Still and Moving Lines

Listening and Signification in Sound Art

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NOTE:
DVDs containing 'Recorded Performances' are included with the print copy of the thesis held in the University of Adelaide Library.

Abstract

This dissertation explores the act of listening within the context of sound art, examining how a particular mode of listening is essential to understanding and appreciating sound art works, and how this differs from conventional music contexts.

While sound art is regarded as an art form and area of musical practice in its own right, it is often a discipline that is misunderstood or overlooked due to its cognitive impenetrability. A heightened form of awareness and listening is important to its reception by the listener, whilst it also informs the aesthetic and compositional decisions of the artist.

The aim of the current research is to examine works where the artist has incorporated listening as a key element of his/her work. From here the relationship between sound art and the role of listening is scrutinised. Specific focus is given to sound art works which incorporate forms of performance, installation and visual media that transmit and realise the artist's intent.

Declaration

This work contains no material which has been accepted for the award of any other degree or diploma in any university or other tertiary institution to Tristan Louth-Robins and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

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Tristan Louth-Robins
July 2010

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Introduction

As the first decade of the 21st Century draws to a close, sound art is as omnipresent within the arts as it has ever been. The last ten years have proven a highly active period for sound art and have seen it emerge from the fields of the avant-garde, experimental music and electronic music to establish itself as an artistic field in its own right. The term sound art is used throughout to describe a form of artistic practice that utilises musical and non-musical sound with artistic emphasis placed on the physical condition of sound, its transmission and reception – encapsulating various aspects of contemporary electronic and experimental music practice.[1] Sound art is now recognised as part of the global arts lexicon, it is as familiar to our ears and holds as much sway as its forebearers, musique concréte and electronic music.

The act of listening is inseparable from sound art. Just as any mode of listening is crucial where sound is concerned (such as the Western concert hall where cultural precepts and protocols apply) in sound art a different mode of listening is implied – a form of audition that resides beyond conventions and cultural learning, on the periphery of the senses and aesthetics. In the omnipresent visual culture of the Western world the eye dominates the ear and as a result, in a subordinate role the act of listening is shaped by cultural practices where music has defined parameters with a structured language, codification and set of behaviours. In this scenario, Western ears aren't readily receptive to sound art, which more often than not shuns all known musical conventions and thus joins the rest of the unordered, extraneous sounds of the world.

Sound art finds its locale beyond the concert hall, commonly in gallery spaces, warehouses, homes, electronic devices, networks and the natural environment. Since the 1980s, sound artists have sought a closer relationship and understanding of sound and its potential to be captured, disseminated, organised, contextualised, transmitted, perceived and appreciated. The investigations of sound artists cover a vast range of sonic and artistic territory from the threshold of 'perceived' silence to deafening industrial noise, the simplicity of a single loudspeaker to a complex array of digital technology or a simple stereo sound recording to an impressive multi-media

[1] This however should not be seen as any strict definition and shall be clarified further in Chapter 1.

installation. The plasticity of sound and its ability to be shaped and reconfigured by sound artists presents the listener with a variety of challenges. As sound art falls outside of the conventions of Western music, the meaning of works and their reception (currently) will more often find favour within contemporary arts circles than in musical contexts.

As a practicing Australian sound artist since 2004, I have become increasingly aware of sound art and its position within the arts world. Aside from international events and festivals, Australian events such as Liquid Architecture, Electrofringe, The Now Now, Sound of Failure, The Australasian Computer Music Conference, The Adelaide Festival of Unpopular Music and The Melbourne International Biennale of Exploratory Music have made considerable efforts to define and give recognition to sound art in relation to the broader Australian art scene. In turn a fledgling community of sound artists, curators and audiences have begun to expand.

However, despite its increasing establishment on a global scale and recognition as a credible artistic practice, sound art still remains a largely misunderstood area of musical and artistic territory, one situated on the periphery of the art world. It remains a contentious discipline open to ongoing argument and discussion, because by its very nature it routinely obscures the boundaries between music, sound and noise; whilst also positing itself awkwardly amongst the arts and audiences. Bernd Schulz acknowledges this dilemma, writing in 2002:

> The inexpressibility and cognitive impenetrability of the phenomenal experience make it difficult to secure for Sound Art the place it deserves in the art world.[2]

Schulz's admission is a salient point with regard to sound art and its problematic position within the arts world. Regardless of the progress that has been made over the last thirty years, sound art's fundamental problem lies in its reception, specifically its elusiveness and lack of definition within the realm of listening. As it has been previously pointed out, an alternative mode of listening has become apparent within sound art. But what is it, and how does it differ from conventional modes of listening?

[2] Bernd Schulz. *Rezonanzen/Resonances: Aspects of Sound Art* (Koln: Kehrer, 2002), p. 15.

It is the fundamental line of enquiry in this research topic to define what this mode of listening is that I will refer to from this point as 'focused listening'. Focused listening can be succinctly described as an act of attuned intentional hearing, that is a concentrated attuning by the listener to the specific details of a musical sound event. This will be done with reference to historical works and creative works by the author, identifying how this mode of listening is situated within the context of sound art.

The study is predicated on two research questions:

1) *What is focused listening and how does it differ from conventional modes of listening?*

2) *How is focused listening articulated in specific works and the creative outcomes of the author?*

This research project began in early 2006 as my sound art practice, though underway was still very much in its infancy. I was finding my feet and a plausible direction for my work – absorbing influences, experimenting, critically analysing my own and others work. In the ensuing years paralleling the progress of this research project, my understanding of sound art and listening has developed considerably, which is demonstrated in the findings of this research, as well as through extracurricular activities. It is important to note that this research project is not regarded as a detailed summary of my practice since 2006, rather an encapsulation of this period, with mention of specific works that address the thesis of the research, as evidenced in the dissertation and accompanying creative portfolio.

Research Methodology

The first chapter provides a definition of focused listening and a distinction between hearing and listening. The opening section makes reference to James Tenney's concept of focus and its application to musical and artistic contexts, with specific reference to Clarina Bezzola's *Lärm im Kopf/Noise In My Head* (2008) audio installation. The following section provides a distinction between hearing and listening with reference to Roland Barthes and Paul Hegarty, and the last section provides a detailed explanation of sound art and its historical contexts.

The second chapter examines the work of two sound artists – American composer Alvin Lucier and German artist Rolf Julius. The purpose of this chapter is to provide a background of the artists, their aesthetic and the analysis of selected works with reference made to focused listening and how it is articulated in the work. Lucier and Julius form the inspiration for the creative works by the author which are documented in the following chapter.

The third chapter documents the development of three creative works by the author – the installations *Infuser* (2007, revised 2009), *Sumi* (2007-2008), and the video documentation of a live performance, *190409* (2009). As this research project covers nearly four years of activity, it is appropriate then, that the creative works portfolio should document significant phases of the author's practice from 2006 to 2009. Each work demonstrates a different approach to articulating focused listening within the context of sound art.

The fourth chapter is a commentary examining aspects of sound art and focused listening in greater detail with reference to other sound artists (with relevance to the research project).

The fifth chapter is a conclusion.

Chapter One: Listening and Sound Art

Focused Listening

Focused Listening is a mode of listening where the listener's attention is directed towards the details of musical and non-musical sound. During the 20th Century composers and theorists proposed approaches to listening that were deemed unconventional by the standards of the Western musical tradition, these approaches were grounded in electronic and experimental music as well as aspects of contemporary art and scientific theory.[3]

In his book *Meta/Hodos*, American composer James Tenney (1934-2006) proposes an act of listening on the basis of focus, separating this concept into categories of 'textural focus' and 'parametric focus'.[4] Textural focus refers to an attention that is directed 'towards one or more of the less essential parts of a complex structure.'[5] Parametric focus refers to a mode of listening that accepts 'all the parameters of musical sound'[6] such as pitch, timbre, loudness and duration. These types of focus are analogous to each other in a number of ways, though they can be better understood individually with the consideration of Tenney's wheat field analogy. From a distance, a field of wheat appears to have a continuous and homogenous texture, which 'encompasses all [its] elements'.[7] As the observer moves forward, gradually the homogenous texture of the field becomes less apparent until all the observer can see are the heads of wheat which only 'encompass a few of the elements'[8] of the overall structure. With consideration of this analogy, textural focus can be regarded as the observation of the details of a wheat field from a distance, whilst parametric focus can be regarded as the observation of a wheat field from up close.

[3] For further reading on such approaches to listening, refer to the 'Deep Listening' work of Pauline Oliveros (1931-) and Pierre Schaeffer's (1910-1995) writings on musique concrète.
[4] James Tenney. *Meta/Hodos* (Oakland: Frog Peak Music, 1964), p. 17.
[5] James Tenney. *Meta/Hodos*: p. 19.
[6] James Tenney. *Meta/Hodos*: p. 19.
[7] James Tenney. *Meta/Hodos*: p. 19.
[8] James Tenney. *Meta/Hodos*: p. 19.

Figure 1.0 Visual representation of *textural focus* and *parametric focus* using a brush fence as a graphical analogy of Tenney's theory.

A sound installation work that illustrates Tenney's concept in an art context relevant to this research project is Swiss media artist Clarina Bezzola's *Noise in my Head* (2008). It is a work for 35 suspended latex heads with concealed MP3 players and loudspeakers, wherein each of the heads broadcasts a looped recording of a voice. The viewer's experience is similar to that of observing and navigating oneself through a crowded and noisy public space. From a distance, the voices are heard as a homogenous sound texture, as the semblance of each voice is indistinct and cannot be fixed to a point of origin. Once the viewer begins moving through the installation, the semblance of each voice becomes clearer and can be attributed to its source.[9]

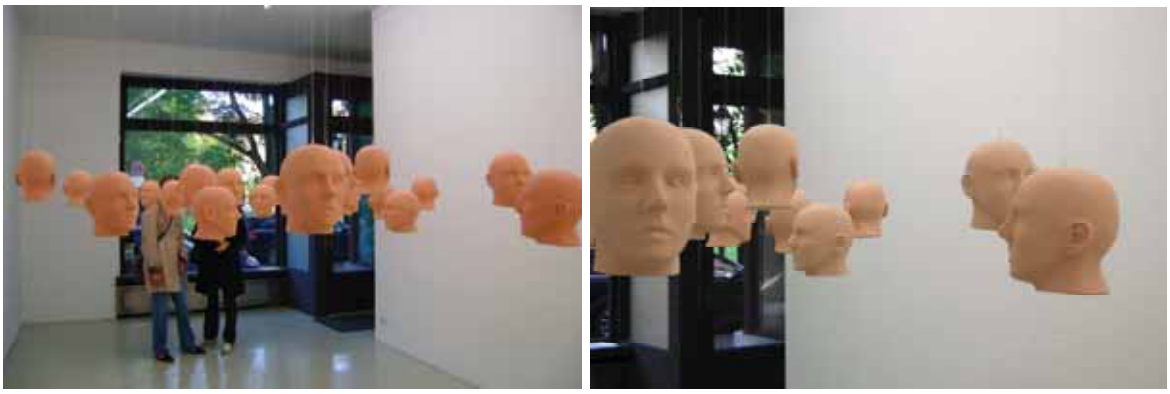


Figure 1.1 Clarina Bezzola, *Lärm im Kopf/Noise in my head* (2008). Galerie Antje Wachs, Berlin, Germany.[10]

With regard to the research topic, Tenney's concept of parametric focus is most appropriate in defining what I refer to as focused listening, as the act of focused listening subordinates the observation of either the larger textural elements or the

[9] Though the relationship between textural and homogenous auditive states is not specific to the underlying concepts of *Noise In My Head*, (the work examines the idea of collective consciousness and its relation to society) the work provides a suitable application of Tenney's concept within the context of sound art.

[10] *Noise in My Head* by Clarina Bezzola was exhibited at the Antje Wachs Gallery, (Charlottenstraße, Berlin, Germany) from September 6th to October 18th 2008.

parametric details in favour of the other. This distinction will become clearer with the examination of phenomenology in music and related artistic fields.

