INTERDISCIPLINARITY: AN EXPANSION OF MY CREATIVE APPROACH

A thesis by

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ABSTRACT

Over the last decade, the interest in including interdisciplinary practices within the context of contemporary music has increased. Research into this field needs to continue being addressed by composers, as well as by musicologists and art historians, in order to develop case studies which assess and define the multiple creative approaches that a project involving many artistic disciplines can have. The present research evaluates the substantial changes that have occurred in my composition practice as a consequence of using an interdisciplinary methodology – based on the transferral of methods from one discipline to another– and reflects on how an adaptive strategy, which reconsiders the preconceived compositional procedures, leads composers working within an interdisciplinary context to an integrated outcome. Given that this study has mainly been practice-based, the present commentary focuses on the composition of the following eight works: *[co][hes][ion]* (2013), for dance and pre-recorded electronics; *Wondjina* (2013), for bass clarinet, live electronics, video and dance; *stone:speeches* (2014), an audiovisual installation; *Alice's Adventures in Wonderland* (2014), for piano, pre-recorded electronics and video-animation; *disPLACE (a nowhere opera) – Història d'una casa* (2015) (libretto by Helena Tornero), a chamber opera; *[logolepsy/lethologica]* (2016), an acousmatic work inspired by old radiophonic works; *liquid:speeches* (2016), a multichannel audiovisual installation; and *Blind Contours no. 1* (2016), for ensemble, pre-recorded electronics and video.

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INTRODUCTION

Over the last decade, the trend of including other art forms within the context of contemporary music has increased. The interest in designing programmes that stimulate the creation of works that involve more than one discipline has risen in well-known institutions like the London Sinfonietta's *Blue Touch Paper,* which, from 2011 to 2014, "focussed on composers collaborating with artists from other disciplines", the British Council, which "collaboratively develop(s) and curate(s) a number of exciting projects in theatre, dance, music, visual arts, museums, literature, design, film and interdisciplinary creativity"[1], and the *Biennale di Venezia*, which "promotes and supports the production of a maximum of 4 micro-budget chamber musical theatre works"[2] to be premiered in its International Festival of Contemporary Music in 2018. The tendency to include sound installations, video, dance and theatre in contemporary music festivals has also become greater, with prominent examples at the Huddersfield Contemporary Music Festival, where "the internationally recognised Swiss-American visual artist and composer Christian Marclay is to be Composer in Residence" [3] in 2018, the Ultima (Oslo Contemporary Music Festival)[4], which this year invites renowned artist William Kentridge to offer his audiovisual performance[5] of *Ursonate* by Kurt Schwitters, or the Darmstadt Ferienkurse, whose opening in 2016 included a version of Gerard Grisey's *Vortex Temporum* by choreographer Anne Teresa De Keersmaeker, defined by the festival as a "breathtaking work for 13-piece ensemble (seven performers from her company, Rosas, and six musicians from Ictus)".[6] Besides this, educational institutions are increasingly including interdisciplinary music studies in their

[1] "Our work in the Arts," *British Council*, (British Council, 2018), accessed July 28, 2018, https://www.britishcouncil.in/programmes/arts

[2] "Biennale Musica 2018. 62nd International Festival of Contemporary Music," *La Biennale di Venezia*, accessed July 28, 2018, http://www.labiennale.org/en/music/2018

[3] "Christian Marclay is Composer in Residence at 2018 Huddersfield Contemporary Music Festival," *Huddersfield Contemporary Music Festival,* accessed July 28, 2018, https://hcmf.co.uk/christian-marclay-composer-in-residence-hcmf-2018/

[4] "Programme 2018," *Ultima Oslo Music* Festival, accessed July 28, 2018, http://ultima.no/en/program

[5] "William Kentridge: Ur Sonate," *Ultima Oslo Music* Festival, accessed July 28, 2018, http://ultima.no/en/events/ursonate-160918

[6] Internationales Musikinstitut Darmstadt (IMD), "Darmstadt Summer Course 2016 – Program," *issuu*, July 14, 2016, accessed July 28, 2018, https://issuu.com/internationales-musikinstitut/docs/ferienkurse_2016_programmbuch/110

programmes. Examples of this are the University of Surrey, which, in 2016, organised the *Music Composition as Interdisciplinary Practice* seminars "funded by the AHRC in order to investigate composition that takes place where music and other disciplines interact",[7] and the Master's Degree *Music as an Interdisciplinary Art* from the University of Barcelona , which "covers theoretical and practical aspects of music that are generally overlooked in the academic world [for example] the association between music and cultural activities such as visual and audio-visual art and literary creation".[8]

The present research stemmed from the wish to explore how the integration of various art forms within a single work could expand my creative approach as a composer or, in other words, how such integration affected the methodologies applied during the creation process.

One of the reasons why I undertook these studies was to continue developing my creativity in the field of visual arts. In the early 2000s, I studied an A level in Art and began a bachelor's in Fine Arts, at the University of Barcelona. After the completion of the first year, I decided to quit to focus on my studies in music college. Over the last few years, my interest in expanding my creativity not only in music but also in visual arts has had two primary outcomes. The first has been the creation of video works, of which I include five within this research: the audiovisual installations *stone:speeches* and *liquid:speeches* and the concert works containing video namely *Wondjina*, *Alice's Adventures in Wonderland* and *Blind Contours no. 1*). The second has been the visual representation of my electroacoustic works through graphical scores, which are included in the accompanying portfolio (*[co][hes][ion]*, *stone:speeches*, *liquid:speeches* and *[logolepsy/lethologica]*).

When I started these studies, I did not imagine it would have such a positive outcome. My years of research have been by far the most inspiring of my whole

[7] "Music Composition as an Interdisciplinary Practice," *Department of Music and Media – University of* Surrey, n.d., accessed July 28, 2018, https://www.surrey.ac.uk/department-music-media/research/music-composition-interdisciplinary-practice

[8] "Music as an Interdisciplinary Art," *Universitat de Barcelona*, n.d., accessed July 28, 2018, http://www.ub.edu/web/ub/en/estudis/oferta_formativa/master_universitari/fitxa/M/M2705/index.html?

career as a composer and have opened the path I wish to continue on in the future. During this period, I have been involved in many engaging projects, which have revealed to me how vibrant and essential an exchange of information between artistic disciplines is, focusing on which has become the most stirring and motivating source of creativity.

Throughout the course of this doctorate, my creative strategies developed significantly, necessitating a change to the terminology to be used in the current commentary. When I started my research, I used the term 'multidisciplinary' to define the type of interaction I established with the other art form(s) involved in my work. That is why the initial title of this thesis was *Multidisciplinarity: an expansion of my creative approach.* One of my first works exploring multidisciplinarity was *steel:speeches* (2013)[9], consisting of four pre-recorded electronic pieces conceived to be played within the installations *Invisible* and *House of Mirrors* by British sculptor Rob Olins, in the Royal British Society of Sculptors. For that occasion, I composed the music without having much interaction with Olins, whose works had already been created and were being exhibited at the time. Some months later, when I was about to complete my first year of research, and thanks to my collaboration with choreographer and First Soloist of the English National Ballet Fabian Reimair, I recognised that my creative methodology was moving in a new direction, as detailed in Chapter 1 – *[co][hes][ion]* (2013).

I realised that I was progressively approaching my compositional practice from the procedural and structural parameters of the other discipline involved in the work, which was tremendously inspiring for me. Consequently, I decided to focus my practice-based research on exploring how the transferral of methods from one discipline to another and the subsequent reconsideration of the preconceived compositional procedures could lead me to an integrated artistic result. In other words, how *interdisciplinarity* could expand my creative approach.

[9] *steel:speeches* (2013) was specifically created to be played as part of the installations *In Visible* and *House of Mirrors* by British sculptor Rob Olins. These installations challenged auditory perceptions as they amplified the sound, played by an attached speaker, in some particular spots within the space next to the sculpture. *steel:speeches* was exhibited from the 26th of March to the 26th of April 2013 at the Royal British Society of Sculptors in London. This work is not included in the current portfolio, although it was part of my Transfer Examination in autumn 2013.

Although the terms *multidisciplinary* and *interdisciplinary* are increasingly being included within the context of contemporary music, it is still difficult to find specific definitions which detail the differences between both concepts when applied to the context of music and art research. This terminology, however, is widespread within the scientific community. In that context, *interdisciplinary* and *multidisciplinary* research has been developed over the last decades "at the boundaries of the scientific disciplines", where "a new mode of application-oriented research [has been] emerging, on top of traditional academic research".[10]

> Over the years, various indicators have been developed to describe multidisciplinary (Glänzel et al. 1999), cross-disciplinary (Porter & Chubin 1985), and interdisciplinary (Thijssen 1992; McCain & Whitney 1994; Tomov & Mutafov 1996; McCain 1998) research.[11]

Although these terms appear to be widely spread across the science scholars, there are still some difficulties when defining the different types of *non-disciplinary research* [12] "as many related concepts exist with various interpretations: multidisciplinarity, crossdisciplinarity, pluridisciplinarity, interdisciplinarity, and transdisciplinarity".[13] In the paper *Disciplinary, Multidisciplinary, Interdisciplinary – Concepts and Indicators–*, Van den Besselaar and Heimeriks define the terms as follows:

> The basic difference between these various manifestations of non-disciplinary is the level of integration of the different disciplinary approaches they are based on.
> In multidisciplinary research, the subject under study is approached from different angles, using different disciplinary perspectives. However, neither the theoretical perspectives nor the findings of the various disciplines are integrated in the end.
> An interdisciplinary approach, on the other hand, creates its own theoretical, conceptual and methodological identity. Consequently, the results of an interdisciplinary study of a certain problem are more coherent, and integrated.[14]

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[10] Peter Van den Besselaar and Gaston Heimeriks, "Disciplinary, Multidisciplinary, Interdisciplinary –Concepts and Indicators–," (Paper presented at the 8th conference on Scientometrics and Informetrics, Sydney, Australia, July 2001), 1, accessed July 6, 2018, www.academia.edu/2722325/Disciplinary_multidisciplinary_interdisciplinary_Concepts_and_indicators

[11] *Ibid.*, 3.

[12] "Non-disciplinary research can be seen as ways of combining elements form various disciplines, as an interaction among two or more different disciplinary specialties, in order to answer practical questions and to solve practical problems." (Van den Besselaar and Heimeriks, 2001), 2.

[13] Peter Van den Besselaar and Gaston Heimeriks, *Op. cit.,* 2.

[14] *Ibid.*, 2.

A similar definition is found in the article *Assessing Italian Research in Statistics: Interdisciplinary or Multidisciplinary?,* by Epifani et al.:

> We adopt the definition suggested by Porter et al. (2007), given by the National Academies (2005): interdisciplinary research requires an integration of concepts, theories, techniques and/or data from two or more bodies of specialized knowledge. Multidisciplinary research may incorporate elements of other specialized knowledges [sic], but without interdisciplinary synthesis (Wagner et al., 2011) which includes more than single parts.[15]

Even though the term *interdisciplinary* "tends to be tacitly understood by researchers, without shared definition"[16], both papers offer a very similar meaning and agree with the fact that the *level of integration* in interdisciplinary research is higher than in the studies that follow a multidisciplinary approach.

Theoretical physicist Basarab Nicolescu [17], who also admits that "interdisciplinary is often confused with multidisciplinarity"[18], offers the following definitions in his book *Manifesto of Transdisciplinarity*:

> Multidisciplinarity concerns studying a research topic not in just one discipline but in several at the same time. For example, a painting by Giotto can be studied not only within the context of art history, but also within the contexts of the history of religions, European history, or geometry [...] Any topic in question will ultimately be enriched by incorporating the perspectives of several disciplines [...] Multidisciplinarity brings a plus to the discipline in question (the history of art or philosophy, in our examples), but we must remember that this "plus" is always in the exclusive service of the home discipline. In other words, the multidisciplinary approach overflows disciplinary boundaries while its goal remains limited to the framework of disciplinary research.
>
> Interdisciplinarity has a different goal than multidisciplinarity. It concerns the transfer of methods from one discipline to another. One can distinguish three degrees of interdisciplinarity: (a) degree of application (for example, when the methods of nuclear physics are transferred to medicine, which leads to the appearance of new treatments for cancer); (b) epistemological degree (such as, transferring methods of formal logic to the area of general law, which generates some interesting analyses of the epistemology of law); (c) degree of the generation of new disciplines (when methods from mathematics are transferred to physics, generating mathematical physics, or when mathematical methods are transferred to meteorological phenomena or stock market processes,

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[15] Sandra De Francisci Epifani, Maria Gabriella Grassia, Nicole Triunfo, and Emma Zavarrone, "Assessing Italian Research in Statistics: Interdisciplinary or Multidisciplinary?" (Paper, IULM University, 2011), 1-2, accessed July 6, 2018, http://www.academia.edu/3052910/Assessing_Italian_Research_in_Statistics_Interdisciplinary_or_Multidisciplinary

[16] Sandra De Francisci Epifani et al., *Op. Cit.,* 1.

[17] Basarab Nicolescu is specialised in transdisciplinary research, among other areas. He is the author of books such as *Manifesto of Transdisciplinarity* (2002), and *Transdisciplinarity: Theory and Practice* (2008).

[18] Basarab Nicolescu, *Manifesto of Transdisciplinarity,* (New York: State University of New York Press, 2002), p. 46, accessed March 6, 2019, https://books.google.es/books?id=jxJDlYTlAQ8C&printsec=frontcover#v=onepage&q&f=false

> generating chaos theory; transferring methods from particle physics to astrophysics produces quantum cosmology; and the transfer of computer methods to art leads to computer art).[19]

The explanations given above have provided a reference when it comes to my defining what *multidisciplinarity* and *interdisciplinarity* mean in the context of the current research. From Nicolescu's definition of *multidisciplinarity*, we may extract the following key points: 'several disciplines working at the same time', 'the outcome is enriched thanks to the incorporation of the different perspectives coming from the disciplines involved', and 'the bringing of a "plus" to the object of the investigation; a "plus" which is always in the exclusive service of the home discipline, being its goal limited to the framework of disciplinary research'.

Taking into account these key points, I consider a work to be *multidisciplinary* if it involves many artists from different disciplines working together, each one providing their own disciplinary knowledge to bring a "plus" to the project, and their goal being limited to the framework of their art form. My definition is exemplified in *steel:speeches* (2013) (already mentioned on the first page of this introduction). I consider that my approach was *multidisciplinary* mainly because I mostly worked within the framework of my discipline. Although I took into account that the music I was composing was for an installation, my perspective was purely musical. Therefore, we could say that I was bringing a "plus" to the sculptures, principally because my goal was limited to the conception of the music.

On the other hand, Nicolescu suggests that the key concepts related to the term *interdisciplinary* are: 'the goal of interdisciplinarity is different to the one of multidisciplinarity', 'it consists in transferring methods from one discipline to another', 'there are three degrees of interdisciplinarity: (a) degree of application, (b) epistemological and (c) generation of new disciplines'.

The aspect which particularly interests me here, as it is highly relevant to my practice-based research, is the transfer of methods from one discipline to another. Note how, despite the fact that the three degrees that Nicolescu suggests have different outcomes, they always consist of the transference of methodologies.

[19] Basarab Nicolescu, *Op. cit.*, pp. 43.

Therefore, in my own words, an *interdisciplinary* work must, first of all, include a *transfer of methods* –or creative approaches– from one discipline to another, which, in the specific context of composition, requires that the pre-established compositional procedures be reconsidered to integrate the methods or approaches of other discipline(s) involved in the work. I would add, taking into account the definitions given by Van den Besselaar and Heimeriks (page ii), that the level of integration in an interdisciplinary work should be expected to be higher than in a multidisciplinary work.

At first sight, this terminology seems to be exclusively associated with collective work. However, when analysing the definitions given by Basarab Nicolescu, we can see that he mentions different *disciplines*, but not necessarily different individuals. The eight pieces included in this commentary had as a common feature the combination and interaction of music with different art forms. Some of these works, such as *[co][hes][ion]* (2013), which, as aforementioned, was created together with Fabian Reimair (Chapter 1), involved other artists. In other works, however, I have created both the music and the video. Therefore, there are two artistic disciplines but only one creative agent. This made me question the terminology again: Was it correct to designate these works interdisciplinary? Does the fact that I do not interact with another human exempt them from that category? These points made me wonder if I had to use the term *multimedia* instead of *interdisciplinary*. In the following paragraphs, I briefly contextualise the origins, evolution and present meaning of the term in order to defend why I ended up discarding the idea of referring to my work as *multimedia*.

In 1966, artist Bob Goldstein used the term multimedia "to promote the opening of his *Light Work at L'Oursin* show at Southampton, Long Island, New York."[20] Randall Packer, co-author along with Ken Jordan of the book *Multimedia: From Wagner to Virtual Reality*, explains the origins of the term:

> In fact, the word "multimedia" (or "multi-media," as it was first spelled) had been around since at least the 1960s, describing various manifestations of avant-garde

[20] S.K. Mangal and Uma Mangal, *Pedagogy of Social Sciences* (Delhi: PHI Learning Private Learning, 2018) p. 380, accessed March 18, 2019, https://books.google.es/books?id=TrRHDwAAQBAJ&pg=PA380&dq#v=onepage&q&f=false

> theater, mixed-media, performance art, installation, and other uncategorizable forms involving video, film, and electronic music.[21]

However, the development of digital technology through the 1970s and 1980s resulted in the word *multimedia* being progressively associated with computer-based proceedings. As such, in 1993, Tay Vaughan wrote:

> Multimedia is any combination of text, graphic art, bound, animation and video that is delivered by computer. When you allow the user–the viewer of the project– to control what and when these elements are delivered, it is interactive multimedia.[22]

Nowadays, in the height of the digital era, *multimedia* is associated with 'digital multimedia'. According to Klich and Scheer, "the word is often used to describe digital systems organized around online environments, virtual reality systems and computer games in the sense that these are systems that support the interactive use of text, audio, images, video, and graphics."[23] In *Multimedia: From Wagner to Virtual Reality,* Packer and Jordan outline the five characteristics that define digital multimedia:

> **Integration**: the combining of art forms and technology into a hybrid form of expression.
> **Interactivity**: the ability of the user to manipulate and affect her experience of media directly, and to communicate with others through media.
> **Hypermedia**: the linking of separate media elements to one another to create a trail of personal associations.
> **Immersion**: the experience of entering into the simulation or suggestion of a three-dimensional environment.
> **Narrativity**: aesthetic and formal strategies that derive from above concepts, which result in nonlinear story forms and presentation.[24]

Although the works I submit in this doctorate are partially or totally created with the help of digital media, I do not believe that this qualifies them as multimedia. Taking into account the etymological evolution of the term as well as its inherent characteristics –synthesised by Packer and Jordan and cited in the

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[21] Randal Packer, "The Real History of Multimedia," *MoMA*, September 23, 2013, accessed March 18, 2019, https://www.moma.org/explore/inside_out/2013/09/23/the-real-history-of-multimedia/

[22] Tay Vaughan, *Multimedia: Making It Work*, Berkley: Osborne/McGraw-Hill, p. 3, 1993, in S.K. Mangal and Uma Mangal, *Pedagogy of Social Sciences* (Delhi: PHI Learning Private Learning, 2018), accessed March 18, 2019, https://books.google.es/books?id=TrRHDwAAQBAJ&pg=PA380&dq#v=onepage&q&f=false

[23] Klich, Rosemary, and Edward Scheer, *Multimedia Performance* (Hampshire: Palgrave MacMillan, 2012) p.8.

[24] Randall Packer, and Ken Jordan, *Multimedia: From Wagner to Virtual Reality* (London and New York: W. W. Norton and Company, 2001), p. xxxv.

paragraph above–, I am of the opinion that using expressions such as 'multimedia composition' in this context could lead to erroneous associations. In any case, even if I could identify my eight works as multimedia, the objective here, as mentioned at the beginning of this introduction, is to evaluate creative methodologies, not to justify a format.

This thought process helped me reconsider the term *interdisciplinary* as valid in the context of this research, and overcome the dilemma regarding the works in which I am in charge of more than one discipline. After all, the term *interdisciplinary* refers to a methodology. This is a determining factor so, in these circumstances, I think that the pieces in which I do not work with third parties can also be called interdisciplinary, as long as the process of creation includes the transfer of methodologies from one discipline to another (as defined by Nicolescu). To discern between the two types of interdisciplinarity discussed above (pp. 6 and 7), I suggest using the terms *collective* and *individual*.

To support my decision to use the term *interdisciplinary* at the individual level instead of *multimedia*, I would like to mention that, in some contexts, the expression 'interdisciplinary performer' or 'interdisciplinary artist' is used to refer to an individual who creates a work or performance in which he or she develops many art forms:

> [...] the interdisciplinary artist spends years mastering their disciplines, only to struggle later to put them together, creating a working negotiation of different approaches in an attempt to re-integrate themselves.[25]

It should be remarked that when referring to *interdisciplinarity*, I am not using the word *collaborative*, but *collective*. The term *collaborative* is reserved for indicating the type of relationship I had with other musicians (an instrumentalist and two lyrical singers) during the creation process of *Wondjina* (Chapter 2), *stone:speeches* (Chapter 3) and *liquid:speeches* (Chapter 7), respectively. In these three cases, we worked from the same disciplinary approach: music. Therefore, to distinguish this from the interdisciplinary relationships I had with artists from other disciplines, I use the word *collaboration*. This distinction is especially useful when defining works

[25] Experience Bryon, *Integrative Performance - Practice and Theory for the Interdisciplinary Performer* (London: Routledge, 2014), p. 4.

such as the audiovisual installation *stone:speeches* (2014), which was conceived using an interdisciplinary methodology at the individual level –I created music and video– but on which I *collaborated* with soprano María Hinojosa, who improvised singing on some texts that I had prepared, to create the sound.

Therefore, the present research focuses on evaluating the substantial changes that have arisen within my composition practice as a consequence of using an interdisciplinary methodology. Accordingly, the current commentary and the accompanying portfolio aim to respond to the following questions: How has my compositional approach changed depending on the artistic disciplines involved in each of the works? Which methods were transferred from one discipline to another? Why is a flexible creative tactic –which reconsiders practical procedures and establishes a reciprocal relationship with the other disciplines involved– crucial in leading to a successful outcome? How has the exchange of information between different artistic disciplines influenced the conceptual aspects of my work?

Challenging my creative praxis has had direct consequences on my works. Depending on the disciplines involved in the work or, in other words, on its holistic aim, I chose different methods to be explored throughout my composition process. For example, in the cases of the operas that I have composed during these years –only one of them is included in this research: *disPLACE (a nowhere opera)* (2015)– I adapted my compositional approach from the conceptual practice to the performative practice; in other words, I transferred theatrical methods to the composition. That is to say, I sang and performed the text myself to understand the psychology of the characters and their evolution throughout the opera, and composed the instrumental and electroacoustic music after the recordings of such performances. Another example is found in the choreographic work *[co][hes][ion]* (2013), created in collaboration with the English National Ballet's First Soloist Fabian Reimair. On this occasion, I composed a substantial part of the music by translating his *silent* movements to sound objects, which were later transformed to acquire coherence and a sense of musical development.

Given that this examination has mainly been practice-based, the present research will focus on assessing the methodologies used in the composition of the following eight works, included in the accompanying portfolio: *[co][hes][ion]* (2013),

for dance and pre-recorded electronics; *Wondjina* (2013), for bass clarinet, live electronics, video and dance; *stone:speeches* (2014), an audiovisual installation; *Alice's Adventures in Wonderland* (2014), for piano, pre-recorded electronics and video-animation, in collaboration with illustrator Ainhoa Sarabia; *disPLACE (a nowhere opera) – Història d'una casa (2015) (libretto by Helena* Tornero), a chamber opera; *[logolepsy/lethologica]* (2016), an acousmatic work that is inspired by old radiophonic works; *liquid:speeches* (2016), a multichannel audiovisual installation; and *Blind Contours no. 1* (2016), for ensemble, pre-recorded electronics and video.

As the graphic below shows, the works included in this research are subject to different levels of classification, such as the format for which they were conceived or their type of relationship with either the text or the video. Considering how interlaced they are, I decided to organise them in chronological order, instead of grouping them by favouring a specific level of classification.

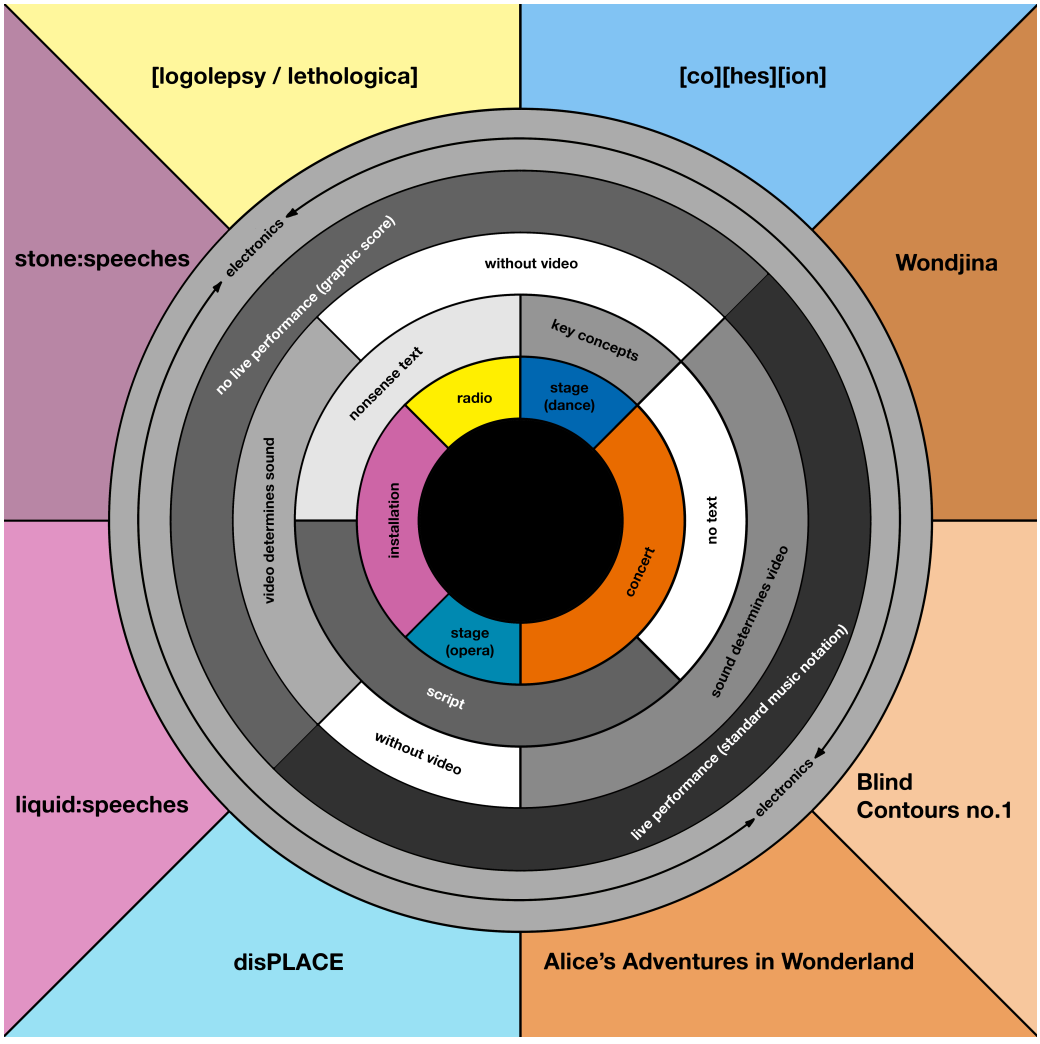

Figure 0.1: Interdisciplinary interrelations between the works included in this research.

As aforementioned, there are four works for which I did not write scores with traditional music notation, since they are either installations (*stone:speeches* and *liquid:speeches*) or acousmatic works (*[co][hes][ion]* and *[logolepsy/lethologica]*).

Instead, I designed graphic scores to help the listener to identify the main musical materials and give an overview of their structure. The inspiration to create them –especially in the case of *[logolepsy/lethologica]*– came from the "Hörpartitur", which designer Rainer Wehinger created in 1970, after György Ligeti's 'Artikulation' (composed in 1958). As described by Jean-Jacques Nattiez in his book *Music and Discourse: Toward a Semiology of Music*, "in making the score, Wehinger categorized different families of sonorous effects, and assigned each family a specific symbol; his categorization, of course, was made in terms of his own personal esthesic criteria [...] Wehinger's transcription constitutes a descriptive tool, serving as a material representation, a starting point for poietic and esthesic analyses."[26]

The meaning of the symbols, colours and shapes of the four graphic scores included in the accompanying portfolio is detailed in their respective chapters.

[26] Jean-Jacques Nattiez, *Music and Discourse: Toward a Semiology of Music* (Princeton: Princeton University Press, 1990), p. 81, accessed March 14, 2019, https://books.google.es/books?id=RmAji7JQnAUC&pg=PA82&dq=nattiez+wehinger&hl=en&sa=X&ved=0ahUKEwiqn-rA9ZvhAhVlxoUKHbdwBB0Q6AEIKjAA#v=onepage&q=%20wehinger&f=false

CHAPTER 1 | [co][hes][ion]

> With the opportunity to turn every gesture into a sound, there arises the possibility of the complete unity of music and dance, where one is not more important than the other, indeed, where one actually creates the other.[27]

Introduction

[co][hes][ion] (2013) is a work for dance and pre-recorded electronics, created with dancer and choreographer Fabian Reimair. The piece was conceived to be premiered within the project *Choreographics – A letter to…*, which came about from the partnership between the English National Ballet and the Royal College of Music.

The initiative matched five dancers from the company, aiming to develop his/her abilities as a choreographer, with five composers from the Royal College of Music. The teams worked under the mentorship of "multidisciplinary dance artist" Kerry Nicholls, [28] this being "the first time that English National Ballet's choreographic platform [was] taken place outside of the Company".[29]

The project was directed by English National Ballet Associate Artist George Williamson, who defined it as follows:

> The aim of this initiative is to push the choreographers and composers into a new way of thinking and working. Starting with a blank canvas, these two creative worlds come together to explore the relationship between dance and music. At the same time, this platform is designed to explore the possibilities of creating new, thought-provoking and experimental work – introducing these developing artists to the collaborative process.[30]

The premiere of *Choreographics – A letter to…*, was held at The Place,[31] London, on the 3rd and 4th of May of 2013.

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[27] John Toenjes, "Composing for Interactive Dance: Paradigms for Perception," *Perspectives of New Music*, Vol. 45, No. 2 (Summer, 2007), 35, accessed August 2, 2018, https://www.jstor.org/stable/25164655?seq=1&cid=pdf-reference#references_tab_contents

[28] Kerry Nicholls, *Kerry Nicholls Dance,* Accessed April 29, 2018. http://www.kerrynicholls.com/

[29] George Williamson, *Choreographics - A Letter to…* (Program notes. English National Ballet, 2013).

[30] *Ibid.*

[31] "The Place", *The* Place, n.d., accessed April 29, 2018, https://www.theplace.org.uk/

My interest in working within a choreographic piece came about as a result of a desire to increase my awareness of the many types of relationship between music and dance. My main aim was to explore the concept of mimesis in both art forms, which is why I chose to use pre-recorded electronics, instead of a chamber music group. Moreover, the event organisers insisted upon the use of recorded music so I realised that composing for a chamber group would restrict my aims since, once the work had been recorded in the studios, I would not be able to continue my workflow with Fabian. Additionally, the recording session was very early, which meant having less time to work on the development of our music together. I was seeking a constant interchange of information between disciplines and pre-recorded electronics was the most flexible medium to work with.

The relationship between composer and choreographer has experienced different stages throughout history. In the past, dance was subjugated by music. This norm, however, was challenged by choreographers during the 20th century[32], one relevant example being Merce Cunningham, who conceived his choreographies independently to the music:

> *Suite by Chance* was choreographed and rehearsed in silence. Dance and music met, as if by accident, in the performance space. [...] This was, in fact, a giant step forward for dance, or, one might see it as a giant step backward toward the origins of dance.[33]

There are many other cases which exemplify the change in the relationship between choreography and music. In 1959, choreographer Doris Humphrey wrote: "the dance must have something to say of its own, and a mere visualization of the music is not sufficient justification for bringing it to birth."[34] In a similar approach, the U.S. composer and pianist Louis Horst, known for his long association with

[32] Stephanie Jordan, "Choreographers and Musicians in Collaboration, from the Twentieth to the Twenty-First Century," *The Oxford Handbook of Creative Process in Music*, edited by Nicolas Donin, July 2018, accessed August 5, 2018, http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780190636197.001.0001/oxfordhb-9780190636197-e-6

[33] Carolyn Brown, *Chance and circumstance: Twenty years with Cage and Cunningham* (Evanston: Northwestern University Press, 2009), 49-50.

[34] Doris Humphrey, The Art of Making Dances (New York and Toronto: Rinehart, 1959), as cited in: Stephanie Jordan, "Choreographers and Musicians in Collaboration, from the Twentieth to the Twenty-First Century," *The Oxford Handbook of Creative Process in Music*, edited by Nicolas Donin, July 2018, accessed August 5, 2018, DOI: 10.1093/oxfordhb/9780190636197.013.6

Martha Graham as musical director, believed that a complete piece of music could not be a suitable dance score, as it would not allow the dance the liberty to follow its own internal logic.[35]

Choreographers have explored multiple relationships with music, such as the *collage technique*, adopted by Pina Bausch from the 1970s, in which different sources of music were reassembled to support her theatrical concepts[36], or *silent choreographies*, chosen by Yvonne Rainer, who, in 1974, wrote: "I would like to say that I am a music-hater.... I simply don't want someone else's high art anywhere near mine".[37]

Nowadays, according to the paper *Choreographers and Musicians in Collaboration, from the Twentieth to the Twenty-First Century* by Stephanie Jordan, in which the author analyses three case-studies of collaboration between composers and choreographers based in the UK[38], one of the current tendencies is the coexistence between dance and music, as she explains:

> Evidence shows increasingly independent, multidimensional, even oppositional relations between music and dance and a new fluidity in the behaviour of artists, enabled partly by the advent of super-fast technology.

She admits, however, that "in dance, relatively little information is available on the nature of creative processes, especially on musical issues."

On the other hand, interactive dance is attracting adepts particularly among artists interested in blending the different art forms involved in a collaborative dance work by integrating their previously disconnected identities in the process and performance of new choreographic works.[39] Working interactively means producing transformations in the relationship between music and dance as it allows

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[35] Toenjes, *Op. cit.,* 35.

[36] Stephanie Jordan, *Op. cit.*, 5.

[37] Yvonne Rainer, *Work 1961–73*. Halifax: Press of the Nova Scotia College of Art and Design. New York: New York University Press, 1974. Cited in: Stephanie Jordan, "Choreographers and Musicians in Collaboration, from the Twentieth to the Twenty-First Century," *The Oxford Handbook of Creative Process in Music*, edited by Nicolas Donin, July 2018, accessed August 5, 2018, http://www.oxfordhandbooks.com/view/10.1093/oxfordhb/9780190636197.001.0001/oxfordhb-9780190636197-e-6

[38] "Wayne McGregor, at home with both contemporary dance and ballet; Shobana Jeyasingh, who draws from South Asian classical and Western dance practices; and the performance duo Jonathan Burrows and Matteo Fargion." (Jordan, 2018)

[39] John Toenjes, *Op. cit.,* 28.

a significant connection between motion and sound and gives the dancers a higher degree of freedom to improvise.

Considering the two current tendencies described above and assessing my work with Fabian, I would say that, on a purely conceptual level, we were closer to interactive dance. Although *[co][hes][ion]* is not an interactive work *per se* (since we only had the possibility of using pre-recorded electronics), the aesthetics of interactive dance influenced my composition, specifically regarding the aim of creating an immediate connection between body-motion and sound.

Work concept

From the outset, Fabian and I worked according to a macrostructure based on concepts related to movement, specifically to the sense of touch. Our work aimed to explore the differences between *contact* and *non-contact*. We agreed to work with three contrasting materials as a point of departure, each one of them using a male-female duo of dancers.[40] The first *pas de deux* of the work, the so-called *[co]*, explores the non-contact feeling by creating a "magnetic levitation feel".[41] The second, *[hes]*, operates as a refrain that appears three times during the piece between sections 1, 3, 5 and 7. It is a delayed pattern that evolves toward a unison represented by both the music and dance. The third idea is called *[ion]*, which, in contrast to *[co]*, seeks total contact by "never losing touch".[42] All of them together form the word *cohesion*: "the act or state of cohering, or a tendency to unite".[43]

The use of new technologies was crucial in achieving the compositional approach through which I created the music. In the first stages of our work together, Fabian had already sketched a series of steps to be performed in the first two sections of the work (see Figure 1.4). When I first saw the video recordings of

[40] Lead Principal Erina Takahashi & Soloist Ken Saruhashi; First Artist Jung ah Choi & Artist Joshua McSherry-Gray; former First Artist Nancy Osbaldeston & former Artist Laurent Liotardo.

[41] Fabian Reimair and Raquel García-Tomás, "[co][hes][ion]," *Choreographics - A Letter to...* (Program notes. English National Ballet, 2013).

[42] *Ibid.*

[43] *Collins English Dictionary, s.v.* "cohesion," (Collins, 2018), accessed August 2, 2018, https://www.collinsdictionary.com/dictionary/english/cohesion

these materials (see Figure 1.1), I immediately appreciated how *musical* they were in terms of the use of rhythm and the organisation and development of its movement patterns. The choreography had very clear materials; there was a strong central concept built through repetition and variation. Its well-defined discourse consisted in recurrent movements that evolved with significant coherence, which I found tremendously inspiring. Therefore, I suggested that the music of both sections come in immediately after his videos, by translating the movement patterns meticulously to sound objects. In other words, his choreographic structure became the mould in which I shaped the music of the two first sections of our work.



Figure 1.1: Frames of the first silent choreography I received from Fabian (Section 1).

The initial commitment I showed to Fabian's work not only helped me to find the sonic vocabulary to be used throughout the whole piece, but it also resulted in a reciprocal response from him. Unlike some of the choreographers involved in the project, who created their steps regardless of the music, Fabian committed to my music as much as I did to his choreography. This was crucial in the development of our collaboration.

Work development

To translate Fabian's movements into musical materials, I imported his videos to the sequencer *Logic Pro* (See Figure 1.2). The translation was very accurate, almost mimetic. For example, the sweep of the male dancer's hand in a series of puppeteer-like gestures (Fig. 1.1) during the first section directly influenced the gradients of the high-pitched *glissandi*. At that stage, my main concern was not only to identify the gestures of the choreography but also to articulate the related sound objects in a continuous and progressive musical discourse.

The following figure shows the workspace in which I composed the music of the first section. In the upper part of the image, we can observe how the tempo and the time signature adapt according to the given choreography.

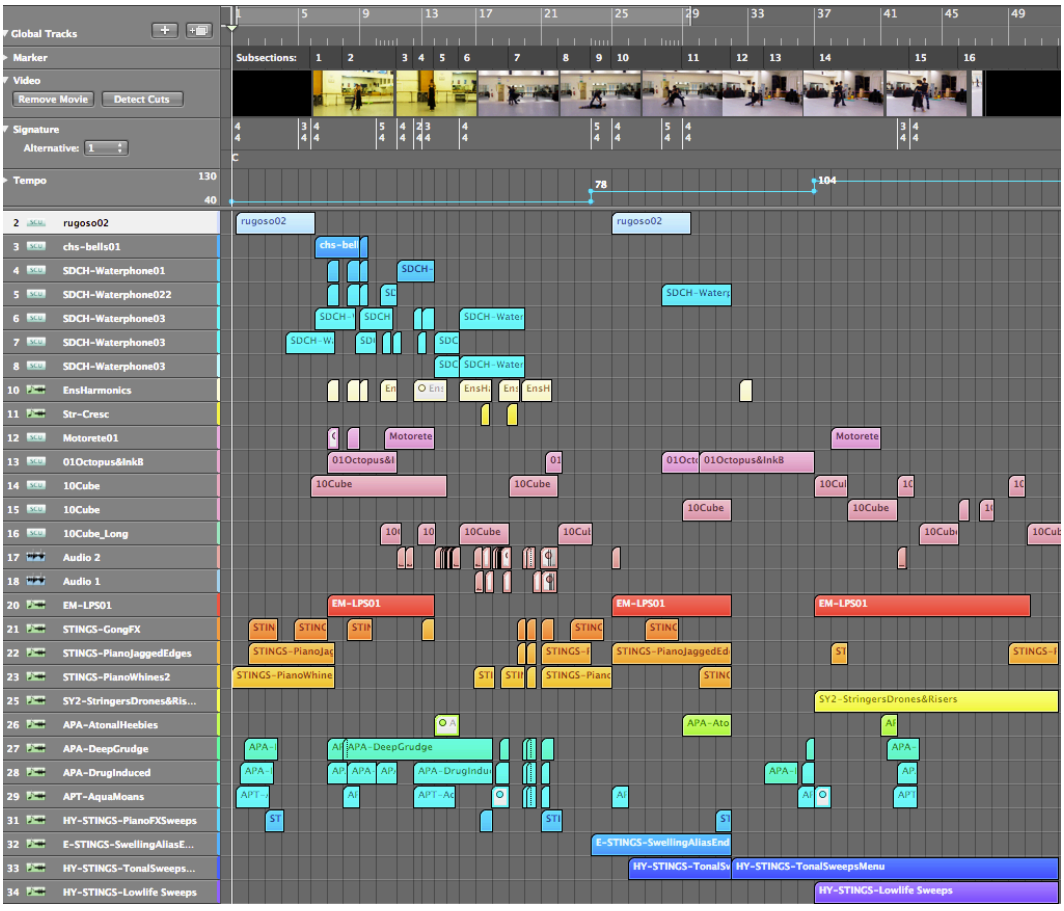


Figure 1.2: Workspace of the first section of the work, *[co].*

The next image is the first page of the graphic score of *[co][hes][ion]*, which I have included in the accompanying portfolio. It aims to offer a structural vision of the work and helps to identify its main sonic materials.

