing and *imaginary* relationships with 'fixed' or prepared material. I think this is misleading, as 'real-time' processes usually contain large amount of prepared or 'fixed' elements (for instance, computer programs, patches, data bases, etc., that have been prepared in advance) that also create what Emmerson calls *imaginary* relationships and an *illusion* of causality. That is to say, his terminology might lead to misunderstandings as it equates types of relationships the listener makes to whether an electroacoustic part is influenced by a performer or is autonomous.

Pfaller[23] to describe the opposite of *interactivity*.

> Obviously, the concept of interpassivity is opposed to that of interactivity. Interactivity in the arts means that observers must not only indulge in observation ("passivity"), but also have to contribute creative "activity" for the completion of the artwork. The interactive artwork is a work that is not yet finished, but "waits" for some creative work that has to be added to it by the observer. What could be the inverse structure of that? The artwork, then, would already be more than finished. Not only no activity, but also no passivity would have to be added to it. Observers would be relieved from creating as well as from observing. The artwork would be an artwork that observes itself.[24]

An example of *interpassive music* would then be a concert music performance in which the performers create, listen, observe, reflect on and enjoy the performance in place of the audience. The performers therefore have fun and take pleasure from the concert instead of the spectators, who delegate their pleasure to the performance itself. According to Pfaller, *interpassivity* consists of a relationship in which 'passivity' is delegated—someone or something enjoys or consumes *instead of me* and at the same time *for me*.

> Interpassivity is delegated "passivity"—in the sense of delegated pleasure, or delegated consumption. Interpassive people are those who want to delegate their pleasures or their consumptions. And interpassive media are all the agents—machines, people, animals etc.—to whom interpassive people can delegate their pleasures.[25]

Consequently, if we are to think of how *interpassive* relationships might be formed between humans and technological objects, we need to think of a technological object that serves as an agent which people can delegate their enjoyment or consumption to. A behavior that exemplifies this type of relationship with a technological object is one common amongst people who take pleasure in downloading mp3s to make their collection more interesting and complete, without taking the time to actually listen to the music. They delegate the act of listening to the computer (the technological object) through the act of downloading the computer files. The mp3 collector therefore acts as if the computer listened for them—it is not necessary to listen to the music as the computer already did that for us through the act of downloading and storing the files. By substituting the act of listening by the figurative or symbolic act of downloading, a link is formed between the human and

[23] See Pfaller (2003).
[24] Ibid. p. 2.
[25] Ibid. p. 3.

the technological object through representation.

Furthermore, Slavoj Žižek has pointed out that *interpassive* relationships may be formed through the opposition between active and passive roles—where passivity is delegated to one party through the others' (hyper)activity.

> 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 other's 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.[26]

Žižek argues that for the subject to be relentlessly active—and thus to delegate passivity—the Other needs to make excessive demands from the subject to produce this incessant behavior. That is to say, this type of *interpassivity* presupposes that the Other consistently makes demands on us, consequently arousing in us relentless activity. At this point, it is interesting to think what the impact of this type of relationship might be regarding the way in which we relate to technological objects. While the ordinary stance regarding the way in which we relate to technological objects is that we use them—with the purpose of producing or creating something (either *with* or *for me*)—what this notion suggests is that some technological objects might in actuality demand something from us. It would also be relevant to think for example how this idea might impact the concept of the 'user' (a term commonly employed by developers of computer technologies) as it might have to be expanded not only to refer to a person that *uses* technology, but also to include a person that is *used* by technology. Furthermore, Žižek agrees with Pfaller in that *interpassivity* implies delegating passivity—while we are obsessively active (by the Other's demands), we also rely on the Other to be passive for us. The act of being obsessively active (and thus displacing passivity to the Other) therefore creates an 'empty' ritual, in which we go through a set of gestures and feelings precisely so

[26] Žižek (2006), *The Žižek Reader*, 'The Fantasy in Cyberspace', p. 105.

that we do not have to experience them in reality (thus avoiding exposure to the *true* feelings and emotions). Moreover, Žižek claims that through our activity we attempt to symbolically subvert the Other's desire, to put off our recognition that enjoyment cannot be achieved in full. According to Žižek, it is precisely for this reason that the notion of *interpassivity* is vital in understanding the artistic possibilities of digital technology.[27]

The notions of *interpassive* and *interactive* relationships as reflecting an opposition between active and passive roles may also be applied to the way in which a performer might relate to a technological object in a live electronic musical performance. The performer therefore might form *interactive* relationships with a technological object if s/he seems to remain passive while technology appears to be active: for instance, when a performer plays a note or presses a button that sets an active chain of sound, or the 'typical' laptop performer's role of sitting behind the computer appearing to be passive while triggering musical events that suggest activity. The performer might also form *interpassive* relationships with technology, when a technological object appears to remain passive while making the performer appear frantically active. This concept hasn't been explored thoroughly by composers using technology but can be found for example in cases where the performer receives directions from a technological object (through a computer display or through headphones) directing the performer towards frenetic activity—the point of the activity being to give the illusion that one is controlling the technological object, when in reality one is just following its demands. I think a potential exists to further develop musical applications that establish *interpassive* relationships between performer and technological objects through computer-mediated performances or more experimental methods, such as involuntary bodily movement[28] or by radically altering the sound of a performer playing an electronic instrument (which produces no considerable audible sound that is not generated electronically) such that the initial physical effort of the performer is reduced or stripped to silence by computer processing (giving the impression of human activity being subverted through technology).

Additionally, the musician might also establish *interactive* as well as *interpassive* relationships with the audience through technology.[29] *Interpassive* relationships might be formed if the audience

[27] See Ibid., pp. 104–110.

[28] See Stelarc (2004).

[29] However, this is not the same as forming relationships between the audience and a technological object. These types of *interactive* and *interpassive* relationships are nevertheless possible. For example, the audience could form *interactive* relationships with a technological object if, for example, the audience would give a few instructions to a computer that would generate and perform a composition for them. *Interpassive* relationships, on the other hand could be formed, for instance, if an audio/visual recording device with a complex set of instructions (of how and when to operate it to get the best results) is given to the members of the audience during the time of the performance (having to return the device and recording at the end of the performance), keeping them busy but not having to pay attention

remains passive through technology, while the performer displays activity. This would be the case for example if one would follow a model whereby the performer displays intense activity by playing an electronic instrument without amplification and at the same time monitoring him/herself through headphones, while the audience remains passively seated (without hearing what the musician is playing) and therefore delegating the pleasure of listening to the musician. On the other hand, *interactive* relationships may be formed if the audience becomes active through technology, while the performer seems to remain passive. This is the case for example of the laptop performer or DJ—who play music that encourages the audience to become active by dancing frenetically—while staying behind their computer offering no clue that they are in actuality producing the sound. However, it could be argued that the activity displayed by the audience through bodily motion at the same time might shift the audience's attention away from certain musical content, resulting in a type of passivity. In other words, by becoming active through movement, the audience might stop focusing on certain aspects of the music as their attention shifts towards physical activity, resulting in a reversal of Žižek's first definition of *interactivity*. A reversal could also be applied regarding the engagement of the audience within the concert hall model: while the audience seemingly takes the role of passive spectator and the musicians displays activity through their virtuosity, in actuality, the audience might be the one engaging with the music, rendering emotional and intellectual activity through the performance, while the performers 'stop listening' as they concentrate on bodily movement.

3.3.2 New Relationships with the Audience

The particularities of live electronic performance also encourage new ways of thinking about the relationships that may be established between musicians and audience during a performance. Due to the increasing development of technologies that have an impact on the performer/audience relationship, today we have at our disposal a considerable amount of tools that enable us to reconsider and rethink this exchange. The traditional forms by which the audience experiences music may therefore be expanded by establishing new conditions for exchange mediated by technological tools. Thus, with the creative use of new technologies we are able to change the traditional way in which the audience participates in a musical performance. What's more, through technology composers can devise a piece of music partially based on these conditions of exchange, which could evolve and change during the performance.[30]

to the performance itself as they rely on the recording device to do the listening and observation for them.

[30]For instance, the composer could devise a performance that changes how the audience participates during the duration of an event: at the beginning of the event the audience could interact directly with the performance by

Seeking to form new types of relationships between musicians and audience through technology could also lead to developing new interactive possibilities in a musical performance. The audience could take an active role making decisions as far as how they want to experience the performance. These decisions could go as far as what type of content a composition may have and how it might unravel. Interactive elements usually associated with installation work could be incorporated within a musical performance: the audience could explore the performing space triggering and modifying musical events by interacting in different ways with each other, the space and performers. In other words, the performance could become immersive and the audience could directly influence its outcome. Another musical strategy that could be developed through technology is something close to what Nicolas Bourriaud has called *Relational Art*, which refers to "a set of artistic practices which take as their theoretical and practical point of departure the whole of human relations and their social context, rather than an independent and private space."[31] In other words, a musical performance could be contemplated for its potential as a collective space in which members of the audience could engage with each other in a variety of ways. Technology could mediate this platform of exchange by facilitating tools with which individuals within the audience could communicate with each other and establish new kinds of transactions.

However, these strategies alone do not guarantee a type of activity from the audience that suggests reflection and encourages critical thinking and creativity. As I suggested earlier, the illusion of activity and passivity might be deceiving—the appearance of this opposition might in reality be its reversal. What is conventionally associated with passivity, could in actuality suggest a different type of activity and *vice versa*. Jacques Rancière addresses these issues in his book *The Emancipated Spectator*, where he challenges preconceived notions that associate listening and observation to passivity and identifies the audience as inactive. Rancière proposes a vision for a spectator who, while seated and listening, is active—fabricating his/her own interpretation and understanding of the performance, associating it with his/her own ideas about the world and the future. This kind of spectator is emancipated in as much as s/he is not manipulated by the performance, but maintains a critical distance and

actively giving directions to the musicians through a computer system on how the music should sound. After some time, the performers would gradually stop receiving directions and start taking their own as the audience would gradually assume a more conventional position as listeners/observers. Finally, at the end of the event, the performers could delegate their complete responsibility to the members of the audience, who would now have to produce all of the sounds by 'playing together' through the computer system (this could be achieve for instance, by generating sounds through the analysis of their gesture and movement), forcing them to interact and work with each other to create a performance for the musicians who now would become the spectators.

[31] Bourriaud (2002), p. 113.

independence from what s/he experiences as an observer.

> Emancipation begins when we challenge the opposition between viewing and acting; when we understand that the self-evident facts that structure the relations between saying, seeing and doing themselves belong to the structure of domination and subjection. It begins when we understand that viewing is also an action that confirms or transforms this distribution of positions. The spectator also acts, like the pupil or scholar. She observes, selects, compares, interprets. She links what she sees to a host of other things that she has seen on other stages, in other kinds of places. She composes her own poem with the elements of the poem before her. She participates in the performance by refashioning it in her own way—by drawing back, for example, from the vital energy that it is supposed to transmit in order to make it a pure image and associate this image with a story which she has read or dreamt, experienced or invented. They are thus both distant spectators and active interpreters of the spectacle offered to them.[32]

Rancière's positive image of an emancipated spectator[33] therefore resists the notion of a spectator that is passive, submissive and dominated by the stimuli that is thrown at him/her. Furthermore, Rancière questions strategies that attempt to break with the hegemony established by what Debord describes as 'the society of the spectacle'[34] through practices that for instance invert the position between audience and performers (or blurs the line between the two), change the space of the performance (presenting it outside traditional spaces) and blur the line between everyday occasions and the performance.[35] Even though these practices might be interesting for aesthetic purposes, their realization often fails to deal with the idea of a performance whose principal aim is to assemble spectators and end the hegemonic relationships of the 'spectacle'. That is to say, these strategies as carried out by many artists only 'redistribute positions and spaces' and do not by themselves encourage the audience to actively listen, observe or think critically during a musical performance.[36]

[32] Rancière (2009), *The Emancipated Spectator*, p. 13.

[33] The notion of an emancipated spectator also relates to Roland Barthes' concept of *musica practica*, which describes an idea of a type of music in which the spectator acquirers skills to 'put oneself in the position or, better, in the activity of an operator, who knows how to displace, assemble, fit together'. Barthes argues that to compose *musica practica* is 'to give to do'—one does not *receive* this type of music but *operates it*, encouraging an active and creative role of the spectator. See Barthes (1977), pp. 149–154.

[34] Where the 'spectacle' (social relationships mediated by images, entretainment, mass media, etc.) serves as a tool for power and domination of the masses. See Debord (1994).

[35] See Rancière (2009), *The Emancipated Spectator*, p. 15.

[36] That is not to say however, that these strategies could not be carried out effectively to contribute to the type of engagement that would break with the hegemony of the 'spectacle'.

3.3.3 New Ensemble Dynamics

In addition to serving as a tool to establish new relationships between musicians and audience, technology may be used to create new forms of exchange between performers within an ensemble. In other words, technology might provide new ways by which musicians may collaborate with each other as they perform within a group. With the aid of interactive systems, new modes of computer-mediated performance can be developed to foster new types of group communication, cooperation and causality. The way in which performers relate with each other through technology could go beyond the performance-practice conventions and common understandings established in ensembles for acoustic instruments. New ways of thinking about the notion of 'playing together'—as well as the types of interaction musicians might have within an ensemble—could emerge as a consequence of interfacing an ensemble through computer systems. Musicians within an ensemble may be able to influence each other's sounding result through computer systems that utilize and analyze audio signals and data coming from each performer and combine them so that new types of causality between performers can be established. Furthermore, the data gathered from the musician's actions would not be limited to audio signals, but could also include information coming from Midi instruments or controllers, sensors and other human interface devices (HIDs), as well as visual data. The information collected from performers could be combined, for instance, by altering the pitch of the signal of one instrument through the amplitude of the signal of another, or by changing the timbre of one instrument through another instrument's timbral characteristics, or by deriving Midi information from the activity of one instrument to be used as control structures to apply different types of digital effects on the other instruments, etc. Consequently, by gathering, mapping and combining data from each musician's actions—in a way such that what they do, not only influences their own sound, but rather has an effect on certain parameters in the sounding result of the other musicians—new types of synergy between performers could emerge, as well as new understandings of what it means to 'play together'. These new forms of cooperation, communication and action undoubtedly would be reflected in the *musical result* and certainly represent a considerable potential for musical innovation in performance, improvisation and composition.

3.4 Technology and New Practices in Composition

Recent developments in computer technologies have already had direct implications in the practices of music composition. Today composers use computers for a wide variety of purposes, from score editing and Midi sequencing (to create 'mock-ups' of instrumental compositions) to algorithmic com-

position and electroacoustic ('fixed' or real-time) compositions. Moreover, computers now provide an amount of processing power for musical computation never imagined before by composers. Modern computation provides the composer with the possibility of executing calculations that for a human would be extremely tedious or impossible in a matter of milliseconds. Composers can take advantage of capabilities provided by digital technology to save time otherwise devoted to calculations that computers perform more efficiently than humans (e.g. iteration), and focus on tasks that humans excel at and that are impossible for computers to perform (e.g. analytical/aesthetic decisions within a cultural framework).[37] If a critical evaluation of technology becomes part of the composer's criteria—taking into consideration the possibilities and limitations of the tools implemented—the repercussions these new innovations may bring to music composition will be significant. The use of computers to compose music not only is changing the way composers write music, but also raises new questions regarding the notion of what it means to compose music.

One of the consequences of the increasing processing speed developed for computers in the last two decades has been the ability to execute complex algorithms within the immediacy of a musical performance. The speed at which these calculations are processed brings a whole new set of possibilities in the practices of musical composition. Robert Rowe has enthusiastically described the possibilities real-time computation brings to music composition and human-machine interaction in music-making:

> Composers have used algorithms in the creation of music for centuries. The speed with which such algorithms can now be executed by digital computers, however, eases their use during the performance itself. Once they are part of a performance, they can change their behavior as a function of the musical context going on around them. For me, this versatility represents the essence of interaction and an intriguing expansion of the craft of composition. An equally important motivation for me, however, is the fact that interactive systems require the participation of humans making music to work.[38]

Not only can the computer make calculations in real-time that formerly would have been made by the composer prior to the performance, but the results of these calculations can change each time the composition is performed. The immediacy of real-time computation therefore brings new possibilities for the composer, who can—instead of imagining a 'fixed' composition (at least regarding the set of musical events described by a traditional score)—formulate an algorithmic system which generates

[37] That is not to say, however, that a possibility exists that at some point in the future computers will be able to make these decisions as competently as humans.

[38] Rowe (2001), p. 4.

different possible musical outcomes.[39] In addition, the possible outcomes may vary according to the sonic environment and musical situation of each specific performance. An important point in Rowe's statement is also that interactive systems reestablish human performers at the center of computer music. The role of the human performer is not limited to triggering and manipulating computer generated/processed sound but can be extended to interacting with computer systems with a traditional acoustic instrument or voice. Not only may human action influence the computer's response in a wide variety of ways—by using different types of audio and visual analysis as well as physical gesture tracking[40]—but the human performer him/herself may be influenced by the computer's reaction. In addition, another human agent in computer music can be the composer him/herself taking part in the performance, leaving some compositional decisions to be made during the performance itself. Xenakis' vision of a composer as a sort of pilot who presses buttons, directs the morphology of sound and general form of a composition by making global decisions and leaving certain details to the computer,[41] is possible today within the immediacy of a live performance. The composer's role therefore may broaden to include decision-making during the performance itself. As a result, the action of deciding which elements of the composition are 'pre-composed' and which ones are taken during the performance may become central to the compositional process. Real-time computation consequently opens up the possibility for the composer to explore and formalize the relationship between premeditated and spontaneous decisions and the dialog between improvisation and composition in live electronic performance. Live electronic music that uses real-time computation and interactive systems, I will propose, can be characterized as *generative*, *temporal* and *relational*—notions that are at the same time at the core of improvisation. For this reason, there are many common interests and concerns between the two fields and today they also often overlap. This explains why musicians dealing with improvisation have become attracted to using real-time computation, as well as composers using these technologies have increasingly started to collaborate with improvisers, incorporate improvisatory elements in their work and to improvise themselves. Furthermore, the inclusion of composers using computers within the performance, as well as the type of decisions they make regarding details in sound production,[42] also questions the separation between performer and composer that emerged during the twentieth-century. In other words, as a consequence of the possiblility

[39]This type of real-time composition is sometimes referred to as *generative music*. See Eno(1996) for a brief introduction to ideas behind *generative music*.

[40]Physical gesture tracking has gained attention in the computer music community recently and the development of sophisticated interfaces and sensors has considerably increased in the past few years.

[41]See Xenakis (1992), p. 144.

[42]For instance, details regarding timing, articulation, timberal changes, etc., formerly made mostly by performers.

of making 'compositional' decisions within the immediacy provided by real-time computation and because of the nature of these decisions, the clear division between composition and performance has been blurred in live electronic performance.

I believe that a model of a composer who is involved in performance, improvises, directs musicians, builds instruments, records, produces and is actively engaged in all aspects of music-making[43] will reemerge partly as a consequence of the inclusion of computers in live performance. The notion of the composer as a musician who specializes only in writing scores will be replaced in favor of a concept of a creative musician who, through technology, engages in a diverse set of practices. I am convinced that amongst these practices, writing computer programmes will become a crucial activity for the composer. Computer code not only is becoming a new way of documenting music, but also has a similar function to the musical score in terms of its influence over the creative process: the act of writing computer code may serve as a process of self-reflection and critical examination regarding the musical output. Additionally, coding may become a collaborative practice through the internet: by using version control systems (VCS),[44] musicians may be able to share compositional ideas with each other, as well as strategies on how to implement them technically. The act of composition might become a collective practice in itself if composers collaborate as a group on the creation of a single piece of music through the internet. Instant feedback from the performers could influence the result of the composition as well, by giving valuable information regarding the practicality of the performative aspects of the music at an early stage in the creative process.[45] Sharing information would be facilitated at all stages of the creative process through the use of the internet as a collaborative platform. I am confident that new composition practices will soon emerge reflecting the agile forms of communication and collaboration fostered by the development of digital technologies and the internet. Increasingly, the notion of a single composer making all decisions regarding the creation of one piece of music, in my view, will be replaced by other models of collaboration in which a team of

[43] This vision of the composer is closer to that of the baroque and classical periods in contrast to the twentieth-century model of the composer as a specialist who only writes scores.

[44] Version control systems are used in software development to manage changes that are made to computer code, documents and other computer files. Revisions are made to files at different points in their development and can be altered by many people. The changes to the files are tracked and the system provides control over the changes by locking, backtracking, merging, duplicating, branching and cloning different versions. Revision control software such as Subversion (2000) and Git (2005) encourage social coding and are open-source (free). See http://en.wikipedia.org/wiki/Revision_control for more information on VCS.

[45] This information could include specialized information regarding instrumentation and performance practice, for example, whether the desired sounds sit comfortably in the instrument or whether they are impossible to perform.

musicians with different specialities[46] will work towards the same *musical result*.

In this chapter, we have discussed an approach to using technology in music that is driven by musical concerns and creativity instead of scientific research and technological curiosity. I have explored different approaches towards reworking musical strategies through digital technologies to challenge preconceived notions of how we create, perform and experience music. I also argued that through technology we can redefine the notion of what a musical performance is, as well as the relationships established traditionally through music-making. I have also explained how real-time computation and interactive systems may challenge the conventional distinctions between performer and composer as well as between composition and improvisation. The ideas elaborated in this chapter influenced my own approach towards technology. Technology performs a vital role in my musical practice and in how I relate to my surrounding culture and therefore I think it is important to critically reflect on how technology can be used in meaningful ways to accomplish something new within music. I hope that this concern is apparent in the way in which I approach technology to compose, perform, improvise and present music and that at the same time it is reflected in the submitted work.

[46] Possibly, this team could also include experts in other areas as well, including for example computer science, engineering, architecture, acoustics, mathematics, anthropology, etc., that could give valuable feedback into the compositional process.

