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**The Sound Effect:
a Study in Radical Sound Design**

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A thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

Faculty of Architecture, Design & Planning

The University of Sydney

2015

ABSTRACT

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This research project combines a theoretical intervention into sound ontology, with an empirical investigation into listening experience, in parallel with two technologically focused, research-led creative practice projects. The design follows an iterative cycle of research and creative practice that integrates theory, practice and empirical approaches.

The research makes an initial contribution to the field of sound studies by re-appraising the work of pioneers in the field—Pierre Schaeffer and R. Murray Schafer—in light of the concept of the *sonic effect*. This concept was introduced by sociologist and musicologist Jean-François Augoyard in the study of urban ambiances and is further developed here as an effective tool for both sound studies and sound design. This theoretical work attempts to critically and creatively examine the ontology or mode of existence of sonic phenomena and is informed by the post-structural theory of the effect.

The theory of the sonic effect is empirically investigated by examining verbal accounts of listening experience elicited by semi-structured interview.

Finally, having deconstructed sonic phenomena in terms of their potential to be actualised in diverse contexts, sonic effects are interrogated as a creative strategy in the field of sound design for performance and installed sonic art. Two projects are documented. One is a hybrid live performance installation utilising a novel software design for sound composition and projection. The other is a sound installation work demonstrating a novel loudspeaker design for the creation of very dense sound fields. In this context, design occurs as an effect at the intersection of new technologies of sound production and the production of audible sense. This approach enacts a radical pragmatism that underlies the radical sound design strategy outlined in the thesis.

ABSTRACT

Despite the linear presentation of the research in this document, in the overall research project, creative practice is treated not as an outcome of the research but rather as a research method or mode of enquiry that is integral to the development of the concepts applied in the theoretical and empirical sections. In this way, the utility of the results is enhanced through a balance between the theoretical and the practical.

AUTHOR'S DECLARATION

AUTHOR'S DECLARATION

This is to certify that:

- I. this thesis comprises only my original work towards the Doctor of Philosophy Degree
- II. due acknowledgement has been made in the text to all other material used
- III. the thesis does not exceed the word length for this degree
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- V. this thesis meets the *University of Sydney's Human Research Ethics Committee (HREC) requirements for the conduct of research (HREC Protocol 10228)*.

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23-12-2014

AUTHOR'S DECLARATION

ACKNOWLEDGEMENTS

I gratefully acknowledge the support and guidance offered by my supervisors Dr. Densil Cabrera of the University of Sydney and Associate Professor Lawrence Harvey of RMIT University. I thank the Deans of the Schools of Communication Arts and Humanities and Communication Arts at the University of Western Sydney, Professor Lynette Sheridan Burns and Professor Peter Hutchings for the provision of time, space and material support to complete this research. I thank the artist collaborators I worked with on the project *Ghost Quarters*—in particular Tess de Quincey, Professor Jane Goodall and Sam James. I am indebted for the contribution to the research made by my interview participants. I also thank my colleagues in the music programme at the University of Western Sydney for creating a stimulating work environment in which my research could develop, and for their encouragement and support of my endeavours. I am also indebted to the generosity of the developers of the free and open source software of which I made use in the research. Finally, I thank my wife and family for sacrificing so many weekends to allow me to pursue this study.

This thesis was edited by Elite Editing, and editorial intervention was restricted to Standards D and E of the Australian Standards for Editing Practice.

ACKNOWLEDGEMENTS

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CHAPTER 1 INTRODUCTION

In this thesis, I explore the concept of the sound effect. To achieve this, I develop and demonstrate a method of radical sound design. Radical sound design employs three inter-linked research strategies: a theoretical intervention, an empirical investigation and a practical interrogation. In Chapter 2 I *intervene* in the discourse of sound theory by appropriating and applying concepts developed by key sound theorists who have explored the problem of sound. In Chapter 3 I *investigate* or trace out, in a more or less systematic way, everyday accounts of sonic experience gathered in formal interviews. Finally, in Chapter 4 I expand on the findings of the preceding studies in a practical *interrogation* in the form of two creative artworks described both in terms of their execution and their capacity to produce new forms of knowledge in the process of their development.

This linking and balancing of theory, practice and observation, which defines radical sound design, is intended to strengthen the research findings and provide a strong basis for ongoing research and practice. Illustration 1.1 represents the way each iteration of the research process is enmeshed in the others and each contains aspects of the practical, the theoretical and the empirical.

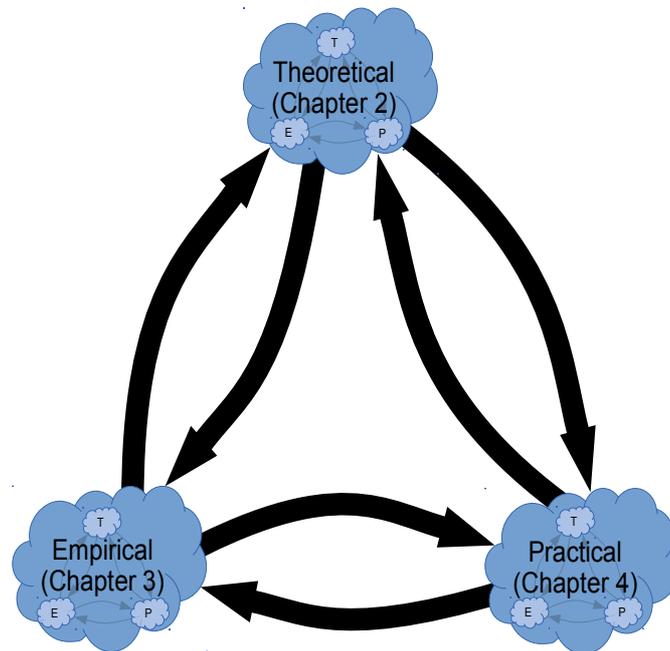


Illustration 1.1: Three inter-related but structurally independent chapters demonstrate the theoretical, practical and empirical aspects under which the sound effect is developed in the thesis. Each chapter contains background information which contextualises the ideas it presents. Each iteration of the research process is enmeshed in the others and each contains aspects of the practical, the theoretical and the empirical.

Key Terms

The key terms in the title of the thesis—*The sound effect: a study in radical sound design*—define the area of study it encompasses.

Sound

Sound emerges in this study as a problematic concept. The central problem area of the research is an exploration of the conceptual field of sound. In common usage, sound is not well defined. The sense of the term with which I am concerned might be characterised as *sonic phenomena*, which in common usage is applied in at least two ways.¹ First, when used

¹ The Oxford English Dictionary provides 13 entries for sound: six nouns, one adjective, four verbs and one adverb. This thesis addresses the noun and verb form related to the field of audible.

KEY TERMS

as a general term, sound refers to a type of physical phenomenon as exemplified in the usage offered in the Oxford Dictionary of English:² “vibrations that travel through the air or another medium and can be heard when they reach a person’s or animal’s ear”. Here, vibrations in a medium are both necessary and sufficient conditions for the presence of sound, and the potential for human or animal auditory perception is also necessary; but perception itself is neither necessary nor sufficient. In this usage, sound is reduced to vibrations that can be heard and are not distinct from sounds themselves.

