Chapter 1

Motivation

In this chapter, I will attempt to examine...

1.1 Redefining the Musical Subject?

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

Here, Badiou precisely delineates the situation in which so called 'art' music or contemporary music is created and received today, where the only two main options seem to embrace either the joyful and permissive attitude towards mixing genres and styles now commonly ascribed to *postmodernism*

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

or the desolate notion of *modernist* aesthetics that to this day heroically stands in 'life support' for more than thirty years. These two positions also seem unable at present time to inspire a profound change in the way we create, perform, perceive and think about music; nor to respond to the original premise of the *modernist* vision of the musical avant-garde, which establishes a connection between new forms of musical and political subjectivity.

Rancière's analysis gives us strong theoretical tools that can help imagining new ways of 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. To avoid further misunderstandings, one also needs to take special care and remember the clear differentiation Rancière makes between the *strategic* and *aesthetic* types of avant-garde.

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

The *strategic* type of avant-garde as manifested in music is one that can be associated to a particular group of people (composers, performers, critics and other people who make, think and/or listen to music), musical institution or movement that consolidates a type of subjectivity. It is important to remember that a common ideological position is what triggers the conception of this type of group.[2] On the other hand, the *aesthetic* type of avant-garde as manifested in music is that which—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 note that one can find these two types of avant-gardes both in the musical and political spheres (as well as in the other artistic disciplines). Additionally, as they manifest

[2]Slovoj Zizek 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 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.

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. 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 in Rancière's enquiry: the *strategic* type of avant-garde manifests itself *differently* in music as it does in politics. Therefore, 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 of thinking stems from the assertion that the *strategic* type of avant-garde has a considerable effect on the *aesthetic* type in numerous significant ways. The impact that musical movements, institutions, ensembles and other organized groups of musicians and people dealing with music, have on the actual musical results, is often underrated. Too often, people involved in creating (particularly composers in my experience) and experiencing music avoid or forget how these strategic forms of collectivity condition and influence the aesthetic result. I will even go as far as to suggest that, in music, the type of subjectivity that is synthesized in the *strategic* avant-garde is reflected or 'embodied' in the *aesthetic* avant-garde. That is to say, 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*[3] is the only carrier of meaning—an idea that up to this moment is still widespread in western culture—is also misleading. In contrast to the more limited concept of a *musical work*, I will therefore introduce to the notion of a *musical result* as

[3]See Lydia Goehr, *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music*, Oxford: Oxford University Press, 2007, for a thorough discussion on the philosophy of musical works.

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.[4] 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.

Musicking

According to Christopher Small, these 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.[5]

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.

[4] 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.

[5] Christopher Small, *Musicking: The Meanings of Performing and Listening*, Middletown, Connecticut: Wesleyan University Press, 1998, p. 13.

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.[6]

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[7]—has been challenged recently within the scientific community. These studies have shown how music plays an important role, amongst other 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.[8] In addition, various theories have emerged regarding the relationship between music and language; some of them even suggesting that 'proto-language' (the predecessor of language) was a pre-linguistic, non-verbal form of communication that was a 'musical' form of action and thought.[9] It appears that language and music have a similar evolutionary starting-point and the common purpose of communicating emotion and meaning through sound. Therefore, Small is right in suggesting that *musicking*, like speaking, is at the core of being human and performs important social, cultural and biological functions.

1.1.2 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'[10]—music is still defined as such within the *ethical regime*. In other words, if one goes

[6] Ibid., p. 8.

[7] See Steven Pinker, How the Mind Works, details missing...

[8] See Steven Mithen, *The Singing Neanderthals: The Origins of Music, Language, Mind and Body*, London: Phoenix, 2006, for an overview of these studies.

[9] Ibid., pp. 147-150.

[10] See pp. 4-8.

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 *musicking* 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 those that the listener undergoes in reality as a result of the performance.[11] 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 ones 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 the 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

[11] See Aristotle, 'The Aims and Methods of Education in Music' in *Politics*, Trans. Ernest Barker, Oxford: Oxford University Press, 1995, pp. 309-310.

> 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 understand 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.[12]

Therefore, 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 a bit far fetched, 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 wider community (if compared to the visual arts for example). In my 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 the 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 in 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.[13]

1.1.3 An Ethical Function within the *Aesthetic Regime*?

Going back to Rancière's notion of the regimes of art, if one considers the implicit ethical core in the definition of *what music is* simultaneously with music that falls within the *aesthetic regime*, one 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 only seen as a disruption from these functions), music

[12] Plato, 'Music and the Constitution' in *The Republic*, Trans. R.E. Allen, New Haven: Yale University Press, 2006, p. 117

[13] On a related note: according to recent studies, 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 Daniel Levitin, 'My Favorite Things' in *This is Your Brain on Music: Understanding a Human Obsession*, London: Atlantic Books, 2006., pp. 231-233.

that lays within the *aesthetic regime* will not be understood or appreciated. To resolve this problem one needs to point towards the relationship that exists between music and other forms of thought and subjectivity. If music is evaluated and appreciated for its capacity to inspire new ideas, opinions, believes and desires, then one can argue that their is an ethical position implicit within the *aesthetic regime*. In other words, their 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.

Nevertheless, an agreement of trust needs to be established between the musical avant-garde and the community in order for the *aesthetic regime* in music to be acknowledged and appreciated widely. 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. Therefore, this agreement needs to demonstrate that the purpose of creating new forms of music is not to betray its ethical functions, but to inspire and experience new forms of subjectivity—and this in itself is an important ethical function. Additionally, this agreement cannot only be reflected theoretically through verbal and written forms of public dissemination, but needs to be embedded within the musical result, if it is going to be understood by the wider community. Moreover, I will claim that the establishment of the *aesthetic regime* in music and the redefinition of the 'musician' as an occupation that questions the very notion of *what music is*; has still not been spread out through the wider community. The reason, I believe, is that as a consequence of the practice of some musicians that can be associated with *modernism* (mainly, those seeking music's 'purity' in composition through a militant anti-mimetic attitude focusing on abstract musical parameters and those who only advocate and strive for 'correctness' and 'sterility' in performance practice) the agreement of trust between the wider community and the musical avant-garde has been broken. This is partly due to an attitude still influential in the musical avant-garde that does not address (or in some cases completely ignores) the most basic ethical functions that the community associates to music. Therefore, 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 community.