Chapter 4

Appropriation as Strategy

This chapter examines musical practices that take an explicit and formalized approach to the use of appropriation as a conceptual, performative and compositional strategy. However, I will look at musical appropriation first for its wider context and meaning. I will therefore examine how musical appropriation can refer not only to the explicit process by which musical material produced by others becomes ones own, but also how appropriation does not have to be an objective or conscious process. I will also argue that musical appropriation does not need to refer exclusively to musical sounds and abstractions notated in a score, but can also include the appropriation of physical objects like instruments or bodies, as well as methods of composition and performance. In addition, I will also argue that within the process of musical appropriation lies a musician's relationship to the past and the appropriated Other, which at the same time discloses a deep connection to the musician's ideology and the way s/he relates to tradition. Consequently, I will attempt to point at the potential implicit in using appropriation explicitly as a creative strategy. For that reason, I will first look at certain appropriation strategies within the fine arts that not only have accomplished something within their discipline, but have already influenced musical thought and can inspire new musical strategies. In doing so, I will look at specific artistic strategies like Duchamp's use of *readymades* and Debord's notion of *détournement*, as well as how during the eighties and nineties artists approached appropriation in their own practice. Later, I will come back to music and look at musicians who explicitly appropriate from others, focusing however on specific musical strategies developed during the last half of the twentieth-century that have had considerable influence on my own work. After examining and scrutinizing strategies of appropriation used by musicians of what recently *postmodern music* has become,[1] I will consider other options that in my view approach the process of appropriation in more significant and innovative ways and which have the potential of

[1] See pp. 17–20.

achieving something new within music. I will therefore examine Clarence Barlow's notion of *musica derivata* and John Oswald's *plunderphonics* as musical strategies of appropriation that I believe have the potential of inspiring new forms of music-making. Finally, I will attempt to elaborate both of these concepts taking into account certain considerations specific to today's cultural configurations and aesthetic concerns as well as recent technological advancements which have had a considerable impact in the way in which we create and experience music. The ideas, concepts and propositions this chapter elaborates actively influenced and informed the creative process that resulted in the submitted work.

4.1 Appropriation, Ideology and the Past

Appropriation is certainly nothing new to music. Musicians have used, borrowed and stolen from the work of others for centuries, either explicitly or without deliberation. The very notion of what it means to make music is implicitly related to the act of appropriating existing sounds, structures, actions and thoughts. As with any other type of artistic production, music depends on already existing materials and actions to produce something new. In the case of musical appropriation, the existing materials used not only refer to the physical materials or objects utilized to create music (the instrument, the strings of the piano, the stage, the musician's own body, etc.), but also to its content (already existing sounds, rhythms, structures, gestures, timbres, etc.). Nevertheless, I will argue that musical appropriation is not limited only to the act by which musicians choose their materials to kick-start the creative process. My position is that we should consider a wider notion of musical appropriation that also includes the process of determining the system of musical production itself, which is based on *a priori* forms of knowledge, abstractions, deductions and subjective processes that as a whole constitute a set of creative frameworks and stratergies of production. Put briefly, not only does the musician appropriate existing materials to work with, but the method of working itself. Moreover, the methods by which the musician works may not only be appropriated from within the traditional conventions of music-making but also from the knowledge gained from other forms of thought and production that come from disciplines outside music (for instance from the visual arts, social sciences, physics, philosophy or mathematics, to mention just a few). Furthermore, musicians curiously enough might not be aware of all of the sources that they appropriate from (this also includes the music they 'drive inspiration from')—they might just casually absorb and appropriate from their own experience by *living* and dwelling within their surrounding culture. Consequently, for as long as human beings have produced music, there have been strategies of musical appropriation. The notions

of creativity and originality in music are therefore not independent from that of appropriation and a debate about music is only futile if we start from the premise that musicians either appropriate or not. A much more fruitful discussion would stem from the presupposition that all musicians appropriate—they all use existing materials and methods, they borrow and steal from each other and from other existing cultural and historical modes of production—and the questions that are more relevant are about what musicians appropriate, who and where they appropriate from, how and why they appropriate and what they accomplish through appropriation. What the musician does with the appropriated materials and methods and with what purpose is therefore much more relevant to the notions of creativity and originality than questions of authorship, copyright or legitimacy concerning an individual been responsible for the action of creating music.

What's more, whether deliberate or not, within the act of appropriation lies in essence the musician's relationship to the past. This relationship may be established through the materials and methods the musician appropriates as well as how they have been appropriated. For instance, a clear relationship could be established with the work of an individual composer from the past—either systematically or intuitively—by imitating, copying, interpreting or modifying materials and methods from his/her body of work. The relationship between the musician and the past can be one that is initiated by a personal interest (which might be conscious or unconscious) in the musical practices and output of a specific historical figure. The process of appropriation from the work of historical figures that a musician admires or relates to is, I will claim, how many of them start to form their (musical) identity. However, I believe that musicians should not only rely on relationships with the past based on personal or subjective impressions on the musical practices and output of individual historical figures but should also consider their work within a wider cultural and historical context. When musicians appropriate from another composer's work, they are not merely referring to an isolated body of work but accessing a complex set of relationships in connection to how the composer relates to his/her surrounding culture and what is the significance of his/her work in a wider historical and cultural context. That is to say, even when we appropriate from just one musical source from the past, we are in fact making reference to a panoply of historical and cultural symbols that today might have a complex order of significance. Nevertheless, the relationship between the musician and the past is not only reflected by who creates the appropriated materials and methods of music-making and what those are, but also on how the musician might appropriate them. Thus, we may deduce more (depending on the nature of the *musical result*) about the musicians's relationship with the past through the way in which s/he appropriates an existing piece of music, than who possesses the original authorship of the composition and what cultural/historical significance it might have.

Similarly, a musician's relationship with the past might be contingent on how s/he uses different types of performance practice within his/her own, rather than what these practices are or what they signify.

Additionally, within the act of appropriation lies a deep relationship between the musician who appropriates and the appropriated Other. How the appropriator selects the material (whether it is a specific score by a composer from western music history or an 'ethnic' instrument from a non-western culture) and acts towards it reveals a type of relationship established between him/herself and the Other. These types of relationships disclose an attitude towards the Other that display his/her position in reference to the struggle of cultural appropriation. By attempting to establish a certain type of relationship with the Other, the appropriator may in reality be (either consciously or unconsciously) imposing a different one. That is the case today for instance with a common attitude in western countries towards non-western cultures that is reflected through musical appropriation and can be associated with the notion of *multiculturalism*.[2] Even though the initial intention of a composer who incorporates instruments and performers from different cultures is to establish an attitude that reflects equality and tolerance, by treating the Other with 'respect' and assuming a superfluous position of 'openness', in reality what this type of appropriation might exhibit is a patronizing and condescending distance that situates the western composer in a position of superiority in the struggle that is an intercultural exchange. Therefore, determining the appropriator's attitude towards the appropriated Other requires a critical evaluation and reflection of the complex processes that take place during musical appropriation. Put briefly, the appropriator should not infer that the initial attitude s/he hopes to assume regarding the Other (without putting it to through rigorous scrutiny) will be reflected in the type of relationship that is eventually established. The musician who appropriates cannot simply rely on 'first impressions' concerning his/her preconceived notions of the Other or the conviction that he/she will decipher the Other's otherness through the process of acculturation. I believe that, as musicians, we can only take a sensible stance when we accept the fundamental impossibility of truly understanding the Other (and what the radical alterity of the Other spells for us, namely the split within ourselves). Thus, a 'constructive' exchange regarding musical appropriation only starts when we agree to disagree with the Other in some aspects of the his/her musical judgements, taste and traditions. Moreover, we should not forget that the act of appropriation in-itself implies a form of violence and confrontation between different opinions, cultures, traditions and social strata.

The way in which musicians appropriate also reflects a deep connection to their ideology and the

[2]See pp. 42–44 for a wider discussion about the concept of *multiculturalism* and Slavoj Žižek's interpretation of it.

way they relates to tradition. Even though music rarely has a *raison d'être* that is simply ideological, it nevertheless reflects ideology (paradoxically not always aware that it is doing so). Furthermore, because of music's non-conceptual and non-objective nature, ideology is not revealed within music as clearly and directly as it is for instance through language. However, ideological positions may be traced through what happens within music, including how and where it is created, presented, perceived and consumed. Music's subjective characteristics nevertheless make the task of examining ideology in music an analytical and interpretative process. Therefore, a way of demonstrating ideological positions in music is through critical analysis and reflection, taking as a premise that music has a large context of meaning and that it can be examined in connexion to broader cultural phenomena. That said, I believe that by critically analyzing the way in which musicians appropriate from tradition and how those traditions relate to their own background we might learn something about the prevailing ideologies that dwell within their work. Through this process we can also grasp the wider ideological context in which the music is created—in other words, we should not only take into consideration the ideological position of the musicians themselves but think about the bigger cultural picture, which includes the ideas and opinions of all the people involved in the creation and reception of the music (the institutions involved in a musical performance, the type of audience, the type of venue, the way in which the music is disseminated and consumed, etc.). Consequently, the relationship between ideology and musical appropriation at once makes music a discipline embedded within ideology and at the same time displays a significant link between musical and cultural appropriation. Slavoj Žižek has argued that cultural appropriation and ideology imply an act of violence and friction that is created through the appropriation of past traditions. According to Žižek, in today's global society, ideology is more relevant than ever before, considering the violence implied in the act of cultural appropriation.

> The contemporary era constantly proclaims itself as post-ideological, but this denial of ideology only provides the ultimate proof that we are more than ever embedded in ideology. Ideology is always a field of struggle—among other things, the struggle for appropriating past traditions.[3]

As with other types of traditions, the appropriation of musical traditions also reflects an ideological struggle. Not only is music evidence of an ideological battleground, but the act of musical appropriation in itself is a form of cultural violence. It is my position that musicians, instead of denying this irrepressible fact, should be aware of the consequences inherent in the inevitability of appropriating

[3] Žižek (2009), p. 37.

existing music.

Given the relationship that exists between music and culture, and the struggle inherent in appropriating musical traditions, we may deliberately use musical appropriation as an ideological tool to convey thoughts, opinions and feelings that may be associated with other forms of human knowledge and action. Therefore, through the intentional and formalized use of appropriation as a musical strategy, musicians may convey their own subjective and objective views about the appropriated Other, which at the same time may reflect a wider commentary on their relationship with the past, as well as with other cultures and traditions. By using appropriation as a strategy, musicians may also express their opinion, contemplate and denounce specific forms of music-making (musical genres, styles, performance practices, compositional techniques, etc.), as well as people (specific composers, performers, types of audience, etc.) and objects (instruments, scores, stages, halls, etc.) involved in music-making that have symbolic significance in our present culture. That is to say, through strategies of formalized musical appropriation, musicians may convey ideology through musical aesthetics. Finally, by manipulating, rearranging, modifying and re-contextualizing the appropriated musical references, musicians may also construct a symbolic space where they can 'play with culture and signification' by imagining alternative conditions, meanings and forms of visibility for these musical references, including the social and economic struggles they may represent.

As has been mentioned before, the deliberate and conscious use of appropriation as a creative strategy is nothing new to music. However, I will also claim that the strategies of musical appropriation—regarding the means by which musicians appropriates as well as the types of materials that are appropriated—have drastically changed during the twentieth- and twenty-first-centuries due to technological advancements that have redefined (and continue to redefine) the way in which we appropriate music. During this time some prominent theories within the fine arts discourse dealing with specific types of appropriation have influenced the practice of musical appropriation.[4] I will continue by examining a number of specific strategies and approaches that have been used within fine arts during the twentieth-century that not only have been influential and important in defining current musical discourses and attitudes but also have had considerable influence on (and has serve as inspiration to) the submitted work.

[4]That is not to say however that musical theories and practices have not influenced appropriation in the fine arts. Certain musical practices (for instance, DJing) have had a strong influence on recent art practices and theories dealing with appropriation.

4.2 Appropriation Art

The following discussion does not aim to give a comprehensive survey of the artistic theories and strategies that use appropriation, nor it is an effort to make an original contribution on this subject of research. Rather, my aim is to simply describe certain concepts and ideas that are prominent in art theory that I think are relevant to musical appropriation and to the submitted work. Although I might be taking the risk of appearing to oversimplify what is an exhaustive subject, I will not elaborate too much on the significance of the described artistic notions within fine arts practice as my concern is mainly focused on the repercussions these ideas might have on music and how these artistic notions might contribute to the practices of musical appropriation. This discussion is aimed at a reader who is interested in musical appropriation but is not necessarily aware of the discourse developed in the fine arts regarding appropriation.

Appropriation art is a term used within art theory to describe practices by artists that deliberately use appropriation as a strategy to take possession of usually unauthorized materials (images, objects, etc.) whose authorship is widely acknowledged to be by others (other artists, filmmakers, companies, advertising agencies, etc.).[5] Even though *appropriation art* is sometimes used to refer to a specific group of artists who in the late seventies and eighties were associated to certain New York galleries (these artists include Richard Prince, Cindy Sherman, Ashley Bickerton, Peter Halley, Jeff Koons and Meyer Vaisman), its theoretical and historical foundation starts at the beginning of the twentieth-century with the formulation of *montage*, the development of photography and the influence of Marcel Duchamp. Moreover, *appropriation art* is not only limited to this specific group of artists as these strategies by now have been used widely by many artists who quite often have also developed their own idiosyncratic approaches towards appropriation. The advancements and increasing accessibility of computer technologies and the internet has also contributed to the way in which appropriation artists experience, consume, plunder and transform existing cultural objects. I will attempt to briefly examine some of the notions and theories associated with *appropriation art* with the aim of later investigating their possible implementation and relevance to musical practices.

4.2.1 Readymades and Détournement

The notion of appropriation within the arts during the twentieth-century was deeply influenced by Marcel Duchamp's concept of *readymades*, which simply refers to an object that is 'already made' and is then presented as an 'art work'.

[5] See Evans (2009).

> In 1913 I had the happy idea to fasten a bicycle wheel to a kitchen stool and watch it turn. A few months later I bought a cheap reproduction of a winter evening landscape, which I called 'Pharmacy' after adding two small dots, one red and one yellow, in the horizon. In New York in 1915 I bought at a hardware store a snow shovel on which I wrote 'in advance of the broken arm'. It was around that time that the word 'readymade' came to mind to designate this form of manifestation. . . . At another time—wanting to expose the basic antinomy between art and readymades—I imagined a 'reciprocal readymade': use a Rembrandt as ironing board![6]

This notion implies that the artist does not need to produce an 'art work' but only choose a 'found object'. The artistic process therefore might not imply the fabrication of an object but the selection of already existing ones—the artist's task is to look at his/her surroundings, choose an object and give it meaning through its re-contextualization. Duchamp's *reciprocal readymade* is the reversal of the former: an existing object considered to be an 'art work' that is given a new context by using it as an 'ordinary' object that is normally not regarded to be art. By taking an object that is regarded as a 'masterpiece' (a Rembrandt) and using it as an object that usually performs a different function and is not appreciated for its aesthetic qualities (the ironing board), the *reciprocal readymade* is a gesture that serves as criticism to the mystification behind such canonic artworks and at the same time questions the traditional western values of artistic appreciation. By taking an 'art work' and using it as an object usually not considered to be art, and using an existing 'ordinary' object as an 'art work', Duchamp contributes to the idea of art more than just a 'specialized' production of highly praised objects. The concept of *readymades* opens up a new debate on *what should the function of the artist be* (if not that of producing objects), and at the same time questions notions of uniqueness and authorship in art. Moreover, within Duchamp's categories there is yet another type of *readymade* which implies an alteration or adjustment by the artist (often very small) of the original 'found object'. He calls this type of work *assisted readymade*, from which *L.H.O.O.Q.* (1919) is one of his most famous. *L.H.O.O.Q.* consists of a reproduction (a commercial print) of Leonardo's *Mona Lisa* on which Duchamp draws a mustache and goatee in pencil. By doing this simple gesture, Duchamp criticizes established and authoritative notions of western art by banalizing a canonic work that represents symbolically the ideal of beauty. The vulgarization of the image of the *Mona Lisa* in a commercial reproduction raises questions about gender and the value of art, as well as making

[6] Duchamp (2009), p. 40.

a comment on the reproduction, commercialization and popularization of art works.[7]

The concepts of non-assisted (original without modification), *assisted* and *reciprocal readymades* were later embraced within the notion of *détournement*, first introduced by the avant-garde movement the Situationist International in the late 1950s.[8] *Détournement* (which means 'diversion' and can also mean hijacking, embezzlement and corruption) is an artistic and/or political gesture that consists of the use or hijacking of existing works of art and other cultural forms within the artist's own work.[9] This notion might also imply an intervention, re-contextualization or alteration to be exerted by the artist on the existing works or forms to provoke their depreciation, degeneration and devalorization. Furthermore, Guy Debord argues that *détournement* is "not an enemy of art. The enemies of art are those who have not wanted to take into account the positive lessons of the 'degeneration of art' ".[10] The violence implied in the gesture of *détournement* is not to oppose or denounce art but to provoke an action that interrupts and displaces an existing (artistic) theory—which reminds us that theories are truly faithful to themselves only if they allow 'history's corrective judgment' upon themselves. Debord sees appropriation that specifically maintains a certain distance from accepted conventions as a form of improving upon and correcting ideas from the past.

> The defining characteristic of this use of *détournement* is the necessity for *distance* to be maintained towards whatever has been turned into an official verity. . . . Ideas Improve. The meaning of words has a part in the improvement. Plagiarism is necessary. Progress demands it. Staying close to an author's phrasing, plagiarism exploits his expressions, erases false ideas, replaces them with correct ideas.[11]

In other words, he claims that through the act of plagiarism one may improve, correct and update ideas and theories (about art), and at the same time in the process of doing so distance them from their authority and alleged truth. Moreover, Debord argues that *détournement* of existing works may also be used as a correction of the 'artistic inversion of life'.[12] By appropriating material (images, films, etc.) from the 'spectacle' that self-evidently signifies a reversal of what happens in real life, the artist may in actuality represent real life, meaning and emotions through *détournement*—consequently rectifying the inversion of reality implicit in the original material. An example of this strategy would be if an artist uses a *détourned* Hollywood romantic film—which in its original form

[7] Judovitz (1995), pp. 139–143.
[8] See Ford (2005) and McDonough (2002) for more information on the Situationist International (SI).
[9] Bourriaud (2005), pp. 35–37.
[10] Debord (2009), p. 66.
[11] Debord (1994), p. 145.
[12] Debord (2009), p. 66.

does not accurately portray 'love' in real life—to express and convey 'love' in reality. Furthermore, *détournement* denounces the separation (within the arts) between production and consumption that characterizes the 'society of the spectacle', encouraging the appropriation of lived experience over the fabrication of work that contributes to the division between art and the spectator.[13] It is also important to consider that there are different types of *détourned* elements which may affect the strategies of appropriation. In 'Directions for the Use of Détournement', Debord and Wolman make a difference between two main categories of *détournement*: minor and deceptive *détournement*. Minor *détournement* is the use of elements that have no considerable signification within a given political or social context, but only obtain meaning through their re-contextualization. Deceptive *détournement* on the other hand, relies on elements that have a strong cultural/political meaning that acquires a different dimension of significance from the new context.[14] The authors attempt to give an analysis of certain considerations regarding *détournement* that they considered important for their own artistic/political purposes. In their analysis, they also warn of less effective forms as well as negative uses of *détournement*, which in some cases might include the use of *détourned* elements for right-wing propaganda[15] or strategies that instead of condemning the 'spectacle', often reassures its hegemony by using these strategies within consumer society and with the purpose of the production of commodities for individual profit and gain.[16] One could argue that some manifestations of *détournement* establish a cynical distance between the individual and the appropriated material that—instead of performing a subversive response to the 'spectacle'—in reality conceals the individual's complicity with the prevailing system of commodification. According to Slavoj Žižek, in our contemporary 'post-ideological' era, artistic strategies that incorporate this cynical or ironic distance have lost their capability to be transgressive and have instead become a form of conformism.[17]

4.2.2 (Post)-postproduction in the Digital Age

During the eighties, the interest in deliberately using appropriated material as a creative tool reemerged within the visual arts world. The concepts of *readymades* and *détournement* were reconsidered (and at the same time considerably expanded) as strategies of appropriation by artists

[13] Bourriaud (2005), p. 36.

[14] Debord and Wolman (2009), p. 35.

[15] Here, one could argue that a recent example that illustrates this point is the use of *détournement* on Barack Obama's photograph (a mustache is superimposed on Obama's image) by the American 'Tea-party' movement to suggest that a relationship exists between Obama and Hitler, which at the same time attempts to imply that Obama has 'totalitarian impulses' that are tied to his 'socialist agenda' of expanding the federal government.

[16] Ibid., pp., 36–37.

[17] See Žižek (2006), 'Why are Laibach and the *Neue Slowenische Kunst* not Fascists?', pp. 63–66.

who could sense that the tactics of *modernism* (particularly those involving anti-mimetic principles) were approaching a dead-end. Nicolas Bourriaud, in his book *Postproduction*, argues that for artists like Jeff Koons, Sherrie Levine and Heim Steinbach, Jean Baudrillard's ideas of *simulation* and *simulacra* supplied a theoretical foundation for much of their artistic practices at the time, which involved using appropriated objects that embodied the 'subject of desire' within the western capitalist system. These objects become virtual, neutralized by their presentation as a product that is inaccessible to the viewer: the artist becomes the consumer of objects, at once *instead of* and *for* the viewer. Bourriaud argues that these artists' work becomes *simulacra*, the artist simply appropriates from the market place, s/he chooses mainstream products that are most desirable as a consumer to be exhibited and/or recreated as their work.[18] This type of appropriation as a form of consumption was later adapted by a new generation of artists in the nineties, but nevertheless what became apparent is that the new generation consumed *different* products *differently*. In other words, even though both generations followed a model by which the artist acts more as a consumer than a manufacturer, what they consumed and how they consumed it was quite contrasting between generations. According to Bourriaud, one of the main features of this new generation of artists which includes Rirkit Tiravanija, James Jones, Thomas Hirschorn and Michel Henochsberg, to mention just a few, is that they started to create work that appropriates products that are not those that the mainstream consumer would buy (like the former generation of artists did during the eighties), but articles one would find in more specialized or unusual shops, in the back of the shelves or in the 'flea-market.'[19] The objects this new generation appropriates come from a diverse set of origins, circumstances, places, cultures, different lived stories and histories. Moreover, these artists display material differently from their predecessors: they present objects in arrangements that promote the formation of relationships between the people who are observing. The arrangement of the objects is often slightly chaotic, sometimes the materials are presented with the intention of escaping formal unity, the objects are displayed randomly as a cluster of non-assisted *readymades* with the purpose of presenting an ensemble of disjunct objects that retain their autonomy, giving the impression that they resist categorization and structure. On the other hand, sometimes these arrangements also display some sort of 'order within chaos' and within their apparent randomness, one can find intention, order, structure and homogeneity. Additionally, these artists use and manipulate objects in different ways, where the degree of transformation of material fluctuates between the extremely altered and the completely unaltered. Claude Lévi-Strauss's opposition between "the raw and the cooked" has

[18] Bourriaud (2005), p. 35.