Distinction between Hearing and Listening

At this point it is important to draw a distinction between what we regard as hearing and listening. Roland Barthes suggests that 'hearing is a physiological condition, whereas listening is a psychological act.'[11] In situating the distinction between hearing and listening within an aesthetic context, Paul Hegarty speculates in *Noise/Music – A History* that '[generally speaking], hearing is thought of as less reflective, a physical process we can do nothing about' and that listening suggests 'openness [and] receptiveness, [which] leads to understanding.'[12]

The mode of listening, which is intrinsic to the apprehension of aspects of sound art echoes Hegarty's ideas of 'openness, receptiveness and understanding'[13] in that the concept of focused listening directly indicates the significance of focus which differs in approach to what may be regarded as conventional modes of listening. A conventional mode of listening might be most easily identified in the context of a common concert going experience where an audience is seated in a performance venue with a general understanding of what is going to take place. This experience is underpinned by a cultural framework of meanings and protocols which tell us what we should be listening to and when. The examples of electronic music and sound art which are cited in this research project are less specific to musical language and protocols, and instead challenge these principles as they involve situations of listening which may be obscured by curious, confusing and challenging (visual) presentations, where the fixed points of attention are displaced by the multi-faceted aspects and context of a given work. The dilemma here is *what* exactly should the listener be listening to.

[11] Roland Barthes. "Listening" *Responsibility of Forms*, trans. Richard Howard (Berkley, CA: University of California Press, 1991), p. 245.
[12] Paul Hegarty. *Noise/Music: A History* (New York: Continuum, 2007), p. 113.
[13] Paul Hegarty. *Noise/Music: A History*: p. 113.

Sound Art

Tenney's theories of textural and parametric focus are relevant to the act of listening in the context of sound art, therefore an understanding of what sound art is and how it relates to listening is necessary.

Sound art is an artistic field that evades concise classification; it is a broad term that is frequently used to describes forms of art practice where sound, as a medium features either specifically or significantly. Hence by its own application, it covers a vast array of contemporary art practice as it is associated with forms of sculpture, installation, performance art, interactive art, soundtracks and new media.

Positioning sound art in the broader scope of the arts, it can be considered as a logical extension of electronic music and experimental art. Sound art marries elements from both of these fields and has thus created a new artistic discourse.

Although the term 'sound art' gained popularity and was allegedly coined in the mid-1980s by Canadian audio artist Dan Lander[14], the origins of sound art can be traced back several decades to the clamour of Futurism and the avant-garde at the beginning of the 20th Century, as well as the innovative techniques explored in musique concréte during the 1940s. Although these examples are relevant, as Paul Hegarty notes in *Noise/Music*, the emergence of the Fluxus movement in America and Europe during the late 1950s was instrumental in introducing some of the broader precepts of sound art. In particular the application of sound in situ with other forms of art (installation, sculpture, performance, etc.) and the relocation of sound in contexts beyond the Western concert hall tradition. With the emergence of affordable technologies during the 1960s, the activities of the Fluxus movement involving sound would eventually begin to merge with experimental artists and composers such as Robert Morris (1931-), La Monte Young (1935-), Robert Ashley (1935-) and Alvin Lucier (1931-).

Of equal significance to the development of sound art is the work of electronic music composers such as Karlheinz Stockhausen (1928-2007), Edgard Varese (1883-1965) and Iannis Xenakis (1921-2001). Of particular reference here are their innovations in

[14] Douglas Khan. *Noise Water Meat* (Massachusetts: MIT Press, 1999), p. 134.

areas of sound manipulation, synthesis and spatialisation, which prefigured many compositional and technological aspects that have become part of the lexicon of sound art.

If sound art has emerged out of elements within the Fluxus movement, experimental music and electronic music, then focused listening as a means of appreciation has emerged with it. In the case of Fluxus and experimental music, the relocation of sound beyond the concert hall and in consort with other artistic mediums reconfigured the experience of listening, as Brandon LaBelle states in *Background Noise: Perspectives On Sound Art*:

> Fluxus' ambition to activate perception through a performative matrix that would bring situations into play, for sound is marked by its immediacy: in moving against the codes of representational meaning.[15]

An example of focused listening in electronic music, is Xenakis' work *Concrete PH* (1958) a two minute stereo sound recording, that utilises the single sound source of burning charcoal and through subtle electronic manipulations, the listener's attention is directed to the finer details of the sound texture consistent with Tenney's theory of textural and parametric focus.

Space was also integral to the reception of sound works. The sterile nature of the 'white cube' gallery space[16] for example was key to eschewing cultural, symbolic and architectural elements that might distract from the work itself. The space in effect became a blank canvas for the artist to work with, and in some cases (especially in the case of sound installation during the 1970s and 80s) artistic emphasis would be placed on the space itself.

Across a wide breadth of interdisciplinary activity during the 1960s and 70s, sound became a tangible medium for artistic expression as it pressed out a new representational dialogue through sculpture, still and moving image, space and environments. With advancements in computer technology and greater mobility of

[15] Brandon LaBelle. *Background Noise: Perspectives On Sound Art* (New York: Continuum, 2006), p. 62.
[16] The 'white cube' gallery space is used here as a term that pertains to art spaces that are painted white throughout, gaining popularity in the mid-20th Century amongst curators and artists.

sound during the latter half of the 1970s and early 80s, sound could be disseminated and deconstructed further (evident in the work of UK composer Trevor Wishart [1946-]) and reconfigured within space with precise detail, demonstrated in the work of sound artists Bernhard Leitner (1938-) and Robin Minard (1953-).

A stronger dialogue and intimacy between the artist, the work and the listener has become more apparent since sound art became an artistic field in its own right during the 1980s. This dialogue, and in particular the feeling of intimacy is a key aspect of focused listening and the sound art works cited in this research project. Although the research project is not intended to be representative of sound art in its entirety, it will become evident in the following chapters of the dissertation that the works presented here lend themselves specifically to focused listening and are appropriate examples of sound art practice.

Chapter Two: Inspiration

This chapter will examine the work of two sound artists, Alvin Lucier and Rolf Julius. Their unique and innovative approaches to sound art have been influential to the research project in terms of the theoretical and practical outcomes of their investigations into the physical condition of sound and the act of listening. The examination of Lucier and Julius' work will be divided into a detailed summary of their respective backgrounds, aesthetic and the analysis of selected works which have proven insightful to the research project and the creative outcomes of the author.

Alvin Lucier

> Ripples in a stream, wind through grass, sunlight reflecting off water tell us something about themselves without intending to do so. All natural sounds are unintentional, but nevertheless press out (express) from themselves messages with no meaning other than what they are or how they are produced.[17]
>
> Alvin Lucier 2003

American composer Alvin Lucier (1931-) is regarded as a significant figure in modern composition, experimental music and electronic music. His investigations into the phenomenology and physicality of sound have resulted in seminal works, whilst his application of technology and technical processes prefigure early exponents of sound art. In his book *Haunted Weather*, David Toop notes that Lucier was the first composer 'to consciously explore the behaviour of sound and space in his compositions that deliberately embraced science as well as art.'[18] His work then, fits appropriately within the scope of the research topic since his work openly speculates on the condition of sound and the act of listening.

Lucier's explorations into the nature of sound and space began during the 1960s amongst his peers and contemporaries (in America and abroad) who were eschewing conventional forms of musical composition in favour of experimental approaches. These approaches often shared a close relationship with conceptual art as well as aspects of architecture and science. Works by Lucier such a *Music For A Solo Performer* (1965), *I am sitting in a room* (1970) and *Music On A Long Thin Wire* (1977) have come to be regarded as highly important works within the tenets of

[17] Alvin Lucier. Interview between Alvin Lucier and Arne Deforce, http://www.arnedeforce.be/LucierInterv.html, accessed 16/7/2007
[18] David Toop. *Haunted Weather* (London: Serpents Tail, 2004), p. 66.

experimental music, electronic music and sound art as they implement science-derived approaches that are applied in a musical context. Across the breadth of Lucier's career, rooms become instruments (*I am sitting in a room*), sound waves move flames and sugar grains (*Tyndall Orchestrations* [1976] and *Queen of the South* [1972] respectively), a violincello activates cathode ray tubes (*Sounds from the Bridge* [1979]), a sine wave plays a twenty metre wire (*Music On A Long Thin Wire* [1977]) and sea shells, cupboards, bowls and teapots are sounded in various ways.

Despite some of the more obscure descriptions of Lucier's works, they are relatively simple in their materials and compositional processes. The materials and processes remain simple in order to allow the audible (and sometimes visual) phenomena particular to a musical instrument, object, material or environment to be revealed through technological and natural processes. Materials and processes that may be considered extraneous and distracting are eliminated in favour of a clear dialogue between the composer, work and audience. It is Lucier's intention to utilise this open dialogue as a means of dissolving predestined conventions in order to draw the listener's attention to the inherent detail of a work. For this reason, the listener and the act of focused listening are vital to understanding the music of Alvin Lucier, and are fundamental to properly understanding the philosophies underpinning his work and its place in the greater scope of sound art.

Definition of Lucier's 'works'

Lucier's music is derived from areas of experimental music and conceptual art, and the meaning of the terms *work* and *composition* can become confusing and problematic – therefore a definition is necessary. Attempting to define *work* and *composition* within the context of Lucier's music, Brandon LaBelle cites James Tenney in *Background Noise: Perspectives On Sound Art* and the 'design of [Lucier's] pieces'[19]:

[19] Brandon LaBelle. *Background Noise: Perspectives on Sound Art* (New York: Continuum, 2006), p. 124.

> Tenney's use of the word 'design', rather than 'compose' or 'write' seems to signal an understanding of Lucier's work, in so far as 'designing music' highlights concern for the physical phenomena and the possibility of music playing such a role in revealing such phenomena. […] forms of composition operate more as structures through which experiments can be conducted, ultimately bringing forward existing phenomena through what might be called 'poetic science'.[20]

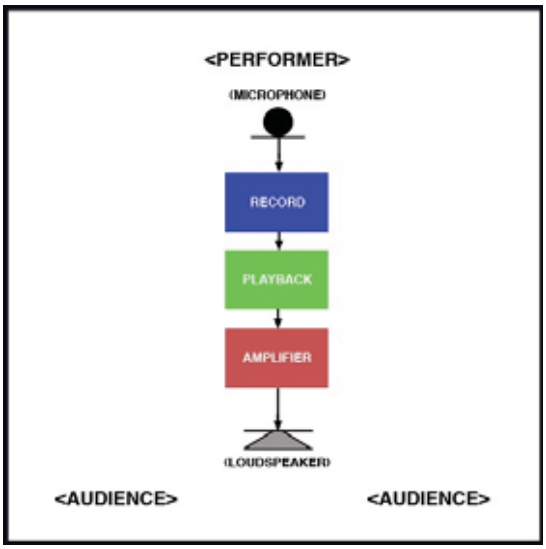
Tenney and LaBelle's terms, *design* and *structure* are appropriate in consideration of Lucier's music. The *design* component of Lucier's music is intrinsic to his articulation of phenomena through the use of instruments, objects, environments and technologies in his music. This, combined with a technical and performative process creates the *structure,* which allows the intention of a work (the phenomena) to be realised. The term 'poetic science' is also apt in Lucier's music; as such a term reflects his meticulous compositional process of efficiency and precision applied in an artistic context.

I am sitting in a room (1970)

The following analysis of Lucier's *I am sitting in a room* will detail some of the concepts pertaining to Lucier's aesthetic and the act of focused listening. *I am sitting in a room* is a work for a performer and simple technical set-up of a microphone, loudspeaker and two tape recorders.[21] The score comprises of the following text to be spoken by the performer:

> I am sitting in a room different to the one you are in now. I am recording the sound of my speaking voice and I am going to play it back into the room again and again until the resonant frequencies of the room reinforce themselves so that any semblance of my speech, perhaps the exception of rhythm, is destroyed. What you will hear, then, are the natural resonant frequencies of the room articulated by speech. I regard this activity not so much as the demonstration of a physical fact, but more as a way to smooth out any irregularities my speech might have.[22]

[20] Brandon LaBelle. *Background Noise: Perspectives on Sound Art*: p. 124.
[21] More recent versions of *I am sitting in a room*, have eschewed tape recorders in favour of modern technology. For example, a digital recording interface such as Luke Harrald's Max/MSP application could be used in place of tape recorders since the recording/playback principle remains the same.
[22] Alvin Lucier. *Reflections/Reflexionen* (Koln: Musiktexte, 1995), p. 312.