The second usage, which is applied to particular sounds, follows from Aristotle’s description of sounds as the proper objects of auditory perception. As a definition of sound, this usage is essentially tautological and circular. The Oxford Dictionary of English suggests that a sound is “a thing that can be heard” and that to hear is to “perceive with the ear the sound made by (someone or something)”. This usage implies that sounds are particular things that are dependent on auditory perception and that the objects of auditory perception are sound. As I will attempt to show in subsequent chapters, the objects of auditory perception—the things that can be heard—encompass a wide range range of phenomena that exceed the materialist reduction of the first general form offered by the dictionary.

The tensions between the general and the particular in these two forms of usage suggest the problematic that I explore and develop from theoretical, empirical and practical perspectives. There is not a single entity named sound but rather a loose set of concepts that can be viewed under certain aspects: the general and the particular, the material and the ideal, the concrete and the abstract.

The phrase *sound event* is often used to refer to particular sounds. This phrase highlights the temporal unfolding of both sounds and the states of affairs or contexts that

² The Oxford Dictionary of English (Stevenson, 2010) is used here as the authoritative source of *standard English* or current common usage. For the most comprehensive list of contemporary and historical forms of usage refer to the Oxford English Dictionary Online (2014).

bring them about. When an event occurs, certain things are made apparent or salient and others fall into the background. The sound event is a key concept in the theory of sound, and rich descriptions of many ordinary and unusual sound events are explored in the interviews in Chapter 3.

Effects

Closely linked to the concept of the event is the concept of an *effect*. In this usage of the term, an effect is not an outcome or consequence of a cause but is rather a set of relations specific to a particular context. One way to understand this is that the effect is the salience that is brought about by, and which defines, an event. This somewhat paradoxical formulation relates to the temporal and atemporal structure of sound. Sound events cannot be located at particular points in time but only as they unfold in time or are identified, or their salience becomes apparent in retrospect.

The paradigm case of an effect understood in this way is the special effect used in the theatre or film, or a decorative or ornamental effect employed in handicrafts or music. These sorts of effects cannot be reduced to the results of specific causes, rather they mark out a particular moment in a dramatic narrative or musical passage, or they give a particular identity to an object or event within such a structure. Effects are implicated in the-making-sense-of a given context or unfolding states of affairs.

Although the production of the conditions for these sorts of effects may be well understood, their ontology or mode of existence is less clear. Once again, a key term in the title of this thesis is shown to be problematic, and the problem of the effect is addressed throughout the thesis. In this research, I attempt to discover the following: in what ways the concept of the sonic effect is useful for exploring the definition of sound; and how the sonic effect is evident in ordinary discourse on sound.

KEY TERMS

Radical

The term *radical*, used as an adjective, is listed in the Oxford Dictionary of English with the following usages: “affecting the fundamental nature of something”; or “characterized by departure from tradition; innovative or progressive”; or “relating to the root of something”. The first two of these usages are taken as the basis for the use of the term in the title of this thesis and these are found to be antithetical to the third. When I examine the root or fundamental nature of sound, I discover a set of relations or processes involving both the potential and actual dimensions of sound. There is no root or foundation of the concept that is not essentially deferred to some actual instance whose definition is compromised by its potential to be understood under some or other conflicting aspect. The approach taken becomes truly radical when this understanding of the radical as rootless or groundless is exploited in order to engage in a design process that aims to depart from tradition in order to innovate. Of course this approach to radicalism itself is not new or original and its origins can be found in the metaphysics of Aristotle and in the pragmatic analysis of experience offered by the psychologist William James (1912/2003) and many others. These themes are explored in Chapter 2 and applied in practice in the work described in Chapter 4.

Design

Having established the form of radicalism to be employed and the problematic nature of the term sound, it remains to explain what a radical sound *design* might be. Design is commonly taken to be “the art or action of conceiving of and producing a plan or drawing of something before it is made”, or a “plan with a specific purpose in mind” (Stevenson, 2010). But designs are not always applied as intended by their designers (Suri, 2005) and these unintended or un-preconceived consequences seem all the more likely when the concepts and materials that form the basis of the design are treated as unstable or unpredictable. Therefore,

given the uncertainty of both the outcomes of a design process and the materials from which the design will be realised, design in this context is an active mode of inquiry that asks what role the material processes of design have in the working out of its concepts. In the plan of action, which is more significant—the plan or the action? This leads to the research question: what sort of design strategy could be based on the concept of the sonic effect and what forms of new understanding and practice might result from this approach? The sound design demonstrated in this thesis is the discovery of sound not through the application of existing concepts and technologies but through the development of new concepts and technologies in an exploratory process. This thesis describes this exploratory process, in which new concepts and technologies are developed and deployed.

Motivations

This project started out with an interest in the aesthetic effects arising from sonic ambiguity—these were evident in my own listening experience and in a wide range of literature, primarily poetry of the romantic era. After exploring this literature and realising that a serious study would require a background in literary studies, which I lacked, I started to pay close attention to research that examined these sources from the perspective of sonic arts practice and sound studies. In particular, I examined the contributions of the World Soundscape Project (WSP) and their *Sound References in Literature* (SRL) database, as well as the work of philosopher, urbanist and musicologist Jean-François Augoyard and his repertoire of sonic effects. Augoyard's *effets sonore* were very close to the object of study I had begun to identify. Importantly, his work developed a plural conception of sound and recognised diversity both within and between listening subjects. An engagement with Augoyard's work necessitated a careful reappraisal of the fundamental ontological and epistemological understanding that would underpin the research. In particular, it required a

MOTIVATIONS

careful study of aspects of the philosophy of Gilles Deleuze, which informed Augoyard's system of thought. This study highlighted the parallels between Deleuze's mid-century thought and the pioneering music theory of Pierre Schaeffer. Schaeffer's model of ordinary listening was central to my understanding of the use of diverse sound materials in electronic music composition.

A second motivation comes from working professionally over many years with exceptional artists and being amazed not only at their apparent intuitive understanding of the properties of sounds and ability to manipulate them in diverse creative contexts, but at the range of sonic outcomes achieved by these artists. Obviously the understanding these practitioners demonstrated was not entirely intuitive, but is built up from applied creativity, experience and trial and error. Nonetheless, the diversity of sonic arts practice must be accounted for. In this research I endeavour to methodically grasp some of that understanding in a deliberate and detailed way in order to make such an account. This suggests that the job of the researcher in the arts is not to account for how things are but for how they can be, or how they can become what they are not.

Research Questions

As outlined above, the problem area I address in this research is to pose the question "What is sound?" in a way that might provide new insights into ways of understanding and working with it, in a creative context. To do this, I explore the application of the concept of the sonic effect introduced by Jean-François Augoyard. This exploration is organised around the following questions:

1. In what ways is the concept of the sonic effect useful for exploring the definition of sound?
2. How is the sonic effect evident in ordinary discourse on sound?

3. What sort of design strategy could be based on the concept of the sonic effect and what might result from this approach?