[19] Ibid., p. 28.

been used to describe these practices in the transformation of appropriated material: 'the cooked' representing the objects that have been radically transformed (sometimes beyond recognition) and 'the raw' constituting the appropriated objects that have not been altered at all by the artist.[20] The description of how 'raw' or 'cooked' this material is may characterize one single 'art work' (where the amount of transformation of all its elements is consistent through the whole work). Conversely, elements with different levels of transformation may exist within the same work, creating a wide palette of 'recycled' objects with varying degrees of alteration. The artistic strategies of appropriation that emerged during the eighties and nineties still constitute an important practice in the visual arts today. The work of the appropriation artist also seems to point towards an intensification in the amount of transformation of the appropriated material as well as a concern with finding new forms in which this material can be presented. What started as 'straightforward' appropriation (non-assisted or just slightly assisted) has gradually turned into (post)-postproduction[21]—artists gradually further their use, manipulation and transformation of the material they seize and continue to increase the amount and diversity of sources they appropriate from.

The effect of digital technology in the way in which artists consume, create and present their work has also had a significant influence over the artistic strategies of (post)-postproduction. The increasing use and accessibility of computers and the internet has transformed the way artists use, experience and process cultural information. Digital technologies first brought with them unprecedented possibilities to reproduce information—copying and transferring data has become a powerful tool for artists. With the increasing power of computers, not only has the artist hugely increased his/her potential to reproduce, transfer and access information, but also s/he has mastered overwhelming control over the appropriated data. Moreover, through the development of the internet, sharing information has become a common practice which poses interesting questions regarding the ownership and copyrights of artistic forms. Once information becomes digitalized, transferred and manipulated, its right of ownership becomes a complex and perplexing legal, ethical and aesthetic problem. Bourriaud has argued that for the reasons mentioned above, contemporary art tends towards an abolishment of the ownership of artistic forms.

Throughout the eighties, the democratization of computers and the appearance of sam-

[20] Ibid., p. 29.

[21] Here, I have added the extra 'post' to *postproduction* in brackets to differentiate this type of artistic strategy from its standard definition in the audio/video industry (I also want to avoid misunderstandings that for instance Bourriaud's use of the word might generate if compared to that of the industry. (Post)-postproduction therefore refers to a type of artistic production that relies on already produced art work, sound or music—even if in some cases this existing material has already been subjected to what the media industries call *postproduction*.

> pling 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?[22]

The challenge that digital technology poses towards the ownership of forms has triggered new social configurations of artists, hackers, musicians and other people who take part in shareware and open source communities, where they openly share all of their digital productivity. In these communities, the notion of 'creative output' has drifted away from the idea of individual intellectual property, in favor of a practice based on creating by openly using other individuals' contributions. Social re-appropriation has become a model by which reciprocated copying and sharing is evaluated for its potential to make the flow of information faster, smarter and more effective for the common gain of the community. However, we are far from Bourriaud's 'communism of forms'. Although these communities might share their production with other members of the community, they do not directly oppose capitalism. Many of the individuals involved in these practices are mostly looking only for their own individual gain within our society of global capitalism. The 'communism of forms' only reaches a small privileged group of artists and musicians, hackers and entrepreneurs who have been fortunate enough to have the time, training and resources to access these materials and information. The programmer, artist or DJ who works by borrowing, stealing or sharing forms does not accurately represent 'real existing communism', but rather a kind of figure closer to Žižek's interpretation of a *liberal communist*. According to Žižek, *liberal communists* are new entrepreneurs who believe in (occasionally) giving their products for free (but at the same time making money from related services like advertisements on their websites, donations, etc.), being aware of society and trying to change it through charity so that it is fairer, using smart and dynamic communications and avoiding traditional notions of labor, being creative but at the same time sharing their creativity with others, promoting education, philanthropy and voluntary work.[23] However, *liberal communists*—epitomized by the figure of Bill Gates ('the ex-hacker who made it')—at the same time are primarily entrepreneurs whose main pursuit is to make more profit, even if in some cases that might imply engaging in 'cruel'

[22] Bourriaud (2005), p. 35.
[23] Žižek (2008), pp. 15–16.

practices like destroying or buying their competition, engaging in dubious financial speculation, indirectly exploiting employees and attempting to monopolize the market.[24] Žižek has argued that this dual behavior discloses an avoidance of their complicity with the system.

> In liberal communist ethics, the ruthless pursuit of profit is counteracted by charity. Charity is the humanitarian mask hiding the face of economic exploitation. In a superego blackmail of gigantic proportions, the developed countries 'help' the undeveloped with aid, credits and so on, and thereby avoid the key issue, namely their complicity in and co-responsability for the miserable situation of the undeveloped.[25]

Therefore, one should be cautious about the optimism associated with digital sharing and hacking, cyber-communities, shareware, open source and other digital practices. The idea of giving away digital information for free and sharing creativity with others, as well as other proclaimed liberal communist principles might at a first glance seem positive stances but underneath they might carry a complicity with the same ruthless attitude that may be associated with today's global capitalism. Even though digital technology has the potential for people to organize themselves in cyber-communities and gives opportunities to subvert traditional forms of capitalism (intellectual property that is digitalized is harder to regulate), we are far from Bourriaud's utopia—what we are approaching is not a blueprint for a 'communism of forms' but a new configuration of digitized production with adapted capitalistic values. Having said that, I am still convinced that these digital practices and communities have considerable artistic and musical potential if they are used positively as tools to create new *aesthetic* forms. However, in doing so, I believe artists should try to avoid the naivety and dishonesty behind the liberal communist enthusiasm over digital sharing.

Having briefly described and examined some of the prominent theories and strategies of appropriation that emerged during the twentieth-century in the fine arts, I will now engage in a discussion about appropriation as it pertains to recent developments in music. My aim is to use some of the theory related to the notions of *readymades*, *détournement* and (post)-postproduction to explain musical strategies that deal explicitly with appropriation. I will also elaborate on already existing strategies developed during the twentieth-century that deal with musical appropriation which I have attempted to implement in my own work.

[24] Ibid., pp. 14–19.
[25] Ibid., p. 19.

4.3 Musical Appropriation

Musical appropriation is a very broad subject that includes topics as diverse as the use of chansons as *cantus firmus* in polyphonic masses of the fifteenth- and sixteenth-centuries, Webern's orchestration of Bach's Ricercata from *Musical Offering*, sampling practices in recent pop music, quotation in Charles Ives' music, Handel's operatic borrowings and the 'dropping' of quotes in bebop solos. For that reason, I will try to narrow this discussion to a more limited subject, that is, how musical aesthetics and technological developments during the twentieth- and twenty-first-centuries have influenced the way in which musicians appropriate already existing music. I will not attempt to produce a detailed study of twentieth-century music that explicitly uses appropriation,[26] but instead I will concentrate briefly on a few composers and musical strategies that have influenced my own creative output. I will venture to describe some ideas of how these musical strategies of appropriation could be expanded further through recent developments in computer technology. Finally, I will also endeavor to clarify to a greater extent the rationale behind the more idiosyncratic practices I have developed in my own work and the potential of using appropriation as a creative strategy to produce a *music result* that aims to accomplish something new within music.

4.3.1 Appropriation and Postmodern Music

In Chapter 1, I have already described how *postmodern music* at first started as a reaction to the confusion and misunderstandings ascribed to the notion of *modernism* in music. For that reason, the first composers who later became associated with the label of *postmodern music* abandoned modernism's anti-mimetic principles by amongst other strategies, explicitly appropriating other music. Hence, the appropriation of existing music became a mechanism by which musicians could differentiate themselves from modernism, which was not only becoming institutionalized, but also had been weakened by its association with the 'fall of communism' as well as its own inability to see beyond its self-imposed anti-mimetic principles and ideals of 'purity' and 'authenticity'.[27] Musical appropriation also became a vehicle by which these composers rediscovered the semiotic potential of using existing music to convey meaning and thus, allowing them to make wider cultural/historical references within their work. Musical strategies such as quotation, transcription and transformation of already existing music became a form of re-contextualizing meaning, imagining new symbolic spaces for appropriated cultural/historical objects and a way of constructing narrative by creating wider cultural associations

[26] There are already good examples of such studies, see for instance Metzer (2003).

[27] See pp. 8–17.

and metaphors.[28] However, as I have argued in previous chapters, the notion of *postmodern music* in recent years has also started to signify something more than the musical strategies of appropriation that have just been described.[29] Today, a good portion of the music labeled as *postmodern* for the most part approaches appropriation by adopting a false notion of 'openness', resulting in a mixture of musical styles and genres that has as its only purpose to serve as commodified entertainment. Musical appropriation—which once opposed the spectacle—has now become an accomplice to it.[30] The main problem of what *postmodern music* has become is that its musical 'games' of aimlessly borrowing, mixing and remixing from a plurality of musics (classical, pop, rock, jazz, world music, etc.) have ceased to accomplish anything new within music. At the same time, as I have argued at the beginning of this chapter, if one does not subscribe to this kind of permissive appropriation, the solution can not be to avoid the act of appropriation itself, as this would only become a futile gesture that only would take us back to the misunderstandings brought by modernism's anti-mimetic ideals. Therefore, the problem we are faced with today is not whether we should or should not appropriate existing music, but more precisely, how can we accomplish something musically significant and new through music appropriation. For that reason, I will now attempt to first examine several musical strategies that I consider approach the process of appropriation in significant and innovative (and sometimes controversial) ways and which, in my opinion, have the potential of inspiring new forms of music-making. Later, I will also undertake the task of proposing new ideas (based on the creative work submitted) of how these musical strategies might be further developed.

[28] Luciano Berio's oeuvre, for instance, contains many good examples of how these musical strategies can be used for the above-mentioned objectives.

[29] See pp. 18–20.

[30] Here, one could consider as an example of this argument, Mark-Anthony Turnage's recent appropriation of Beyoncé's song 'Single Ladies' that appears in his composition *Hammered Out* (2010), premiered at the BBC Proms 2010. The way in which Turnage appropriates Beyonce's popular hit, musically speaking, accomplishes nothing new, adding not even an apparent commentary about the original. The Turnage appropriation even looses the rhythmic drive and timbreal characteristics of the original pop song through its orchestral arrangement (it is very difficult for orchestral musicians to accurately reproduce this kind of pop music because it is virtually impossible to translate the compressed and rhythmically precise sound of the studio production that characterizes Beyonce's music to an orchestral language). The result is a narrowed down version of the original (not being able to even render the sexuality and drive of Beyonce's version) which accomplishes nothing but commodified entertainment for a relatively conservative audience of concert goers, which to this day still seem to 'get a kick' from the (to their minds) still 'transgressive' and 'controversial' gesture of introducing pop styles into concert music.

4.3.2 Musica Derivata

The first musical strategy I will discuss is Clarence Barlow's concept of *musica derivata* (derivative music) which simply refers to 'music that is compositionally based on other music'.[31] Thus, *musica derivata* simply describes a method of composition that aims at deriving new material from existing music (originally not written by the composer) to generate a new composition. However, Barlow's implementation of *musica derivata* in his own work is more specific than one could draw from this simple definition. What one could conclude from Barlow's compositions that can be labeled as *musica derivata* is that they deal with the borrowed material in such a way that it reveals something new about the appropriated music. At the same time, these compositions not only seem to be about the appropriated music but about music itself—they are concerned with disclosing subjectivities within the original music through very precise, exhaustive, and at times obsessive compositional processes that surgically reveal the 'music within the music'. For instance, in his piano trio *1981* (1981),[32] Barlow combines other piano trios by Clementi, Schumann and Ravel through a rigorously preconceived compositional process. *1981* is a trio about three trios that travel through three performers by means of interpolation between the selected compositions. Through a spiral structure, Barlow manages to statistically morph between the notated material from each trio, which at fist frenetically cycles from one trio to the other—each rotation gradually becoming slower and progressively unveiling the original material which at the very end becomes clearly recognizable. By dissecting and re-contextualizing the piano trios through a rigorous method, Barlow discloses the essence of this ensemble's mode of playing as well as it dispassionately discloses the emotional *ethos* of the appropriated compositions. *'Spright the Diner' by Nib Writer* (1986),[33] Barlow's following piano trio, in turn uses material from *1981*—thereby simultaneously appropriating his own composition and further transforming the already modified trios by Clementi, Schumann and Ravel. *Spright the Diner*, curiously enough seems to be more of a self-commentary (or a commentary on Barlow by his alter ego *Nib Writer*) on his own personality and compositional practices than a reflexion on the three original piano trios.

Musica derivata can therefore also be a mechanism whereby the composer can make comments about the appropriated music, the composer or the tradition it might represent, how the music relates to other practices in performance and composition and how it might be connected to the appropriator's personal experience. Barlow's own rationale for the use of other music within his

[31] See http://users.skynet.be/P-ART/P-ARTWEB/1BARLOW/BARLOW.htm.
[32] See Barlow (2000).
[33] See Ibid.

work, varies in almost on all of his *musica derivata* compositions.

> Sometimes I use other musics to pay homage to or even to ridicule them, sometimes just to point out certain processes in music, in musical practice. There are hardly any two pieces which have the same motivation in using other musics. I frequently do a whole lecture on my derived pieces and I would say that almost all the examples there have different reasons for being.[34]

For instance, in his series of thirteen preludes and fugues for piano *Ludu ragalis* (1974-2003), Barlow's reason to appropriate thirteen indian ragas and treat them as material for baroque style counterpoint is to point at the similarities between classical indian and western music (for instance, northern indian music and western classical music share very similar ways of dealing with pitch material and their scales are almost identical).[35] On the other hand, in *Variazioni e un pianoforte meccanico* (1986) the reason that Barlow appropriates Beethoven's Opus 111 *Arietta* seems to be that the improvisational and generative nature of the original perfectly fits with Barlow's scheme of creating real-time variations through an algorithmic computer progamme that produces generative variations. The form of 'theme and variation' also seems fitting to Barlow's idea of the mechanical piano gradually 'taking over' after the pianist has played the theme and starting to generate algorithmic/mechanical variations until the pianist is unable to continue playing. Once the mechanical piano seems to have overtaken the pianist, each variation becomes more elaborate than the previous one until the computer system seems to exhaust itself at the very end, when the pianist 'regains control' over the piano by once more playing the original Beethoven. Barlow's appropriation of the *Arietta* therefore creates a poetic association between Beethoven's creativity and skill as a composer to progressively produce new variations (each one more ingenuous than the former) and the increasingly generative and complex nature of the music produced by the computer that gradually becomes 'superhuman'—at some point the music becomes 'artificial' in nature and too fast and difficult for an ordinary human to perform. Put briefly, Barlow makes a link between the generative nature of both Beethoven's creativity as a composer and the computer's output. While listening to *Variazioni e un pianoforte meccanico*, one cannot avoid noticing that at some point the variations that result from the theme can only be produced through mechanical and computer iteration; the composition seems also to be a commentary on the relationship between human beings and technology and the difference between human and mechanical (re)production. Regardless of the specific motivation for appropriating other music, Barlow always seems to have a personal relationship with the music he has appropriated—for

[34] Barlow (2007).
[35] Barlow (2008).

instance, he has a deep interest in Indian music since he was born and raised in Calcutta and he has a fascination with Opus 111 because he was trained as a pianist and has previously performed this work.

Another important element about *musica derivata* is the use of computer technology in the process of derivation. Barlow's *musica derivata* compositions are characterized by the use of *Computer Aided Composition* (CAC) tools to create compositional processes that require complex computation. The type of calculations involved in the compositional process of most of Barlow's *musica derivata* works would be strenuous if not impossible for the composer to perform without the power of the computer. In his *musica derivata* compositions, Barlow usually uses notated information (information coming from the original score of the composition or a transcription in the case that there is no available score) as an input to a computer programme that is designed to modify or transform this data according to his compositional scheme. Barlow's compositional schemes are also carefully conceived as algorithms such that they can be implemented within a computer programme. The finished composition is sometimes limited to the results that the computer gives, sometimes even without any type of intervention from the composer after the detailed pre-compositional system has been formulated. However, sometimes Barlow is less strict about following through the pre-conceived process from beginning to end and his compositional practice sometimes involves selecting from various computer results and at some points even leaving some space for more 'traditional' compositional decisions.[36]

In addition to score information, Barlow sometimes uses other types of inputs for his compositional processes. For instance, in his compositions that he labels as *musica linguistica* (music that is based on speech and language), he extensively (but not exclusively)[37] uses information derived from spectral analysis of speech recordings to generate pitch and rhythmic material to produce a score for acoustic instruments. One of the techniques he uses to produce instrumental music from speech is what he calls *Synthrumentation*,[38] which takes as a starting point the spectral information gathered from an FFT (Fast Fourier Transform) analysis and through a method analogous to *additive synthesis* in electronic music (where sinusoidal waves are superimposed to create timbre), attempts to reproduce speech sound by using acoustic instruments instead of sinusoidal waves. The resulting instrumental harmonies are derived from the harmonic structure of speech sounds by mapping their fundamental and upper partials to notated pitches performed by acoustic instruments. However,

[36] Barlow (2007).

[37] In some of his *music linguistica* compositions, Barlow derives musical structures from language rules and syntax, instead of spectral characteristics of speech.

[38] See Barlow (1998).

each acoustic instrument produces a pitch that has its own harmonic structure and is not equivalent to a sinusoidal wave, and the result therefore retains the instrument's timbre but at the same time keeps some characteristics similar to the original speech recording. Barlow in some occasions deals with the discrepancy between the distinctive instrumental timbre and the result of added individual frequencies by selecting instruments and instrumental techniques that produce sounds that have similar characteristics to that of a sine wave (for example clarinets, flutes, string harmonics, etc.). This is the case in Barlow's composition *Im Januar am Nil* (1982), where he bases the whole first three minutes of the composition on a recording of him speaking a text in German that is *synthrumentized* using natural string harmonics, just intonation and scordatura-tuned strings. Barlow carefully composes the German text to avoid noise spectra, relying only on vowels and laterals (L, M, N and 'NG' sounds) so that it is more suitable to be *synthrumentized* through string instruments playing natural harmonics tuned to approximate the desired frequencies.[39] Another example of the use of *Synthrumentation* can be found in his composition *Orchideae Ordinariae* (1986), where he uses this technique in an attempt to create the illusion of a symphony orchestra uttering the phrase "Why me no money?". Barlow uses this technique to support the wider context for which *Orchideae Ordinariae* was composed, which is mainly to make a commentary about the institutionalization of the musical avant-garde and the complacency that became endemic at that time (and up to a certain point remains today) regarding the commissioning of new works.[40] Another type of spectral technique used by Barlow is what he calls *Spectastics* (or 'spectral stochastics'), which takes as a starting point a melody based on a sequence of pitches determined through the probability distribution of spectral data.[41] When the melody is sped up, at some point it is no longer perceived as a melody but as cloud of notes or as timbre. Spectral techniques similar to the ones just described however are not unusual in contemporary western music and were exhaustively used during the seventies and eighties by the *Groupe l'Itinéraire*, whose most prominent figures included composers Gerard Grisey, Tristan Murail and Hugues Dufourt. These composers however were interested in other types of spectra, focusing more for instance on instrumental timbre and its gradual transformation. Other composers, including Jonathan Harvey, Kaija Saariaho, Philippe Hurel and Marco Stroppa, to mention just a few, since then have utilized IRCAM released software (mainly *AudioSculpt* and *Open Music*)[42] to extract information from a spectrogram (visualization of an FFT) and then transfer it to a notated score. However, most of these spectral techniques have been used to analyze isolated sounds as their main

[39] Barlow (2007).

[40] Ibid.

[41] See Barlow (1998).

[42] See `http://forumnet.ircam.fr/` for information about IRCAM software.

interest has focused on the spectral characteristics of sounds and not their wider cultural/historical meaning. Barlow's own use of spectral techniques has been limited to the analysis of speech and curiously enough, have not been widely used in his *musica derivata* compositions. Nevertheless, I will claim that a significant potential exists in using spectral techniques such as *Synthrumentation* and *Spectastics* as a tool for musical appropriation to produce *musica derivata* based on analysis of recorded music.[43]

The final result of the process of derivation in Barlow's music, whether it involves deriving from notated or spectral information, is usually either a score for classically trained musicians to perform or pitch information (usually in Midi or other previous formats) that may be used for instance to trigger a mechanical instrument. The process of transferring the computer results into either the instrumental or mechanical mediums is crucial: the process of transcription needs to consider social/cultural elements of performance practice, issues that computers at the moment cannot adequately address. I will therefore claim that in *musica derivata* the transcription of the computer results into the medium of performance (and its eventual realization) is a critical part of the creative process, as in it may lay some of the composer's most important subjective decisions that may be absent from the impartiality of the computer calculations. Put briefly, in *musica derivata* the process of transcription and realization of the computer output might give us a clue into the composer's musical vision and character.

Musica derivata remains a musical strategy that deals with appropriation in such fashion that the musician—by creating a precise, inquisitive, elaborate and exhaustive method of derivation—strives to simultaneously accomplish new *aesthetic* results and at the same time reconsider already existing music (which in itself implies contemplating the appropriated music's larger context of meaning). The creativity and critical scrutiny involved in conceiving the process of derivation and the imagination required for the re-contextualization of the reworked musical material not only encourage self-reflection regarding how one as a musician relates to the appropriated music and surrounding culture but also might inspire new forms of perception and thought in other areas of human endeavor. Christopher Fox, in his article 'Where the river bends: the Cologne School in retrospect' argues that Clarence Barlow, as well as other composers associated with what he calls *The Cologne School*,[44] use

[43] In my own earlier instrumental compositions (composed during my studies at the Royal Conservatory, The Hague) I have derived notated material from spectral analysis of recorded music. For example, in *Esférica Cantándote* (2005), I combine and transform material that I derived from both spectral analysis and transcriptions of five recordings of popular music. See http://ranchonotorious.org/freuben/interviews/esferica/ for an interview about how *Esférica Cantándote* was composed.