NOTE:
This figure is included on page 19 of the print copy of the thesis held in the University of Adelaide Library.

Figure 2.11 (left) Schematic by the author of the technical system of Alvin Lucier's *I am sitting in a room* and (right) Alvin Lucier performing *I am sitting in a room* in 1990.

The spoken text is recorded through a microphone to the first tape recorder, and is then played back into the room through the loudspeaker; this playback is then recorded through the microphone to the second tape recorder. This process continues until, as Lucier states, 'the resonant frequencies reinforce themselves.'[23] What the audience and performer hear with each iteration of this process is the original recording of the spoken text becoming gradually absorbed by the room's resonant frequencies. In the first and second iterations the spoken text sounds slightly reverberant, by the tenth iteration of the process the nature of the spoken text has become profoundly reverberant and distant. At this point, the original recording retains only the most prominent inflections of the spoken text (such as phonemes and rhythmic details) whilst other elements of the text have a tonal bell-like quality to them. By the twentieth iteration, the strongest inflections of the original text have become absorbed by the room's resonance and have become a detailed harmonic texture.[24] With each successive iteration of the process, this harmonic texture gradually becomes more homogenous as the fundamental resonant frequencies of the room become more defined and pronounced. By the thirtieth iteration an amalgam of the room's resonant frequencies is a continuous drone. In essence, what the listener is hearing in the final iterations of the process is a revealing of what was always present in the room.

[23] Alvin Lucier. *Reflections/Reflexionen*: p. 312.
[24] The number of iterations to reinforce the resonant frequencies of a room is wholly dependant upon the spatial dimensions of the room and its acoustic response.

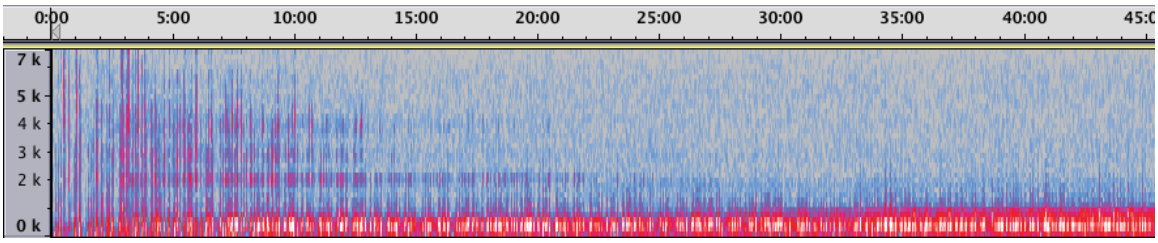


Figure 2.12 Spectral analysis by the author of the 1980 recording of *I am sitting in a room*. Illustrating the gradual dissolution of spoken text and reinforcement of resonant frequencies in white.

The acoustic phenomenon of the room's resonance and the disappearance of the performers' spoken text has become the focus of the listener's attention, revealed through an elegant and simple technical process of sonic articulation.

Rolf Julius

> My composition will dissolve itself, liberate itself from rhythms and structures, and deconstruct into individual sounds. It will no longer be recognisable as music.[25]
>
> Rolf Julius 1993

German sound artist Rolf Julius (1939-) is a recognised and well-respected figure in contemporary sound art. His work since the early 1980s has explored a heightened sensitivity towards sound in the form of installation and performance. His works commonly incorporate forms of visual media (pigments, photography, moving image, founds objects) and space (interior spaces, public space, environments) with the intention of suggesting physical, symbolic or metaphorical associations between sound, objects and nature. In terms of focused listening, importance is placed on the dialogue that Julius creates between sound and object or environment. This dialogue creates a heightened awareness of the nature of sound and its relationship to other surrounding elements.

Background

Julius began his artistic practice in the latter half of the 1960s as a visual artist working predominantly in the field of photography, with an emphasis on austere subject matter – such as blank surfaces, empty spaces and barren landscapes. Julius

[25] Rolf Julius. "The Source", *Site of Sound: of Architecture and the Ear*, eds. Labelle, Brandon; Roder, Steve. (Errant Bodies: Los Angeles, 1999), p. 59.

would later incorporate sound into his practice during the late 1970s as he began situating sound within the gallery context, broadcasting minimal sound compositions into gallery spaces containing his photographic work. One such exhibition, *Dike Line* led Julius to an important discovery that would inform his practice subsequently. In 1979 he exhibited a series of monochrome photographs of floating dikes in a harbour, and by broadcasting composed sounds into the space he could visualise the dikes moving: 'I could see the dykes bobbing up and down'.[26] For Julius, the sounds formed a symbiotic relationship with the images; they shared a perceptual compatibility with each other.

Whilst exploring this concept further within a studio context, Julius also started taking his work outside – working with sound and nature. Throughout 1981 and 1982, Julius began broadcasting sound compositions in a variety of outdoor locations; one of these was entitled the *Concert for a Frozen Lake* (1981). Staged at a frozen lake on the outskirts of Berlin, *Concert for a Frozen Lake* was essentially an electro-acoustic concert comprising of sound emitting devices – signal generators, buzzers, tape recorders and loudspeakers. Prior to the concert these devices were placed at points within and around the perimeter of the frozen lake. The concert commenced once the devices were activated, creating an ensemble of sounds which played against the natural ambience of the frozen lake and its surroundings.[27]

NOTE:
This figure is included on page 21 of the print copy of the thesis held in the University of Adelaide Library.

Figure 2.21 *Concert For A Frozen Lake* (1982). (left) Audience members and (right) a sound-emitting device.

[26] Rolf Julius. *Small Music (Grau)* (Heidelberg: Kehrer, 1996), p. 35.
[27] It should be noted incidentally, that the concert was ended prematurely by local authorities for allegedly disturbing the peace.

Julius presented the *Concert for a Frozen Lake* and similar concerts as the result of a 'rapport' with the location and desire to dedicate music to these places. As he explains in his notes that accompanied his *Berlin Concert Series* programme:

> I make my musical events in places which are familiar to me […] the music which I compose is dedicated to these places. Above all I do not make this music for listeners but, as an example, for a frozen lake. I know it well, I have been visiting it ever since coming to Berlin […] When I invite people to my concerts – and the idea is that they can hear something – then I would like to give them both things, the music along with the landscape, the lake, the site which belongs to it.[28]

With reference to *Concert For A Frozen Lake* and other works, a theme that becomes evident across the body of Julius' practice is that the artist has fostered a relationship and understanding with the subjects that he deals with. Whether it be a natural environment or a found object such as an iron bar in the case of *Iron Piece* (1982). If Julius feel the necessity to direct attention to a particular aspect of the subject he will compose sound for it, as Shin Nakagawa maintains, 'If there is something missing, he [Julius] installs sound; if nothing more needs to be added he leaves things as they are'.[29] What this suggests (aside from obvious connotations to Japanese art aesthetics) is a deepened appreciation of objects and nature, and a motivation to direct attention to such things through the use of sound, rendering a harmony and 'peaceful co-existence'.[30]

Small Music

Julius describes his sound compositions as 'small music'[31], which is an appropriate description in consideration of the manner in which sound is implemented in his work – as a component that compliments the context of a given work. The philosophies that underpin Julius' craft are reflected somewhat by the modest means of their production and the considered manner of their presentation. Julius derives his sound material from a variety of sources – musical instruments (signal generators, buzzers), found objects and field recordings. These sounds are composed and arranged in a manner that corresponds to their application to visual media and environments.

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[28] Rolf Julius. *Small Music (Grau)*. (Heidelberg: Kehrer, 1996), p. 35.
[29] Rolf Julius. *Small Music (Grau)*: p. 166.
[30] Rolf Julius. *Small Music (Grau)*: p. 168.
[31] Rolf Julius. *Small Music (Grau)*: p. 169.

Julius' 'small music' compositions vary from simple (single piano notes recorded to tape) to complex sonic textures, but ultimately remain understated since they are composed to be part of an overall framework. In musical and non-musical terms, Julius' 'small music' can appear ambiguous or slight when listened to in isolation from the rest of the work, but nonetheless remains unique when listened to closely, and in observance of the discrete sonic details of the piece. From the perspective of focused listening, a heightened awareness of Julius' work comes from the association between the sound and its related elements – visual media, nature or otherwise. What becomes evident is a dialogue between the elements in play, enriching the listener's experience of the work.

warum grau, warum gelb, warum grün, (2002)

One of Julius' more recent installations, *warum grau, warum gelb, warum grün* (2002), provides a suitable example for analysing things further. *warum grau, warum gelb, warum grün* (translated: *why grey, why yellow, why green*) is a sound art work as much as it is a speculation on perception and the act of listening itself. It is also notable as it features the use of colour – a predominant visual theme in Julius' work.

warum grau, warum gelb, warum grün is an installation work for sound, loudspeakers, playback device, various objects, substances and media. The installation is divided across the length of the exhibition space – a large iron plate covered with cement dust is positioned at one end of a wide corridor, and at the other end loudspeakers, playback devices and assorted forms of visual media are arranged in a seemingly arbitrary formation. The recording of the work on the audio CD which accompanies the publication documenting the work[32] resembles a quality similar to a composition entitled *White Summer Piece* (1994) – a synthetic rainforest soundscape consisting of distant bells, mechanical bird song, muted piano chords and the occasional strike of a woodblock. These sounds punctuate an underlying sonic texture made up of digital insect swarms, random glitches and the drone of ventilation ducts.[33]

[31] Bernd Schulz. *Rezonanzen/Resonances: Aspects of Sound Art.* (Koln: Kehrer, 2002), p. 111.
[33] It was recently discovered by the author that the *warum grau, warum gelb, warum grün* composition is in fact a mélange of existing compositions which have been played back together simultaneously. These compositions (specifically "Gamalan", "Der Bach", "White Summer Piece" "Yellow Piece")

Bernd Schulz regards the sound composition of *warum grau, warum gelb, warum grün* in *Resonances/Resonanzen* as 'suspensfully employed sound events, usually "small" in scale, [which] evoke a special form of attention'.[34] At the far end of the exhibition space the arrangement of audio technologies is positioned amidst power boards and cables whilst the audio cables intermingle and sprawl across the floor forming a network of objects and electrical connections. Placed in close proximity to the loud speakers and cables are photographs and bowls containing coloured liquids and pigments.

Figure 2.22 *warum grau, warum gelb, warum grün* (2002).

Returning to the other end of the exhibition space, the aforementioned iron plate covered with cement dust hides a large loudspeaker which broadcasts a tone resonant with the plate, causing it to vibrate and excite the dust on the surface.

Warum grau, warum gelb, warum grün is, on the one hand about the transparency of process itself. From the far end of the exhibition space we observe an arrangement of objects unified by their association to each other as carriers and projectors of sound

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which can be heard at various points of *warum grau, warum gelb, warum grün* can be found in their original form on Julius' Small Music series Vol. 1-4.

[34] Bernd Schulz. "warum grau, warum gelb, warum grün", *Resonanzen/Resonances* (Koln: Kehrer, 2002) p. 112.

(wires, loudspeakers, amplifiers), objects conveying sensation and symbolism (colours, bowls, loudspeakers as containers of sound). The iron plate at the entrance illustrates the transparency of its sounding process in a less metaphorical sense, instead it conveys the physical relationship between sound and object. The vibration of the metal surface and the cement dust is analogous to the propagation of the resonant sound waves.

For the listener, the work appears relatively homogenous on the surface – disparate sounds blending with each other to form an elaborate sonic texture. However upon closer inspection through the observation of both sections of the installation, the listener is made aware of the modes and sources of the sounds (locational), and may observe (visually) and make perceptive estimations as to the representational meaning of the bowls and photographs on the gallery floor.

At the entrance, the listener adopts a different form of attention as the work is removed from subjectiveness and instead, suggests a more objective physical dialogue between the sound, iron plate and cement dust.

Chapter Three: Original Creative Works

The works *Infuser* and *Sumi* are intended as extensions of the ideas inherent to the work of Lucier and Julius. The final work *190409*, is a concert film of a live sound art performance by the author which will be examined with reference to previous performances and the work of UK sound artist Philip Jeck.