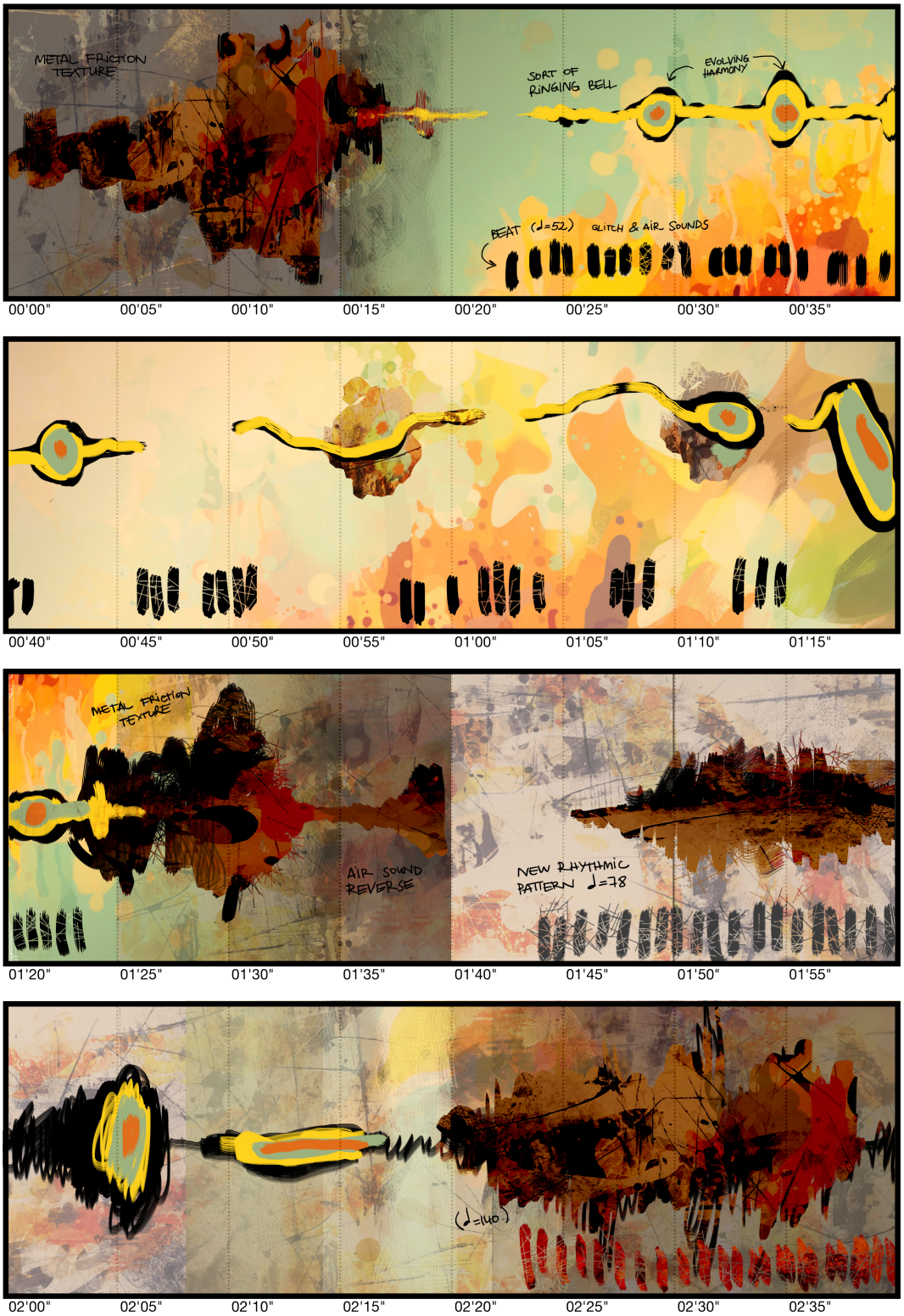


Figure 1.3: Graphic score of the first section of the work, *[co].*

The choice of the shapes and colours is due principally to my synaesthesia. This condition causes me to see colours, textures and shapes in motion when I listen to music (chromaesthesia) and also when reading and writing individual letters of the alphabet, numbers and musical notes (grapheme–colour synaesthesia).

In all the graphic scores included in this research, my visualisations have been adapted to the printed medium in order to be as informative as possible. For example, it may happen that I associate similar colours with two sections which need to be differentiated on the score. My choice in these cases consists of changing the colour palette of at least one of the sections in order to make it clear that they are separate materials.

In the case of this work, I wanted to offer an organic look. Consequently, I used rounded and complex textured shapes. In order to identify its main sound objects, I wrote short descriptions next to their visual representation. In this way, the first sonic material of the piece is a noisy crescendo whose timbre is reminiscent of a series of metallic objects scraping against each other. This is represented with an irregular shape, whose texture is reminiscent of rusty metal. Black strokes represent the noisy sounds of which I am unable to identify the pitch. If we observe this shape from left to right, we appreciate how it enlarges progressively. This is the representation of a considerable crescendo which lasts approximately 16 seconds.

This code is partially subjective, especially the use of colours according to my perceptual associations. However, as long as I keep it throughout the work, it should be easy to follow by the listener who uses this document to better understand my music. The equally distributed timeline marks –each segment lasting 5 seconds– offer a proportional view of the structure of the piece as well as helping to place each object within a time location.

The musical development of *[co][hes][ion]* required constant communication between us as we were developing both the choreography and the music simultaneously with the aim of integrating each other's discipline into our own. The following conversation (in which we were discussing the time of delay in the

Refrain[44] sections) exemplifies our modus operandi:

2 April 2013

Fabian: Let's try a delay of 8 beats for *Refrain 1* and then 4 beats for *Refrain 2*. More would look a bit disconnected, and less at a faster pace doesn't seem enough…

Raquel: 4 beats is just 2 secs. of difference… Are you sure?

Fabian: Let's try.

3 April 2013

Fabian: Hi! I had a think about it and you are probably right, the delay of 2 sec. is too short, so then it should be 16 and 8 beats… sorry!

Raquel: That means 8" and 4" … They are going to be dancing in the same spotlight anyway… Are you 100% sure? I'd say 22" and 12". This is not that much. In that way, they will be dancing under different spotlights in the 1st refrain, as you wanted.

Fabian: Ok, sounds like a plan, just go for it! 22 and 12…

Having clarified the initial materials, we completed the work according to the macrostructure detailed in the table below. Although some parts of the music were initially created after the choreography, this procedure was not applied to the whole work. From the moment that we had our common vocabulary consolidated, I could work mostly on my own. I created the music of the rest of the sections directly using the sequencer by following the agreed macrostructure, with constant feedback with Fabian.[45]

Section	Timing	Subsections
I. [co] / Non-contact (Ken & Erina) 00:00 – 02:59	00:00 – 00:20	I. Intro
	00:21 – 01:42	I.1
	01:43 – 02:20	I.2
	02:21 – 02:59	I.3
II. [hes1] / Refrain 01 (Jem & Josh) 03:00 – 04:03	03:00 – 03:19	II.1
	03:20 – 03:33	II.2
	03:34 – 03:52	II.3
	03:53 – 04:03	II.4

[44] The main characteristic of this material is a delayed pattern of movement between the two dancers which would be shortened each time they reappear on stage.

[45] The sections on which I worked after choreographic video recordings were sections I, II, and V.1.

III. [ion] / Touch (Laurent & Nancy) 04:04 – 05:52	04:04 – 05:03	III.1
	05:04 – 05:20	III.2
	05:23 – 05:52	III.3
IV. [hes2] / Refrain 02 (Jem & Josh) 05:53 – 06:12	05:53 – 06:12	IV
V. [co] (solo + canon) 06:13 – 07:46	06:13 – 06:51	V.1 (Ken's solo)
	06:52 – 07:46	V.2 (Canon, 6 dancers on stage)
VI. [hes3] / Refrain 03 07:47 – 08:48	07:47 – 08:06	VI.1
	08:07 – 08:20	VI.2
	08:21 – 08:38	VI.3
	08:39 – 08:48	VI.4
VII. Finale 08:49 – 09:41	08:49 – 09:41	VII.

Figure 1.4: Overview of the macrostructure of *[co][hes[ion]*

If we observe how the *Refrain* sections alternate with the rest of the parts of the work, the structure of *[co][hes][ion]* is somewhat reminiscent of the Rondo form. The distinctive feature here is the evolution that the *Refrains* experience throughout the piece. When this material appears for the first time (section II), the two dancers perform a delayed choreography of 22" of difference, so they dance under different spotlights. The following sequence shows how she appears first and he comes into view later.



Figure 1.5: Sequence of the second section (*Refrain 01*).

This had direct consequences for the musical part. The graphic score below displays how the rhythmic pattern A, which represents her, starts as a solo material, and the rhythmic pattern B is introduced 22" later.

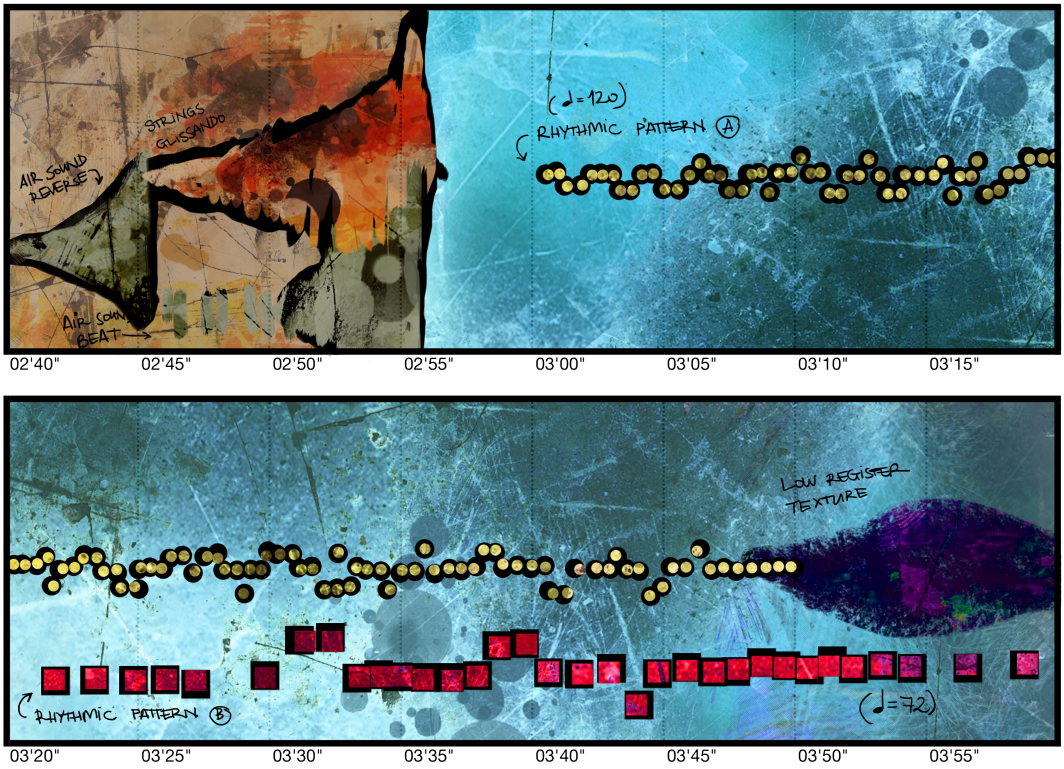


Figure 1.6: Graphic score of *Refrain 01* (section II).

The second time that the refrain reappears (section IV) the delay pattern is reduced to 12". Although the dancers are under the same spotlight, they perform independently; the delay is also represented by the music. The third appearance of the *Refrain*, just after the climactic section of the work (V), is where the dancers finally develop their choreography together and the delay disappears.



Figure 1.7: Frame of Jem and Josh dancing the *Refrain 03.*

Outcome

Thanks to my participation in this project I increased my awareness of the multiple types of relationship between music and dance, and discovered how inspiring mimesis with the other discipline is. Such mimesis was not only reflected in the final result of the work, showing a noticeable correlation between the choreographic and musical elements, but also in the creative methodology. The processes entailed in the composition of this work exemplify how enriching it can be to reconsider one's pre-established creative practices. Transferring a part of the choreographic material to my composition and making it coherent in itself was an effective creative strategy to avoid a disconnection between choreography and music. Although we did not have the devices to develop an interactive project, my approach pursued the direct correspondence between the gestures of the dancers and the musical discourse. To achieve such correspondence, the commitment of the performers was crucial. They did their best to memorise the music and perform at the same tempo in each of the performances, so their choreography fitted in with the sound objects of the pre-electronics, obtaining exceptional results. However, this could have limited their expressivity as they had to fit their steps within the given fixed timeline.

I believe this work could have been developed within an interactive dance environment if we had had the resources and assistance to do so. This would have allowed temporal freedom in combination with accurate synchronisation between music and dance. Working on a new interactive dance project is something that I certainly wish to investigate in the future, probably with the support of a specialist in motion-tracking technology. I find the type of projects that the Vienna-based dance company Liquidloft[46] creates very stimulating. They 'reflect the experience of our changing perception and bodies, which is brought about by visual media and the everyday use of technology' through the use of multimedia and motion-tracking devices. In their works *diese körper, diese spielverderber* (2004)[47], *False Colored Eyes*

[46] Liquidloft, *Liquidloft*, n.d., accessed March 15, 2019, https://liquidloft.at/#

[47] Liquidloft, "diese körper, diese spielverderber," *Liquidloft*, n.d., accessed March 14, 2019, https://liquidloft.at/projects/diese-koerper-diese-spielverderber/#

(2015)[48], and *Candy's Camouflage* (2016)[49], among others, they explore the relationship of the bodies on stage with interactive video projections.

In a non-interactive context, I find certain projects by Spanish composers Pablo Carrascosa and Octavi Rumbau hugely inspiring. Carrascosa created the music for *Handle With Care* (2017)[50], a project in collaboration with the Tangen-Benzal Company. I find how the music and the choreography relate to each other very attractive. Carrascosa has a particular preference for the use of very subtle and delicate noises, which he organises using loops, the result being a strong feeling of circular time. The discourse of the choreography, however, is mostly created linearly (from avoiding performing loop figures with their bodies) and it usually moves at a faster pace than Carrascosa's music does. I find how both disciplines create a kind of polyrhythmic relationship which challenges the motion perception from the spectator's point of view especially attractive. Rumbau's music achieves a similar effect in *It's time* (2017)[51], in collaboration with the ACME dance company. Rumbau combines electronics with acoustic instruments (string trio and percussion) and he also develops circular structures which contrast with the linear choreography developed by the three dancers on stage (Albert Quesada, Federica Porello and Zoltán Vakulya). In the following paragraph, they explain how they break linearity and manipulate time perception:

> *It's time* is a piece for stage with three dancers and live musicians investigating, interrogating and manipulating the subjective experience of the passage of time. It proposes a break from our "linear", chronometric life - a moment in the theatre to explore the sound and motion of diluted, vertical time. With aesthetics inspired from graphic novels and their depiction of the passage of time in "fictional space"; the performers and musicians will speed up, slow down, freeze in motion and reverse their own movements, bringing into play the uncanny, dissociative elements of directionality, suspension and gravity that determine our perception of time and motion.[52]

[48] Liquidloft, "false colored eyes," *Liquidloft*, n.d., accessed March 14, 2019, https://liquidloft.at/projects/imploding-portraits-inevitable/false-colored-eyes/

[49] Liquidloft, "candy's camouflage," *Liquidloft*, n.d., accessed March 14, 2019, https://liquidloft.at/projects/imploding-portraits-inevitable/candys-camouflage/#

[50] Pablo Carrascosa, "Handle With Care," *vimeo*, January 22, 2018, accessed March 15, 2019, vimeo.com/252194974

[51] Octavi Rumbau, "It's time," *vimeo*, September 20, 2017, accessed March 15, 2019, vimeo.com/234640026

[52] Octavi Rumbau, "It's time," *Octavi Rumbau – composer & sound artist,* n.d., accessed March 15, 2019, www.octavirumbau.com/itstime.html

CHAPTER 2 |Wondjina

Introduction

Wondjina, for bass clarinet, live electronics and video, is a work rooted in Australian Aboriginal culture. The *Wondjina* –most commonly known as *Wandjina*– were rain spirits who influenced the landscape and its inhabitants. When they felt the closeness of death, they would search for a place in the caves to die. Once they had, they would decorate the walls of those caves.

> The basic character of the Wandjina figures –sometimes depicted over twenty feet in height and brilliantly painted in up to four natural colours– is a combination of representation and symbol since the Aborigines regard them both as human and as manifestations of clouds. Their actual delineation varies between what seem to be abstractions based on cloud formation and actual human forms suitable for male beings who, according to local tradition, like the related Kaiara of the Kimberley coast, have power over lightning and control the monsoonal rain clouds; they are also progenitors of child spirits. To the Aborigine, the Wandjina themselves created the first paintings, each one as he died leaving his image on the rock to be repaired and conserved in later times by the Aborigines themselves.[53]



Figure 2. 1: Detail of wandjina paintings found in the region of Kimberley (North West Australia)[54]

[53] J. Megaw, "The Art of the Wandjina: Aboriginal Cave Paintings in Kimberley, Western Australia. By I. M. Crawford. 10 × 7½," *The Antiquaries Journal*, *50* (2), 357-358 (Melbourne: Oxford University Press, 1968), accessed June 18, 2018, https://doi.org/10.1017/S0003581500032054

[54] Virginia Luling, *Aborígenes* (Madrid: Espasa-Calpe, 1981).

In this work, my aim was to relate the bass clarinet with the Australian didgeridoo[55] and explore the iconography of the *wondjina* in a video landscape that reinterprets the 3800-year-old paintings and responds with a contemporary view of tribal rites.

Wondjina had its world premiere in 2013 at the Royal College of Music's Great Exhibitionists concert *Moulding Bass Clarinet*[56] and, on that occasion, it was accompanied by the choreography of Anne Gaëlle Thiriot.

Work concept

Wondjina was a project of collaboration with clarinettist Víctor de la Rosa, following my wish to explore the potential of the bass clarinet. To carry out this work, we created a collaboration frame in which the performer suggested his own ideas, based on his own instrumental practice of improvisation. In this way, the interaction of composer-performer was crucial to accomplishing the creation of this work.

Our work together went through different stages. The first sessions helped us to decide what kind of sonority we wished to develop and which type of techniques would help us to achieve such a sonority. Of all the musical materials that resulted from our first meetings, those that attracted us the most were a series of short musical cells based on the repetition of special fingering patterns (described below in the *Musical development* section). The combinations of special fingerings that we developed were idiomatic and were relatively easily executed, which allowed us to

[55] "Wooden drone pipe played with varying techniques in a number of Australian Aboriginal cultures. [...] Didjeridus from Arnhem Land are wooden tubes with roughly conical bores fashioned from the termite-hollowed trunks or branches of any of a number of trees including stringybark (*Eucalyptus tetradonta*), woollybutt (*Eucalyptus miniata*) and red river gum (*Eucalyptus camaldulensis*). Traditional instruments may vary in length and diameter, but those commonly used in public performances range from about 1 to 1.5 metres long with internal bore sizes of 3 to 5.5 cm at the proximal end (the 'mouthpiece') and 5.5 to 8 cm (or larger) at the distal end." From: Steven Knopoff, "Didjeridu," *Grove Music Online. Oxford Music Online* (Oxford University Press), accessed June 18, 2018, https://doi.org/10.1093/gmo/9781561592630.article.07750

[56] 'Moulding Bass Clarinet' was a concert in which bass clarinettist Víctor de la Rosa, dance-artist Anne Gaëlle Thiriot, film-maker Manos Cizek and myself met together to bring new works by emerging RCM composers to life. This project was included in the RCM's Great Exhibitionists series in June 2013.

have fast microtonal passages and a considerable variety of pitches and timbres.

The second stage of work consisted of a couple of recording sessions in which Víctor improvised, taking into account the materials we had previously been working on.

The third stage came when the process with Víctor was complete. I made a selection from all the recorded materials and chose some of the recordings, considering their musical interest and coherence with the sonority I was keen to develop in *Wondjina*. I edited and chopped them into very little sections – approximately one second each– in order to assemble them in a *collage* in where looping and constant repetition were the main attributes. During this process of *re-composition*, I reinterpreted, reorganised and reconstructed the short cells I had previously extracted from Víctor's improvisation.

Work development

Musical concept

To continue with the composition of *Wondjina*, I had to find out *how* I was going to connect the bass clarinet to the didgeridoo. On the one hand, I took into account which instrumental resources and extended techniques would allow the bass clarinet either to be close to the sound of the didgeridoo, or to create a parallel sonic world in which it resembles a rudimentary instrument. On the other hand, I had to consider how I would integrate all the new techniques and materials within my own musical language, merging the distinctive features of the didgeridoo with the variety of possibilities that the bass clarinet and the electronics offered. In other words, I had to decide to what degree my work was going to be related to the referent from which I was being inspired.

The following table shows how I approached some of the distinctive features of the didgeridoo and translated them into the context of the bass clarinet. They will be defined in detail below the table.

ABORIGINAL DIDGERIDOO	BASS CLARINET IN *WONDJINA*
Constant **circular breathing**	Circular breathing is occasionally required.
Continuity of sound and **avoidance of cadences**	Music is clearly articulated by phrases and cadential processes.
Drone	The drone concept is used throughout the piece. However, the fundamental does not remain the same, changing in some sections.
Rising of **natural harmonics** and high frequencies achieved due to **overblowing**	While high frequencies are sometimes obtained from overblowing, most of the time they are produced by **special fingerings**.
Periodic cycles – Looping	The looping idea is used throughout the work but it is often **aperiodic**.

Figure 2. 2: Comparison between the Aboriginal Didgeridoo and the use of the bass clarinet in *Wondjina*.

Unlike with the didgeridoo, in *Wondjina*, circular breathing[57] is only required occasionally, and sometimes this is left to the performer to choose (for example, bars from 73 to 79). Another essential contrast to the typical didgeridoo idiom is found in the musical phrasing which is articulated by relatively short phrases and cadential processes. In this way, each of its sections (examined below in the *Work structure* section) ends with a cadential process which prepares the beginning of the new section.

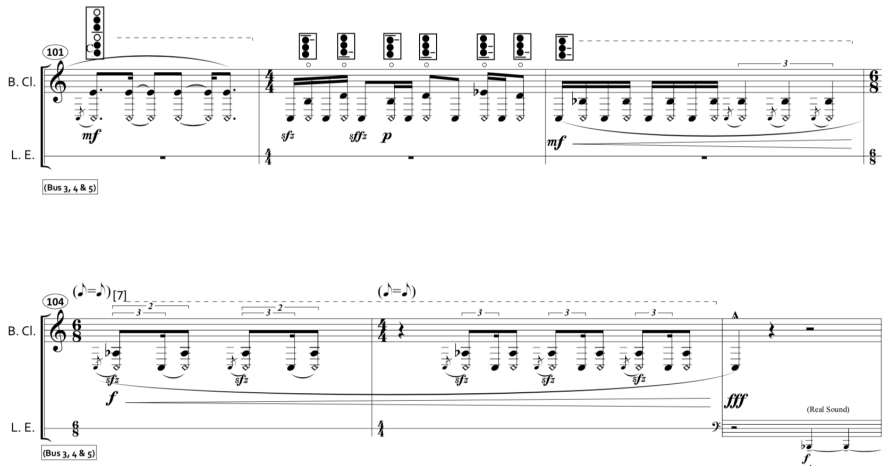


Figure 2. 3: Cadential process at the end of third section (bars 101 to 106).

[57] "The second ubiquitous feature of traditional performance is the technique of circular breathing, in which the player reserves small amounts of air in the cheeks or mouth while blowing. This allows the player to snatch frequent small breaths through the nose while simultaneously continuing the drone pitch by expelling the reserved air." (Knopoff, 2001), 2.

In this work, the idea of a constant drone is essential for the development of the piece and stays present throughout the whole work. Although the didgeridoo only uses one fundamental –given the construction of the instrument[58] – in *Wondjina*, the bass clarinet changes the fundamental depending on the section it is playing.

Observing following the table, it is noticeable how the fundamental C3 (sounding Bb1) predominates in the first and second sections of the work. At the end of the second section, C3 is alternated with D3. In the third, fourth and fifth sections the drone changes to the lowest note of the bass clarinet, the C2 (sounding Bb0), and occasionally moves to D2 at the beginning of the 5th section. In the sixth section, the drone moves up again to C3, alternating for a while with C2. At the end of the last section, the drone disappears to become a series of notes played in the high register of the instrument which dissipate in an ascendant scale.

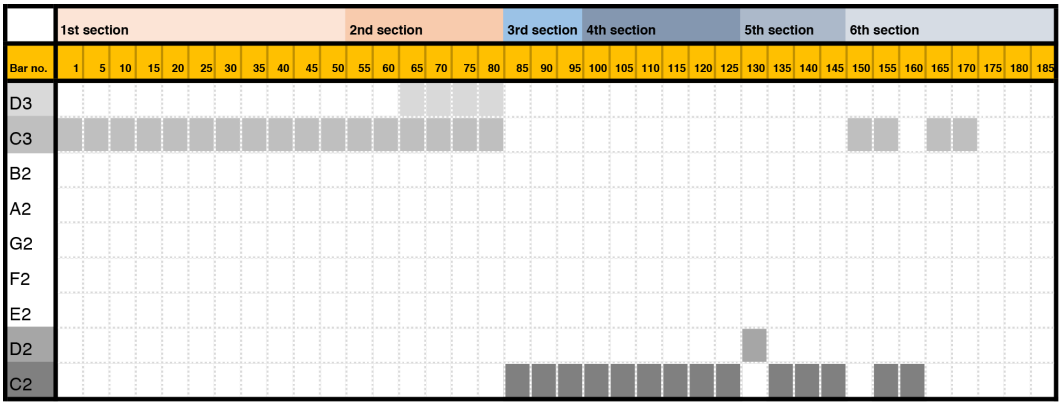


Figure 2. 4: This graphic displays the periodicity in which the fundamental of the drone changes along Wondjina.

While the rising of natural harmonics is one of the main features in traditional performances of the didgeridoo, *Wondjina* only acknowledges these resources in its 4th section, when the bass clarinet imitates the sound of a didgeridoo (see *Work structure* section). During the rest of the work, the high frequencies are not achieved by overblowing –as in the 4th section– but instead by the use of special fingerings which result in microtonal pitches.

[58] "The didjeridu is capable of producing a blown fundamental pitch as well as several harmonics above the fundamental. In practice, however, only the fundamental or the fundamental and first overtone are used. The fundamental pitch of Arnhem Land didjeridus varies from about *B′* to G." (Knopoff, 2001), 1.

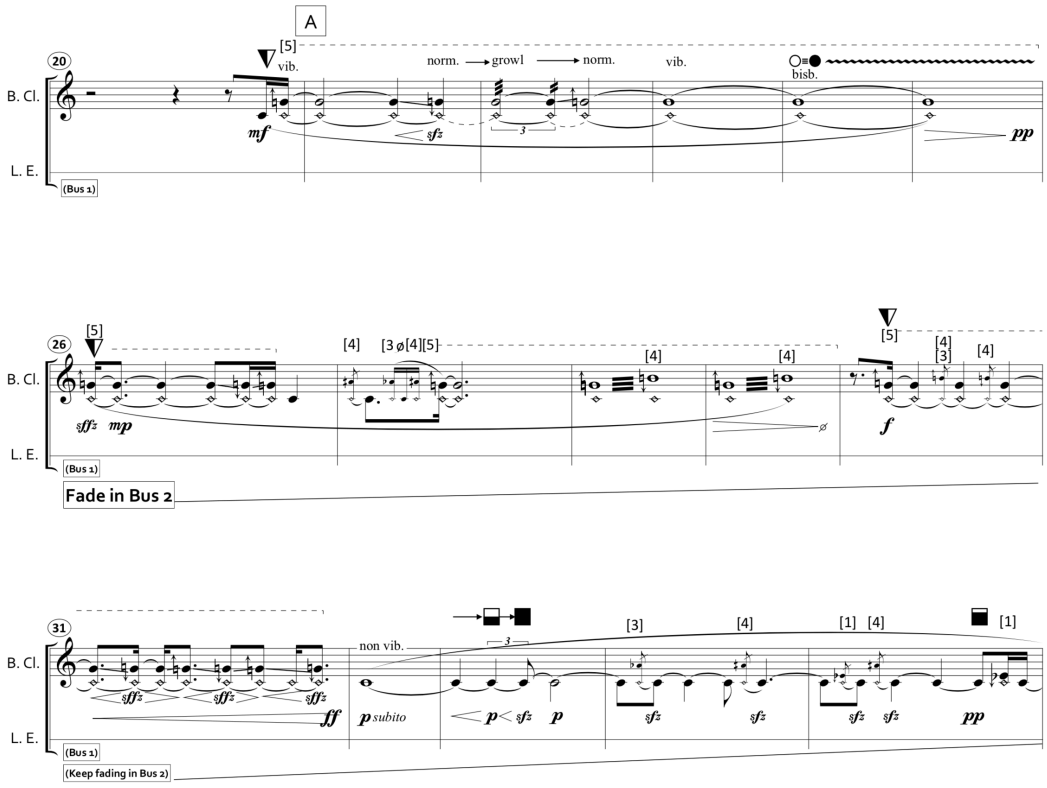


Figure 2. 5: The numbers between brackets relate to a specific key of the bass clarinet. Notice how a G3 natural rises slightly higher when holding down the key number [5] and keeping the fingering of C3 simultaneously.

According to Knopoff, in the traditional performances of the didgeridoo "the drone is given rhythmic impetus through (the) varying combination of three types of movement: patterned movement of the diaphragm, [...] rhythmic manipulation of the oral cavity by movement of the tongue, cheeks and/or throat; and rhythmic addition of vocal chord resonance or singing on top of the blown pitch [...]".[59]

In *Wondjina*, the *rhythmic impetus* is achieved by the periodic combination of special fingerings with *their* fundamental and the accentuation of that fundamental in aperiodic cycles.

[59] Knopoff, *Op. cit.*, 2.

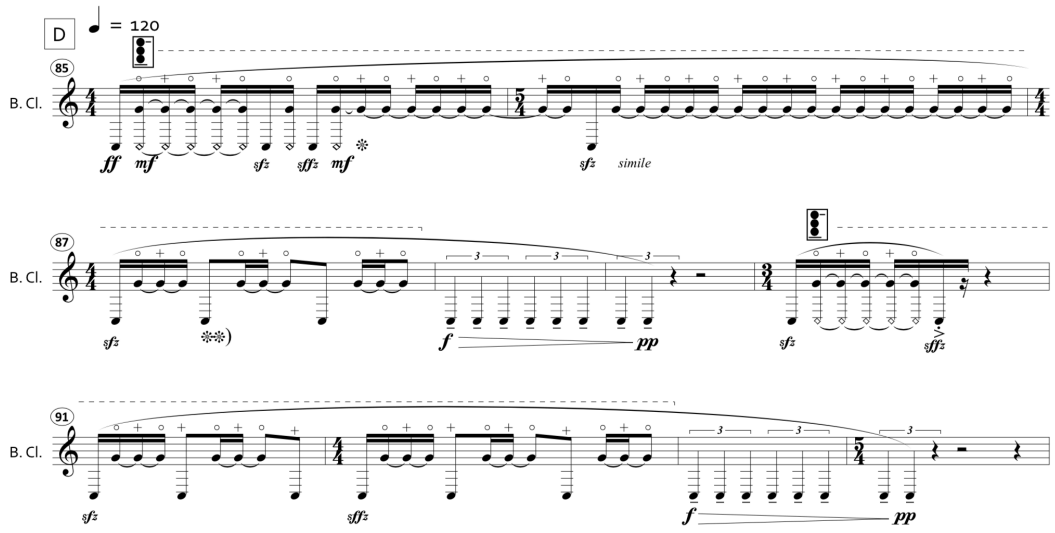


Figure 2. 6: In this example, the bass clarinettist must open and close the hole indicated in the diagram (left-hand index) while keeping a C2 fingering, following the semiquaver rhythm notated on the score. Notice how the bass note does not follow a regular pattern.

Thus, *Wondjina* uses the idea of a false cycle, in which ideas are constantly modified by the addition and subtraction of short rhythmic values –normally a semiquaver– resulting in aperiodic phrases. Also, unlike Aboriginal didgeridoo music[60], these phrases can suddenly be interrupted by a silence or by a new motive.

Work structure

As previously mentioned, the form of this work progressively transforms the bass clarinet towards a point where it resembles a didgeridoo. The structure is divided into six sections, each one of them having a very specific sonority. This part will focus on the use and materials of the bass clarinet as well as on the relationship between the instrument and the live electronics[61]. The first section (bb. 1–56) starts with a pedal on C3 that progressively grows and earns inner movement by incorporating quick ornamental notes. The use of air (and pitch with air) combined with different levels of *vibrato* produces a particular timbral quality which, in

[60] Aboriginal didgeridoo music is usually organised in periodic cycles. These cycles are developed through the addition of new motivic cells which are included within the length of the cycle itself.

[61] Live electronics were created using Logic Pro 9. The clarinet sound enters the computer as the input to which I assigned 7 auxiliary tracks – each one programmed with different effects. The electronics part also has a pre-recorded track that is played during the 4th section of the work.

addition to the quick microtonal grace notes and the sudden *sforzati*, remind me a little of some kind of rudimentary flute.

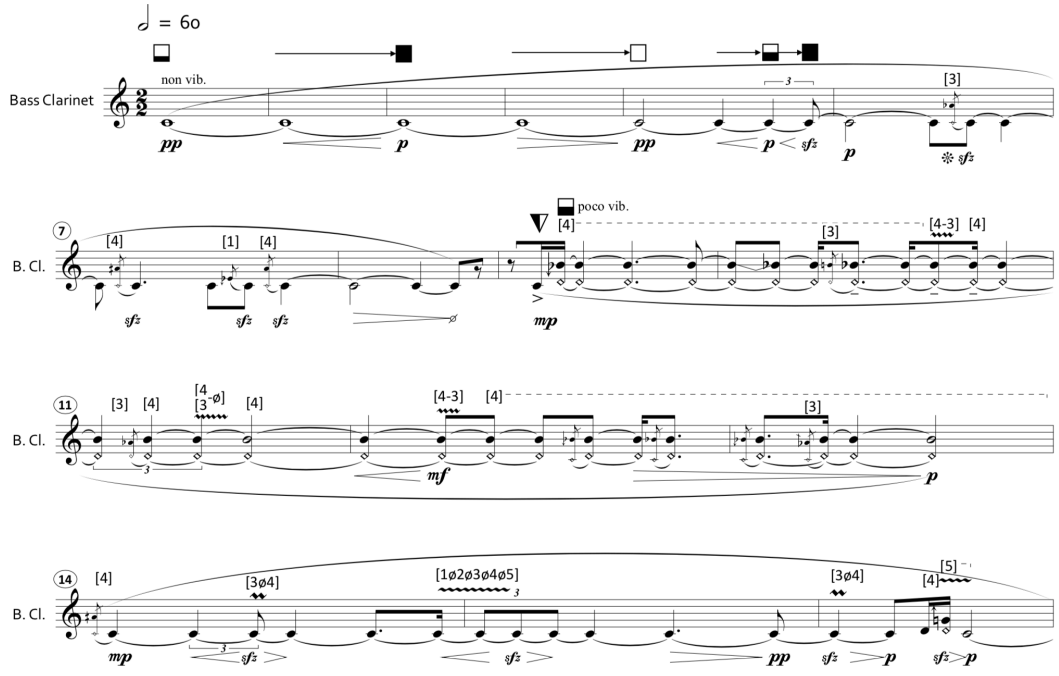


Figure 2. 7: First section of the work, where the pedal on C3 is ornamented with microtonal grace notes.

The live electronics of this section consists of a very wet reverb which enhances the frequency Bb1 (the actual sound that the bass clarinet plays throughout this section) when played by the instrumentalist. This effect contributes to give the sensation that a constant drone is sounding. From bar 26, a second effect is added to the reverb, a "spectral partial glide" which, as its name indicates, transforms the sound of the bass clarinet into quick ascending glissandos of high frequencies. This effect is especially prominent in the *sforzato* notes and, in combination with the reverb, creates an evolving sonority which always remains in the background. The first section introduces new material progressively and in this way the microtonal grace notes that in the following example appear as a quick tremolo become the principal material of the subsequent part of the piece.

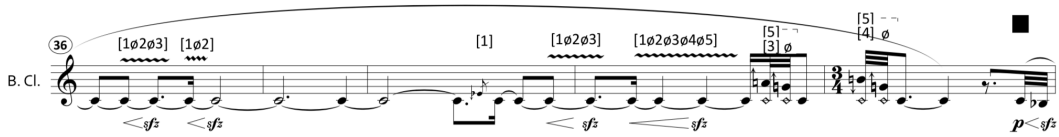


Figure 2. 8: Towards the end of the first section, the ornamental use of keys [1, 2, 3, 4, 5] added to the regular fingering of C3 introduces a new material which, in section two, will be shaped as a pattern.

The second section (bb. 57–84) is less meditative than the previous one. In this part, the ornamental material of the first section is organized within pattern structures for the first time. Live electronics behave similarly to the first section. However, a granulation effect (placed on *Bus 4*) becomes increasingly important within this section.

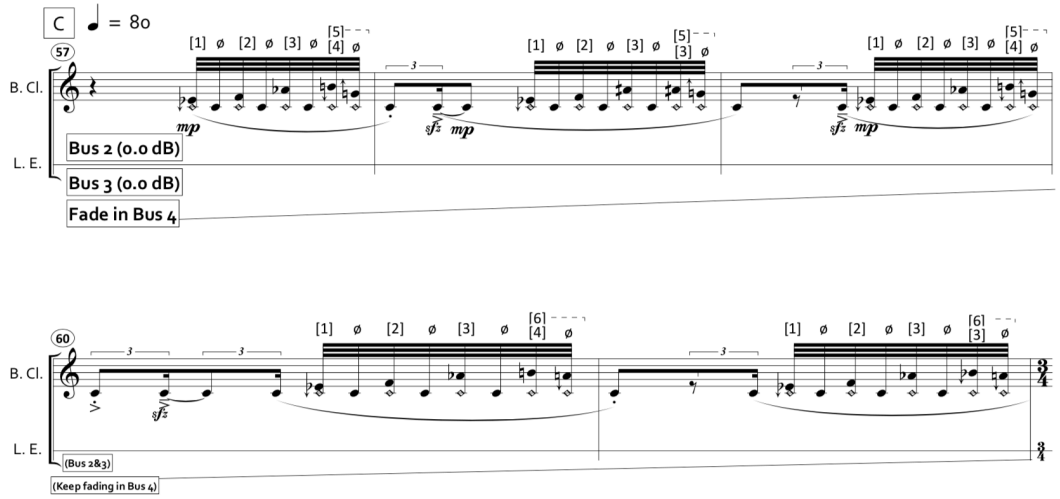
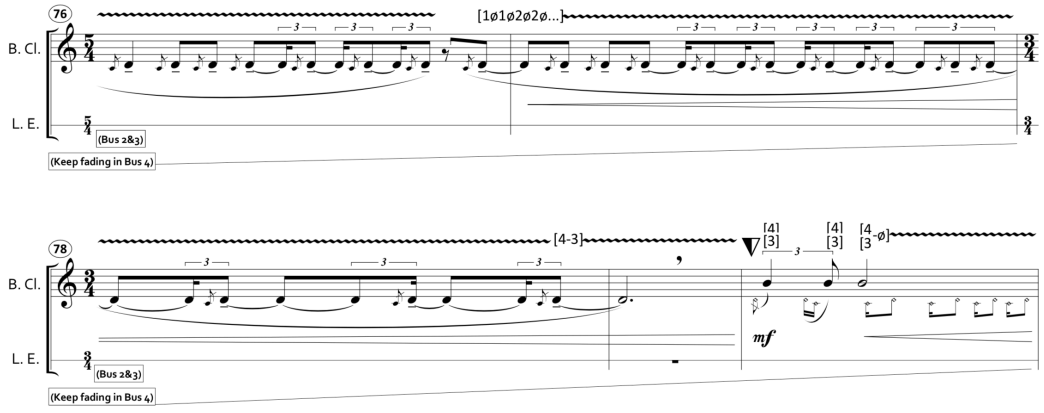


Figure 2. 9: Beginning of the second section. Notice how the combination of special fingerings noted as [1ø2ø3ø4ø5] in bar 39 (see Fig. 2.7) becomes a rhythmical pattern at the beginning of the second section, bar 57.

Throughout this section, the material is transformed as the rhythmic patterns become irregular and hurried, which leads the discourse to a new cadential process that is linked to the next section by a randomly fingered descending scale.



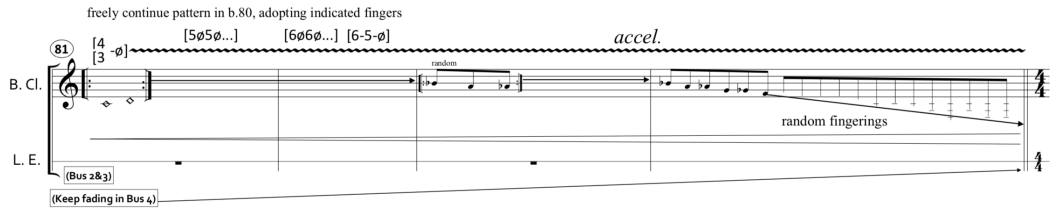


Figure 2. 10: Cadential process to section III.

In the third section (bb. 85–109), the drone moves an octave lower and the musical material is stabilised at a steady tempo where the rhythmic persistence of the main motive predominates. The special fingering technique here is radically different due to the fact that the bass clarinettist needs both hands to keep the whole instrument closed (as he plays the bottom C). In this way, the special fingering used here consists of opening and closing the left index finger (notated with the symbols ◦ and +) resulting in a perfect twelfth (2nd partial).

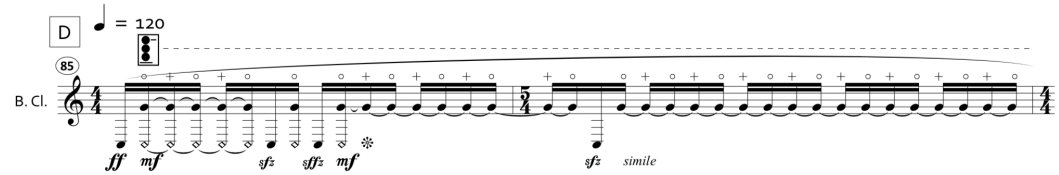


Figure 2. 11: Beginning of the third section

The electronics introduce a subtle distortion and short delay that enhances the accents of the bass clarinet on C2.

In the fourth section (bb.110–127) the bass clarinet makes use of its most primitive and roughest sounds, achieving a great degree of mimesis with the didgeridoo. As a result of overblowing and singing inside the instrument while playing the lowest C, the bass clarinet sounds with a strong distortion, recalling the Aboriginal instrument.

Parallel with the distorted sound of the bass clarinettist using these techniques, an actual recording of a didgeridoo starts being played by the electronics. The didgeridoo recording blends with the bass clarinet, boosting the sound of the performer. Live electronics remain the same as in the previous section (delay and distortion).

Besides the timbral parameters described above, there are some structural facts that make this section the closest to Australian Aboriginal music: the cyclical phrasing, the repetition, the constant beat and the use of a single fundamental.