[44] A group of four composers: Clarence Barlow, Gerald Barry, Kevin Volans and Walter Zimmerman, who during the

methods of appropriation that are unlike those used by other composers in that there is an absence of irony and a sense of commitment involved in their strategies of appropriation. Barlow's own use of appropriation also distances itself from the cynical and permissive attitude towards appropriation that has recently become recurrent in a lot of music under the *postmodern* label. For these reasons, I believe that *musica derivata* is a musical strategy that can be expanded and developed further to inspire new ways of creating and experiencing music.

4.3.3 Plunderphonics

The second musical strategy I would like to put forward is John Oswald's *plunderphonics*. *Plunderphonics* refers to the practice of appropriating audio recordings of existing music and using them as material to create a new musical result. Thus, both *plunderphonics* and *musica derivata* use as a starting point the explicit appropriation of existing music. However, in order to avoid confusion between these two strategies, I will attempt to draw a theoretical distinction between them. I will therefore propose that the main difference between *plunderphonics* and *musica derivata* lies in the sounding result: while *musica derivata* culminates in an instrumental or mechanical performance resulting from notated material (often involving classically trained musicians reading from a score or a mechanical/computer realization of notation), *plunderphonics* rather relies on recorded material to produce sound. That is to say, while *plunderphonics* produces an audible result through sonic material derived from recorded music, *musica derivata* produces it through the instrumental/mechanical realization of notated material. Having made a distinction between the two, I will now examine the potential (as well as the challenges) of *plunderphonics* as a strategy of musical appropriation.

The term *plunderphonics* was initially coined by John Oswald in his 1985 article "Plunderphonics, or Audio Piracy as Compositional Prerogative" as a justification of his own practices of appropriating previously released commercial recordings of existing music. In this article, Oswald argues that devices that play audio recordings can be used with the purpose of reproducing music but at the same time may be used creatively to produce new and unique sounds.

> Musical instruments produce sounds. Composers produce music. Musical instruments reproduce music. Tape recorders, radios, disc players, etc., reproduce sound. A device such as a wind-up music box produces sound and reproduces music. A phonograph in the hands of a hip hop/scratch artist who plays a record like an electronic washboard with a phonographic needle as a plectrum, produces sounds which are unique and not

seventies and early eighties were based in Cologne and shared similar musical interests. See Fox (2007).

> reproduced—the record player becomes a musical instrument. A sampler, in essence a recording, transforming instrument, is simultaneously a documenting device and a creative device, in effect reducing a distinction manifested by copyright.[45]

Oswald's position here is that devices that reproduce sound can also be used as 'musical instruments'—audio recordings are not only a form of documentation and reproduction, but also a way of creating new music. From phonographs and gramophones to the latest digital devices (computers, MP3 playes, etc.), the opportunity to reproduce sound becomes at the same time the possibility of finding a new musical context for it either through sonic quotation or transformation. Creativity through the medium of sound reproduction therefore blurs the line of distinction between original and new sounds, questioning the traditional notions of originality and authorship imposed by copyright laws. The *plunderphonic* artist creates new work by modifying and re-contextualizing recordings that are available to him/her, which includes the commercial recordings that s/he consumes as a listener. As previously discussed in our examination of appropriation art, consumption is at the same time production—artists rely on consumption (of materials, objects, other artworks, etc.) to produce new work. Consumption is therefore not only the motivating force behind the production of art but the action by which new art is produced. The consumer of records not only consumes them by listening but uses them to produce new music (either through inspiration or actually by using their sound). Oswald's own practices as a consumer of recordings is eventually what leads him to produce new music through experimentation while listening.

> 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.[46]

Here, Oswald's argument exposes the creative potential an active listener has to experiment with recordings. By being able to transform a recording of existing music, the listener not only may experience music differently, but may also stumble upon new sounds through this process of exploration—listening to a recording by modifying it might reveal something unheard before by the listener. Audio recordings—while conventionally considered to be a fixed reproduction of sound—in actuality may disclose the unfamiliar within the familiar through the process of transformation, thus becoming 'un-

[45] Oswald (1985).
[46] Ibid.

charted territories' where new musical discoveries can take place. The active listener and consumer of records becomes the creator of new music through this process of discovery.

Early plunderphonics

Using existing audio recordings creatively as material for a new musical result predates Oswald's term by many years. Nevertheless, we can still consider the use of this musical strategy before Oswald's work as early examples of *plunderphonics*. Chris Cutler has argued that the history of *plunderphonics* is partially "the history of the self-realization of the recording process; its coming, so to speak, to consciousness".[47] Starting with the popularization of the earliest sound reproduction devices, the phonograph and gramophone, the possibilities of sound reproduction as a form of production gradually became self-evident. By the 1920s sound reproduction devices using discs were becoming reasonably cheaper (as opposed to the more expensive cylinder system) and therefore became a platform for experimentation—artists and musicians began to experiment with disc manipulation as creative and performative strategy.[48] John Cage's *Imaginary Landscape No. 1* (1939) is one of the first compositions that gives instructions for a gramophone to be operated as a musical instrument in a concert performance—the gramophone record containing test tones is 'played' by actively varying the playback speed of the devise as indicated in a notated score.[49] One of the most intriguing compositions that can be considered as an early example of *plunderphonics* is Cage's *Imaginary Landscape No. 4* (1951), scored for twelve performers operating radios as musical instruments. In this composition, Cage manages to re-contextualize the sonic material produced by the radios (whether it is music, speech or other types of sound) through indeterminacy—the sounds from the radio broadcast are not intended to be fixed but on the contrary, they are left to chance. Moreover, the plundered sounds from the radio are appropriated as ever-changing *readymades* that depend on the immediacy of what is being broadcasted at the precise moment of the performance. The result is a type of *plunderphonics* that is at the same time current and generative (it generates new sounds depending on the varying trends of music and radio programmes that are broadcast) as well as indeterminate (the sounds are not predetermined). *Imaginary Landscape No. 5* (1961) is another interesting *plunderphonics* composition by Cage, where he specifies 'empty containers'

[47] Cutler (2006), p. 143.

[48] See Ibid., pp. 143–146, for a detailed history about early *plunderphonic* practices, starting with early experiments involving disc manipulation by Stephan Wolpe (1920), Darius Milhaud (1922), Lászloó Moholy-Nagy (1923), Ottorino Respighi (1924) and later Edgard Varèse (1936). Also, see Moholy-Nagy (2006) for a fascinating early artistic statement about the potential of using the phonograph as an instrument for sound production instead of reproduction.

[49] Cutler (2006), p. 145.

through time in a graphic score for forty-two unspecified phonograph records. The 'empty containers' are specific amounts of time (represented in the score as rectangles of different lengths specifying their precise duration) when the records should be playing. Cage also gives instructions in the score for constant and varying dynamics and when the records should be changed. Even though the records are not specified, Cage indicates that for the performance of the composition he used exclusively jazz records.[50]

During the late fifties and early sixties, Nam June Paik composed works that are compelling early examples of *plunderphonics*. Nam June Paik's collage tape pieces *Hommage à Cage: Music for Tape Recorder and Piano* (1958-1959) and *Etude for Pianoforte* (1960), which he created while working with Stockhausen at the WDR (Westdeutscher Rundfunk) Studio for Electronic Music in Cologne, are groundbreaking in their crude but effective use of appropriated recordings of existing music. To create these collage pieces, Paik uses simple tape manipulation involving cutting and splicing different recordings together as well as transforming them with different simple techniques like varying speeds, reverse playback and distortion. *Hommage à Cage* includes music that originates from a fixed tape part, sounds created by the audience, a hen, a motorcycle and other objects.[51] The tape part is made up of a mix of sounds, music, screams, cries and radio broadcasts including a congregation reciting the 'Hail Mary' prayer, a sped-up sonic quote of Teresa Brewer's 1959 version of the hit song 'Hula Hoop', test tones, and what sounds like a fragment of Beethoven's ninth symphony. In *Etude for Pianoforte*, Paik uses similar collage techniques resulting a in combination of unrecognizable sounds and music, screams, cries and very clearly recognizable quotes from Beethoven's fifth and ninth symphonies and Stravinsky's *Petrushka*. These two surviving tape pieces however were part of much more elaborate actions/performances which included theatrical elements that were often seen as unpredictable, absurd, aggressive and sometimes even 'terrifying'.[52] Paik's use of *plunderphonics* in both of these works seem to embrace the sporadic and violent nature of the actions/performances they formed part of. What makes this type of *plunderphonics* exciting to the listener is that—through the overlap of plundered music with visceral sound (screams, cries, etc) and the use of abrupt cuts and distortion—Paik manages to convey feelings of brutality, suffering, irreverence and

[50] Cage (1961).

[51] Liggett (2004).

[52] These two works included theatrical elements such as a poet reading from a toilet paper sitting on top of a ladder, Paik playing Chopin on a piano and breaking into tears, sawing through the piano strings with a kitchen knife, throwing himself onto a mutilated piano, cutting John Cage's shirt and tie with big scissors and shampooing the hair of both Cage and David Tudor who were sitting in the audience during the performance. See Daniels, Frieling and Helfert (2003) and Paik (2001) for accounts about the performances of these two works.

cruelty that arouse and stimulate certain strong and basic instincts that closely relate to human nature and experience. In what appears to be a nonsensical collage of sounds, he manages to expose a certain fragility inherent in the plundered music (through its re-contextualization), as one gets the impression that the recorded material may be cut or mutilated at any moment (even the Beethoven symphonies or Stravinsky's *Petrushka* are not exempt from being vandalized despite their status as 'masterpieces'). By conveying these heightened emotions in such aggressive and unpredictable fashion, Paik manages to recreate the thrill of experience by making the audience feel vulnerable through sound and performance.

A later example of a completely different approach towards *plunderphonics* is Karlheinz Stockhausen's *Hymnen* (1966-67), where he appropriates recordings of different national anthems from around the world.[53] Stockhausen's approach to *plunderphonics* in *Hymnen* could not be more different than Paik's—while Paik plunders different existing music to seek discontinuity and expose violence, Stockhausen appears to have the desire to impart notions of unity and congruence. In *Hymnen*, Stockhausen attempts to present the national anthems not as disconnected fragments but on the contrary, as a heterogeneity of parts. Moreover, Stockhausen not only seeks a union between the different recorded anthems through sound transformation, but also aims at blending them with other electronically generated sounds. In addition to the formal effort to integrate sound, Stockhausen also makes his wider call towards unity more explicit first, by after modulating through an variety of anthems from around the world, introducing an anthem from the fictitious land of "Hymnunion" and later, by ending the composition with a recording of his own breathing to symbolize 'the respiration of humankind'.[54] This plea for unity and universality has been interpreted both as *utopian* and *dystopian*—it could be understood as a utopian claim for human equality and unity or a vision of a totalitarian and authoritative union with imperialistic values which seeks universality through homogeneity and supremacy as one nation, instead of a diversity of nations.[55] Regardless of which interpretation is more valid, *Hymnen* represents an early example of *plunderphonics* where appropriated existing music is treated in a sophisticated way both technically and semantically to sonically enact the composer's fantasy.

[53] See Metzer (2003), pp. 139–159, for a detailed analysis of *Hymnen*.

[54] Ibid., p. 152.

[55] See Ibid., pp. 149–154 and Boehmer (1970).

Oswald, Sampling and Copyrights

Despite the fact that one can find early examples of *plunderphonics* which appropriate recordings of popular music,[56] it was not until John Oswald's work during the seventies, eighties and early nineties that it was done so extensively and deliberately. In these works, Oswald appropriates commercially released recordings of well known pop songs by celebrated pop musicians such as Michael Jackson (*dab* (1989)), Madonna (*madmod* (1993)), The Beatles (*btls* (1989) and *sfield* (1980)), Led Zeppelin (*power* (1975)), The Doors (*o'hell* (1990)), James Brown (*brown* (1989)), Dolly Parton (*pretender* (1988)), Metallica and Queen (*2net* (1990)).[57] In these works one can find that, even though Oswald usually transforms the appropriated recordings, he does so such that they are still clearly recognizable (a consistent feature in Oswald's *plunderphonics*). Moreover, the way in which Oswald alters the recordings is usually deliberate and calculated to express an opinion about the appropriated music and the musicians who perform it, which usually also refers to a wider commentary about (consumer) culture and the creative process itself. Oswald's practice of taking an already finished product, appropriating and modifying it, and consequently giving it a new meaning through its re-contextualization fits perfectly with Duchamp's notion of an *assisted readymade*.[58] Oswald, like Duchamp before him, radically changes the meaning of already fabricated products by modifying them through a simple (however significant) gesture. That is the case, for example in Oswald's *pretender* (1988), where he plunders Dolly Parton's 1984 version of *The Platters* 1955 song 'The great pretender'. By gently slowing down the speed of the playback of the recording, Oswald gradually changes the pitch of the voice of the country music singer, resulting in the transposition of the original female voice a fourth lower, which makes it sound more like a male voice.[59] Through this simple gesture, Oswald raises questions about gender in a similar way that Duchamp does, when he adds a mustache and goatee to the image of the Mona Lisa in *L.H.O.O.Q.* (1919).[60] However, Oswald also seems to be influenced here by ideas about gender transformation and ambiguity that other visual artist of the same generation also deal with and that have been theorized by Jean Baudrillard. One can find a similar concern for instance in *dab* (1989), where Oswald, by picking Michael Jackson's 1987 song 'Bad' and exaggerating its features (for instance by looping and slowing down sonic idiosyncrasies that point towards Jackson's style and identity) again raises questions about gender definition but

[56] For instance, Nam June Paik's use of Teresa Brewer's 'Hula Hoop' in *Hommage a Cage (1958-1959)* and James Tenney's manipulation of Elvis Presley's 'Blue Suede Shoes' is *Collage No. 1* (1961). See Cutler (2006), p. 145.

[57] Oswald (2001).

[58] See pp. 64-65.

[59] Ibid., p. 22.

[60] See pp. 65–66.

also about racial alterity. In addition to plundering Jackson's song, *dab* was released as part of Oswald's *Plunderphonic CD* (1989) which featured as a cover a *détourned* image of Jackson's *Bad* (1987) album. The altered image consists of the famous photograph of Jackson but his body (as it appears in the original image) is replaced with a white women's naked body. By modifying the original image, Oswald confirms his interest in Jackson's altered racial and gender identity—through this simple juxtaposition of images Oswald explicitly exposes Jackson's physical transformation (his facial and body features 'thinning out' and 'whitening' through plastic surgeries and other medical interventions).

Oswald also seems to be particularly interested in appropriating recordings straight from consumer culture and the music industry. Owald's deliberate plundering of hit-songs can also be compared with the practices of visual artists of the same generation like Jeff Koons and Richard Prince, who appropriate objects that embody mainstream capitalist consumption. In other words, Oswald as well as the generation of *appropriation artists* who became prominent in the eighties,[61] appropriate from the 'shopping mall' or the 'top ten list in the record store', rather than from less known or obscure sources. Other artists who shared Oswald's philosophy and plundered music straight from the mainstream of mass media and the music industry, are the members of the experimental music and art collective Negativland and multimedia group the Tape-beatles. In their work, these groups use tactics close to the ones used by the Situationist International (SI).[62] By appropriating hit songs, radio programmes and other mass media products and transforming and mixing them together, they create new work using *détournement* as a creative and denouncing strategy.[63] For instance, in *U2* (1990), Negativland "fuses recitation of the lyrics to the Irish band's "I Still Haven't Found What I'm Looking For" with obscene outtakes of the radio broadcaster Casey Kasem's "Top 40" program, thirty seconds of the original recording, and a host of other musical and non musical materials",[64] as a mechanism to denounce the manipulation that the mass media exerts over its public, the fake nature and emptiness behind the products of record companies, the sole motivation towards individual profit behind the music business and the authoritative for-profit reasoning which dominates record companies and copyright laws.

However, one of the downsides of explicitly plundering from mainstream media and the music industry is that eventually, the industry can take legal action against artists who use *plunderphonics*

[61] See p. 64.

[62] For example, the style of the Tape-beatles "The Grand Delusion" (1993) bares striking resemblance to Guy Debord's cinematic work "The Society of the Spectacle" (1973) in its use of *détourned* images and sounds from the mass media.

[63] See pp. 66–67.

[64] Sanjek (2003), p. 359.

as a musical and artistic strategy. Unfortunately, that was the case for both John Oswald and Negativeland, who were respectively sued for copyright infringement. In the case of Owsald, it happened after a representative of the record industry got a copy of Oswald's *Plunderphonic CD* (1989) and legally challenged him for copyright infringement of Michael Jackson's *Bad* album. The copyright lawsuit was based on moral claims (they could not sue Oswald for financial circumstances since he had distributed the record free of charge) since according to the plaintiff, Jackson's photograph and music had been mutilated, damaging his image and misleading his fans.[65] As a consequence of this legal dispute, the recording was recalled and destroyed (including the master tapes) by Jackson's record company.[66] A similar outcome came out of Negativeland's release of their *U2* (1990) single: Island Records, the company that released U2's original song sued Negativeland not only for their unauthorized use of samples by U2 and radio broadcaster Casey Kasem, but also for the packaging which featured the letter U and the number 2 on the cover—the legal action eventually led to the destruction of all existing copies and a 25,000 dollar fine for the collective.[67] In both cases, projects that had only artistic motivations and no lucrative ambitions were impaired because of their creative appropriation of copyrighted material. The creative use of appropriation as a musical strategy may therefore be jeopardized by copyright laws. By restricting artists in their creative use of appropriation (including strategies like *détournement*, the use of readymades and *plunderphonics*), copyright laws—instead of protecting the artists—might handicap their creativity and restrict their freedom to express themselves and voice their opinion. Chris Cutler, has argued that these type of incidents calls for a long overdue rethinking of copyright laws.

> Current copyright law differs from country to country, but in general follows international accords. It certainly allows 'fair use' which would include parody, quotation and reference, though these may need to be argued and defended. This is a minefield in which only lawyers profit. So where The Beatles had to pay up for quoting 'In the mood' at the end of 'All You Need is Love', and Oswald had his work destroyed, Two Live Crew's parody of Roy Orbison's 'Pretty Woman' got off free as 'fair use'. . . . The rethinking of copyright law is long overdue. Recording has been with us now for more than 100 years.[68]

Cutler's argument springs out from a fierce debate that has been taken place ever since sampling recordings has become a common practice amongst musicians. This debate has also intensified with

[65] Oswald (2001), pp. 23–26.
[66] Ibid., p. 27.
[67] Metzer (2003).
[68] Cutler(1994).

the development of digital technology, since sampling has become a practice that is easier to perform and is more accessible and affordable to anyone who owns a computer. Additionally, the amount of recorded music that can be easily obtained, shared and copied through the internet, gives musicians a huge palette from which they can sample. Ethical and legal questions therefore have emerged regarding the intellectual property of recordings and how sampling might be considered either as a form of stealing or as a creative practice: On the one hand, a musician can use an existing recording to avoid or simplify the creative process—for example, within the music industry, sampling sometimes is used to save time and effort, minimize costs and maximize profit (to avoid paying a drummer, they might use a recording of a drummer or instead of 'coming up' with a good bass line, they might just 'steal' it from another recording). On the other hand, a musician may use a recording as part of the creative process or to enhance it—for instance, to re-contextualize it and give it a new meaning, to make a symbolic or cultural reference or to transform it and create something new. The first argument for sampling in my opinion is ethically dubious, while the latter one I believe should be considered morally acceptable. *Plunderphonics* as a practice I propose lies within the second argument (sampling as a creative strategy) as is the case with both of Oswald and Negativeland's sampling practices—not only have these artists clearly used the appropriated material creatively but also through the re-contextualization of these music/images they rise interesting concerns about culture and our condition within it. However important these moral questions are, I also believe that if one considers *plunderphonics* as a musical strategy, one should constantly scrutinize oneself with the simple aesthetic question of whether one is accomplishing something new and original through the process of appropriating recordings or whether one is not only making reference to past notions and definitions of music.

4.3.4 Elaborations on Musical Strategies of Appropriation

Having examined various musical strategies that in my view deal with the process of appropriation in significant and creative ways, I will now attempt to put forward some ideas about how to elaborate them. I will also present some personal suggestions and thoughts about how musicians may approach the practice of using creative work by others to feed into their own creative process. In doing so, I will consider recent technological developments that have taken place since the musical strategies of appropriation previously discussed emerged. Also, I will suggest that some aesthetic considerations since then have changed and that today we can approach some of the vital questions surrounding musical appropriation differently. Furthermore, the ideas I will elaborate here not only influenced and informed the submitted creative work, but also stem from aesthetic and musical concerns that I

have contemplated during the research period.

The tendency of today's musical strategies of appropriation (as it has also been happening within the fine arts) is towards expanding the palette of appropriated mateiral to include music that comes from less familiar and more obscure sources. In contrast to Negativland or John Oswald's approach to *plunderphonics*, where appropriated recordings exclusively come straight from consumer culture and from 'the top ten list' in the record store, today we can expand the sources we appropriate from to include music that comes from less known, more exotic, hidden or forgotten places. Moreover, if we have access to the internet, we have at our disposal an unprecedented amount of sound recordings and musical data (Midi files, synthetic sounds, videos, computer applications, code, etc.). We can draw from all music that is available to us instead of limiting ourselves to familiar music by pop stars and famous composers. Our musical 'vocabulary' therefore could increase if we appropriate from a wider palette of music: from songs by lesser known bands, smaller musical scenes, unknown composers and musicians distributed by small independent labels, to virtually unknown korean traditional music, obscure early music or exotic music for pygmy villages. By extending the sources we appropriate from, the musical results of appropriation strategies can be more idiosyncratic and personal. In other words, the musician can disclose the idiosyncrasies of their personality by selecting more distinct and peculiar musical sources. That is not to say however, that musicians should stop appropriating from mainstream music industry if they want to make a reference to, or commentary about, consumer culture or a particular pop artists.