1.1.4 The Musical Avant-garde as Vehicle for Radical Change

The acknowledgement of the *aesthetic regime* in music within a wider community is of utmost relevance today. If one believes there is a connection between music and other forms of action, perception and thought, and simultaneously recognizes the need for radical change in other forms of human en-

deavor, one can acknowledge the potential of music in providing a space for inspiring and experiencing new forms of subjectivity for a life to come. Furthermore, if the wider community understands this link and at the same time maintains an agreement of trust with the musical avant-garde, this will lead to further reflection on how to bring change to other forms of human knowledge and action and inspire new alternatives to the current state-of-affairs. Additionally, given the connection that exists between the *aesthetic* avant-garde in music and politics, one can assume that an ingenious and vibrant musical avant-garde can only contribute to a strong and active political avant-garde. Given the bleak prospects that the current political climate has to deliver radical reform that will tackle problems that are catastrophic in scope, the importance of finding new alternatives to the current political models is crucial. As we face colossal problems—like the ecological catastrophe, unsustainability, overpopulation, economic crises, world poverty and inequality—that put in danger our very survival as a spices, it is critical to find insightful solutions to these problems and to imagine and implement new political and social models for the future. I believe music can contribute to this change as it provides the possibility of immersion into new experiences. Taking in consideration the evolutionary connection between music, emotion an thought as well as Aristotle's observation of music's ability to affect human beings,

Music also provides a model by which musical thought and subjectivity are implemented into musical activity and production that can serve as a metaphor for modes of action in the political sphere.

In other words, the way in which a musical idea is put into practice

People Getting together and gathering around a performance! Social occasion. knowledge of a common idea/subjectivity - ¿ encouragement, "Revolution" StevePinker (the thought of stuff: language as a window into human nature"

as well as it can provide an aesthetic metaphor for the political sphere in the way mode of implementation of musical thought and subjectivity into action.

Music is Transformative Music is a vehicle...

experiences and actions that embody new forms of subjectivity.

I will suggest that a potential exists for the musical avant-garde if an agreement of trust can be established with the community. New types of music may inspire new forms of objective thought, but most importantly, it may also provide the potential for immersing oneself into new experiences and actions that embody new forms of subjectivity. A link between the political and musical avant-garde

Why?

Emancipatory potential of music therefore lies in the possibility of changing music's ethical func-

tions

As a consequence of this agreement of trust established between the musical avant-garde and a wider community, I will suggest that music has the potential for providing inspiration to the political avant-garde not only through new forms and structures, but also through experience and action.

I will also argue that music has a particular emancipatory potential given its particular position within the artistic regimes.[14]

1.1.5 Strategic Views on Aesthetic Forms

If a positive redefinition of music is to take place, and an agreement of trust to be reestablished between the musical avant-garde and the wider community; it is crucial to examine the fundamental aspects of how music is created, performed, presented and disseminated today. This includes a significant revision and modification of the *strategic* forms of collectivity in music. In other words, in order to reinvigorate (within the musical sphere) the *aesthetic* type of avant-garde, the *strategic* type of avant-garde also needs to be rethought and reworked. Furthermore, if the agreement of trust between the musical avant-garde and community is to be regained, I believe it is important for the *strategic* avant-garde to consider the ethical core implicit in the definition of music in parallel with a strong desire towards innovation and change in all aspects of music-making. In other words, while acknowledging the audience and their perception of what the fundamental ethical functions of music are—by making them experience something that they would associate with their conception of music-making within the *musical result*—at the same time challenging those very notions and putting into question the fundamental aspects of how music is created and received. Furthermore, if one subscribes to this position, one should consider the role musical groups, institutions, ensembles, industry and movements might have in the musical result he is involved with, in order to determine whether these groups might help in the establishment of new *aesthetic* forms. Moreover, it is vital to consider the context, time, space and audience where the music is to be presented as this too has a direct causality with the *aesthetic* result and its visibility, and plays a significant part in the disclosure of a particular type of experience.

How to reestablish the agreement? Appropriation/Ideology

Innovation, innovation, innovation...

How to innovate?

[14] See pp. 4-8 for a discussion on Rancière's ideas regarding the artistic regimes.

1.1.6 Technology and Innovation

> In other words, 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. . . . 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 electronics music when there are devoid of any real and profound *raison d'être*.[15]

> 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 may 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.[16]

1.2 Appropriation and Ideology in Music

> 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.[17]

Start on appropriation and past traditions...

My approach to appropriation??

[15] Luciano Berio, *Two Interviews with Rossana Dalmonte and Bálint András Varga*, Ed. and Trans. David Osmond-Smith, London: Marion Bowars, 1985, pp. 121,122.

[16] Ibid., pp. 122,123.

[17] Slavoj Zizek, "It's Ideology, Stupid!", in *First As Tragedy, Then as Farce*, London: Verso, 2009, p. 37.