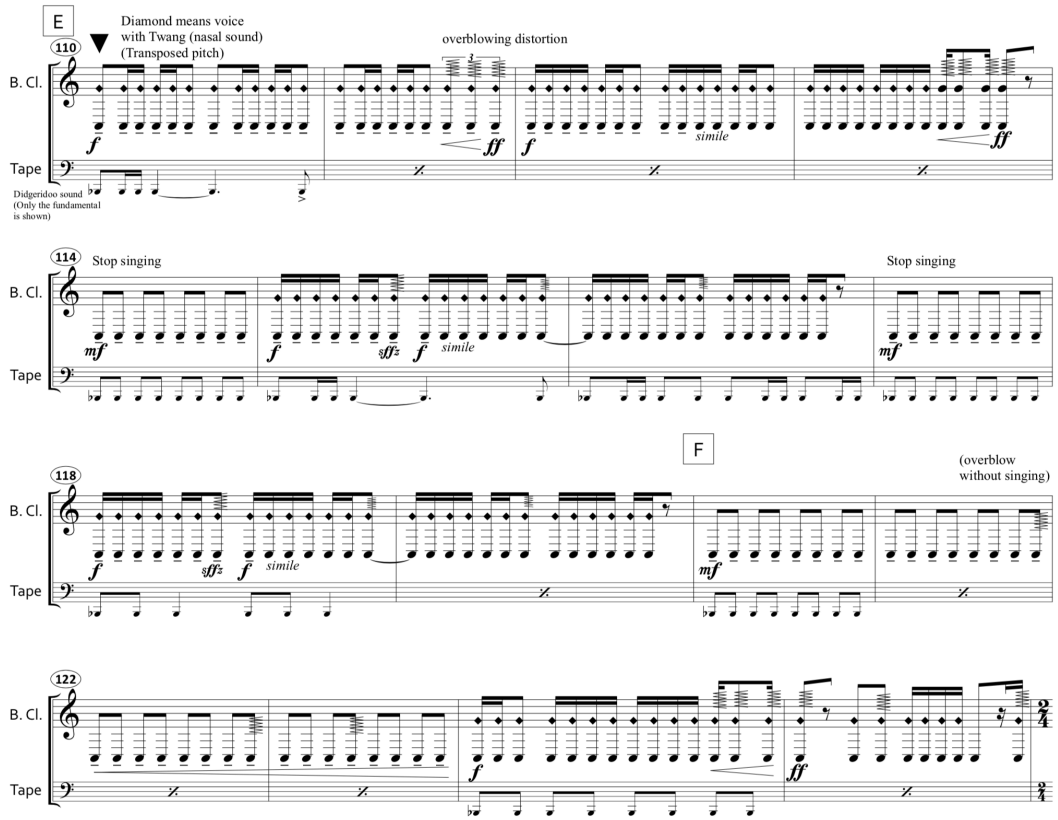


Figure 2. 12: Beginning of the 4th section.

The fifth section is based on the combination of some of the material that has appeared before, especially that of the third section. The fundamental changes from C to D –and occasionally to F#, as in bar 138– and includes a new musical gesture, *staccato* and accented low notes (bar 135) which, in combination with the delay effect set on the electronics, contributes to an increased feeling of constant movement.

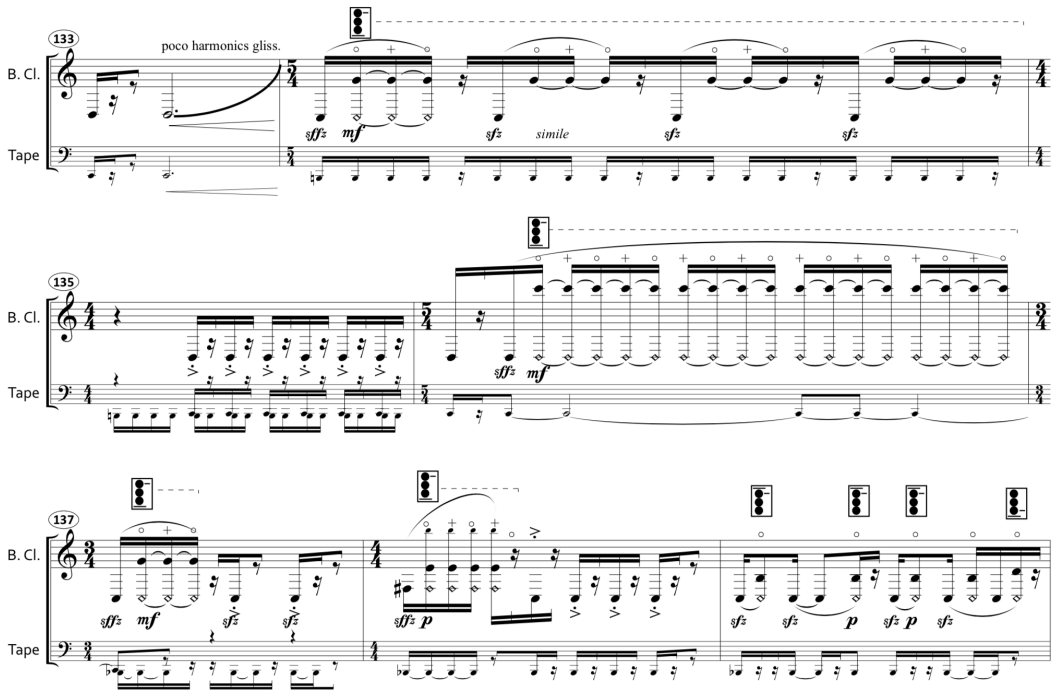


Figure 2. 13: Detail of section V.

The sixth section continues mixing materials from sections I, II and III in the bass clarinet part. On the tape, a new layer of insistent bass clarinet slaps is added to the didgeridoo layers and live electronics continue with the effect of delay. From bar 173 onwards, the bass clarinet stops playing the drone for the first time in the work. Instead, it uses a new combination of special fingerings, which results in a series of high frequencies that move very fast to announce the end of *Wondjina* (Fig. 2.13). All in all, the aim of the last section is to *collapse* the musical discourse of the bass clarinet and, along with the electronics, culminate in an explosive ecstasy.

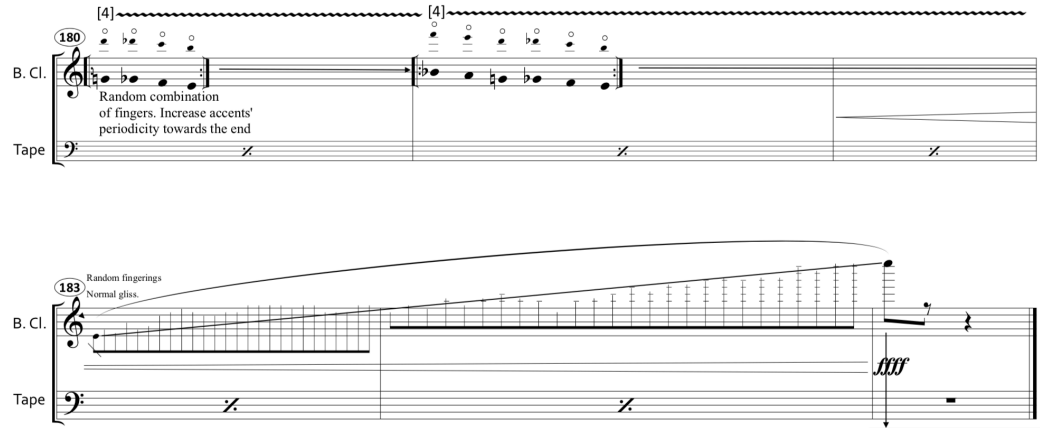


Figure 2. 14: End of section VI.

Special fingerings

The use of special fingerings is, perhaps, the most remarkable technical feature of this work. They are organised into two groups, the first based on the *addition* of side keys to a standard fingering and the second on *subtracting* keys from a standard fingering.

- Addition of side keys

This technique consists of holding down the keys marked in the following figure as 1, 2, 3, 4, 5, etc. at specific times while the left hand plays standard fingerings, specifically C3 and D3.

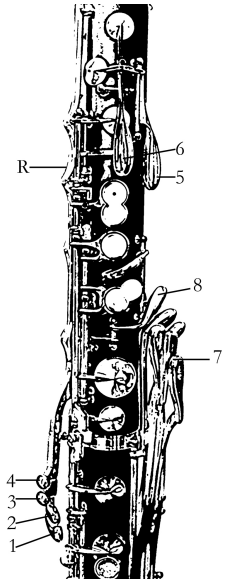


Figure 2. 15: In order to make the score more readable, the keys were simplified, as shown in this image.

In the following example, the performer plays a C3 (using just the left hand) and adds the indicated special fingerings, in this case [1], [2], [3] etc. It must be noted that the side keys must be held down while keeping the C position. Consequently, when playing this kind of special fingering, the note C is represented by a diamond notehead, since it is understood as a base position which is kept while the additional keys are played. The resulting pitches are indicated with regular noteheads.

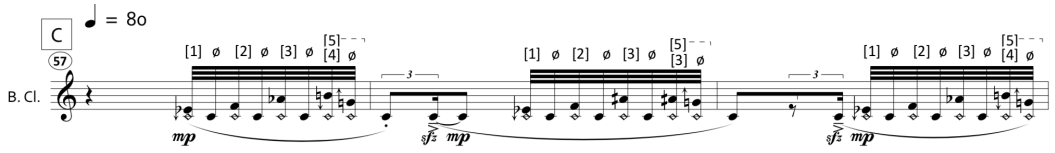


Figure 2. 16: Section of the work where the technique of "Addition of side keys" is used.

- Subtraction of keys

The third section develops a new technique which is a consequence of playing C2, instead of C3. While when playing C3 the right hand is free to add the side keys numbered in figure 2.14, this is not possible when playing C2, as both hands are required to close the whole instrument. As a consequence, the only possibility here is to subtract keys from the standard fingering, in place of adding them. Again, the original position is notated with diamond noteheads, whereas the resulting pitches are indicated by regular noteheads. This time, however, the keys to be subtracted are indicated by a minus sign (–).

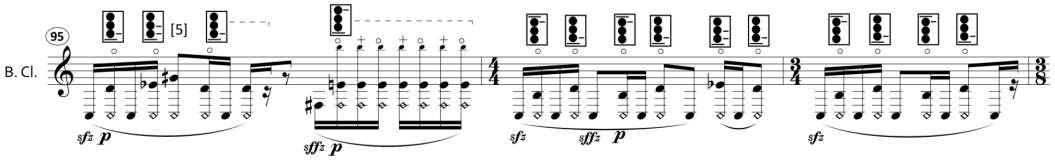


Figure 2. 17: Example of the notation of the "subtraction keys" technique.

The same principle is used to achieve a kind of timbre trill. This extended technique is indicated by (○) and (+), meaning the first one is open and the second one closed. In the following example, the index finger of the left hand should hold and release the indicated key, following the continuous rhythm of semiquavers.

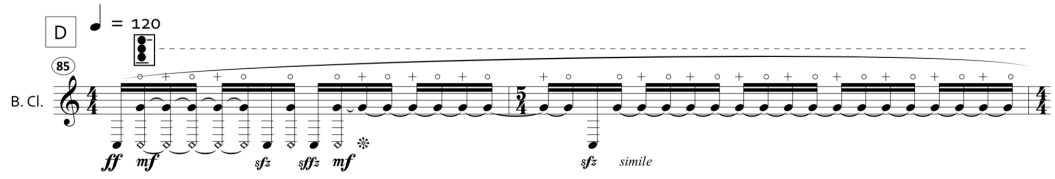


Figure 2. 18: Example of the timbral trill achieved using the subtraction technique.

Video

The video of *Wondjina* consists of four pre-edited fragments that are live-triggered. The visual materials are based on digitally transformed walls recorded in East London onto which similar beings to the *wondjinas* fleetingly appear.

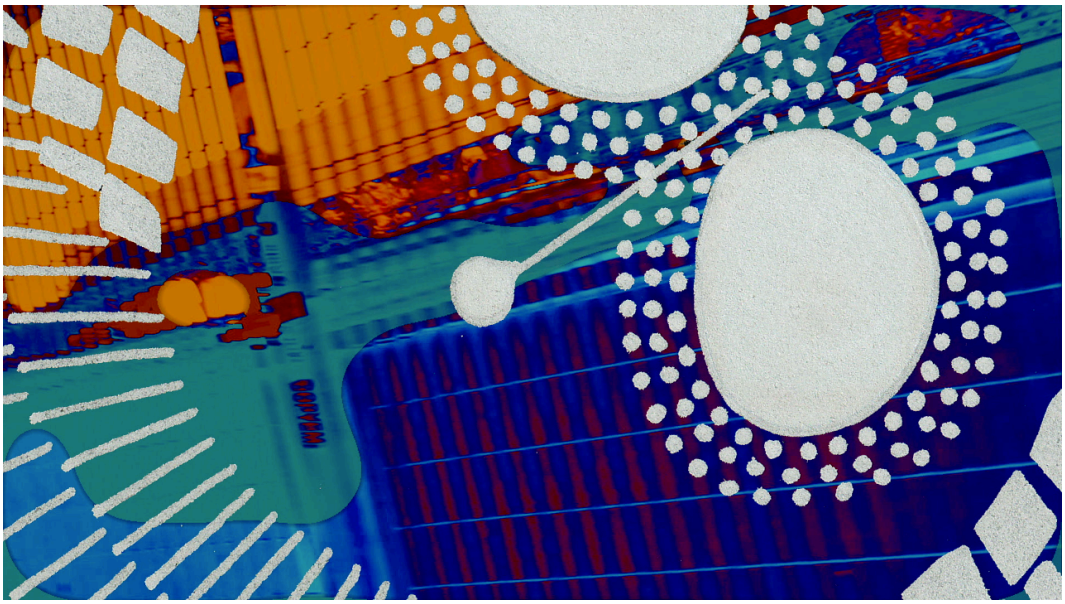


Figure 2. 19: Frame extracted from the last section of the video projection of *Wondjina.*

I was careful to ensure that the visual and aural material were as balanced as possible and tried to create a symbiotic relationship between both elements. This unity is achieved especially by the rhythm with which the images succeed one another. The visual elements happen with varying frequency depending on the section in which they appear. For instance, from the fourth section onwards – the 4th, 5th and 6th sections are the only ones that are played with pre-recorded tape in which the metronome is set to quaver-note equals 120– the images are edited in such a way that their rate of change is eight per second (which is equivalent to a semi-quaver at tempo crotchet equals 120). As this is the figure which predominates these sections, the synchronicity between music and video is exact.

Outcome

Wondjina was initially intended to be for bass clarinet, electronics and video. The video was meant to offer a personal interpretation of the iconography of the wondjina paintings and the electronics had two principal functions: in sections 1, 2 and 3, to create an effect of exaggerated reverb, which evokes the acoustic space of a cave (see page 14) and, in sections 4, 5 and 6, to play the sound of an actual didgeridoo, which creates a mimetic effect with the bass clarinet.

As mentioned at the beginning of this chapter, this piece was included in the Royal College of Music's Great Exhibitionists concert *Moulding Bass Clarinet*. Víctor suggested that, given that none of the works included both dance and video, we could mix these two elements in *Wondjina*, which I believed could be enriching and thus accepted.

However, the outcome was not thoroughly blended and the performance of Anne-Gaëlle felt a little disconnected from the rest of the elements on stage. As has already been mentioned throughout this chapter, I conceived of the music and the video as a single entity –the two disciplines had a strong connection– and this was probably the reason why the choreography of Anne-Gaëlle seemed to be on a different plane. Although she designed her movements according to my music –in the video, it is noticeable how she enhances the accents, changes of tempo and rhythmic patterns of the bass clarinet– we did not foresee the visual relationships which occurred as a consequence of dancing in front of the video and next to Víctor. In my opinion, it was an excess of visual information.

Wondjina was a new opportunity to explore a more personal and mature language. Thanks to the exhaustive research that we accomplished, I acquired a series of uncommon instrumental techniques –mainly special fingerings used in a very idiomatic way– that were exclusively developed for this work and could hopefully be referential for future works. This piece had further performances in Spain[62], all of them by clarinettist Víctor de la Rosa and, although the video accompanied the performances, the choreography was never included again. In this

[62] In 2013, at the ME_MMIX Festival (Palma de Mallorca) and, in 2016, within the *Sampler Sèries* of L'Auditori (Barcelona)

way, the work turned out to be a solo piece for bass clarinet, live electronics and video.

The bass clarinet has had a relatively short life as a solo instrument. Performers such as Harry Sparnaay (1944-2017), who promoted the creation of a vast number of solo pieces for the instrument –with composers such as Luciano Berio, Franco Donatoni, Morton Feldman and Brian Ferneyhough, among many others– were crucial to the development of the current extended techniques and for encouraging the type of composer–performer collaboration that Víctor and I utilised. One piece which was very inspiring for me was *Capriccio detto l'ermaphrodite* by Claudio Ambrosini, which I discovered thanks to Víctor. This piece, which was composed along with Sparnaay, develops a very delicate concatenation of *tremolandi* multiphonics, which shows how fragile a bass clarinet can sound. I am not sure if Ambrosini would have created this particular timbral world if he had not collaborated so closely with Sparnaay.

In my experience, working with performers on guided improvisations, which I record, then meticulously chop up and reorganise, is a way to approach creation that helps me to reconsider how I can build the musical discourse in an increasingly more adaptive and versatile way. I realised this thanks to composing *Wondjina,* which represented a new paradigm in how I collaborate with performers. As a consequence, I was pushed to explore my limits outside my comfort zone. This new modus operandi was reflected in later works included within this submission, such as *stone:speeches* (2014) and *liquid:speeches* (2016), in which the creational process was based on the contributions of performers.

CHAPTER 3 | stone:speeches

> Every time someone speaks —or even imagines speaking— language is structuring sound. Some composers embrace linguistic structures as sonic structures, while others play with the qualities of the human voice under the influence of these patterns and meanings.[63]

Introduction

stone:speeches (2014) is an audio-visual installation created in collaboration with soprano María Hinojosa. It was commissioned by the ME_MMIX Festival and exhibited at *Es Baluard* Contemporary Art Museum (Palma de Mallorca) from the 25th of June to the 14th of July 2014.

This work belongs to the series *material:speeches*, which is made up of three installations that examine the concept of speech from three contrasting approaches:

- *steel:speeches* (2013)[64]
- *stone:speeches* (2014)
- *liquid:speeches* (2016)[65]

In the case of *stone:speeches*, the focus lies on the exploration of linguistic structures through audio-visual language. The texts used are literally *hidden*, as nobody recites them, nor do the visuals reveal their words. Instead, they become the generators of a substantial part of the musical material, by translating the characters of such texts into sound objects.

This was my first experience in the field of audio-visual installation. I decided to include the word *stone* in the title as the video installation was going to be projected over the stone bricks of the *aljub*, the museum's water tank.

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[63] Jennie Gottschalk, *Experimental Music Since 1970* (New York: Bloomsbury Academic, 2016), 172.

[64] *steel:speeches* (2013) was specifically created to be played as part of the installations *In Visible* and *House of Mirrors* by British sculptor Rob Olins. More details in p. iii

[65] *liquid:speeches* (2016) is detailed in Chapter 7.



Figure 3.1: Picture of the water tank in *Es Baluard* Contemporary Art Museum, in which María Hinojosa appears in the video of *stone:speeches*.

Over the last few decades, we have witnessed the creation of many musical works which have used translational processes to convert linguistic structures into sound. Examples of this are *Different Trains* (1988) by Steve Reich, who "respected the semantic meaning of the testimonies and amplified them by using the speech melodies to generate musical motives for the live string quartet."[66] *Voices & Piano* (1988–), by Peter Ablinger, is a series of pieces for "single recorded voice, mostly of a well-known celebrity, and piano,"[67] which the composer defines as follows:

> I like to think about *Voices and Piano* as my song-cycle, though nobody is singing in it: the voices are all spoken statements from speeches, interviews or readings. And the piano is not really accompanying the voices: the relation of the two is more a competition or comparison. Speech and music is compared. We can also say: reality and perception. Reality/speech is continuous, perception/music is a grid which tries to approach the first. Actually, the piano part is the temporal and spectral scan of the

[66] Steve Reich, *Writings on Music*, 152, as cited in Amy Lynn Wlodarski, "The Composer as Witness: Steve Reich's Different Trains," *Musical Witness and Holocaust Representation* (Cambridge: Cambridge University Press, 2015), 127, accessed August 27, 2018, doi:10.1017/CBO9781316337400.006.

[67] Peter Ablinger, "Voices and Piano," *Peter Ablinger*, n.d., accessed August 27, 2018, http://ablinger.mur.at/voices_and_piano.html

> respective voice, something like a coarse gridded photograph. Actually, the piano part is the analysis of the voice. Music analyses reality.[68]

In the book *Experimental Music Since 1970*,[69] Jennie Gottschalk mentions many other composers who use diverse translational methods to generate musical structures. For example, in *Progéthal Percussion for Advanced Beginners* (2003–), Clarence Barlow translated English and German texts into an invented language based on percussion techniques. Another example is found in *Traces of Speech* (2012), by Jaap Blonk, who defines his creative process as follows:

> For *Traces of Speech* I made drawings that derive from my functional sound poetry scores, but are somewhat emancipated from that, so they live somehow half-way between score and visual poetry. By offering these drawings to optical character recognition software I created texts in English and German. They are of course nonsense texts with a large amount of punctuation signs and the like. I took up the challenge to recite these texts, finding different forms of interpretation: percussive sounds, glissandi, whispering etc. The electronic sounds were generated by importing the same drawings as raw data files into audio software, and then treated algorithmically. This material I reworked into a tightly knit musical statement with no intention of personal expression.[70]

Although none of the works mentioned above shares a direct connection with *stone:speeches* concerning their concept and creative process, I would like to remark that the interest in exploring language as a device to generate sound structures continues to increase among composers and there seems to be no limit to the number of approaches available regarding the concept of 'translation'.

Work concept

The central concept of the audio-visual installation *stone:speeches* is the aural and visual exploration of the structural components of two texts[71] and their combination with pre-existent footage. Following my interest in exploring verbal language, I reflected on the fact that, while words sound, punctuation does not, *per*

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[68] *Ibid.*

[69] Jennie Gottschalk, *Op. cit.*, 172-188.

[70] Jaap Blonk, "Jaap Blonk Recordings", *Bandcamp*, n.d., accessed August 27, 2018, https://jaapblonk.bandcamp.com/album/traces-of-speech

[71] The sources used are *Early to Bed* and *Cincuenta y Cuatro Canciones Españolas del Siglo XVI: Cancionero de Uppsala* ("Fifty-Four Spanish songs from the 16th century"). They are detailed in the section *Work development.*

se, but is instead rather implicit, as it modifies the sound of the terms which accompany it, sometimes by changing their intonation, other times by adding silences in between.

Thus, the only textual information revealed in *stone:speeches* is, by and large, the punctuation marks, which aim to emphasise what is usually overlooked and to conceal what we normally take for granted: the words.

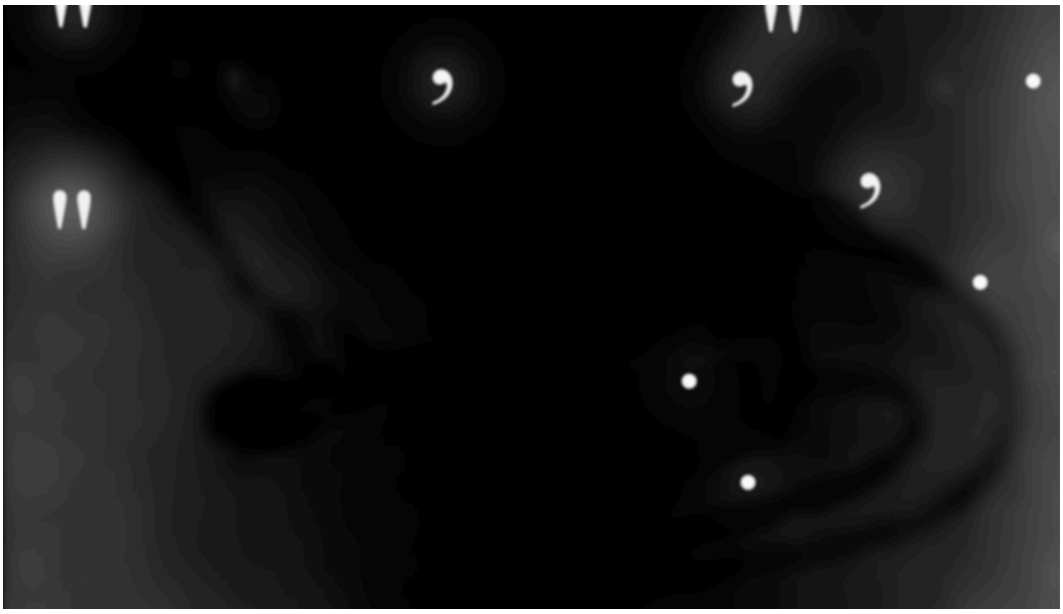

Figure 3.2: Frame of *Speech no. 1*, from *stone:speeches*

The sources involved in the installation come from contrasting origins which do not share any apparent conceptual, formal or aesthetical relationship among them.[72] As a result, their subsequent blending aims to create various visual and sonic connections which remain open to the interpretation of the spectator.

Arranging and developing such sources does not produce any intelligible textual message; it is instead a series of cryptic speeches which interlace one another. The work, however, seeks a global coherence in macro-formal terms and intends to consolidate its own audio-visual language through the thoughtful combination of the contrasting elements which compose it.

The seven brief video-art works which compose *stone:speeches* alternate between

[72] The sources are detailed in the section *Work development*.

two types of audio-visual materials. On the one hand, material A is found in *Speech no. 1* and *Speech no. 5* and consists of a combination of footage from the documentary *The Heart*[73], and the result of 'translating' the text *Early to Bed* into sound objects.[74] On the other hand, material B appears in *Speech no. 2*, *Speech no. 4* and *Speech no. 6* and consists of blending the improvisations by soprano María Hinojosa with the 'sonic translations' of some selected poems from *Cincuenta y Cuatro Canciones Españolas del Siglo XVI*. *Speech no. 3* and *Speech no. 7* are the products of integrating the two previously defined materials. The following image illustrates the graphic correspondence between movements. At first sight, it is noticeable how the macrostructure of this work is based on the concept of repetition, *Speech no. 5*, *Speech no. 6* and *Speech no. 7* being inspired by *Speech no. 1*, *Speech no. 2*, and *Speech no. 3*.

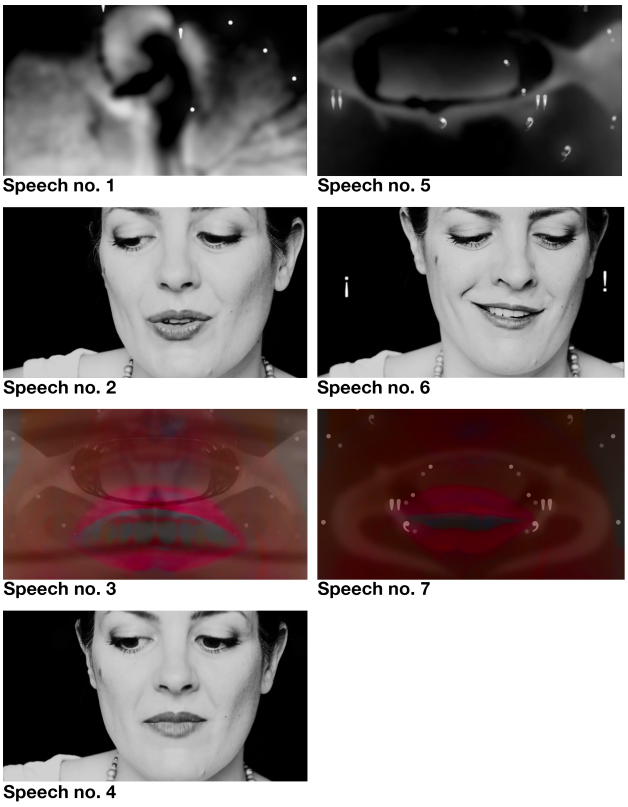

Figure 3.3: Graphic overview of the seven movements of *stone:speeches.*

[73] This is fully referenced in the section *Work development*.

[74] The "text translations" are described in the section *Work development*.

Work development

The creative process involved in this work was comprised of different stages. The first consisted of obtaining the different sources to be included in the work, most of which were pre-existent, such as the documentary *The Heart,*[75] an animated film which combines "aimless narration and precise German visuals"[76] and the texts *Early to Bed*[77] and *Cincuenta y Cuatro Canciones Españolas del Siglo XVI: Cancionero de Uppsala* ("Fifty-four Spanish Songs from the 16th Century")[78]. It is worth mentioning that the choice of texts was not determined by any specific literary criteria, other than that they had a large variety of punctuation marks. Apart from the pre-existent materials, I shot a series of performances by soprano María Hinojosa, in which she improvised after some 'emptied' poems from *Cincuenta y Cuatro Canciones Españolas del Siglo XVI* (see Figure 3.10).

With these materials ready, the second stage of work began, which consisted of translating the two texts mentioned above into sound materials, by converting each of their letters and punctuation marks into a specific sound object.

The nature of the sounds assigned to letters was very different from those linked to punctuation marks. In the case of the letters, they were recordings from real objects such as a typewriter, a closing door, or multiple types of percussive strokes, among others. The sounds assigned to punctuations marks, however, were completely the opposite, as they were short motivic cells generated by a synthesiser. This hierarchy allowed me to dissociate the first group of sounds from the second.

In terms of how I executed the 'text-to-sound translation', I programmed a digital sampler which triggered the sound objects, following the same order that the

[75] The documentary *The Heart* is narrated by John Kieran and produced by Paul F. Moss and Thelma Schnee. It belongs to Prelinger Archives.

[76] "Heart, The," *Internet Archive*, n.d., accessed July 17, 2018, https://archive.org/details/0527_Heart_The_01_19_26_29

[77] Charles C. Wilson, Clara Bell Maker, Pansy Jewett Abbott, John C. Almack, "Early to Bed", in *The American Health Series; Our Good Health*, (San Francisco: Prelinger Library, 1942), 44-45, accessed August 2018, 25, https://archive.org/details/americanhealthse01charrich

[78] Rafael Mitjana, ed., "Cincuenta y cuatro Canciones Españolas del siglo XVI: Cancionero de Uppsala," October 14, 2013, accessed August 2018, 25, http://www.gutenberg.org/files/43950/43950-h/43950-h.htm

text marked. Thus, the character [a][79] corresponded to the MIDI values A#2, B2, C3 and C#3; [b] to D3; [c] to D#3, and so on. The sounds associated with punctuation marks were placed in the lowest part of the keyboard of the sampler. For example, the comma corresponded to the MIDI value A#1.

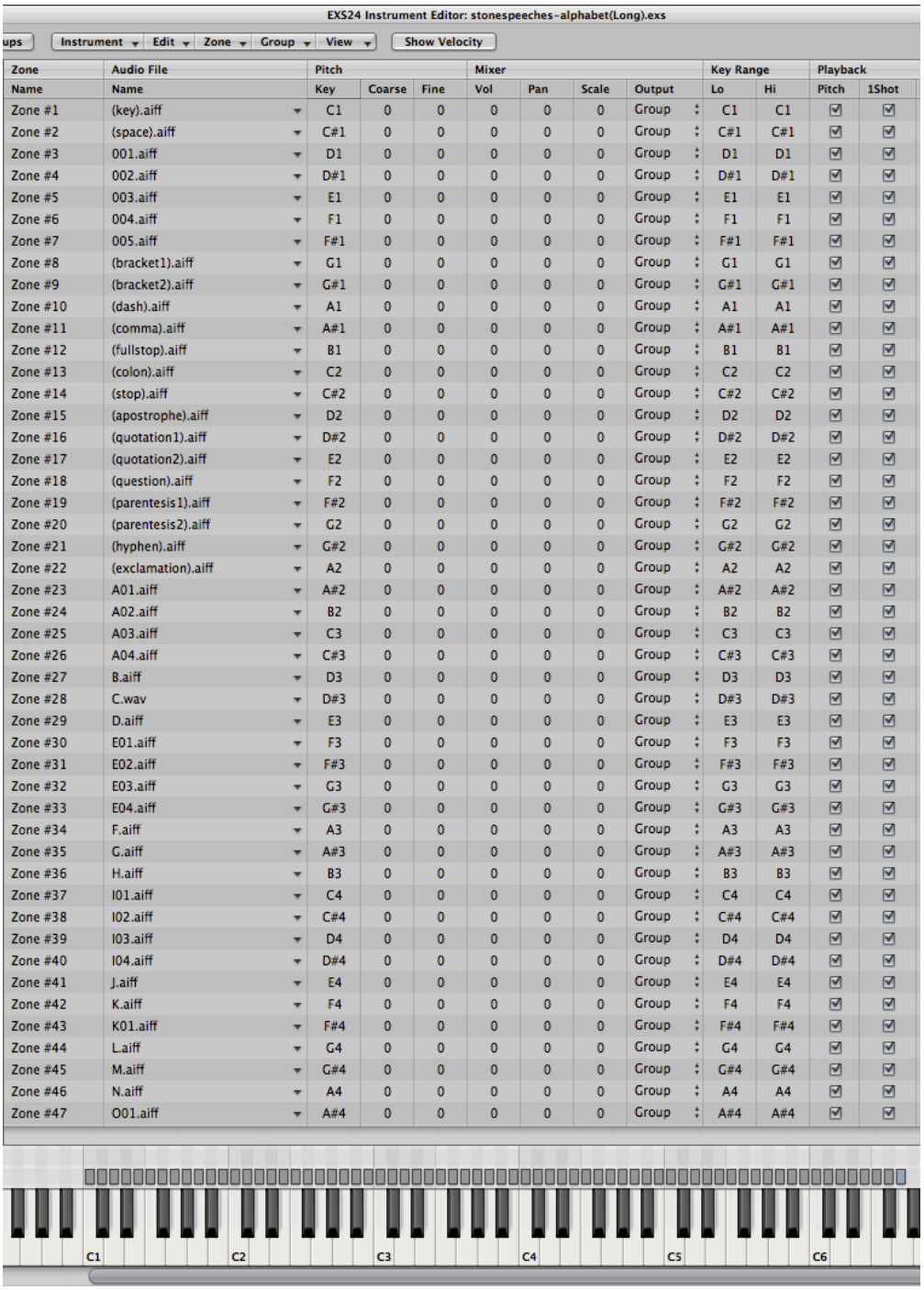

Figure 3.4: Screenshot of the sampler used to create the 'text translations'.

[79] In order to achieve sound variety, vowels had more than one assigned sound. For example, [a] used four different samples from the same source, resulting in sort of variations of the "[a] motive". Consonants, however, only had one sound assigned to each, the nature of which was normally a subtle percussive sound.

In this way, the first sentence of *Early to Bed* –"Betty's bedtime came."– (see Figure 3.8 to read the full poem) was translated into sound and became the rhythmic pattern[80] with which the music of *Speech no. 1* starts (listen to minute 00'28" of the attached video).

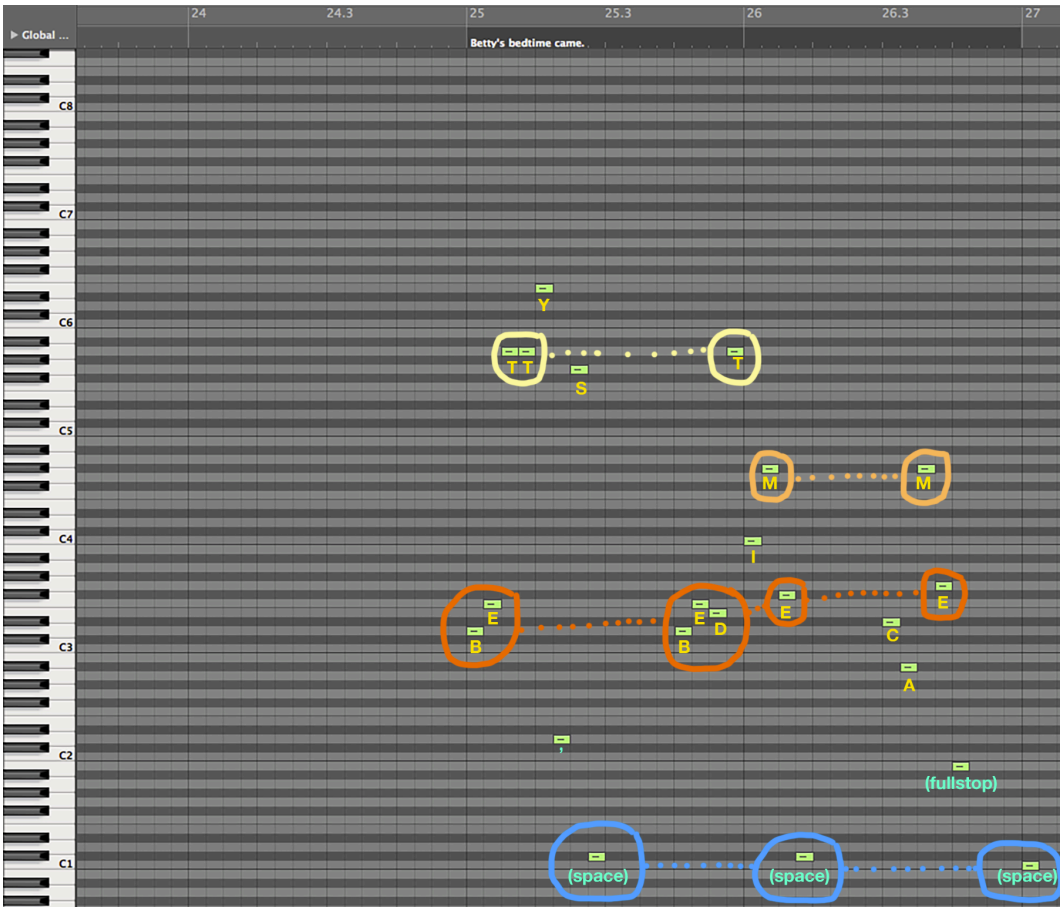

Figure 3.5: MIDI sequencer view. Note how the sentence "Betty's bedtime came." creates a micro-formal structure in which four groups of sound objects (marked with circles) interlace and create a series of 'casual' connections.

The 'text translations' were combined with the audio of the pre-existent footage. In *Speech no. 1* and *Speech no. 5*, I created a dialogue between the original soundtrack of the film and the result of translating the poem *Early to Bed* into sound.

[80] The materials which resulted from this experimentation aimed to recall a typewriter. Although a typewriter does not produce the variety of sound objects that the sampler contained, the inclusion of various typewriter sounds within the resulting rhythmic patterns and their visual reinforcement in the video helped to evoke this association.

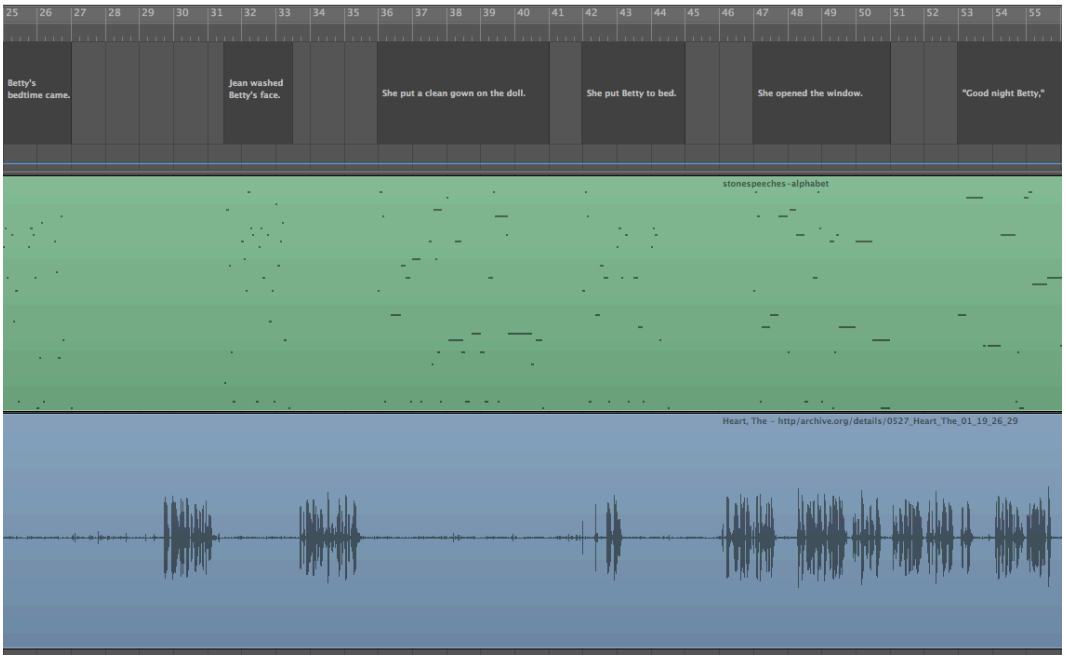

Figure 3.6: The track in green is the 'text translation' into sound objects, the track in blue corresponds to the voiceover of the documentary. Note how the material of the green track is adjusted to the silences found in the speech of the film. (This section is founded between minutes 0'48" and 01'50" of the annexed video).

The composition process carried out in *Speech no. 2*, *Speech no. 4* and *Speech no. 6* (on which I worked after the recordings of María) was slightly different from *Speech no. 1* and *Speech no. 5*. Here, I manipulated the audio-visual material itself, by reducing its playback speed to achieve a subtle *rallentando* effect. This action did not have consequences for the quality of the image as the recordings were shot at 50 frames per second. 50 fps is a frame rate which makes it possible to halve the speed of the source almost without noticing any changes in the motion blur as it becomes 25 fps (one of the standard frame rates used in television).

However, the reduction of the speed playback of both the image and the audio resulted in a decrease of the sound quality, which I overcame by applying a thoughtful combination of reverb, stretch and equalisation. These three effects were applied selectively, with the aim of reinterpreting and reinforcing the recorded improvisation of the soprano by highlighting her phrasing and creating different densities and harmonies.

The various degrees of density were achieved by combining different layers, all of them being transformations of the soprano's voice (watch *Speech no. 6* from minute 05'41" onwards.)

