

Composition

Portfolio

Christopher Frank Mullender

PhD

University of York

Music

December 2014

Abstract

This folio is comprised of nine electroacoustic compositions for multichannel presentation. They are linked together by their shared concern with micro- and macro-structural relationships between sonic layers, similar use of space (particularly Simon Emmerson's 'soundfield frames'), and exploitation of process departure or interruption.

Chronic Pulsatile Tinnitus uses saxophone and percussion recordings to address the above compositional concerns. *BCN* comprises three works, *Barbecued Spanish Builder*, *Cerveza Beer* and *Siren*, which explore interactions between field recordings and those of bass guitar and drums. *Mr President* uses vocal recordings of phrases taken from Barack Obama's election victory speeches to examine sequence verticality, while *Nothing But Sky*, *BCN Metro*, *Digital Fun Pen* and *Ahlan Wa Sahlan* offer approaches to field recordings within the contexts of the issues common throughout the folio.

It is imperative that these pieces are listened to in their specified multichannel formats, as opposed to on a stereo system. This is to ensure the listener's identification of sonic layers, which is not satisfactorily achievable over a headphone or two-speaker setup.

List of Contents

Abstract	2
List of Contents	3
List of Figures	4
List of Accompanying Material	5
Acknowledgements	6
Author's Declaration	7
Chapter 1: Contextualisation	
1.1 Introduction	8
1.2 Micro- and Macro-structural relationships	11
1.3 Process Disruption	12
1.4 Use of Space	14
Chapter 2: Piece-specific Compositional Rationale	
2.1 <i>Chronic Pulsatile Tinnitus</i>	19
2.2 <i>BCN</i>	21
2.3 <i>Nothing But Sky</i>	26
2.4 <i>BCN Metro</i>	29
2.5 <i>Mr President</i>	33
2.6 <i>Digital Fun Pen</i>	38
2.7 <i>Ahlan Wa Sahlan</i>	42
Conclusion	48
List of References	50

List of Figures

Figure 1: Spatial arrangement of *Chronic Pulsatile Tinnitus*

Figure 2: Simultaneous temporal variation in *Chronic Pulsatile Tinnitus*

Figure 3: Spatialisation of *Nothing But Sky*

Figure 4: Spatialisation of *BCN*

Figure 5: Spatialisation of *BCN Metro*

Figure 6: Mono split stage 1 in *BCN Metro*

Figure 7: Mono split stage 2 in *BCN Metro*

Figure 8: Spatialisation of *Mr President*

Figure 9: Double stage spread in *Mr President*

Figure 10: Loudspeaker setup for *Digital Fun Pen*

Figure 11: Stage locations of 1st, 6th and 7th movements of *Ahlan Wa Sahlan*

List of Accompanying Material

1 Data DVD+R disk, formatted to be read on a Windows PC, containing the fixed media compositions that constitute this folio, organised into the following folders. Each folder contains mono 48 kHz 16 bit .wav files named according to the loudspeaker through which they are to be played. Jpeg illustrations in each folder provide instructions for loudspeaker placement, with channel numbers indicated.

Chronic Pulsatile Tinnitus

BCN

Nothing But Sky

BCN Metro

Mr President

Digital Fun Pen

Ahlan Wa Sahlan

Acknowledgements

I want to give thanks and show appreciation to those who have given their time, energy and money to ensure that I have been able to complete this PhD. Firstly, I will be forever grateful to Professor Ambrose Field, who has not only given me invaluable supervision for this body of work, but has also been a truly inspirational mentor throughout my composition studies at undergraduate and postgraduate level.

Thank you to all whose voices and instrumental performances appear in these compositions. This includes but is not limited to Frederic Rzewski, Michael Parkin, Ricardo Alvarez, Rafael Karlen, Callum Spiers, Tristan Landymore, Caolan Keaveney, Susan Boateng, Simone Ibbetts-Brown, Alex Brandsen, Douglas Spaniol, the Heyari family, the sellers at Barcelonetta Beach, and the lovely Bedouin woman who I met at Petra.

The financial support of my father and intellectual support from my mother have given me the stability that I have needed to embark on this research. My wife Nada has been my rock throughout this process and I dedicate this folio of compositions to her.

Finally, my long-time friend, Edward Fisher, has been a very useful sounding-board and enthusiastic supporter of my compositions.

Author's Declaration

I hereby declare that all material comprising this folio has not been submitted for another academic award at this, or any other institution, prior to December 2014. *Digital Fun Pen* was submitted to the Oxford Sennheiser Music Prize 2014. The work is my own, except where otherwise referenced.

Introduction

1.1

The purpose of this document is to provide supporting commentary outlining my conceptual thinking that informed the creative process in these compositions. Compositional approaches and concerns that are evident throughout the folio include micro- and macro-structural relationships between sonic layers, disruption of compositional process, and multichannel presentation, with particular reference to Simon Emmerson's 'soundfield frames' (1998: 138).

One of the chief musical explorations of these compositions is that of interaction and simultaneity between sonic layers. Rather than be focused on timbral and morphological characteristics of sound within contexts such as spectro-morphology (Denis Smalley, 1986) and narrativity (J.J. Nattiez, 1990), I would position my compositions more in line with layering techniques such as those that have been apparent since the early *musique concrete* works. An early example is Pierre Schaeffer's *Étude aux chemins de fer* (1948), with a more recent instance being Frank Zappa's technique of juxtaposing unrelated sonic material, known as 'xenochrony'.

While Frank Zappa was clearly interested in relationships between xenochronised recordings, by not compositionally engaging with the "sensitive, interesting interplay" (Zappa, 1979), he leaves space for further exploration of sonic layering through techniques such as rhythmic extrapolation.

These works are also guided by my interest in the departure from or interruption of an established compositional process, which is also present in pieces by Pierre Boulez, Sever Tipei and Gary Lee Nelson.

My approach to spatial music makes reference to Simon Emmerson's observations on the way sonic events are grouped according to three 'soundfield frames': 'stage', 'arena' and 'landscape' (1998: 138). I focus chiefly on the 'stage' frame, assigning sonic layers to static areas within the soundfield created by the loudspeaker arrangement, so that their structural relationships can be perceived within a spatial context.

It would also be appropriate to mention at this point Pauline Oliveros' concept of 'deep listening'. One can draw a parallel between the deep listening practice of 'exclusive listening' and Emerson's 'stage' frame, while 'inclusive listening' resonates with the 'landscape' frame. These ideas are also applicable to my technique of gathering the recorded material used in many of the pieces in this folio. For example, while in Barcelona and Jordan, having conducted recordings of interesting sonic situations ('inclusive listening'), the gestures that were extrapolated were often those identified after several instances of listening to the recording ('exclusive listening'). Examples include the 'click' in *Cerveza Beer*, wind interference in *Nothing But Sky*, and certain English words in *Ahlan Wa Sahlan's* final movement.

All of the field recordings that I have used for these pieces – with the exception of *Digital Fun Pen* – were taken using either the voice memo function on an iPhone or the PCM Recorder application for an Android smartphone. The conceptual reasoning for using low-quality recordings can be described using the phrase 'unexpected sonic beauty': while on holiday in Barcelona and Jordan I did not expect to take recordings for use in my compositions. Therefore, when I encountered a sound that I found interesting, I used the only recording device that I had with me: my mobile phone. What sets this approach apart from the work of artists such as Chris Watson, Francisco Lopez and Luc Ferrari, who use high quality recording equipment, is that their focus is the sound recording itself, whereas my pieces seek to extrapolate the sonic content using instrumental layers and compositional techniques that distract the listener from the original experience that I had when hearing the sounds in their live context. I am not proposing that low quality recording is a prerequisite for my work. Because of the impossibility of recreating the sonic environments in order to take high quality recordings, and the fact that my focus is on how the recordings are treated compositionally, the audio quality threshold for my work is lower than that of Watson, Lopez, Ferrari etc. Access to better quality field recording equipment would have presented more opportunities for compositional extrapolation, but given that these composers are more concerned with the presentation of sonic environments, my interactive approach to field recordings (such as rhythmic extrapolation) does not necessitate the same spectral and dynamic diversity of audio file.

Despite permission being granted from most of those whose voices appear in the recordings used in this folio (such as Frederic Rzewski and Michael Parkin for *Digital Fun Pen*), there remain some instances where it is not possible to locate the relevant contributors. Examples of recordings taken without express permission from the subject include Gavin Bryars' *Jesus' Blood Never Failed Me Yet* and Luc Ferrari's *Presque Rien 1*, laying a precedent of ethical validity in using these recordings in a creative context.

The intended presentation of the works that comprise this folio is a space in which loudspeakers surround that audience, with as little as possible non-speaker emanating sound (preferably acoustically-treated with this in mind). This is key in order for the listener to be able to be fully immersed in the sonic arena that the loudspeakers create, so that the sounds' spatial origins can be perceived. Without this, the structural and spatial relationships that are central to my compositional aesthetic would be compromised.

1.2 Micro- and macro-structural relationships

One of the main compositional concerns that this folio seeks to explore is the relationships and interactions between sonic layers. These relationships are considered in terms of micro-time interactions – in rhythmic contexts (*Digital Fun Pen*) and those where concepts of beats and bars do not apply (*Ahlan Wa Sahlan*) – and broader timescales (*Barbecued Spanish Builder*).

Xenochrony and other forms of layering

Frank Zappa’s “chance procedure” (Watson, 1996: 182) of presenting multiple unrelated recordings inspired my compositional approach with regards to layering, and serves as an example for macro-structural relationships. Examples of xenochrony in Zappa’s music include the of overdubbing a recording of a guitar solo on to a drum part from a completely different song (such as *Friendly Little Finger* on Zappa’s 1976 album *Zoot Allures*), and the juxtaposition of a bass solo onto a drum recording from a different session in *Rubber Shirt* from his 1979 album *Sheik Yerbouti*. A clear example of this technique in my work is application of the bassoon layer in *Barbecued Spanish Builder*, which is taken from a recording session for an unconnected piece and placed so that its interactions with the other layers are non-orchestrated.

Another example of a compositional technique that deals with sonic layering is ‘stream-form’, developed by Julio d’Escrivan and Monty Adkins in their group FUSIL+. While “intricacy and interplay” (d’Escrivan and Adkins, 2014: 7) between sonic layers is important to these composers, the focus on sonic transformations (Ibid.) departs from my compositional aesthetic, given that the layers I use are more timbrally static. Furthermore, the fact that stream-form is defined as “the result of introducing musical layers that overlap or are concurrent to some extent” (Ibid: 6) indicates that the relationships achieved through the simultaneous presentation of layers are of less importance to d’Escrivan and Adkins than they are for me.