The creative works of the author are not confined to sound alone, and like a number of sound art works (including those already cited in the research) incorporate aspects of visual media and performance to facilitate focused listening. This has already been established in the case of Lucier and Julius' work and with examination of the author's work such a relationship will be speculated on further.

Infuser (2007, revised 2009)

Figure 4.11 *Infuser* (July 2009).

Infuser is an installation work for ceramic teapots, loudspeakers and sound. The work involves the continual playback of a teapot's reinforced resonant frequencies which are broadcast through a loudspeaker positioned on the top of the teapot. The resultant effect is that of the teapot *playing* its own voice – a continuous resonant drone with subtle variations in pitch and timbre.

Background

The origins of the work date back to March 2007, where the process of resonance feedback was applied to a ceramic teapot during a Milkcrate session.[35] A small microphone was placed inside the teapot to capture its noise floor with the lid in place and a short audio recording was made. Playing back the recording, the resonances of the teapot could be heard – a slight whistling sound merged with the noise floor of the teapot, similar to the sound one hears when putting a seashell to their ear. Other sounds could be faintly heard as well (a conversation in an adjoining room, traffic outside, etc.) although the semblance of these sounds were obscured to a considerable extent by the resonance of the teapot. This recording was played back into the teapot by placing an appropriately sized loudspeaker in place of the lid. Instantly the effect of resonance feedback was evident, with the sound of a consistent whistling drone heard coming through the teapot's spout. As this recording was played back, the microphone remained inside the teapot and a simultaneous recording was made. The process was repeated a couple more times until the teapot's resonant frequencies became stronger and a fundamental frequency was more pronounced.

Figure 4.12 The author recording a teapot's resonances in April 2007.

From April 2007 onwards, work commenced on what would become *Infuser*, which would go through several developments and revisions before taking its completed form in July 2009.

[35] Milkcrate is a music art project created by Sebastian Tomczak. For more information see: http://www.milkcrate.com.au

An important consideration concerning the development and presentation of the work was how much *Infuser* should reference the technical process and presentation of Alvin Lucier's *I am sitting in a room*. For instance, the original version of *Infuser* practically mirrored the technical process of *I am sitting in a room*, where the resonant frequencies of the space are progressively reinforced through resonance feedback. The presentation format of *I am sitting in a room* is a performance cum installation context, where the work is presented in real-time – beginning with the recitation of the spoken text and following a linear progression until the room's resonances have been completely reinforced. The similarities and differences between the works are explained below.

Technical process & presentation

As previously stated, the original version of *Infuser* would imitate the technical process of *I am sitting in a room*, with the development of a real-time system that would allow the progressive reinforcement of each teapot's resonant frequencies over a designated duration. However it soon became apparent that at the risk of simply applying Lucier's technical process to the author's work, a revision was necessary in order to make *Infuser* unique.

Firstly, the initial recording of the teapot would not be recorded as *silent* (i.e. recording the noise floor in the case of March 2007 and later experiments); instead a white noise signal would be played into the teapot. Upon listening back to the first recording the effect was immediate, as one could hear the resonances of the teapot already amongst the white noise. A spectral analysis visualised this immediate effect (see page over).

Figure 4.13 (left) Spectral analysis by the author of the white noise signal in the Red teapot during the initial recording, the lighter bands indicate a stronger amplitude response – hence the resonant frequencies of the teapot. (right) The Red teapot being recorded in July 2009.

The original process of feedback was then applied, playing the recording back into the teapot whilst making a simultaneous recording. This process was repeated several times until the resonant frequencies of the teapot remained (see below).

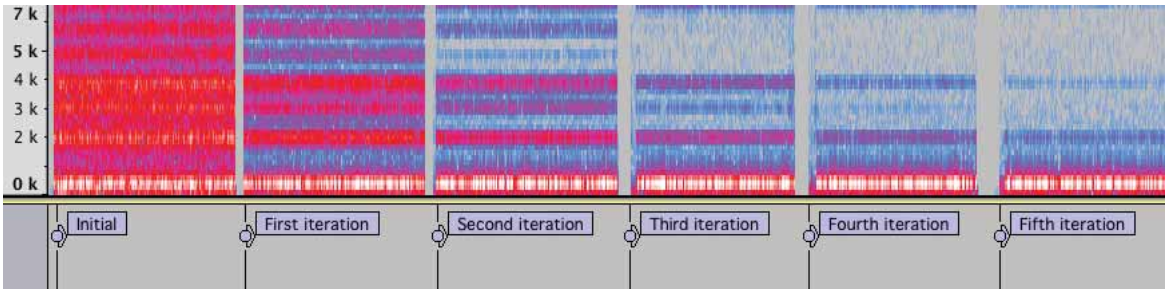


Figure 4.14 Spectral analysis by the author of resonant filtering over five iterations using the Red teapot. As the iterations progress, the filtering of these resonant frequencies (light bands) become more pronounced, by the fifth iteration the teapot's resonant frequencies have been established.

The primary reason for taking this approach was due to problems of initially recording the teapot's noise floor, and progressively reinforcing the resonant frequencies. The main concern was harmonic distortion, where the reinforcement of frequencies became difficult to keep at a consistent level without the audio signal distorting. A resolution to this was found by using a pre-existing sound as material (as is the case of Lucier's spoken text).[36] Using the white noise signal as material seemed an ideal option since white noise encompasses all audible frequencies. The

[36] It should be noted that although Lucier uses a spoken text as material for *I am sitting in a room*, the work could be realised using a silent room, providing the physical dimensions of the space allow for consistent reinforcement of resonant frequencies. Such an approach however would undermine the primary concerns of the work with regard to the title of the work, the spoken text and speech.

teapot would essentially operate as an acoustic filter capable of discriminating resonant frequencies from non-resonant frequencies.

It was also decided that upon presentation of the work only the final iteration would be played back into the teapot, thus eschewing the real-time aspect of Lucier's work, and sustaining the resonant frequencies of the teapots.

Finalised version & presentation

Infuser is to be presented in an installation context[37], with three ceramic teapots mounted on square concrete pavers or plinths. A loudspeaker is put in the place of each teapot's lid, and the lid is positioned in the centre of the concrete paver behind the teapot (or in the case of a plinth, near the teapot). A single channel of sound is broadcast at a low volume through each of the loudspeakers into the teapot's chambers, and the sound is amplified through the interaction between itself and the teapot.

The finalised version of *Infuser* still references the technical process of Lucier's *I am sitting in room*, but relegates the process to the pre-production stage of the work where each of the teapot's resonances are reinforced. What is presented then, is essentially the final product of this process; the reinforced resonant frequency of each teapot held in a state of perpetual suspension. For the listener, *Infuser* suggests less of a narrative structure and instead presents itself as a continuous state that may be listened to at any time.

[37] *Infuser* was exhibited for the first time as part of the Helpmann Academy's *Art Of Tea* exhibition at the ARIspace, North Adelaide, South Australia from 20-26 October 2009.

Figure 4.15 Reconfigured installation of *Infuser* (October 2009), with teapots (from left to right) DGrn, Red and LtGrn. at ARI Space, North Adelaide, South Australia.

The selection of teapots for *Infuser* was based primarily upon their respective resonant frequency response. Each of the teapots (DGrn, Red and LtGrn) have a strong resonant frequency response, and render a desirable harmony when these resonant frequencies are heard together. Their visual aesthetic was also taken into account concerning their presentation.

The presentation of the three teapots on the one hand renders an interesting harmony, but also encourages the listener to inquire and identify each source and appreciate the respective sound each teapot produces, and how they differ from each other audibly as well as physically, in terms of shape and size.

Beyond the key theme of resonant frequencies and their realisation via technical processes and unorthodox objects, *Infuser* employs teapots as the object in question, not only for their unique acoustic properties, but also as a speculation on the symbolism of teapots as everyday domestic and ceremonial items. This recontextualisation of the teapot introduces a new function as a sound object, provoking a greater curiosity and appreciation of the work. The title *Infuser* also draws an analogy between the function of a teapot in its conventional role and its reapplication as a sound object, which in the latter case the pre-production of the work

involves the reinforcement of resonant frequencies. An infusing of sound rather than tea leaves.

Within the scope of *Infuser*, the act of focused listening is situated within the interplay between the teapots and the broadcast sound of their respective resonances. For the listener there is an enhanced awareness of the apparent sounding process through the reconfiguration of the teapots as sound objects, essentially *as* amplifiers of their own voice. What may present itself as a banal presentation of commonplace objects and homogenous sound, in fact lends itself to a greater appreciation of the acoustic and literal dialogue between the object and sound.

***Sumi* (2007-2008)**

Figure 4.21 Finalised 2008 version of *Sumi* (December 2008).

Sumi is an installation work for suspended graphic print, loudspeakers and sound. The work involves the broadcast of sound through a pair of loudspeakers suspended with the graphic print, one loudspeaker is visible (below the print) and is one hidden from view (positioned mid-way behind the print). Sound is broadcast from both the visible and hidden loudspeakers over a continuous duration in situ with the graphic print. The intention here is to evoke a perceptual dialogue between the media, in turn drawing the observer's attention to the inherent detail of the sound as well as the detail of the graphic print. *Sumi* references the work of Rolf Julius strongly in the sense that *Sumi* addresses a similar perceptual dialogue between sound and visual

media, which is inherent in a majority of Julius' work. Such a relationship (in the case of Julius) leads to a deeper appreciation of the work and illustrates the importance of focused listening and its perceptual relationship to other media.

This analysis will cover the development of two versions of *Sumi* – an original version created specifically for the purposes of an exhibition in November 2007, and a revised version which was completed in December 2008.

Background

Work commenced on *Sumi* in September 2007 following an invitation to submit a work for an exhibition in November of that year. From mid-2007 onwards the author began experimenting with arrangements of sound and visual media within the mediums of sculpture and installation. The inspiration for this working process was partially due to the use of a sculptural sound element in *Infuser*, but also an interest in work which examined the representation of sound in both a literal and abstract sense through the application of visual mediums – namely, small objects, drawings and painting. The visual media which led to the development of *Sumi* was abstract in nature, taking the form of simple ink and charcoal sketches which mimicked Japanese aesthetics, using heavy lines and negative space. The prints which feature in *Sumi* are developed from the print of stones dipped in ink and pressed to absorbent grade paper (see below).

Figure 4.22 Examples of some of the stone prints, the two prints in the upper right corner would be used for the November 2007 *Sumi* exhibition.

The graphic prints

Two graphic prints were made for the November 2007 exhibition; the stone prints were scanned, enlarged and re-printed on a dot-matrix printer, whereby the printed

image is reproduced on A4 paper using a series of small dots. The main body of the image was reproduced faithfully, however this method of printing rendered a discrete series of dots around the main shape, compensating for the finer details of the scanned print. These hard copy images were reproduced and enlarged again as A1 prints which were subsequently cropped.

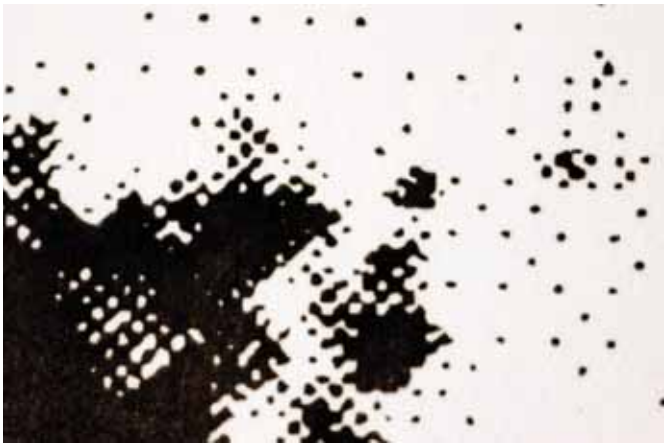


Figure 4.23 Detail of the *Sumi* print illustrating the small dot artefacts created by the dot-matrix printer.