In attempting to answer these questions I aim to show how they are significant for researchers and practitioners working with sound in creative, practical and theoretical contexts. I also hope to indicate how the concepts explored in the thesis may be useful in more conventional applied and basic research contexts.

Epistemology and Methodology

The thesis does not follow the Aristotelian model of beginning with a review of the ideas and opinions previously held by other thinkers (Cohen, 2014). Rather than producing a history of the thought on my subject area as a preliminary and foundation to the focus of my research, I select elements from this history to construct a discourse that attempts to produce new objects of knowledge within and beyond my subject area. These references are woven throughout the chapters of the thesis. Similarly, in the organisation of this thesis, I reverse the Aristotelian academic tradition of studying first things as they appear, or are known, or used; and second the “things better known in themselves” (Cohen, 2014, para. 2). Rather, the chapters move from an account of the “substance” of the objects of the study, through an empirical investigation that seeks to find evidence to support, refute or expand the substantive account, and then finally to the application of the knowledge gained. This sequential presentation hides the iterative, cyclic³ and experimental approach taken in the research itself which spans several years. Within the research process, concepts were explored and developed and contexts were created and observed, with neither taking priority but rather feeding into each other, concepts emerging in specific contexts and contexts emerging from the deployment of concepts. The format of the thesis presents the progression from concept formation to validation and finally to application as if there was a logical necessity behind the design, although no such necessity exists.

Central to the research design is the idea of the problematic. Problematic concepts such as those expressed in the title of this thesis are created by enclosing a series of related effects that are defined with respect to some usually unstated radical outside of the conceptual enclosure. For example, research in listening often assumes both a fixed or normative subject of listening, and a well-defined object or sound towards which this subjectivity is directed.

³ See Smith and Dean (2009) for a description of this approach to research design in creative practice.

Thus, this subject—object listening relationship is one key condition of the problematics of both listening and sound that is opened up in this research project. When the objects of knowledge that define the study are ontologically suspended between the actual and potential, the general and the particular, the formal or ideal and the material, then the interpretation of the knowledge arising from such a study will remain contingent on the aspect under which it is viewed. Pragmatically, I allow listeners and sounds remain to undefined but carefully explored, to allow the research to uncover or open the constituting enclosure of the concepts through which it works.

The Problematic of Sound

This inquiry addresses the problematic of sound by focusing on experiences of auditory confusion and their relation to potential aesthetic effects. As a method of inquiry, the problematic can provide a “systematic unity” to the inquiry without resulting in a single definitive solution. Following Kant, Deleuze (1968/1994, pp. 168–169) claims that:

Every solution presupposes a problem—in other words, the constitution of a unitary and systematic field which orientates and subsumes the researches or investigations in such a manner that the answers, in turn, form precisely cases of solution. Kant even refers to Ideas as problems ‘to which there is no solution’. By that he does not mean that Ideas are necessarily false problems and thus insoluble but, on the contrary, that true problems are Ideas, and that these Ideas do not disappear with ‘their’ solutions, since they are the indispensable condition without which no solution would ever exist.

Sound is just such an idea or problem which is at the centre of this enquiry and which will still exist as a problem even if solutions are found. Deleuze continues:

Kant likes to say that problematic Ideas are both objective and undetermined. The undetermined is not a simple imperfection in our knowledge or a lack in the object: it is a perfectly positive, objective structure which acts as a focus or horizon within perception. In effect, the undetermined object, or object as it exists

in the Idea, allows us to represent other objects (those of experience) which it endows with a maximum of systematic unity.

Such a conception helps clarify the object of study, in this case the idea or problem of sound, without defining it prematurely. Deleuze goes on to show how this systematic or differential unity is really the source of a repetition of ideas that “swarm in the fracture” of a subject divided moment to moment by the passage of time. In this way, the nature of the inquiry as problematic reflects or repeats the phenomena of sound and listening themselves.

The central concept of sound is not the only problematic encountered in this thesis. A directly related problem is that of listening given the tautologous nature of the mutual definition of sound and listening indicated above. Further, in engaging with a disparate range of theoretical material including from the sciences, philosophy and the arts I encounter many more problematic concepts such as perception, consciousness, representation, image, the self and subjectivity, in addition to the fundamental questions of existence and reality. In the context of a pragmatic and non-foundational inquiry, I do not discount the use of these terms from the three fields on the basis of incommensurability or incompatibility, or assume that they have some fixed and determinate meaning within any intellectual tradition or specialisation. Following Deleuze, I engage a “pragmatics that allows thinking to arise out of and in terms of actual practices rather than seeking metaphysical grounds” (Olkowski, 1999, p. 57). Therefore, by engaging directly with the practices and discourses surrounding the central problematic of sound I allow these other problem concepts to open up the inquiry and allow them to be recast in terms of the emerging descriptions of the central phenomena. Artist–researchers Hazel Smith and Roger Dean describe a model of an “iterative cyclic web of creative and research processes” that engage with problematic concepts in the context of research-led practice and practice-led research (2009, pp. 11-15). Their “rhizomatic” model⁴

⁴ This term refers to a concept introduced by Gilles Deleuze that contrasts with a roots–trunk–branches approach to representation prevalent in forms of scientific rationalism (Deleuze & Guattari, 1987, pp. 3-28).

effectively captures the unfolding relationship between research and practice that is demonstrated in this thesis.

Methodology

As indicated, I draw on concepts from the sciences, philosophy and the arts in the development of the *interdiscipline* of sound design. In his approach to musical research, Pierre Schaeffer developed the idea of an interdiscipline that would avoid “the pseudo-interdisciplinary attitude in modern music which consists in mapping every discipline involved on to one privileged, usually scientific, model”⁵ (Chion, 1983/2009, p. 95). In this contested interdisciplinary context, Schaeffer defends “music [as a universalizing activity, which, mobilizing several disciplines] validates what each [discipline] contributes through synthesis, facts as much as ideas, and, in the same way as they do, presents itself as an act of discovery, which aims as much or even more to establish a branch of knowledge as to create works” (as cited in Chion, 1983/2009, p. 96). It is this spirit of Schaefferian interdisciplinarity that I attempt to emulate in this thesis.

This interdisciplinary approach forms a sort of bricolage or iterative cycle of methods of data collection and analysis. The methods of enquiry I employ in each chapter of the thesis can be respectively summarised as problematic analysis, discourse analysis and practice-based research, but this summary hides the continuous overlap of these approaches. This interweaving is what defines the bricolage approach, which draws on the range of epistemological frames from the disciplines it touches. Each discipline enfolds the research problems within a temporary reification of certain categorical or conceptual entities that define their respective objects of knowledge. The image of the bricoleur was first suggested by Claude Lévi-Strauss in contrast to the goal-oriented approach of the engineer (Lévi-Strauss, 1966, pp. 21–22). In his discussion of mythical thought and bricolage, Lévi-Strauss

⁵ This was written in 1966.

states that “in the continual reconstruction from the same materials, it is always earlier ends which are called upon to play the part of means ... The characteristic feature of mythical thought, as of 'bricolage' on the practical plane, is that it builds up structured sets, not directly with other structured sets [such as language] but by using the remains and debris of events.” In the context of my iterative cyclic design I interpret this as the debris of the events of enlightenment, romantic, positivist, post-positivist and constructivist epistemologies leaving behind ontological and truth categories (their ends), which the bricolage method uses as a means to “build up structures by fitting together ... the remains of [these] events” in the understanding that these structures are themselves problematic conditions to be taken up in further research and analysis. This defines a pragmatic approach not only to analytical techniques but to the underlying concepts, by following William James (2000) in asking only for their use value in the current context of enquiry. It is just such a pragmatic approach that accounts for the promiscuous adoption of methods and analytical tools in my research.