1.3 Process disruption

A common element present in these pieces is the interruption of, or departure from compositional processes.

In order to contextualise this compositional trait I will examine some existing approaches to process disruption. Firstly, algorithmic composition, such that is prevalent in the computer music world, has little or no composer interference after the point at which the process has been applied to a sound or series of sounds. Moving towards process disturbance, Pierre Boulez uses, yet simultaneously departs from, serialism.

The essence of Gary Lee Nelson's *Fractal Mountains* (1988-89) is the sonification of a fourth degree fractal subdivision of two lines whose resulting image is akin to a mountain range. Because of the relationship between the MIDI wind controller and fractal algorithm – “the major features of this tonal landscape are controlled by notes played by a MIDI wind controller” (Nelson, 1996: 111) – there is some degree of departure from the algorithm-based compositional process. The piece is not merely produced by feeding sound into an algorithm: the algorithm responds to signals generated by the MIDI controller.

Further process departure is evident in that Nelson introduces “special rules” (Nelson, 1996: 112) to limit the extent to which the algorithm is triggered, according to the length of time between each note played by the wind controller. His reasoning for these rules is a clear sign of poetic individualism:

“Short time periods (< 400 milliseconds) between notes in the solo part overburdened the accompaniment algorithm and synthesizers and produced objectionably thick textures. Long time intervals (> 20 seconds) caused correspondingly long accompaniment gestures during which the soloist lost control over the evolution of the piece” (Ibid.)

Sever Tipei's *Manifold Compositions* are predominantly lacking in process departure, given that the quasi-serigraphic approach (*Manifold Compositions* website) is led by a computer process that is not interfered with after the point at which the sound is fed into the process. However, the inclusion of “elements of indeterminacy” (Ibid.) in the programming,

resulting in slightly varying incarnations of each ‘manifold composition’, demonstrates a desire to at least develop the process if not completely interrupt or depart from it.

Two examples of Pierre Boulez demonstrating process disruption are his *Second Sonata for Piano* (1948) and *Le Marteau Sans Maître* (1955). His disruption in the sonata of his chosen pitch structuring process, serialism, is described by Dominique Jameux: “the original series is broken up... with additional pitch permutations within one of the permuted groups” (Jameux, 1991: 242). *Le Marteau Sans Maître* extends process departure to include structural interruptions. The inclusion of the “disruptive gesture of abrupt and repeated silences” (Ibid: 293) interrupts the process of quasi-continuous “metrical ‘scansion’ on the percussion” (Ibid.). Boulez’s reason for employing interruption, according to Jameux, is to elicit “active participation” (Ibid: 298) from the audience. This interference with established structural processes results in a “rich ambivalence” (Ibid: 297) that keeps the listener guessing, the prime motivator for my use of process disruption.

Process disruption is a concern that regularly guides my composition, resulting in each piece being littered with examples, whether they are micro-structural interruptions of rhythmic patterns or decisions to extend existing structural forms, such as my use of adaptive xenochrony (see compositional rationale for *BCN: Barbecued Spanish Builder*).

Due to the potentially infinite number of examples of compositional processes, the listener could identify all manner of subtle departures. Similarly, a composer could identify a process interruption that is not necessarily obvious to the listener. For example, my adaptation of Frank Zappa’s xenochrony can be seen as a process that determines the structuring of much of the material throughout this folio. However, examples such as the coda in *Cerveza Beer* and the bassoon layer in *Barbecued Spanish Builder* demonstrate the use of xenochrony in the form that Zappa developed. The logical conclusion of this ‘departure from departure’ is that by presenting an uninterrupted process within the same folio (and, indeed, piece, in the case of *Cerveza Beer*) as its abstracted offspring, lack of disruption is in itself disruption.

1.4 Use of Space

The idea of presenting sound in a multi-channel format has been a significant force in electroacoustic music since the early 1950s. 1951 saw Pierre Schaeffer's studio engineer, Jacques Poullin, develop the *potentiometer d'espace*, a sound diffusion technique based on a four channel playback system (Poullin 1953, as cited in Manning, 2006: 87). Other works that pioneered this form include John Cage's *Williams Mix* (1952) and *Octet I for Eight Loudspeakers* by Earle Brown (1953) and Stockhausen's *Gesang der Jünglinge* (1955-1956) (Manning, 2006). This format has been employed by electroacoustic composers working with fixed media – such as the aforementioned works – and also combinations of live instruments and playback, such as Willem Boogman's *Sternenrest* cycle for ensemble, computer and Wave Field Synthesis (2007-2008).

The primary focus of multi-channel diffusion in electroacoustic music is to immerse the listener in sound rather than have the audience direct their attention to a specific point in a concert hall. The purpose of this is either to act as a visual/imaginative motivator (i.e. transporting the listener to a space other than that in which they are listening to the work¹), or to diffuse sound so as to surround the listener in a more abstract and less conceptually restricted manner. For example, Cage's *Williams Mix* contains material that is not implicit of any specific acoustic or location, but invites the listener to enjoy the spectral variety of the material.

According to Emmerson (1998: 138), there are three defined areas of interest, or 'soundfield frames' in which a sonic 'event' is contained: landscape, arena and stage. The "landscape" frame can be explained using Natasha Barrett's analogy of sitting in a park, listening to 'everyday' sounds: "the park has a physical boundary fence, but no sonic boundary, and so the space extent ends beyond the fence in our *imagination*" (Barrett 2002: 313). Moving the listener's focus closer, the "arena" frame contains a sonic boundary. Continuing with Barrett's example,

¹ World Soundscape Project's *The Vancouver Soundscape* (1973), for example.

“Place a busy main road about 500 metres away. You can’t see the road, because it is obscured by trees and bushes, but the sound from the road now places a clear perimeter on our previously expansive idea of the space” (Ibid.).

Finally, Barrett adds a “low-flying helicopter and a more distant passenger plane” (Ibid.) to the analogy, which, because they direct the listener’s attention to a specific point in the space, illustrate the “stage” frame. Emerson uses the Vancouver Soundscape Project as an example of the landscape frame and, due to the inclusion of additional material that was not in the original recordings of Vancouver, a “near-stage arena” is added (1998: 138).

In concerts involving a performer, the attention of the audience is directed to a clear audio-visual event: the performer on the stage (both literally and metaphorically). However, in purely fixed-media playback situations the listener can create their own stage, such as by focusing on processed spectra rather than a sound from a recognisable source. Emerson asserts that in John Cage’s *Roaratorio* “there is clearly no distinction between stage and arena” (Ibid.). Because the listener’s attention is constantly being diverted from one “stage” to another - whether it is a violin melody or a spoken passage - and distracted by unrecognisable and at times cacophonous spectra, this piece is indeed an example of “stage” and “arena” being explored simultaneously.

These two frames can be found in all of the compositions in this folio, with the landscape frame also being applicable to *BCN*, *Nothing But Sky*, *BCN Metro* and *Ahlan Wa Sahlan*. Sonic events are grouped spatially with very little movement around the listening space, resulting in layers having clear spatial origins. These ‘stages’ interact with each other to create an ‘arena’, which is defined as the identification of a boundary inside of which the focus is purely on the sonic events comprising the stages. The listener’s identification of these stages is critical if structural relationships between layers are to be perceived. The ‘landscape’ frame refers to the extrinsic extra-musical connotations of layers, such as any locational, cultural, emotional or political implication (respective examples being *Cerveza Beer*, *Ahlan Wa Sahlan: Zaffaat* (2nd Movement), *Barbecued Spanish Builder*, *Mr President*).

At this point I should explain my use of the terms ‘intrinsic’ and ‘extrinsic’. In using these terms I am placing my work in the context of Natasha Barrett’s (2002) definitions. “The

‘intrinsic’ is the spectrum, its morphology, and the structural organisation concerning the spectral evolution as a series of frequencies and articulations” (Barrett, 2002: 314), while the ‘extrinsic’ is the “sound’s capacity to imply, to refer, or to associate with something other than empirically present in the spectrum” (Ibid.).

Returning to examples of works that have similar approaches to space to the pieces in this portfolio, Boogman’s *Sternenrest* combines acoustic diffusion with the electronic by placing the ensemble in an external circle outside a loudspeaker set-up, out of which material processed through a computer is played. There are resonances of this technique in *Chronic Pulsatile Tinnitus*, in that the listener is surrounded by an ensemble, albeit a virtual ensemble, with processed material combining with the ‘clean’ sounds of the instruments. However, what sets this piece apart from *Sternenrest* is that the processed material is derived from, and in some cases inextricably linked to the clean material. For example, there are textures and rhythmic lines that are the result of putting saxophone recordings through various effects and played back alongside the unprocessed material.

Comparisons between *Vancouver Soundscape* (1973) and some my compositions can be drawn. While R. Murray Schafer was concerned with communicating the sonic characteristics of a specific location (Vancouver), I have sought to explore the sounds of places such as Barcelona (*Cerveza Beer*, *BCN Metro*, *Nothing But Sky*) and the Jordanian cities of Amman and Petra (*Ahlan Wa Sahlan*). The key difference is that I have used this locational implication as a context within which these sounds interact in ways that they did not at the time of recording. Although the inclusion of additional material that is either processed or not pertaining to the field recordings in *Vancouver Soundscape* demonstrates some degree of locational abstraction, Schafer’s work is not concerned with specific interactions between the sonic layers.

Michael Clarke’s *Enmeshed* cycle of works for acoustic performers and live computer processing presents “multi-layered contrapuntal textures that envelope the audience” (*Enmeshed I and II* website). When compared with the works in this folio that are concerned with instrumental recordings (*Chronic Pulsatile Tinnitus*, *BCN*, *Nothing But Sky*, *Ahlan Wa Sahlan: 3araaqa* (4th Movement)), the interplay between instrumental and non-instrumental sounds illustrates a similar compositional approach. However, this is where

the similarities end. In Clarke's work, the live musician performs on a stage, outside the diffused soundfield. This presents a spatial discord with the processed material, because the acoustic sound occurs outside of the space in which its computer-processed sonic offspring resides. When the audience's attention is focused on the performer, the integrity of the arena created by the diffused material is broken. If this was Clarke's intention, it illustrates a difference in compositional approach to that present in my work. In my compositions all events occur within the same arena (the soundfield created by the loudspeakers). The effect of this is to utilise stages created by grouping instrumental layers so that there are points in the arena that give the impression of there being a musician, while maintaining the spatial integrity of the arena by keeping the listener's attention within it. While it would be convenient to draw comparisons between the 'multi-layered contrapuntal textures' of *Enmeshed* and the layer interplay in my pieces, the inescapable difference is that this example, along with all other cases of layering or collage, is not concerned with the specific relationships between stage-located layers.