Characters on stage should be flat, like clothes in a fashion show: what you get should be no more than what you see. Psychological realism is repulsive, because it allows us to escape unpalatable reality by taking shelter in the "luxuriousness" of personality, losing ourselves in the depth of individual character. The writer's task is to block this manoeuvre, to chase us off to a point from which we can view the horror with a dispassionate eye.[18]

Consumption is simultaneously also production, just as in nature the production of a plant involves the consumption of elemental forces and chemical material[19]

Starting with the language imposed upon us (the system of production), we construct our own sentences (acts of everyday life), thereby reappropriating for ourselves, through these clandestine microbricolages, the last word in the productive chain.[20]

1.2.1 Appropriation and Postproduction in the Digital Age

By listening to music or reading a book, we produce new material, we become producers. And each day we benefit from more ways in which to organize this production: remote controls, VCRs, computers, MP3s, tools that allow us to select, reconstruct, and edit. Postproduction artists are agents of this evolution, the specialized workers of cultural reappropriation.[21]

Throughout the eighties, the democratization of computers and the appearance of sampling allowed for the emergence of a new cultural configuration, whose figures are the programmer and DJ. The remixer has become more important than the instrumentalist, the rave more exciting than the concert hall. The supremacy of cultures of appropriation and the reprocessing of forms calls for an ethics: to paraphrase Philippe Thomas, artworks belong to everyone. Contemporary art tends to abolish the ownership of forms, or in any case to shake up the old jurisprudence. Are we heading toward a culture that would do away with copyright in favor of a policy allowing free access to works, a sort of blueprint for a communism of forms?[22]

[18] Elfriede Jelinek, quoted in Slavoj Zizek, *First As Tragedy, Then as Farce*, p. 40.

[19] Karl Marx

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

[21] Ibid. p. ?

[22] Ibid. p. ?

1.2.2 The liberal-comunists: Open Source, etc.

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

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

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

Chapter 2

Strategies and Practices

This chapter aims at examining the musical concepts, strategies and practices that were elaborated during the period of research, taking in consideration the aesthetic and historical background developed in Chapter 2 and conceptual framework and motivation put forward in Chapter3.

In my work I attempt to deal with musical appropriation...

2.1 Musical Appropriation through Technology

I will continue by examining different strategies and practices used in my work that use technology as means to appropriate, derive from and transform existing music by other musicians. It is only logical, considering that music is not an object but a complex set of actions, productions, perceptions and thoughts,[1] that the act of appropriation of existing music can manifest itself in many different ways and take lots of unexpected guises. Therefore, I will propose that the appropriation of existing music *does not* refer exclusively to 'borrowing' or 'stealing' from *musical works* by other composers but to . . . . Moreover, when dealing with appropriation, I will claim that there are certain fundamental questions that both music creators and listeners should ask themselves. According to David Mezter, Stockhausen (while referring to *Hymnen*) emphasized the importance of asking the questions of "what" and "how" regarding the practice of 'borrowing' or 'quoting' from other music.

> According to him *[Stockhausen]*, the practice involves a rich exchange between the "what" and the "how," that is, the gesture has us hear "what" music has been borrowed and "how" it has been changed. The more familiar and obvious the "what," the more we are drawn into the "how," and the more captivating the "how," the more we can appreciate

[1] See pp 13-45 for a discussion regarding my preference of the notion of a *musical result* versus the more widely use concept of *musical work*.

anew the "what." It is the ways in which quotation handles the "what" and the "how" that make it so effective a cultural agent.[2]

I agree with Stockhausen's claim because . . . Nevertheless, I would also add : the difference between "what" and "who" also "from where". but most importantly "why," Why = motivations. The motivations regarding musical appropriation can be very varied and also reflect ideological positions that in many cases reflect more the beliefs and feelings of the appropriator that the appropriated. Therefore, I will attempt to explain my viewpoint regarding the motivations and ways in which I use other music within my own work. In doing so, I will also examine other composers work that deals with musical appropriation in ways that I consider valid, interesting and intriguing.

Technology

Will do so by examining other composers work dealing with this issues... that I find valid, interesting, intriguing, stimulating(?)...

Copyrights Violation

2.1.1 Scores

The first strategy considered is Clarence Barlow's concept of *Musica Derivata*, which refers to the idea of transforming existing music with Computer Aided Composition (CAC) tools to create "music that is compositionally based on other music"[3] This approach seems to take as a starting point mostly notated material (but in some occasions spectral information from recordings) from music by other composers.

MIDI

me

2.1.2 Recordings

Plunderphonics

Plunderphonics:

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

Use of audio samples as a technique for composition.

[2]David Metzer, *Quotation and Cultural Meaning in Twentieth-Centure Music*, Cambridge: Cambridge University Press, 2003, p. 6.

[3]Clarence Barlow, *Musica Derivata* [CD], hat[now]ART 126, Hat Hut Records Basle, 2000.

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

"As a listener my own preference is the option to experiment. My listening system has a mixer instead of a receiver, an infinitely variable speed turntable, filters, reverse capability, and a pair of ears. An active listener might speed up a piece of music in order to perceive more clearly its macrostructure, or slow it down to hear articulation and detail more precisely."[4]

Sound Transformations

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

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

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

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

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

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

2.1.3 Spectral Information

To generate sc

2.1.4 Computer Code

Max patches, Computer Code.

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

2.1.5 Real Performances

2.1.6 Real-Time Plunderphonics

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

Creates a cognitive dissonance between audio and visuals.

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

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

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

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

Some ideas of how to plunder

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

Appropriate and plunder yourself.

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

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

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

Use plunderphones as data: reprogram, not just remix.

Micro and macro plundering.

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

Using plunderphones as data

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

Micro and Macro Plundering

Microplunderphonics

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

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

Macroplundering

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

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

2.1.7 Musical postmodernism in the digital age

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

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

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

2.1.8 Stratergies based on reshaping relationships in music making

Reshaping relationships in music making through technology?

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

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

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

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

Crossing Cultural Borders?

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

Mention strategies: Algorithmic Score, Headphones, etc.

2.1.9 Musica Derivata and Plunderphonics

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

Musica Derivata:

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

2.1.10 plunderphomes, ideology and the use of references

> While some start up a prolonged lamentation for the lost image, others reopen their albums to rediscover the pure enchantment of images- that is, the alterity of the *was*, between the pleasure of pure presence and the bit of the absolute Other.
>
> Evidence of exhibitions devoter to 'images', but also the dialectic that affects each type of image and mixes its legitimations and powers with those of the other tow.

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

2.1.11 On Musical Appropriation

What?

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

Who?

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

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

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

Why?

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

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

How?