The sound composition

The sound composition for *Sumi* was inspired by the work of Rolf Julius, wherein his 'small music' consists of minimal sound textures derived from a limited amount of sources. The sound composition for *Sumi* is designed to compliment and interpret the graphic nature of the print – its shape, texture and the finer details of the print (such as the dot-matrix artefacts). There are two primary sound elements used in the sound composition that accompanied the 2007 version of *Sumi*. The first of these is an undulating sibilant sound texture that was created by filtering a white noise signal and varying the input level. The second sound element operates as an infrequent *gestalt*, which consists of slightly reverberated sounds derived from electrical glitches and short noise bursts. These two sound elements are played on a continuous ten-minute loop, the hissing texture can be heard throughout whilst the reverberated sounds occasionally interrupt the homogenous sound texture.

November 2007 Exhibition

The November 2007 exhibition of *Sumi* was presented in a designated art space at Coriole Winery, McLaren Vale, South Australia. Two graphic prints were suspended from hooks so that the main detail of the print hung at eye level, while a single loudspeaker was placed on the floor in line with the suspended print. A stereo channel version of the composition was played back on a loop from a nearby CD player, with separate mono channels allocated to each of the loudspeakers.

Figure 4.24 Installation of the 2007 version of *Sumi* at Coriole Winery art space, November 2007.

Revision

During a conversation with German sound artist Robin Minard in April 2008, the exhibition of *Sumi* was discussed with particular emphasis on the mode of presentation.[38] Minard noted that the positioning of the loudspeakers in relation to the suspended graphic print did not make the dialogue between sonic and visual media clear enough, suggesting that a closer physical distance between the loudspeaker and graphic print would emphasise this relationship more effectively.

Upon revision of the work in mid-2008, the loudspeaker was removed from its position on the floor, and was suspended just below the graphic print, thus placing the sound and image on the same plane and creating a closer physical positioning between the two. To assist this relationship further, an additional component was

[38] From February to December 2008 Robin Minard was a Helpmann Academy sponsored mentor of the author, during this time Minard visited Australia and the author later visited Minard in Germany during the latter half of the mentorship.

added to the work in the form of the second loudspeaker to be hidden behind the graphic print. The motivation for the inclusion of the latter was partly based on a suggestion by Robin Minard, that in order for a clear dialogue between the sound and the graphic print, sound could be positioned so that it appears to be 'coming out of the image'.[39]

Figure 4.25 2008 version of *Sumi* (July 2008), (left to right) Suspension of visible speaker in close proximity to graphic print, hidden loudspeaker without graphic print in position, side view of hidden loudspeaker with graphic print in position.

Following further consultation with Minard during September and October 2008, the sound composition for *Sumi* was revised with the reverberated sound element substituted for 'drier' incidental sounds whilst the homogenous sound texture remained largely unaltered. The revised sound composition[40] for *Sumi* consists of three key sound elements:

1) *Tracing Sound Element.* The recorded sound of fingers tracing the surface of the print. During the recording process a microphone was very closely positioned to the action, rendering an abrasive and dynamic sound texture. This sound element is featured exclusively for the opening minute and a half of the sound composition, alternating slowly from the visible loudspeaker to the hidden loudspeaker and back again.

2) *Grains Sound Element.* The recorded sound of sugar grains dropped onto the surface of the print. As with the previous sound element, a microphone was positioned very close to the action to render a similar sonic result as the *Tracing Sound Element*. This sound element is specific to the hidden loudspeaker and is featured in two sections – a loud/abrasive component

[39] Discussion between author and Robin Minard, September 2008.
[40] See Appendix C for a detailed summary of the *Sumi* sound composition.

which is featured in the middle of the sound composition, and a softer/textured section which is featured in the latter stages of the sound composition.

3) *Pink Noise Sound Element*. This is the only sound element that is not derived from an action (physical interaction with the print) and is specific to the visible loudspeaker. It consists of an electronically altered pink noise signal. The signal has been routed through a low pass filter rendering the signal as a homogenous rumbling texture which features throughout the sound composition.

Each of the sound elements are specific to the relationship between the sonic and visual media. The *Tracing Sound Element* and *Grain Sound Element* articulate the shape and detail of the image, presenting this to the observer through the broadcast of these sound elements from the hidden loudspeaker. The *Pink Noise Sound Element* is not associated so much with the physicality of the print, and hence it is broadcast from the visible loudspeaker which is physically separated from the print; it is intended to draw the attention to the negative blank space surrounding the shape and detail of the image.

The structure of the sound composition employs each of these sound elements at specific points over a duration of ten minutes.[41] Sound elements are introduced gradually as a means of associating a given sound with an aspect of the print – for example, the *Grain Sound Element* broadcast from the hidden loudspeaker relates to the dot-matrix artefacts and other minor details surrounding the shape of the print. In the opening three minutes, each of these sound elements are introduced – opening with the *Tracing Sound Element*, then *Pink Noise Sound Element* (which gradually increases from a quiet to medium volume level) and finally the *Grain Sound Element*. By the time of the *Grain Sound Element*'s appearance, all of the sound elements are audible, and will variate at different intensities and lengths for the remainder of the sound composition.

[41] The sound composition, like the one that accompanied the 2007 version of *Sumi* is played on a continuous loop.

Finalised 2008 version

Sumi is to be presented in a similar manner to its initial exhibition set-up in November 2007 (see Figure 4.24), with the graphic prints and loudspeakers to be suspended with the visible and hidden loudspeakers at a height where the print and sound can be easily observed. The presentation of the work, in the instance of both the November 2007 and December 2008 versions, allows the observer to view the print from a distance and up close.

The finalised 2008 version of *Sumi* is regarded as a distillation of the ideas which inform Julius' work, chiefly the suggestion of a perceptual dialogue between sonic and visual media. In the case of Julius' work, the listener's attention is sharpened by the observation of the visual elements, which suggests a connection with the sonic process through a combination of direct phenomena, sensation and the physical appearance of the elements being presented.[42]

The finalised 2008 version of *Sumi* presents a simple (albeit abstracted) relationship between the sonic and visual media, as the observation of one element – either from viewing or listening – informs the other in terms of its textural and parametric details, which is concurrent with the act of focused listening.

[42] It is worth noting that the generation of *Sumi* prints through the use of technology to transform and interpret a natural/organic shape (the stone ink prints) relates strongly to Julius' approach to conditioning natural environments through the use of artificially generated sounds.

***190409* (2009)**

Figure 4.31 A screen capture of the concert film *190409* with the author performing with laptop computer (left), iPod Touch (holding, right hand), and turntable (right, on table).

190409 is a concert film that documents a live sound art performance by the author in April 2009. This work will be examined with reference to previous live performances by the author and the work of sound artist Philip Jeck.

Live performance has been an integral component of the author's practice during the latter phase of the research project. Aside from providing a viable extracurricular activity, the act of performing has led to some valuable insights into some of the aspects of sound art within a live context and its relationship to focused listening.

Live Sound Art Performance

Live sound art performance is distinguished from the cited installation and gallery aspects of sound art on the basis that it is performed within a live context where an audience is present and only lasts for the duration of the performance. Within this context, many configurations of the relationship between the sound artist, performer and audience can be found – such as unconventional staging techniques, placement of the performer(s) and the audience in relation to each other. In some cases aspects of the performance space may also form the basis of a live performance, for example –

Alvin Lucier's *I am sitting in a room* and Rolf Julius' performances.[43] Where the live performances of the author are concerned there is a primarily conventional arrangement, with the performer onstage and the audience seated facing the performance area.

Background

In May 2008 the author attended a performance by UK based sound and media artist Philip Jeck (1959-), who uses a combination of turntable and multiple effects processors to create compositions of multi-layered sonic textures. Impressed by Jeck's performance, a turntable was promptly purchased by the author and experimentation with the medium of vinyl in consort with effects processing via a laptop computer began. The turntable and the manipulation of vinyl records presented an interesting approach to generating sounds in both compositional and performative situations. A particular highlight of Jeck's performance involved his use of artefacts – that is, the crackle and hiss that is synonymous with the medium of vinyl. During parts of his set, Jeck would extract sibilant crackles and high register hisses from a selection of old vinyl records by positioning the stylus of the turntable over a melodic phrase or the opening and closing grooves of the record. An effects processor used by Jeck was a long delay effect that would allow a short sample to be repeated ad infinitum, creating endless loops of melodic fragments with complex rhythms and textures derived from the residual artefacts of the record. During Jeck's performance and subsequent listens to his releases, it was apparent that his approach to composition and performance consisted of two key elements which facilitated an engaging form of listening.

Firstly, the process of repetition performs an integral role in his compositions – the cyclical layers of crackling voices of "Museum" (from *7* [2004]) and the repeated vamps of a dusty horn section in "Fanfares Forward" (from *Sand* [2008]) are examples of such an approach. This process suspends brief fragments of sound in a perpetual state until they are augmented by other voices or removed from the mix completely. Secondly, the medium itself – vinyl, facilitates a particular form of

[43] Julius' *Concert For A Frozen Lake* is an example of such a performance.

listening. Constantly in state of decay and loss of fidelity, vinyl is partial to the elements of touch and airborne particles. Jeck's medium emphasises itself.

The composition and means of production are inextricably tied to each other, in the music of the record's grooves and in the residual crackle of dust particles. Within the scope of a given work, the listener becomes aware of the process itself – through both the elements of repetition and the medium, which characterise Jeck's work.

Figure 3.42 Philip Jeck performing on May 17 2008 at The Jade Monkey, Adelaide, South Australia.

Performances: May 2008 – April 2009

Performances by the author throughout the latter half of 2008 comprised of a relatively simple technical set-up; a turntable, a selection of vinyl records and a laptop computer with software installed to process the incoming signal of the turntable. Early performances were improvised and at best experimental, taking a short sample from one record (for example, a synthesiser drone), creating a loop of this and layering another sample (such as a percussive pattern) over the top of the original loop. Over the course of the set, this layering process would continue with loops being interchanged, removed and reintroduced.

Toward the end of 2008 the emphasis of the author's live performance work moved from using traditional vinyl samples, to sampling the artefacts inherent to the medium such as the hiss and crackle made by dust or scratches on the vinyl. One such performance used only the opening and closing grooves of the record as the source material. Following this performance, the feedback from members of the audience was encouraging (although it was admitted that the 45-minute performance became a little repetitive) they enjoyed listening to the unfolding sonic process as the austere source material was extracted and shaped to form a variety of sonic textures. Within the context of this live performance, the audience had to alter their mode of listening due to the profoundly 'non musical' nature of the performance, the most incidental sounds (in this case, the sound of vinyl artefacts) were brought into auditory relief by the absence of traditional musical material and were thus made the focal point of the listener's attention.

Further performances reinstated musical elements and an effort was made by the author in rehearsal and performance not to emphasise the musical elements too much and instead seek a balance between both the musical and 'non-musical'. This attempt to reconcile the elements led to the incorporation of some new approaches, technical set-up and instrumentation that would be further consolidated in the *190409* performance.

The 190409 Performance

The *190409* performance was part of the *Adelaide Festival of Unpopular Music* programme at De La Catessen, Adelaide on the evening of 19 April 2009. The *190409* performance involved a live set-up of turntable, vinyl records, laptop computer and the recent inclusion of sample playback[44] and iPod Touch.[45] The performance's duration was just under forty minutes[46] and began with a quiet drone sample before short repeated loops of emulated guitar (courtesy of the iPod Touch) enter the mix, which created a layered harmonic texture. The turntable was then

[44] The sample playback comprises of a rich textured drone which is activated via a software program Ableton Live installed on the laptop computer.
[45] The iPod Touch is a touch-controlled device which has music technology applications installed onto it, including a touch controlled oscillator and guitar emulator.
[46] A detailed summary of the *190409* performance can be found in Appendix C.

introduced with short samples of orchestral strings and 'non-musical' opening and closing grooves, whilst a wave oscillator (again, courtesy of the iPod Touch) was used in consort with a long delay and granular synthesis to create a homogenous droning texture. The process of interchanging and merging 'instruments' and devices continued throughout the performance, with the opening and closing grooves of vinyl records, a recurring theme. As with the previous performances, the *190409* performance was essentially an exploration of the various 'instruments' and devices in use, wherein their respective technical processes and sounds are featured both exclusively and in consort with each other.