My use of several concurrently-operative Emmersonian stages that interact within a multichannel arena is to some extent similar to Hans Tutschku's *Klaviersammlung* (2011). Translated as "piano collection", it is a sixteen-channel piece that consists of "un-pianistic sonic expressions" and their "transformations" (*Hans Tutschku's website*). The work was inspired by the composer walking along a hallway past a series of "desolate pianos from different centuries" (*Ibid.*) at the University of Cologne. The collection of sounds is played back by sixteen loudspeakers laid out in a 'double octagon' configuration, one circle of speakers inside the other. This layout is arguably intended to allude to the experience of being in the hallway in question, creating an 'arena' in which the processed and unprocessed piano 'events' are intertwined. This experiential presentation results in the listener being drawn towards multiple stages as and when the source of a sound event or series of events becomes apparent. Stage identification is achieved through the clarity of the unprocessed material resulting in the listener easily making the connection between the sound and its origin. The processed material also retains a strong link with the source audio because the effects used, such as time-stretching, reverb and filtering, do not mask the overtones of the scratched piano strings to such an extent that the sonic source is unrecognisable. However, while Tutschku has opted to engage in spatial movement of the

stages, I have kept them static. This is to ensure that the juxtaposition of layers and the resulting structural relationships are the main focus; if there was spatial movement these interactions would be less noticeable.

Chapter 2

Piece-specific compositional rationale

2.1 *Chronic Pulsatile Tinnitus*

This work, for tenor and alto saxophones and percussion, was conceived to bring the saxophone into a stylistic domain in which it is rarely a dominant force. In a nod to metal bands that have used saxophones, such as Shining (Norwegian)², Yakuza, Wrnlrd, Nachtmystium, Ephemeral Duath, and Lugubrum³, *Chronic Pulsatile Tinnitus* distills ‘saxophone metal’ to its essence by creating a soundworld that is clearly rooted in metal, while foregoing guitars (bass or otherwise).

With the majority of examples of saxophones in metal there is either a reluctance to let the instrument dominate the guitar-based soundworld – Lugubrum’s *De Vette Cuecken* (2004) and *Heilige Dwazen* (2005) as examples – or reluctance to stray from tonal harmony and include extended techniques and/or processing. The two main exceptions to the second reluctance are Yakuza and Shining, whose highly-proficient saxophonists (Bruce Lamont and Jørgen Munkeby respectively) firmly enter the experimental realm.

However, these two bands are still insistent on a guitar-based sound. Shining take a step away from an exclusively guitar-led setup in their extensive use of synthesizers, but there still lacks a ‘saxophone only’ approach. This is the stylistic hole that *Chronic Pulsatile Tinnitus* seeks to fill.

The clearest example of juxtaposed layers in this piece occurs between 3:25 and 4:11. The musicians, Ricardo Alvarez (tenor) and Rafael Karlen (alto), were instructed to improvise in as manic and extrovert a style as possible, fitting the extreme aesthetic I was aiming for in the piece. Each solo is interrupted by single-note interjections according to the rhythm of the snare drum. Without these two layers being heard concurrently, the listener’s attention

² There are two bands with this name, one being a ‘progressive black metal’ band from Sweden, and a Norwegian setup who deal in ‘Blackjazz’ (a reference to their 2010 album of this title). I only refer to the Norwegian Shining.

³ There are myriad examples of saxophones in metal, but these are notable examples from the heavier end of the spectrum. List compiled with help from Tom Brandow’s 2011 article ‘Heavy Metal’s Alright (If You Like Saxophones)’ on the website *Invisible Oranges*.

would be firmly on the solos, as is the case in more common instances of saxophone-oriented pieces. The pulsating single-note rhythm moves the focus from the solo to its relationship with the underlying rhythmic material of the work. Each layer having its own Emersonian ‘stage’ helps the listener distinguish between the two.

The simultaneous temporal variation between 2:16 and 2:59 of the rhythm shown in Figure 1, whose silences create the rhythm of the solo-interrupter, helps to expose this important motif. The two variations operate with the cymbal playing the triplet-crotchet-quaver version and the heavily processed saxophone layer in stages 5 and 6 (see Figure 2) containing the double-time variant.

Figure 1: Simultaneous temporal variation of motif that generates solo section sub-layer.

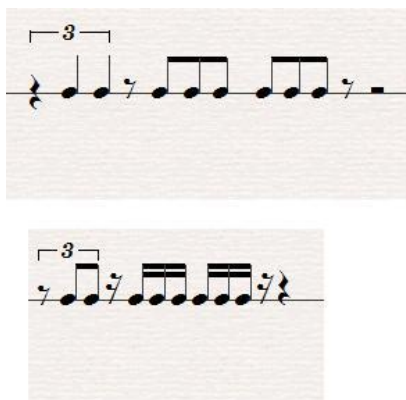
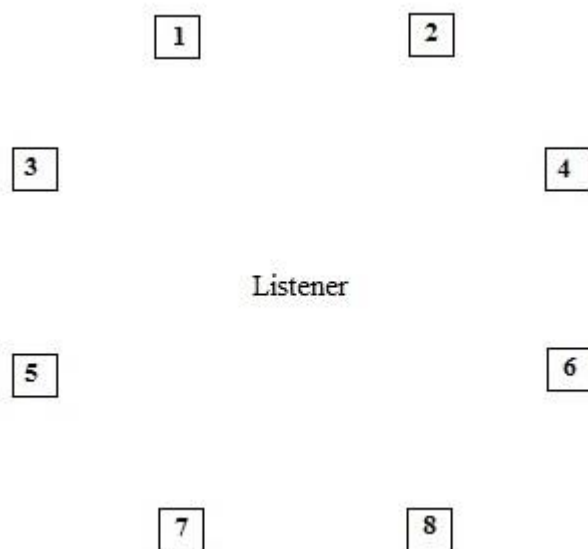


Figure 2: Spatial arrangement of *Chronic Pulsatile Tinnitus*.



The slower incarnation of this motif that is played by the cymbal contributes greatly to the intended aesthetic of the piece. It is one of the slowest-moving layers, and its insistent nature, along with the harsh frequencies of the cymbal, create an abrasive aural assault on the listener. This is reflected in the title of the piece.

CPT is spatialised according to Figure 2: the drums are situated as a stereo image across the front two speakers, tenor and alto saxophones occupying channels 7 and 8 respectively, with channels 3 to 6 dedicated to processed and rhythmic accompanying saxophone material. The effect of this is to place the listener between the interacting layers, each having a dedicated ‘stage’ in the space.

2.2 BCN

BCN consists of three pieces: *Cerveza Beer*, *Siren* and *Barbecued Spanish Builder*. They are grouped together due to their similarities in compositional approach, aesthetic style and spatial arrangement. Bass guitar, live-recorded drum samples and field recordings – taken in various locations in Barcelona – form layers whose rhythmic and spatial relationships are explored. The addition of bassoon recordings on *Barbecued Spanish Builder* was a late decision, with the realisation that material used for a previous piece (not part of this folio), written for bassoonist Doug Spaniol and entitled *Otorrhagia Pt.II*, would work perfectly in the abrasive soundworld of *Barbecued Spanish Builder*. In the words of Frank Zappa, the bassoon makes a “great noise” (1989: 144).

As there is no particular order in which these pieces are to be heard, I will discuss the compositional rationale behind *Barbecued Spanish Builder* first because of the bassoon introduction above.

When I was visiting Barcelona in 2013, I was awakened one morning by the sound of heavy-duty drilling and construction work in the apartment below. Understandably I was not best pleased, although this anger⁴ was quickly replaced by fascination with the repetitiveness and industrial frequencies emanating from the floor. After having recorded these sounds, experimenting with some basic time-compression revealed a captivating rhythm formed by the sped-up pneumatic drill and spade-on-rubble scraping sounds. Translated to a kick drum, this became the ‘bedrock riff’ of the piece. It is worth noting here that any slight discrepancies between the new rhythmic layer and its field recording ancestor can be put down to subtle process disruption: I dispensed with exactitude in favour of a groove that satisfied the ‘metal-head’ in me.

Once this rhythm was created, it was applied to the medium of the bass guitar. Minimal pitch movement maintains the focus on the pounding rhythm, with the descending five bent notes adding a sense of direction to this extrapolated layer. Instead of being exposed as a statically repeating motif, this bass riff gradually accelerates from a very slow beginning and does not unite with the kick drum until the return of the bedrock pattern at 3:54. This

⁴ Hence the rather unpleasant title.

directional temporal variation not only indicates eventual arrival of rhythmic unity, but serves as a further extrapolation of the initial field recording layer.

The timbral processing and structural choices concerning the bassoon multiphonics and glissandi can be viewed in terms of the exploration of structural relationships between sonic layers through adaptive xenochrony, as well as process disruption. *Barbecued Spanish Builder* is created by the establishment of the rhythmic layer (comprised of both field and instrumental layers) with the concurrently-operating bassoon layer being slightly 'quantised' to fit structurally with its sibling. To have foregone the 'quantising' process, thereby merely placing the one over the other would have been a simple reapplication of Zappa's xenochrony in *Rubber Shirt*, so I chose to subtly depart from this process. The addition of timbral processing on the bassoon sounds illustrates my desire to exaggerate the sonic qualities that led me to combine these two layers. This act was not an intrinsic part of the process of xenochrony; in fact, by highlighting the similarities of the xenochronised materials, I have begun to obscure the layers' 'xenotic' qualities.

The intended effect on the listener in *Barbecued Spanish Builder* is similar to that of *Chronic Pulsatile Tinnitus*. I wanted to create a sonic environment that reflected the experience I had of being woken up by abrasive noises. This is manifested in the harsh sounds of the source recordings as well as the distortion applied to the bass guitar and bassoon layers.