Chapter Overview

As I have indicated, the thesis is structured as three linked but self-contained studies. The three studies respectively adopt theoretical, empirical and practical approaches. Each chapter contains a background section that introduces relevant contextual and conceptual literature.

Chapter 2 The Sound Effect: a Theoretical Intervention

In Chapter 2, I intervene in the theoretical discourse of sound theory. Rather than being a survey of the literature, this chapter represents an original contribution to the field of sound studies. It reinterprets aspects of the Aristotelian philosophy of sound through the lens of Deleuzian concepts. It goes on to appropriate and apply concepts developed by three key sound theorists who have explored the problem of sound. The examination of these theorists

follows their chronological order uncovering various forms of sound effect that emerge in their research. First, the pioneer of the French *musique concrete* movement Pierre Schaeffer introduces the idea of traditional musical practices as a subset of a more diverse set of potential sound art practices. For Schaeffer, the musical note is the paradigm case of a newly defined perceptible sonic unit: the sound object. Second, Canadian composer and pioneer of the acoustic ecology movement and soundscape composition R. Murray Schafer imagines the sonic environment as a form of music itself, whose composition is increasingly in the hands of urbanised human societies. Schafer identifies the sound event as the basic unit from which other ecologically salient sound structures are composed. Finally, French urbanist Jean-François Augoyard identifies the genetic process by which sound objects, sound events and environmental contexts make sense within various domains of discourse. This emergence of sonic sense he refers to as sonic effects.

This chapter concludes by describing the open-ended nature of sonic effects, which are characterised by complementary or interpenetrating potential and actual dimensions neither of which can provide an exhaustive definition but which together define their substance. The chapter uncovers ways in which the concept of the sonic effect is useful for exploring the definition of sound.

Chapter 3 Accounts of Sonic Experience: An Empirical Investigation

The study in Chapter 3 forms a logical intermediate step providing empirical substantiation of the concepts explored in the first chapter, and an analysis of the materials and processes that might be applied in the radical design strategies to be examined in the subsequent chapter.

Once again, the chapter contains its own background section that considers the role of narrative in the structuring of accounts of experience and explores the strengths and weaknesses of the interview method as a form of enquiry.

In this study, I have attempted to engage with the problematic of sound by employing the device of structured conversations that explored the role of ambiguity in the aesthetic response to sound. None of these three terms (ambiguity, aesthetic response, or sound) was well defined and so the function of this analysis was to uncover the way in which these three broad concepts are revealed within the discourse of the participants.

The analysis developed in this chapter highlights the diverse forms of reference to sound to be found in ordinary discourse and the processes by which sounds are actualised as they move between generalised forms of reference and descriptions of particular sound instances. The chapter uncovers how the sonic effect is evident in ordinary discourse on sound and also examines the usefulness of Augoyard's categories of sonic effects in understanding the stories of the participants.

The chapter concludes by considering the ways in which sounds gain their identities, and by describing the representation of sonic experience and listening. Finally, the conclusion returns to the themes of ambiguity and vagueness that are strongly linked to substantial nature of sound and the sonic effect.

Chapter 4 Radical Sound Design: A Practical Interrogation

In Chapter 4, I expand on the findings of the preceding studies in a practical *interrogation* in the form of two creative artworks that are described both in terms of their execution and their capacity to produce new forms of knowledge in the process of their development.

Each of the two creative works examined is prefaced by a contextual survey of relevant arts practice that was undertaken as the first step in the development of the works. The first deals with text-based sound works and provides a useful lens to explore the special case of voice as a particular form of sonic effect. The second deals with spatial sound art and highlights the ways in which space is encountered through sonic experience. The account of both works comprises the conceptual development and the detailed practical aspects of sound design. In both works the conceptual and the practical go hand in hand in the design process. In both works new concepts and new technologies are developed. This approach to the fundamental structures of the forms and materials of the work is what characterises radical sound design. This reappraisal of sound design is the concluding idea explored in the chapter and is offered as an open-ended answer to the question of what sort of design strategy could be based on the concept of the sonic effect and what might result from this approach.

Conclusions

In the final chapter, I return to the central concepts of the sound effect and radical design, and to the research questions of the thesis, to evaluate to what extent they have been addressed by the intervening explorations. Finally, I consider how the new knowledge developed in the thesis might be applied in the context of future interdisciplinary research projects not only in the theoretical and creative arts, but in media, communication and urban design and in more basic research on sound perception.

CHAPTER 2 THE SOUND EFFECT: A THEORETICAL INTERVENTION

Introduction

In this chapter I introduce the problem of sound, first by considering selected philosophical and theoretical responses to it and then by examining the way in which three key researchers have demonstrated possible ways of listening to it. These perspectives enable me to demonstrate ways in which sounds, as unstable phenomena, offer scope for aesthetic experience both in everyday life and in the creative arts. The chapter employs the method of conceptual appropriation suggested by Gilles Deleuze (1994, p. 54) in which the concepts of earlier authors are interrogated and re-used in ways that suggest new perspectives on existing problems. This form of reading is initially applied to some key concepts relevant to sound from Aristotle and then subsequently to the work of Pierre Schaeffer, R. Murray Schafer and Jean-François Augoyard.

As one approach to developing a theory of the sound effect, I examine the ways in which this concept is useful for exploring the definition of sound.

The problem of sound—a web of concepts

The problem of sound is introduced by exploring the themes raised by Aristotle, which have remained central to the practical and philosophical discourse of sound in the Western tradition to the present day. In approaching Aristotle I engage with his writings on sound as a representative starting point for subsequent philosophical discourse on the subject. In addition to briefly examining his coverage of the topic, I will creatively reconfigure his metaphysical concepts to show their relevance to more contemporary philosophical positions and to establish the ontological commitments that underlie the conception of sound used throughout the thesis.