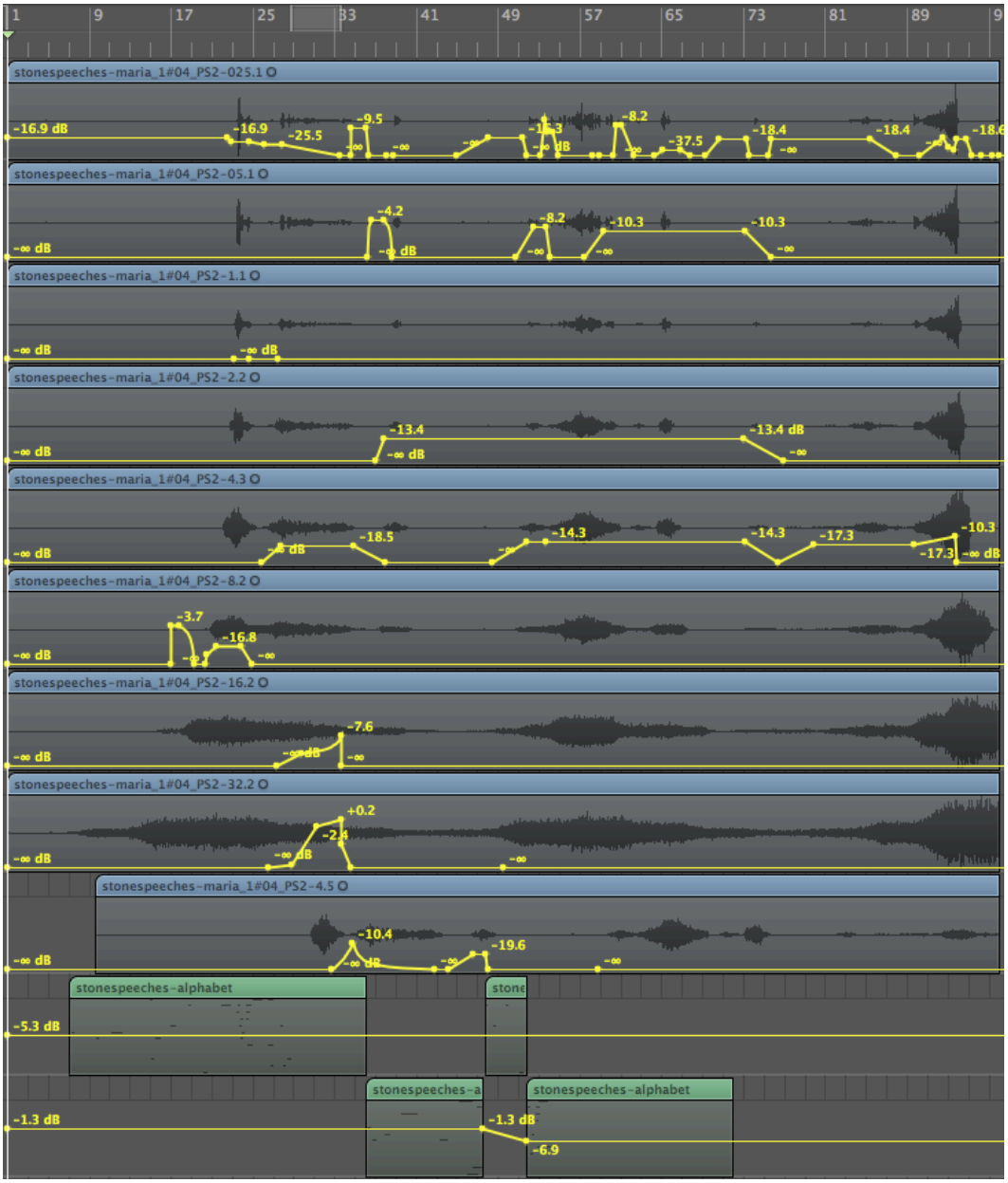

Figure 3.7: Screenshot of the audio edition of *Speech no. 6.*

The image above is an example of how I worked on *Speech no. 6*. Note how the first eight tracks in blue resemble each other. They are in fact the same track (María's improvisation) manipulated differently. The principal operations applied to the recording of her performance consisted of using the plug-in "Paul Stretch", by the audio editor Audacity, which works with two parameters: stretch factor and time resolution. The stretch factor "sets how much longer the processed sound will be relative to the original"[81]. In this case, I set all the tracks to double their length,

[81] "Paulstretch", *Audacity*, n.d., accessed August 2018, 26, https://manual.audacityteam.org/man/paulstretch.html

in order to synchronise the voice of the soprano to the video. The time resolution responds to two parameters: time resolution and frequency resolution, as is detailed in the following text:

> Small values have good time resolution, but poor frequency resolution, so you may still be able to detect a rhythm (albeit a very slow rhythm). Large values have poor time resolution, but have great frequency resolution, so transients will disappear but pitch differences may be better preserved.
> Usually, a value of 0.25 seconds is good for most music. Very large values (greater than 2 seconds) can be used for special effects such as "smearing" a song into a sound-texture, even if the Stretch Factor is close to 1.0.[82]

In other words, large values lengthen each of the pitches found in the contour of the speech, creating clusters. Observe (in Figure 3.7) the differences between the sound wave of the track above, the time resolution of which was 0.25, and that of the track named "stonespeeches-maria_1#04_PS2-32.2", the time resolution of which was 32. The effect of applying such high time resolution was close to a big choir singing a slow-motion succession of clusters.

The automation lines (in yellow) show how I bypassed each of the layers in order to create the contrasting density of textures which characterise *Speech no. 6*. It is worth noting that each of the tracks had different reverb and equalisation. The result of bypassing one or another resulted in subtle changes in the frequency resolution. When the sound became 'blurred', the effect was immediately translated to the video (see, for example, from minutes 06'29" to 06'43").

Video

The decision to create the video in black and white (with the exception of *Speech no. 3* and *Speech no. 7*) was governed not only by aesthetical choices but also by practical issues. Given my previous experience with video projections, I was aware of how variable the external conditions can be[83]. On this occasion, the work was going to be exhibited in a museum in which it would not be possible to black the venue out. Moreover, it was going to be projected over a wall of stone bricks, for which I would need a high contrast between light and shadow in order to have a

[82] *Ibid.*

[83] By 'external conditions' I mean the characteristics of the projector (resolution and lumens), the screen or surface onto which the image is projected, and the lighting of the hall.

sharp image. Therefore, I presumed that the use of bright white light (specifically where the punctuation marks were concerned) would be more effective in achieving a defined image, which could even be seen in poor conditions.

The following figures show the visual result of 'emptying' the texts *Early to Bed* and *Cincuenta y Cuatro Canciones Españolas del Siglo XVI* (3rd song). Note how, in the first case, I hid the totality of the words, whereas in the second I hid most of the words but left a few terms visible.

EARLY TO BED	**EARLY TO BED**
Betty's bedtime came.	' .
Jean washed Betty's face.	' .
She put a clean gown on the doll.	.
She put Betty to bed.	.
She opened the window.	.
"Good night, Betty," Jean said.	" , ," .
Jean said to Mother,	,
"At bedtime I do nine things.	" .
I brush my hair.	.
I brush my teeth.	.
I go to the toilet.	.
I wash my hands and face.	.
I take a warm bath.	.
I put on a clean gown.	.
I open the window.	.
I turn off the light.	.
I say good night."	."
Mother laughed and said,	,
"You do three more things, Jean.	" , .
You jump into bed.	.
You close your eyes.	.
You go to sleep quickly."	."

Figure 3.8: Example of the manipulation applied to the original text (on the left side), in which the only characters remaining are its punctuation marks.

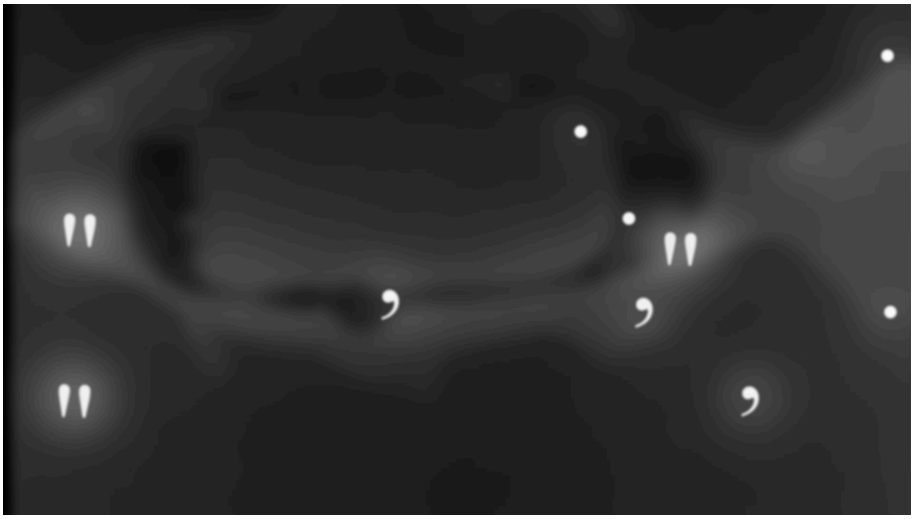

Figure 3.9: Example of the transformations of the text applied to the video. This section corresponds to the section of the poem which starts with the verse "She put a clean gown on the doll..." (minute: 04'36").

III.	**III.**
¿Dime robadora	¿
Que te merecí?	?
¿Que ganas agora?	¿ agora?
¡Que muera por ti!	¡ !
Yo siempre siruiendo,	,
Tu siempre oluidando;	;
Yo siempre muriendo,	,
Tu siempre matando.	Tu siempre matando.
Yo soy quien t' adora,	Yo soy quien t' adora,
Y tu contra mi;	;
¿Que ganas agora?	¿ ?
¡Que muera por ti!	¡Que muera por ti!

Figure 3.10: Example of the manipulation of the text *Cincuenta y Cuatro Canciones Españolas del Siglo XVI*.



Figure 3.11: Example of the transformations of the text applied to the video. (*Speech no. 6*)

To finish this section, I would like to mention a curiosity. Some months after finishing this work, I discovered the blog "The Text Is Silence"[84], in which Cuauhtémoc Padilla Guzmán "shows us literary and philosophical texts from a different point of view: through their punctuation marks, revealing an unexpected expressivity."[85]

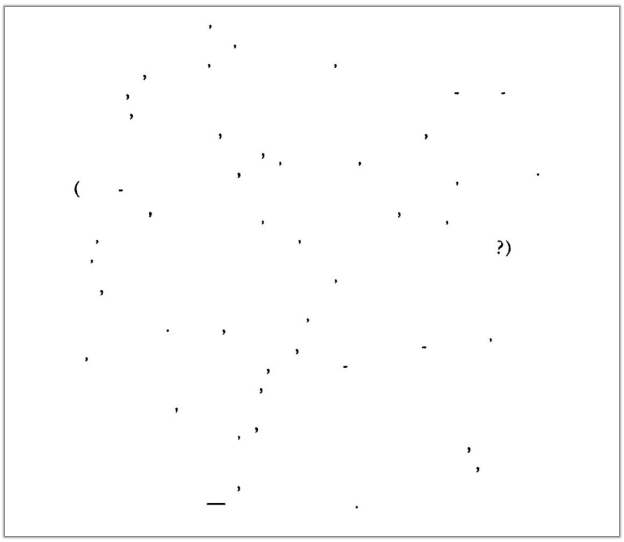

Figure 3.12: Cuauhtémoc Padilla Guzmán, *Marcel Proust, Le Temps retrouvé*.[86]

[84] Cuauhtémoc Padilla Guzmán, "The text is silence," *Tumblr*, n.d., accessed August 23, 2018, http://thetextissilence.tumblr.com/

[85] Juan Pablo Carrillo Hernández, "Los signos de puntuación: La respiración del texto," *Pijama Surf*, August 2014, accessed August 23, 2018, https://pijamasurf.com/2014/06/los-signos-de-puntuacion-la-respiracion-del-texto/

[86] Cuauhtémoc Padilla Guzmán, "Marcel Proust, Le Temps retrouvé," *Tumblr*, March 2016, accessed August 23, 2018, http://thetextissilence.tumblr.com/post/140307162088/marcel-proust-le-temps-retrouv%C3%A9

After contacting him, he defined his work as follows:

> I have always had a great interest in visual poetry and in new forms of arranging the page space, so I suppose that it could influence a little. Actually, what motivated me to engage the experiment back in 2014 was a very simple and specific fact: I noticed that, in some editions of some classic authors, the editors modified the punctuation; and it seemed to me that this detail turned the author sometimes in a major or a minor author. To be able to appreciate this, I needed to only see the punctuation, so I started to delete the text. For there, I discovered other things: I learnt that a literary style exists not only for the election of its words but also for the elections of its silences . . .[87]

Graphic score

The graphic score of *stone:speeches* is made after the manipulation of the waveform of the audio track of the installation. Colours, shapes and short descriptions help to identify the main sonic materials.

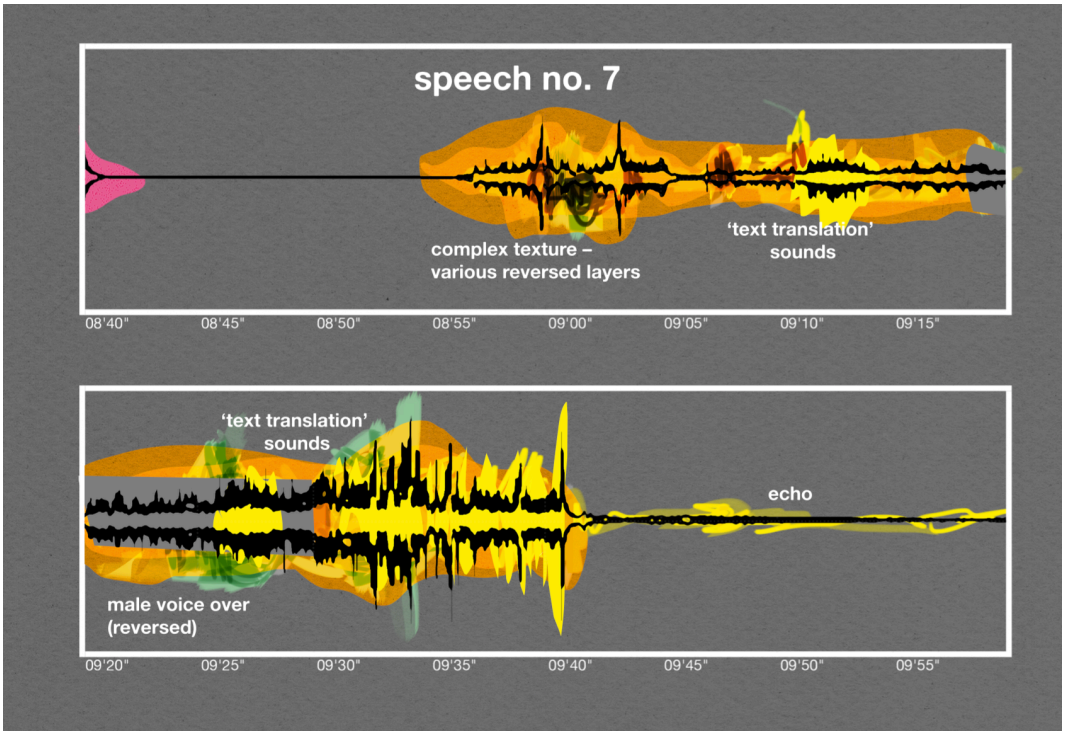

Figure 3. 13: Section of the score of *stone:speeches*

[87] "Acerca de influencias, siempre he tenido un interés enorme en la poesía visual y en formas nuevas de disponer del espacio de la página, así que supongo que eso pudo influir un poco. En realidad, lo que me motivó a echar andar el experimento en 2014 fue algo muy sencillo, muy concreto: noté que en distintas ediciones de ciertos autores clásicos los editores modificaban la puntuación y me parecía que ese detalle convertía al autor unas veces en un autor mayor y otras en un autor menor. Para poder ver eso, necesitaba ver solamente la puntuación, así que comencé a borrar los textos. A partir de ahí fue que descubrí otras cosas: descubrí que un estilo literario existe no sólo en la elección de palabras, sino también en la elección de silencios . . ."

In the sections in which there is more than one main material (like *Speech no. 1*, in which a male voice-over dialogues the so-called material 'text translation') space is divided lengthwise into two halves. It must be noted that this is not a stereo representation of channels L and R but a 'polyphonic' description of two separate layers (like instruments in a traditional score).

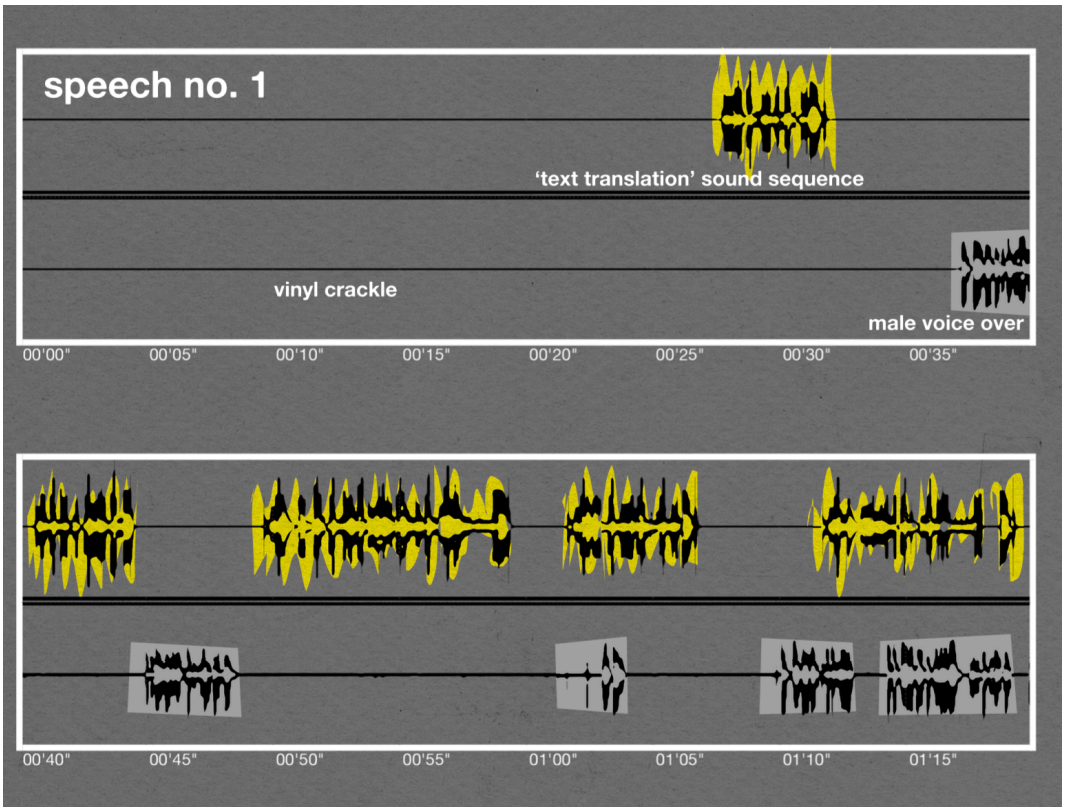

Figure 3. 14: Example of the representation of two simultaneous layers.

Outcome

stone:speeches was my first experience exploring the field of audio-visual installation. This project opened my mind to the notion of working with music and video simultaneously, the bidirectional exchange of information from one discipline to another being crucial to achieving its synchronised result.

The contribution of soprano María Hinojosa was essential to the development of the work. A similar *modus operandi* to the one developed in *Wondjina* (Chapter 2)

–in which I closely collaborated with the performer– was embraced in this work. Working with 'found' materials from performers is both challenging and exciting; it is an invitation to explore their own musical ideas through one's sensibility.

My participation in this project allowed me to be more consistent with what I wanted to achieve in the field of audio-visual installation. This experience brought me a new perspective that I continued exploring in *liquid:speeches* (2016).

This work uses translational processes to convert linguistic structures into sound. This is a concept which, as has been mentioned in this chapter, has stimulated the creativity of many other composers and artists, such as Steve Reich, Clarence Barlow, Jaap Blonk and Peter Ablinger, among others. This is an aspect that I wish to keep exploring in the future, either in installations or vocal works.

CHAPTER 4 | Alice's Adventures in Wonderland

Thus grew the tale of Wonderland:
Thus slowly, one by one,
Its quaint events were hammered out—
And now the tale is done,
And home we steer, a merry crew,
Beneath the setting sun.

Alice! A childish story take,
And, with a gentle hand,
Lay it where Childhood's dreams are twined
In Memory's mystic band,
Like pilgrim's withered wreath of flowers
Plucked in far-off land.

–Lewis Carroll, *Alice's Adventures in Wonderland.*

Introduction

Alice's Adventures in Wonderland –for piano, tape and video-animation– was born out of a collaboration between pianist Rei Nakamura, illustrator Ainhoa Sarabia and myself. In this piece, I wished to achieve a particular purpose: a consistent audiovisual language related to the aesthetics of old silent movies –specifically animation films– using current technical resources.[88] The components of the piece reflected such aesthetics, specifically: black and white illustrations, intertitles –which helped to clarify the development of the story– a piano on stage which interacted in an extreme mimetic way with the projection, and electronics that merged with the piano, creating the illusion of an old piano sound.

[88] In the present context, 'technical resources' means a MIDI sequencer and video editing software.

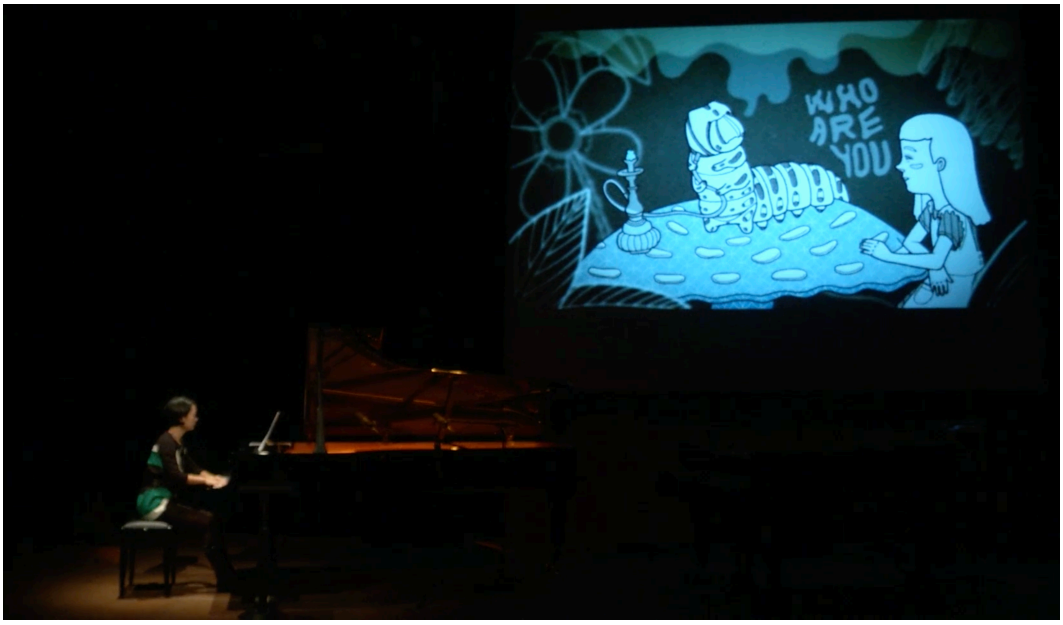

Figure 4.1: Rei Nakamura performing *Alice's Adventures in Wonderland* in the Reid Concert Hall of Edinburgh on the 15th of November 2014.

When I first listened to pianist Rei Nakamura playing in the *Interactive Keyboard Symposium* at Goldsmiths University[89], I was completely fascinated. Her ability, energy and exquisite musicality captivated me. The repertoire of the concert consisted entirely of works composed exclusively for her, and her performances revealed a high level of commitment to each of the composers. Back at home, I sent her a message introducing myself and suggested the possibility of working together. The next day, Rei replied enthusiastically.

Although our first contact was immediate, it took us more than a year to find the opportunity to collaborate. Rei wrote to me at the beginning of 2014 asking me to create a new work for piano, electronics and video animation, as part of a programme she was going to play on tour. In her e-mail, she commented on my work *Not Wanting to Say Anything About John* (2012-13)[90], in which I collaborated with illustrator Ainhoa Sarabia, and suggested we work with her again.

On this occasion, Ainhoa and I were inspired to create a new work based on *Alice's Adventures in Wonderland* by Lewis Carroll. We both loved the universes that appear in the novel, which are both naive and dark, and could imagine perfectly my

[89] Interactive Keyboard Symposium. 9 Nov 2012 - 11 Nov 2012. Great Hall, Richard Hoggart Building (Goldsmiths University of London).

[90] This work was part of my transfer examination (autumn 2013).

music and her drawings fitting together within this aesthetic. Moreover, 2015 marked the 150th anniversary of the first publication of the novel, so we considered it very appropriate to carry out this idea.

It was necessary to both organise the structure of the piece in advance and allocate the roles each of us would play in its creation. Ainhoa would be in charge of the illustrations and the visual script and I would compose the music as well as create a video animation based on Ainhoa's illustrations. Firstly, we formed our narrative structure of the work. Accordingly, we decided to divide each of the twelve chapters of the novel into four key moments, with each chapter exclusively containing four images. As this premise was quite ambitious, we thought it would be appropriate to insert transitional images and intertitles between the main images of our work. The intertitles would give textual information about the current action, helping us narrate the tale, as one finds in silent movies.

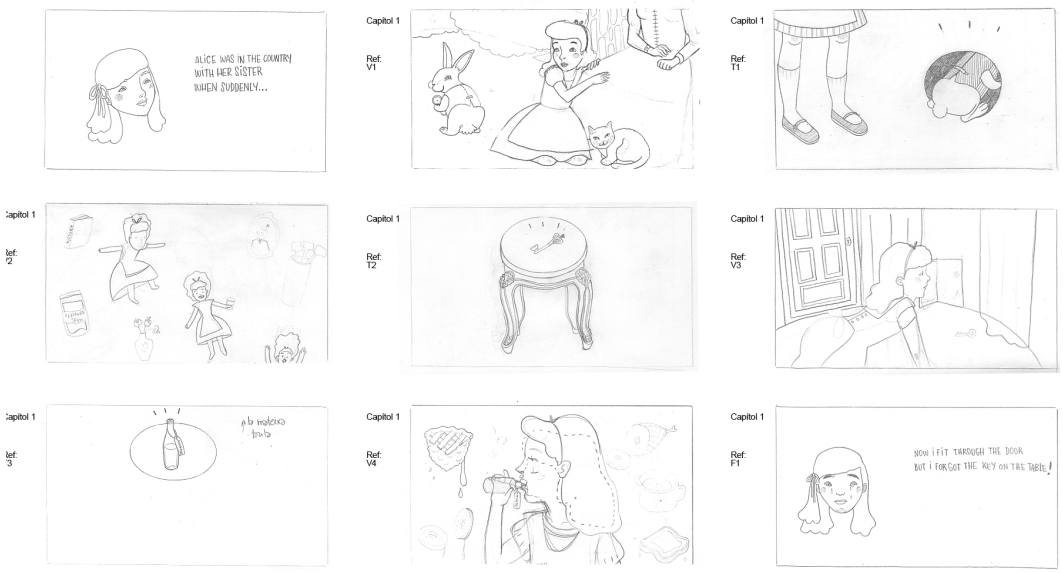

Figure 4.2: Example of Ainhoa's drafts, in which she divided each of the chapters into four images (Ref: V) and included three transitions (Ref: T) and two intertitles (first and last slides).

Alice's Adventures in Wonderland was my first programmatic audio-visual work, which was a significant challenge for me since I had to adopt new creative procedures. The most important part of this was to compose the music before creating the video animation but always considering that the music was subject to

the development of the video itself. At first glance, it may seem more logical to have created the music once the video was finished but it should be noted that, above all, *Alice's Adventures in Wonderland* is a concert work. Accordingly, my aim as a composer was always to give priority to the musical development.

Additionally, because I wished to achieve a highly synchronised result between piano, electronics and video, I presumed that it would be more effective to build the video animation after the music. In this way, I could place the highlighted video events within a quantised tempo fraction, so they could be enhanced by the piano performance and included in the score. These decisions led to a new way of composing, which consisted of transferring methods from one discipline to another.

On the one hand, I had to create the music while imagining the video in advance, considering at all times how I would animate the images and how their movement would be represented by sound. On the other hand, the restrictions within the animation process –Ainhoa gave me just still images (see Figure 4.3) divided by transparent layers without any motion development (see Figure 4.4)– led to the creation of new musical materials, the aim of which was to create the illusion of visual movement.

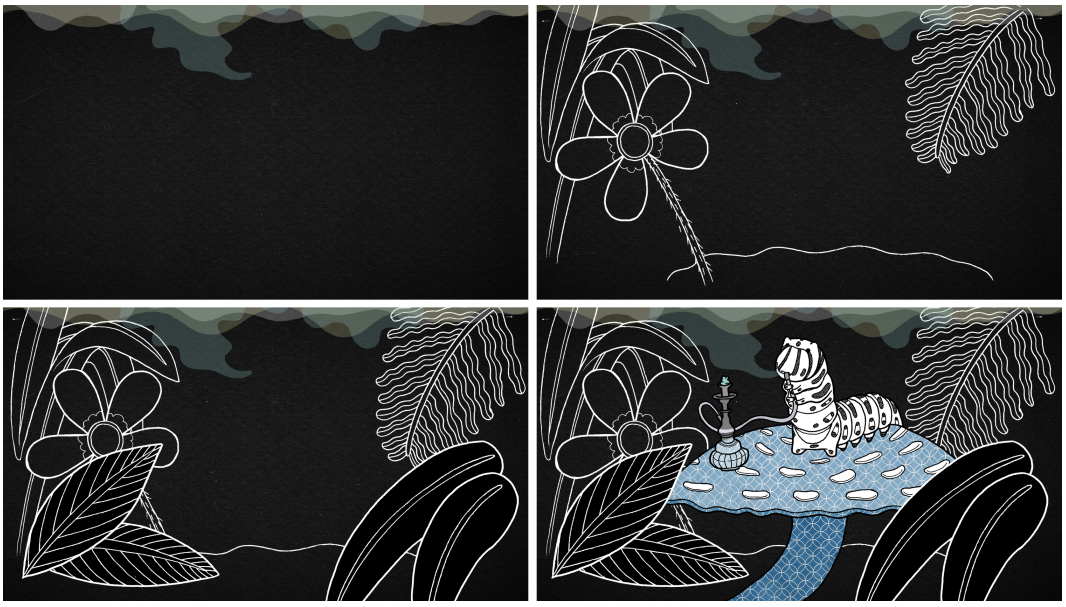

Figure 4.3: Materials given by Ainhoa to create the animation of the video: a still image divided into four transparent layers. Note that in the four images above each successive image includes a new layer.



Figure 4.4: ***Jumping; running; straight high jump*** **by Eadweard Muybridge, as an example of motion development.**[91]

Work concept

Given that our work was inspired by silent films and early animations, my wish was to develop the oneiric universe of the novel within a sonic context that somehow recalled the early twentieth century. The available sources of sound easily suited this aesthetic, with the piano playing an almost iconic role, related to the musical accompaniment of old silent movies, and the pre-recorded electronics helping to intensify the historical aspect that I wished to evoke. In other words, the music had to sound old, as old as if it came from a forgotten archive rescued after decades of being lost.

For that reason, the sound quality of the piano and electronics became as important as the musical language. I used the electronics to colour the timbre of the piano and to reach a certain level of verisimilitude with old movies by including sounds of movie projectors, pops and glitches. Even if these sounds seemed like a mechanical error, they were inserted very carefully to create inner rhythm and an implicit feeling of irregularity.

[91] Hans Christian Adam, Ed. *Eadweard Muybridge, The Human and Animal Locomotion Photographs*. (Köln: Taschen, 2014), 464.

In achieving an ageing timbral effect, I had to take into account that the sound of the piano could not be electronically modified as the electronics were exclusively pre-recorded, in order to enable exact synchronicity with the video. Therefore, the resources I used to colour the piano were clear: in the electronics, I included two piano tracks that almost played in unison with the pianist but in which the tuning was constantly moving up and down (between +50 cents and -50 cents). This procedure was tremendously effective in achieving an old piano timbre –very similar to the honky-tonk piano sound– without needing to manipulate the pianist's sound live. It should be added that the detuning achieved with linear automations created a similar sound to the old gramophones, in which the playing speed oscillates, creating a fluctuation of pitch.

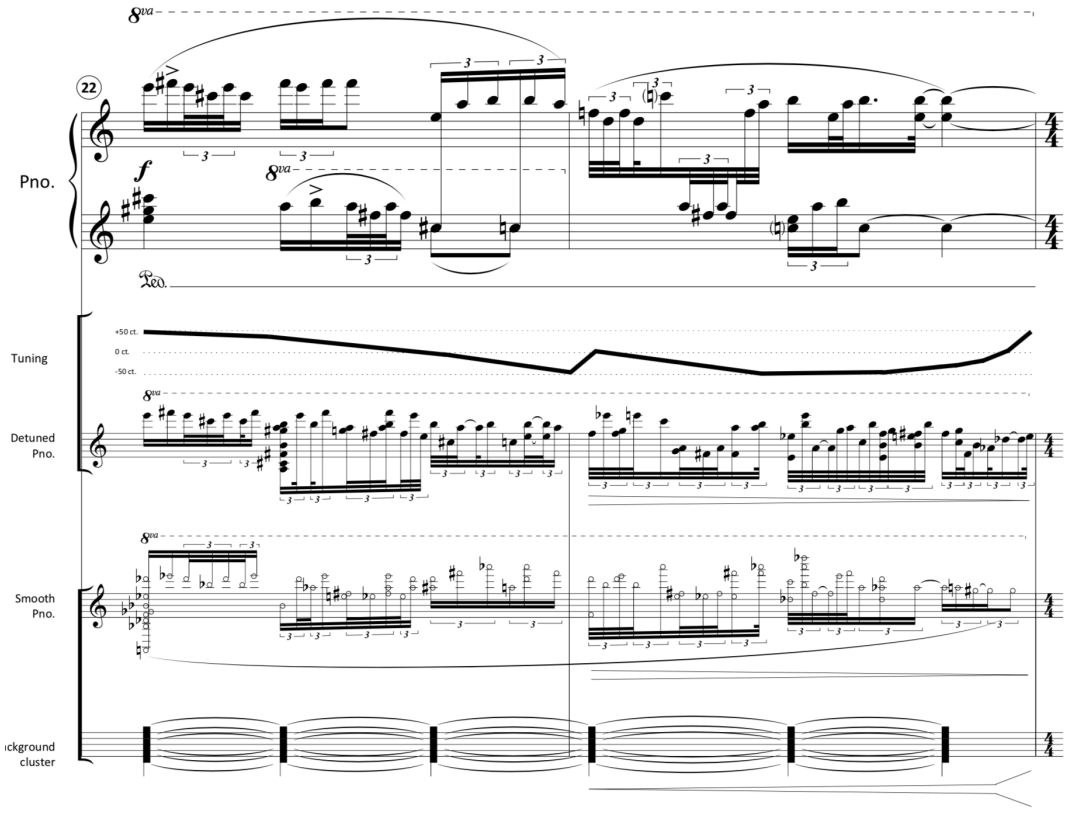

Figure 4.5: Score of *Alice's Adventures in Wonderland* (bars 22 and 23), where it is noticeable how the pianist plays almost in unison with electronics.

The music of *Alice's Adventures in Wonderland* creates a dreamlike environment by using unreal piano sounds in the pre-recorded electronics. These come from slightly modified piano MIDI tracks which remain close to its original sound. In this way, I wished to play with the listener's perception.

The resources I used to manipulate the sound were very straightforward. Firstly, I used a variable reverb that established an unreal quality of sound as it created contradictory space perceptions. This effect appears throughout the whole work. For example, from bar 9 to 12, the amount of reverb applied to the piano sound of the electronics oscillates continuously. Secondly, one of the two piano MIDI tracks was modified to avoid the hammer sound that is usually heard at the attack point (this was named *Smooth Pno.*) it being replaced by a fade-in, thus seeming to appear out of nowhere, as if by magic.

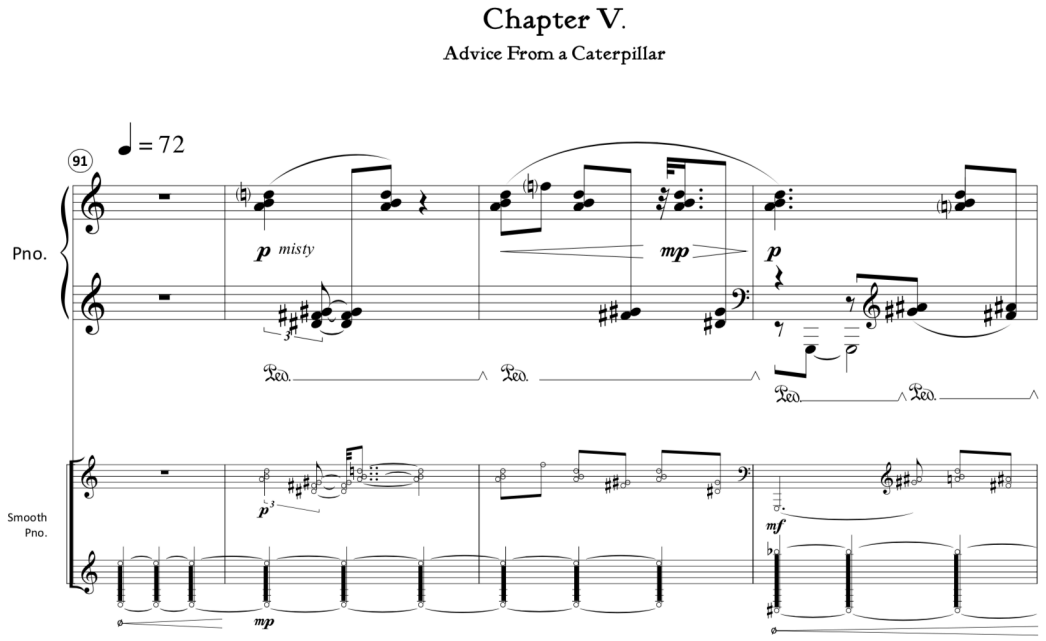

Figure 4.6: Beginning of the chapter *Advice from a Caterpillar*, where the piano cluster of the electronics starts *dal niente*.

Finally, the detuning technique described above was not only used for timbral modifications but also for phrasing purposes. For example, I detuned some long piano notes and resonances to create a bending effect. Such an effect is inherent to many string and wind instruments but, in the case of the piano, is almost a chimaera –unless we manipulate the piano strings inside its frame. This effect can be found from bar 55 to 59.

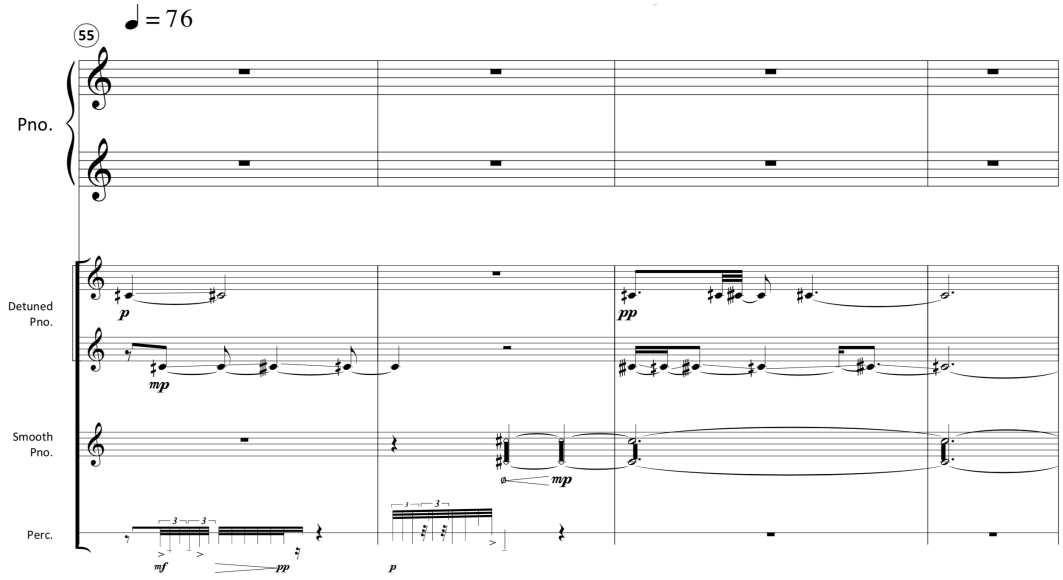

Figure 4.7: Example of the use of detuning with phrasing purposes in the 'Detuned piano' track.

Work development

The music of *Alice's Adventures in Wonderland* is structured as twelve linked pieces, which follow the divisions made by Carroll in the twelve chapters of his novel:

I.	*Down the Rabbit-hole*
II.	*The Pool of Tears*
III.	*A Caucus-race and a Long Tale*
IV.	*The Rabbit sends in a Little Bill*
V.	*Advice from a Caterpillar*
VI.	*Pig and Pepper*
VII.	*A Mad Tea-party*
VIII.	*The Queen's Croquet-ground*
IX.	*The Mock Turtle's Story*
X.	*The Lobster Quadrille*
XI.	*Who Stole the Tarts?*
XII.	*Alice's Evidence*

The pieces that make up the work are brief and share a strong motivic connection, achieved by the continuous variation of its leitmotivs, which seemed to me the most efficient way to clarify the various characters of the novel. The most significant of these is Alice's leitmotiv, which appears right at the beginning and which is repeated throughout the work, sometimes literally and sometimes in a varied form (see Figures 4.8, 4.9 and 4.10).

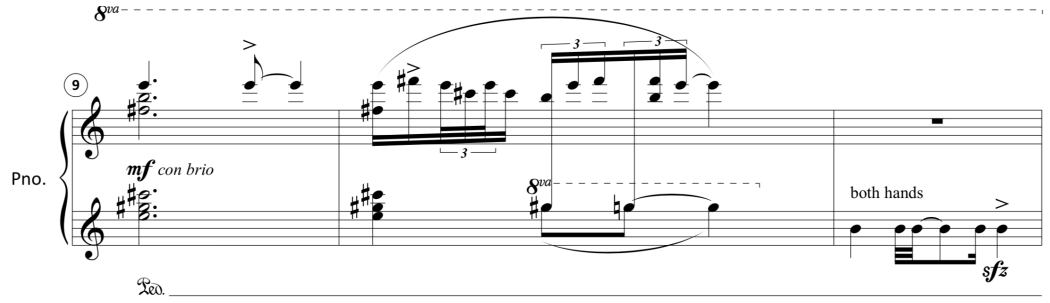

Figure 4.8: *Alice's* leitmotiv

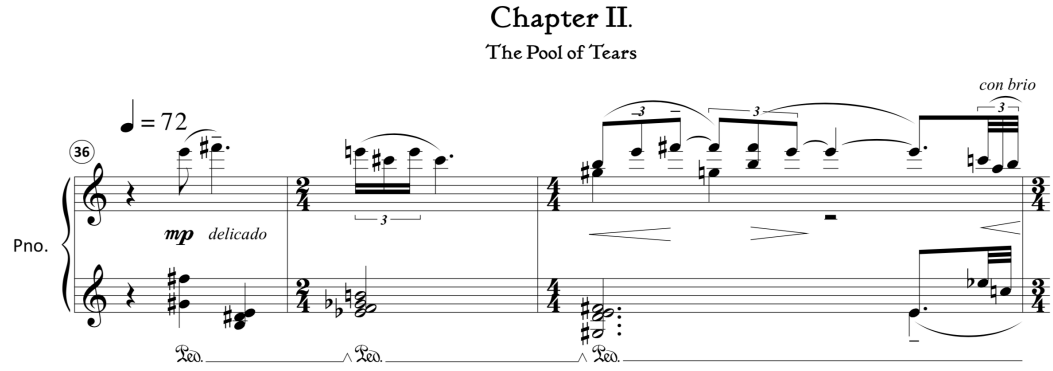

Figure 4.9: Example of a variation of *Alice's theme*, in which the melodic contour is dilated.