This process of quantising is extended in *Siren*. Here, a recording of a Spanish ambulance underwent minor structural editing in order to create a metric framework for the piece. In the original recording, the ambulance approaches and passes, resulting in the middle few iterations being louder than those before and after. This led me to select the occasions where the siren dominated the ambient city noise sufficiently in order to result in a sample that was focused on the siren itself. The effect of this was to maintain the chronological integrity of the source recording, an important decision given the presence of several rhythms that are only loosely related to the siren. Without this regard for the integrity of the original recording, the extensive simultaneous extrapolation would sever the ties between the instrumental and siren layers.

After having exposed the siren layer and set up the metric framework, the rhythmic interplay between the drums, bass and 'buitar'⁵ takes precedence, with a period between 2:15 and 3:40 in which the siren is cut according to the rhythm of the kick drum. This can be seen as a structural extension of a side-chaining or 'ducking' compression technique. *Siren* ends with a metric variation, led by a re-quantised source sample, whose new rhythm is supported by the kick drum, and over which the drums, bass and buitars operate in a slow, repetitive, yet complex groove. The siren being faded out is an allusion to the end of the original recording, where the passing ambulance fades into the distance.

An experience well-known to visitors to Barcelona's main beach at Barcelonetta is being subjected to a plethora of sellers, whose products include cold drinks, massages and beer. My abiding memory of this place is having my relaxation regularly interrupted by shouts of "beer, cold drink beer!", "mojitos!" and other related cries. However, I also consider myself incredibly lucky to have had access to a recording device while in the midst of such wonderful eccentricity. This was the birth of *Cerveza Beer*, a piece that is centred around the idea of layer interruption.

All of the thematic elements in this piece can be traced back to the experience of being on this beach. When I was recording the sellers, my wife pointed out that one of them "waltzed right under [my] nose". This became the starting point for the piece. A 'click' sound, of unknown source, became the rhythmic focus and, when looped twice, the sample revealed a 7/4 pattern with the two clicks aching to be interpreted by a snare drum. The snare pattern then became the nucleus of an instrumental layer, built by the drums and bass guitar according to the metric quality of the looped sample.

The field recorded layers are structured according to the chronological integrity of one of the recordings I took of the beach sellers, in which the ambient noise of the beach is interrupted by cries of "mojitos!"; all occurrences of "mojitos" remain unabstracted from their original chronological position in the recording. Cuts to other samples, such as "cerveza beer" and "just in case you can't hear it" are dictated by their relative positions

⁵ This is a term I use to describe parts recorded using a bass guitar, but mainly played in the upper register of the instrument, and processed in a way more akin to electric guitar (e.g. heavier distortion and high pass filter set between 250hz and 300hz).

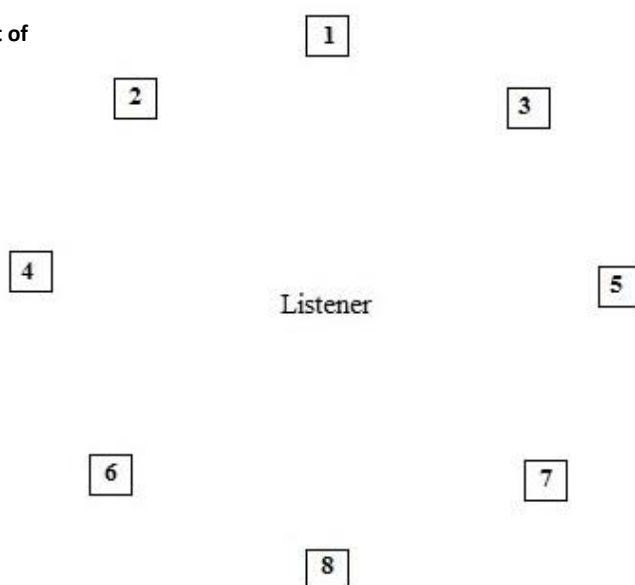
when all the samples' original recordings are played simultaneously. This combination of interruptions creates a layer that interrupts the loop and its instrumental sibling.

The addition of the 'non-seller' layers at the end of the piece and the absence of an instrumental equivalent should be seen through the lens of process disruption. The compositional process that dominates the piece – interactions between instrumental and experiential layers – is departed from, in favour of a coda-like juxtaposition of a new, but related, layer. Here, a recording of some friends playing music together on the beach is split and layered, in a simple application of xenochrony akin to Frank Zappa. "All of the sensitive, interesting interplay" between the layers "never actually happened" (Zappa, 1979).

Having established the layer relationships in *Barbecued Spanish Builder*, *Siren* and *Cerveza Beer* according to time (macro-structural relationships and rhythmic extrapolation), the spatial concerns will now be addressed.

All three pieces are spatialised according to the same arrangement of speakers, as shown in Figure 3. As with all of my pieces, speaker numbers are the same as those identifying each point of focus for the listener, which I call 'stages' in reference to Emerson's soundfield frames (1998: 138). The principle behind the *BCN*'s diffusion is the interplay not only between individual layers and between stages, but also between groups of layers: field and instrumental. The instrumental layers are assigned to the semi-circle in front of the listener, while the field group is played back through channels 6 to 8 behind the listener.

Figure 3: Spatial arrangement of BCN. Numbers indicate both speakers and stages.



The positioning of the instrumental layers is designed to echo the traditional approach taken in metal production: a stereo image of the drums with a central bass guitar and guitars panned left and right. I have translated this into a 5-channel semi-circle by spreading the drums across the front three speakers, the middle of which is shared with the bass guitar, and placing the 'buitars' in the stages on the left and right extremes of the group. This extra separation, afforded by a three-dimensional translation of the traditional stereo placement of instruments, enables more precise identification of each instrumental layer, this being integral to the perception of the intricacies of structural and spatial relationships between layers.

In the case of *Siren*, which has only one field recorded layer, stages 6 and 7 are occupied by layers that are pitch and timbral extrapolations of the siren, presented by the buitar. Stage 8 is centralised so that the most active field layer (the siren in *Siren*, the time-compressed drill rhythm in *Barbecued Spanish Builder*, and "waltzed right under your nose" in *Cerveza Beer*) is perceived as a focal point, in front of which related layers (situated in stages 6 and 7) interact with the focal layer and each other. In the cases of *Barbecued Spanish Builder* and *Cerveza Beer*, the additional result of this rear centralised stage is that there is a symmetrical relationship between the field layer and its rhythmically extrapolated offspring, whose root is in the kick or snare drum (*Barbecued Spanish Builder* and *Cerveza Beer* respectively) and is situated in stage 1.

The choice of instruments, timbral processing and the way with which rhythms are extrapolated from the source recordings are influenced by my intended stylistic positioning of these three pieces. The listener is encouraged to perceive these works within the context of heavy metal. However, the presence and use of non-instrumental recordings situates the pieces alongside tracks such as Spastik Ink's *A Wild Hare*. Here, electric guitars, bass and drums play along to the pitch and rhythm of the dialogue, sound effects and soundtrack of scenes from Disney's *Bambi*. Where *BCN* differs is level at which the non-instrumental material is altered and integrated into the extrapolated content.

2.3 *Nothing But Sky*

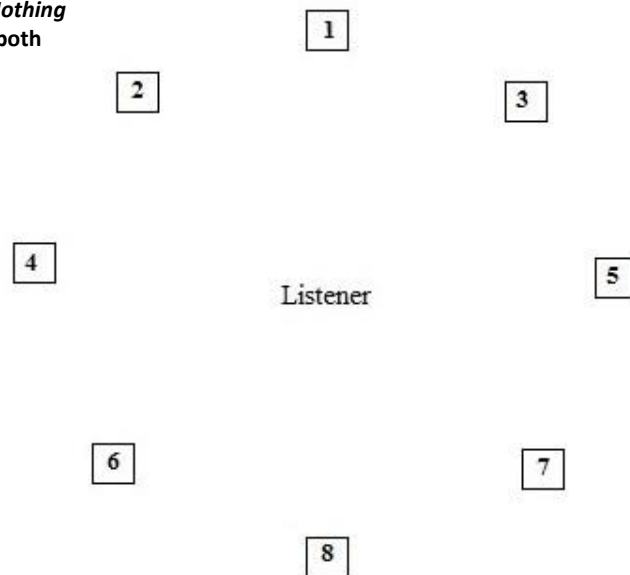
Rhythmic extrapolation and juxtaposition of dissected field recordings are addressed in *Nothing But Sky* in a similar way to *Cerveza Beer*. In this case, the recordings were taken on top of Montserrat in Cataluña. Simultaneous presentation of these recordings, and the instrumental extrapolation of a rhythm implied by a looped sample of the original recording are the main compositional processes involved.

As with *Cerveza Beer*, rhythmic extrapolation is begun by the sample being looped, resulting in the creation of an implied rhythm. However, in *Nothing But Sky* I have interfered with this process, by applying further structural editing so as to create a looped rhythm that is evolved from the initial “we’re lying at the level of the clouds”. By extending the loop beyond its original form, each repetition maps out a slow, insistent pulse that echoes the metre of the original recording of the monastery bell, which occurs in a slightly timbrally-processed form between 1:15 and 2:21. The purpose of this rare instance of timbral processing is to enhance the impact of the bell, which sounded very weak on the original recording.

Time-compressed versions of the bell then operate in a simple 3:2 pattern at 2:32. The resultant rhythm works with a gradually emerging faster bell loop, which creates a tension that is first exaggerated by a distorted and shortened version of the main vocal loop, and then released by the explosion at 4:27. This gradual, directional process characterises the structuring of the piece. The unhurried nature of the three sections echoes the tranquillity of the experience at Montserrat: the slow, peaceful bell and the serenity and stillness of the summit. Directional processes highlight the three most important moments: the vocal phrase at 2:21, the explosion at 4:27 and the end.

During the rhythmic extrapolation, I chose to forego the more obvious rhythm of the vocal phrase, instead choosing the beats of the wind interference. This was because I wanted the piece to have a more relaxed pacing than the vocal rhythm would allow. These beats, together with their bass drum offspring, form the metric framework in which the rhythmic glitch processing operates on the drum and vocal loops.

Figure 4: Spatialisation of *Nothing But Sky*. Numbers indicate both speakers and stages.



The way *Nothing But Sky* is spatialised is essentially the reverse of that of *BCN*. Instead of the instrumental layers being located in front of the audience and the field recordings to the rear, the front focus this time is on the vocal loop. This is to draw attention to the fact that this layer is the nucleus around which the piece is formed. Additionally, due to the predominance of field over instrumental layers, I felt it logical to position them in the front portion of the space.