The significance of sound in Aristotle’s natural philosophy is highlighted by the role of perception (*aisthēsis*) as one of the potentials of soul and a defining characteristic of those living things that are classified as animal⁶ (1993, p. 12, De Anima II.2 41 3b1). In keeping with Aristotle’s metaphysical and ontological system, the essence or substance (*ousia*) of sound can be found in both its actual and potential aspects (412a6–b4). For Aristotle, the potential for sound must be located not only in that which produces sound (not all things have this potential) but in the perceiver as well. Further, “actual sound is always of something in relation to something and in something” (419b9). This relational property is observed by Aristotle, between the object that strikes the sounding body; between the sound and its medium, for example air or water; and between the sound source and the listener. The actual, potential and relational substance of sound suggested by Aristotle continues to inform contemporary inquiry into sound; for example, in the work of the third key researcher examined here, French theorist of urban atmospheres Jean-François Augoyard (2007; 2005). Augoyard extends the concept of relationality through a systematic interdisciplinary study of the urban contexts in which sounds occur. Drawing on Deleuze’s concept of *surface effects* (1969/2004, pp. 7–16), Augoyard shows how sounds in the complex urban environment can be understood as occupying space at the intersection of various series of the discourses of acoustics, psychology and physiology of perception, sociology and everyday culture, musical aesthetics, architecture and urbanism, and textual and other media expressions. Following Deleuze, Augoyard develops the concept of the *sonic effect* (2005, p. 10) not located in a sound source, a medium, or a listener but comprising a surface that enfolds the listener, the source, the context, medium, form and matter; and on which these relations *make sense* as

⁶ For Aristotle soul is a relational property of life: “hence the soul is the first actuality of a natural body which has life potentially” (1993, p. 9, De Anima II.1 412a27). Note that references to and quotations of Aristotle’s *De Anima* are taken from the Oxford Clarendon edition as indicated in the reference list, subsequent citations in this thesis use the standard Bekker page column and line number as indicated in that text. References to *De Sensu* are taken from the earlier Cambridge edition and include Bekker numbers as well.

sound. This concept of a surface is not to be taken literally but is part of Deleuze's ontological notion of *the virtual* (Deleuze, 1968/1994, p. 183), which echoes, develops and transforms the Aristotelian notion of the potential aspects of substance (p. 31, 47). The concept of effect adopted by Augoyard avoids the predication of attributes or properties to objects or entities as a means to explain and define phenomena but rather focuses on processes or events that describe ongoing inter-relationships and transformations.

Augoyard was not the first to develop an interdisciplinary study of sound and he acknowledges the pioneering work of the two musician/theorists Pierre Schaeffer and R. Murray Schafer, whose ideas about sound I examine in this chapter. Both developed descriptive and explanatory systems for the materials of the *wide-open sound world* (Smalley, 1997) encountered in the experimental music studio and in the environment more broadly. Schaeffer's work was in response to the intuition that musical practice could be extended by incorporating a wider range of sound material than had been conventionally used in Western musical composition. His work with the primitive sound recording equipment employed in radio production in the late 1940s led him to imagine a universal musical instrument capable of reproducing any sound. His challenge then was to explore a subset of all possible sound objects that might be considered appropriately musical objects. Schaeffer's concept of the sound object was modelled on the musical note or tone, an isolatable unit of sound with easily perceivable and manipulable properties such as pitch, loudness and duration (Chion, 1983/2009). Like musical tones, musical sound objects should be able to be organised through variation of perceivable characteristics, other than pitch alone. The first step was to identify these characteristics, which maintained their identity alongside variations in among the many other characteristics that might make up a *solfege* of musical objects. Schaeffer's work employed a phenomenological approach to understanding the potential of the sound object for

musical composition. Schaeffer also explored the potential of existing studio technology and developed a range of novel devices to actualise and extend the investigation of listening on the one hand, and of the concepts of the instrument and the musical on the other.

In contrast to this, the Canadian composer R. Murray Schafer took both his musical practice and his concept of the musical, out of doors. Schafer (1993) focused on what he termed the soundscape, an ecological conception of the contributions and relationships of all actors within the sonic environment. Like Pierre Schaeffer before him, Schafer was concerned not with pre-determined facts about sound but with how these so-called facts represent certain values ascribed to sound in a range of cultural contexts. Schafer explored the musical values that we might apply in listening to the sound environment and considered the contribution of human society as part of a planetary sound composition. Understanding these characteristics and values involved an investigation into literary and other textual representations of sound as a record of past soundscapes, and an active programme of sound documentation undertaken by a team of researchers under the ambitious title of the *World Soundscape Project* (Truax, 1999).

Augoyard's conception of the sonic effect as a new, pre-paradigmatic⁷ object of study begins with a critique of these two approaches. This critique concerns both the spatial and temporal dimension of the entities engaged with and the aesthetic values inherent in the sound object or the soundscape. On the one hand the sound object is too small for practical application in the analysis of the urban environment and on the other the soundscape comes with a certain nostalgia that turns its ear away from the vitality of the modern urban milieu.⁸

⁷ The term *paradigmatic* is used in two different senses in this thesis. In the sense used here pre-paradigmatic suggests a concept or construct that is not yet central to a period of scientific thought and is therefore not yet an object of knowledge, see Kuhn (1996) and Foucault (2002). The second usage refers to an open-ended paradigmatic relation between concepts which is a relation of association as described by de Saussure, Bally, Sechehaye & Riedlinger (1974, p. 125).

⁸ This aspect of Schafer's approach to soundscape studies that evaluates soundscapes as lo-fi or hi-fi has been tempered in more recent work in acoustic ecology, see for example (Torigoe, 2005).

What is interesting in these three approaches is not in their definition of what sound is or its particular mode of existence. Augoyard does not even claim to have defined the sonic effect—it is a pre-paradigmatic and pre-conceptual—he prefers to leave it open to point the way to “to a new class of phenomena by giving some indication of their nature and their status” rather than producing another closed system of discourse (2005, p. 9). The real value of these three sense-making activities is the way in which they are productive of new ways of listening and new conceptions of and orientations towards sound. It is not hard to find evidence of this productivity: it is abundantly clear in the diverse developments of the genres of musique concrete, acousmatic music and radiophonic and sound art on the one hand following Schaeffer’s intervention (Manning, 2003), and soundscape composition and acoustic ecology following Schafer and the members of the WSP on the other (Truax, 2002). Further, Augoyard’s work may be seen alongside the increasing interest in all areas of sound design, sound studies and auditory culture (Bull, 2012; Bull & Back, 2003; Pinch & Bijsterveld, 2012; Sterne, 2012). This approach is not concerned with uncovering a set of conditions of possibility for such a diversity of expression; rather it is interested in the diversity itself and in the unfolding potentiality of sound phenomena. Moreover, the descriptions of the work of these three individuals are intended to reveal the diverse ways of *thinking sound*.

Sound Ontology

The nature of sound provides a series of puzzles. A common-sense⁹ understanding of sound might be that sounds are things we hear. If asked to clarify this assertion we might borrow concepts from science and suggest that sounds are travelling waves or disturbances of the air caused by vibrating bodies. Or perhaps we might suggest that sounds are perceptions,

⁹ The term common-sense has two uses in this thesis and is presented with or without a hyphen to distinguish between the two: (a) common-sense as a generally shared understanding, (b) common sense as suggested by Aristotle is a sense that provides perception of phenomena shared among the other senses.

or more specifically auditory perceptions caused by these waves. However, there is something not quite right in either of these clarifications. First, it seems wrong to suggest that we hear longitudinal waves in air, and not all sounds seem to have the quality of travelling through the air: some appear to be near or at their source and others appear to be less easy to locate (O'Shaughnessy, 2009). Similarly, to equate sounds with perceptions seems to deny their existence external to the perceiving subject. Further, this understanding is not reflected in our everyday talk about sounds. Following the simple, if apparently circular definition of sounds as things we hear, we might say, for instance: "I heard a dog bark". This utterance can be interpreted in several ways depending on the stress applied to each term in the sentence. It is not clear whether the word *bark* in this case is a noun or verb. If the former, then the thing heard is a sound, an instance¹⁰ of a more general type or class of sounds known as a bark, or dog bark. Alternatively, if the word bark is interpreted as a verb, then the thing heard is a dog in the act of barking. In this case we seem to be hearing an entity that is not a sound but an animal or more generally an object, or perhaps an event in which the object is implicated.¹¹

In philosophy, these puzzles and the distinctions they produce have a long history. Perhaps the most influential intervention was made by Aristotle in Book II Chapter 8 of *De Anima* (1993). Aristotle's approach, in keeping with his philosophical method, is part descriptive and part explanatory. Description is used both to assert the existence of the phenomenon and to sketch out its properties; and explanation attempts to extend our understanding of the phenomenon by looking into its causal relations.