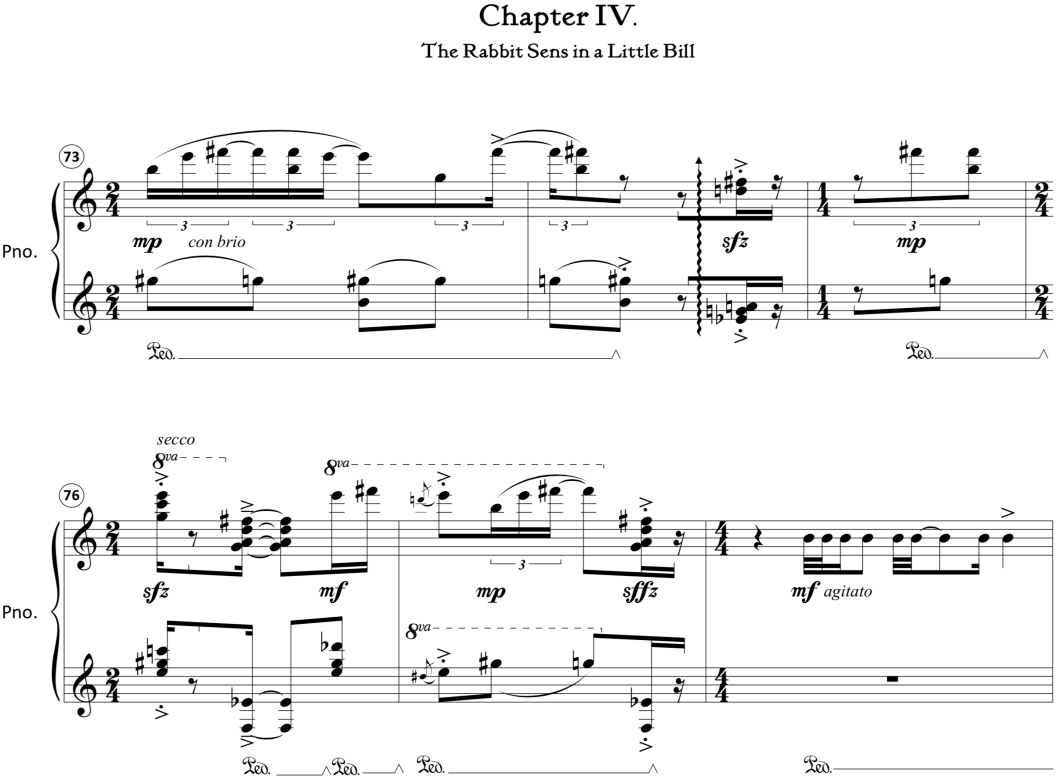

Figure 4.10: Example of a variation of *Alice's theme*, in which the main melodic material is reduced to three repeated pitches: E, F# and B.

Another shared leitmotiv appears for the first time in chapter III – *A Caucus-race and a Long Tale*, in which pitch-bends and trills create the main material. I considered the reappearance of this motive appropriate in chapter X –*The Lobster Quadrille*– since in both chapters there is a group of animals which dance in a circle, another example of a narrative aspect of the story being absorbed into the musical structure.

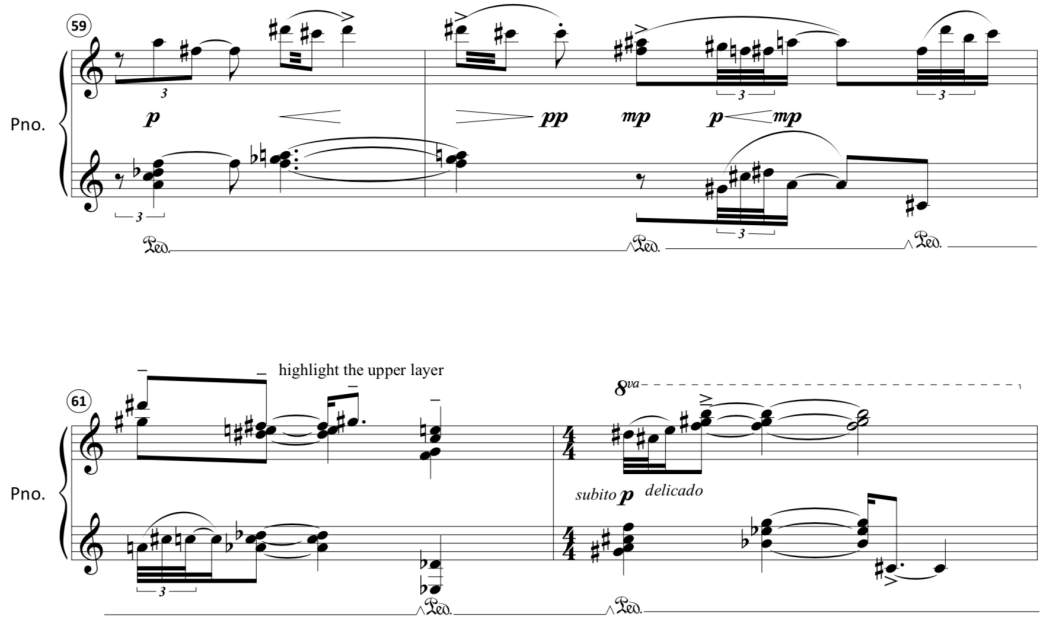

Figure 4.11: Leitmotiv of chapter *III- A Caucus-race and a Long Tale.*

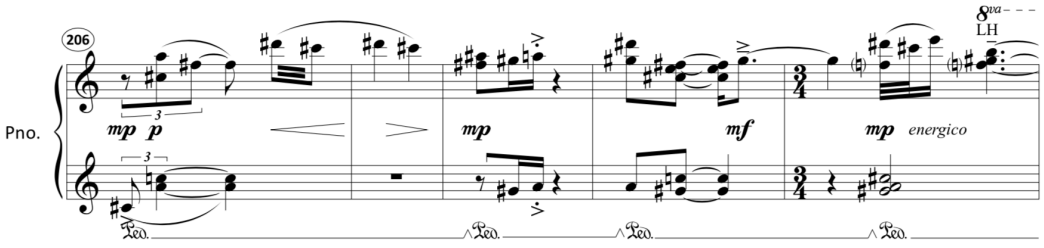

Figure 4.12: Transformation of the *Caucus-race* leitmotiv found in chapter X.

The use of specific musical codes repeated throughout the work and the employment of constant contrasts reflected in the musical gestures contributes to the narration of the piece. One of the most recurrent musical codes is that of the repeated note, which is continuously used to draw the audience's attention to a fact that needs to be highlighted due to its importance to the storyline. Many actions

are emphasised by this motive, but the most memorable one is that of Alice's size changes, where the repeated notes highlight the constant movement of the image.

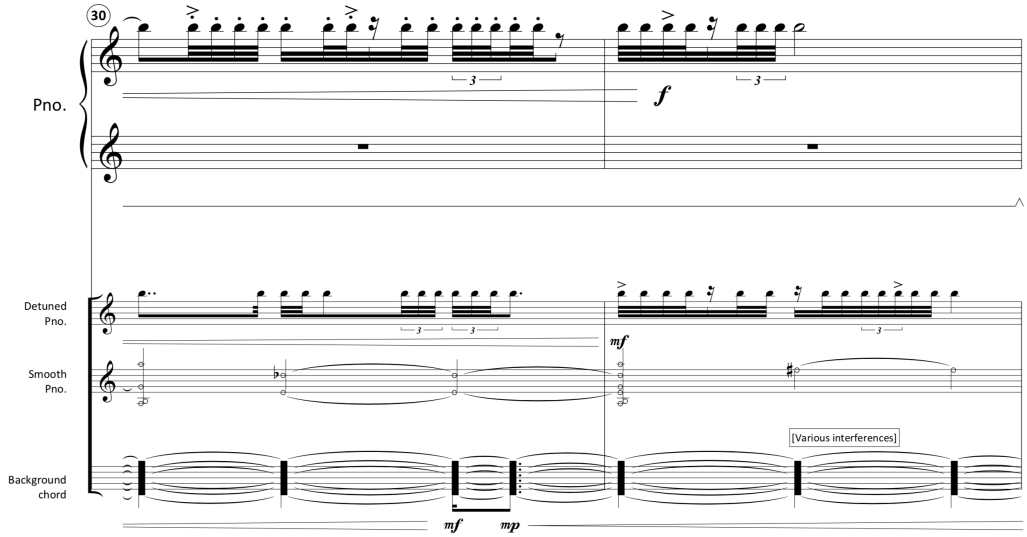

Figure 4.13: Score of Chapter I, when Alice is decreasing in size.

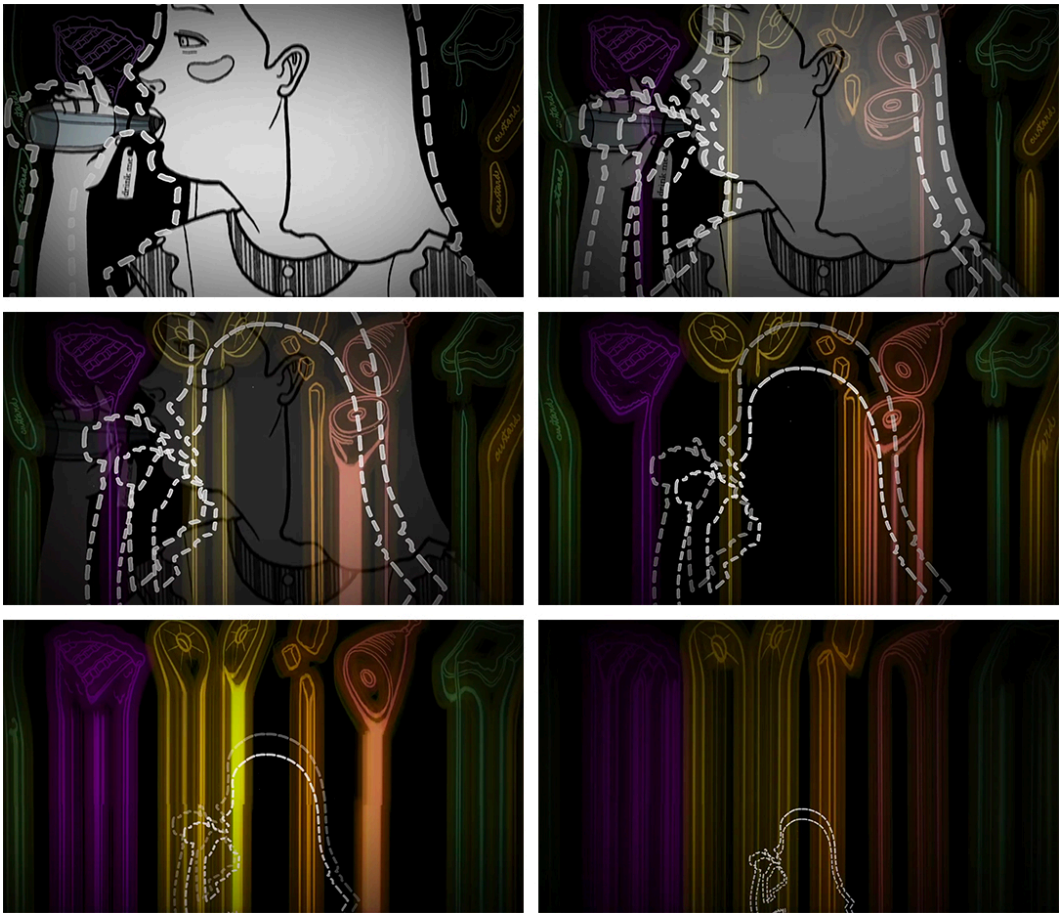

Figure 4.14: Frames of the video when Alice is decreasing in size.

Although it has been previously mentioned, most of the scenes of the work were composed taking into account not only what they described at the narrative level but also what they would need to highlight in the video. The following exemplifies how I organised the musical discourse while attempting to foresee the limitations of animating Ainhoa's illustrations.

One of the most restrictive scenes concerning the possibilities of animation is found in chapter III, when Alice arrives at Dodo's home and finds a group of animals that dance in circles. As the illustrator only provided me with a fixed scene that (detailed below), I could not make the animals move around the circle. For this, I would have needed to have each of them drawn in a movement sequence (see Figure 4.4). Given the circumstances, I decided to make them appear and disappear by using silhouettes[92] so that the circle would be visually drawn although the animals remained static and did not move forward.

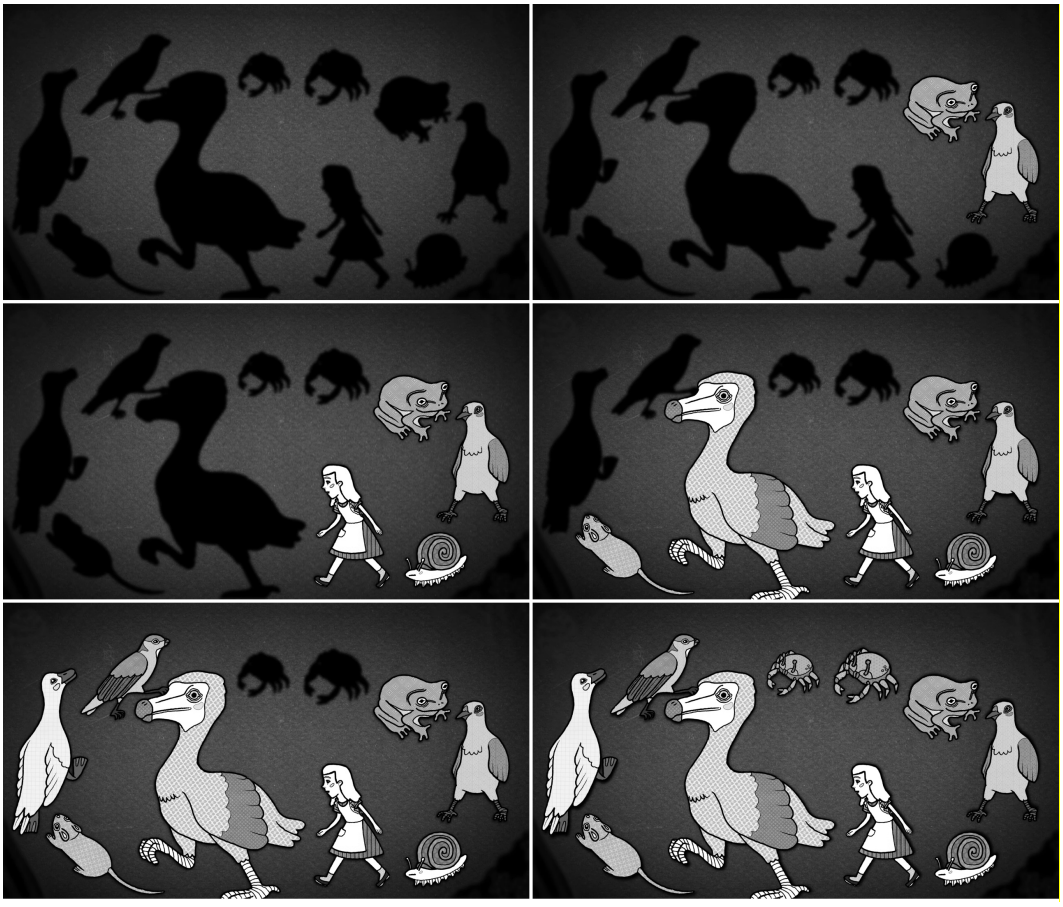

Figure 4.15: Sequence of animation of the group of animals dancing in circles.

[92] The video timing of this is 02'29".

Music played a fundamental role in emphasising the movement of the scene. This reinforcement was achieved thanks to a high level of synchronicity that, in many moments, resembled the well-known technique of "Mickey-Mousing"[93].

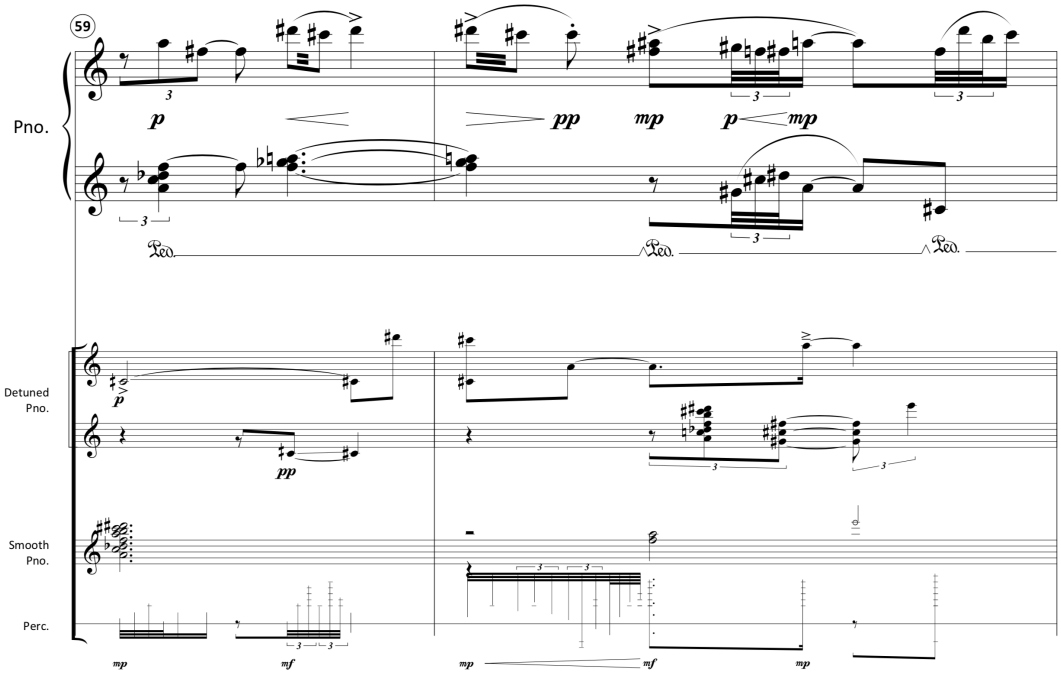

Figure 4.16: Note the musical reinforcement of the movement of the animals' circle coinciding with the right-hand trills of bars 59 and 60. (Video 2'29").

Video

The video of *Alice's Adventures in Wonderland* was inspired by both silent cartoons and animation films from the '20s and '30s. When editing it, I emulated some of the characteristic aspects of the early animation movies.

In an attempt to create analogical behaviour between the elements of the video, I included different sorts of glitches, such as scratch, flicker, and focus malfunctions, which became essential to emulating the errors which occur in the mechanisms of old cameras and projectors.

[93] "The matching of the musical soundtrack of a film, etc., to the details of the accompanying action, in a manner reminiscent of animated cartoons. Origin: 1950s; earliest use found in Grove's Dictionary of Music. From Mickey Mouse + -ing." (*Oxford Living Dictionaries, s.v.* "mickey-mousing," accessed August 21, 2018, https://en.oxforddictionaries.com/definition/mickey-mousing)

To emulate the visual style of early animation films, I used silhouettes[94] and constant dips to black. These procedures helped me to achieve a more expressive and dynamic result.



Figure 4.17: Example of the use of silhouettes. Note how the figures in the first frame become a couple of silhouettes some seconds later.

I also applied a different degree of focus in each of its layers. The original layers were in focus. However, when editing the video, the secondary layers were blurred, while the most relevant object remained in focus, as happens in cinema and photography. This technique allowed me to create the perception of visual depth. In the image below, for example, the rabbit is absolutely in focus, Alice is slightly less so –as she is immediately behind him– and the rest of the objects become progressively blurred as we move to the back of the image.



Figure 4.18: Example of the use of different focusses for each of the layers of a frame.

[94] The use of silhouettes was characteristic in early animations, especially in the 1920s and the 1930s. Lotte Reiniger (2 June 1899 – 19 June 1981), who animated more than 70 films using this technique, was the pioneer of silhouette animation. (Furniss, 2006, 237–238).

Outcome

I cherish a very special memory of the composition of *Alice's Adventures in Wonderland*. Although it was a very laborious work, I loved immersing myself in the fantasy world that Ainhoa and I recreated from Carroll's novel and, despite the creative process being reasonably challenging due to the number of forces involved and its closed interaction, I feel that we found positive solutions.

Creating this work helped me to develop a new *modus operandi* that would be decisive for future works such as *liquid:speeches* (2016),[95] *Pictures of the Floating World* (2017) and *Tiempo Suspendido - Estudio Sonomecánico no. 1* (2018). In these pieces, I have pursued my exploration of the creative procedures first developed in *Alice's Adventures in Wonderland*, which were focused on the final result and based on composing always taking into account the rest of the disciplines involved in the work down to micro-level. I still believe that this is a very efficient way to achieve the type of results I am pursuing and, moreover, I must admit that the more I make use of it, the easier it becomes.

Alice's Adventures in Wonderland has interested other pianists besides Rei Nakamura, such as Lluïsa Espigolé, Viola Cartoni and Carlos Apellániz, who have performed the work repeatedly. Today it is one of my most performed works. It has been part of at least 14 concerts in cities such as Vitoria, Edinburgh, Karlsruhe, Barcelona, Buenos Aires, Madrid, Lausanne, Seville, Valencia, Zaragoza, Bilbao, Logroño and Córdoba. Moreover, Rei will perform it again in 2019 in Eschborn and Cologne (Germany).

I must confess that I love composing musical works that are accompanied by video since a very interesting symbiosis can be established. On the one hand, I work to provide music which gives the image movement that it would hardly have without it. On the other hand, the image, if it is figurative, can give music a much clearer narrative or, at least, allows it to represent concrete ideas more effectively. Nowadays, I feel that the audio-visual works are my most intimate pieces. While it is true that they are interdisciplinary, they have not always been *collective* (see

[95] Included in Chapter 7 of this research.

Introduction chapter). In fact, *Alice's Adventures in Wonderland* and *Not Wanting to Say Anything About John* (2012-13) were the only works including video on which I worked with another artist, in this case an illustrator.

In the rest of the projects that include video, I usually work alone for the entire creation process. As a result, these works are usually the most experimental and introspective.

In the first stage of creating *Alice's Adventures in Wonderland*, when I was looking to find a way to make the video animation seem like an old silent movie, Rei Nakamura introduced me to the work of Swedish composer and media artist Marcus Fjellström (1979-2017). His series of episodes *Odboy & Erordog*,[96] of which he created three episodes, were the strongest source of inspiration for me on this occasion. His videos had a flickering black background over which white lines drew the story and they were also inspired by silent movies. Fjellström incorporated 'errors' into both the film and the audio that he integrated into the musical discourse. His works were extremely poetic and exquisite in many ways, with a great deal of integration and synchronisation of the elements which comprise them, and are still referential for me today.

[96] Kafkagarden, "Odboy & Erordog, episode 1 - Marcus Fjellström," *YouTube*, April 5, 2011, accessed March 20, 2019, https://www.youtube.com/watch?v=rWhsgKf0gFc

CHAPTER 5 |disPLACE – II. Història d'una casa.

Ella va prendre la decisió fa molt de temps.
Potser va ser el moment en veure la imatge
d'aquella dona cremant
davant la porta d'un banc.
Primer va pensar: "És boja."
Després va canviar d'opinió.
Cal valor per a ser capaç de convertir-se en foc.
Al dia següent tothom en parlava.
I ara mira el carrer i es pregunta
com en parlaran.
La veuran caure des d'aquest balcó.
"Genocidi financer"
"Tragèdia a ciutat vella"
"La imatge de l'any" [97]

She took the decision a long time ago.
Perhaps it was when she saw the shot
of that woman setting herself alight
in front of the door of a bank.
At first, she thought "She's crazy".
Then she changed her mind.
It takes courage to turn yourself into a flaming torch.
The next day everyone was talking about it.
And now she is looking at the street and asking herself what people will say afterwards.
They will see her fall from this balcony.
"Financial genocide".
"Tragedy in the old town".
"The image of the year".

Introduction

disPLACE (a nowhere opera)[98] is a chamber opera co-composed with composer Joan Magrané, which reflects on the issue of gentrification in the city of Barcelona. The idea of creating this work came from Georg Steker and Dietrich Grosse – artistic directors of *Musiktheatertage Wien* (Vienna) and *Òpera de Butxaca i Nova Creació* (Barcelona) respectively– who asked playwright Helena Tornero to write an opera libretto approaching this subject. As the music was going to be created by two composers, she structured the libretto within two different stories that approach the issue of gentrification from two opposite points of view. The first half, entitled *I. Story of a House*, was composed by Joan Magrané and the second half, named *II. Història d'una casa*, was composed by me.

The opera was premiered on the 1st of September of 2015 at the WERK X venue, as part of the *Musiktheatertage* festival in Vienna, with performances running until the 11th of September of 2015. The performances were carried out by Elena Copons (soprano), Sébastien Soules (baritone), Sophia Goidinger-Koch (viola) and Barbara Riccabona (cello) –both members of the ensemble PHACE– under the

[97] Helena Tornero, *Libretto of disPLACE (a nowhere opera) – II. Història d'una casa* (Barcelona: Mondigromax, 2015), 25.

[98] Referred to from now on as *disPLACE*

musical direction of Vinicius Kattah and the stage direction of Peter Pawlik. A year and a half later, *disPLACE* had its premiere in Spain, followed by further performances. On the 21st and 22nd of December of 2016, it was performed in *Arts Santa Mònica* (Barcelona) and, from the 17th to 19th of February of 2017, in *Teatros del Canal* (Madrid) within the season of the renowned *Teatro Real*.

The creative process involving the two composers was totally independent, with each one of the parts of the libretto a complete story in itself. The structure of the opera allowed us to keep our artistic identities in a natural way, resulting in having two different sound worlds for each of the parts. However, the libretto connected both stories thanks to meaningful links which were essential to the understanding of the complete plot. Accordingly, Joan Magrané[99] and I agreed to share musical leitmotifs and, thus, create bridges between both musical works. Due to the fact that Joan had completed his part whilst I was still defining some of my musical materials, I suggested he pass on to me some of his musical cells and motives. I was especially attracted by the ones which represented symbols that appeared in both of the stories of the libretto, like the *balcony* of the flat where both stories take place.

My wish was to create musical connections that unified both parts of the opera, to which Joan kindly agreed. Although there was a generous exchange of information on his part, I do not consider this piece as one of my most collaborative works, as far as the creation process is concerned, since the influence was unidirectional (from Joan's work to mine), and our creative processes happened at different moments in time without any connection other than the shared material.

Concerning my relationship with the librettist, it was quite traditional: she wrote the script, sent it to me and I composed the music from her text and, except for some modifications in the second section –called *Carta*– in which I asked her to delete some sentences to shorten its length, the libretto remained as it was

[99] Joan Magrané Figuera (Reus, 1988) is a Catalan composer with a growing international career with whom I had previously collaborated on projects such *Dido Reloaded* and *Go, Æneas, go!* –both inspired by Purcell's *Dido and Æneas*–.

originally. Once this project was finished, we both agreed that it would have been much more stimulating to have conceived the opera together from the very beginning, considering at all times the interrelation between music and text. We decided that, if we ever worked together in the future, we would approach the creative process collectively, so text and music could influence each other at an earlier stage in the work's creation.

At present, I am working with Helena on a new opera, entitled *Je suis narcissiste*[100], about which we have had numerous meetings to discuss the libretto. Now that the libretto is finished, I am composing the music while the stage director [101] designs the staging. Her decisions on the staging obviously have consequences for my composition and vice versa. Indeed, this is for me the ideal type of collaboration in the creation of a 21st century opera which I consider truly interdisciplinary.

Work concept

> What is the essence of a city? The spaces? The people who inhabit them? Do cities have a memory? Do spaces have a memory? What traces are left in the spaces of those people who inhabited it before? [102]

This chamber opera approaches the issue of gentrification from two opposite points of view. Gentrification, as defined by Bridge, Butler and Lees, is the "movement of middle-income people into low-income neighbourhoods causing the displacement of all, or many, pre-existing low-income residents".[103] This process of urban transformation consists of the buying and renovation of houses, stores and public spaces in general within deteriorated urban neighbourhoods. Its consequences are an increase in property value and, as a result, the displacement of

[100] *Je suis narcissiste* is an opera buffa which will be premiered on the 7th of March of 2019, within the season of *Teatro Real*. It is a production of *Òpera de Butxaca i Nova Creació*, in collaboration with the *Teatro Real*, the *Teatro Español* of Madrid and the *Teatre Lliure* of Barcelona.

[101] Marta Pazos is a Spanish stage director, actress, set designer and playwright. She is the artistic director of the theatre company *Voadora*.

[102] Helena Tornero, *disPLACE – Press release. English version* (Barcelona: Mondigromax, 2015), 9.

[103] Gary Bridge, Tim Butler, and Loretta Lees. *Mixed communities. Gentrification by stealth?* (Bristol: The Policy Press, 2012)

low-income families and small businesses. Gentrification is affecting thousands of districts in cities all over the world, causing radical urban transformations, which alter not only the structure and spaces of the city but also the life of its inhabitants. *disPLACE* is located in Barcelona, where the consequences of gentrification are especially evident due to property speculation and the contradictions caused by current tourism politics.

In Helena Tornero's words, "*disPLACE* is two stories about one single space or one story about two pairs of people: the ones who live there presently and the ones who lived there six years ago."[104] Although the two interrelated stories happen in different moments of time, they are connected by a common space: a flat in the centre of Barcelona. The first part –*I. Story of a House*– takes place in 2015, when Maria decides to leave her flat and break up with Henry. She has just found out some information about the flat's past that Henry concealed from her. In the end, after a long argument, Maria confesses how a man, who had knocked at her door a few days earlier, had told her the story that Henry had decided to keep to himself. This secret story is the one revealed in the second part of the opera –*II. Història d'una casa*– which takes place in 2009 when another couple, Amèlia and David, are about to be evicted from the same flat that Henry would buy for Maria some years later. *I. Story of a House* –written in English– is a story encompassing the nostalgia, distance and disappointment existing between Maria and Henry. One of the aims of Magrané's music was to portray how the luxuriousness of the flat had become bleak for Maria, who felt profoundly distressed and lonely.

> MARIA
> She remembers, she remembers it all.
> All this is gone.
> Who decided to love this town?
> Who decided to change this town?
> Why should you change what you love?
> (She shivers. Looks around. She feels deeply uncomfortable. She goes back to her packing. She finishes. She closes her bag and sits down.) [105]

[104] Helena Tornero, *disPLACE – Press release. English version* (Barcelona: Mondigromax, 2015), 9.

[105] Tornero, *disPLACE [a nowhere opera]*, 6.



Figure 5.1: View of Henry and Maria's luxurious flat.

II. Història d'una casa –written in Catalan– "is a story of love, conflict and desperation." Here we find the synopsis by Helena Tornero:

> PART 2: HISTÒRIA D'UNA CASA
> Barcelona, 2009. The second story, written in Catalan, is a story of love, conflict and desperation. It's the story of Amèlia and David, the previous inhabitants of the same place, some years before. At first glance, we see a couple that seems to be celebrating that they just moved in: they have improvised a small party on their own and they drink a toast to courage. But soon their euphoria seems a little bit disturbing to us and we begin to see that it is not a welcome celebration: is a farewell. This is the last night they spend in that place: at dawn, they will be evicted. The flat has a special meaning to David, who is French but also the grandson of Catalans who went into exile because they supported the Spanish *República* against Franco's dictatorship. The flat was originally owned by his family, but was confiscated during the dictatorship. David decided to buy the house in order to recover the family heritage, but things didn't turn out as he planned. Due to the crisis, he became unemployed and Amèlia lost her job as a journalist after reporting on corruption issues. Threats, trials and total indifference from the institutions which have tried to "erase" the case. In that second story, we find a couple in love but in such a desperate situation that it will make them take a dramatically radical decision.[106]

[106] Helena Tornero, *Op. cit.,* 10.



Figure 5.2: Amèlia and David at the beginning of the second part.

Helena describes the beginning of the second half as follows:

> At first glance, we see a couple that seems to be celebrating that they just moved in: they have improvised a small party on their own and they drink a toast to courage. But soon their euphoria seems a little bit disturbing to us and we begin to see that it is not a welcome celebration: is a farewell.[107]

Overall, *disPLACE* shows how the process of gentrification causes both centralisation and exclusion. Maria and Henry belong to the social strata which benefit from gentrification. Their flat was bought and restored by Henry in a district which was previously decrepit but has now been transformed into a fashionable neighbourhood, partly due to the activities of Henry's multinational company. The opposite situation is explored through the story of Amèlia and David, who are about to be evicted due to the economic crisis. This second half of the opera shows how radical the consequences of gentrification in Barcelona have been, mainly due to the Spanish mortgage laws, the social impact of the economic crisis and the aggressive entrepreneurship of its local government.[108]

[107] Helena Tornero, *disPLACE – Press release. English version* (Barcelona: Mondigromax, 2015), 10.

[108] Rowland Atkinson and Gary Bridge, *Gentrification in a Global Context: The new urban colonialism* (New York: Routledge, 2005)

Work development

disPLACE – II. Història d'una casa[109] is scored for soprano, baritone, viola, cello and pre-recorded electronics. The compositional praxis I followed to create this opera was crucial in establishing the vocal qualities of its characters.

The first stage of my creative process consisted of singing the text myself. My performances were not extremely planned, they were rather *a cappella* improvisations. I recorded my performances to listen to myself afterwards and check how the scenic rhythm was working and how the psychology of the characters was evolving. In my point of view, experiencing the libretto through singing rather than approaching it from a mere intellectual perspective was the best way to understand the nature of its characters and their interrelationships. I must admit that the possibility of using new technology to record myself and become a spectator of my own work gave me a completely new perspective of the creative act. In fact, this is not the first time that I have used this as part of my compositional method. I have previously applied it to both vocal works and instrumental works such as *Añil* (2011) and *Così mostraste a lei i vivi ardori miei* (2015).

According to the librettist, the characters of Amèlia and David have opposite natures. Amèlia is extroverted, dynamic, communicative and sensitive and David's personality is timid and cautious. For this reason, I decided to highlight the contrast between them both within the music. Besides, I wished to find a distinctive voice for each one of them since the characters in Joan Magrané's part[110] of the project (Marie and Henry) were sung by the same people. As might be expected, both of us tried to use a very distinctive vocal language to create the belief in the audience that they were seeing four different people on stage, instead of two.

In this way, Amèlia's singing is strongly lyrical with the constant melismas, *glissandi* and sudden changes of dynamics helping to portray a vital, sensitive and seductive person.

[109] *disPLACE – II. Història d'una casa* is the second half of *disPLACE*, for which I composed the music.
[110] *disPLACE – I. Story of a House*, by Joan Magrané.

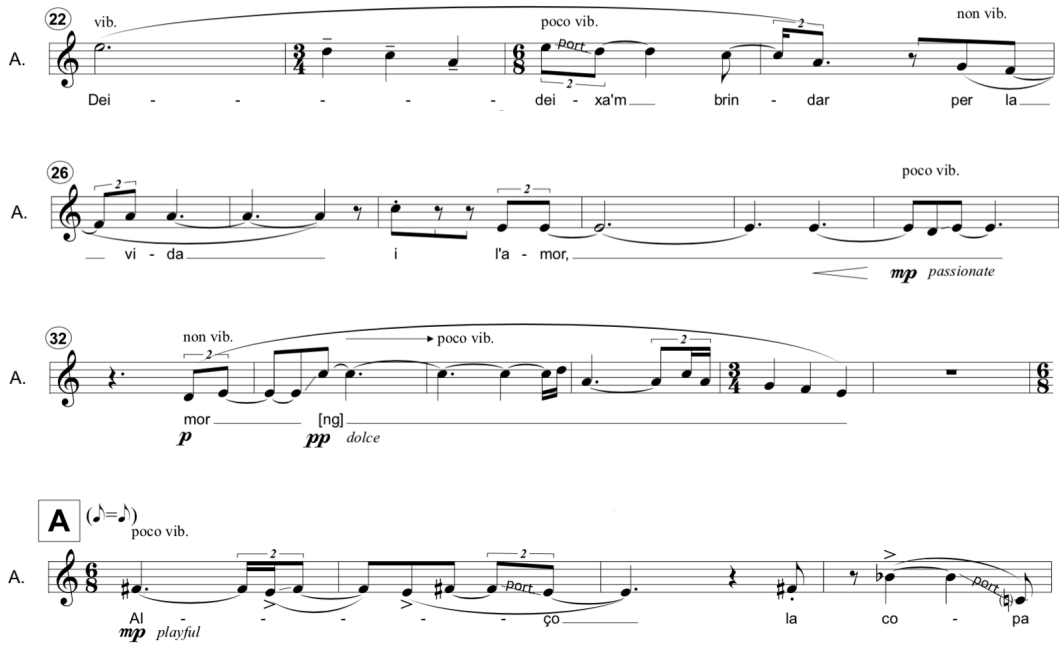

Figure 5.3: Example of melismatic singing and dynamic contrast in Amèlia's part.

Regarding the choice of using melismas *per se*, I would like to emphasise that this grew out of the way the text was structured concerning its metre and rhyme, which in my opinion was too classic, as it mainly contained consonant rhyme and a similar number of syllables in each of the verses.

In the following example, it is noticeable how the first and third verses share a strong relationship, as they both end with *–en*, have the same accentuation (marked underlined) and 11 syllables each. The second and fourth verses end with *–or*, they also share the same accentuation and have ten syllables each. If we observe the tonic syllable of each of the four verses, we may notice that it is always placed on the 10th syllable.

Deixa'm brindar per les coses que im<u>por</u>ten.	Let me drink to the things which are important.
Deixa'm brindar per la vida i l'am<u>or</u>.	Let me drink to life and love.
Alço la copa i els teus ulls em de<u>mos</u>tren	I raise my glass and your eyes tell me
que no han caigut al parany de la <u>por</u>.[111]	that you haven't fallen into the trap of fear.

Using melismatic singing helped me to escape from the classical poetical metre which I would inevitably have had using syllabic singing instead. Melismas were

[111] Helena Tornero, *Libretto of disPLACE (a nowhere opera) – II. Història d'una casa.* (Barcelona: Mondigromax, 2015), 17.

extremely effective to blur this characteristic of the text and achieve a more flexible result.

What also conditioned me to compose using a high number of melismas was the language itself. Catalan is a very rhythmic language in which many words end with a consonant, with the last syllable being the tonic syllable. For example, *dignitat, significat, valent, solidaritat, infinit*, ... This angularity means Catalan does not lend itself easily to lyrical singing. The solution I found was to insert melismas, especially in the middle syllables of the words. In this way, the vowels were lengthened, and the word endings were softened.

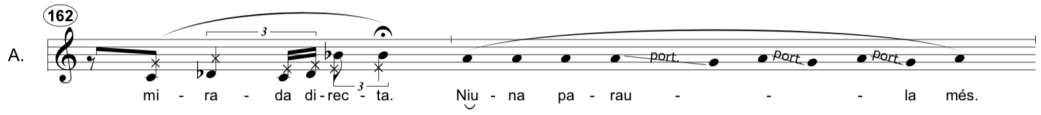

Figure 5.4: Example of the use of melismas in the middle syllable of the word "pa-rau-la", which means "word".

The use of melismatic singing was also a stylistic choice, as it enabled me to allude to the *Mediterranean essence* of Barcelona[112], the city where I was born and lived until I was 26 years old.

> Whereas melodic phrases, meters and rhythms in northern and central Europe are the norm, songs of the west Mediterranean area, both north and south, often show a freer treatment of poetic and melodic ideas, with melismas and a syllabification suitable for both duple and triple rhythms. . .[113]

Melisma is widespread across the Mediterranean musical culture. In this way, in Spanish Flamenco, the "typical features are four introductory strummed chords, melodic phrases beginning on the second or fourth quaver of a 3/4 bar and melismas often sung to a weak syllable at the ends of phrases".[114] In Corsica "the most distinctive features of the *paghjella* include . . . . [the] use of melisma (which

[112] Represented by the role of Amèlia (she is a Catalan journalist), since her husband is French.

[113] James Porter, "Europe, traditional music of," *Grove Music Online, Oxford Music Online*, January 01, 2001, accessed July 25, 2018, https://doi.org/10.1093/gmo/9781561592630.article.40684

[114] Robert Stevenson, Mari Carmen Gómez, Louise K. Stein, Albert Recasens, Belen Perez Castillo, Josep i Martí i Pérez, Martin Cunningham, Ramón Pelinski, Jaume Aiats, Sílvia Martínez García, and Arcadio de Larrea Palacín, "Spain," 75, *Grove Music Online*, January 01, 2001, accessed July 25, 2018, https://doi.org/10.1093/gmo/9781561592630.article.40115

functions as an intrinsic component of the vocal line rather than a secondary ornamental feature)".[115] The music of Israel "includes the use of melisma, the augmented second and melodic ornamentation with the range of quarter- and half-tones", [116] and in Malta "the singer ornaments his quatrains with elaborate melismas, glissandos, tremolandos, vibratos, rasps and accents".[117]

Whereas melismatic singing became the distinctive feature of Amèlia's vocal part, the absence of them in the melodic lines of David established an austere and straightforward character.

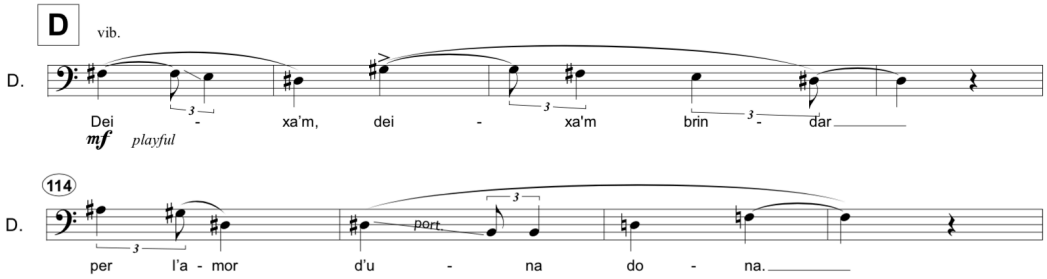

Figure 5.5: Example of how syllabic singing predominates in David's part.

Once the vocal languages of each of the characters were established, I modulated them to adjust them to the different emotional circumstances they experience throughout the opera. There is a desperate quality to Amèlia's singing in the final part, just at the moment when she is about to commit suicide. Here, the melismas intermingle with constant descending glissandi that resemble crying or babbling.