Instead of each speaker being associated with only one layer, there are in most cases multiple – at times simultaneous – layers for each stage. This is to interrupt the connection the listener may make between a stage and one particular layer. Although such connections can be made for stages 1 and 3 (in which there is a one-stage-one-layer arrangement), the fact that the remaining stages are not as exclusive is intended to disrupt the pattern established by my other compositions. The effect of this is to create a sonic environment that is not dominated by the structural interactions of the layers, instead letting the listener focus on the gradually-changing textures formed by the constituent sounds. My desire to

explore a more meditative aesthetic, in contrast to the precise rhythms and energetic feel of *BCN* and *Chronic Pulsatile Tinnitus*, fuelled this change of approach.

2.4 BCN Metro

In *BCN Metro*, a series of field recordings is presented in the chronological order in which it was taken, mapping out a journey on the Barcelona metro system from Sant Antoni to Barcelonetta. Layers are created by the selection of samples from the source layer, which are looped immediately after their initial occurrence. These layers interact with each other in a fashion akin to the phase compositions of Steve Reich, but their duration is dictated by the source recordings instead of factors such as the number of repetitions or phase cycles. The majority of the loops are generated from samples of announcements of arrival at a station, so when these stations approach in the original chronology, the phase cycles are interrupted and a new section is started.

As the journey that this piece documents was recorded in several instances as opposed to a single continuous recording, the start of each recording in the chronological sequence initiates a new section. I was therefore presented with a choice: either to situate each recording in a continuous stream (with no silence between each recording), separate them with silence, or provide sonic bridges. Initially the 'silence' approach was used, but I found this to be too disruptive. Instead of letting the pendulum swing too violently towards the 'continuous stream' approach, I settled on selecting short samples from the recordings to act as bridges between each 'chapter' in the experiential chronology. This appeased the voice on my shoulder that yearned for honesty: if there are gaps in the original layer caused by this 'chapter' technique, it would be disingenuous to attempt to fake continuity. Highlighting these chapter changes with recontextualised samples maintains the sense of a journey comprised of chapters, yet avoids the pitfalls of sudden silence or false continuity.

Luc Ferrari's work can offer some insight to the process of the altered presentation of an experience captured by a sound recordist. In particular, *Presque Rien No.2* (1977) provides a "description of a landscape of night" (www.lucferrari.org, 'analysis and thoughts' section, *Presque Rien No.2* (1977), accessed 29/03/16). Samples that are not directly related to the recordings used in the work contribute to a "double description" (Ibid.), where Ferrari's electronically-composed interpretation of the recording is interwoven with the sonic landscape. Relating this idea to *BCN Metro*, I offer the listener a description of a journey on the Barcelona Metro system. Where Ferrari has composed new material as a simultaneous

response to the soundscape, I present new layers that are evolutions of the original recording itself. Ferrari's reasoning for this addition is that he "juxtaposes his own reality" (ibid.), whereas I do not seek to include my own "imagination of reality" (ibid.), instead exploring the micro-structural facets of the soundscape akin to a 'sonic vivisection'.

The use of certain sonic gestures to dictate structural change presents a question of how their intrinsic or extrinsic qualities might contribute to their application. For example, the sound of doors closing instigates structural change at 1:57, 2:36 and 2:58. The constituent frequencies or morphological characteristics of the sound of doors closing do not contain intrinsic implication for their treatment. The recognition of this sound's extrinsic qualities representing change – in this case, the action of doors closing implying the train's impending departure – is required in order to understand their effect on the journey's narrative when used as an instigator of structural change.

That is not to say, however, that extrinsic qualities are the sole dictator of how a sonic event is treated. There could be a combination of factors that do not include extrinsic connotation that result in a sound being used as a structural or textural trigger. For example, at 4:48 the layer interplay is interrupted by the sound of a child crying. Nothing about the extrinsic quality of this sound has determined its compositional use, as was the case with the closing doors. In this case my thought process was merely that I enjoyed the reverberant characteristics of this sound and therefore wanted to bring attention to it by temporarily halting the phasing loops.

If the use of a sonic gesture in its original chronological position to punctuate the piece's structure is seen as a compositional process, 3:55 is an example of process disruption. In this case the sound of closing doors does not trigger a structural or textural change. My decision on this matter was influenced by its relationship with the looped 'beeping'. The loop's purpose is to establish a pulse that rhythmically interacts with the other loops that enter from 4:05, so to honour the compositional process in question by significantly changing the texture would interrupt the flow of the beeping loop. Instead, the interruption at 3:55 is merely to allude to a rhythm that could arise from the collision of the source recording and the loop.

The way *BCN Metro* is diffused is across an eight-loudspeaker ring, as Figure 5 shows, with the original recordings located in the Emmersonian ‘stage’ created by the central front

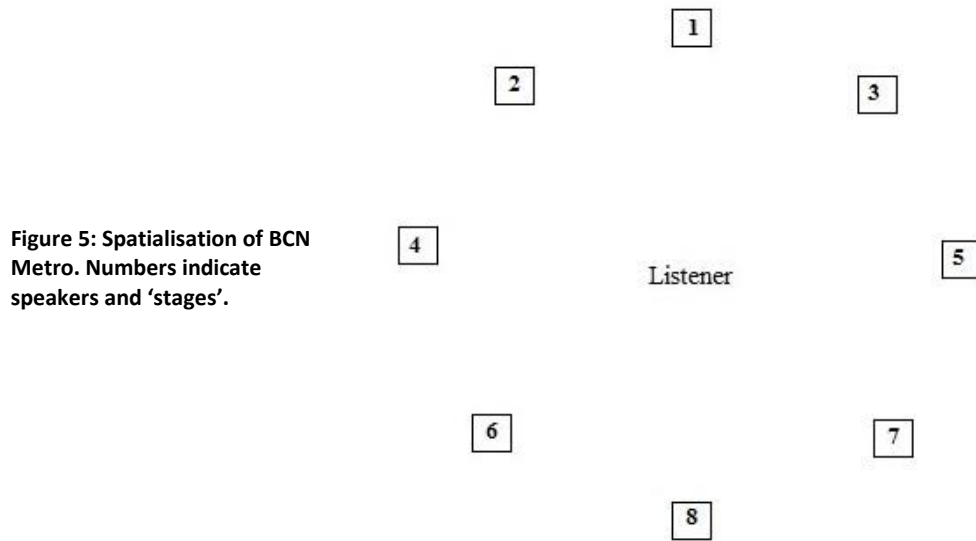


Figure 5: Spatialisation of BCN Metro. Numbers indicate speakers and ‘stages’.

speaker (channel 1). Stage sharing, akin to *Nothing But Sky*, is employed, providing another example of process departure through the disruption of a stage-layer relationship.

Figures 6 and 7 show the relationships between stages 2 and 3, and 6 and 7 respectively. In each case the two stages become one, because a mono recording is split over the two channels. The layer consisting of “see there’s nothing really about the train coming any time soon” occupies channels 2 and 3, creating a stage that is double the size of those thus far. While there is an orchestrated dramatic textural thinning at this point in the piece, I felt that the layer emanating from only one channel resulted in a change that was too extreme, given that it is preceded and succeeded by multi-layered distorted textures. Therefore, I chose to spread the layer over two channels. The same technique is used with the ‘door beeping’ layers, which are spread over channels 6 and 7. This is to highlight their role as a pulsating pedal, over which the layers comprised of “next station” announcements interact.

Figure 6: Stage created by the “see there’s nothing...” mono layer emanating from two speakers previously perceived as discrete stages.

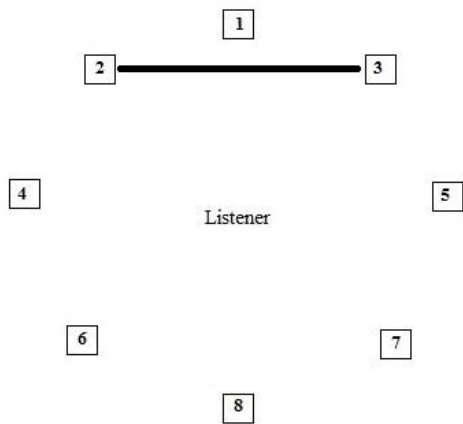
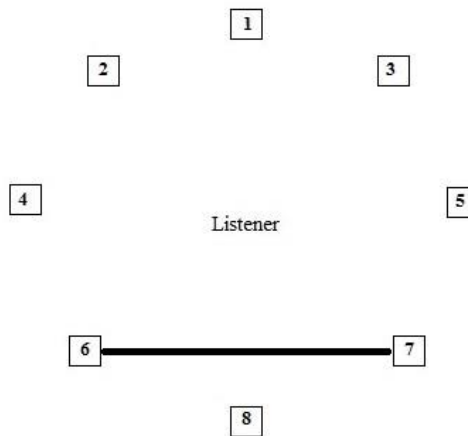


Figure 7: As figure 6, but representing 'door beep' layer.



BCN Metro is, in terms of space and timbre, fairly static. This has two causes: the low-fi quality of the recordings and the extensive use of looping. The latter’s contribution to the perceived stasis is a direct result of the duration of the looped sections being determined by the concurrent original chronology. I had the option of cutting the source narrative to allow for greater movement through shorter sections, but I decided against this in order to immerse the listener in the phasing process for a longer duration. Had the audio quality been better, the listener would have been given a wider sonic spectrum, reducing the sense of stasis. However, the low quality of the recordings can be seen as reflective of the distorted announcements that appear from 5:18.

2.5 *Mr President*

In this piece, comprising two movements, phrases taken from Barack Obama's victory speeches in 2008 and 2012 were re-recorded by four vocalists and subjected to two forms of processing: pre-recording phonemic restructuring, and post-recording structural editing. The purpose of these processing techniques is to disintegrate the extrinsic context of the source material, focusing instead on layer relationships such as space and rhythm.

In the first movement, 14 phrases from the 2008 speech are subjected to processes such as lexical abstraction and insertion of pauses between words. Lexical abstraction refers to the alteration of a word or phrase by either re-grouping the constituent phonemes (in their original order), such as the phrase "Anne Nixon Cooper" resulting in "Annie ksonk oop her", or re-ordering letters to produce nonsensical words; "the struggle and the progress" being morphed into "eth elggurts d-na eth ssergorp" is the chief example of this.