It is not immediately clear what sort of a thing Aristotle considers sound to be. He shares our initial common-sense intuition that sounds are the proper objects of hearing; however, he makes the distinction between three aspects of the objects of perception. First,

¹⁰ This interpretation is an example of type/token ontology, see Wetzel (2011).

¹¹ In Deleuzian terms this is an event/effect. The use of the intransitive form 'to bark' implies an expression of the event's dynamic actualisation.

there are the special-objects of each sense, these are “whatever cannot be perceived by another sense” ... sight has colour,¹² hearing sound, and taste flavour, while touch has many varieties of object” (418a11). Second, there are objects of perception that are common to all the senses. These include movement, rest, number, figure and size (418a16) and also the rough, the smooth, the sharp and the blunt (1993, p. 106). Although there is no “special sense-organ for the common-objects” we might consider there to be a *common sense*. Finally, there are objects of perception that are incidental to the senses. These are things such as the identity of a person perceived or an object or thing: “the senses perceive each other’s special-objects incidentally, not in so far as they are themselves but in so far as they form a unity, when sense-perception simultaneously takes place in respect of the same object” (425a30). In his subsequent text on perception, *De Sensu*, he goes on to assert that “consciousness appears to recognize numerical identity [in the object of perception] not otherwise than by the simultaneity of the perception” (1906, p. 93 448a).

So from Aristotle’s perspective, whereas sound is considered the proper object of auditory perception—aspects of which which could be studied through the appropriately reductive methods of for example psychophysics,¹³ perceptual psychology or psychoacoustics (Moore, 2003) for example—we can see that sound also contributes to the perception of the common objects of perception, or object properties, via a common sense, and to the unity of the perception of objects or entities in general: suggesting the view of sound and its role in the perceptual development of object-hood explored in, for example,¹⁴ gestalt theory or ecological psychoacoustics (Van Valkenburg & Kubovy, 2004). Each of these fields operationalises the

¹² It is not clear that colour is an object of perception in the same way as sound. Sound seems to encompass the audible, but colour is only one aspect of the visible.

¹³ Note that Aristotle initiates the quantitative study of perception in *De Sensu* (1906, p. 83, 445b).

¹⁴ So-called multi-modal perception is theorised and studied in many contexts, significantly in the phenomenological tradition by Merleau-Ponty (2002/1945) whose philosophy took account of and reinterpreted the current psychological research of the time. Whereas object-hood falls under Aristotle’s incidental association of the special objects of each sense, his account of sharpness as a common object coincides with Merleau-Ponty’s phenomenology of multi-modal perception (2002/1945, p. 267)

concept of sound in order to conduct empirical and quantitative studies into a phenomenon that is contingently defined by the experimental context at hand (Green, 1992).¹⁵ These approaches attempt to generalise an understanding of sound based on operations on actualised entities. In this way, sound as a construct is actualised through its conceptual and experimental operationalisation. However, Aristotle's view is considerably more sophisticated than this.

Although Aristotle argues for a method that will provide the essential features on which a study of real entities can be founded, the problem of definition is not straightforward (Shields, 2012, De Anima I.1 402a1–403b7). He introduces the idea of substance explained in terms of potential and actual dimensions, and the distinction between form and matter. A true investigation into the substance of sound must, for Aristotle, take into account all aspects that are separable from any specific instance or actualisation but that are necessary to it (403b15) and that provide some basic explanatory account. This idea of substance is not identical to what we might commonly refer to as essentialism; on the contrary Aristotle finds multivocality or what has been referred to as *core-dependent homonymy* in the phenomena he investigates and uses to support his arguments. In Aristotle's usage, homonymy or multivocality mean that phenomena such as sound are "being spoken of in many ways" (Shields, 2012, para. 7), and that the invocations of the terms may or may not overlap. The core dependency here will usually be some basic form of existence or substance on which the specific phenomenon being described is dependent. It is this core or substance that can be found in a relation of interdependence between the potential and actual on one axis, and matter and form on another (referred to as hylomorphism).

¹⁵ Note that operationalisation does not in itself specify a commitment to an entirely multivocal view of sound see Green (1992) for a discussion of operationalisation in psychology.

In *De Anima*, Aristotle commences his comments on sound and hearing by asserting that “sound exists in two ways; for there is sound which is something in actuality, and sound which is so potentially” (419b4). He goes on to consider the potential for sound both in various materials that may be struck or rubbed, and in the organs of perception, and that sound may be actualised through the relations between these entities. At 419b9 he claims that “actual sound is always of something in relation to something and in something”, and he goes on to provide an explanatory chain of events that contains the rudiments of a system of acoustics including the excitation of a potentially resonant body, the transmission of sound through an otherwise silent medium, and its reception by the ear.¹⁶ Note that the potential dimension of each link in this chain implies that this system does not only flow in one causal direction from source to receiver, and that this nuanced view of causality is central to Aristotelian physics. This passage touches on several key issues taken up in subsequent theories of sound. He states that “the air itself is soundless ... but ... its movement is sound” (420a3), and that “sound is something external and not private to the ear” (420a18), but this should not be taken as a purely material realist position. Importantly, in attempting to define sound he searches for an explanation of its causation: “Is it the thing struck or the striker which makes the sound? Or is it indeed both, but in different ways?” (420a19). Once again, he asserts the relational potentiality between matter and medium as the substance of sound. Specifically, it is the qualities of this potential that are made evident in the fact that “the differences between things which sound are revealed in the actual sound” (420a26).

¹⁶ This theory is developed more explicitly in a minor work attributed to, but not accepted as the work of Aristotle: *On Things Heard* (1984b).