The sought balance between musical and 'non-musical' elements is intended to provide points of accessibility for the audience whilst the parametric details of these elements (the slight interference patterns of closely tuned sine waves, the undulating harmonics of a droning texture and the crackling static that comes into relief from a short vinyl sample) are expounded to provide an engaging listening experience. The regular looping and manipulation of these sounds throughout the performance achieve this further.

The 190409 Concert Film and Exhibition

The concert film of *190409* was filmed and edited by local sound and media artist Jason Sweeney. It is purposefully shot in a manner that illustrates the author's approach to live performance with held shots and close-ups of the author's actions and gestures throughout the performance. It is relevant to the discussion of focussed listening in terms of the method of presentation, where visual references (enhanced by the filming techniques) are necessary to fully appreciate the work.

Following the *190409* performance, the film was exhibited from July to September 2009 in the foyer of the Adelaide Festival Centre as part of their annual Moving Image Program, wherein visitors and patrons could view (and in some cases, listen) to works by local media artists. This opportunity provided a unique situation – having a documented live performance exhibited as an artwork in its own right in a public space. Though the presentation of the work and the relatively low volume level didn't necessarily permit a close engagement with the work, the visual qualities of the film

(such as detailed close-ups of the author's actions and soft focussing of the image) rendered an attractive visual spectacle that, like *Infuser* and *Sumi,* was analogous to the sound component of the work.

Figure 4.32 Installation of *190409* at the Adelaide Festival Centre, Moving Image Program. July to September 2009.

Within the scope of focused listening and live sound art performance, the performances by the author since mid-2008 are partially an attempt to endorse a heightened form of listening by placing emphasis on the process of composition and performance. Such an approach is consonant with the work of Philip Jeck, since the author's performances to date have been characterised by a high level of exploration of a variety of instruments and mediums (chiefly the medium of vinyl). Emphasis is placed on the medium whilst processes of repetition are employed as a means of repeating and sustaining material.

The *190409* performance and concert film is regarded as a distillation of the author's current approach to live performance. It represents the qualities of such a spectacle – with the exploration of various devices and materials in real-time alongside the physical and gestural actions that are synonymous with live performance.

Chapter Four: Aspects of Sound Art

So far, this research project has attempted to address how focused listening can be articulated through the examination of sound art works by Alvin Lucier, Rolf Julius and the creative outcomes of the author. It has been demonstrated that the act of focused listening can be defined by employing a variety of methods which fall within the locus of sound art practice, chiefly within the processes of conceptualisation, composition and presentation of works. This chapter will serve as a means of broadening the enquiry of the research by examining in greater detail some of the aspects that are intrinsic to sound art practice and focused listening – how they relate to previously cited works and other works by contemporary sound artists.[47]

Sensory deprivation & eliminating distraction

This aspect relates to sound art works where the audience or observer has a sense suppressed in order to heighten another sense. Lucier for example, whilst performing live renditions of *I am sitting in a room* makes a considered effort to limit the audience's inclination towards visual distraction by closing curtains or switching off the lights in the performance space. Lucier's *Vespers* (1968) implements a more explicit form of sensory deprivation as the contextual basis for a work that directly references the way that bats navigate darkened environments using sonar as a locative device. In *Vespers*, audience members are blindfolded and given Sondols (devices that emit loud chirps) to navigate through a darkened environment, listening for reflections off walls and objects as well as the proximity of other participants. Within a live performative context, Spanish sound artist Francisco Lopez also employs blindfolds and darkened spaces as a means of eliminating the visual from the experience of listening to his works, such as *Unititled #123* (2001), wherein a sonic texture slowly and abruptly undergoes changes in pitch, timbre and dynamic over a 74-minute duration. The author's creative works do not utilise this technique (they do rely in part on the visual to convey their meaning) rather, in the case of *Infuser* and *Sumi* the works use visual elements to draw emphasis to singular objects and their relationship to sound, with a directive to limit the visual periphery of the observer.

[47] It is important to note that these aspects are not mutually exclusive to one another, nor are they exclusive to sound art or focused listening.

Simple and Complex

This aspect addresses the apparent paradox of perceived simple and complex sound art works. It may be argued that within given sound art works, what one perceives to be *simple* may from another perspective be quite *complex*. Julius' *warum grau…* (examined in Chapter Two) is a prime example of this, wherein what appears to be a delicate and considered arrangement of loudspeakers, bowls and assorted media may just as easily be perceived as a messy pile of miscellaneous objects sprawled across a gallery floor. The sound component of the work presents the same issue – the homogenous sonic texture of chirping and droning electronic sounds could be interpreted as a noisy, impenetrable cacophony. In this instance, as the difference lies in the reception of the work, focused listening is useful here to discriminate the individual sound elements.

Media artist Zimoun (1971-) creates sound sculptures that straddle ideas of simplicity and complexity in a uniform and structured fashion. The somewhat self-explanatory installation work, *216 prepared dc-motor / filler wire 1.0mm* (2009) involves the activation of rows of mounted DC motors prepared with lengths of wire hanging from them, creating a dense analogous sonic and visual texture. Here, each of the DC motors performs the same function (simply spinning a single wire), so that when operating collectively the single parts transform (in a manner not unlike an insect swarm) to resemble an organic, amorphous structure. The process of the author's work in *Sumi* may also illustrate this paradoxical notion, where the work is at once simple and complex. The change of focus between the two perceptions is in fact integral to this work. The simple homogenous image of the stone print is on closer inspection made up of a series of complex dot-matrix printer patterns, just as the sound may at first be interpreted in one way, through the act of focused listening (encouraged by the comparison between mediums) the way the sound is perceived alters. The work allows multiple levels of experience to be sought, simple and complex depending on the way it is received.

Figure 3.0 Installation views of *216 prepared dc-motors/filler wire 1.0mm* (2009).

Silent Music

This aspect refers to sound art works that find themselves on the threshold of perception and silence, often comprising of austere materials, technologies and contexts. During the 1990s sound artists began embracing an absolute reduction of sound, referencing the hidden and residual sounds of nature and technology.

Japanese sound artists Sachiko Matsubura (1973-) and Otomo Yoshide (1972-) are significant exponents of this approach, practicing at the extremes of perception with Mastubura's high frequency sine wave compositions and Yoshide's vinyl record compositions which are similar to that of Philip Jeck, though characterised by lengthy silences that are sporadically punctuated by the crackle and hiss of the medium in operation. Matsubura and Yoshide's landmark collaborative release *Filament 1* (1999) is in essence, an exercise in marrying their respective approaches – high frequency waves merged with vinyl artefacts. In the process of listening to *Filament 1*, the listener is forced to the outer limits of the listening experience – a significant degree of persistence and concentration is required to fully comprehend the nature of the compositions. Toshimaru Nakamura's (1969-) 'no-input' mixing console works follow a similar lead to the Matsubura and Yoshide's approaches, relying on a single source. In Nakamura's case a mixing console with no inputs simply amplifies the

sound of itself – electrical hum, interference signals and sweeps of equalisation parameters.

Figure 3.1 (left) Sachiko Mastubura and (right) Toshimaru Nakamura.

Such works are characterised by their aesthetic of restrained action, microscopic gesture, minimal changes, extreme pitches, lengthy pauses and low almost imperceptible volume levels. This aesthetic is evident to varying extents in the author's creative outcomes, particularly *Sumi* and the concert film of *190409* (which both undergo periods of near-silence). With regard to the role of focused listening, such an aesthetic positions the listener in a heightened state of awareness, as Toop notes in *Haunted Weather* referring to the work of Taku Sugimoto:

> [Sugimoto] sustains poise over lengthy periods of time. Holding an audience in a state of suspended expectation, drawing them into a microworld of partial gestures […] a surface tension to [his] playing like water quivering on the rim of a cup.[48]

Site Of Sound

The final aspect refers to sound art and the context or environment in which it is exhibited, installed or performed. Within sound art, there are numerous contexts to consider where focused listening is concerned. A given work may be staged in a variety of possible situations – in a concert hall, performance space (*190409*), gallery space (*Infuser*), a regular room (*I am sitting in a room*), warehouse, natural

[48] David Toop. *Haunted Weather* (London: Serpents Tail, 2004), p. 251.

environment (Julius' *Concert For A Frozen Lake*) or on electronic networks. A sound artist may choose a particular context for a variety of reasons, but in most cases the motivation is governed by the desired audition of the work and/or employing the work to draw attention to the situation in which it is being presented.

For the listener, the issue of site is decisive in providing context for the work, altering the way the work is received and experienced (Lucier's *I am sitting in a room* is a significant example). The *Resonant Spaces* project in 2006 is also an ideal case in point, wherein a variety of spaces are employed for a series of unique performances by Akio Suzuki (1939-) and John Butcher (1962-). During the latter half of 2006, Suzuki and Butcher travelled throughout the upper regions of Northern England and Scotland staging a series of concerts in local spaces – such as standing stones, an empty oil tank and enormous caves. In each of these concerts, Suzuki and Butcher would perform individually and together with a series of improvisations that placed emphasis on the acoustic and spatial qualities of the space itself – articulating reverberations, echoes, diffusions and resonances through the use of Suzuki's glass xylophone, stones, coil resonators and Butcher's saxophones. Given the performer's intention to draw attention to the space itself, the listener in this situation is drawn to the experience of listening to sound within space.

Figure 3.2 (left) Akio Suzuki and (right) John Butcher performing in Lyness Oil Tank as part of the *Resonant Spaces* tour.

While the site or location of the work is not a strong element of the author's works discussed, it is included here as an important element in the discussion of sound art and focused listening.

Chapter Five: Conclusion

I am writing the conclusion of this research paper in the last days of the first decade of the 21st Century. I began this paper with a statement that sound art is as prominent within the arts as it has ever been in its short history. Indeed, over the past decade and the years since this research project began in January 2006 I have observed an increased interest in sound art as a recognised practice across the arts, especially within Australia. Over the past few years I have been fortunate enough to travel around Australia and experience first hand the increasing popularity of sound art events. The escalation of sound art, as either a principle medium or component of new works is evident in recent exhibitions, workshops, events and trends in Australian artistic practice.

21:100:100 at the Gertrude Contemporary Art Space[49] was one such noteworthy exhibition that warranted a trip to Melbourne in late 2008. The exhibition featured one hundred works by one hundred sound artists from the 21st Century. The diversity of the works was eclectic at best – Sonic Youth being positioned in close proximity to Toshiya Tsunoda and Rolf Julius. The exhibition was set up across the two main rooms of the gallery space with headphone listening stations set up, allowing visitors to move between each of the works and hear them in isolation. An encouraging aspect of the exhibition was the notable presence of Australian sound artists: Lucas Abela, Oren Ambarci, Natasha Anderson, Philip Brophy, Robin Fox and Philip Samartzis to name a few.[50]

[49] *21:100:100*, Gertrude Contemporary Art Space, Melbourne, Victoria. 11th October to 15th November 2008.
[50] See *21:100:100* [eds. Glass, Alexie; Cormark, Emily; Ambarchi, Oren; Fusinato, Marco], (Hobart: MONA, 2008)

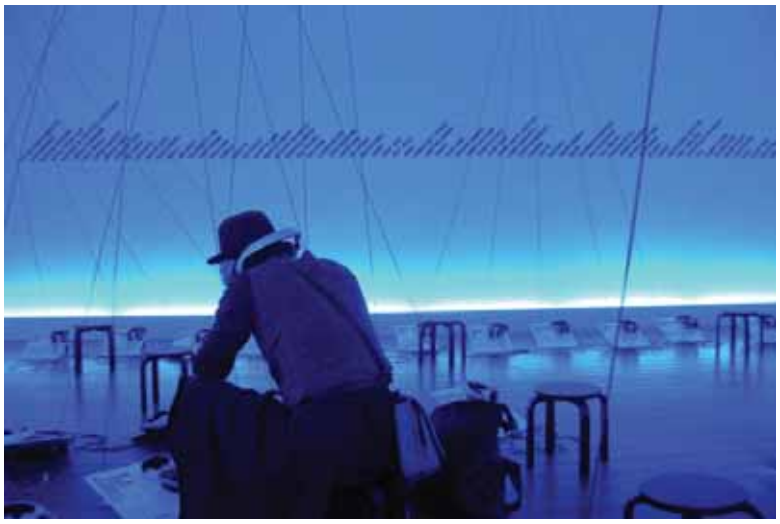


Figure 5.0 *21:100:100* at the Gertrude Contemporary Art Gallery, Melbourne, October 2008.