The 'pauses between words' process is, to some extent, a satirism of the propensity of politicians to punctuate their speeches with silence. However, *Mr President* should not be seen as a political work. The choice of the pseudo-soundbite phrases, brimming with political connotations, invites the listener to engage with potentially familiar content, making the lexical abstraction all the more effective. This disintegration of original context, whether achieved through lexical abstraction (first movement) or machine-like repetition and rhythmic extrapolation (second movement), results in the listener being less concerned with the extrinsic connotations of the material and more focused on the way the sonic layers relate to each other.

The overarching purpose for this phrasal disintegration is to remove the extrinsic qualities – e.g. their socio-political context – from the processed phrases and create new layers that can be explored according to their relationships with each other when arranged for four voices. However, as long as there remains some original contextual clarity, the listener will always connect the piece with their understanding of the socio-political connotations. For example, when I listen to Trevor Wishart's *Two Women* (1998) I associate the voices of Margaret Thatcher, Princess Diana and Ian Paisley with my political beliefs. Wishart's approach to the well-known sonic material in these pieces inspired my compositional decision to disintegrate Barack Obama's speeches. The key difference in approach is that

Wishart chose timbral disintegration, while *Mr President* is focused on structural fragmentation.

A clear example of process disruption in this piece is the sixth lexical abstraction of the phrase “Anne Nixon Cooper”. “Ain eni zon ko op errrr” is not an exact adherence to the process of re-grouping the constituent phonemes of the original phrase. The addition of the “i” in the first ‘word’, the replacement of the “x” with a “z” in the third word, and the elongation of the “r” at the end of the phrase extends the disintegration beyond the limits of the process with which abstraction is initially achieved. The “errrr” is indicative of my desire to inject light-hearted moments into my compositions. The happy coincidence is that if the listener is drawn to a potentially amusing sound, they have therefore been suitably distracted from the extrinsic context of the source material, leading to increased attention to layer relationships.

Having used lexical abstraction to produce the surreal phrases “Ah, Nike is on Cooper”, “Yes, wiccan” and “Yes, Wigan!”, I have made reference to the extra-musical contexts of recognisable words that are phonetically related to the source phrases to further distract the listener from the extrinsic context of the unabstracted phrases. This extends the concept of amusing the listener with nonsense sounds, by adding the dimension of new, entirely unrelated contexts that dissolve any association with Barack Obama or politics, thus achieving a state in which layer relationships can be examined.

I decided to subtly allude to one element of the chronology of the source material, by devising either three or six phrasal abstractions. When added to their ‘parent’ phrase, each group totals either four or seven lines. This represents the number of times Barack Obama and his audience say the phrase “yes we can” (seven and four respectively).

By presenting two phrases in their unabstracted form at 4:58 – “and those who tell us that we can’t” followed by “yes, we can” – the process of disintegration is briefly departed from. The effect of this is to highlight the extent to which Barack Obama’s words have been decontextualised by presenting a moment of extrinsic clarity suddenly after a texturally dense passage.

Because of the gradual processes in the first movement, it takes time for the listener to relate to the extrinsic content of the material. This content becomes clear when three voices say in unison, “the times we were told we can’t”, followed by a male voice saying, “yes, we can”. This direct quote from Barack Obama’s 2008 election victory speech cements the socio-political context, after which this is disintegrated by micro- and macro-structural interruptions. This to-ing and fro-ing between extrinsic coherence and opacity underpins the listener experience of this movement.

The second movement presents the listener with a very rhythmic soundworld, consisting of looped vocal recordings, structured within a strictly metric framework. Interruptions of this flow, such as at 9:01 and 10:51, break up what would otherwise be a very repetitive listening experience. The seemingly incessant nature of the “sh k ff t” loop and its relationships with the other voices and the “yes, we can” layer that is borrowed from the first movement and interjects is reminiscent of Laurie Anderson’s *O Superman* (1981). The roles of Anderson’s three vocal layers – the looped “ah”, the sung lines, and the spoken interjections – are similar to the relationships between the layers in *Mr President*’s second movement.

This movement sees the lexical abstraction of the first movement replaced with rhythmic extrapolation. What really struck me about Obama’s choice of words in his 2012 speech was their inherent rhythmic quality. The two phrases that stood out most were “to keep reaching, to keep working, to keep fighting” and “black or white or Hispanic or Asian or Native American”. Both phrases can be heard clearly as a 6/4 pattern and, when recited in a rhythmically-focused manner, I noticed an infectious groove at 134 bpm. This set the metric framework for the piece, within which other phrases from the 2012 speech are ‘rhythmicised’ and explored according to layer relationships.

The rhythmicisation process required several different levels of process disruption. “To keep reaching, to keep working, to keep fighting” has a clear inherent rhythms, caused by its phonetic and syllabic repetition, while more rhythmically ambiguous phrases, such as “what you look like” can be moulded into numerous rhythmic guises. In rhythmicising the latter, the composer needs to draw upon their stylistic influences. In my case, the 4:3 relationship present in much of Meshuggah’s music led me to create a four-beat dotted

semiquaver pattern that interacts with the crotchet “sh k ff t” unit that is derived from the phrase “shirk from a fight”. It is the influence of Meshuggah’s approach to rhythm that has directed my employment of the phrasal rhythmicisation compositional process.

Turning now to the exploration of layer relationships, the fact that the phrases used are chronologically intact (as opposed to the lexically disintegrated phrases of the first movement) means that the listener is more aware of the original extrinsic context of the material. Although there was some intent on my part to distract the listener from this original context through repetition and rhythmic extrapolation, the extrinsic clarity that remains affords the exploration of layer interaction in a very different way to the first movement. Instead of merely presenting each phrase successively, therefore only being concerned with the horizontal linearity of the material, the simultaneous presentation of rhythmicised phrases invites the listener to perceive the phrases according to their micro-structural relationships with each other.

These interactions create a macro-structural layer, whose rhythmic and textural intricacies could be translated to an instrumental context. However, it is the superimposition of a ‘macro-layer’ – the “yes, we can” lexical disintegration from the first movement – that binds the movement together with its interaction with the rhythmic macro-structure. Such interaction alludes to a process of interruption, with moments of textual change instigated by the macro-layer, but several occasions of other phrases not stopping (9:21, 10:28 and 11:08) leave doubt about this process’s dominance.

Mr President is spatialised very simply: each voice has its own loudspeaker, creating four Emmersonian stages that surround the listener. This is to afford the listener the opportunity to easily identify each layer’s stage so that focus can be drawn to interactions. The two male voices are situated in stages 1 and 2, while the female voices reside in the rear two stages. However, in the second movement, the macro-structural layer operates in a wider stage, comprised of the mono layer being spread over channels 1 and 2, stages also used by the two male voices. This results in a stage whose facets are linked by their shared vocal source: the male voice that creates the “sh-k-ff-t” and macro-structural layers.

Figure 8: Spatialisation of *Mr President*, showing speaker and stage position and numbers.

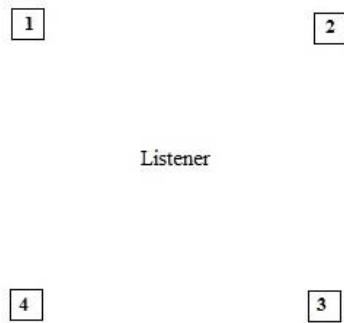
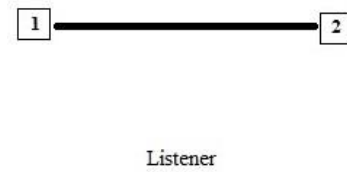


Figure 9: Double stage spread of the mono macro-structural layer's combination with the Stage 1-residing "sh-k-ff-t" layer.



There is no rule determining the placement of the voices, other than the separation of male and female. Therefore, the piece would be equally effective in other similar configurations, such as male voices behind the listener or to either side. The one exception is that the macro-structural layer must emanate from the same channels as the male voices. This is to maintain the integrity of the combined stage.

Comparisons between this work and Dan Lander's *Talking To A Loudspeaker* (1989) can be drawn, particularly with reference to Lander's use and spatial treatment of recordings from the United States House of Representatives. Apart from the obvious political connection, my process of presenting recorded speech in distinct spatial locations is reminiscent of the way utterances of "Mr Speaker" are presented towards the beginning of the work. However, Lander's inclusion of many unrelated sonic gestures, as well as timbral alteration, signifies a different compositional approach. *Talking To A Loudspeaker* is indicative of a sound collage, while *Mr President* explores micro- and macro-structural relationships between more minimal materials. The effect of this is that the listener is able to perceive these relationships more clearly than if there was a wider palette of samples or timbral processing.

Another relevant work here is Alvin Lucier's 1969 piece, *North American Time Capsule*. The key similarities are the fixed spatial locations where certain sonic layers emanate from, and the masking of the extrinsic content of the material. If one considers Simon Emmerson's 'soundfield frames' (1998: 138) in relation to this piece, one can identify three 'stages', one each in the left and right channels, and one centrally-located. All stages contain distinct layers of voice recordings that have been fed through a vocoder, with the central stage also containing interjections of white noise. The listener's identification of the fixed spatial

origins of each layer is an effect used extensively throughout my compositions, and the vocal element is reflected particularly in *Mr President* and *Digital Fun Pen*.

While the masking of extrinsic content is also evident in *Mr President*, the way in which this is achieved differs greatly. Lucier's use of a vocoder results in timbral alteration, while the lexical abstraction processes I have used offer an alternative method to ambiguation of meaning. Furthermore, Lucier does not depart from this process, whereas *Mr President* contains moments of extrinsic clarity, where the ambiguation process is interrupted to encourage the listener to engage with the lexical and socio-political context of the recordings.

It is conceivable that *Mr President* could be presented as a live performance by four vocalists. However, the impossibility of absolute micro-timing precision would reduce the effectiveness of the many interruptions, as well as the robotic repetition of the second movement, an element that I wished to embrace.