[115] Caroline Bithell, "Corsica," 3, *Grove Music Online,* January 01, 2001, accessed July 25, 2018, https://doi.org/10.1093/gmo/9781561592630.article.45353

[116] Jehoash Hirshberg, Natan Shahar, Edwin Seroussi, and Amnon Shiloah, "Israel," 13, *Grove Music Online,* January 01, 2001, accessed July 25, 2018, https://doi.org/10.1093/gmo/9781561592630.article.41316

[117] Joseph Vella Bondin, Sylvia Moore, and Philip Ciantar, "Malta," 5, *Grove Music Online*, January 01, 2001, accessed July 25, 2018, https://doi.org/10.1093/gmo/9781561592630.article.40886

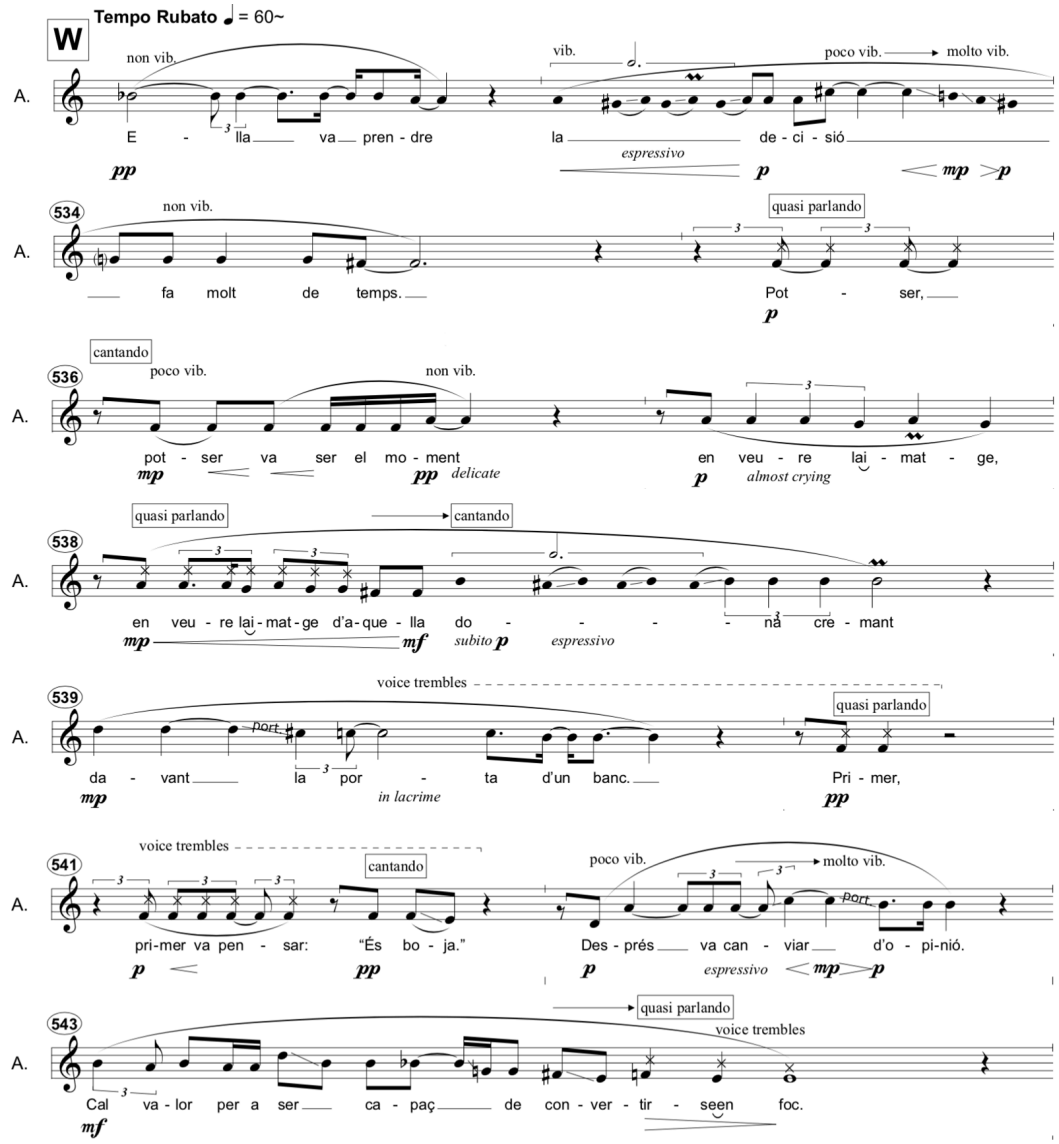

Figure 5.6: Section *III. Comiat*, bb. 532-543.

At the end of this aria, the singing becomes static and monotonous in order to reflect her catatonic emotional state, as if Amèlia was totally withdrawn from the world.

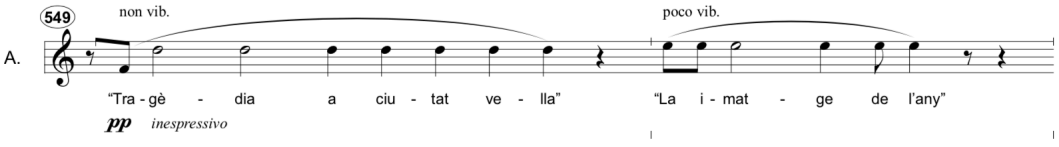

Figure 5.7: Section *III. Comiat*, bb. 549-550.



Figure 5.8: Amèlia (Elena Copons) singing her last aria before committing suicide.

The use of pre-recorded electronics and their combination with the strings was essential in achieving the surrounding sonic environment I was looking for. My aim was to create one that evokes a space full of life, lived in by two people who love each other and have forged a loving atmosphere between the four walls of their home.

Electroacoustics became essential for the musical development of my part of the opera, since its principal function was to generate a sort of cinematic environment that configures a distinctive musical style and creates a contrasting atmosphere. Their essence is accomplished by combining three main sonic materials, described below.

The first acts as a percussive background, created after recording, manipulating and sampling daily sounds found in my own flat –such as kitchen tools,[118] the sound that the pages of a book make when passed over quickly with a thumb or the sound of a door closing– this not only provides a sense of constant motion but also evokes a home full of memories and daily life experiences. This material is related to the idealistic sections when Amèlia and David remember their joyful past.

[118] "In Iberia and the Mediterranean islands rattles, castanets, domestic utensils and bells all accompany singing." (Porter, 2001)

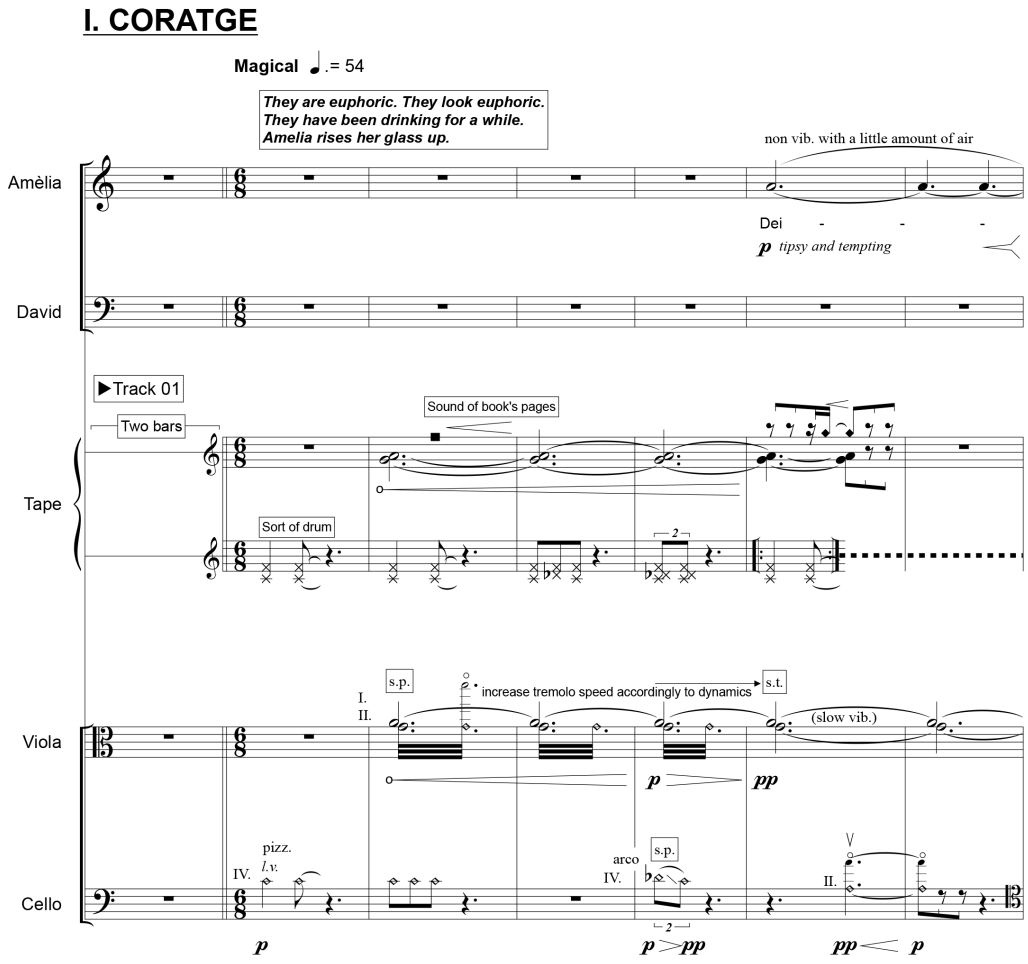

Figure 5.9: Section *I. Coratge*, bb. 1-6. The instrument called "Sort of drum" is the result of the manipulation of a recording of a wooden spoon striking against a pan.

The second recurrent element is a field recording of a neighbourhood of Barcelona[119], which provides a sense of realism and physical location. This material is associated with the spoken parts and plays an important role when the characters connect with the present and their devastating reality.

[119] In order to achieve realism, the recording was made from the flat of a friend who lives in the very centre of Barcelona.

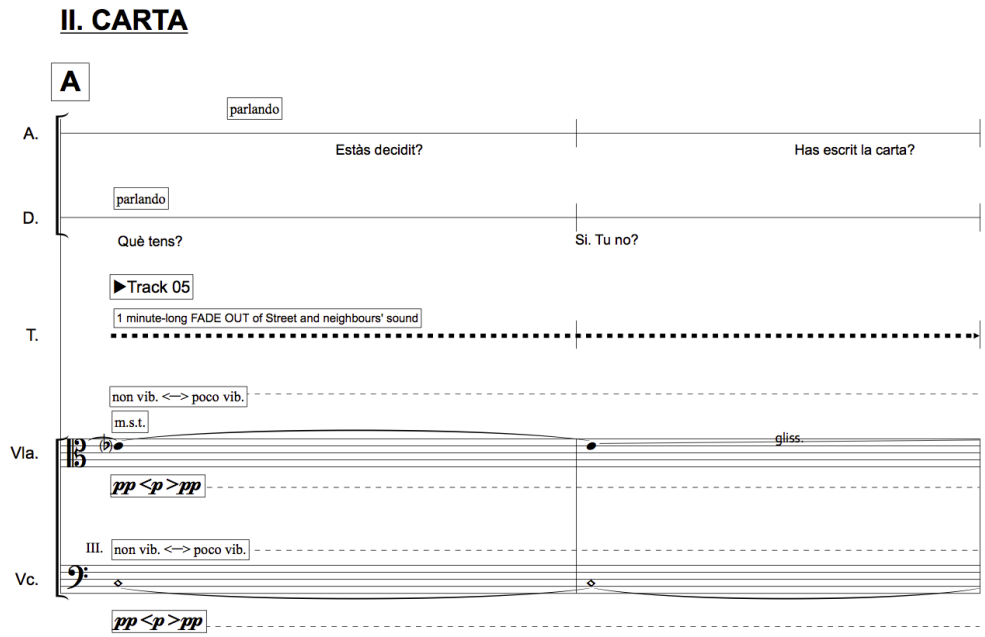

Figure 5.10: Section *II. Carta*, p. 33.

The third type of material consists of a recording whose diegetic function contrasts with the music of the rest of the opera. This takes place in the third section of the opera (*III. Comiat*) when David –who is originally from France– switches on the TV to show Amèlia a video in which we hear him singing a song. In order to clearly define this part as a song within the larger operatic context, I framed it within a specific musical style.

This section of the opera grew out of a recording by the accordionist Oroitz Maiz, a friend of mine who died when I was beginning to compose my opera and to whom I wanted to pay tribute. Oroitz performs *Elle est belle, eh?* by composer Héctor Serrano, who kindly allowed me to manipulate the recording and use it in my opera. The delicacy of the performance of that *musette* seemed to me the perfect background for David to sing over[120].

Regarde-moi dans les yeux et n'aies pas peur de moi.	Look me in the eyes and don't be afraid for me.
Cherchons un autre endroit pour nous aimer un peu mieux.	Let's look for another place where we can love each other a little better.
Embrasse-moi plus fort.	Hold me tighter.
Oublions tous les problèmes.	Let's forget all our problems.

[120] Originally, this song was designed to be sung live. However, the stage director thought it was more appropriate to record it in order to seem that the sound was coming from a TV. For this reason, the score has the melodic line on the baritone staff instead of on the electronics staves.

Oublions le futur même.
Et dansons dans le présent.[121]

Let's even forget the future.
Let us dance in the present.

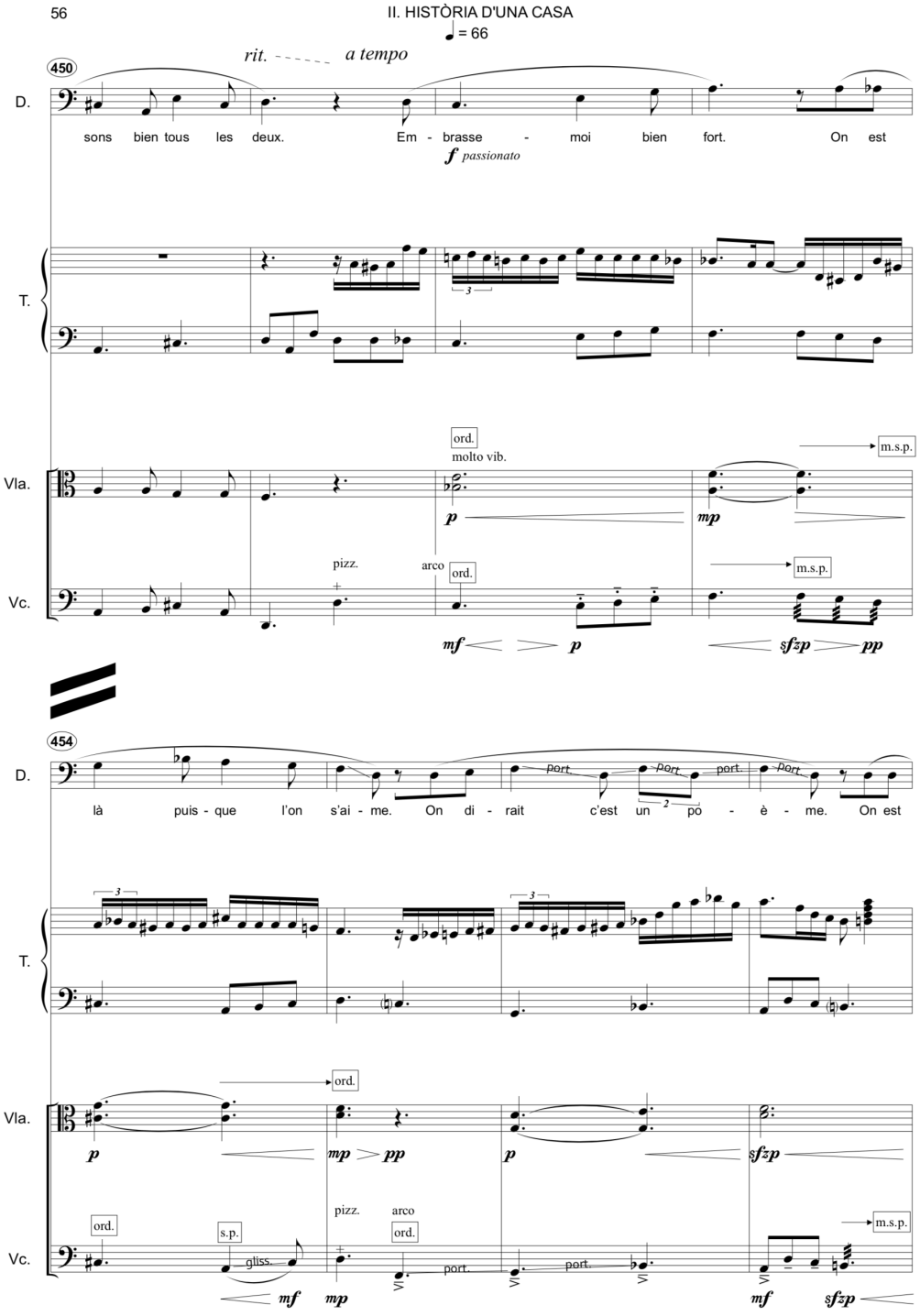

Figure 5.11: This example shows how the recording of the accordion (transcribed in the tape part) accompanies David. Notice how the string instruments respect the tonal functions of the original recording.

[121] Lyrics of the song that David sings to Amèlia.

The instrumental parts play three main roles. The first of these is to support the vocal lines, reinforcing their emotional intensity by imitating a specific vocal gesture.

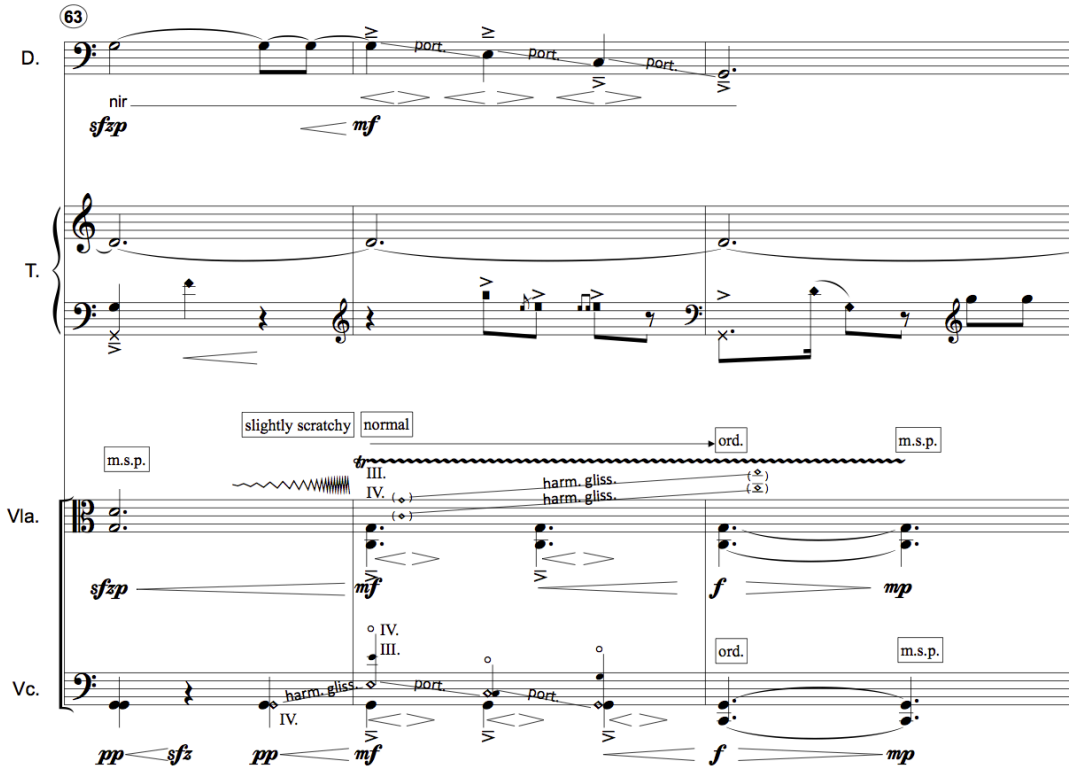

Figure 5.12: Observe how the cello plays in unison with the singer.

The second is to enrich and expand the discourse of the electronics, primarily by doubling the pitches with different gestures (see Fig. 5.13, bar 16, Vla.) or by including imitative materials within the instrumental parts (Fig. 5.13, bar 17-18 Vc.).

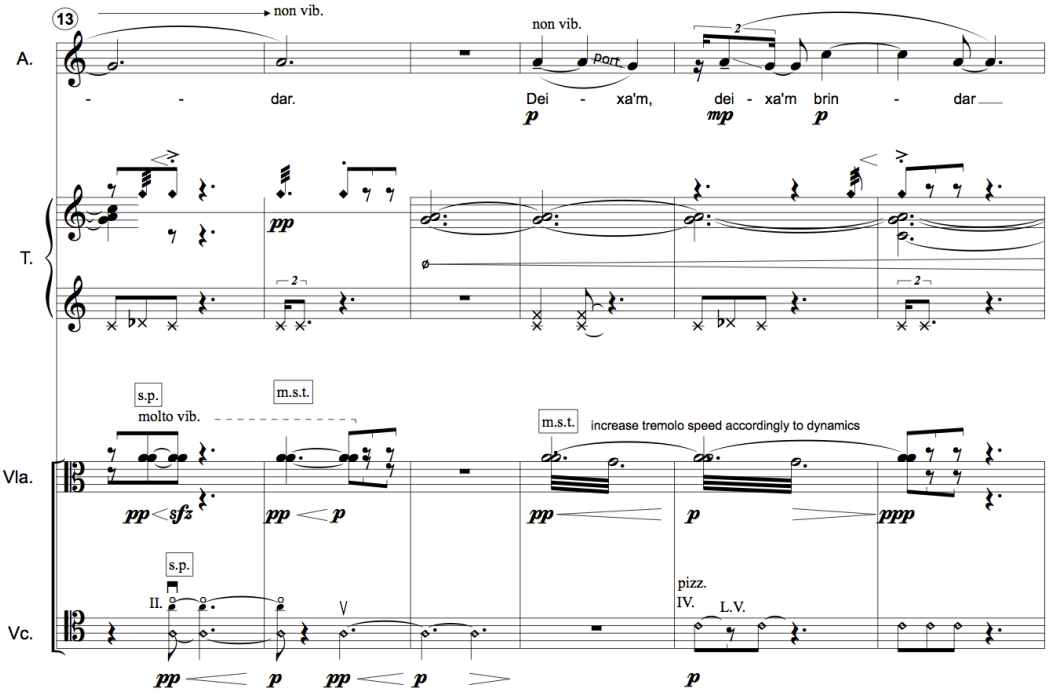

Figure 5.13: Section *I. Coratge*, bb. 13-18.

The third consists of the use of borrowed materials from Joan Magrané's score, the function of which is to link both halves of the opera. These common materials allude to the traces left by the former inhabitants of the *flat* where the story takes place. By inserting them into an entirely different musical frame, I intended to change their perception and meaning. This is detailed in the next section.

The instrumental score and the electroacoustics of *disPLACE – II. Història d'una casa* reflect the concept of interconnection between people and space. We created a common thread between both parts [122] by using recurrent musical materials played by the string instruments. The contrasting atmosphere in the second part is partially generated by framing the string materials differently, as well as by including pre-recorded electroacoustics.[123] As a whole, the music contributes to enhancing the variety of atmospheres that a single space can hold and, through extension, those at the roots of the city.

[122] "Both parts" refers to Joan Magrané's part (*I. Story of a House*) and mine (*II. Història d'una casa).*

[123] *I. Story of a House* is written for viola and cello and does not use pre-recorded electronics.

As happens in real life, a space changes considerably depending on who is living there. The instrumental music performed the role of filling the space with two different sonic environments symbolising the constant fluctuations which take place within a specific space over a period of time. Therefore, this section focuses particularly on how both myself and Joan Magrané approached the idea of *interconnection between people and space* by sharing a series of leitmotifs which, as previously mentioned, came from Joan Magrané's part.

In the first half of the opera, there is a series of recurrent musical materials, such as the natural harmonic tremolos played on the bridge, *pianissimo* and with a smooth *crescendo*. According to Magrané, "they evoke the flat's cold atmosphere and impregnate it from the beginning of the opera".

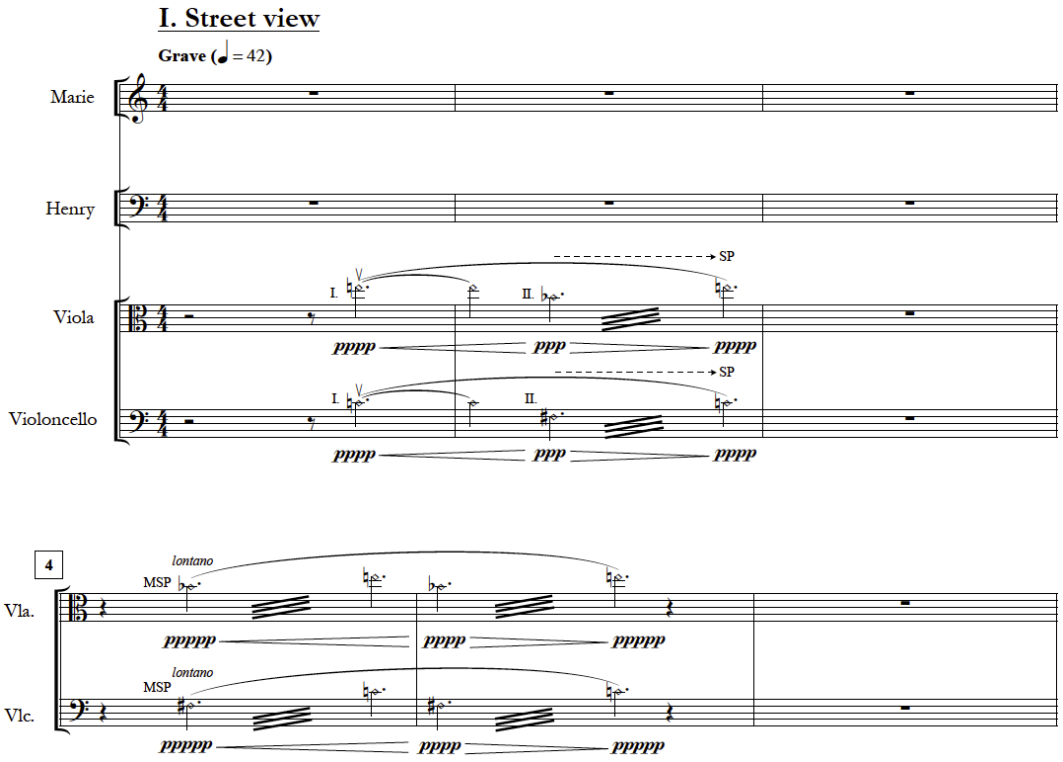

Figure 5.14: Joan Magrané, *disPLACE – I. Story of a House*, p. 1 (Barcelona: Mondigromax, 2015), 1.

The sonority of this specific material seemed very attractive to me, not only for its gesture and timbral qualities but also for the meaning which Magrané had given to it. My wish was to transform its 'coldness' into something warm and alive, so I incorporated it into the first aria of Amèlia. The new contextualization of this

material allowed it to be perceived differently. Instead of being isolated "in the middle of the silence" it was surrounded by Amèlia's voice and the textures of the electronics, framing Joan's tremolos within a beat and a different harmonic context.

There are many occasions where I included this material in my score. For example, in bar 39, the tremolo is displaced. The viola starts playing it alone and, in bar 41, the cello responds.

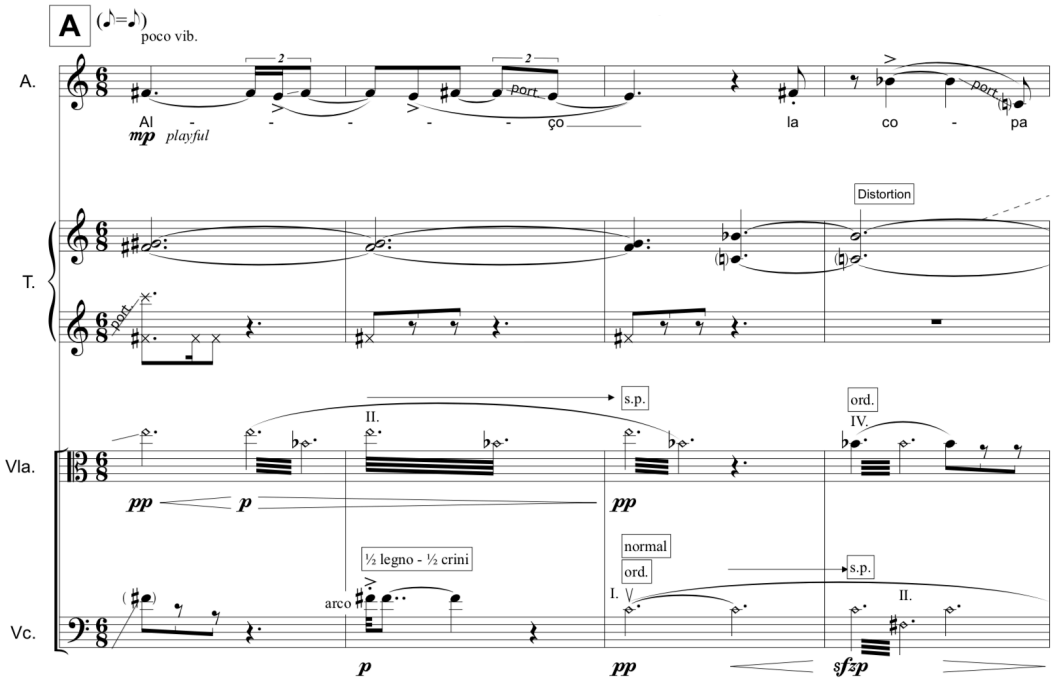

Figure 5.15: ***II. Història d'una casa,*** **bars 39-42.**

In bar 47, the displacement between the string instruments is not that noticeable. Although the cello starts first, the viola joins it a crotchet later and they play the tremolo in unison.

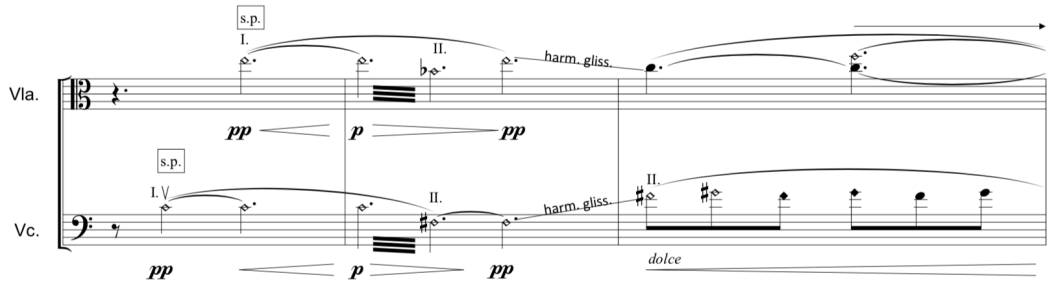

Figure 5.16: ***II. Història d'una casa,*** **bars 47-49.**

I also took the material originally written for the viola and moved it down into the cello line, having the same harmonics played an octave lower.

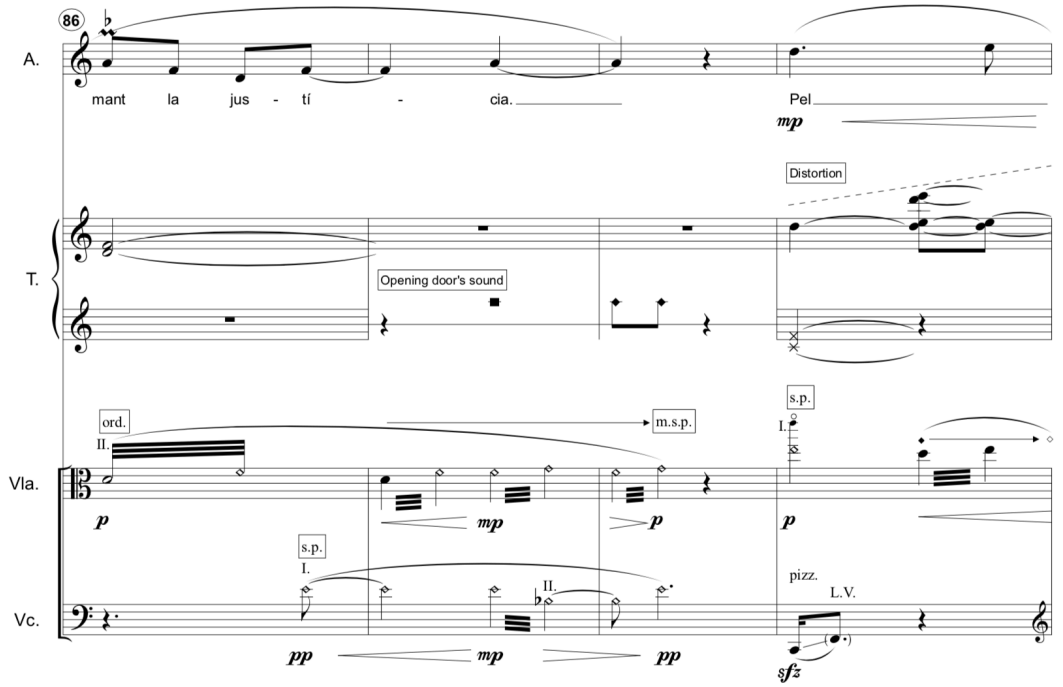

Figure 5.17: ***II. Història d'una casa,*** **bars 86-89.**

Observing these examples, we can see how differently they behave, their musical function becoming the opposite of that in the first part. In Joan Magrané's part, they acted as the central musical material and therefore their musical importance remained significant throughout, whereas in my part they appear as a texture blending the electroacoustics with the voice.

Another material that I was drawn to borrowing was the *flautando* harmonics, which, according to Joan Magrané, "move between pleasant and harsh qualities of sound enhancing the constant contradictions and double meanings of this story".

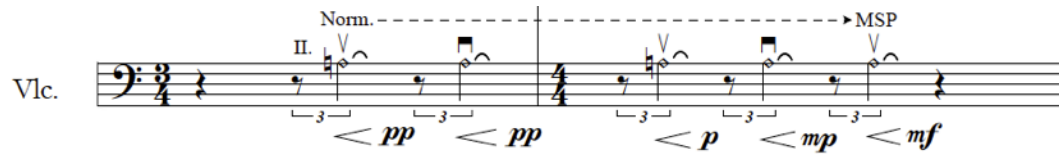

Figure 5.18: Joan Magrané, ***disPLACE – I. Story of a House*** **(Barcelona: Mondigromax, 2015), 10.**

In my score, these notes appear transformed in many ways but, even so, they remain recognisable. In bars 93 and 156, I keep the same harmonic position, whereas, in bar 158, the gesture remains the same but the natural harmonic position changes.

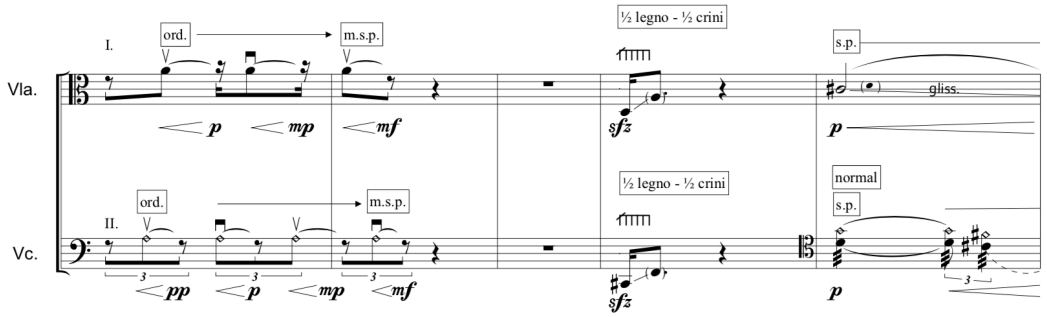

Figure 5.19: ***II. Història d'una casa,*** **bars 93-97.**

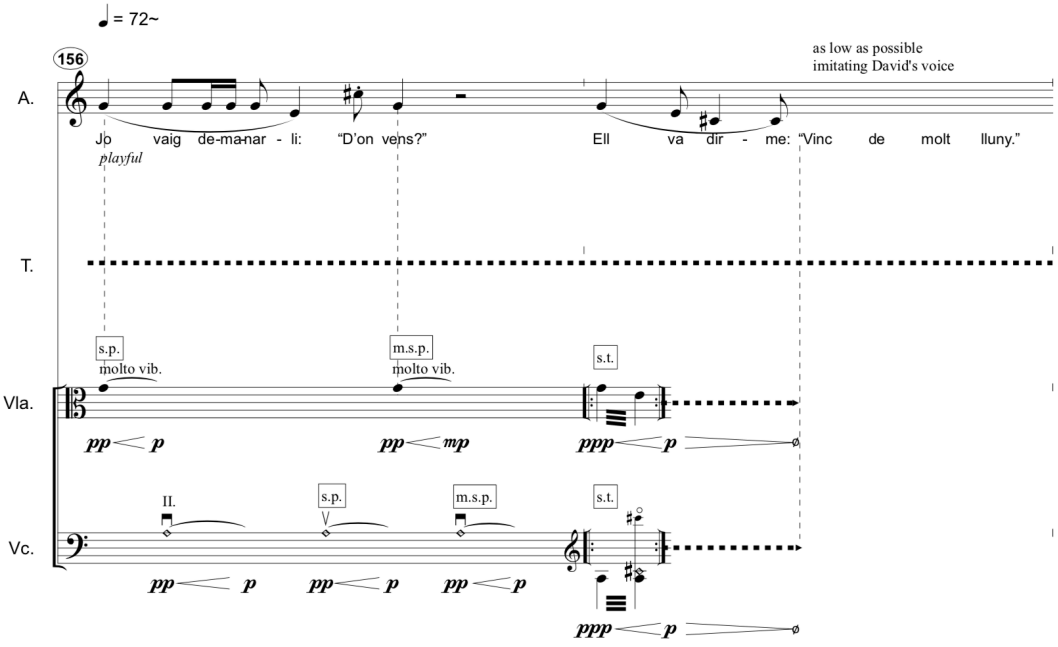

Figure 5.20: ***II. Història d'una casa,*** **bars 156-157.**

In bar 66, however, I changed the contour of this motive and added an extra layer to the original material. Instead of being a single and iterated note, the viola and the cello have two notes each establishing a dialogue by alternating the crescendo gesture.

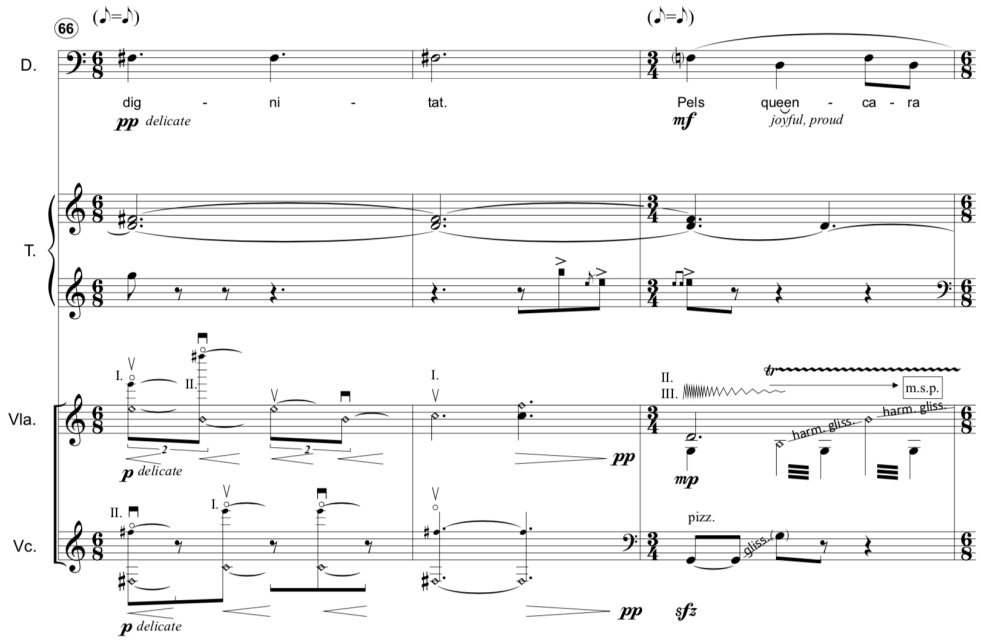

Figure 5.21: *II. Història d'una casa*, bars 66-68.

The last material I borrowed from Magrané was the metallic sound of a low cello pedal that varies depending on the distance of the bow to the bridge.

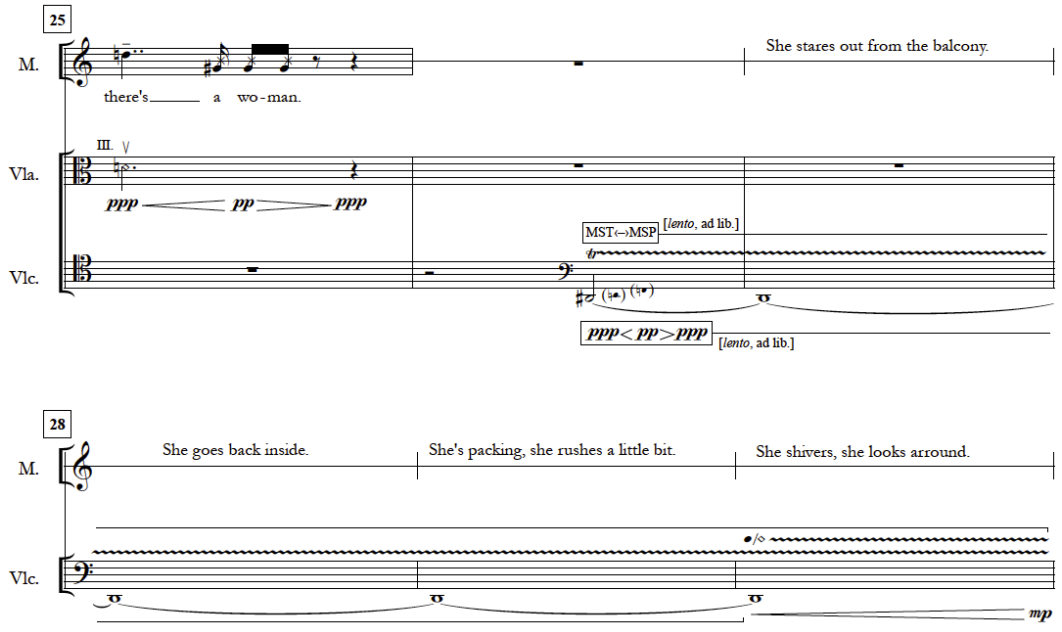

Figure 5.22: Joan Magrané, *disPLACE – I. Story of a House* (Barcelona: Mondigromax, 2015), 3.