At the same time, today appropriated music can be transformed and modified more extensively as a consequence of the development of digital technologies. Our ability as musicians to process digital data has increased drastically during the last forty years, and I believe we are becoming masters of musical information and sound transformation. Musicians today can, for instance, transform an appropriated sound recording so drastically that the original is no longer recognized as the source. Following the same logic, it is possible to algorithmically modify the information of an appropriated score to such extremes that the resulting music is no longer associated with the original composition. In other words, the amount of computer processing may affect a person's ability to recognize the appropriated musical source (whether it is a recording, score or some other type of musical information that can be digitalized). We have the possibility of applying different degrees of processing to the appropriated material, resulting in a wide palette of musical outcomes available to us: from the radically processed result whose appropriated original is less recognizable as the process takes over the source (possibly perceived as more 'abstract'), to the less processed result whose original

source remains recognizable (therefore perceived as a 'reference' or a 'quotation' of the original).[69] Consequently, we can use sources that are radically processed at the same time as sources that are less processed (or not processed at all), resulting in a type of musical result where 'referential' sources co-exist with music that could be perceived as 'abstract'. What's more, we can make the process of transformation of the appropriated source dynamic (the amount of transformation can constantly change in time). We can gradually (or more abruptly) change the degrees of processing applied to the original sources so that for instance, the appropriated material gradually could morph from a musical outcome that is perceived as 'abstract' to one that sounds like a quotation.[70] Of course, it would also be feasible to morph between appropriated sources, like Clarence Barlow does in *1981* with notated material, or by morphing two appropriated recordings of existing music through sound transformations (and therefore 'treating music as sound') using techniques similar to the ones Trevor Wishart uses in his work.[71]

Additionally, with the power of digital processing today we can also decide what particular features, structures, characteristics or parameters we wish to appropriate from music. Whether we appropriate score information, sound recordings, live audio/video or physical gestures, we can analyze the musical sources as long as the resulting information is digitalized. Furthermore, we can focus only on the *micro* or *macro* elements of the musical sources. In other words, it is not necessary to appropriate all of the elements of an existing piece of music, but only extract the desired details from musical data. Therefore, when appropriating notated information, we can consider only specific elements from a composition. Through the analysis of score or Midi information (or similar types of formats) we can for instance extract only rhythmic or pitch material, dynamics, harmonic progressions or tempo from the original composition to use as material for a new musical result. We can easily use more than one musical source and extract different parameters from different sources and then combine them. It is also possible to process and reorder the derived data from the original sources for our desired musical result. We can derive shapes, contours, phrasing, timing, orchestration and other musical abstractions. We could even map a musical parameter from one appropriated source to a different parameter of another source, therefore generating new information from nonidentical data types (this way we could for instance, generate rhythm from harmonic structures or notes from

[69] Here, Claude Lévi-Strauss's opposition between "the raw and the cooked" could be used to describe the two extremes of unprocessed ("raw") and heavily processed ("cooked") sounds. See p. 69.

[70] This happens to an extent in the last movement of Richard Barrett's *Vanity* (1990-1994) for orchestra, where highly complex and abstract musical material gradually transforms into more recognizable music, until at the very end of the composition it is possible to clearly identify a quotation of Schubert's *Der Tod und das Mädchen*. See Barrett (1996).

[71] See Wishart (1996).

dynamics). Moreover, when dealing with score information, through its analysis and abstraction we can decide to appropriate only the *macro* elements (larger structures) of music. Consequently, it is possible for example to only appropriate harmonic or phrase structures from an original composition and from them derive a structural blueprint for a new composition. In this way, we can appropriate the musical form of a source, only *macro* plundering the original composition.

In addition to using information derived from notation, we can consider appropriating particular features and data from recordings of existing music. With the power of computers, we may concentrate on desired features and parameters of sound. By using different types of computer analysis, we can extract specific information from particular characteristics of sound, such as pitch, rhythm, harmonic structure, noisiness, amplitude, etc. Therefore, we are able to select only the information we want to use from a recording. For example, we could select pitch information from the spectral data derived from an FFT of one appropriated recording, while just selecting the rhythm from the results of onset detection from another recording. Furthermore, if we consider Curtis Road's notion of *microsound*, we could also contemplate the potential of *microplunderphonics*. *Microsound* as described by Roads refers to *micro* elements of sound (or 'sound particles' as he calls them) both in the *window frequency-domain* (spectral domain) and *time-domain*.[72] *Microplunderphonics*, therefore could be a practice whereby musicians use the *microelements* of sound coming from appropriated recordings. However, I am not suggesting that *microplunderphonics* should be limited to a specific time or frequency scale (Roads considers *microsound* sound phenomena lasting less than one tenth of a second).[73] What I am proposing is that *microplunderphonics* is the practice whereby musicians extract information from appropriated recordings that is somewhat restricted in the frequency or time-domain. The original recording might still be recognizable but only through specific sound characteristics (either by timbre, pitch or other sonic properties). An example of *microplunderphonics* on a time-domain would be to isolate each separate piano attack from a recording of Glenn Gould[74] and reorder each segment such that it sounds like another piece of music. We would still hear that it is Gould playing the piano (the timbre would sound familiar to us) but the result would be so far removed from the original recording that it would have to be considered as a new composition. An example of *microplunderphonics* on a frequency-domain would be if we just extract the fundamental frequency of a vocal melody and re-synthesize it a different sound—even though we would loose the timbreal characteristics of the voice, we might still be able to recognize the original melody with its characteristic intonation. *Microplunderphonic* elements do not always need to be recognizable and

[72] See Roads (2001).

[73] Ibid., p. viii.

[74] Taking as a starting point its attack and ending point its release or yet another attack.

can also be used as pure sound, to generate clouds of 'sound-particles', to be heavily processed to produce new sonic material, to generate noise for sound synthesis models (instead of white or pink noise) or as any other type of *micro* element in the creation of sound.

Moreover, we can combine musical strategies of appropriation such as *plunderphonics* and *musica derivata* within the same *musical result*. That is to say, we can at the same time have a sounding result that combines appropriated sonic material derived from recordings and sounds produced by an instruemtnsl/mechanical realization of notated material derived from existing music. Additionally, we can also fabricate samplers from appropriated recordings and therefore be able to realize notated material with plundered sounds (one could make a sampler for instance by *microplundering* a recording of an instrument, isolating each single note and tuning it according to the pitch of each segment). In other words, we can derive notated material from either scores or analysis/transcriptions of recordings to be realized by either acoustic/synthetic instruments or by samplers made-up from plundered recordings. The distinction between *plunderphonics* and *musica derivata* therefore can be blurred.

Another consequence of the development of digital technologies and the increasing processing speed and power of computers is that today, the process of appropriation can take place in real-time.[75] Music can be appropriated, transformed, manipulated, analyzed and processed within the immediacy of the performance. Not only can we derive and transform preexisting appropriated material in real-time (for example by using records and transforming them in a live performance), but we can also appropriate material that is produced within milliseconds of its plundered result. In other words, we can use live performances of existing music (compositions, songs, specific styles, etc., originally not written by the appropriator) as source material for musical appropriation. In addition to plundering live audio signals, we can use live Midi signals and other types of musical data in real-time. That is to say, we can combine different types of data derived from various live performances of existing music simultaneously to create *real-time plunderphonics* and *live musica derivata*. Furthermore, if one plunders live performances from electronic instruments which produce no significant acoustic sound (the musicians could wear headphones to monitor themselves), the audience would only be able to hear the result of the process of appropriation—consequently creating a cognitive dissonance between audio and visuals: given that the live performances would not be audible in their original form, and only in their re-contextualized/transformed/processed result, what the audience would see would differ from what they would hear. In this type of performance the amount of processing of the audio signals is clearly exposed to the audience through the perception of the audio/visual relationship: the more processed the performances are, the more contrasting they will look in relationship to

[75] See pp. 54–56, for an examination of the some of the consequences of real-time computation in music composition.

what is heard through the speakers. In contrast to the *acousmatic* tradition, this type of real-time musical appropriation makes the process of appropriation transparent to the audience through the cognitive association between audio and visuals. Even though the appropriated musical source is not recognizable only through listening, it is visually exposed, disclosing visually not only the source itself, but also the amount of processing that is taking place at a particular moment (the original audible source however remains hidden from the audience). This type of real-time musical appropriation also changes the relationship with the appropriated Other: the performer becomes an accomplice in the process of appropriation (of themselves).

As we consider musical appropriation today, we might want to rethink some of the key issues that are relevant to musicians who use these strategies explicitly. First, we may want to reconsider what we as musicians appropriate—this includes appropriated musical objects (instruments, bodies, etc), materials (scores, recordings) and methods (compositional methods, performance practices). I suggest that we should not only attempt to plunder musical scores and recordings, but also consider appropriating performative and compositional systems, processes, schemes and algorithms explicitly. Given that some of these methods are implemented within computer technologies, we may consider sharing, plundering, using and modifying computer code, programmes and applications written by others.[76] This includes for instance open source software, Max/MSP patches, computer code in high and low-level computer languages and programme libraries. I believe appropriating and sharing code (or patches) is vital to the continuing development of computer music applications and within code that is produced to create music there is both musical and compositional knowledge that is valuable. While in a score or recording only the notated or aural result of music is disclosed, computer code may reveal within it the compositional/performative process itself. In addition to rethinking what we as musicians appropriate, we could also reflect on where we appropriate from: Do we appropriate from the 'flea market' or the 'shopping mall'? From the music industry or independent labels? From the internet or from our physical surroundings? From western or non-western cultures? Also, we may ask ourselves who are we appropriating from: Are we plundering music by a historical or living composer/performer? A specific pop star or an unknown and obscure musician? Someone we know personally or someone we have not met? Furthermore, I believe we should ask ourselves why we are appropriating these sources: is it for their cultural significance or do they have a personal meaning to us? Do we want to a suggest a metaphor through the symbolism implied by the sources or are we only interested in them for their use or sonic qualities? Are we using these sources to showcase

[76] See pp. 56-57, for a brief consideration on how coding practices may affect the creative process and the act of composition.

them in different configurations or in an attempt to create with them something significantly new? Finally, I believe that the last question that we should ask ourselves regarding musical appropriation is how we as musicians appropriate—the process by which we borrow or plunder and how we modify, transform or re-contextualize the appropriated objects, materials and methods, as well as how this affects the perception of the musical result. I hope that through this chapter I have opened up some possibilities and ideas of how this question might be answered. I consider that reflecting about these important issues regarding the process of appropriation is vital for the musician's creative process as they can be revealed within the *musical result*. The relevance of the answers to these key questions is especially significant today if we seek to create something new through musical appropriation.

Chapter 5

Computer Programmes

Writing computer programmes has been an integral process in the creation of the submitted work. The development of computer programmes during the period of research has run simultaneously with my aesthetic and musical concerns. From composition and conception to performance and realization, producing computer programmes and making music have merged within the same creative process. Consequently, my musical practice has become deeply connected with computer programming and the use of computer applications. It is also worth mentioning that the programmes developed as part of the creative process have been specifically devised for my particular musical interests and that the process of their development has influenced my own musical thought up to the point that it has changed the way I think about musical practice and the act of composing. Additionally, these computer programmes have had significant effect over varying aspects of the *musical result* and their impact is apparent in the submitted work. Therefore, understanding how these programmes work might also give an insight into my musical output. At this point, I would also like to clarify that these programmes do not serve a function beyond the idiosyncratic practices that constitute my creative process. In other words, these programmes were written only taking in consideration my own artistic and musical concerns and therefore they do not aim at contributing to the scientific and technological developments of computer music. Instead, they only represent a set of tools and documentation that other artists, musicians and composers might find useful in understanding my work and hopefully may also inform their own practice.

In Chapter 3, 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 also particularly interested in using technology to implement the strategies of appropriation described in Chapter 4. As

was argued previously, digital technology has radically changed how we as musicians appropriate from our surrounding culture. The potential of the musical strategies of appropriation that I discussed in Chapter 4, which are only possible through recent technological advancements,[1] are worth exploring through their implementation as computer applications. Additionally, I also have argued that writing and sharing computer code not only has become a practice by which musicians may collaborate and document their work, but that the act of coding musical programmes may serve as a self-reflcting process regarding the *musical result*.[2] For the above mentioned reasons, I will briefly explain a number of key computer programmes that were developed during the research period.[3] These programmes were written in the SuperCollider[4] programming language. I decided to use SuperCollider as a platform to develop these computer programmes because it integrates a powerful audio synthesis server using state-of-the-art 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.[5] Another advantage I considered 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 programmes I developed and which will be discussed in this chapter were written as SuperCollider classes,[6] but some of them are extensions of already existing classes or code that can be evaluated in real-time in the interpreter. The programmes 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.

5.1 Spectral Tracking

In Chapter 4, I briefly described musical strategies that use spectral information gathered from an FFT (Fast Fourier Transform) analysis to derive notated material to be either transcribed to a score for classically trained musicians to perform, or to be realized by a mechanical instrument. I partic-

[1] See pp. 87–93.

[2] See pp. 56-57.

[3] The computer code for all of the programmes and compositions developed as part of the submitted work can be found at my public code repository at `http://github.com/freuben/`.

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

[5] See McCartney, (2002), pp. 61–68, for a discussion about the differences between SuperCollider and Max/MSP, Pd and Csound.

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

ularly focused on Clarence Barlow's *Synthrumentation* and *Spectactics* techniques.[7] Additionally, I also examined the possibility of using these techniques as a strategy for *musica derivata* to appropriate spectral data from recordings of existing music and use it as material in a new composition. Furthermore, I also argued the potential for implementing real-time techniques to appropriate both pre-existing recordings and live performances.[8] For the above mentioned reasons, I implemented a group of SuperCollider classes that deal with both real-time and non-real-time partial extraction. Partial Tracking classes are implemented for real-time extraction of selected spectral data to be used for live performances but may also be used to analyze sound files. Partial Tracking can be used for live-electronics applications for *real-time plunderphonics* and *live musica derivata*. One of the main compositional decisions one needs to make regarding the use spectral data is precisely what information is valuable to us, given the vast amount of data resulting from an FFT analysis. That was my main concern in writing the SuperCollider classes that reduce spectral information from the SPEAR programme. The resulting programmes therefore reduce spectral information by only considering pivot points. The result of this type of reduction is quite different from the partial tracking techniques and can generate interesting rhythmic and melodic results. All of these programmes in different configurations were used and specially devised for the submitted work.

5.1.1 Partial Tracking

The two main partial tracking classes perform very simple reductions of data derived from an FFT to be used for *Synthrumentation* or as data for other real-time applications. The PartialTracker class returns small lists of values for frequency and magnitudes. The amount of values is determined by disregarding the weakest spectral data and at the same time taking the strongest partials of a given moment. FFTFilter is an implementation of a resonant band pass filter that is controlled through the information gathered by the PartialTracker class. It does so by taking the highest and lowest frequencies in the list of values to determine the bandwidth and center frequency of the filter. I will now explain in more detail how these classes have been implemented and what functionalities they perform.

[7] See pp. 76–77.
[8] See pp. 91–92.

PartialTracker

PartialTracker[9] 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 PV_MaxMagN[10] 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[11] to store this information into a buffer. Once 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 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[12]. 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.

[9] See http://github.com/freuben/FedeLib/blob/master/PartialTracking/PartialTracker.sc.

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

[11] PV_MagBuffer and PV_FreqBuffer are part of JoshUGens.

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

FFTFilter

FFTFilter[13] 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 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 5.1 shows a spectrogram of speech and

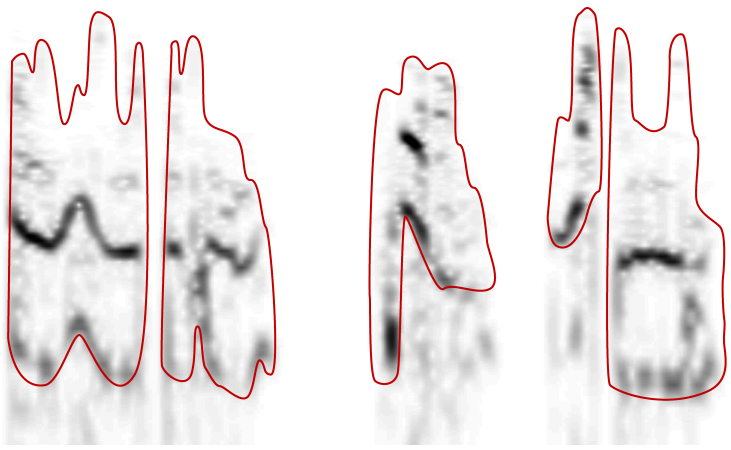

Figure 5.1: FFTFilter: Spectral mapping of vocal contour.

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 5.2 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 5.1. Once 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

[13]See http://github.com/freuben/FedeLib/blob/master/PartialTracking/PartialTracker.sc.

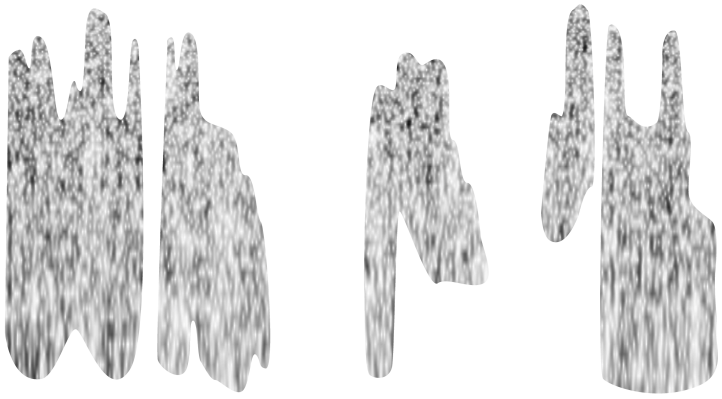

Figure 5.2: FFTFilter: Noise filtered by vocal contour.

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.

5.1.2 Spectral Data Extraction and Reduction

The type of spectral information that can be extracted by using the SPEAR software can be useful as it could yield results that can be translated in valuable melodic and rhythmic material. For that reason I was attracted by the type of analysis that SPEAR performs. The advantage of SPEAR is that it allows selection of each partial as a sinusoidal track from which we can more easily extract melodic content. In contrast to the PartialTracker class which takes the strongest bins at a given moment, SPEAR stores its information by partials and displays them visually so than one can select specific partials. Then one can access that information in a text file by partial instead of by frame, which facilitates the extraction of points within each partial. For that reason the data reduction in my opinion results in information can translate to gesture more successfully than for instance the PartialTracker class, or other form of partial extraction which attempts to derive chords either through a snapshot of an FFT or through the averaging of spectral data within an event determined by onset detection (an event being the time between the onsets). The drawback of this type of spectral extraction is that it can not be performed in real-time. I will therefore continue to explain how these classes take data from SPEAR and reduces it to an amount of information that can be used for *musica derivata*.

SpearToSC

SpearToSC[14] is a class that takes data from the open source software application called SPEAR[15] and transfers it to an array in SuperCollider. SPEAR uses a variation of the traditional McAulay-Quartieri procedure to represent sounds as individual sine waves (for each partial) with time varying frequency and amplitude.[16] SPEAR provides a graphical representation of a sound[17] (as seen in Figure 5.3) 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

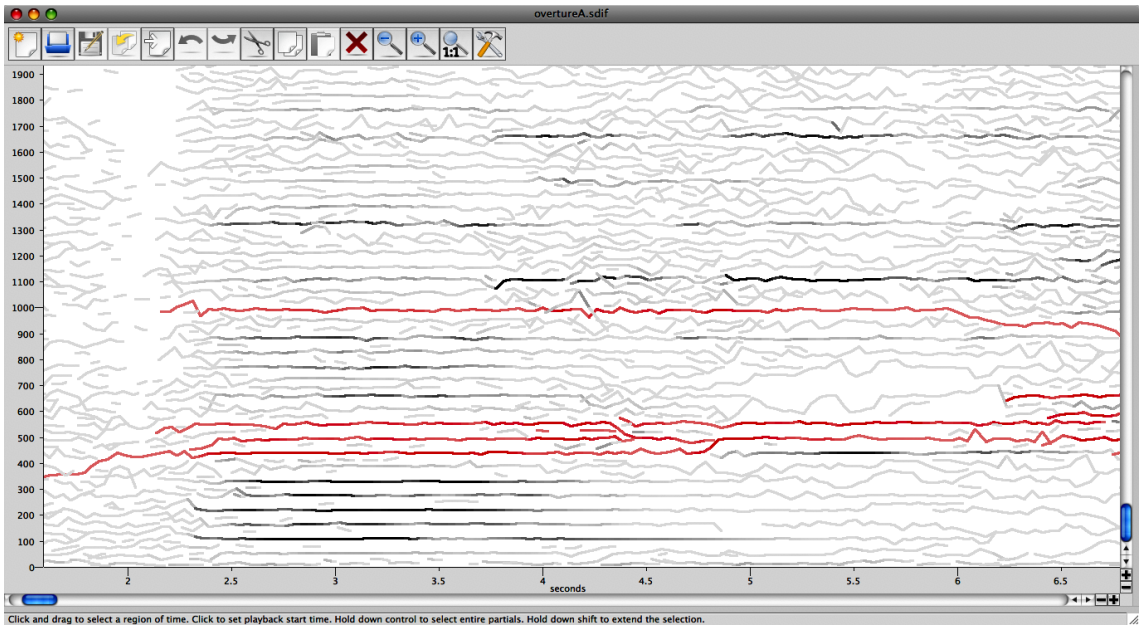

Figure 5.3: SPEAR graphical interface.

partial is given by frame and can be stored in a text file. SpearToSC reads the text file produced by SPEAR[18] 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.

[14] See http://github.com/freuben/FedeLib/blob/master/SpearToSC/SpearToSC.sc.

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

[16] See Klingbeil (2005).

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

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

SpearToMIDI

SpearToMIDI[19] 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. 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 5.4); it breaks the partial in different groups by introducing

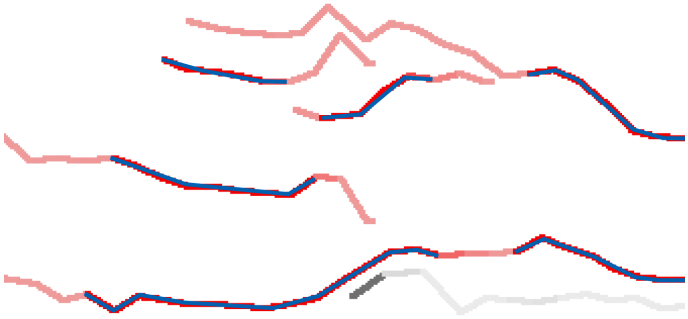

Figure 5.4: SpearToMIDI: Amplitude threshold selection.