2.1.12 Interpassivity

> Interpassivity, like interactivity, thus subverts the standard opposition between activity and passivity: if in interactivity (or the cunning of Reason), I am passive while being active through another, in interpassivity, I am active while being passive through another. More precisely, the term interactivity is currently used in two senses: (1) interacting with the medium, that is, not being just a passive consumer: (2) acting through another agent, so that my job is done, while I sit back and remain passive, just observing the game. While the opposite of the first mode of interactivity is also a kind of interpassivity, the mutual passivity of two subjects, like two lovers passively observing each other and merely enjoying each others presence, the proper notion of interpassivity aims at the reversal of the second meaning of interactivity: the distinguishing feature of interpassivity is that, in it, the subject is incessantly (frenetically even) active, while displacing on to another the fundamental passivity of his or her being.[5]

[5] From The Fantasy in Cyberspace by Slavoj Žižek

Chapter 3

Computer Applications

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

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

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

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

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

3.1 Spectral Tracking

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

Fast Fourier Transform (FFT)

MIDI

Spectrum analysis for dynamics, pitch and rhythm extraction.

3.1.1 PartialTracker

PartialTracker is a SuperCollider class for real-time partial extraction that diminishes the amount of FFT data by selecting the loudest bins and discarding the softer magnitudes with the purpose of having a limited amount of values to be returned as simple arrays for frequency and magnitude. It does so by taking an incoming audio signal, performing an FFT analysis and discarding spectral data in two ways: either by passing only the bins that are above a given magnitude threshold or by selecting a value that returns the strongest number of bins. For this purpose, I used the PV_MagAbove and PV_MaxMagN[4] 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[5] to store this information into a

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

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

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

[5] PV_MagBuffer and PV_FreqBuffer are part of JoshUGens.

buffer. Ones stored in a buffer, the information can be accessed as an array and be manipulated freely. Nevertheless, the buffer stores all of the bins of the FFT and therefore the bins with the magnitudes that were not empty have still to be collected and indexed to access the corresponding frequency values. The resulting arrays therefore only constitute the number of strongest bins, which can be defined by the user. The following code shows an example of the frequency and magnitude arrays for the ten strongest bins:

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

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

The purpose of this class is to have easy access to relevant FFT information with the aim to convert frequencies and magnitudes either as MIDI messages or as data to be used to control synthesis definitions[6]. 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.

3.1.2 FFTFilter

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

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

it is possible to approximately track the contour of the frequencies that have a stronger presence, given that the settings for the amount of strongest bins and magnitude threshold are appropriate for the specific spectral characteristics of the signal. Figure 4.1 shows a spectrogram of speech and

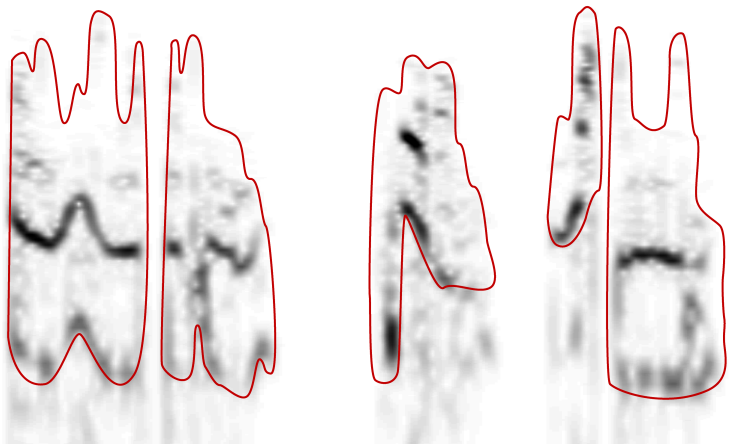

Figure 3.1: FFTFilter: Spectral mapping of vocal contour.

how the FFTFilter maps the contour of the vocal signal. Given that the vocal signal has a strong presence in a narrow frequency range, it is ideal to control the filter. FFTFilter therefore uses the continuos signal of the highest and lowest frequencies of the array to calculate the bandwidth and center frequency for the resonant filter. Figure 4.2 shows a visual representation of a fairly noisy signal that has been filtered by the resonant filter following the vocal contour as seen in Figure 4.1. Ones the trajectory of the filter is set by the frequency data extracted from the FFT, an envelope

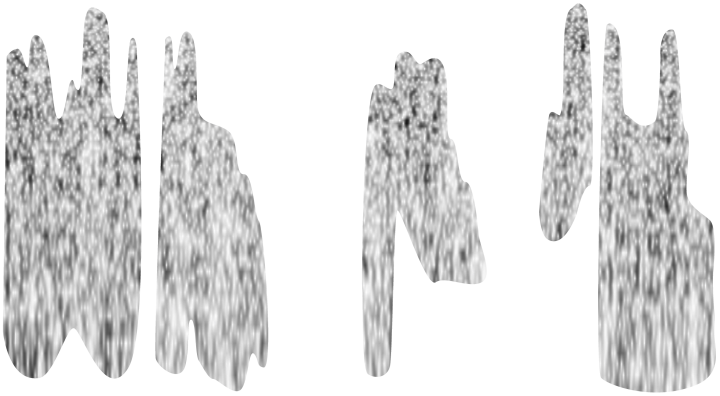

Figure 3.2: FFTFilter: Noise filtered by vocal contour.

follower maps the amplitude of the sound that was used as the FFT input to control the amplitude of the resonant filter. By combining the amplitude envelope and frequency contour of one sound to

control a resonant filter that is applied to another sound, it is possible to incorporate characteristics of the analyzed sound to the filtered sound source.