2.6 Digital Fun Pen

On the 3rd of August 2013, the York Late Music Festival featured the American composer Frederic Rzewski. I was lucky enough to be charged with recording the concert, as well as the pre-concert interview of the composer by Michael Parkin. Mr Rzewski's responses included derision of programme notes, vocal rendition of Brahms, an account of the 1971 Attica Prison Riot, and musings regarding the future of digital entertainment. The sheer diversity of topics and emotions inspired me – with Mr Rzewski and Mr Parkin's permission – to create a piece using only this recording. The only processing used is structural editing, with no timbral modification or effects, with the exception of subtle compression and very mild EQ. Any perceived space is merely the natural reverberation of the York Unitarian Chapel, the location of the event. *Digital Fun Pen* can be seen as an amalgamation of the processes used in the two movements of *Mr President*, with the chief difference being the use of the original recording as opposed to re-recorded phrases.

The effect of this is to deal more closely with the original extrinsic content of each chosen phrase, allowing for a closer relationship between the source recording and its offspring layers. Post-recording lexical abstraction is the predominant micro-structuring technique, with unabstracted phrases being used in such a way that they maintain their connection with the original context of Frederic Rzewski's responses. The second section is an example of this, where an abstracted phrase lays a foundation, over which unprocessed samples map out a layer whose structure is derived from the abstracted loop, yet phrases such as "music is about stealing" and the vocal rendition of Brahms provide a clear reference to their original context⁶.

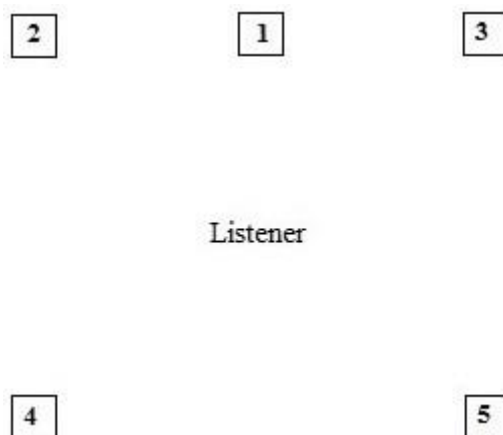
Generally, any unabstracted phrases appear on their own as section markers to either introduce the layer that is to be abstracted (3:49, 4:57 to 5:19, 5:41 to 5:52, 6:51) or expose the layer that has just been abstracted (1:20, 2:26). There are also moments, such as at 7:03, where the unprocessed layer follows on from the narrative context of the previous material.

Moments of source recording precedence, such as the account of the 1971 Attica Prison Riot at 4:57, are intended to allude to the extrinsic content of the sonic material. After having been focused on rhythmic and spatial relationships between layers, the listener is suddenly presented with an emotionally-potent sentence. This potency affords the contrast of layer perception, when the word "moved" is abstracted at 5:19. Had the listener not been invited to connect with the extra-musical connotations of the layer, its abstraction would not have been as effective.

⁶ Mr Rzewski claims that John Lennon's *Give Peace A Chance* stole its chorus melody from the introduction to the Finale of Brahms' First Symphony.

The structuring of the piece is based around the idea of nine ‘topics’, reflecting the varied nature of Mr Rzewski’s responses. Eight of these are concerned with rhythmic exploration, with one concerned simply with letting the subject matter’s meaning speak clearly. The phrasal and phonetic repetition in this ‘topic’ is intended to highlight emotion and its carefully-enunciated communication, rather than to create or extrapolate rhythmic content.

Figure 10: Loudspeaker setup for *Digital Fun Pen*



The source material is a stereo recording, with Frederic Rzewski’s voice slightly to the left and Michael Parkin’s slightly to the right, reflecting their relative positions on stage. This is represented in the diffusion of the piece: a front stereo image inside which processed sounds interact according to their ancestors’ physical position; and rear ‘mirrored’ stereo that positions the listener inside the rhythmic relationships. The unprocessed phrases are assigned to a single loudspeaker. This is to give the impression of a ‘quasi-narrative’, around which the structurally-processed layers are free to interact with each other. The narrative loudspeaker is positioned between the front pair, interrupting the replication of space in order to highlight the extrinsic material of the unprocessed phrases.

Digital Fun Pen offers the listener rhythmic and other micro-structural developments of Frederic Rzewski’s voice, with regular interjections of his sense of humour. These two elements are abandoned briefly from 4:57 to 5:19 for a sombre account of human tragedy, followed by a return to the tightly-edited sample loops, while maintaining a rhythmic undercurrent. It is not only Rzewski’s voice that is disintegrated: the natural resonances of the space in which the samples were recorded are broken, offering the abstracted phrases added timbral quality. The fact that the samples are spread across a four channel

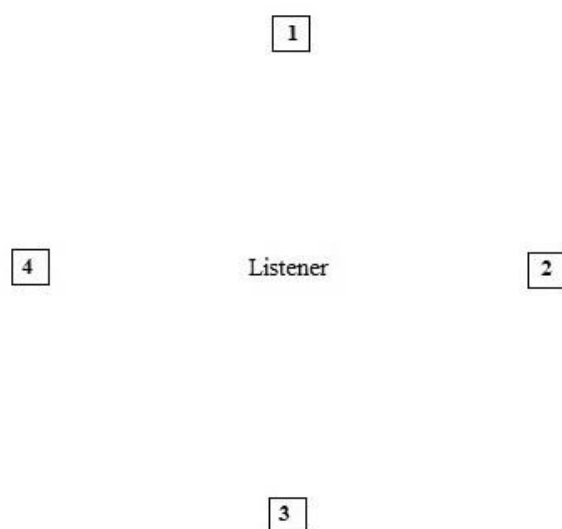
loudspeaker setup contributes to this recontextualisation of the recordings' spatial characteristics.

2.7 Ahlan Wa Sahlan

This piece's title is a common Arabic greeting that essentially means "you are welcome in my home"⁷, and is used not only in a domestic context but also in more informal situations including restaurants and shops. When I visited Jordan in July 2013 I made recordings of several experiences I had, including a wedding with traditional Bedouin musicians, a trip to the ancient city of Petra and situations in which I was surrounded by an unexpected mix of languages. These recordings, along with some that document slightly less remarkable sonic experiences (the pre-flight announcements on the way to Amman, and a van driver advertising that he will buy household furniture and appliances), are subdivided and explored in terms of structural and spatial relationships.

Ahlan Wa Sahlan is spatialised according to the same eight channel set up as *BCN, Nothing But Sky* and *BCN Metro*. Figure 11 shows the exceptions, being the first, sixth and seventh movements, entitled *Brace! Brace!*, *Khurda* and *3 Languages* respectively, which use only four channels due to there being only four interacting layers in these movements.

Figure 11: Stage locations of the 1st, 6th and 7th movements of *Ahlan Wa Sahlan*.



The first movement explores rhythmic relationships between sub-layers of the recording of pre-flight announcements. The first section (0:00 to 1:23) is concerned with the interaction between two segments of the recording that I chose for their inherent rhythmic

⁷ As Arabic is such an exceptionally poetic language, this phrase is the more common contraction of a longer greeting, whose full translation would distract from the purpose of this commentary.

qualities. The first is a five-second sample dominated by the sound of the testing of the aeroplane's wing mechanisms, cut according to the mechanic iterations. The effect of this cutting is to omit part of the cabin crew's speech, demonstrating the primacy of the mechanic rhythm over the content of the speech. The layer comprised of a child's cries is split into segments that fill the silence created by the omitting of non-mechanic iterations in the first layer. This technique of one layer being split according to the micro-structural qualities of another is indicative of clearly-orchestrated structural interactions interrupting the listener's perception of the layers as horizontal entities. Instead of the listener being focused on the narrativity of each layer, their attention is drawn to how the layers interact.

The loops and spatial switching in the first movement help to establish the sonic layers, whose structural interactions with each other show the listener their inherent rhythmic quality. The effect is that layers residing in specific locations in the sound field are working together to create a three dimensional rhythm.

The second movement, entitled *Zaffaat*, sees a series of recordings that represent a single experience (as with *BCN Metro*) being sub-divided into shorter layers, groups of which are played simultaneously to communicate the intensity of the celebratory ritual, the 'zuffeh'. Jordanian weddings consist of a day (at the very least) of singing, dancing and celebration, with zaffaat (plural of zuffeh) occurring at various locations including the bride's family's house, that of the groom, and the reception venue. These zaffaat are represented by the textural changes in this movement.

The sparse interludes are structured according to the metric qualities of each layer, alluding to a sense of rhythm that is dissolved when the dense sections return. The fact that each simultaneous layer emanates from its own point in the soundfield is key to the conceptual basis for this movement. Heard on their own, the rhythms of the drums and clapping are clear. However, when combined the perception of metre or rhythm is almost impossible. This is why it is imperative that the piece is heard in multichannel format. Stereo playback would not afford the listener the slightest opportunity to perceive specific relationships, but spread over eight speakers, with clearly-identifiable locations, the listener can absorb not only their horizontal morphologies but also micro-structural relationships.

These relationships are explored in a similar way to Frank Zappa's xenochrony, in that specific layer interplay is not orchestrated or extrapolated. However, the spatial separation of layers sets this use of xenochrony apart from, for example, *Rubber Shirt*, in which the drums are spread across the stereo image, with the bass in the centre. Had Zappa panned the two instruments left and right, he would have added the spatial dimension to the interplay between the two layers, that which is explored in *Zaffaat*.

The third movement, *Yet So Graceful*, explores rhythmic relationships that arise from the looping and layering of sonic gestures. For example, the movement begins with the sound of a cricket chirping that, when looped, can be interpreted as quavers in a 10/4 bar. When the horse's hooves come in at 7:00 within a 9/4 loop, the listener is invited to perceive the metric similarities between these two layers. However, with the introduction of the more irregular (yet still looped to create a sense of 12/4) layer at 7:23, attention is drawn away from the specific metric interactions, towards a more rhythmically-obscured soundworld.

The fourth movement, *3araaqa*⁸, explores the effect of interweaving recordings of Bedouin melodies. The title can be translated as "nobility", and refers to the reverence that is held for Bedouin musical tradition. Each recording of a Bedouin woman singing is micro-structurally intertwined with the recording of a bass guitar playing the same melody. *3araaqa*'s role as the mid-point of *Ahlan Wa Sahlan* is intended to highlight its timbral and micro-structural uniqueness compared to its surrounding movements. This is the only movement that contains instrumental layers, and has the most detailed level of micro-structural interplay. These relationships are accentuated by the spatialisation: the two layer types (field and instrumental) have their distinct set of stages opposite each other. The effect of the precise intertwining of the Nai (Arabic flute) and bass guitar layers is to create a dense listening experience, one that joins two very different musical traditions together.