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). Figure 5.5 shows how the lines representing the groups in Figure 5.4 are traced by selecting the points that cross a given interval.[20] If the interval is of one semitone then the 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

[19] See http://github.com/freuben/FedeLib/blob/master/SpearToSC/SpearToMIDI.sc.

[20] 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.

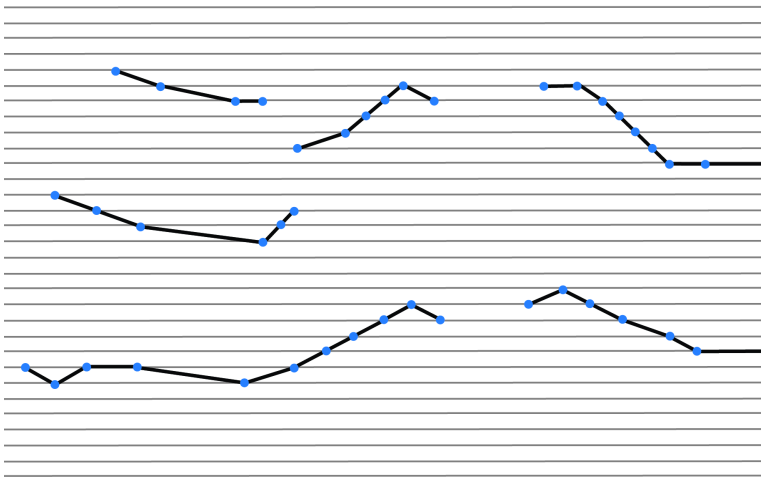

Figure 5.5: SpearToMIDI: Point selection through frequency modulation threshold.

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 5.6 shows the note representation derived from

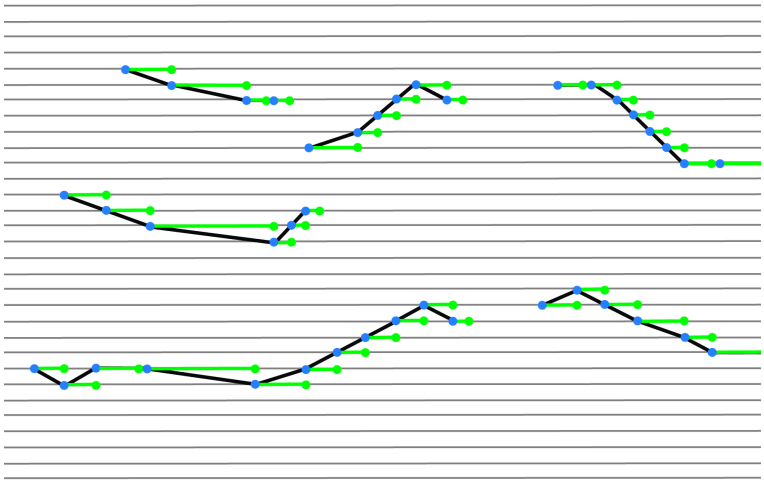

Figure 5.6: SpearToMIDI: Note representation.

Figure 5.5, 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[21] 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 the purpose of not having too many notes in the same track. These results can be used to create a list of Open Sound Control (OSC) 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.

5.2 Computer-Mediated-Performance

In my discussion about *interpassivity*,[22] I already pointed at some of the possibilities of using technology within a performance, not as an active agent which produces sound, but on the contrary as a passive agent which only gives instructions to the musicians on stage and directs them towards activity. The idea of using computer technology to direct performers rather than to produce sound inspired me to devise a series of computer-mediated-performance tools. The idea of implementing these tools was also attractive for the potential they show to rework musical strategies that have been established through conventions in composition and performance. Moreover, the idea to devise such tools has also been largely motivated for the prospects they have to facilitate new collaborative possibilities with musicians that come from different performance backgrounds and traditions. During the research period, I have put into practice these performance tools with musicians from a diverse background—some trained as classical performers who read notation and some as improvisers—yielding very positive results that can be found in the submitted work.

5.2.1 Real-Time Scoring

The most important aspect of the computer-mediated-performance tools I have developed is their real-time scoring capabilities. The main motivation behind writing this computer score with real-time capabilities was Simon Emmerson's idea of creating a 'superscore' that combines visual and oral forms communication within a multimedia object.[23] When I had in mind implementing such

[21] Using the SimpleMIDIFile class that is part of wslib by Wouter Snoei, which is can be obtained as a Quark.
[22] See pp. 46–50.
[23] See pp. 39–42, for a further discussion about Emmerson's 'superscore' and some ideas of how to develop it'.

a computer programme, I decided that it would have to be flexible enough to use different types of notation and graphics, it would have to display conventional and colored text as well as images and videos. The programme also would have to have the ability to display visually the results from algorithmic/generative process and from real-time audio analysis. The most important consideration was that it had to be dynamic and be able to not only direct the performers on stage through time structures but also to generate score animations. The aural part of the score would not only have to be synchronized with the visual element, but would be able to be generative.[24] Given all of the complications that building a stand-alone application that would perform all of the above-mentioned functions implied and that I wanted to keep the application flexible enough, I decided to instead implement it as separate SuperCollider classes that one could integrate as one wished. Therefore, the audio and the visual elements, even though they can be synchronized, are run through separate classes. Given that SuperCollider is a computer language that specializes in audio and has already many implemented functionalities that I could use for the aural elements of the score, the crucial element I attempted to implement was the visual features. This resulted in a SuperCollider class which is flexible enough to convey different types of notation, graphics and directions as well as adding movement to the expressive palette of a conventional paper score. I will now describe how this class was implemented and how it works.

AlgorithmicScore

AlgorithmicScore[25] 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[26] 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 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

[24] The results of the computer-score I devised can be appreciated in *On Violence* and *Žižek!?*. See DVD II and III.

[25] See http://github.com/freuben/FedeLib/blob/master/AlgorithmicScore/AlgorithmicScore.sc.

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

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 leger line below 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—where 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[27] and are concatenated to respond to the enharmonic mode. In addition, an expression to play *piano* and a text description are added. Figure 5.7 shows the GUI that the AlgorithmicScore class creates when the code above is evaluated.

Another feature of the application is a piano clef type which instead of creating only one staff that responds to the corresponding clef, 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

[27]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.

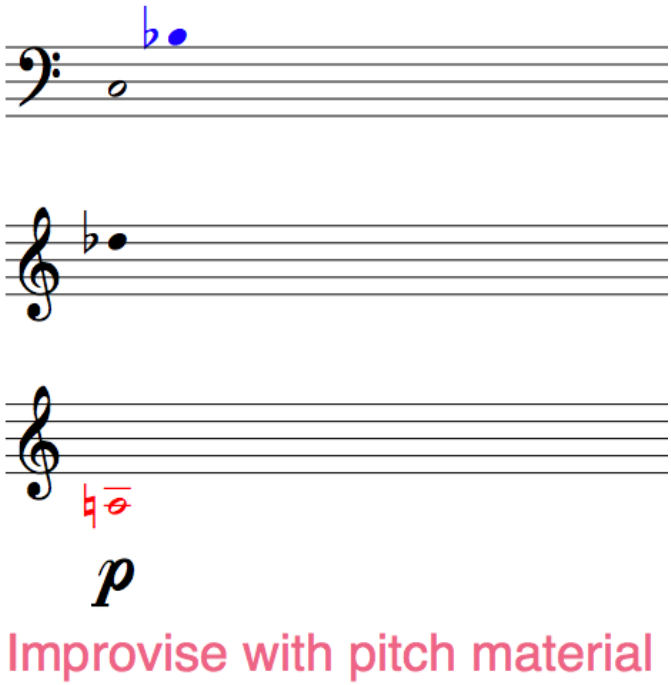

Figure 5.7: AlgorithmicScore: Enharmonic mode.

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);
```

The *notes* message[28] 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 5.8 shows the resulting score generated by the code. Note that the notes are spread between

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

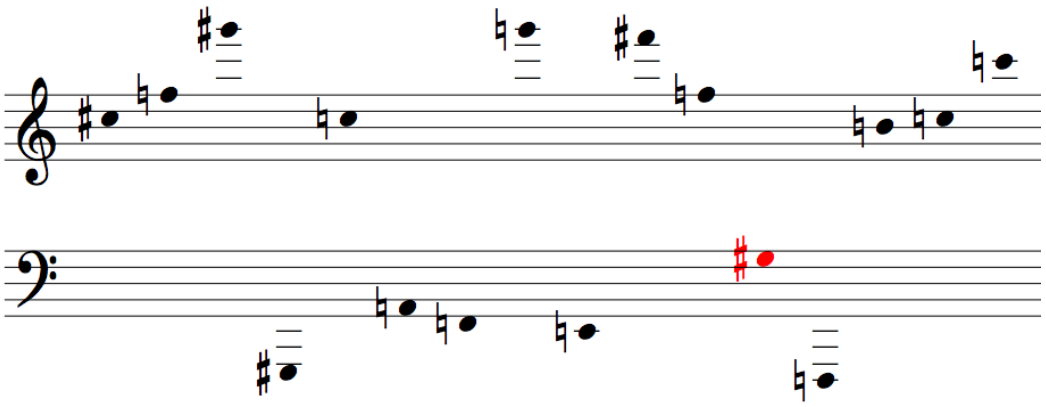

Figure 5.8: AlgorithmicScore: Chromatic mode.

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 visualize pitch or rhythmic information derived from machine listening techniques such as partial tracking. Real-time scoring is especially relevant when using machine listening programmes because the material that is notated is extracted from sound characteristics that are specific to the moment and space of the performance. Figure 5.9 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.

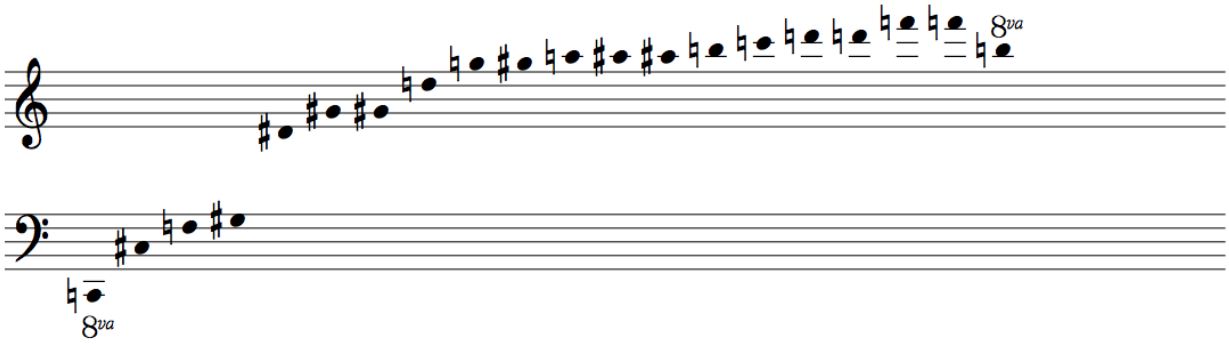

Figure 5.9: AlgorithmicScore: PartialTracker to Notes.

A sense of movement can be generated using the AlgorithmicScore class if the notes and other graphics are imbedded within a *routine*.[29] Therefore, it is possible to animate the graphical user interface including the notation elements for different purposes. One purpose for using score anima-

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

tions 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.[30] 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.[31] 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.[32]

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 convey rhythm.[33] 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.[34] 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 devices (HIDs) such as Midi controllers and pedals the performer may interact with the score. This might 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

[30] For example, see DVD III (*Žižek!?*) > Documentation > Performance Materials > Score Parts > Piano > *12:30–13:05*.

[31] See DVD III (*Žižek!?*) > Documentation > Performance Materials > Score Parts > Bass > *12:35–13:15*, for an example of notes gradually moving horizontally and vertically.

[32] See DVD III (*Žižek!?*) > Documentation > Score Demo, for an example of the applications of real-time scoring.

[33] For example, see DVD III (*Žižek!?*) > Documentation > Performance Materials > Score Parts > Drums > *12:25–13:00*.

[34] For example, see DVD II (*On Violence*) > Documentation > Performance Materials > Score Demo > *3:40–4:00*.

triggering spectral data extraction to be displayed in the computer display with different types of sensors.

5.3 Computer-Aided-Composition Tools

As part of my creative output, I have developed computer programmes 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.[35] An important component to this library is a collection of extensions[36] 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. I will not attempt to describe all extensions as it would be out of the scope of this discussion but I will focus 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.

5.3.1 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 piece of music with an idea of a macro-structure and then gradually start considering the micro-elements of the composition. 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 who I consider excel in dealing with macro-structure.[37] I started by analyzing the score of these compositions and then tracing their phrase structure which I would use as a blueprint for my own composition. Each voice or staff would be considered as different layers containing phrases that would start and end depending on where

[35] See http://github.com/freuben/FedeLib.

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

[37] In the discussion about musical appropriation, I have already discussed the possibilities of appropriating only *macro* elements of already existing music. See pp. 89–90.

silences occur. I would then create 'empty containers'[38] with the phrase structure of each voice of the appropriated composition. I would sketch in a piece of squared paper the start and end of phrases according to a time scale. Once I had sketched a diagram 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 less rigid interpretation of these blueprints. Nevertheless, I still always begin by reducing an existing score by another composer to its basic macro-elements as a starting point for my own composition.

Considering that this is a process that is recurrent in my compositional practice and I always sketch the phrase structure of the existing scores similarly on paper, I decided to programme an application in SuperCollider that takes information from a Midi file and creates a visualization of its phrase structure. I developed extensions for the SimpleMIDIFile[39] class to perform these operations. The message *trackSilence*[40] analyses a Midi file[41] track and locates the starting and ending points of silences. The application analyses the Midi note-on and note-off messages and finds the moments where notes are not being played. It is possible to specify a time threshold (either in ticks or seconds) that ignores silences smaller than the given value. This way silences that are shorter than those which are notated may be ignored such that only the written silences are considered. The following example shows the results given in a multidimensional array that specifies the start and end times of the silences.