As I moved between the works in the space, gradually digesting the wealth of work on display, I observed visitors at listening stations positioned around the space – each station with a set of headphones, a mounted programme note detailing the featured work and a stool for the listener to sit. I noticed over the course of several hours in the space, visitors would move between works and listening stations every few minutes, seated, gazing out of the gallery window or hunched over in seemingly intense periods of concentration, moving back and forth and pausing with apparent indecision of what to listen to. It was indeed a daunting proposition for the listener to be presented with such a broad selection of sound works from a diverse range of artists. In a way it summed up the state of sound art in the 21st Century – disparate, esoteric and contradictory. Yet bound by the act of listening. The use of headphones in the exhibition was a necessary inclusion given the nature and breadth of the exhibition, but also performed an important function of segregating works and isolating the act of listening to single works.

21:100:100 represented one of the most ambitious and successful attempts in Australia to gather together disparate strands of sound art and present them under the same banner.

* * *

This research project has attempted to provide an insight into sound art and focused listening – how it may be represented, interpreted and appreciated. It has become evident that within the diversity of sound art (as demonstrated in this research and the *21:100:100* exhibition), the essence of a work lies in a heightened awareness of sound.

Listening (as previously stated by Hegarty) requires 'openness, receptiveness and understanding'[51] on the part of the listener. It has been demonstrated that focused listening is a method of appreciation synonymous with the practice of sound art, where rooms and teapots are sounded, associations are drawn between sound and physical objects and the most discrete sonic minutiae are extracted.

Importantly, this research project has drawn its emphasis from the author's experience over the course of nearly four years of activity – as researcher, curator and a practicing sound artist. These experiences along with historical and anecdotal references have shaped the research project, addressing issues and themes in listening and sound art that are conducive to the author's own artistic practice.

The research project may not be conclusive, but I am hopeful that it may contribute to the development, reception and understanding of sound art as it continues to find further credence in Australia and throughout the rest of the world.

[51] Paul Hegarty. *Noise/Music: A History* (New York: Continuum, 2007), p. 113.

Appendix A: Audio CD & DVDs

AUDIO CD – *Infuser* and *Sumi* studio recordings [16:43]

1-4 Audio recording of *Infuser* (studio recording) [6:57]
Recorded at Electronic Music Unit (EMU), University of Adelaide. October 2009.

1 LtGrn teapot resonance – isolated [0:15]
2 Red teapot resonance – isolated [0:15]
3 DGrn teapot resonance – isolated [0:15]
4 Combined recording of LtGrn, Red and DGrn teapots as *Infuser* [6:12]

5 Audio recording of *Sumi* installed at private studio [9:46]
Recorded at private studio, November 2009.

DVD 1 – *Infuser* and *Sumi* video documentation [4:46]

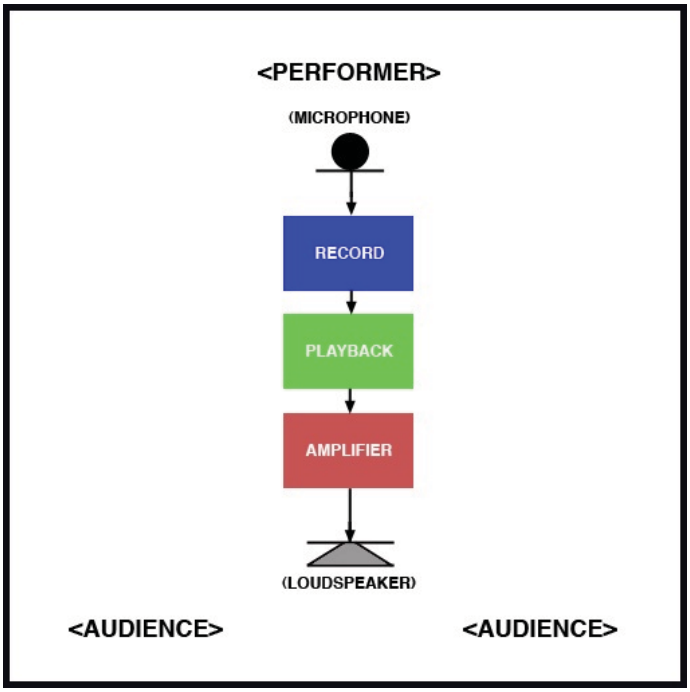
Infuser – short documentation of ARI Space installation [1:13]
Filmed by the author, 26 October 2009.
AVID file format rendered to High Definition Quicktime Movie file format.

Sumi – video montage, installed at private studio [3:33]
Images by the author and Lauren Playfair, November 2009.

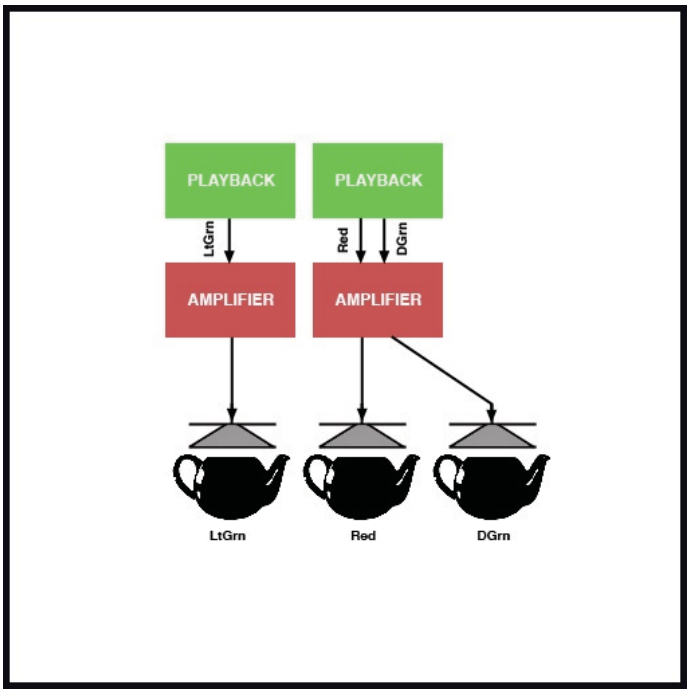
DVD 2 – *190409* [38:45]
Recorded at De La Catessen, Adelaide, South Australia; 19 April 2009 by Jason Sweeney. Editing, mixing and DVD encoding and menu design by Jason Sweeney.
HD Video file format rendered to High Definition Quicktime Movie file format.

Appendix B: System Diagrams

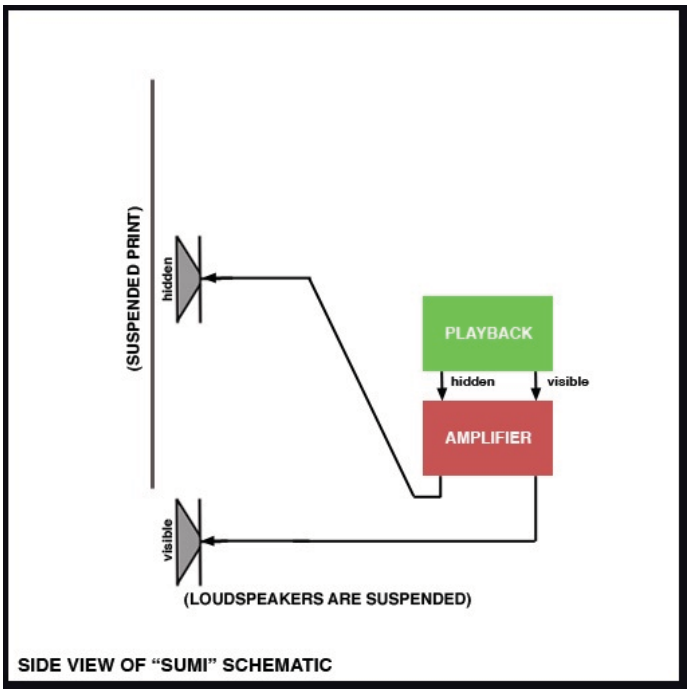
Alvin Lucier – I am sitting in a room



Tristan Louth-Robins – Infuser

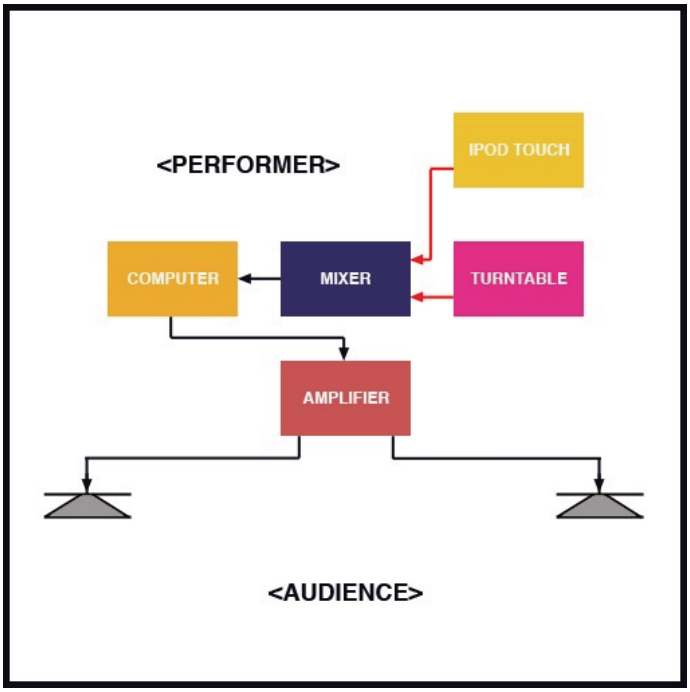


Tristan Louth-Robins – Sumi



SIDE VIEW OF "SUMI" SCHEMATIC

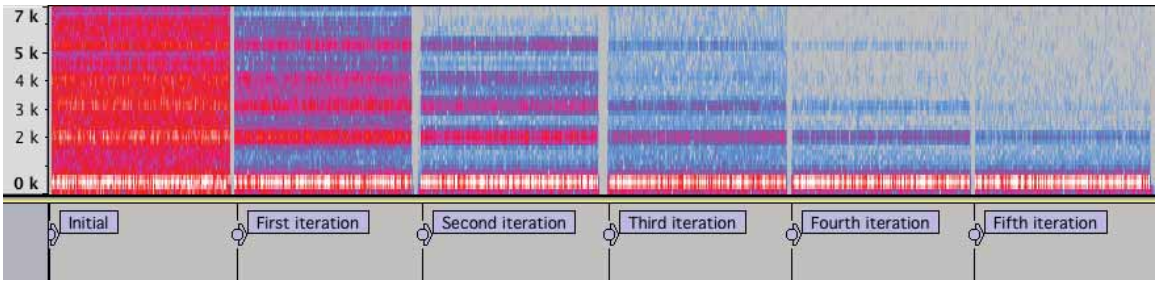
Tristan Louth-Robins –190409 set-up



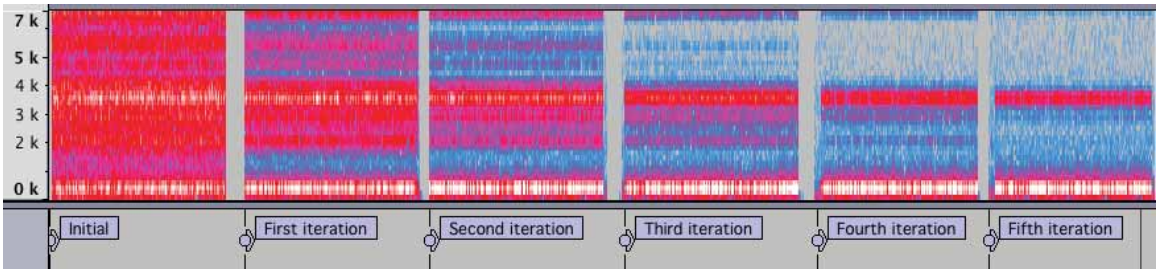
Appendix C: Graphics and performance summaries

Infuser – Spectral analyses of LtGrn, DGrn and Red teapots

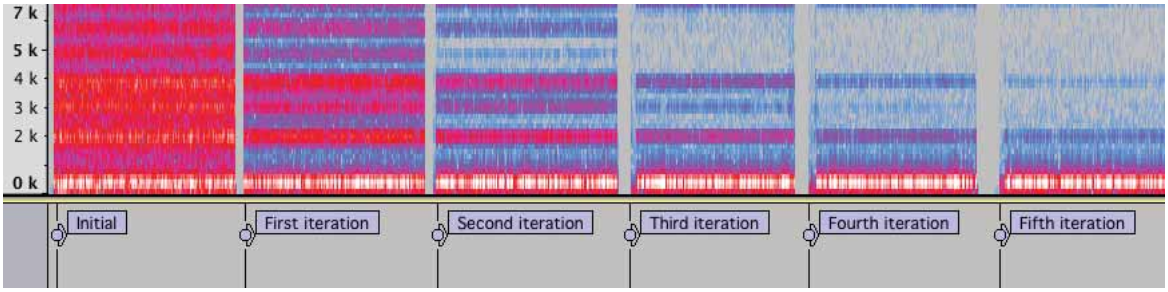
LtGrn Teapot



DGrn Teapot



Red Teapot



Sumi – Sound Composition Summary

0:00 *Tracing Sound Element* is broadcast at a discreet volume, gradually becoming more audible at 1:00. The sound alternates slowly between the hidden and visible loudspeakers over the course of the next minute.