In the fifth movement, *Hi, Taxi!*, sections of speech are divided and looped, so that phasing processes bring out free-flowing interactions. However, once these interactive processes are established, their clarity becomes diminished. As of 13:34 there are several instances

⁸ Numbers are often used when writing a transliteration of an Arabic word that contains a phoneme that cannot be represented by a Latin letter. In this case, '3' is used because of its similarity with the Arabic letter that denotes (to a Western ear) a harsh-sounding 'a'.

of process interruption that, combined with the lexical opacity of most of the layers, disrupt the listener's perception of exact repetition. This has the effect of creating a conglomeration of layers, whose spatialisation around seven of the eight loudspeakers alludes to a presentation of a single layer antithetic to the single-stage layers of many of my pieces. The resultant cacophony is indicative of the experience of being surrounded by Bedouins selling souvenirs and camel rides at Petra's most famous site, the Treasury.

The sixth movement, *Khurda*⁹, is a harsh listening environment, comprised of looped and layered recordings of a scrap van's megaphone announcements. Looping and spatial separation are used to aid the identification of the layers and their contribution to the gradually-increasing density of the soundscape. From 16:53 to the end of the movement, the non-looped layer that was originally located in the front loudspeaker invades the rear stage, leading to a spatial crescendo as the van approaches its closest proximity to the listener.

The simplicity of the title of the penultimate movement, *3 Languages*, represents the uncomplicated layer positioning process that I have used. One recording, taken at a picture framing shop in Amman and consisting of a conversation that occurs in Arabic, German and English, is diffused according to a 'one language, one stage' system. Arabic is located to the left of the listener, German to the right, and English to the rear. I will introduce the front stage later.

The fact that the speech content is not abstracted (as opposed to the presence of subdivision and looping processes in *Mr President* and *Digital Fun Pen*), leads to the identification of extra-musical content ("Matte glass or shiny glass?" "Matte is immer besser."). Therefore, when the listener engages with the extrinsic material, their understanding is interrupted when the same material is continued in another language¹⁰. It is these interruptions that, when accentuated by spatial division, lead to the identification of layers that are formed by the grouping of language-specific content.

⁹ Arabic for "junk".

¹⁰ In order for this to occur, the listener must be able to understand either of the three languages, which, given the global spread of these three languages, is highly probable.

In a reference to *Mr President's* second movement, a 'macro-layer', situated in the front stage, runs concurrently with the interacting languages, interrupting the other layers with each constituent sample. In this case, the macro-layer is that borrowed from the final movement. The purpose of this borrowing is to highlight the similarity between the two movements: they are both concerned with a single conversation operating in different languages. The interrupter is the series of English words that are used in the conversation of the final movement. The proportional positions of these words in *3 Languages* are identical to their occurrences in the final movement, in order to explore inter-movement layer interaction.

The simplicity of this movement's structuring leads the listener to focus on the short samples that interrupt the dialogue recorded at the frame shop, emanating from the front loudspeaker. These samples and the sparse texture set up the final movement. This is achieved by the introduction of the macro-layer consisting of English words that is located in the rear loudspeaker of the final movement, and providing a stark jump in textural density. The seventh movement is potentially the least engaging for the listener, due to its slow pacing and very obvious spatial switching. However, it should be seen in context with the whole work, where its role is to provide a calm before the cacophonous storm of the final movement.

The final movement, *6ayyeb OK*¹¹, continues the examination of language that *3 Languages* initiated. This phrase (literally a repetition of "OK") is common amongst Jordanians, and its bilingualism epitomises the experience I had of being in a social gathering that was mainly conducted in Arabic, but with regular bursts of English for words like "September", "plan" and "carry on". Layers that are subdivisions of the concurrently-running original recording are, as with many of my pieces, looped and spatially separated for their identification and the perception of their structural relationships.

This movement explores phasing relationships between loops that include laughter and spoken phrases, over a backdrop of the unprocessed recording situated in the front loudspeaker. A sense of enjoyment underpins the listening experience. Even when Reich-

¹¹ As with *3araaqa*, the number '6' indicates an Arabic-specific phoneme. This time, it is pronounced somewhere between a 'd' and 't'.

esque phasing occurs, it is never long before one hears non-looped laughter in its original chronological context. The instance of only one Emmersonian stage operating, from 22:53 to 23:09, acts as a microcosm of the penultimate movement: textural sparseness gives the listener time to breathe before the raucous final section.

Ahlan Wa Sahlan ends with a sample consisting of the word “khalas” (Arabic for “enough” or “done”), taken from earlier in the source recording, and uses its extrinsic connotation to instigate the ultimate structural change. There is also added extrinsic potency in this word’s ubiquitous use in Arabic countries. This cultural reference provides a suitably abrupt, yet satisfying conclusion to the piece.

Conclusion

The creative process behind these compositions was directed by the dissection of recorded material and the juxtaposition of the subsequent sonic layers. Micro and macro-structural relationships and interactions between these layers are perceived as a result of their identification in specific, static Emersonian 'stages'. Structuring techniques such as pre- and post-recording lexical abstraction, looping and rhythmic extrapolation enable disassociation from the extrinsic connotations of the sounds, a process that facilitates this layer-focused listening experience.

A desire to disrupt compositional processes is also a key element in this folio. For example, to encourage the listener to identify a certain structuring process, such as loop phasing, then to stop this process before its logical conclusion (in this case, the end of the phase cycle) invites the listener to engage with my compositional decisions. Why did I interrupt the process? What effect does it have on the pacing of the work? These questions may be conscious or sub-conscious, but either way contribute to the experience for the listener.

Many pieces in this portfolio leave doubt in the listener's mind as to whether they are recordings of live performances or intended as acousmatic compositions. These include the three works that form *BCN* (*Barbecued Spanish Builder*, *Cerveza Beer* and *Siren*), *Chronic Pulsatile Tinnitus*, *Mr President*, and to a lesser extent *Nothing But Sky*. In the case of *BCN* and *Nothing But Sky*, instrumental recordings interact with field recorded material, so it could be conceivable to present them as works for live musicians and loudspeaker soundfield. The one thing preventing this from being achievable is the importance of the micro-time relationships that occur throughout my works, an element impossible to perfectly recreate in the performer-playback medium due to human error. A sample-triggering algorithm could be developed that follows the performer, but as a rule I tend to prefer my compositions to be purely in the sonic realm, without visual distraction, so this is why I chose a purely acousmatic presentation.

In the cases of *Chronic Pulsatile Tinnitus* and *Mr President*, in which field recorded material does not feature, the question of live performance is answered slightly differently. Although there would be no need for the performers to follow playback or vice versa, there are occasions in these works where post-recording processing prevents the possibility of

live performance. Examples include the timbral processing of the saxophones in *Chronic Pulsatile Tinnitus* and the post-recording lexical abstraction in *Mr President*

Overall, this folio presents a diverse approach to timbre and style. The harsh tones and complex rhythms of the metal-inspired works (*BCN* and *Chronic Pulsatile Tinnitus*) contrast greatly with the meditative textures in *Nothing But Sky* and the slower pacing of material in movements three, four, six and seven of *Ahlan Wa Sahlan*.

Approaches to looping and spatial separation used in *Digital Fun Pen* and *BCN* are more developed and potentially aesthetically desirable than *BCN Metro* and certain movements of *Ahlan Wa Sahlan*, but the presence of these extremes serves as an exploration of these processes and their musical effectiveness when applied to contrasting material.

Further development of the compositional approaches present in this folio could include a series of works similar to *Chronic Pulsatile Tinnitus* that use different instruments to extend the metal style into the acousmatic. This was explored in the preparatory works for this portfolio, and affords re-examination in light of the techniques that have now been developed.

The techniques used in *BCN Metro* and *Ahlan Wa Sahlan* could be developed and applied to a wider range of types of recording, resulting in a more extensive musical exploration of the compositional approaches evident in *Digital Fun Pen*.

List of References

Books/articles:

Barrett, Natasha. 'Spatio-musical composition strategies'. *Organised Sound* 7 (2002), 313-323.

Emmerson, Simon. 'Aural Landscape: musical space'. *Organised Sound* 3/2 (August 1998), 135-140.

d'Escrivan, Julio and Adkins, Monty. 'Stream-Form and the loss of traditional virtuosity: thoughts and a method'. *MONO* 2 (2014).

Jameux, Dominique. *Pierre Boulez, trans.* Susan Bradshaw. London: Faber and Faber, 1991.

Manning, Peter. 'The significance of techné in understanding the art and practice of electroacoustic composition.' *Organised Sound* 11 (2006), 81-90.

Nattiez, Jean-Jacques and Ellis, Katherine. 'Can One Speak of Narrativity in Music?' *Journal of the Royal Musical Association* 115/2 (1990), 240-257.

Nelson, Gary Lee. 'Real Time Transformation of Musical Material with Fractal Algorithms'. *Computers and Mathematic with Applications* 32/1 (1996), 109-116.

Smalley, Denis. 'Spectromorphology and structuring processes', in *The Language of Electroacoustic Music*, ed Simon Emmerson. Basingstoke: Macmillan Press, 1986. 61-93.

Watson, Ben. 'Frank Zappa as Dadaist: Recording Technology and the Power to Repeat', in *The Frank Zappa Companion: Four Decades of Commentary*, ed Richard Kostelanetz. Schirmer Books, 2001. 151-192.

Zappa, Frank. 'Sheik Yerbouti'. Sleeve notes to *Rubber Shirt*. Vinyl. CBS 88339, 1979.

Zappa, Frank and Occhiogrosso, Peter. *The Real Frank Zappa Book*. London: Picador, 1990.

Websites:

Brandow, Tom. 'Heavy Metal's Alright (If You Like Saxophones)'.

<<http://www.invisibleoranges.com/2011/10/heavy-metals-alright-if-you-like-saxophones/>> (accessed 12 December 2014).

Enmeshed I and II website. <<http://eprints.hud.ac.uk/2332/>> (accessed 6 February 2013).

Hans Tutschku's website. <<http://www.tutschku.com/content/works-klaviersammlung.en.php>> (accessed 6 February 2013).

Manifold Compositions. <<http://ems.music.uiuc.edu/people/tipei/manif.html>> (accessed 2 December 2014)

Luc Ferrari's personal website. < www.lucferrari.org>, 'analysis and thoughts' section, *Presque Rien No.2* (1977), (accessed 29 March 2016)