I was inspired by this material in two different ways. On the one hand, I kept the idea of the low pedal with trills combining two different pitches (notes between parentheses), disregarding the changes between *molto sul ponticello* to *molto sul tasto*, as the example shows:

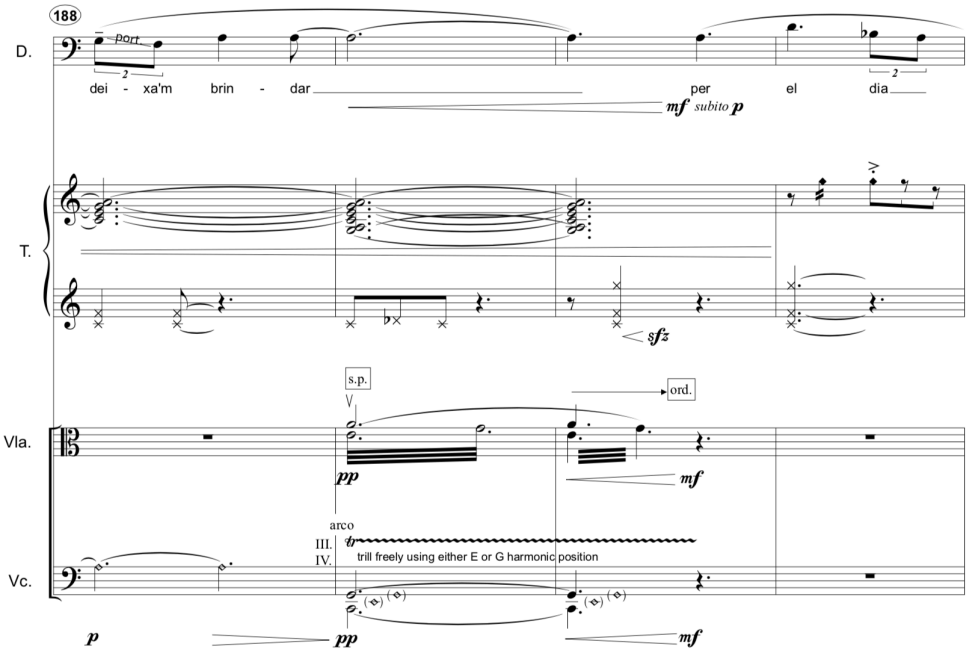

Figure 5.23: ***II. Història d'una casa,*** **bars 188-191.**

On the other hand, I considered including the type of notation used by Joan to define dynamics and the distance of the bow to the bridge.

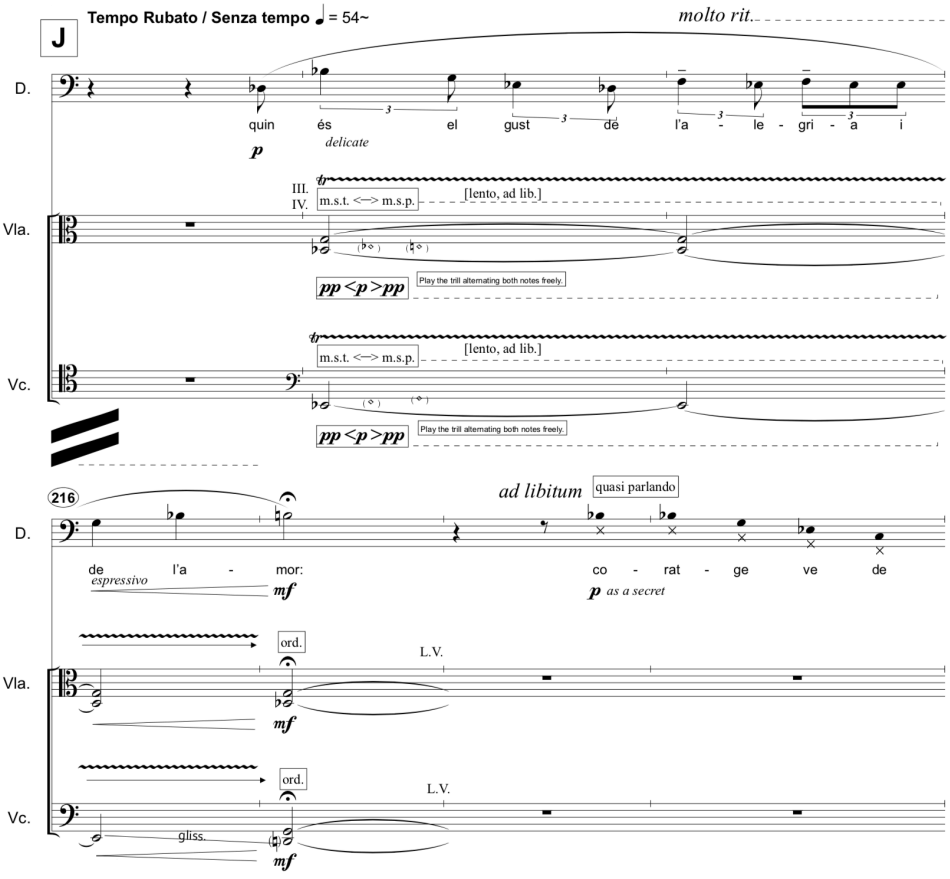

Figure 5.24: ***II. Història d'una casa,*** **bars 213-219.**

This notation gives freedom to the performer and at the same time avoids the static quality of the long notes. I found it tremendously useful for giving flexibility to the singers, especially in the second section –*Carta*– where they principally use spoken voice.

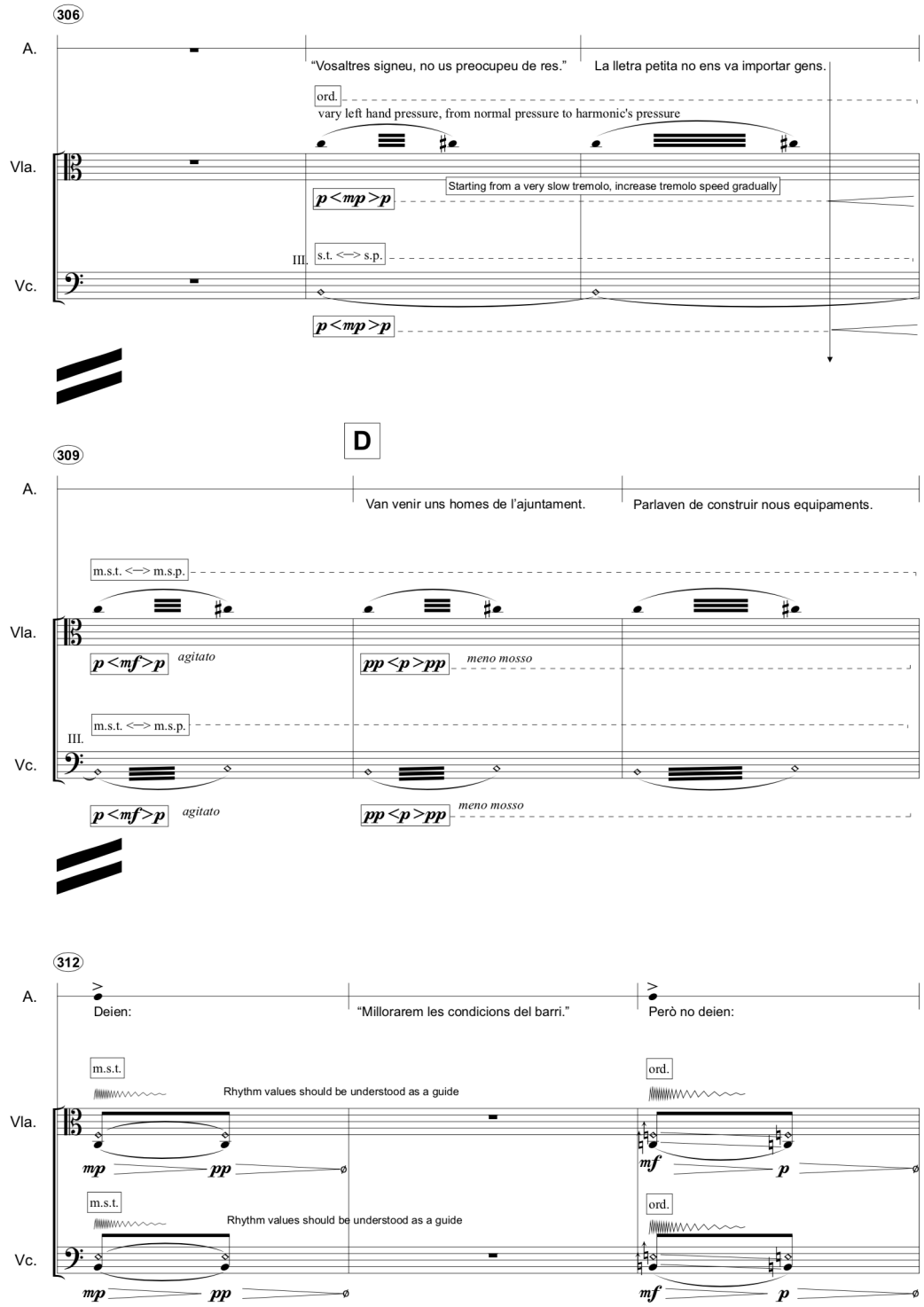

Figure 5.25: *II. Història d'una casa*, bars 306-314.

Outcome

Composing *disPLACE – Història d'una casa* had a considerable impact on my professional career. At that moment, it was the most significant opera production I had participated in –as aforementioned, it was co-produced by two important festivals: *Musiktheatertage Wien* and *Ópera de Butxaca i Nova Creació*– and the economic backing allowed for a fully professional production. Within this context, I had the privilege of working with an artistic team whose members were all accomplishing the highest standards. Professionals such as stage director Peter Pawlik, conductor Vinicius Kattah, soprano Elena Copons and baritone Sébastien Soules, among others, not only have great talent but vast experience in the world of opera.

The benefit of working with such a team was an excellent *mise en scène* and many memorable performances. As a consequence, we had further performances in Barcelona and Madrid, which was essential to achieving the new opera commission I am currently working on –for four singers and orchestra– and which will be premiered within the 2018/19 season of *Teatro Real* (Madrid).

Participating in *disPLACE* helped me to broaden my perspective of opera composition. Using performative practices like singing within my compositional process enabled me to understand the emotional issues of its characters from a wider viewpoint. Additionally, using materials from Joan Magrané's part was not just intellectually stimulating but helped with the cohesion of both halves of the opera.

Finally, this experience helped me to realise what I really missed in the creation process of this opera. As mentioned at the beginning of this chapter, I felt it would have been richer to work side by side with both the librettist and the stage director. Considering my particular approach to creation, it is essential for me to count on all the creative forces involved while the creative process is being developed. For example, the opportunity to ask the librettist to adapt some sections, or composing aware of how the *mise en scène* will be, help me tremendously to take musical decisions and create a necessary dialogue between all the disciplines involved.

CHAPTER 6 | [logolepsy / lethologica]

Introduction

logolepsy/lethologica (2016) is an acousmatic work which was commissioned by Catalunya Música Radio Station to be world-premiered within the frame of *Art's Birthday 2016*, organised by Euroradio Ars Acustica.[124] The event, which took place on the 17 January 2016, "is a celebration in memory of Robert Filliou,[125] who declared, on 17 January 1963, that Art had been born exactly 1,000,000 years ago when someone dropped a dry sponge into a pail of water."[126] The Euroradio Ars Acustica explains this ceremony as follows:

> Art's Birthday Party has never been a formal event but was always organised on an ad hoc basis through the network. Every participating location (and they are different every year) organises its own party – from a few friends in a private studio to a performance evening in a museum, gallery or radio station. The only condition is that each group be able to send and receive birthday presents for Art. Since 1994 this has usually meant using the Internet in one form or other. Filliou's invention of Art's Birthday is wonderfully absurd and humorous in the typical Fluxus tradition of serious fun. So the global birthday party for Art has always tried to be fun while paying homage to Robert Filliou's dream of The Eternal Network.[127]

The aesthetics developed in this work connect with the radiophonic imaginary. Although a substantial part of the sounds I used is captured from the radio, I do not consider this work as a radio art work as it was created with a digital audio sequencer.

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[124] "The Radio Ars Acustica Group is a forum for discussion, promotion and production devoted to radio art and sound art within the European Broadcasting Union. [It] serves as a node for the exchange of radio art productions, project proposals and the exchange of information about activities and events in media art in different countries. It stimulates and encourages discussion of current trends in theory and practice of radio art and connected fields, and the realization of co-productions between broadcasting corporations. It is strongly convinced of the necessity of an art form reflecting the development of radio and broadcasting in our society." "Radio Ars Acustica," *EBU Operating Eurovision and Euroradio*, n.d., accessed September 4, 2018, https://www.ebu.ch/groups/radio/euroradio-ars-acustica.html

[125] Robert Filliou (17 January 1926 – 2 December 1987) was a French artist associated with Fluxus, who produced works as a filmmaker, "action poet," sculptor, and happenings maestro. ("Robert Filliou," *MoMA*, n.d., accessed September 6, 2018, https://www.moma.org/artists/1873)

[126] "Art's Birthday – Euroradio Ars Acustica Special Evening," *Art's Birthday*, n.d., accessed September 4, 2018, https://arsacustica.wordpress.com/artsbirthday/

[127] *Ibid.*

Work concept

Logolepsy
(n.) A fascination or obsession with words.[128]

Lethologica
(n.) The inability to remember a particular word or name.[129]

The title *logolepsy/lethologica* is a wordplay based on the following paradox: How could it be possible that someone who is fascinated or obsessed by words is unable to remember a particular word or name? This idea is translated to musical discourse by experimenting with the possibilities of transformation and re-combination of fragmented voice structures. However, this is not the only concept which this work explores. Far from its stilted title, *logolepsy/lethologica* is an acousmatic work whose central concept is the sonic exploration of the radiophonic imaginary, through combining the human voice with sounds from analogue radio, such as interferences, glitches, static sound and short segments of broadcasted programmes.

This work aims to offer a personal view of the listener's radiophonic experience. My main inspiration came from the feeling of unpredictability that I used to have when listening to the radio back in my childhood days. I associate such a feeling to the past –as most people born up to the 1980s probably do– to the time when we could not download podcasts, nor find 'that song' on any digital platform. Listening to the radio also entailed accepting the dichotomy 'surprise-deception'. When one was expecting to listen to a particular song, one of the options was to wait for it to be broadcast and the wait becoming almost a 'faith exercise'. The alternative option was, of course, station-hopping.

Accordingly, although *logolepsy/lethologica* follows a thoughtful macrostructure, it aims to provoke the feeling of an accidental combination of materials, as would happen when flicking through different radio stations to find the programme we wished to listen to. The work, however, seeks immediate coherence in the micro-formal level and attempts to consolidate its own musical language through the

[128] *Your Dictionary, s.v.* "logolepsy," accessed September 4, 2018, http://www.yourdictionary.com/logolepsy
[129] *Oxford Living Dictionaries, s.v.* "lethologica," accessed September 4, 2018, https://en.oxforddictionaries.com/definition/lethologica

thorough combination of the contrasting elements which compose it. Its aim is to lead the listener to a subjective perception in which he/she experiences different levels of association with the recurrent materials which are used throughout the piece. The following reflection by Salomé Voegelin approaches the issue of the multiple perceptions that a listener could have when listening to a radiophonic work:

> The invisibility of radio-sound enables a multiplicity of perception. The listener becomes producer, inventing his own contingent reality between what is heard and the time-space of its perception. This innovative listening uses the darkness of radio as a cave, abundant with sound. Here, no image preserves the listener's hold on an authentic sense of reality, and thus no sense of non-reality limits his imagination.[130]

Work development

As may be noted by observing the table below, the work is made up of three main sections, the beginnings of which are always marked by the 'Station-hopping' material. Another recurrent element is the so-called 'Radio Tuning', which is normally used as transition between materials of different natures. The first section of the piece comprises three subsections which combine radiophonic and glitched materials with different uses of the human voice (whispering and singing). Here we hear for the first time the material 'Polyphonic texture – Singing voices,' which will reappear several times throughout the work, having special significance in sections I and III. The second section, however, focuses on the transformation of the sound of two films –*Lullaby of Broadway* (1945) performed by the Mel-tones[131] and the soundtrack of the documentary *Independent Radio Station* (1951)[132] – and their blending with the recurrent radiophonic sounds. The third section moves gradually from the noisy 'Station-hopping' material to a jazzy performance of the 'Polyphonic texture – Singing voices', accompanied by a drum set.

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[130] Salomé Voegelin, *Listening to noise and silence* (New York: The Continuum International Publishing Group, 2010), 38.

[131] "Soundie – Lullaby of Broadway," *Internet Archive*, n.d., accessed September 5, 2018, https://archive.org/details/SoundieL

[132] "Military training film on a New York radio station, WMCA, owned by the Nathan Straus family, showing its ownership, management and activities. Good view of radio in the era when most stations were locally owned and operated." ("Independent Radio Station," *Internet Archive*, n.d., accessed September 5, 2018, https://archive.org/details/Independ1951)

The following table aims to show an overview of the use of the different types of materials and their transformations and combinations throughout the piece:

Section	Time Sub-section	Type of material	Description
I	00'00" – 00'20" Introduction	Station-hopping (1)	Quick combination of radiophonic materials such as radio presenters' voices, jingles, interferences... Beat: Crochet=140
	00'20" – 00'57" I.1	Radio Tuning (1)	Texture formed by radio interferences, static sounds, background whispering voices. No defined beat.
	00'57" – 01'51" I.2	Whispering voices (1) Radio Tuning (background)	The 'radio tuning' material dialogues with a growing discourse of whispering voices, the nature of which is percussive (predominance of consonants). The 'radio tuning' material becomes the background and the 'whispering voices' the foreground.
	01'51" – 02'39" I.3	[Whispering voices + singing voices] dialogue with glitched sounds (1)	The 'radio tuning' disappears after a fade out. Progressive inclusion of short motives of singing voice, which are combined with the previous whispering voices. Electronic glitched sounds dialogue with the 'voice materials'. The singing materials become progressively more prominent. The discourse is considerably fragmented.
	02'39" – 02'51" II.1	Polyphonic texture – Singing voices (A)	Continuous polyphonic texture (3 singing voices), the main materials of which have already been heard, in section I.3, as brief motives. Its equalisation is reminiscent of an old radio sound.
	02'51"– 03'20" I.4	[Whispering voices + singing voices] dialogue with glitched sounds. (2) Accumulation	The polyphonic texture is abruptly interrupted by radio interference. The materials of section I.3 develop a nervous rhythmic discourse, in which we can hear something reminiscent of material II.1. This section ends with a progressive accumulation of musical ideas towards a climactic crescendo.
	03'20" – 03'23"	Silence	Silence
	03'23" – 04'09" II.2	Polyphonic texture – Singing voices (A)	Development of material II.1 (continuous polyphonic texture). Its equalisation is reminiscent of an old radio sound and progressively disappears.
	04'09" – 04'23" II.3	Polyphonic texture (A) + Percussive	Inclusion of the rhythmic materials of section I.4 in the discourse of the polyphonic texture (A). The polyphonic texture starts repeating some of its

		voices and glitched sounds.	motives in loop (the most prominent being that formed by the phonemes 'remá').
	04'23" – 05'09" II.4	Rhythmic glitched materials	Aggressive glitched sounds. Beat: Crochet=120 Dialogue with some short motives from the polyphonic material which are already known.
	05'09" – 06'10" II.5	Bass line + Glitched voices	Inclusion of a persistent bass line. Development of the materials of sections I.4 and II.3 towards a very noisy section, which collapses in a new climactic point.
	06'10" – 07'37" III.1	Polyphonic texture – Singing voices (B)	The polyphonic texture, in which three voices interlace one another by repeating a motive in a loop, releasing the previous tension. There is an increasing reverb which makes this material become progressively blurred.
	07'37" – 08'04" III.2		A sudden change in the equalisation makes the polyphonic texture sound as if it was being played through an old radio. The interferences increase progressively (transition to section II).
II	08'04" – 08'22" IV.1	Station-hopping (2)	Quick combination of radiophonic materials such as radio presenters' voices, jingles, a punchy bass sound... Beat: Crochet=140
	08'22" – 09'00" IV.2	Noisy background texture	Noisy background combined with a progressively prominent fragmented texture of glitched radiophonic sounds.
	09'00" – 09'19" IV.3	Station-hopping (3)	Development of the fragmented texture of glitched radiophonic sounds.
	09'19" – 09'31" IV.4		Transition: The fragmented texture of glitched sounds starts to be combined with short chunks of the introduction of "Lullaby of Broadway" (transition to V).
	09'31" – 09'49" V	Remix of *Lullaby of Broadway*	Remix of *Lullaby of Broadway*, in which some glitches and loops were added. An exaggerated delay filter works as transition to the next section.
	09'49" – 10'05" VI.1	Remix of *Independent Radio Station* (1)	Fragment of the soundtrack of the film *Independent Radio Station*, in which a radio presenter talks about how a radio station works.
	10'06" – 10'30" VI.2		Jazz music starts and the radio presenter continues his speech. The sound is glitched and some sections are missing, as if a record was skipping.
	10'30" – 10'43" VI.3		The radio presenter carries on talking over a new musical background. A new layer based on the light glitched sounds of section IV.2 appears. Again, the section finishes with an exaggerated delay filter.
	10'43" – 11'21" VII.1	Radio Tuning (2)	Radio interferences and static sounds are combined with glitched sounds
	11'21" – 12'00" VII.2		The previous texture is combined with various types of materials including the 'whispering voices'

			of section I.2 and short samples of *Lullaby of Broadway* and it introduces brief fragments of the voice material which will be developed in the next section.
	12'00" – 12'31" VIII.1	Polyphonic texture – Singing voices (C)	A new fragmented polyphonic texture (this time homorhythmic) interacts with already-known materials, such as the radiophonic sounds of the initial 'station-hopping' and various static sounds.
	12'31" – 13'02" VIII.2		The radiophonic sounds disappear and three voices perform a continuous discourse, which ends with a sudden interference.
	13'02" – 14'32" IX	Remix of *Independent Radio Station* (1951) (2)	The soundtrack of *Independent Radio Station* is mixed with glitched and radiophonic sounds and with samples of *Lullaby of Broadway*. Some material is looped and some is unexpectedly interrupted.
III	14'32" – 14'43" X.1	Station-hopping (4)	Periodical combination of radiophonic materials.
	14'43" –15'15" X.2	Radio Tuning (3) + Radio speaker	Radio presenter talking about *Ragtime* + Material I.1.
	15'15" – 15'35" XI.1	Polyphonic texture – Singing voices (D)	A new material created by several feminine voices develops various melodic lines which superpose each other. The sound quality is poor and there are radio interferences.
	15'35" – 16'18" XI.2		A solo voice repeats the material of subsection XI.1. Various voices develop other melodic lines, creating a complex texture.
	16'18" – 16'46" XII.1	Polyphonic texture – Singing voices (E): Three feminine voices accompanied by a drum set.	Three voices sing homorhythmically, accompanied by a drum set.
	16'46" – 17'07" XII.2		Occasionally, some radiophonic sounds interact with the voices.
	17'07" – 17'44 XII.3		Three voices sing homorhythmically, accompanied by a drum set.
	17'44 – 18'08" XII.4		
	18'08" – 18'28" XII.5		
	18'28" – 19'00" XII.6		
	19'00" – 19'23" XII.7	Three feminine voices	The drum set stops playing. The three voices sing alone, resembling a radio jingle. An unexpected interference interrupts them.

Figure 6.1: Structure of *logolepsy/lethologica*.

Outcome

Thanks to composing this work, I became aware of my predilection for creating works inspired by the concept of 'sound collage', in which I experiment by mixing sources of contrasting natures. This has actually become a very frequent procedure in my compositions (examples can be found in *stone:speeches*, detailed in Chapter 3, and *disPLACE*, Chapter 5).

Creating this piece was very stimulating for me as I could connect with the concept of 'past' through the radiophonic imaginary and especially through the inclusion of old soundtracks such as *Lullaby of Broadway* (1945) and *Independent Radio Station* (1951). Establishing contact with historical documents is also an aspect constantly found in both my musical and audio-visual works (examples include *stone:speeches* and *liquid:speeches*, Chapter 7). The graphic score of *logolepsy/lethologica* was likewise an exercise in connecting with the past as I superposed a series of documents from the plastering business that my great-grandfather owned in the 1940s, such as invoices and accounting papers. With them, I created the textures found within the rounded forms which represent the materials created by my voice. The graphic use of these materials is a metaphor for the musical work they represent as they are also *objects trouvés* organised in a collage.

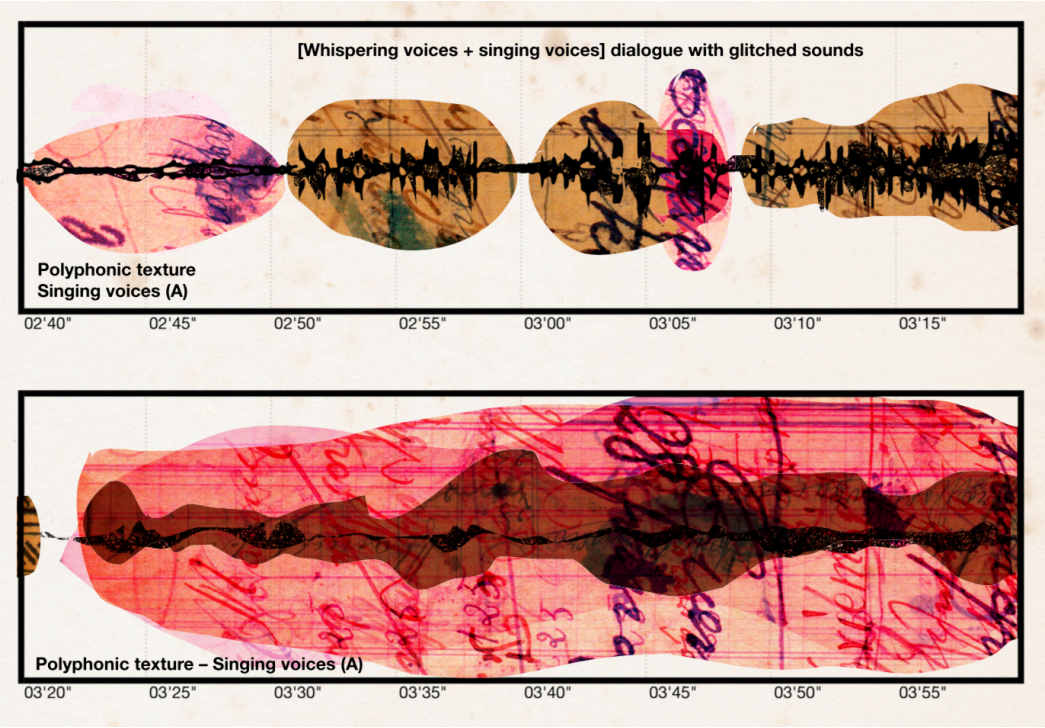


Figure 6.2: Section of the graphic score of *logolepsy/lethologica*.

CHAPTER 7 | liquid:speeches

Introduction

liquid:speeches (2016) is a five-channel audio-visual installation created in collaboration with mezzo-soprano Marta Valero. It was one of the three works that L'Auditori[133] commissioned me to do as Invited Composer of the *Sàmpler Series* 2015/16 season.[134] The installation was exhibited from the 10th of April until the 30th of June 2016 in the foyer of Space 2 (Oriol Martorell) of L'Auditori.

As mentioned in chapter 3, this is the last of the three installations which compose the cycle *material:speeches*. Contrary to the two previous (*steel:speeches* and *stone:speeches*), which examine the concept of speech from musical and structural viewpoints, *liquid:speeches* explores it through the use of an invented language (in the first half of the work) and throughout polyphonic vocal constructions (in the second half).

This work is a mockumentary[135] about fictional artist Kruppa Vänsk, who presents *her* masterpiece *liquid:speeches*.



Figure 7.1: Picture of the foyer of Space 2 of L'Auditori, where the five plasma-screens which composed the installation and their respective speakers were situated.

[133] "L'Auditori, founded in March 1999, is Barcelona's most recently created music venue and the home of the Barcelona Symphony Orchestra, the Barcelona Symphony Band and the Museu de la Música." ("About Us," *L'Auditori*, n.d., accessed August 31, 2018, https://www.auditori.cat/en/who-we-are)

[134] The other two works were *Blind Contours no. 1* (Chapter 8) and *Mikroskop #1* (this work is not included in this research).

[135] "A film or television show made in the style of a documentary to make invented events seem real." (*Cambridge English Dictionary, s.v.* "mockumentary," accessed September 1, 2018, https://dictionary.cambridge.org/dictionary/english/mockumentary)

Work concept

This installation explores humour through the genre of the mockumentary: Kruppa Vänsk is a fictional Fluxus artist whose work covers several artistic disciplines, such as performance art, sound poetry, dance, music and painting, among others. She is eccentric and narcissistic and believes that *liquid:speeches* is a masterpiece. The nature of this character was inspired by the multiple performative attributes that mezzo-soprano Marta Valero had. She is a very versatile singer who has an exceptional sense of humour and a great ability to build histrionic characters.

liquid:speeches uses an invented language, the aim of which is to make evident that it is fake. However, it is possible to decipher some of the content of the speech as the narration is most of the time reinforced by the images and the language itself contains selected words which resemble those of either Latin or Germanic root. For example, the voiceover in the opening says: "Kruppa Vänsk hest bink ia più importantischen artístiki ef epúka", meaning "Kruppa Vänsk has been the most important artist of her time." Other sentences, like "Vrákki varésis almakrúku, daméru pravákuti gárru frákku, varénskis tukutú" do not mean anything at all and their goal is to enhance phonetic aspects of human speech.

The central concepts of this work are Kruppa Vänsk's obsession with the number five and the symbolic importance of water. Her fascination with the number five is logistical: the installation consisted of 5 plasma screens of 55", arranged side-by-side (See Figure 7.1). When writing the script, I asked myself how I would justify a 'documentary' being displayed on five different screens instead of one.[136] I decided that making the number five a symbol could help to both overcome the differences between this installation and the standard format of documentaries/mockumentaries, as well as contributing to enhancing the eccentric character of Kruppa Vänsk.

[136] This genre is normally displayed in a single screen, as it is normally released for screening in TV and cinemas.



Figure 7.2: This image shows the moment in which Kruppa says "fuvva" (five). Note how she marks it with the five fingers of her hand.

The other main concept is the symbolic use of water. We find examples of it in both the *Opening* –in which we see Kruppa painting a white canvas with sea water– and in the last part of the work, in which the background that surrounds Kruppa is the texture of moving water.



Figure 7.3: Kruppa Vänsk paining "nothing" with sea water.



Figure 7.4: Example of the visual importance of water in the video of this installation.

The work is divided into two halves:

- Mockumentary[137]
    - Opening (00'00" – 01'44")
    - Interview (01'45 – 03'31")
- *liquid*:speeches by Kruppa Vänsk (03'32" – 09'18")[138]

[137] Given the fact that the mockumentary is supposedly set in 1974, the opening and the interview aimed to look like a low-budget motion picture shot with a 16mm camera.

[138] "*liquid*:speeches by Kruppa Vänsk", however, is in HD quality. Although I seriously considered continuing to apply an ageing effect, I decided in the end to maintain full quality in this section as, otherwise, it would have lost many musical and visual nuances. This section is a vocal work which explores the combination of the materials improvised by Marta.

Work development

The creative process of *liquid:speeches* involved many different stages. Creating the script, in the first place, was fundamental to structure the content of the work. Apart from the text of the *Opening* and the *Interview*, it also included information about the development of the audio and the video. For example, it indicated the channel in which each of the events occurred and other little details, like the audio glitches to be included between sequences (See Figure 7.5). This was a very effective way to overview the whole piece which helped me to coordinate all the elements involved in the work.

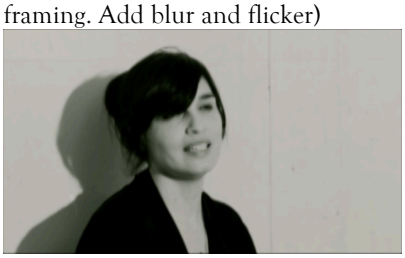
Section	Main source	Rest of the channel
Interference	(Jack cable plugging in and out)	
Interview (I) Video source (6215) Audio source (Fuvva_1#08.aif)	**[Channel-3]** *Fruvvasá Ke praka tú-tu, marekrúbata. Sánsi-vvámi-n!-katá, ás gónkis marésis daméru-wú. Pravasánski, altertrúpata, mikimausing, logolepsicus, sapiosexual·liz… Ehh (Sonido gutural como de buscar una palabra), gakrup.* (Change the colour temperature and framing. Add blur and flicker)  Visual reference: "John Lennon interview explains how he met Yoko Ono." https://www.youtube.com/watch?v=YhJIiEeMeF0	**[Rest of the channels]** Neutral backgrounds filtered as screen 3, which create different geometric shapes when assembled. Source: wooden walls of the same space where Marta performed the interview. 
Interference	(1-3, 2-4, 5)	
Interview (II) Video source (6215) Audio source (Fuvva_1#08.aif)	(*Súbito* and passionately, you express how important is number 5 in your work) **[ALL CHANNELS]** ¡*Fúvva!* **[Channel-1]** *Fúvva istz le máchinikis Núm*i **[Channel 1, 1+2, 1+2+3, 1+2+3+4, 1+2+3+4+5]** *Ön, tútu, drzaisti, quoki áin FÚVVA!*	

Figure 7.5: Section of the script.

All the film sessions with Marta took place in the city of Barcelona. Two of

them were at L'Auditori, one at the Nova Mar Bella Beach and the last one was at the theatre Els Lluïsos de Gràcia. We divided the scenes to be filmed according to the characteristics of the spaces we were in. In the case of the sessions in L'Auditori, we had good soundproofing and proper sound equipment. Therefore, we shot all the materials that had synchronised audio, such as the *Interview* and the section "*liquid:speeches* by Kruppa Vänsk". In the two other sessions, we filmed the extra materials for the *Opening* of the work.

The filming sessions which included audio recording were essential to the creation of the musical elements of the part "*liquid:speeches* by Kruppa Vänsk", which is, in fact, a piece for voice quintet. When I started recording Marta, I did not know which kind of musical discourse I would compose after her improvisations. However, I knew that, at some point, I wished to work with heterophonic textures, in which different takes of her voice would appear simultaneously through the five speakers placed across the hall. I imagined these materials as brief vocal ideas which would work as a choral response to some of the solo melodic phrases.

To develop such a texture, I asked Marta to perform each of them at least five times. Every time she sang a specific motive she did it slightly differently, changing both the voice quality and her body movements. In this way, the audio-visual dialogue between the five channels would be richer.[139] In this session, Marta also performed more extended improvisations, in which we were pursuing different types of character, timbre, phrasing, and tempo, so that I would have enough material to work on my own once the process of recording was finished.

Editing the recorded materials and creating music afterwards was a very stimulating challenge. This stage entailed different creative processes depending on the section I was working on. In the case of the *Interview*, for example, I started editing the video in order to achieve an attractive visual rhythm. The editing was not complicated as I respected the order in which Marta performed the text.

[139] The result of combining these materials can be heard from 04'02" to 04'52"

In the *Opening*, however, I started working with the audio. The sound of this section contains a male voiceover (performed by Adrián González) and a background soundtrack in which Kruppa Vänsk sings with piano accompaniment. These layers were distributed across the five speakers, resulting in the piano sound being present in speakers 1, 3 and 5[140]; Kruppa's voice in speakers 2 and 4 and the voiceover centred in the 3rd channel.

The audio quality of both the *Opening* and the *Interview* was reduced in order to create an ageing effect. Although the audio files of this part were digitally recorded, they were re-recorded using a magnetic tape to obtain a more realistic result.[141]

The process involving the creation of the section "*liquid:speeches* by Kruppa Vänsk," was more complex than the section of the *Mockumentary*. Here, the musical composition was essential to set the dialogue between the screens of the installation.

My aim was to create strong visual relationships between the five screens, reinforced by an accurate synchronisation between sound and image. However, video editing software only allows you to work on a single sequence at a time, which made it difficult to visualise more than one video simultaneously.

Thus, I found that an effective alternative way to control the visual rhythm was to emulate the space which occupied each of the screens by using the audio editing software instead. Accordingly, I set the file by creating 5 groups of 3 tracks each, as the image below shows:

[140] The piano had an Auto Pan filter which caused a continuous oscillation of its sound from left to right and vice-versa.

[141] In the 1970s, magnetic tape recorders were the standard device for recording the audio of movies.

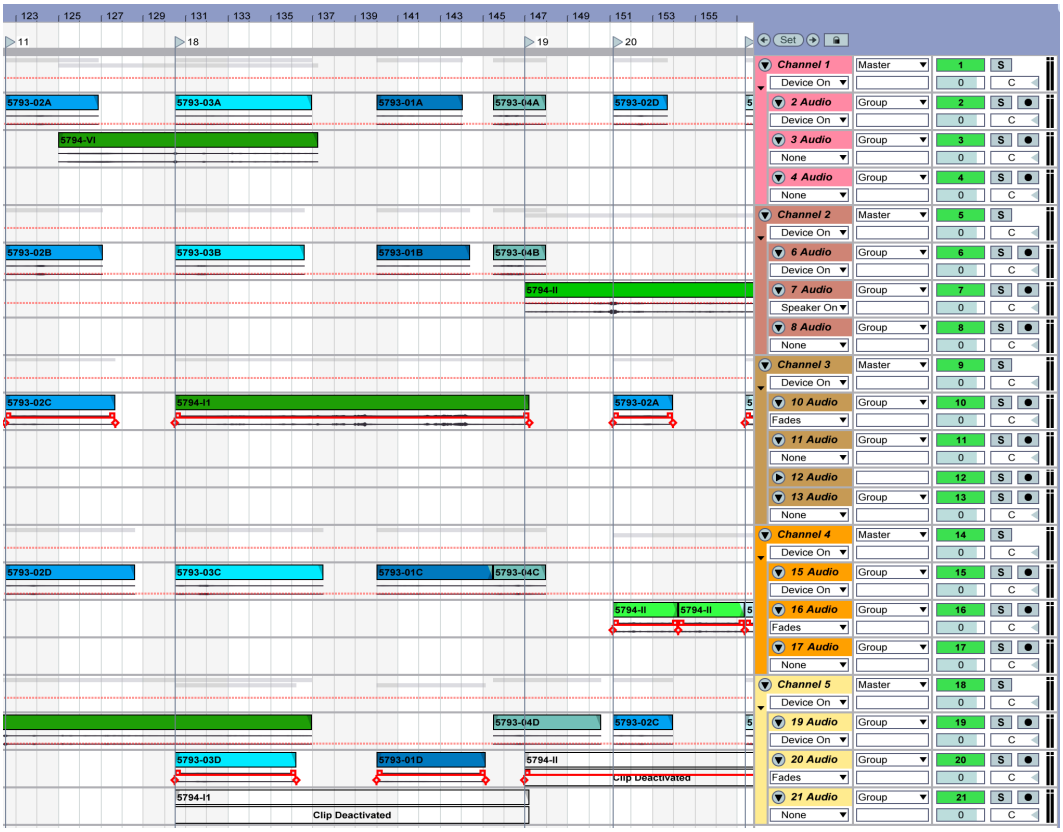


Figure 7.6: View of the audio editor which exemplifies how I distributed the music in each of the five channels of the installation.

Each of the channels was panned differently[142] in order to create a similar spatial perception to the one in the foyer.

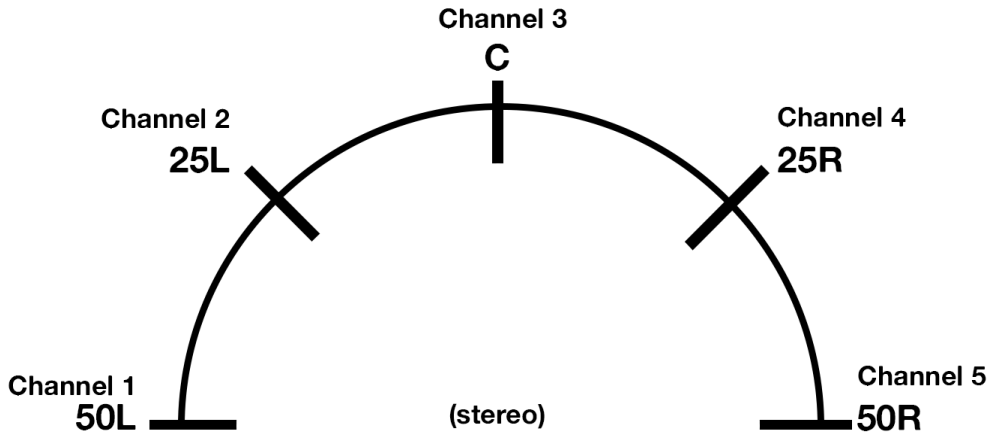


Figure 7.7: This figure shows how I panned the five channels in order to identify their location when editing.

[142] Given the fact that I edited using headphones (stereo) instead of five speakers, I used panoramic to emulate the spatial sensation of having 5 channels.

Having an acoustic spatial perception of the location of each of the channels allowed me to imagine the movement and rhythm between the five different videos, even if they were not created yet. This visualisation exercise was somewhat similar to that which I used in *Alice's Adventures in Wonderland* (Chapter 4). Here, the musical composition not only created the timeline of the visuals but determined their location in the space.

The criteria used to distribute the musical materials throughout the five different channels were directly influenced by the visual correlations I imagined creating when editing the video afterwards. The description of my working process aims to state how important the previous visual considerations were when composing the music and how the music determined the exact timeline over which each of the videos was created. As happened in *stone:speeches* (Chapter 3), the bidirectional exchange from one discipline to another was crucial in achieving the outcome I was pursuing.

Video aesthetics

This work combines two different aesthetics. In the mockumentary, the goal was to achieve a video which looked like a 16mm film. This was partly done with post-production (changing the colour temperature, adding flickers, glitches and jump cuts-[143]) but also by paying particular attention to emulating certain aspects found in the films of the 1970s, like the low-angle shot or a narrow framing when filming Marta (See Figure 7.8).

[143] "Jump cut: Unnatural, abrupt switch between shots identical in subject but slightly different in screen location, so the subject appears to jump from one screen location to another. Can be remedied with a cutaway or shot from a different angle." Chuck Peters, "Jargon: Video Editing Terms," *Videomaker,* January 1, 2004, accessed September 3, 2018, https://www.videomaker.com/article/c16/8872-jargon-video-editing-terms



Figure 7.8: Example of a low-angle shot.

The visual aesthetics of "*liquid:speeches* by Kruppa Vänsk" were not intended to seem old. Rather, they aimed to achieve an attractive visual result, which was realised by combining the following three moving layers. The background layer was a green-coloured sea which was constantly moving back and forth in a loop.

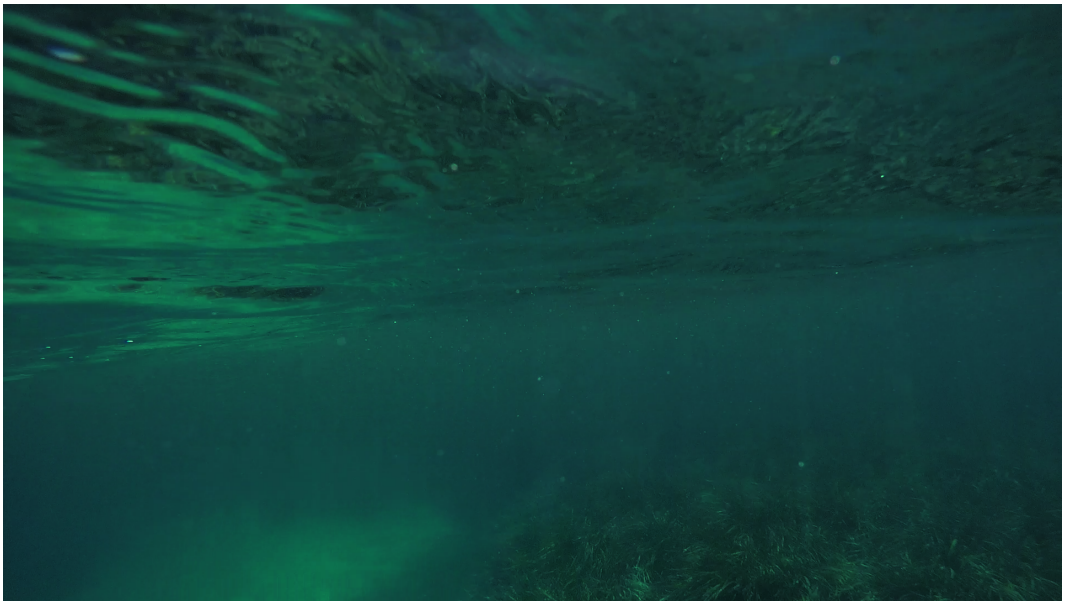


Figure 7.9: Background layer of the second half of the work.