3.1.3 SpearToSC

SpearToSC is a class that takes data from the open source software application called SPEAR[7] and transfers it to an array in SuperCollider. SPEAR uses a variation of the traditional McAulay-Quartieri procedure and "attempts to represent a sound with many individual sinusoidal tracks (partials), each corresponding to a single sinusoidal wave with time varying frequency and amplitude."[8] SPEAR provides a graphical representation of a sound[9] (as seen in Figure 4.3) in which it is possible to select the individual sinusoidal tracks and allows to isolate and access the information for each individual partial. The amplitude and frequency information of each partial is given by frame

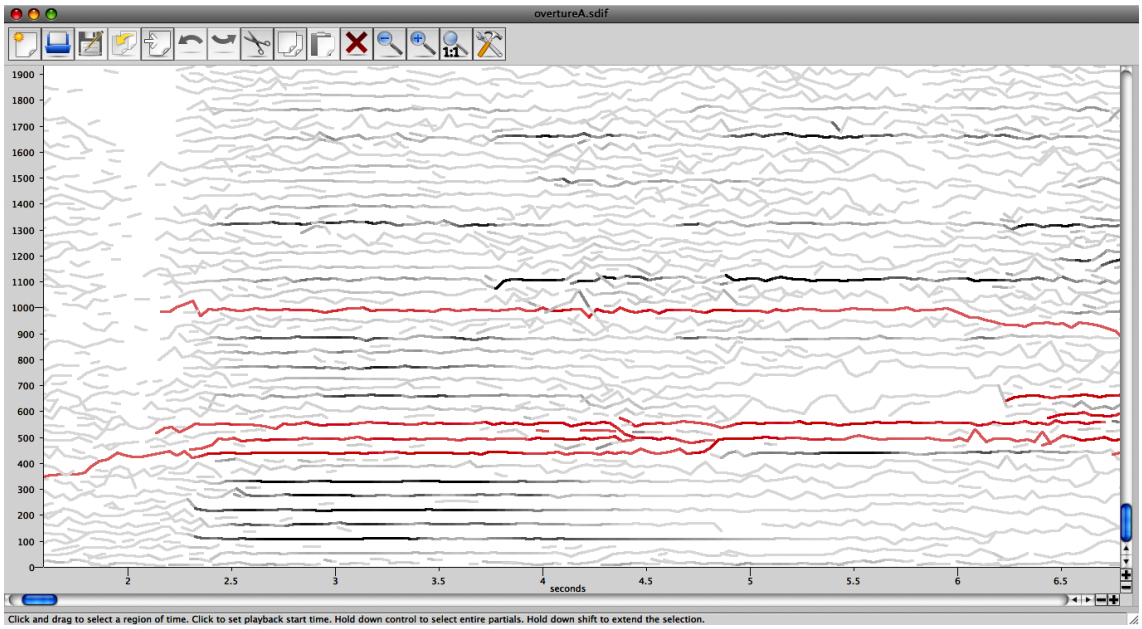

Figure 3.3: SPEAR graphical interface.

and can be stored in a text file. SpearToSC reads the text file produced by SPEAR[10] 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.

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

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

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

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

3.1.4 SpearToMIDI

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

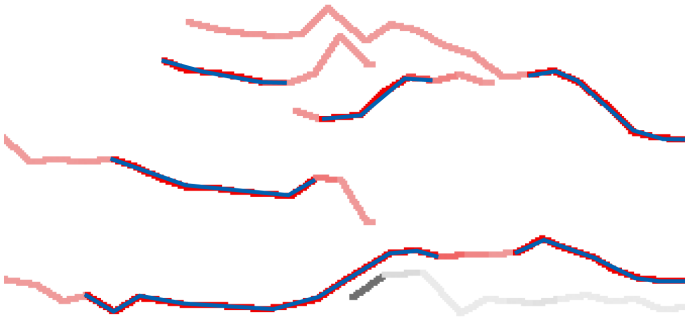

Figure 3.4: SpearToMIDI: Amplitude threshold selection.

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

The second stage reduces data with a frequency modulation threshold. Each group is taken as a line and the computer only stores the points in the line which cross a given interval (the modulation threshold). For example, Figure 4.5 shows how the lines representing the groups in Figure 4.4 are traced by selecting the points that cross a given interval.[11] 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

[11] 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.

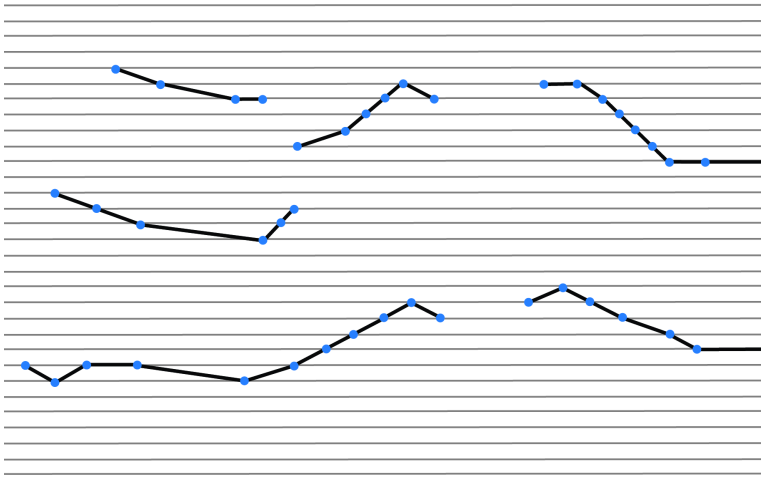

Figure 3.5: SPEARToMIDI: Point selection through frequency modulation threshold.