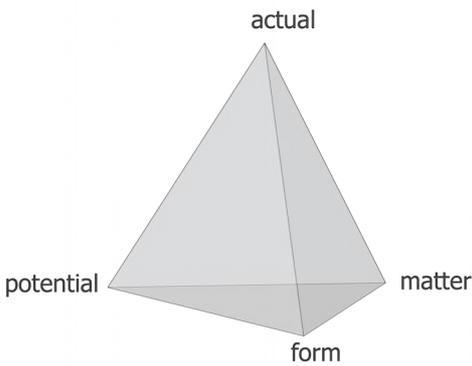
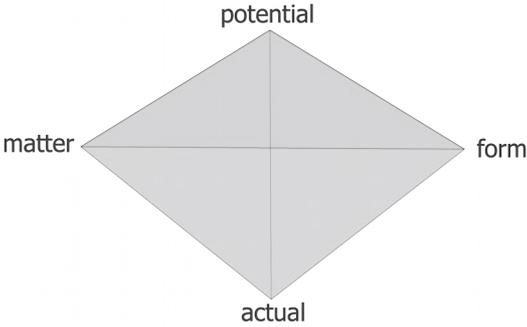
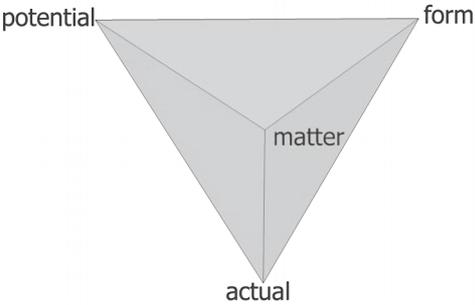
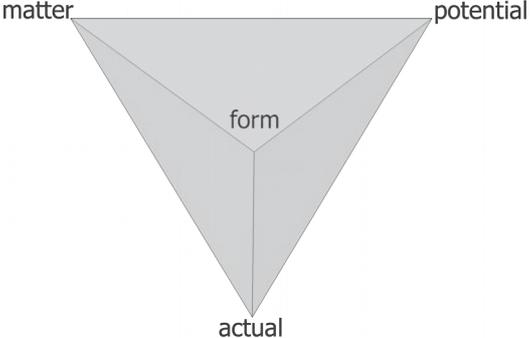
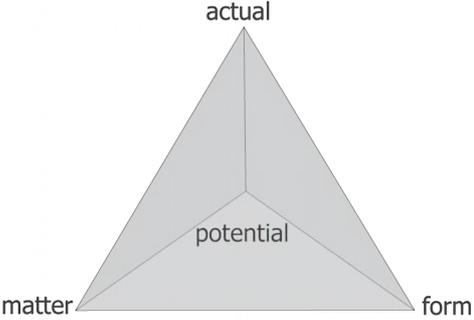
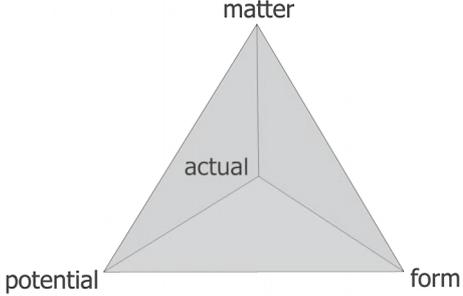
 <p><i>Illustration 2.1: Tetrahedron of Aristotelian Substance</i></p>	 <p><i>Illustration 2.2: Matter-form, actual-potential as orthogonal axes of the real</i></p>
 <p><i>Illustration 2.3: Matter under the aspects of the potential, formal and actual</i></p>	 <p><i>Illustration 2.4: Form in tension with the material, potential and the actual</i></p>
 <p><i>Illustration 2.5: The actual, formal and material are drawn in different directions by their potential</i></p>	 <p><i>Illustration 2.6: The actual realises the potential of matter through form</i></p>

Illustration 2.1–2.5 diagram a form of graphic thinking through which the Aristotelian concepts are imagined as a set of relational forces that define the substance of an entity. In any conception of a phenomenon these moments of being are in a state of dynamic tension. Note

that the centre or core of the tetrahedron is a void—there is no underlying entity, essence or substance to which the conceptual terms refer. On the contrary, the essence or substance of the phenomenon is purely a relation between the actual and potential on one hand and the material and formal on the other, each fully real in its own right. Changing the point of perspective on the diagram in three-dimensional space enables one to think of the form–matter axis as being orthogonal to the actual–potential. That is, conceptual movement in one axis may be made independently of the other.¹⁷ This use of the terms overcomes or rejects any priority or hierarchy between the terms which may be present in interpretations of Aristotle’s texts or in the texts themselves.¹⁸

Relational potential is more obvious when comparing sound to other objects of perception because as Aristotle points out the activity of that which is visible or has colour does not have a name, whereas “the activity of that which can sound is sound or sounding, while that of that which can hear is hearing or listening; for hearing is twofold, and so is sound” (425b26). He continues, “since the activity of the object of perception and of that which can perceive is one, though what it is for them to be such is not the same, the hearing and sound which are so spoken of must be simultaneously destroyed and simultaneously preserved.” What are preserved in this paradoxical demise of the actual is the potential and the relation between that which sounds, the medium and that which perceives.

In *De Anima*, his study of life and the soul, Aristotle picks out one particular sound with special properties: voice. By identifying this special sound, Aristotle points to a further potential of sound to be addressed by subsequent theorists, beyond the concerns of physics and ontology. For Aristotle “voice is a particular sound made by something with a soul; for nothing which does not have a soul has a voice” (420b27), and whereas some animals that do

¹⁷ A demonstration of this three-dimensional graphical thinking is shown in the video *Aristotelian Substance and Graphic Thought*, Stevenson, I., 2012 <http://www.youtube.com/watch?v=JYH68wfwU8>

¹⁸ An example of this form of reconfiguration of quasi-structuralist thought is detailed in the text *How Do We Recognize Structuralism?* by Gilles Deleuze (1972/2004).

have a soul make sounds this is not sufficient for voice as “there must be a certain imagination, for voice is a particular sound which has meaning, and not one merely of the inbreathed air, as a cough is” (420b27). Voice extends the function of breathing beyond its essential purpose of respiration by providing the animal with voice with the power of “expression [which] is for the sake of [its] well-being” (420b14). And so voice is an important sound that links human life and intelligence (*nous*) to the life and soul of the animal kingdom more broadly. The role of voice in the relations between and within consciousness has been taken up by more contemporary philosophers such as Ihde (2007, p. 147) and Nancy (2007), pointing once again to its relational ontology as effect.

Each of these themes introduced by Aristotle had been examined and developed in a range of philosophical and scientific discourse that has influenced our understanding of sound and its existence to the present day. Aristotle’s identification and separation of the special or proper objects of perception for each sense informed empiricist accounts from Locke and Berkley; however, where Aristotle recognised both a potential and actual dimension and a role for source, medium and organ of perception, both Locke and Berkley develop a representational model of indirect perception in which the objects of perception are ideas or mental images (Crane, 2011). Scruton (2009) develops the concept of sound as secondary property by asserting that sound has an existence independent of physical causes as in the cases of voice and musical notes or tones, which Scruton refers to as acousmatic sound, following Schaeffer. Scruton develops the idea of sounds as secondary objects or as pure events. Unlike other events that are similar to processes undergone by physical objects, sounds as pure events are not ontologically or physically dependent on physical causes. Like material events such as collisions between objects, sounds have a characteristic temporal structure with poorly defined temporal or spatial boundaries. However, while Scruton’s