```
[ [ 17.14284, 17.92206 ], [ 38.961, 40.51944 ], [ 50.416336, 51.034892 ],
[ 56.601896, 57.220452 ], [ 70.210128, 72.065796 ], [ 88.77462, 89.154366 ],
[ 95.610048, 96.36954 ], [ 105.483444, 106.242936 ], [ 118.394808, 119.1543 ] ]
```

Once the results for the timings of silences for each track of the Midi file are obtained, it is possible to create a visualization of the phrase structures. The *phraseStructure* message creates a GUI window that displays this information by converting time values to pixels to create a visual representation of the Midi file. Figure 5.10 shows the result of the visualization of a Midi file of a

[38] This is a concept originally formulated by John Cage. See pp. 81-82.

[39] SimpleMIDIFile accesses Midi file information in SuperCollider. See p. 103.

[40] See http://github.com/freuben/FedeLib/blob/master/Extensions/FedeExtensions.sc. for the FedeLib extensions including SimpleMIDIFile's *trackSilence* message.

[41] The Midi file's content must have the standard Midi layout and specifications for scored music. If a Midi file does not follow this specifications, it can be edited so that it meets the requirements for a coherent visualization.

section of Johannes Ockeghem's *Missa Mi mi*. Each Midi track is represented as a different color and

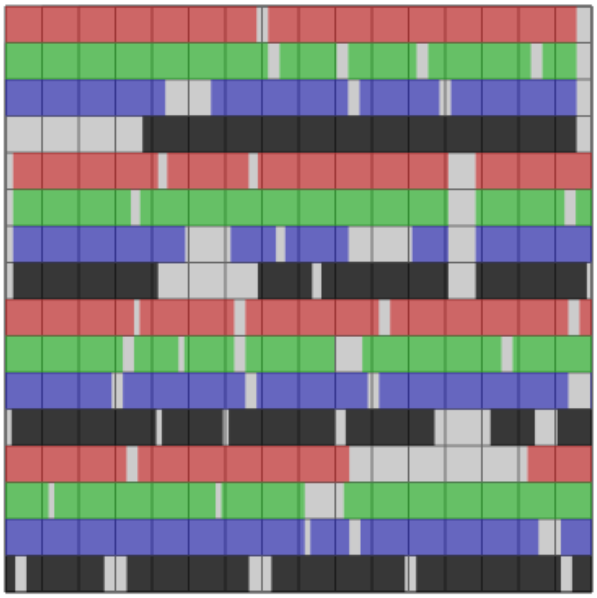

Figure 5.10: Visualization of Ockeghem's *Missa Mi mi*.

the silences are displayed in light grey. The Midi tracks represent the different voices of the *Missa Mi mi*, where the red stands for the *discantus*, the green for the *contratenor*, the blue for the *tenor* and the black for the *bassus*. The x-axis represents time and each square equals to a value for time that can be specified by the user. This enables the user to 'zoom' in and out of the phrase structure. The combinations of these elements of representation result in a visualization of the phrase structure for each voice of the existing composition that may serve as a map of the structure or blueprint for the new work. The application can also produce a black and white printable version of the visualization. Figure 5.11 shows a printable version of the visualization of the Midi file of Gesualdo's madrigal *Se la mia morte brami*. This Midi file has five tracks which represent the different voices of the madrigal. The representation of the Midi file displays the silences in dark grey and the phrases in white. This is with the purpose of being able to consider the phrases as 'empty containers' and write annotations in the printed result on what kind of 'material' these containers may be filled with. That is to say, the result can be used as a sort of pre-compositional design for the new composition and the printed version allows the composer to make notes on different levels of decision making through time.[42]

[42]See *Structure Maps* in DVDs I–III (they can be found in Documentation > Performance Materials) for examples of compositions which used this application of *macro* plundering the phrase structure from other compositions to create not only pre-compositional blue-prints for new compositions but also to be used as performance material (they were used as study material for performers or as 'scores' to guide the musicians during the performance).

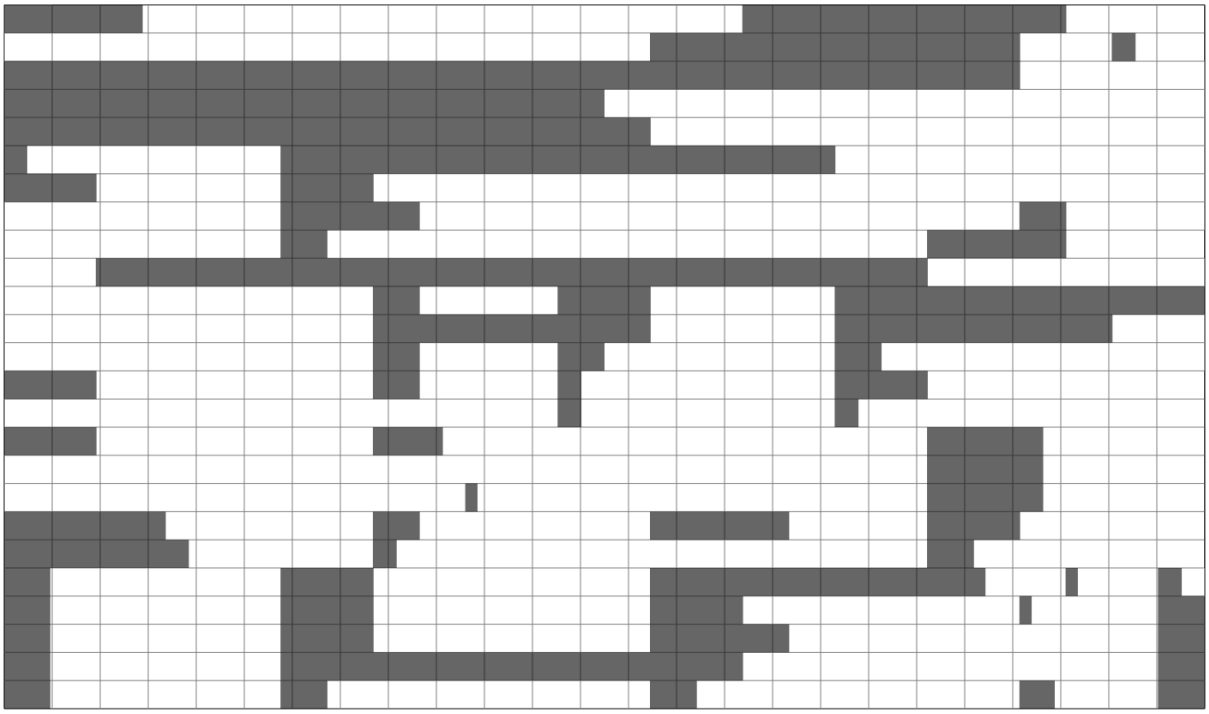

Figure 5.11: Visualization of Gesualdo's *Se la mia morte brami.*

5.3.2 Midi Triggering

Following the idea of using existing compositions as a blueprint for the design of a new work, I have continued to write programmes that trigger events and processes through Midi messages. For example, these events or processes might be used to trigger and control synthesis definitions, Midi events and even real-time scoring. I have written various extensions of SimpleMIDIFile to use the messages from a Midi file for this objective. These extensions employ a Midi file as a control structure for triggering functions of different types. The extension *playTrackType* plays different types of Midi events in a Routine. One can specify a track number, type of Midi event, function to be evaluated when the event is triggered, starting time for the Midi file and value to change the tempo by multiplying it to the original tempo of the Midi file. The function that is evaluated contains as arguments the specifications of the Midi events—for example, Midi channel, note and velocity, which can be accessed by the user. It is possible to use these values to control the events or processes of the new composition. Additionally, the *sectionPlay* message uses the information obtained by *trackSilence* to evaluate a function each time that a phrase or silence starts. Furthermore, the *phrasePlay* message evaluates two different functions: the first is evaluated at the beginning of a phrase and the second at the beginning of a silence. These two extensions respond to the same arguments as *playTrackType* and can be useful for controlling meta-structures. They can also be

used by the AlgorithicScore class to give cues to performers or trigger score animations.

Given that the Midi files which are created with the information from a score are quantized and therefore can be lacking in expression for a given purpose, I have also designed similar programmes that work with incoming Midi data from a human performer. The computer can analyze the information in real-time and trigger events and processes that the composer programs before the performance. This type of application can be used in *real-time plunderphonics* and *live musica derivata*[43] as a strategy to control structures in a live performance.

In this chapter, I have briefly described key computer programmes developed as part of the creative process during the period of research. I have used these programmes to generate material for fixed electroacoustic music, notated material for human/mechanical realization, as well as for compositions involving live electronics. I have also implemented some of them in a computer environment within SuperCollider for live improvisation.[44] This environment allows me to access easily a wide variety of functionalities within SuperCollider and including some of the computer programmes discussed in this chapter. It does so through a 'call window', where the user types key words to build his own 'patch' in real-time, specific to the improvisational context.[45] These computer programmes were also used to put into practice some of the concepts developed in Chapter 3 and Chapter 4—especially the notions of *real-time plunderphonics* and *live musica derivata*. The programmes described in this chapter have also had considerable effect in the music presented as part of this submission.

[43] See pp. 91–92.

[44] See `http://github.com/freuben/Instruments`.

[45] This environment implements a simple version of *live coding* and aims at having a modular approach to live-electronics without the complications and lack of immediate response (in my view necessary to interact with improvisers playing acoustic instruments) that are usually involved in writing code in a live situation. See Collins, McClean, Rohrhuber and Ward (2003), for a further discussion about *live coding*.

Chapter 6

Compositions

This chapter aims to briefly describe the portfolio of submitted work. However, this chapter focuses exclusively on technical and musical descriptions of the musical output and does not have as its purpose to serve as a wider commentary on the submitted work—the previous chapters already serve as a meta-commentary on the wider concerns underlying the creative process and musical output. These portfolio I believe reflects the various musical practices that I have been involved in during the research period, which include compositing, improvising and performing as well as writing computer programmes. Furthermore, within my creative practice, these different activities are often interconnected, resulting in work that sometimes is difficult to categorize only by using this traditional definitions. Therefore, the submitted work also includes a wide variety of outcomes which maybe identified as different types of work. I tried not to exclude any type of musical outcome that comprises my creative practice, however by doing so I am aware that my work might appear as having lack of focus. Nevertheless, I consider the diversity of outcomes from my practice to be a feature of my creative process and instead of repressing this particular characteristic about my work, I attempt to embrace it. For that reason the type of work presented as part of this portfolio includes simple as well as more ambitious projects, some of which are ongoing and could be perceived as unfinished. Moreover, considering that my work seeks to rework musical strategies that might be regarded as fundamental to the way in which we traditionally create, perform and experience music, I believe my practice is experimental in nature and for that reason I consider it is important to present work that not only presents successful outcomes, but also failed and incomplete experiments. I have divided the portfolio of work in five main projects. The first project is *E-tudes*, a set of four pieces for live electronics and six pianists playing stage pianos. I will attempt to explain the various elements that comprise this work which can be presented as a concert performance or as an installation with performative elements. First, I will describe the basic set-up and computer programmes that are

fundamental to the way in which all of the four pieces are performed and presented, later examining each individual 'e-tude' in more detail. The second project I will examine is a piece called *On Violence* for piano, live electronics, sensors and computer display. I will describe how this work is performed and how it was composed, including the way in which the multimedia score combines conventional with real-time notation and how the pianist interacts with the score, sensors and live electronics. The third project is *Žižek!?*, a computer-mediated-performance for three improvisers that serves as an alternative soundtrack to a documentary about slovenian philosopher Slavoj Žižek. I will explain how the improvisatory elements are incorporated within a pre-composed structure in this performance through real-time scoring strategies and how the final musical outcome is related to the audio of the documentary itself. The fourth project is a collection of short pieces called *FreuPinta*. I will first explain the nature of these small experiments, including the reason why I think they have aesthetic value on their own and should not be ignored from the rest of the submitted work. Then, I will divide the experimental pieces into different groups based on their characteristics and I will briefly examine the reasoning behind their creation. Finally, I will briefly describe the fifth project which consists of a selection of different improvisations that I devised or participated in using the computer environment I developed for live improvisation.

6.1 E-tudes

E-tudes[1] is a set of electronic *études* for six stage pianos, live electronics and mechanical piano.[2] These compositions were written for the ensemble **piano***circus*[3] for a project that became a two-year collaboration and lead to two performances.[4] What initially attracted me to this ensemble was its very particular instrumentation consisting of six electronic stage pianos. I thought this would be a suitable platform to experiment with the notions of *real-time plunderphonics* and *live musica derivata*,[5] considering that these instruments are electronic and therefore produce no considerable audible acoustic sound.[6] Like a book of *études* from the repertoire, *E-tudes* consists of a set of pieces that can be performed together at the same event or individually as separate short pieces. At present

[1] See Contents of Portfolio: CD I (*Compositions*), Tracks 1–4 and DVD I (*E-tudes*).

[2] In case a mechanical piano is not available, it is possible to use a sampler with piano sounds.

[3] See http://www.pianocircus.com/

[4] Enterprise 08 Festival, The Space, London, May, 2008, and The Sound Source, Kings Place, London, July, 2009.

[5] See pp. 91–92.

[6] 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 there are no sounds playing through the speakers (or they are very quiet).

time, I have completed four 'e-tudes', and as an ongoing project, I will continue adding new pieces to the collection. *E-tudes* is modular in the way in which it can be presented: depending on the set of circumstances for a given event, they can be presented separately or as a whole, either as a concert performance or as 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 to various headphones that are distributed through the performance space and generate different outputs, 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 computer from the performance, which the audience can choose from. It is also possible to have a performance were the members of the audience are wearing wireless headphones that can receive multiple channels that are transmitted in the performance space, therefore allowing them to choose which channel and output from the performance they want to listen to.[7]

I use the same configuration for all of the pieces that comprise *E-tudes*: 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 at will—they can select the *études* they prefer to perform (for example, *études* by Chopin, Debussy or Ligeti, to mention just a few)—and are asked to play them in their chosen order 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 a computer that transforms the audio signal from the *études* and schedules the computer processing events. The audience is 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 (performing the live electronics part)[8] performs different tasks: at some points s/he speaks the Madrigals' text into a microphone and the spectral information from this signal is used to process the final audio output and to trigger other sound events, and at other times s/he mixes the resulting sounds, controls different parameters in the computer processing and triggers sounds with a Midi controller. The live electronics part is not fixed, leaving space for improvisational elements within the human/computer interaction. Finally, through the analysis of all the inputs the computer sends Midi messages to the mechanical piano, adding yet another element to the performance. In the room the final result of the creative process of combining the simultaneous performances in diverse

[7]This was the case in the performance at Kings Place.

[8]In the previous performances of *E-tudes*, I have performed the live electronics part myself.

arrangements is diffused through the speakers. In the installation version, the headphones that are spread through the performance space 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.

Computer programmes play a vital role in *E-tudes* and were written in SuperCollider—some of these programmes are discussed in Chapter 5 but some were exclusively written for *E-tudes*.[9] These programmes are used to analyze incoming Midi data to schedule events[10] and for digital signal processing (DSP). The incoming Midi events from the pianists playing Gesualdo are analyzed and divided by each voice of the original madrigals. The computer analysis using score following techniques tracks each voice and according to its position in the score, schedules specific DSP events. The Midi *note* and *velocity* information in some occasions is used to determine certain parameters in the DSP algorithms. The DSP algorithms of the live electronics use as input two mayor audio sources: the input of the combined live audio of the sound generated by the three pianists playing *études* and *micro* elements[11] derived from various recordings of existing music which I chose to appropriate. The individual live audio signals coming from each pianist playing *études* are interpolated[12] with one another (by altering the pitch and volume of the signals).[13] The live electronics performer can change the duration of the interpolation between *études* with the Midi controller. At the same time, the resulting signal is then pitch-shifted again through several pitch ratios (the original signal results in five different signals with varying pitch) generating multiple signals that are then mixed together. The sounding result is a very noisy signal which could be described as 'piano noise' (it still retains a piano-like quality). I then utilize the 'piano noise' as input in synthesis algorithms which filter it using several techniques. The 'piano noise' however is very different to *white noise*, *pink noise* or any other types of noise used in classic synthesis techniques in that its spectral flux is constantly changing and its rate and amount of change is fairly irregular. Additionally, the live electronics performer can change the sonic qualities of the 'piano noise'—and therefore also change its spectral flux—by altering the interpolation time of the live audio signals coming from the pianists. Some of the 'e-tudes' in their final result (the output diffused through the speakers) are composed exclusively using synthesis algorithms which use this 'piano noise' as input. At the same time, in the

[9] The code for these computer programmes can be found at `http://github.com/freuben/Etudes`.

[10] See p. 113.

[11] See pp. 89–90.

[12] What I mean by interpolation is a transformation of one sound to another through a process that does not necessarily fit the description of 'morphing'.

[13] Each signal is interpolated with the other by gradually pitch-shifting one signal down four octaves and fading out its volume gradually, while at the same time introducing the next signal which would be pitch-shifted four octaves down and gradually transposing it up until its normal pitch, and by gradually fading it in.

installation version, the audience can listen through headphones to the different outputs at different degrees of processing—for instance, one of the headphone outputs is made out entirely of material generated from the interpolation of *études*, while another one reveals the 'piano noise'. The original appropriated sources (the *études* and the madrigals by Gesualdo) are also revealed closer to their original form through certain headphone outputs. The algorithms that control the overall process have also generative elements—each time they are performed, they generate different results. The generative characteristics of the algorithms, the varying incoming data from the live performances (the *études* chosen by the pianists change for each performance of *E-tudes*[14] and the incoming Midi data from the madrigals varies each time they are performed) as well as the improvisatory elements in the live electronics performer's part, makes *E-tudes* an electronic composition that changes (both in content and performance) each time that it is presented, however maintaining certain elements that identify it as the same composition.

E-tude I is based on the first madrigal of Gesualdo's *Sixth Book of Madrigals* called *Se la mia morte brami*. In *E-tude I*, 'piano noise' is filtered in different ways using various subtractive synthesis algorithms. Several algorithms take the live electronics performer's voice reading the words of the madrigal as input to filter the 'piano noise' using different filtering techniques. The most prominent filtering techniques using the voice as input are vocoding (using a variation of the 'classic' vocoder algorithm) and the FFTFilter described in the previous chapter.[15] The microphone signal is also used for onset detection, and the live electronics performer may trigger different percussive sounds (generated by filtering bursts of 'piano noise' at different frequency ranges) with his/her voice. Spectral gating (FFT technique which ignores the frequency bins which have magnitudes bellow a certain threshold) of a limited frequency range of the 'piano noise' is another technique that is used to isolate the strongest frequencies in a specified range—the resulting frequencies are used as pitched material that is presented either in its natural sinusoidal quality (prominently in the high frequencies) or these frequencies are also mapped into Midi notes which trigger the mechanical piano (mostly using its lower range). At the same time, all pitched material (including the center frequency of some filtered sounds) is altered or defined by the Midi note information received from the pianists performing the madrigal (tuned in *just intonation*). The dynamics for these sounds are also shaped by the Midi velocity from the performance of Gesualdo. At the same time, the different layers of sound are modified such that they have a similar phrase structure to the madrigals—the layers start and end at the

[14] Like Cage's *Imaginary Landscape No.4*, this type of musical appropriation is current, generative and indeterminate. See p. 81., for a further discussion of Cage's appropriation strategy.

[15] See pp. 98–99.

same point in time were the madrigal's phrases do.[16] The Midi note information (mostly *note on* messages, but not exclusively) at times also trigger different sounds generated through a combination of filtered 'piano noise' and data derived from analysis of plundered recordings. A common technique I use in *E-tudes* to make synthetic sounds sound more imperfect or 'natural' sounding is to modify the synthesized sound according to the extracted fundamental of a recorded instrumental or vocal sound—the synthetic sound becomes more irregular and therefore sounds more 'natural' due to the imperfection it inherits from the instrumental or vocal sound. Another technique I use to make synthesis algorithms sound more 'instrumental' is by deriving harmonic structures (the fundamental and partials of a sound) from FFT analysis of recordings of the instruments I want to approximate. In *E-tude I*, I generate sounds using these techniques to approximate sounds with similar characteristics to a celesta, several percussion instruments, to a vocal melody, high bowed string harmonics, etc. I also use FFT to combine spectra between the instrumental recordings and the 'piano noise'. *E-tude I* starts with a fairly 'abstract' sound world—further removed from recognizable 'traditional' instruments or music genres and including sounds that are more noise than pitch based—gradually transforming into a more 'referential' sound world, made up of pitched sounds, periodic rhythms, more identifiable sounds modeled on existing instruments and pitch material that is more referential to other more recognizable musical genres. The process of transformation culminates with the emergence of a prominent melody (driven by the FFTFilter, filtering 'piano noise' and following the melodic contour of a plundered recording of a vocal sound) resulting in music that is reminiscent of a song (or aria) with an *ostinato* of simple and 'primitive' rhythms.

E-tude II uses *Beltà poi che t'assenti* (the second madrigal in the book) as the control structure of the computer processing. In this 'e-tude', the role of the 'piano noise' is reduced only to a source of noise within physical modeling synthesis algorithms, which create sounds reminiscent to instrumental sounds. These sounds include the high frequency sound based on a physical model of a bowed string which ended *E-tude I*, this time however changing in pitch more gradually and gliding through what sounds as a variation of the main melody of the 'song' which *E-tude I* culminates in. The algorithms also generate sounds reminiscent of plucked strings, percussion and wind instruments based on physical models of Korean instruments. The 'plucked string' sounds, for instance, are generated using a variation of the Karplus-Strong plucked-string algorithm using a burst of 'piano noise' as its excitation and altering it in frequency and amplitude through the extracted fundamental of a

[16] I use this technique in many of my compositions: I plunder the phrase structure of an existing composition to generate a blueprint for a new composition. See pp. 89–90. I also wrote a computer application that automizes this process and generates a visual representation of phrase structure using a Midi File as an input. See pp. 109–112.

recording of a plucked *Geomungo* (Korean instrument) string. In addition to the sounds generated by the synthesis algorithms, the mechanical piano produces pitched material consisting on ascending *arpeggios* generated through vowel sounds that are *synthrumentized*, which the live electronics performer vocalizes into the microphone.[17] The prominent melodic sound that emerges on its own at approximately the middle of *E-tude II*, is generated through a combination of 'classic' filtering techniques (band pass, high pass, dynamic bank of resonators, etc.) which filter the 'piano noise' to try to emulate a 'wind instrument' with vocal characteristics. The attack and release envelopes of this sound are derived from a recording of a recorder and after the sound is realized, a high-frequency noise reminiscent of human breathing follows (the frequency range of the noise was mapped approximately to the frequency range of a person's breathing-in sound). This 'virtual instrument' plays a melody that is plundered from a recording of *Gagok*—a traditional from of Korean vocal music.[18] After a brief solo section, an ensemble of 'virtual instruments' joins the melodic sound and emulates music reminiscent of *Gagok*—including two 'virtual instruments' (one of them sounds more 'sinusoidal' and the other sound closer to a reed instrument) that play the melody with slight deviations in timing and tuning. These deviations are driven by a generative algorithm (meaning that each time that *E-tude II* is performed, the melodic deviations vary) that is designed to emulate the types of improvised melodic elaborations found in original *Gagok*. During the duration of *E-tudes II*, the rate at which sporadic events (plucked strings, percussion instruments and mechanical piano *arpeggios*) take place, gradually becomes faster and the events themselves become more active and unpredictable (for instance the mechanical piano *arpeggios* become faster and with more notes and their direction starts changing randomly as they become more active), until they are squashed against each other and become cluttered at the end of the composition.

E-tude III is based on the third madrigal by Gesualdo called *Tu piangi, o filli mia*. This 'e-tude' opposes synthesized pitched sounds with a strong fundamental frequency (some of them sound almost like sine waves) at the beginning, with the 'piano noise' that is revealed for the fist time in its unfiltered and unprocessed form later in the composition. The pitched sounds consist mainly of three different types of sounds: two sustained sinusoidal pitches, 'celesta' sounds and a single descending *arpeggio* of 'plucked string' sounds. The two sinusoidal pitches slowly change in frequency, first gradually detuning away from each other and later changing direction until they slowly approach each other, producing *beating* before merging into the same tone. The 'celesta' sounds are generated the same

[17] The PartialTracker class is used to detect the strongest frequencies of these vowel sounds to generate the notes of the *arpeggios*, see p. 97.

[18] See Rockwell (1972), for an introduction to *Gagok*.

way as the ones that were used in *E-tude I* (generated from filtered 'piano noise') and derive their pitch material from spectral data (*Synthrumentation*) of the audio signal of just one of the pianists playing *études*. Their rhythm is triggered through onset detection of the live microphone signal (the voice of the live electronics performer reading the text of the madrigal). The descending *arpeggio* of 'plucked string' sounds—which happens only ones and is reminiscent of the mechanical piano *arpeggios* in *E-tude II*—is generated through the same Karplus-Strong algorithm used in *E-tude II*, but instead of using a plundered recording of a *Geomungo*, it uses a recording of a harp. The 'piano noise' is first revealed as short percussive sounds (the 'piano noise' is filtered so that it sounds like footsteps) triggered by the live electronics performer with the Midi controller at periodic intervals. Then it is revealed as high frequency noise and later as low frequency noise—these noises originate from a selection of FFT bins of 'piano noise'. In *E-tude III*, there is a slow transition between pitched sounds and 'piano noise', which gradually becomes dominant as the spectrum is gradually filled with FFT bins—culminating in the complete frequency spectrum of 'piano noise' being diffused equally over the speakers. At the end, the 'piano noise' vanishes completely in a matter of seconds (through the reverse FFT process) followed by silence, and a series of sporadic and aggressive bursts of clusters played by the mechanical piano and by short phrases of sinusoidal sounds and *synthurmentized* piano chords revealing harmonies from the *études*.

E-tude IV derives information from three main sources: Gesualdo's forth madrigal called *Resta di Darmi Noia*, the *études* chosen by the pianists and several appropriated recordings of Pygmy music.[19] Pitched material is derived from recordings of Pygmy music using the SpearToMIDI and PartialTracker programmes described in the previous chapter.[20] The results from the different types of analysis are then selected and combined according to the desired musical outcome and is stored as Midi note data. The spectral data of the *études* is combined with the collected data from the Pygmy music recordings and the result is modified by the melodic and harmonic material from the madrigal. The Midi information resulting from this process is realized by the mechanical piano, which is the only source that produces sound, becoming the 'virtual' soloist of *E-tude IV*. At some points, the melodic contour from the different voices from the Gesualdo is used to modify the tempo of the different layers of the Midi note data derived from the Pygmy music—if the shape of melody goes up, the tempo progressively becomes faster and if the melody goes down, the tempo becomes slower. In addition, certain algorithmic composition strategies are used to process the final result—for example, stochastic methods are used to control note density by gradually filtering notes *in* and *out*. *E-tude*

[19] Mbuti Pygmies of Ituri Rainforest (1992).

[20] See pp. 95–103.

IV uses data of three recordings of Pygmy music, which at the same time represent three sections of the composition. The first section is based on a song for the *molimo* ritual,[21] which is celebrated on special occasions like for instance after the death an important member of the tribe and is meant to wake the forest up as it seems to be asleep as bad things are happening to its children.[22] The middle section is based on a recording of a musical bow played by a *Mbuti* pygmy,[23] which morphs into the last section that is derived from a recording of hunters signaling, shouting and beating.[24]