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 4.7 shows the note representation

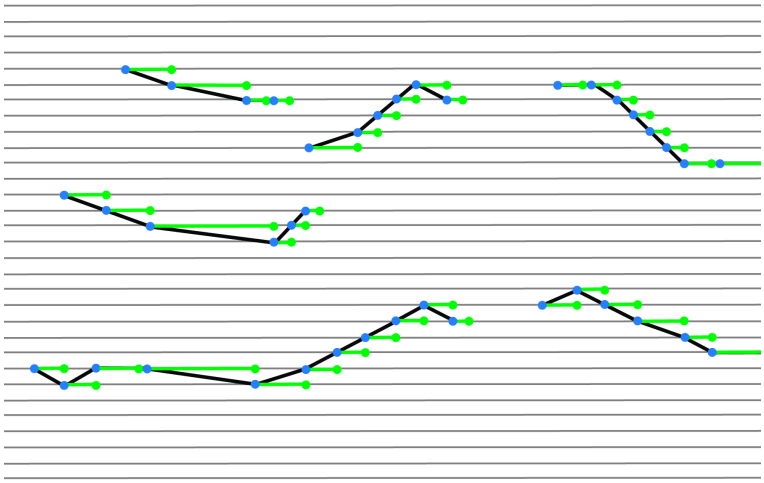

Figure 3.6: SPEARToMIDI: Note representation.

derived from Figure 4.5, where the notes are seen as green lines, the note-on messages as blue points

and the note off messages as green points. The results of this stage can be used to generate a MIDI file[12] 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. Furthermore, these results can be used to create a list of Open Sound Control (OSC)[13] 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.

3.2 Real-Time Scoring

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

3.2.1 AlgorithmicScore

AlgorithmicScore is a class that visualizes different types of notation in real-time. It is programmed as a graphical user interface (GUI) in SuperCollider but receives no input in the GUI window itself. Instead, this class only displays notes, letters, symbols and other visual aids for real-time scoring from code that can be evaluated in the interpreter, or within a compiled class in the SuperCollider language. It displays traditional musical symbols including notes, accidentals, clefs and dynamics that are available as fonts[14] 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 three array types that can be used which respond to different notation modes: free, enharmonic and chromatic. In the free mode, notes are selected by a number that does not correspond to the clef but to the position from top to bottom starting with zero as the first leisure line bellow the bottom line

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

[13] See http://opensoundcontrol.org/introduction-osc.

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

of the staff. Moreover, the note value can not only be negative but also a float number, which results in a position in between notes. This mode can be useful for conveying movement if the score were to be animated. The enharmonic mode, takes a string representing the note and octave—were c4 equals middle C—and positions the note according to the selected clef. It is also possible to select the type of accidental between flat, sharp and natural. If the note exceeds four leisure lines, the programme places an *8va* sign and if it is exceed it by yet another octave, it places a *15ma* sign. The chromatic mode, is similar to the enharmonic, but only uses sharps as accidentals and places a natural in front of each note that is diatonic. This mode is useful to receive note information as MIDI numbers. In addition, it is possible to place written directions with different colors in the score.

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

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

The code generates a new window and three staffs with one bass and two treble clefs. The separate arrays correspond to each staff[15] and are concatenated to respond to the enharmonic mode. In addition, an expression to play *piano* and a text description are added. Figure 4.7 shows the GUI that the AlgorithmicScore class creates when the code above is evaluated.

Another feature of the application is a piano clef type which instead of creating only one staff that responds to the corresponding clef, it produces two staffs with one treble clef on the top staff and one bass clef on the bottom staff. In this clef type, the note is placed on the treble clef staff if it is higher or equal to middle C and if it is lower than middle C, it is placed on the bass clef staff. Furthermore, it is possible to score in real-time by evaluating an array of MIDI note numbers. The class takes the MIDI numbers and translates them to the correct pitch type and octave in the

[15]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.

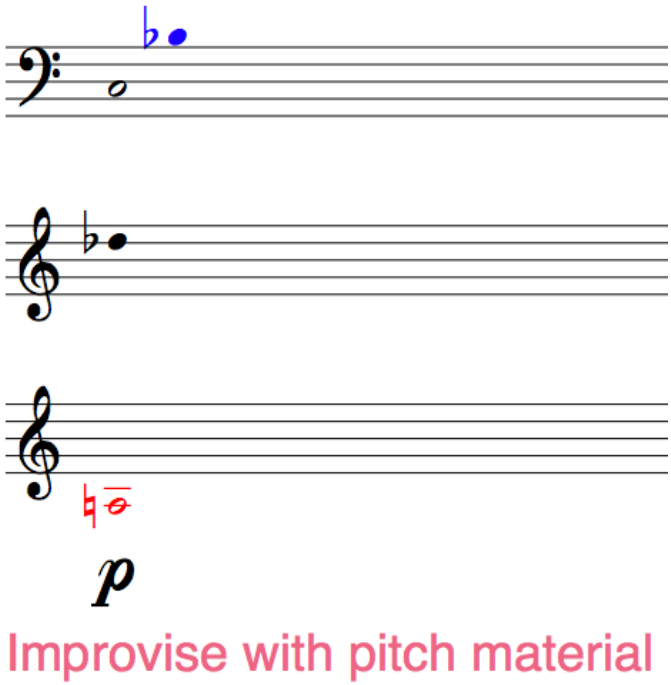

Figure 3.7: AlgorithmicScore: Enharmonic mode.

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

This method for generating scores can be very useful to notate pre-composed and aleatoric material in real-time. Moreover, this application is ideal to to visualize pitch or rhythmic information

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

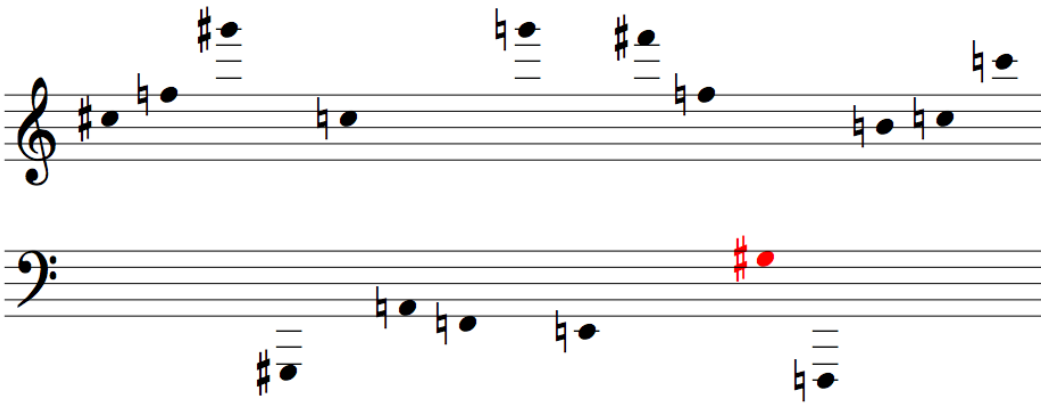

Figure 3.8: AlgorithmicScore: Chromatic mode.

derived from machine listening techniques such as partial tracking. Real-time scoring is specially relevant when using machine listening applications because the material that is notated is extracted from sound characteristics that are specific to the moment and space of the performance. Figure 1.9 shows an example that uses the PartialTracker class to extract MIDI note numbers from the strongest twenty partials of a spectrum. The resulting score is therefore generated in real-time and is specific to the space and time in which the partials are extracted.