1:20 *Pink Noise Sound Element* enters mix at low volume broadcast from the visible loudspeaker, gradually becoming louder after a minute.

2:10 First of the *Grain Sound Elements* enters mix at medium volume broadcast from the hidden loudspeaker.

2:25 *Tracing Sound Element* begins to decrease in volume, becoming silent at 3:40.

3:50 First of the *Grain Sound Elements* increases in volume, becoming the emphasis of the overall sound mix.

4:45 *Pink Noise Sound Element* decreases in volume slightly, becoming silent at 5:20.

6:25 First of the *Grain Sound Elements* transitions to second of the *Grain Sound Elements.*

7:20 *Pink Noise Sound Element* re-enters mix at medium volume decreasing to a low volume at 7:55.

7:35 Second of the *Grain Sound Elements* silences.

8:00 *Pink Noise Sound Element* is now broadcast at a very low volume, becoming nearly inaudible at 8:45.

8:45 *Tracing Sound Element* reappears, broadcast at a very low volume from the hidden loudspeaker only.

9:40 *Pink Noise Sound Element* is gradually silenced, leaving the *Tracing Sound Element* to loop at 9:46.

190409 – Performance Summary

(timings are approximate)

00:00 – 00:30 Drone loop (sample bank).

00:30 – 03:45 iPod Touch Guitar application, short loops processed with equalisation and tremolo effects processing.

03:45 – 04:45 Vinyl record, short looped sample of strings processed with equalisation and granular synthesis effects processing.

04:45 – 05:45 iPod Touch Oscillator application, white noise generator processed with equalisation and granular synthesis effects processing.

07:10 – 08:00 Drone loop (sample bank) brought back into the mix, 78 rpm shellac record introduced emphasising opening grooves.

08:00 – 09:30 Fragments of the 78 rpm are sampled in short loops, whilst pulsing texture is developed using the record's opening and runout grooves.

09:30 – 10:30 Slow spinning back and forth of record.

10:30 – 12:00 Drone loop (sample bank) brought back into the mix, record's runout groove is emphasised with the use of various effects processing.

12:00 – 13:30 Drone loop (sample bank) removed from mix, run out groove remains.

13:30 – 15:15 iPod Touch Oscillator application, sine wave generator processed with equalisation, tremolo and granular synthesis effects processing.

15:15 – 16:30 iPod Touch SynthPond application, short loops processed with equalisation, tremolo and granular synthesis effects processing.

16:30 – 18:20 Vinyl record, short looped samples of spoken voices processed with equalisation and granular synthesis effects processing.

18:20 – 19:30 Vinyl record, short looped samples of synthesiser melody processed with equalisation and tremolo effects processing.

19:30 – 20:30 Mix reduced to just processing of this record's runout groove.

20:30 – 25:20 Vinyl record, short looped samples of marimbas processed with equalisation and granular synthesis effects processing. Additional samples from this record (incl. trumpets and percussion) are gradually introduced.

25:20 – 27:15 Mix reduced to just processing of this record's runout groove.

27:15 – 29:30 Vinyl record, short looped samples of synthesiser sweep processed with equalisation and granular synthesis effects processing.

29:30 – 31:45 Mix reduced to drone loop (sample bank) only.

31:45 – 32:15 Vinyl record, short looped samples of synthesiser melody processed with equalisation and granular synthesis effects processing.

32:15 – 33:00 Shellac record, run-out groove emphasised processed with equalisation and granular synthesis effects processing.

33:00 – 36:00 iPod Touch Guitar application, short loops processed with equalisation and tremolo effects processing.

36:00 – 38:45 Mix reduced to drone loop (sample bank).

38:45 Performance ends.

Appendix D: Summary of solo live performances since May 2008

2008

May Performance at Jade Monkey, set-up: turntable, vinyl records, laptop computer.

July Performance at EMU (Electronic Music Unit), set-up: turntable, vinyl records, laptop computer.

Aug Performance at Felt Space, set-up: turntable, vinyl records, laptop computer.

Sep Performance at EMU (Electronic Music Unit), set-up: turntable, vinyl records, laptop computer.

Nov Performance at Wheatsheaf International, set-up: turntable, vinyl records, laptop computer and iPod Touch.

2009

Feb Performance at EMU (Electronic Music Unit), set-up: turntable, vinyl records, laptop computer and iPod Touch.

April Performance at Dela Catessen (see concert film *190409*), set-up: turntable, vinyl records, laptop computer, samples and iPod Touch.

Aug Performance at Front Bar Gallery (Canberra), set-up: turntable, vinyl records, laptop computer, samples and iPod Touch.

Oct Performance at Wheatsheaf International, set-up: prepared electric guitar, iPod Touch, laptop computer and samples.

Nov Performance at Wheatsheaf International, set-up: earthed cable and laptop computer.

Dec Performance at 1000 Pound Bend (Melbourne), set-up: earthed cable and laptop computer.

Appendix E: Summary of activities relevant to the research project

2006

Feb – Mar	Technical assistant to Robin Minard – Project 3, 2006 Adelaide Festival of Arts, Artspace.
Mar	Three performances of Alvin Lucier's *I am sitting in a room* (1970) - Project 3, 2006 Adelaide Festival of Arts, Artspace.
Mar	Exhibition of *Sounds From Level Four* – 2006 Adelaide Fringe Festival, Museum of South Australia.
Mar – Sep	Curation of Tyndall Assembly experimental music series. Includes works by local artists (incl. author) and relevant historical works.
Jun	Participation in Australian Computer Music Conference. Attendance includes installation of *Sounds From Level Four* – University of Adelaide, South Australia.

2007

Jan	Participant and guest speaker at sound art workshop "Making Sound Work" – Richmond, South Australia.
Apr	Awarded grant funding by Helpmann Academy for second series of Tyndall Assembly.
Jun – Oct	Curation of second Tyndall Assembly experimental music series. Includes works by local artists (incl. author) and relevant historical works.
Nov	Awarded grant funding by Helpmann Academy to undertake mentorship with Robin Minard.

2008

Feb	Commence mentorship with Robin Minard.
May	Commence regular performances in Adelaide, South Australia.
	Collaboration with Linda Lou Murphy *un/gather,* Experimental Art Foundation, South Australia.
Sep – Oct	Travel to Germany to continue mentorship with Robin Minard.

2009

Feb	Commence regular performances with electronic music group Panoptique Electrical.
Jun-Jul	Collaboration with Shoot Collective and Lauren Playfair *Tensions*, Experimental Art Foundation, South Australia.
Jul-Sep	Exhibition of concert film *190409*. Adelaide Festival Centre, South Australia.
Oct	Installation of *Infuser*. ARI Space, North Adelaide, South Australia.
Nov	Solo performance at Lego Feet #2, Melbourne, Victoria.

Appendix F: Image Credits

Tom Gundelwein: p. 28.

Rolf Julius: p. 25.

Bryony McIntyre: p. 51.

Kate Miller: p. 31.

Tristan Louth-Robins: p. 13, 14, 15, 22, 23, 30, 32, 33, 34, 36, 37, 39, 40, 42, 44, 51 & 53.

Jason Sweeney: p.40. (video still)

John Trefny: p. 19.

Yuko Zama: p. 49.

Zimoun: p. 47.

Bibliography

Ambarchi, Oren; Cormack, Emily; Fusinato, Marco; Glass Alexie [eds.]. *21:100:100.* (Hobart: MONA, 2008)

Barthes, Roland. "Listening", *The Responsibility of Forms*, trans. Richard Howard (Berkley, CA: University of California Press, 1991), pp. 245-260.

Hegarty, Paul. *Noise/Music: A History* (New York: Continuum, 2007)

Julius, Rolf. "The Source", *Site Of Sound: of Architecture and the Ear.* Labelle, Brandon; Roder, Steve [eds.] (Los Angeles: Errant Bodies, 1999), pp.19-30.

Julius, Rolf. *Small Music (Grau)* (Heidelberg: Kehrer, 1996)

Khan, Douglas. *Noise Water Meat* (Massachusetts: MIT Press, 1999)

LaBelle, Brandon. *Background Music: Perspectives On Sound Art* (New York: Continuum, 2006)

Lucier, Alvin. Interview between Alvin Lucier and Arne Deforce, http://www.arnedeforce.be/LucierInterv.html, last accessed 16/7/2007.

Lucier, Alvin. *Reflections* (Koln: Musiktexte, 1995)

Schulz, Bernd. *Rezonanzen/Resonances: Aspects of Sound Art* (Koln: Kehrer, 2002)

Tenney, James. *Meta/Hodos* (Oakland: Frog Peak Music, 1964)

Toop, David. *Haunted Weather* (London: Serpents Tail, 2004)

Toop, David. "Humans, are they really necessary?", *Undercurrents: The Hidden Wiring of Modern Music.* Rob Young [ed.] (New York: Continuum, 2002), pp. 117-130.

Music Scores

Lucier, Alvin. *I am sitting in a room. Reflections* (Koln: Musiktexte, 1995)

Sound Recordings

Jeck, Philip. *7.* Compact Disc. Touch TO: 56, 2004.

Jeck, Philip. *Sand.* Compact Disc. Touch TO:67, 2008.

Julius, Rolf. *Small Music Volume 1: White, Yellow, Black.* Compact Disc. Small Music SM-1001, 1994.

Julius, Rolf. *Small Music Volume 2: Klangboden.* Compact Disc. Small Music SM-1002, 1995.

Julius, Rolf. *Small Music Volume 3: Music For A Garden.* Compact Disc. Mattress Factory 111, 1996.

Julius, Rolf. *Small Music Volume 4: Tanz Fur Zwei Blaue Rehktech.* Compact Disc. Editions RZ 1-12, 1996.

Lopez, Francisco. *Untitled #123.* Compact Disc. Alien8 Recordings 723721290251, 2001.

Lucier, Alvin. *I am sitting in a room.* Compact Disc. Lovely Music LCD-1005, 1981/1990.

Lucier, Alvin. *Music On A Long Thin Wire.* Compact Disc. Lovely Music LCD-1011, 1992.

Lucier, Alvin. *Wind Shadows.* Compact Disc. New World Records 80628-2, 2005.

M, Sachiko; Yoshide, Otomo. *Filament 1.* mp3. Extreme XCD 045, 2007.

Suzuki, Akio. *Stone.* mp3. Berliner Kunstler Programme des DAAD 023, 1994.

Various Artists. *Rezonanzen/Resonances: Aspects Of Sound Art.* Compact Disc. Kehrer, serial number, 2002.

Xenakis, Iannis. “Concrete PH”, *OHM+ Gurus Of Electronic Music.* Compact Disc. Elipsis: CD3690, 2005.