E-tudes is a set of compositions that explores a type of live electronics performance that attempts to establish new relationships between performer, composer and audience. It establishes at different times both *interactive* and *interpassive* relationships between the performer and the technological objects as well as between the musicians and the audience.[25] It also seeks to establish new forms of exchange between composer and performers as well as between the performers within an ensemble.[26] Furthermore, *E-tudes* combines the use of live electronics, improvisation, real-time computation and generative music to have a result that is unfixed, responsive and which changes for each performance of the work.[27] Additionally, *E-tudes* attempts to find new and innovative ways to approach the process of appropriation using idiosyncratic musical strategies. First, it plunders live performances of existing music, using their audio and Midi signals as building blocks for multiple musical results and therefore exploring the notions of *real-time plunderphonics* and *live musica derivata*.[28] It also appropriates *micro* and *macro* elements of notated material, recordings and live signals as well as treating the musical sources at varying degrees of processing, affecting our ability to recognize the original source. Finally, the sources that *E-tudes* appropriates from, unlike classic *plunderphonics*, come from less familiar sources that might be perceived as more obscure or exotic: not widely known music form places far removed from western culture (Korean traditional vocal music, Pygmy Music), early music that is not performed very often (Gesualdo madrigals) and pop music that is not desired by the mainstream of consumer culture.[29]

[21] Ibid., Track 24.
[22] See Mukenge (2002).
[23] Mbuti Pygmies of Ituri Rainforest (1992), Track 15.
[24] Ibid., Track 5.
[25] See pp. 46–52.
[26] See p. 53.
[27] See pp. 53–56.
[28] See pp. 91–92.
[29] See pp. 88–91.

6.2 On Violence

On Violence[30] is a composition for piano, live electronics, sensors and computer display.[31] The pianist reads from a score displayed on the laptop screen, which combines conventional notation with real-time scoring.[32] The performer also wears headphones to receive audio triggers and cues that constitute the aural element of the score. I implemented this score using SuperCollider and the AlgorithmicScore class.[33] The pianist interacts with the score through two midi pedals that are used to 'turn pages', display graphic notation, give written directions to the performer and activate score animations. During the duration of the performance, the score gradually progresses from conventional notation to more experimental notations that the pianist needs to respond to during the performance.[34] The real-time scoring elements of *On Violence* use a combination of chance, generative and spectral methods to generate visual and aural material that changes and adapts for each performance. The pianist therefore is asked to follow a score that has both fixed and unfixed indications, some of them involving spontaneous reaction and improvisation. The score information that is generated real-time by the computer and is thrown in at the pianist is very difficult, if not impossible to perform accurately considering that the pianist does not know the exact content of the music s/he will be performing. However, the pianist is still asked to perform the score to the best of his/her ability. This type of performance strategy is deliberate and attempts to explore the notion of establishing an *interpassive* relationship between the performer and the laptop displaying the score—the pianist becomes frantically active by the 'impossible' demands from the technological object which remains passive.[35]

On Violence appropriates existing music form various sources: Dieterich Buxtehude's *Praeludium in G Minor, BuxWV 132*, Einstürzende Neubauten's *Autobahn* and Tristan Wagner's *Parsifal* and *Tristan und Isolde*. It also plunders sounds including political speeches, screams, guitar feedback and metal banging. Buxtehude's *Praeludium* serves as a blueprint for the composition—the other derived material is placed within its form, and is treated and processed through its shapes and contours as well as its melodic, harmonic and counterpointal content. The live electronics part is triggered by the audio analysis of the music performed by the pianist (a microphone is placed close

[30] See Contents of Portfolio: CD I (*Compositions*), Track 5 and DVD II (*On Violence*).

[31] The code of the programmes that run *On Violence* can be found at `http://github.com/freuben/OnViolence`.

[32] See pp. 103–104 for a discussion on real-time scoring strategies.

[33] See pp. 104–109.

[34] See DVD II (*On Violence*) > Documentation > Performance Materials > Score Demo, for a demo of how the score might look/sound during performance.

[35] See pp. 48–49.

to the piano for real-time analysis) and by the Midi pedals. Through a combination of machine listening technology and by tracking the incoming data from the Midi pedals the computer is able to follow the score, triggering different sounds and types of processing according to the structure of the composition. There are various predominant sounds in the live electronics part at the beginning of the composition: metaling bangs, vocal sounds (screams and fragments of political speeches, some of which are heavily processed), high frequency distorted sounds and a sound reminiscent to the noise produced by a motor. The metal bangs are triggered through the onset detection of the piano signal and are stretched or shortened in real-time depending on the speed at which the pianist plays. The samples of vocal sounds and the high frequency distorted sounds are selected randomly and triggered at specific moments following the pianist's playing and are also stretched or shortened in real-time depending on the tracked tempo. Some of the vocal sounds are processed by two different types of synthesis algorithms: one of them convolves two different types of weakly nonlinear oscillators which use the sample as its external force and the other convolves one weakly nonlinear oscillator with the result of a linear predictive coding (LPC) error.[36] The high frequency sounds are spectrally gated samples of guitar feedback that are passed through a distortion guitar pedal. The sound reminiscent of a motor is turned on and off through the Midi pedals and consists of a low frequency pulse wave that is distorted through an overdrive guitar pedal. The pianist controls the frequency of the pulse wave with two 3G Force sensors (accelerometers) attached to his/her hands, which track arm movement (as the pianist lifts his/her arms, the frequency increases and as s/he lowers them, the frequency decreases). During the first section of the composition, the pianist alternates between incessantly banging chords at a periodic rhythm and controlling the 'motor' sound by lifting and lowering his/her arms. The chords that s/he plays are derived from the spectral analysis (using the PartialTracker class) of Neubauten's song *Autobahn* and modified both in harmonic material and register by the Buxtehude. The pitched material of the vocal and distorted high frequency sounds as well as the 'motor' sound are also modified in pitch through the Buxtehude score. As the pianist's score starts to incorporate more real-time scoring elements the content of the live electronics part also gradually starts to transform. Samples of plundered recordings of Wagner's *Parsifal* and *Tristan und Isolde* start to emerge, however modified in their playing rate by the mapped shapes of Buxtehude's counterpoint. The Wagner samples become more prominent as the pianist is asked to improvise and react immediately to the algorithmic score, culminating in an electronics solo that is produced by a synthesis algorithm emulating an organ sound and playing notes derived from a fragment of a recording of Buxtahude that corresponds to that precise section in the blueprint. The performer

[36] Part of the SuperCollider SLUGens library by Nick Collins.

after the electronics solo, responds by playing the next phrase of the original Buxtehude on the piano. The composition ends with the following section, were the pianist is asked to improvise freely together with an electronic part that consists of a re-synthesized version of the prelude to the third act of *Parsifal*. The synthesis algorithm used in the electronics in this section uses a dynamic bank of resonators filtering noise[37] and modified in frequency and amplitude by the extracted fundamental of the instruments in a plundered recording of the Wagner, resulting in a sound that approximates a bowed string instrument. This synthesis algorithm is then used to emulate a string orchestra by programming it to perform the parts of the different instruments of the string orchestra (violins, violas, cellos, double basses) and by multiplying its results by the amount of instruments per section and by adding a slight random divination in pitch and timing for each result to imitate the sound of various instruments playing in unison. The resulting version of the Wagner prelude however is altered in pitch content to match the previous section and for that reason the notes of the original are modified through the Buxtehude harmonic material.

This composition is inspired by slovenian philosopher Slavoj Žižek's book called *Violence*.[38] In this book, Žižek categorizes violence into two main types: subjective and objective violence. Subjective violence is clearly identifiable by an agent, for example acts of terror or crime, and it is perceived as a clear interruption of the normal state of things. On the other hand, objective violence is violence that is inherent in the social fabric and it is hard to see and experience for the advantaged classes or countries. What Žižek argues is that objective violence is inherent within social "balance" and it is objective violence which triggers acts of subjective violence. Furthermore, Žižek identifies two types of objective violence: symbolic and systematic violence. Systematic violence is manifested through our economic and political systems that in order to give the idea of a normal smooth running of things, exert systematic violence on large groups of people. Symbolic violence is related to and included within systematic violence but it is specific to violence expressed through language (and other symbolic systems like music). Žižek goes further to argue that the forms of symbolic violence are actually based on and manifested by the symbolic systems as such.[39] *On Violence* attempts to explore the aesthetics of violence and reflect on the different manifestations of violence categorized by Žižek. It does so, not only through the type of sounds and plundered music it uses (which are suggestive of different types of violence) and the how they are processed, but also through the way in which the performance itself is set up. The pianist is not only asked to be violent by the sheer force

[37] I created this noise using the same algorithm I used to generate the 'piano noise' in *E-tudes*, however controlling its amplitude with low frequency noise, to emulate bowing.

[38] See Žižek (2008).

[39] Ibid. pp. 8–63.

and agressiveness s/he has to execute over the instrument, but also violence is forced upon him/her by the amount of information that is thrown at him/her by technology and by the pressure of having to perform difficult (if not impossible) tasks. Even though at the beginning of the composition, it seems that the pianist is the one exerting subjective violence onto the piano and controlling technology—by triggering sounds through pedals and controlling the 'motor' sound through the sensors—we later find out that it is technology that is controlling the pianist by flooding him/her with impossible demands. At the end of the composition, while the pianist is seemingly free (s/he is asked to improvise freely and play what ever s/he wants) we get the impression that s/he is not the one in control and actually is the victim of objective violence imposed systematically upon him/her not only by the system of performance and technology, but by the symbolic violence implicit in the music itself.

6.3 Žižek!?

Žižek!?[40] was commissioned for an event about slovenian philosopher Slavoj Žižek, which took place at The Sound Source, Kings Place, London, July, 2009. I was commissioned to write a live alternative soundtrack to Astra Taylor's *Žižek!* (2005) documentary, which resulted in a computer-mediated performance for three improvisers performing on piano, double bass and drums.[41] In *Žižek!?*, each improviser has a laptop in front of them, connected through a computer network by which the improvisers receive individual written directions, timing instructions, score animations (moving graphical notation) and through headphones an aural score that consists of music they have to interact with.[42] The result is a real-time multimedia score that is synchronized with the film and is driven by computer programmes written in SuperCollider,[43] including the AlgorithmicScore class discussed previously.[44] The improvisers receive seven different written directions through the laptop displays, which all have meanings regarding how they should react during the performance:

1. *Silence*: Don't play (or stop playing).
2. *Like* : Imitate the music coming from the headphones.
3. *With* : Play together with the music coming from the headphones.
4. *Free*: Free to improvise at will.

[40] See Contents of Portfolio: CD I (*Compositions*), Track 6 and DVD III (*Žižek!?*).
[41] It was premiered by Alexander Hawkins (piano), Dominic Lash (double bass) and Javier Carmona (drums).
[42] See DVD III (*Žižek!?*) > Documentation > Performance Materials > Score Parts.
[43] The code of the programmes that run *Žižek!?* can be found at http://github.com/freuben/Zizek.
[44] See pp. 104–109

5. *Solo*: Improvise a solo.

6. *Unlike*: Play in opposition to the music coming from the headphones.

7. *Without*: Improvise ignoring the sound from the headphones.

The letters of the written directions are also color coded using the three colors of a traffic light: the *Silence* direction is always in *red* meaning the improvisers should stop playing at that point and the other directions are displayed in *green* when they should play and *yellow* when the *Silence* direction is about to come. The performers also receive a written indication of which scene of the film is playing at a specific moment in time. The letters of these indications are in *blue* while a specific scene is playing but turn *pink* just before the next scene is about to start. In addition to written directions and indications, the multimedia score also includes score animations, which consist of moving graphical scores that convey some type of activity or gesture.[45] Each score animation is deliberately devised for a specific instrument and is open to interpretation by the performer.[46] The written directions, audio score and score animations are triggered through a control structure derived from a Midi file of Johannes Ockeghem's *Missa Mi-mi* (using computer-aided-composition tools described in the previous chapter).[47] The music that the aural score is comprised of and to which the improvisers have to react, at the same time is based on different types of analysis and processing of the audio of the film. Therefore, the aural score is not only synchronized to the film's audio, but it is derived from it. The music within the aural score is the result of different types of analysis from the speech, music and other sounds that comprise the film's soundtrack. Pitch and rhythmic material as well as frequency content and dynamics are derived from the analysis of the audio signal of the soundtrack using different techniques, including tempo tracking, onset detection and spectral analysis (PartialTracker and SpearToMidi classes)[48] and are combined/modified through the information obtained from the Ockeghem Midi file. This process generates data structures that control synthesis algorithms or triggers sampled sounds to create the final aural score. The result is an audio score that while retaining some characteristics of the speech and other sounds from the film, is also allusive to other styles of music as a consequence of the chosen sounds and analysis parameters.[49] The way in which the improvisers react to the audio score also produces an audible

[45] See pp. 107–108.

[46] See DVD III (*Žižek!?*) > Documentation > Score Animations, for the interpretation of the animations by the improvisers during the performance.

[47] See pp. 109–113.

[48] See pp. 95–103.

[49] See DVD III (*Žižek!?*) > Documentation > Score Demo.

musical result that is related to the characteristics of speech and other sounds in the soundtrack and creates and interaction between the musicians and the sound of the film, which they might carry into the free improvisations.

Žižek!? attempts to find new ways of collaborating with musicians with a background in improvisation by using computer-mediated-performance strategies that take advantage of their strengths as musicians but at the same time working within a pre-composed structure. It does so by reshaping relationships established between traditionally composer and performer through technology by using a multimedia score to transfer musical ideas and intention as well as facilitating certain types of group playing and synchronicity that otherwise would be difficult to achieve.[50] In addition, by giving the improvisers visual directions and aural stimulus, it is possible to direct them towards a certain type of musical behavior and sound world without limiting their creative input into the performance. Furthermore, *Žižek!?* is devised in a way that within a fixed structure certain details may vary through improvisation, however within the constraints given by the visual and aural score. This computer-mediated-performance therefore shares certain characteristics with generative music in that the composer does not specify every detail of the result of the performance but infinite amount of possible outcomes that share similar characteristics.[51] *Žižek!?* also explores the idea of establishing *interpassive* relationships between the performers on stage and the technological objects (the laptops in front of them).[52] Like *On Violence*, this performance is devised in a way that the technological object remains passive (the laptops do not produce sound or activity that is apparent to the audience) while demanding from the performers to remain (hyper)active. Therefore, the improvisers delegate their passivity on to the technological object, giving the semblance of reality to the illusion that they are in control, when they are actually following the demands from the laptops. Finally, *Žižek!?* deals with the process of appropriation slightly differently from *plunderphonics* or *musica derivata*. The composer creates a new musical result by appropriating live performances as opposed to creating music through plundered recordings or by writing a score based on derived material from existing music to be realized by either classically trained musicians or mechanical instruments. It does so by appropriating the performance of musicians with a background in improvisation and by manipulating the output of the improvisation through the multimedia score. Therefore, *Žižek!?* appropriates live performances differently than *E-tudes* in that instead of plundering different types of signals from

[50] See pp. 39–42, for a discussion about the possibilities of using technology to produce a multimedia score which facilitates communication with and between musicians from different backgrounds.

[51] See pp. 54–56, for a further discussion about the relationship between improvisation and real-time computation, generative music and interactive systems.

[52] See pp. 46–50.

live performances to create a new composition, the process of appropriation starts by choosing living improvisers (instead of choosing from recordings, audio and Midi signals of existing music) and manipulating/directing their creative output towards a desired musical result. Furthermore, *Žižek!?* appropriates a film into the performance and superimposes live music on top of its original soundtrack. The live music performance at the same time interferes with the appreciation of film by trying to steal the audience's attention from it. The activity and volume of the improvisation (the music is meant to be louder than conventional film music, masking the audio of the film at certain points) at some points competes with Žižek's own relentlessness as a speaker. At the same time however, as a consequence of the relationship between the live music and the audio of the soundtrack, the performance amplifies Žižek's own hyperactivity, contributing to give the appearance that he is not the analyst but the analysand. The result of the performance as a whole is an overload of information for the audience, which by not being able to grasp the whole content of the performance (the meaning of the concepts being discussed, the images of the documentary and performance as well as the detail in the music) has to give something up—the audience might (consciously or unconsciously) decide to ignore the music in order to try to concentrate on understanding what is being said or might choose to perceive the performance as sound, rendering Žižek's speech as music and at the same time restraining it from its meaning as language. The audience might also come to terms with the impossibility of fully grasping what is presented at them and stop trying to understand all of the different elements of the performance and give up on it entirely, becoming passive spectators of an 'empty ritual'.

6.4 FreuPinta

FreuPinta[53] is a collection of small experimental pieces that were realized in parallel to the more ambitious musical projects. They are often small experiments, studies, fragments and residues of the bigger pieces that by themselves might not be considered as significant achievements but nevertheless, I consider they still have some aesthetic value on their own. During the research period, I produced several of these short musical experiments in parallel to some the main computer programmes I developed, often being the testing bench of their functionality.[54] The aesthetic value of these pieces, I believe lies in that they were developed as consequence of an experimental process that I think reflects my broader aesthetic concerns. Many of these short experiments are concerned

[53] See Contents of Portfolio: CD II (*FreuPinta*).

[54] See Chapter 5 for a short description of these computer programmes.

with finding new interesting approaches to musical appropriation.[55] The way in which they deal with the process of appropriation however is often more 'straightforward' than the rest of submitted work and reveals more directly and apparently the appropriation of only one piece of existing music. Furthermore, many of these pieces are the result of documented experiments in the development of computer programme that aimed at finding new types of relationships between performer, composer and audience through technology.[56] A considerable amount of pieces from this collection were also the result of experiments in generative, spectral and other algorithmic techniques that were implemented using real-time computation and interactive systems. *FreuPinta* was also the platform were I first experimented with synthesis algorithms and physical models before implementing them in the bigger projects. My first experiments with *real-time plunderphonics* and *live musica derivata* are also documented as part of this collection of short pieces.

Some of the pieces that comprise the *FreuPinta* collection are divided into different series of works. The *simulation series* is comprised of four short pieces that deal with appropriation by attempting to simulate human performances of existing music through technology. 'Artificial' performances are therefore created by appropriating recordings of human musicians playing different types of music and attempting to emulate these performances using tools provided by digital technology. The process of simulating human performance however is not with the purpose of reproducing the original music but of transcribing the music to be realized by 'virtual' performers. The 'artificial' performance is realized by analyzing the recording of the original performance using SpearToMidi[57] (using different analysis parameters) to generate a 'virtual' score that may be performed by either synthesis algorithms that emulate acoustic instruments or by mechanical instruments. For instance, *Simulation No. 1* is a 'virtual' performance of the overture to Handel's *Solomon* oratorio realized by the computer using different 'intrumental' sounds, therefore transcribing and 're-orchestrating' the original version. The process of transcription from the version performed by humans to the computer performance also introduces new sounds, pitches and rhythms that are idiosyncratic to the computer medium. *Simulation No. 2* is a simulation of Radiohead's *Pyramid Song* which derives data from the original recording that is performed by a mechanical piano. *Simulation No. 3* and *Simulation No. 4* are both material that did not make it to the final version the electronic part of *On Violence*. They are simulations that use synthesis algorithms (which emulate an organ and a string orchestra respectively) that perform music derived from the computer's analysis of short

[55] See Chapter 4 for a discussion of musical strategies that deal with appropriation as a creative tool.

[56] See Chapter 3 for a further discussion on how technology might help reshape relationships between people involved in making and experiencing music.

[57] See pp. 101–103.

fragments of recordings of Wagner (Prelude to third act of *Parsifal*) and Buxtehude (*Praeludium in G Minor*). The *occupation series* comprises of three short pieces that deal with appropriation in a similar way: they appropriate a recording which is not processed or transformed at all and is left in its original form, however adding new sounds on top of the recording that are mixed with the original.[58] The added sounds at the same time are also derived from the analysis of the recordings and are documented 'performances' that use real-time computation—I used PartialTracker[59] and onset detection algorithms with different varying parameters that I had control over during the performance to trigger the new sounds. These sounds were recorded and mixed with the original, re-contextualizing the meaning of the appropriated musical source. *Occupation No.1* is a small personal homage to Stockhausen's *Hymnen*—it appropriates the recording of the national anthem of Costa Rica (which is missing from Stockhausen's piece) and adds *synthrumentized* piano chords on top of it. *Occupation No.2* is a study for *Žižek!?* which adds instrumental sounds (sampled guitar and percussion instruments) and sine waves to the recording of a lecture by Žižek—the instrumental sounds at the same time are derived from Žižek's speech. *Occupation No.3* appropriates a fragment of Giovanni Palestrina's *Missa Papae Marcelli* and adds a 'virtual' jazz trio that 'swings' along with the original. The *transgression series* uses a different approach to the process of appropriation: it plunders data from the original source and then rearranges and reshuffles its components, re-imagining the original composition by transgressing its symbolic space. *Transgression No. 1* re-imagines the first movement of Mozart's *Sonata in C KV 545, I*, while *Transgression No. 2* envisions an alternative version of the third movement of Bartok's *Suite, Op.14, Sz62*. The remaining pieces in the *FreuPinta* collection include more experiments controlling synthesis algorithms with data derived from spectral analysis of existing music (*Chorus I*, *Chorus II* and *Agnus Dei*), my first experiments with the notions of *real-time plunderphonics* and *live plunderphonics* (*Canzione Piramide*), experiments with interactive systems for live improvisation (*Pianpeta*) and mapping data from robotic movement to music (*Walking Head*).

6.5 Improvisations

The improvisations presented as part of the submitted work[60] are the outcome of the work I have done in collaboration with other improvisers using the computer environment I developed in SuperCollider

[58] This series therefore uses a strategy similar to Duchamp's notion of *assisted readymades*. See pp. 65–66.

[59] See p. 97.

[60] See Contents of Portfolio: CD III (*Improvisations*) and DVD IV (*Improvisations*).

for live improvisation.[61] The recordings of these improvisations are the result of several concerts and rehearsals that took place during the period of research. The submitted work includes recordings of several performances:

1. *Live@ICA*: concert of improvised music for a live performance art event called The Scuttler presented by boyleANDshaw, which took place in June, 2010 at Institute of Contemporary Art (ICA) in London. Free improvisation for live electronics, percussion, processed voice and guitar.[62]

2. *To Hot to Handel*: I was asked to present a work at the Handel House Museum. The museum is located on the upper floors of 25 and 23 Brook Street in London. 25 Brook Street was the residence of George Frideric Handel between 1723 and 1759. 23 Brook Street, where the concert took place was the home of Jimi Hendrix 1968-1969. I decided to present a site-specific event that combined the music of both Handel and Hendrix simultaneously within a structured improvisation for live electronics, voice, guitar, harpsichord, drums, double bass and narrator/conductor.[63]

3. *Horatio Oratorio*: Horatio Oratorio is a performance and sound installation that employs archival sound sources, including some of the first recorded utterances and music. The music was composed and improvised by Aleksander Kolkowski and myself. The improvisations feature Stroh violin (Kolkowski) and live electronics (Reuben).[64]

4. *Live@Javier's*: Free improvisation for live electronics, drums and saxophone.[65]

5. *Mowgli@Cafe Oto*: Concert at Cafe Oto, Dalston, London. Structured improvisation for live electronics, voice/guitar, drums, double bass.[66]

6. *Mowgli@Modern Art Oxford*: Concert at Modern Art Oxford as part of the event Berlin Scratch Night: We Beautiful Monsters. Structured improvisation for live electronics, voice/accordion,

[61] See p. 113.

[62] The performance featured Javier Carmona (percussion), Adam de la Cour (voice/guitar) and Federico Reuben (live electronics).

[63] The performance featured Adam de la Cour (voice/guitar), Alexander Hawkins (harpsichord), Javier Carmona (drums), Dominic Lash (double bass), Steve Potter (voice/conductor) and Federico Reuben (live electronics).

[64] See Reuben and Kolkowski (2008).

[65] Featuring Javier Carmona (drums), Paulina Owczarek (saxophone) and Federico Reuben (live electronics).

[66] The performance featured Adam de la Cour (voice/guitar), Javier Carmona (drums), Dominic Lash (double bass) and Federico Reuben (live electronics).

drums, double bass.[67]

7. *Live@Boating*: Free improvisation for live electronics and drums.[68]

Only a selection of fragments from these performances are included in the portfolio. These performances are often longer, and the larger structure of the improvisations can not be appreciated fully as they are presented in the portfolio. However, I decided not to include recordings of the complete performances because I considered that they would overweight the rest of the music in the portfolio in terms of duration. Nevertheless, I tried to select fragments that I think are representative of the type of work I have done in collaboration with other improvisers and that I think show my approach to live electronics within an improvisatory context.

[67] The performance featured Adam de la Cour (voice/accordion), Fiona Bevan (voice), Javier Carmona (drums), Dominic Lash (double bass) and Federico Reuben (live electronics)

[68] Featuring Javier Carmona (drums) and Federico Reuben (live electronics).

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