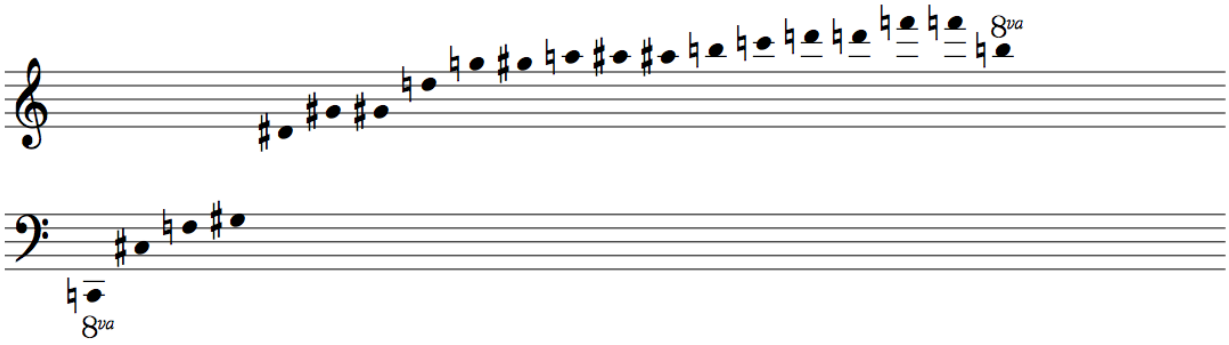

Figure 3.9: AlgorithmicScore: PartialTracker to Notes.

A sense of movement can be generated using the AlgorithmicScore class if the notes and other graphics are imbedded within a *routine*.[17] Therefore, it is possible to animate the graphical user interface including the notation elements for different purposes. One purpose for using score animations is to convey a sense of gesture by animating the notes so that they appear to be moving in specific directions. It is possible then to make notes appear as if they are skipping or jumping by

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

changing note values every time an element of the *routine* is evaluated.[18] 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.[19] 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.[20]

Given that the AlgorithmicScore class does not use note stems and flags as an element of notation, rhythm may be expressed visually as well as aurally. Rhythm might be expressed with score movement using visual triggers that turn *on* and *off* symbolizing the onset and release of a note—this class has circular triggers that switch between bright colors (*on*) and light grey (*off*) to covey rhythm.[21] 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.[22] Aural triggers may be added to indicate both rhythm and pitch by producing sounds that will serve as guide to the performer. The sounds would account for an aural score that the performer would receive through headphones and might enhance the visual elements of the AlgorithmicScore class.

Additionally, it is possible to import any type of image and video within the class and therefore create a wide variety of non-standard graphical indications. This application also provides the option to import scores written traditionally in standard notation programmes and combine them with the more expressive potential of the AlgorithmicScore class. Finally, by using human interface devises (HIDs) such as MIDI controllers and pedals the performer may interact with the score. This might be helpful for example to trigger score animations or turn pages with a MIDI pedal. Other examples of human-to-score interaction include controlling tempo and conducting cues with human gesture and triggering spectral data extraction to be displayed in the computer display with different types of sensors.

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

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

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

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

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

3.3 Computer-Aided-Composition Tools

As part of my creative output, I have developed computer applications that served me as computer-aided-composition (CAC) tools during my research. This set of tools can be found in a library of SuperCollider classes and extensions called FedeLib. An important component to this library is a collection of extensions[23] to existing classes that perform a wide variety of tasks. These tasks include: mathematical operations on simple numbers and lists; musical calculations including different types of tuning systems, interval and pitch-class recognition, scale generation and voice leading; scheduling and time related applications; operations on strings; envelope generation; recurrent operations such as recording audio, handling MIDI, switching between servers, managing buffers and patterns; MIDI file analysis, transformation and triggering; and GUI creation. These tools aided me in the composition of the works submitted and might be useful to other composers. They too might reflect some of my compositional interests and methods. Nevertheless, I will not attempt to describe all extensions as it would be out of the scope of this discussion. Therefore, I will focus only on a few tools that I think are fundamental in my creative process as they are related with the concepts described in the previous chapters.

3.3.1 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 that I consider excel in dealing with macro-structure. Therefore, I started by analyzing the score of these compositions and then tracing their phrase structure that I would use as a blueprint for my own composition. Each voice or staff would be considered as different layers containing phrases that would start and end depending on where silences occur. I would then create what John Cage calls "empty containers"[24] with the phrase structure of each voice of the appropriated composition. Consequently, I would sketch in a piece of squared paper the start and end of phrases according to a time scale. Ones I would sketch a diagram of "empty containers," I would start thinking what sonic 'material' I would fill the containers with

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

[24] See Boulez and Cage correspondence...