On top of that, I added two more layers. The first was the image of Kruppa Vänsk edited in a way in which we could only appreciate the shadows (See Figure 7.10). Over this layer, I added an extra layer in which the levels of white were enhanced to result in plain colour. This layer was slightly unsynchronised with the black one and had jump cuts and short loops. The result was a very unnatural movement which was completely opposed to the fluctuating movement of the water (See Figure 7.11).



Figure 7.10: The second layer, in which only the shadows are visible.



Figure 7.11: The third layer, in which only the lights are visible.

Outcome

liquid:speeches was a new chance to continue the examination of the field of audio-visual installation. This project was especially challenging when it came to coordinating the dialogue and visual rhythm between the five screens. The possibility of panning each of the sources using the audio editing software in order to be able to better imagine the location of the visual materials was very useful in overcoming the impossibility of editing the five videos simultaneously. The constant dialogue between disciplines was crucial in achieving the result.

It was also a new opportunity to continue improving the collaborative approach which I started to develop with soprano María Hinojosa in *stone:speeches*. On this occasion, Marta Valero's participation was crucial to the development of the work. Her personality inspired the character of Kruppa Vänsk, as she proposed not only musical ideas but also performance elements which were extraordinarily expressive and effective in achieving a humorous result. As mentioned in chapters 2 and 3, composing after a performer creates material is very stimulating to me. Although I am aware that, in some contexts, this may cause some doubts regarding authorship, I hope that in all of these cases the process of recombination and transformation from the original sources is big enough to avoid any.

One of the aspects I would like to develop in my future audiovisual installations is interactivity. Recently, I have discovered the work of Mexican artist Rafael Lozano-Hemmer and have found it very inspiring. Perhaps one of his most impressive installations is *Pulse Index*, which he defines as follows:

> "Pulse Index" is an interactive installation that records participants' fingerprints at the same time as it detects their heart rates. The piece displays data for the last 765 and over participants in a stepped display that creates a horizon line of skin. To participate, people introduce their finger into a custom-made sensor equipped with a 220x digital microscope and a heart rate sensor; their fingerprint immediately appears on the largest cell of the display, pulsating to their heart beat. As more people try the piece one's own recording travels upwards until it disappears altogether —a kind of memento mori using fingerprints, the most commonly used biometric image for identification.[144]

[144] Rafael Lozano-Hemmer, "Pulse Index," *Rafael Lozano-Hemmer*, n.d., accessed February 2, 2019, http://www.lozano-hemmer.com/pulse_index.php

CHAPTER 8 | Blind Contours no. 1

> We are perhaps nearing an understanding of the meaning of chance in art. It would, of course, be unbearable if our intentions were regularly frustrated. Yet there is something terribly arid, not to say mechanistic, about the idea of a world where all our purposes result in predictable consequences, where we are completely transparent to ourselves and where intentions always result in expected actions. We value the degree of interference in intentional human activity offered by the unconscious performed 'blind'. In short, we desire to see what will happen.[145]

Introduction

Blind Contours no. 1 (2016) involves an ensemble of 16 musicians, pre-recorded electronics and video. It was commissioned by the *Sàmpler Series*[146] as a work to be premiered by the Oslo Sinfonietta on 21 May 2016.

The term *blind contour* is associated with an illustration technique that consists of outlining an object without looking at the paper. Although it is commonly used as a drawing exercise for students –as it develops observational skills and avoids the repetition of memorised drawing shapes– this practice offers expressive and relatively unexpected results that also attract professional illustrators. Given the fact that the graphical result cannot be checked while drawing, this artistic technique entails a significant degree of randomness. *Blind Contours no. 1* reflects this in the musical discourse by including chance proceedings within a controlled framework.



Figure 8.1: Example of a blind contour drawing. © Raquel García-Tomás.

[145] Margaret Iversen, "Introduction//The Aesthetics of Chance," in *Chance*, ed., edited by Margaret Iversen (London: Whitechapel Gallery and The Mit Press, 2010), 25.

[146] The Sàmpler Series is the contemporary music season held by L'Auditori de Barcelona.

Work concept

The composition of *Blind Contours no. 1* arose from the aim of using chance procedures in some aspects of my work. Although this piece could not be considered a purely aleatoric work, it is possible to identify three different levels of chance.

The first relies on the fact that the whole musical discourse, both the electronics and the instrumental part, is derived from a recording of uncontrolled sounds produced by a metallic kitchen bowl. In this case, the bowl was full of water and scratched with a fork in a circular motion for approximately 10 minutes. The editing of the recording was minimal, as I will describe later, allowing many unexpected sound gestures and harmonics to appear freely. My role, however, was to provide meaning to the sound objects which appeared by chance, and integrate them within the discourse of the ensemble.

The second level of chance is related to the open interpretation of the musical materials given to the performers. Although such materials are carefully enclosed within a harmonic, gestural, dynamic and timbral frame, the performers have some freedom in deciding how to play them. The result is somewhat unexpected, especially in terms of the micro-formal design.

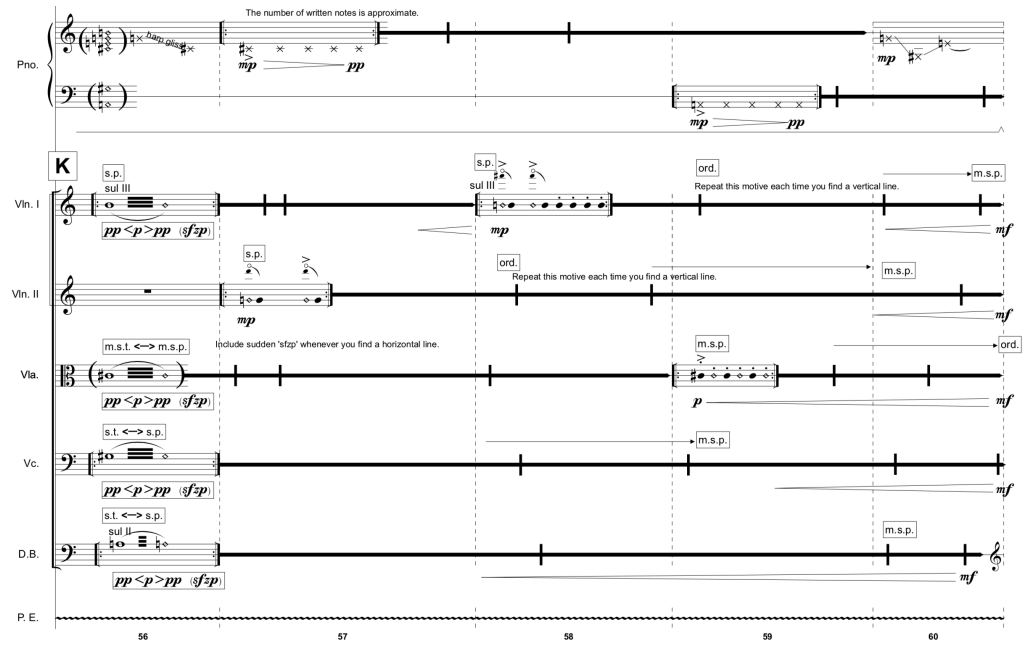


Figure 8.2: Fragment of the score of *Blind Contours no. 1* (Piano and strings section) (Bars 56-60)

The third level of chance relates to the fact that I employed some digital tools which partially cancelled my control during the process of structuring and composing the piece. In the introduction to the book *Chance*[147], Margaret Iversen labels two kinds of chance events, basing her classification on the article *Chance Imagery (1957/1966)*[148] by conceptual artist and composer George Brecht. The first type of chance event comes from what she describes as "consciously unknown causes" and the second kind "results from some mechanical operation where human agency is bypassed". Reflecting on the two types of processes coined by Iversen, I identify that one level of the chance procedures used in my work is directly related to the second kind. As described in the *Musical development* section below, some of the procedures applied to the electronics were the result of a pseudo-mechanical[149] series of operations where my 'agency' was partially 'bypassed'.

Blind Contours no. 1 also responds to my wish to explore the hidden sounds of non-musical sources in the simplest possible way or, as composer Otomo Yoshihide would say, "to find a whole world in tiny things"[150]. As aforementioned, the whole piece is based on the inaudible partials found in the harmonic spectrum of a bowl full of water. I recorded its sound by placing the microphone inside the bowl. Its gain was unusually high, in order to amplify the high frequencies that we cannot hear in normal conditions.

Making music from inaudible sounds is something widely accepted among composers and sound artists nowadays[151]. *The Sound of Light in Trees* (2006) by David Dunn, *Chants of Frozen Lakes* (2008) by Marc Namblard, *Mouvements dans une Aura Jonique* (2010) by Emmanuel Holterbach, and *Tram Vibration* (2013) by Japanese sound artist Haco are, among others, some of the many examples found in

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[147] Iversen, *Op. cit.*, 20.

[148] George Brecht, "Chance Imaginery//1957," in *Chance*. ed., edited by Margaret Iversen (London: Whitechapel Gallery, 2010), 34-45.

[149] It would not be correct to use the word 'mechanical' within a context where the software was digital. However, the procedures I applied relate to the idea of mechanism, as the software emulates mechanical actions such as the movement of a fader.

[150] Jennie Gottschalk, *Experimental Music Since 1970* (New York: Bloomsbury Academic, 2016), 64.

[151] Besides the interest shown in the present, there are shreds of evidence that this has been attractive over at least the last fifty years, as Jennie Gottschalk mentions: "After an unsuccessful effort with Pauline Oliveros to capture ionospheric sounds, called *Whistlers* (1968), Alvin Lucier tried a similar project over a decade later in *Sferics* (1981)." Gottschalk, *Op. cit.*, 70.

the chapter *Finding hidden sounds* [152] by composer and researcher Jennie Gottschalk, in her book *Experimental Music Since 1970*. The examination of hidden sounds seems to be unlimited. There are exciting examples of works which explore the inaudible, such as Christina Kubisch's *Five Electrical Walks* (2007), which is a "long-term project of making the electromagnetic fields [produced at public spaces] audible"[153] or *One Hour as a Plant* (2003) by Michael Prime, who "gathered recordings of the bioelectrical field emitted by a peyote cactus".[154] Although *Blind Contours no. 1* does not have a specifically scientific approach like Kubish's and Prime's works, it challenges the limits of human hearing as it explores sounds that are not easily heard and relocates them within the context of a concert.

Work development

Work structure

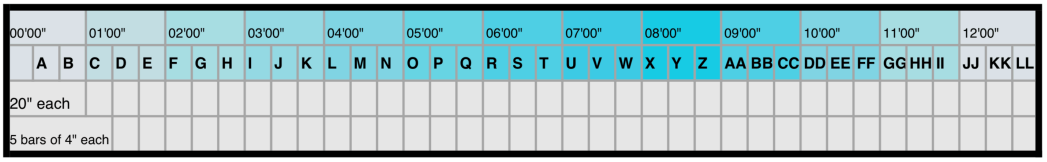

Figure 8.3: Reduction of the macro-structure of *Blind Contours no. 1*

The work is exactly 13 minutes long and its internal divisions are equidistant. As such, the piece is structured into 13 sections, each one minute long, which are divided into three subsections of 20 seconds each. As a result, there are 39 subsections with identical lengths. In a subservient level of subdivision, each of the 39 subsections are articulated in five segments of 4 seconds each, within which the motives or sound objects to be developed by the performers are inserted.

The systematic division of this work does not affect the organic nature of the musical discourse, as the fluctuant nature of its materials, as well as the multilayered texture, avoids the perception of any caesura.

[152] *Ibid.*, 64-71.

[153] *Ibid.*, 68.

[154] *Ibid.*, 69.

> The rhythm notation is relative. As such, the following information must be considered in advance: each system (or section between rehearsal marks) lasts 20". They always last 5 bars and each bar is 4" long. The work must not be understood as 4/4 quaver equals 60 but as a constant beat of 4". It should be played *Ad libitum* but always following the timing of the pre-recorded electronics.[155]

Directionality

Blind Contours no. 1 explores the linearity of all its parameters. In this way, during the first eight minutes of the piece, its growth is constant. Thus, it starts from a shallow level of energy and increases until reaching the only climax of the work, placed at the rehearsal mark X (minute 8'00"). During the remaining five minutes of the piece, the intensity of the discourse decreases –also in a gradual way– and returns to the starting point.

The fact that the musical development is utterly gradual and unusually dilated in time results in its consequences not being perceptible immediately. In other words, the listener would need some time to realise that this apparent motionless texture is, actually, an expanded crescendo. As such, one of the most notable qualities of this work is the extreme slowness with which changes happen.

In relation to the idea of linearity associated explicitly with the concept of *growth–decay*, it should be noted that such linearity is principally achieved by modifying the three following parameters: *harmony* (harmonic progression), *harmonic spectrum*, and *microform* (related to the level of activity, specific gesture and timbre of the sound objects or motivic cells within the score). These three parameters evolve in a parallel way throughout the whole work, sometimes fully controlled and other times partially controlled.

Sampling and equalisation

The harmonic structure of *Blind Contours no. 1* is achieved by applying techniques such as sampling and equalisation to the original recording of the bowl mentioned above. The result is a harmonic background that becomes the only

[155] Raquel García-Tomás, "Performance notes", in *Blind Contours no. 1*. (London: 2016).

material of electronics and over which the rest of the elements that make up the piece (ensemble and video) are organised.

The choice of using *sampling* arose from the need to transpose[156] the original recording, so the inharmonic spectrum could be approximated in the following chord:

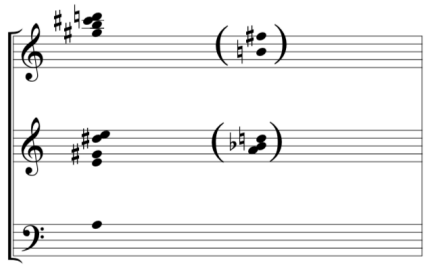

Figure 8.4: Reduction of the inharmonic spectrum of the bowl's recording.

Such transpositions followed the macro-structure of the work, which has as a result 13 different harmonic centres. These divisions are not perceptible when listening due to the continuous nature of the music, the absence of substantial abrupt changes and the linearity of the harmonic changes. However, they play an essential role in the harmonic design. In this way, each section marks the beginning of a new harmonic permutation in which the pre-existing harmony gradually moves to a new harmonic set. To create the final harmonic structure, four different layers in which the original sample was played at different speeds were superimposed. (See figures 8.5 and 8.6).

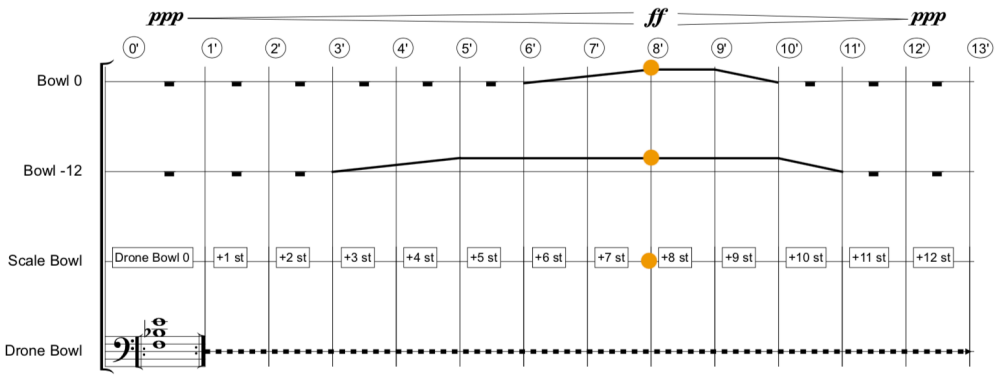

Figure 8.5: Draft of the work's structure and layer's transposition.

[156] Transposing allows the sample to be played at a different pitch with a changing playback speed. In this way, the samples become more dilated or compressed.

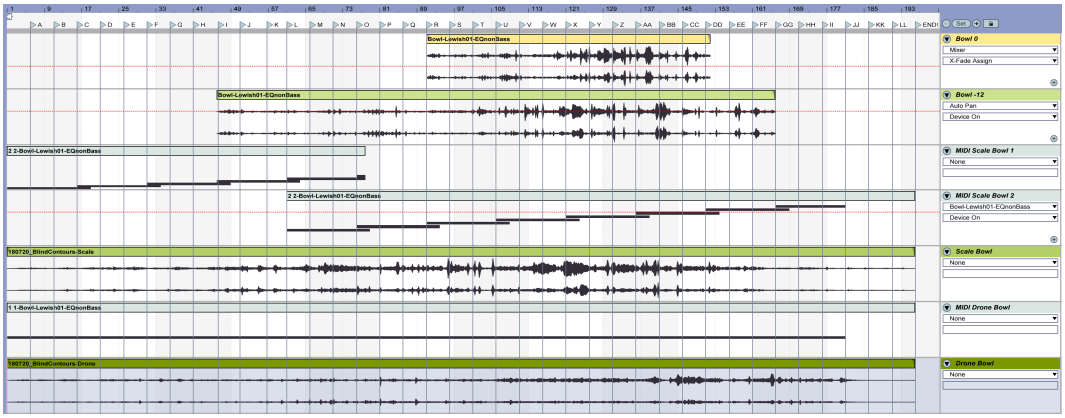

Figure 8.6: View of the 4 different layers and their respective audio exportations.

One of the layers with which the work begins is the so-called *Drone*, in which the original sample sounds 34 semitones below its original pitch and, as a consequence, is played almost three times slower. This layer is low and constant, and it coexists with the rest of the tracks during the whole work. Its sound is not interrupted at any time, which means that its melodic and harmonic material always respects the original recording.

The layer called *Scale* is the main one responsible for the harmonic permutations[157]. In this layer, the bowl recording is cyclically transposed 13 times. Starting with the same transposition of the track *Drone*, the sample moves up one semitone each time as a new section begins. Its goal is to reach its upper octave when arriving at the 13th section of the work.

Besides *Scale*, there are two more layers involved in the construction of the climax: *Bowl -12* and *Bowl 0*. The track *Bowl -12* sounds one octave below the original and *Bowl 0* is the bowl's actual recording, which is finally revealed near the climax. Because *Bowl 0* is not transposed down like the rest, this is the one which sounds the highest and, following the logic of sampling, is played the fastest. Its greater movement helps build tension at the climax of the work.

Linear equalisations were applied to filter the high and medium frequencies of each of the four harmonic layers described above. As the image below shows, the

[157] Harmonic permutations always take place during the first 20 seconds of each section, by using the glissando option of Ableton Live's Sampler. This option allows changing from one fundamental to another by gradually varying the playback speed within a preset time –in this case 20 seconds.

gain of the medium and high frequencies is negative infinite (- ∞) when each of the tracks start. As the tracks develop, the gain of both ranges of frequencies moves up –always following a linear automation– with the medium frequencies being the first ones to change and the high frequencies the last.

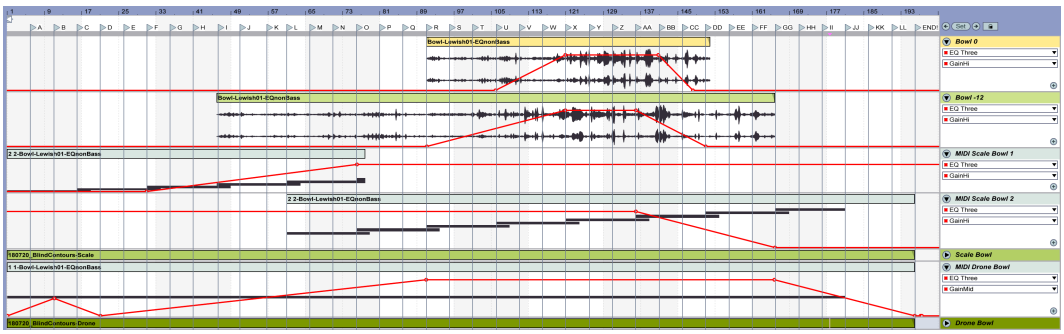

Figure 8.7: Equalisation automations of the electronics of Blind Contours no.1

The obvious consequence of this procedure is the gradual enlargement of the harmonic spectrum as the climax approaches, resulting in a progressive shift of its timbral qualities to the brightest partials of the bowl's recording. However, applying linear equalisations had other exciting results, such as modulating the harmonic density, controlling the levels of rhythmic activity towards the climax and filtering the harmony of each of the tracks. In other words, it produced an uncontrolled emptying of the initial harmonic materials. Although the design of *sampling* and *equalisation* was controlled within a macro-formal structure, its outcome was full of unexpected micro-formal events that became the principal materials of the ensemble.

Transcription and scoring

Once the process of the composition of the electronic part was finished, I transcribed the resulting harmonies that predominated in each of the thirteen sections of the work. Given the fact that the blending of the four layers and its equalisation resulted in a very complex harmonic environment, my transcription was approximate and involved identifying those frequencies which were discernible then shaping the results intuitively.

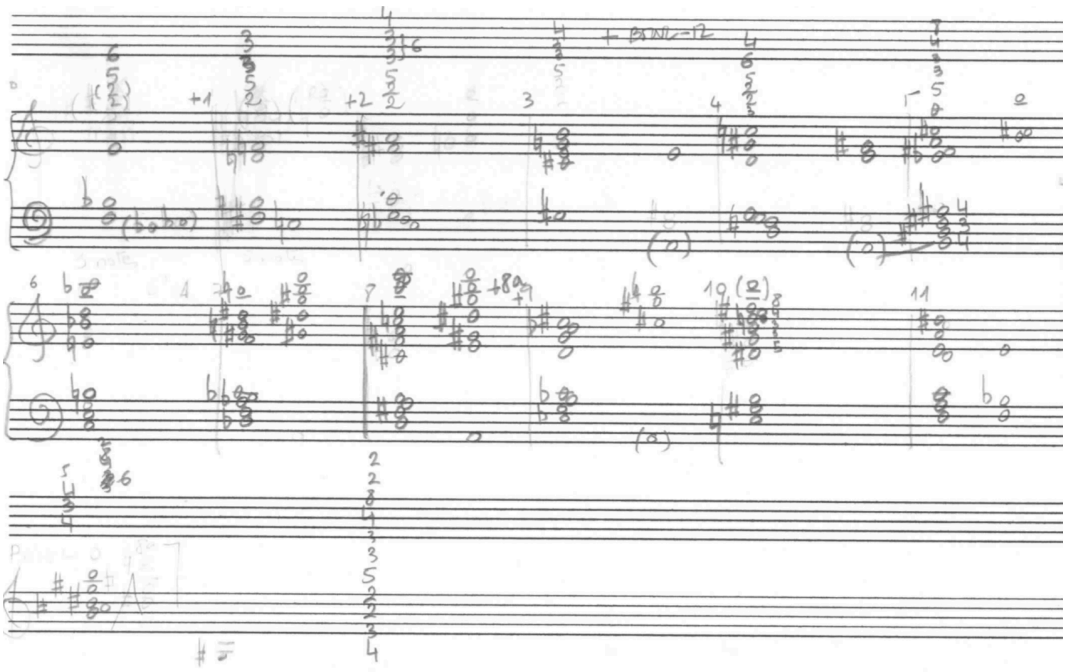

Figure 8.8: Sketches for the instrumental part of *Blind Contours no. 1*

I also transcribed the sound objects that configured the electronics, following the adaptation of Schaeffer's typomorphical analysis of sound objects approached by Norwegian composer Lasse Thoresen, who "intends to develop Schaeffer's approach in the direction of a practical tool for conceptualising and notating sound quality"[158]. I learnt this notation technique in 2007 when Lasse Thoresen was my teacher in Barcelona. Since then, I have found it incredibly useful, as "it introduces a set of graphic symbols apt for transcribing electroacoustic music in a concise score."[159]

[158] Lasse Thoresen, "Spectromorphological analysis of sound objects: an adaptation of Pierre Schaeffer's typomorphology", in *Organised Sound 12 (2)*, 129. Cambridge: Cambridge University Press, 2007. Accessed June 18, 2017. https://doi.org/10.1017/S1355771807001793

[159] *loc. cit.*

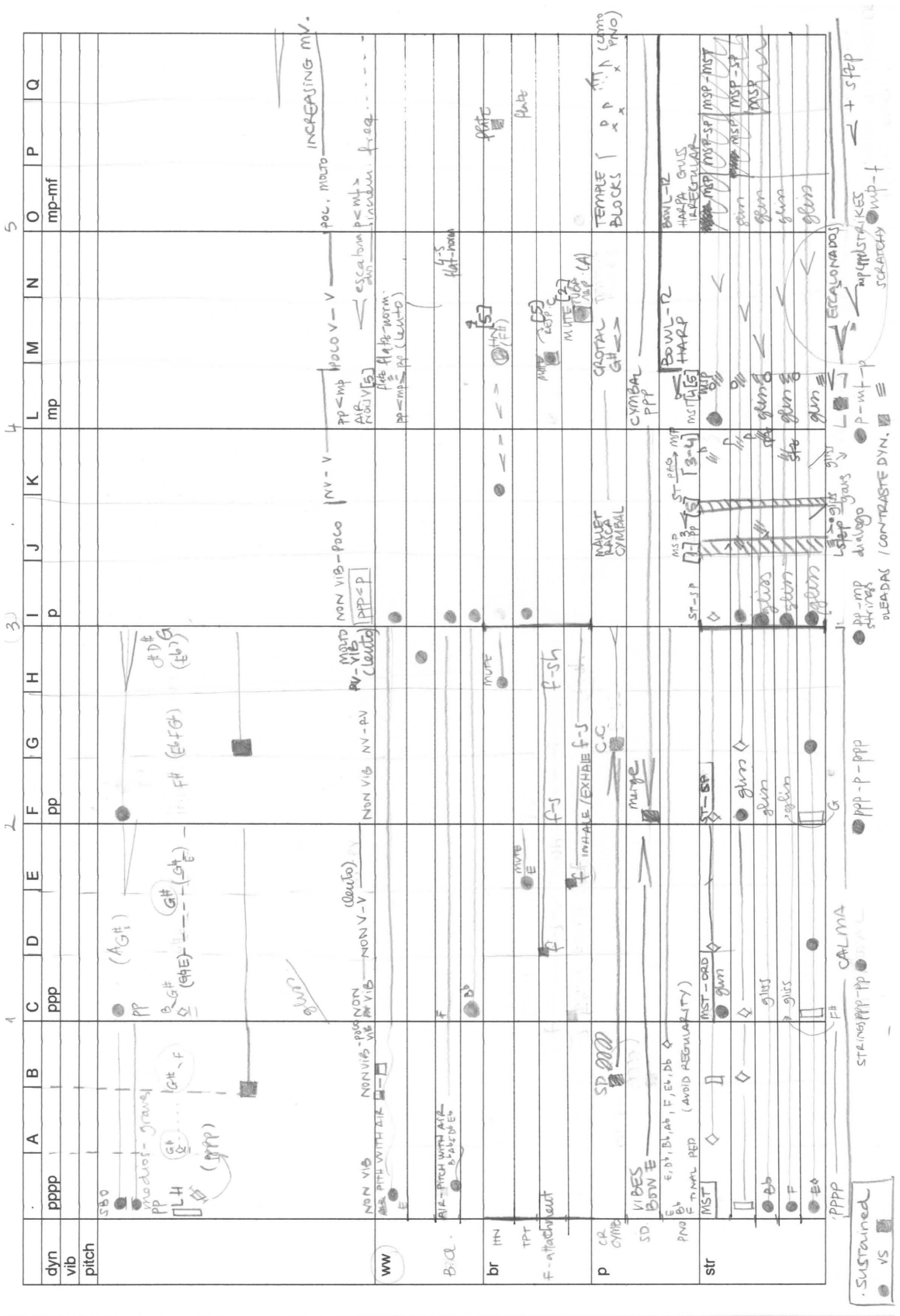

Figure 8.9: Spectromorphological analysis of the electronics of *Blind Contours no. 1* (sections 1–5)

Besides using the spectromorphological analysis technique for transcribing the tape of *Blind Contours no. 1*, I incorporated Thoresen's notation technique (brackets) into the instrumental score.

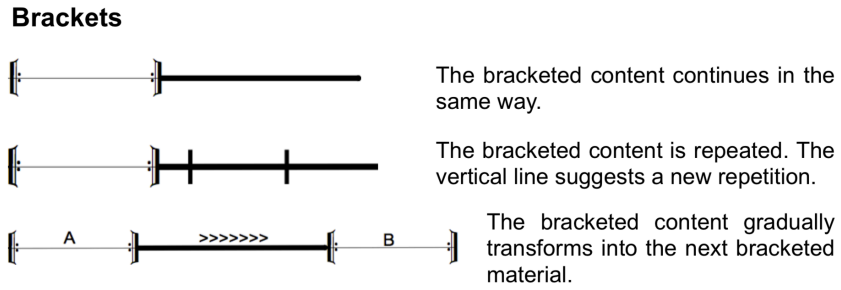

Figure 8.10: Performance notes explaining the types of transformations of the bracketed contents.

Another notational device which helps to allow the performer to have more freedom to make choices is what are called 'Parameter boxes', a type of notation that I have already used in some sections of *disPLACE* (2015), in Chapter 5.

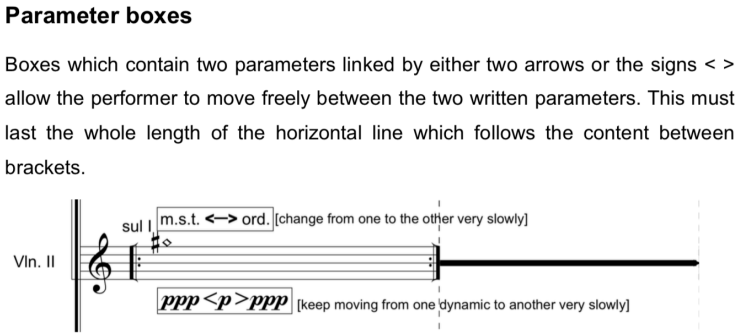

Figure 8.11: Parameter boxes explanation

In short, *Blind Contours no. 1* "explores the coexistence of the ensemble and the electronics, and the performer's creativity. Both the conductor and the performers should understand the written materials as an opportunity to explore their own sound by creating a dialogue with the rest of the ensemble and the pre-recorded electronics."[160]

[160] Raquel García-Tomás, "Performance notes", in *Blind Contours no. 1* (London: 2016)

Video

The video of *Blind Contours no. 1* follows the same principles of the musical part: linearity and an apparent lack of motion are the traits which inspire the development of the images that constitute it. As in the electroacoustic part, the video consists of the superimposition of four transparent layers grouped into two main layers.

The background was created by combining two transparent images which are continuously dragged along the screen from the beginning to the end of the work. In this way, *Background A* moves from the bottom to the top whereas *Background B* does the same in the opposite direction. The result of the superimposition and contrary movement of the two layers is, again, an almost static coloured texture which evolves imperceptibly.



Figure 8.12: Result of the superposition of *Background A* and *Background B.*

The foreground consists of a semi-transparent roll which moves from the bottom to the top at a different speed to *Background A*.

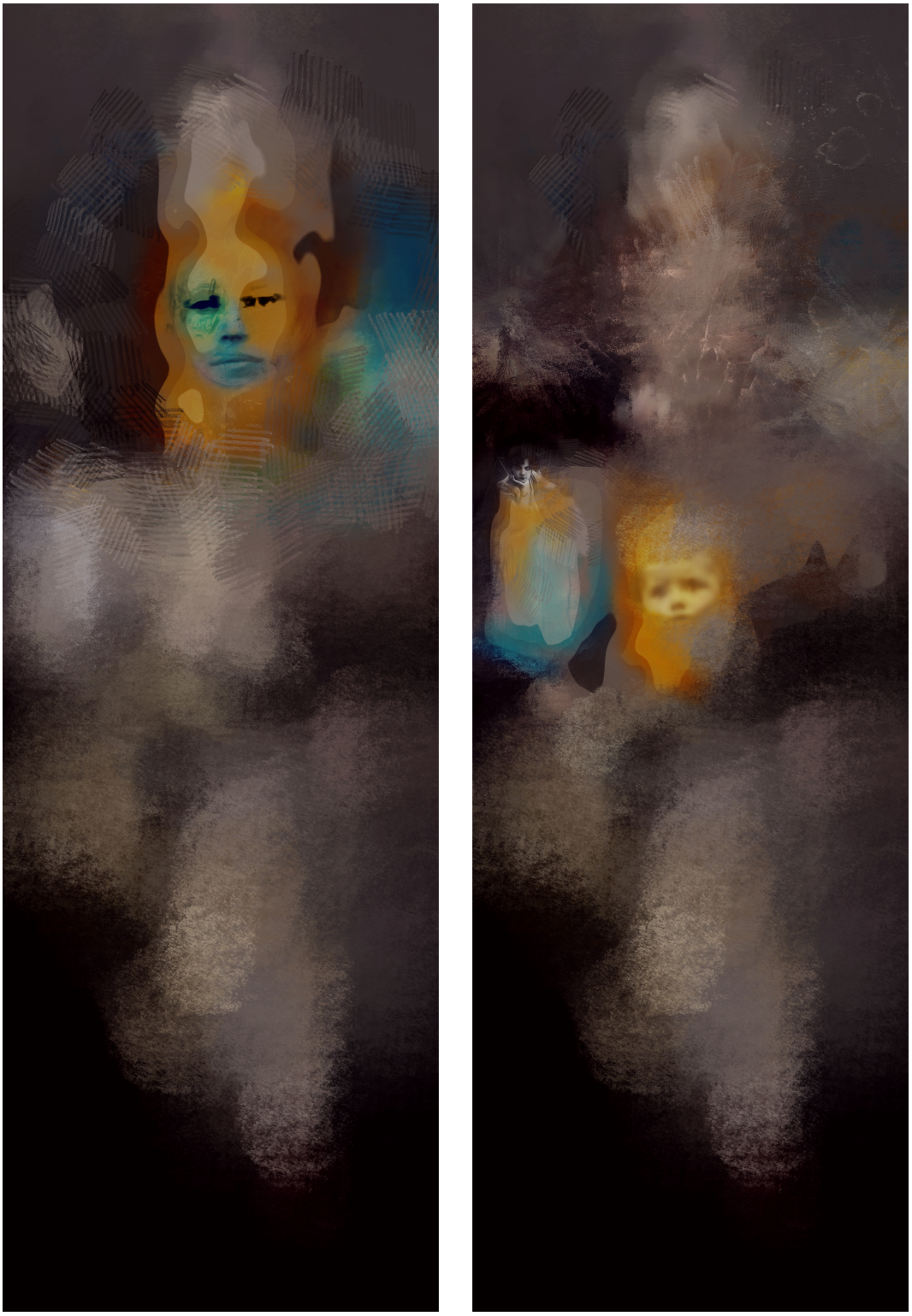

Figure 8.13: Two frames of the foreground's 'roll layer'.

This layer explores different degrees of outlining in a series of transformed old portrait pictures and works as a free interpretation of the *blind contour* drawing technique. Its behaviour is different from the background layers. Whereas the textures of the background are revealed throughout the whole work, the foreground

is only visible when the electronics show a significant level of activity. The foreground flickers in a synchronised way with the random sound objects of the electronics. The following image shows the development of the foreground:

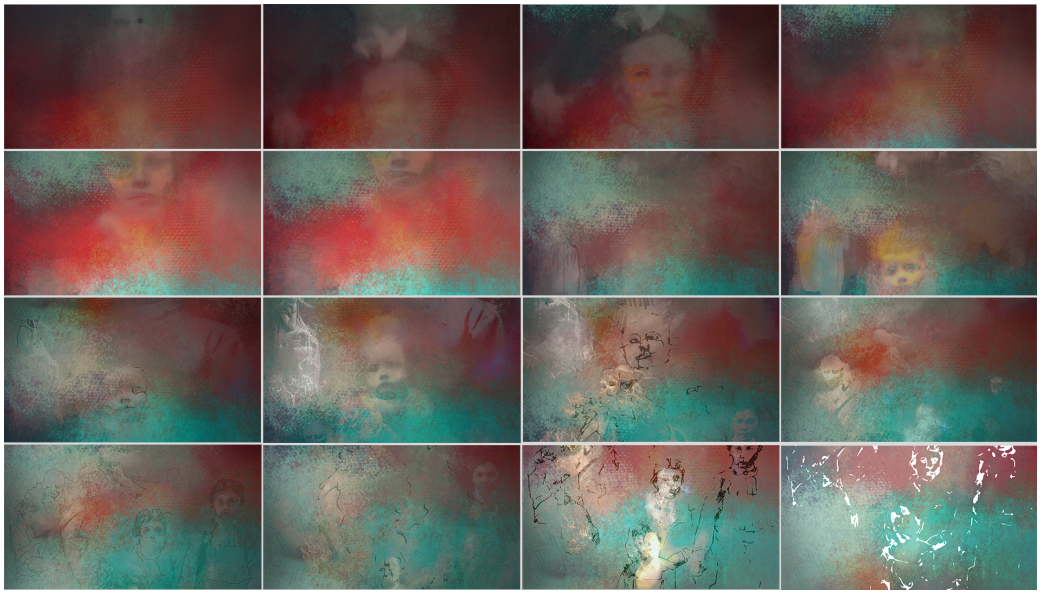

Figure 8.14: Sequence that shows the ascendant movement of the foreground. Frames are taken at intervals of approximately 30".

Outcome

In *Blind contours no. 1*, I was able to examine four aspects which I wish to continue exploring in the future. The first is my relationship with chance procedures. The idea of relinquishing control of some parameters of my music has become more attractive to me over the last few years, especially since I started my doctoral research. Chance opens the door to the unknown and challenges me to embrace unexpected possibilities of sound which, once grasped, become part of my musical knowledge.

The second is related to the idea of using an everyday-use object such as a kitchen bowl, giving a new sonic dimension by 'relocating' it from the kitchen to the concert hall. I consider such decontextualization as *virtual*, as the bowl is not played on the stage itself in the way Cage [or others] would have approached it.[161]

[161] Examples of works by Cage which include everyday-use objects in their scores and use them as musical instruments are *Construction* (1939-1941), *Imaginary Landscape no. 2* (1942) and *Cartridge Music* (1960).

Instead, the sound bowl is sampled, transformed and woven into the fabric of the score, becoming the seed of the work.

The third aspect I have approached in this composition is the harmonic and gestural development of the *hidden* or inaudible sounds which arise from the spectrum of the bowl. It has contributed to developing my awareness of the environment that surrounds me, something which has become increasingly attractive to me.

The fourth aspect concerns time dilatation and gradual change. Although this approach is not common in my compositions, I find it tremendously inspiring and I wish to explore it in the future. Many questions regarding listener perception have arisen from the composition of *Blind Contours no. 1*, such as: did the listener perceive such dilation? How did his/her attention oscillate throughout the performance? How did the video influence the listener's time perception? Did the moving images promote a different temporal feeling from that which would have existed without the video?

The answers to these questions remain subjective to the specific listener's experience, but the possibility of setting up situations which lead to multiple responses is extremely attractive. The following statement by Michael Pisaro addresses the issues which interest me here:

> In our music, the listener's time and musical time meet halfway. The music, by taking its course, by being always on its way but never in a hurry, redirects the feeling of time. [...] Sound needs time to reveal itself. Sound and time are thus interwoven: sound rides on time and acquires its identity; time is marked by sound, and becomes perceptible.[162]

[162] Michael Pisaro, "Time's Underground," *Wandelwiser,* June 1997, accessed June 30, 2018, https://www.wandelweiser.de/_michael-pisaro/texts.html#Times_Underground

Conclusion

During the course of this research, I sought to define a series of practical strategies which would help me to undertake the composition of eight interdisciplinary works. Through the evaluation of the substantial changes that occurred within my composition practice as a consequence transferring methods from one discipline to another, I noticed that I adopted a series of recurring strategies, as outlined in the following four points:

1. Foreseeing the sequence of practical steps to follow throughout the composition process; that is to say that reconsidering one's procedures was very effective when choosing the most suitable methods according to the disciplines involved in the work. For example, in the case of the opera *disPLACE* (chapter 5), my approach was mainly performative, rather than purely conceptual (I sang and recorded the whole opera myself and composed the instrumental music after the recordings of my performances), whereas in the case of *Blind Contours no. 1*, I developed the work according to a theoretical perspective based on a pre-defined macrostructure, as detailed in chapter 8.

2. Another efficient strategy used in several of the works included in this examination was that of 'translating' the formal structures of the other artistic disciplines involved into musical parameters. For example, in *[co][hes][ion]* (chapter 1) I composed a significant part of the music by translating the choreographer's steps into sound materials, while in *stone:speeches*, one of the main musical ideas was generated by transferring the letters and punctuation marks of two texts into sound objects. This type of reciprocal relationship not only influenced the conceptual aspects of my work but proved very effective in achieving a high level of unity and coherence between all the forces involved.

3. In terms of collaborating with other musicians (especially performers), we carried out our work together by following a bidirectional exchange of information. As defined in chapters 2, 3 and 7 (those related to the works *Wondjina*, *stone:speeches* and *liquid:speeches*, respectively) the performers

contributed a considerable portion of the materials included in the project and I reinterpreted their ideas by transforming, combining and formalising them into either a concert work or an audio-visual installation. Although this procedure initially took me out of my comfort zone, it was an excellent way to develop my musical language in ways I would never have done if I had not worked with them.

4. In the case of the audio-visual works, which entailed significant synchronisation of the music and the video, the musical discourse marked the timeline according to which I created the visuals. For example, in *Alice's Adventures in Wonderland*, I first created the music by imagining the subsequent animation of the video, to ensure that each of the visual events to be highlighted by the pianist would be within a quantised tempo fraction. In the case of *liquid:speeches*, the musical composition not only created the timeline of the visuals but determined their location in the space. In order to overcome the impossibility of editing five videos simultaneously, I panned a stereo set up into five specific space locations to be able to imagine the movement and rhythm between the five different screens which composed this installation.

Although the choice of works assessed in this examination was dictated by the aim of offering a meaningful variety of disciplines, this investigation did not intend to be axiomatic as its findings responded to my own sensibility and the type of interaction established with the artists I worked with. The current practice-based research intended to contribute to the increasing number of investigations related to the field of interdisciplinary composition by giving a series of strategies which may be useful for researchers and composers working within this area. Further research into this field needs to continue to be carried out by composers in order to assess case studies which approach the various creative strategies that a project involving many artistic disciplines can employ.

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