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 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 marco-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. Therefore, I developed extensions for the SimpleMIDIFile[25] class to perform these operations. The message *trackSilence*[26] analyses a MIDI file[27] 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 ] ]
```

Ones 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 4.10 shows the result of the visualization of a MIDI file of a section of Johannes Ockeghem's *Missa Mi mi*. Each MIDI track is represented as a different color and 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

[25] SimpleMIDIFile accesses MIDI file information in SuperCollider. See footnote number 14.

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

[27] 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.

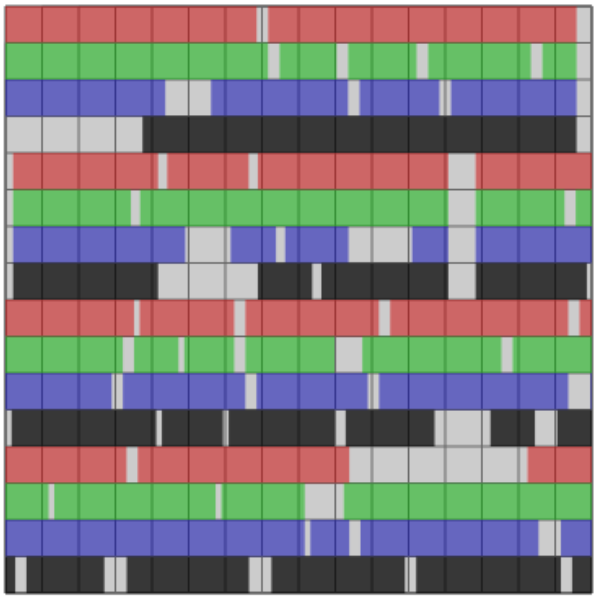

Figure 3.10: Visualization of Ockeghem's *Missa Mi mi*.

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 this 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 1.11 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.

3.3.2 MIDI Triggering

Following the idea of using existing compositions as a blueprint for the design of a new work, I have continued to write applications 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. Therefore, these extensions employ a MIDI file as

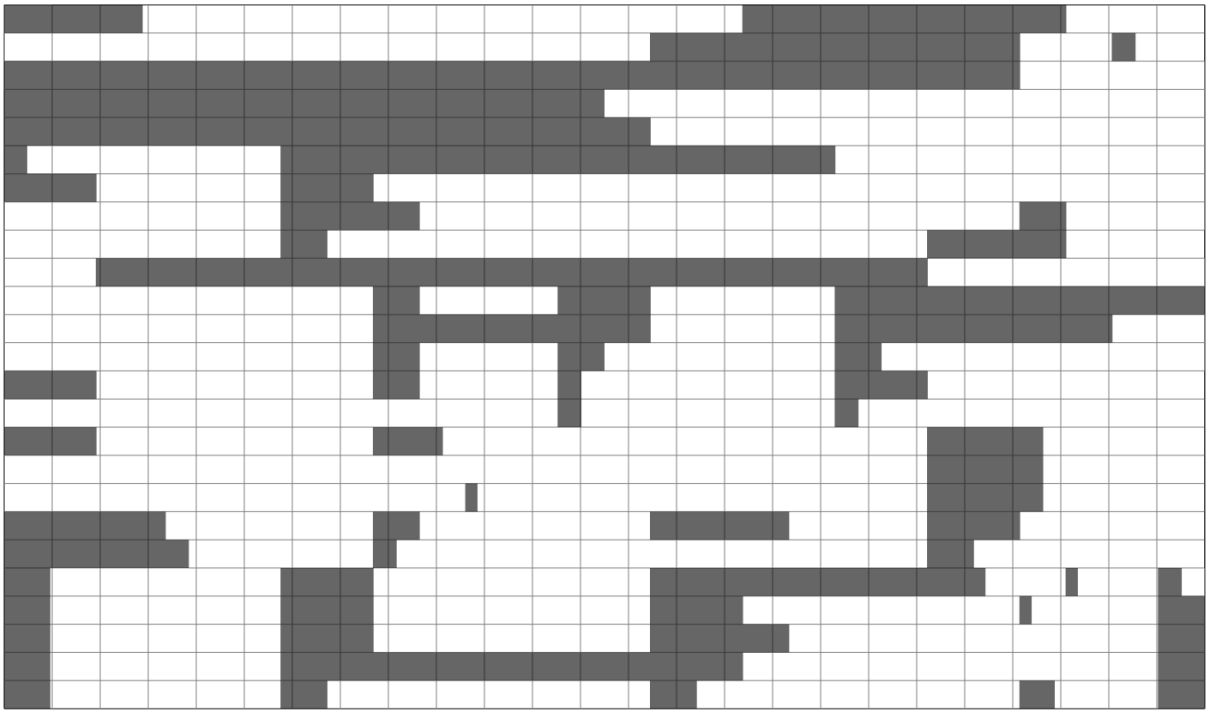

Figure 3.11: Visualization of Gesualdo's *Se la mia morte brami.*

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. Therefore, it is possible to use this 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. This 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 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 applications that work with incoming MIDI data from a human performer. Therefore, 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.*[28] *as a strategy to control structures in a live performance.*

3.3.3 Voice Leading

3.4 Live-electronics

3.4.1 Envelope Taxonomies

3.4.2 Spectrum Driven Sampler

[28] See pp for an explanation of the term.

Chapter 4

Compositions

4.1 E-tudes

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

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

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

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

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

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

the long-run.

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

Hello sentence.

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

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

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

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

of computer processing as well as the appropriated compositions.

E-tudes also challenges the audience by questioning traditional performance practice and creating a cognitive dissonance: what you see is not necessarily what you hear, and certainly not what your past experience leads you to expect.

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

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

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

and re-enter the space during the duration of the event. One can argue that these elements are fundamental for a piece that seeks to form a relationship with the listener and thus, it remains important that this event take place in this type of setting.

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

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

Other important aspects about E-tudes:

Performance/Installation

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

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

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

Relational aspect: it proposes the idea that one may innovate by searching for new ways that the audience relates to the work.

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

4.1.1 E-tude 1

4.1.2 E-tude 2

4.1.3 E-tude 3

4.1.4 E-tude 4

4.2 On Violence

4.3 Zizek?

4.4 FreuPinta

4.4.1 Simulation Series

4.4.2 Occupation Series

4.4.3 Transgression Series

Chapter 5

Conclusion