discussion captures many of the dimensions of sound's existence, it lacks the subtlety and descriptive power of Aristotelian substances. Following Aristotle, Scruton states that sounds are the proper objects of audition or *audibilia*. However, rather than using a reductive or abstracting¹⁹ method—by removing aspects of perception generated by vision, smell, touch, etc.—to identify the purely audible, Scruton repeats Aristotle's confusing claim that “sounds are the objects of hearing in something like the way that colours are the objects of sight”. He claims that “their essence resides in ‘the way they sound’”. This leaves us with two problems: first, the possible circular or co-dependent relation between the definition of hearing and the definition of sound; and second, a lack of distinction between *sounding* and hearing. If sounds are pure events or secondary objects, then their essence, “the way they sound” or the essential process that they undergo referred to as *sounding* must be independent of hearing. In Scruton's scheme, the verb form of sound becomes a secondary property of the noun conceived as a pure event existing independently of physical objects that might otherwise be considered to have sound as one of their properties. Scruton goes some way to offering a reverse definition by abstraction (see footnote 19) by claiming that “sounds are absent from the world of the deaf person in the way that colours are absent from the world of the blind”, but this assertion raises more questions than it answers, in particular regarding the relation between the peripheral and central auditory processing systems in sound perception, the nature of auditory images, memories and imagination, and importantly the question of empirical evidence.²⁰

¹⁹ Abstraction in the Aristotelian sense is a process similar to subtraction. By taking away elements that are neither necessary nor sufficient for definition we are left with the essence. The reciprocal operation is also true; we must add on all the features of the actual to move from the abstract potential and realise a concrete particular.

²⁰ An introduction for the lay reader is provided in Sacks (1989). Sacks' discussion of “seeing voices” brings into question many of the assumptions regarding the nature of sound as the sound of voice, identified by Aristotle and elaborated by Idhe, Nancy and others.

Aristotle's account of common sense or object perception prefigured its re-emergence as a topic for perceptual psychology and phenomenology (Merleau-Ponty, 2002/1945), following the quantitative focus on the operation of the separate senses of early psychophysics (Neuhoff, 2004b, pp. 4–6). The phenomenological approach was supported and developed by empirical research into auditory streaming and grouping (Bregman, 1999). The phenomenology of perception deals with the problem of relationality as developed in Husserl's conception of intentionality and the unity or given-ness of actualised percepts as developed by Heidegger, and subsequently by Merleau-Ponty (Ihde, 2007, p. 25; 2012; Merleau-Ponty, 2002/1945).

The problem of the location of sound also raised by Aristotle—as to whether it is at the source, in the air or in the ear—has been a useful device in contemporary and historical philosophical argumentation on the nature or ontology of sound and of auditory perception (Casati & Dokic, 2009; Nudds, 2009; O'Callaghan, 2007; O'Shaughnessy, 2009). The study of sound localisation from a quantitative perspective also supports Aristotle's identification of the potentiality of the cognitive dimension in sound perception (Blauert, 1997, p. 409).

Finally, Aristotle's conception of the structure of the real is echoed in part by the relation of the virtual to the actual in the philosophy of Gilles Deleuze. My selective reading of Aristotle's metaphysics above highlights the dual aspect of the potential of a given entity, as a potential to act and be acted upon resulting in a diversity or multiplicity of actualised entities of any given kind. This genetic or causal concept of phenomena such as sound is arguably central to the metaphysics of such entities developed by Deleuze in the text *Difference and Repetition* (1968/1994). However, Deleuze finds in Aristotle a “propitious moment” (p. 29) in which it is shown that differences between generic entities must rely on a preceding identity between a concept and its instantiation. Therefore, to use the technical

language of philosophy, a specific univocity of a concept relies on multi-vocality of being. Specifically, in Aristotle, the abstract genera and species have a hierarchical relation of dependence grounded in the fully actualized reality of particular entities. Despite this multi-vocality of being, Deleuze asserts that Aristotle's metaphysics does in fact uncover the primacy of difference and considers *difference in itself*, but confuses, or is forced by his mode of argument to confuse, the identity of real entities with the identity of concepts that stand for them and that this confusion or "sleight of hand" (p. 32) produces the multi-vocal system of categories in which the mode of existence of the various entities that make up the real can be shown to be hierarchical or ordered in relations of dependence. In contrast, for Deleuze: "being is univocal" (p. 35) and all forms of being are equally real. It is from this denial of the ontological priority of the actual that Deleuze asserts the nature of entities such as colour (p. 182) as being multiplicities. Deleuze seems to follow Aristotle's conception of substance as encompassing both potentiality and actual dimensions to the logical conclusion that each entity, either conceptual or physical, must be multiple. The identity of an entity such as the concept of sound or an instance of actualised sound, when considered under the aspects of its potential to act or be acted upon, its formal and material properties, the context of its actualisation, its numerical identity or its qualitative identity must, in Deleuze's and apparently Aristotle's scheme, be essentially multiple. Where for Aristotle, a concept is essentially an abstraction or reduction (through subtraction); Deleuze considers concepts to be multiplications. This key ontological scheme serves as the basis for the investigations into the various theories and practices of sound that follow.

I have attempted to show how Aristotle's conception of the substance of the real—made up of the relations of the potential and actual, and form and matter—offers a way of thinking through the ontology of a multiplicity such as sound. In this ontology, although being

itself may be univocal as Deleuze suggests, entities such as sounds must always be multi-vocal or spoken of in different ways highlighting the difference that underlies or generates their actualisation. And so, how are these ideas worked out in actual practice, how does this type of thinking about sound affect how sounds are treated and produced in practice? If, following Aristotle, we accept that sound is a multi-vocal phenomenon “spoken of in different ways” and that its substance is essentially a set of relations between matter and form on the one hand and potentiality and actuality on the other, we should expect that sound is a flexible entity that might be actualised in many different ways. In what follows, I examine three ways in which different conceptualisations of sound have understood its potential differently and thereby produced new actual forms of sound making, and listening.

Schaeffer and the Sound Object (Music as Sound)

As I have indicated, in this chapter I am interested in exploring the concept of the *sound effect* that describes and explains the complexity of our relations to sound. In the brief sketches that follow I explore how this framework articulates with the more or less overt philosophical orientations of three key twentieth-century sound theorists: Pierre Schaeffer, R. Murray Schafer and Jean-Francois Augoyard.

Of the three, Pierre Schaeffer offers the most detailed body of theory in his writings developed alongside the early work in electroacoustic music conducted by the so-called Paris school of *musique concrete* in the years following the Second World War. Schaeffer’s principal writings on music span the period 1948–1966 (1952/2012, 1966) and reveal the contemporary philosophical influences of phenomenology and structuralism.

Schaeffer’s Structuralism

Schaeffer developed a thesis on the possible existence of musical objects including, but extending beyond, the domain of the pitched sounds on which conventional musical

practice is based. His theory and experiments in the development of a potential music built from these musical objects are both critical of the contemporary musical trends of his time, and cautiously self-critical. Schaeffer was continually wary of producing a set of fixed theoretical structures that would too pre-emptively constrain any potential musical practice that might arise from his intervention.

Although his discourse is saturated with structural devices for the description and clarification of his ideas, he appears to have viewed these structures as methods of articulation for the concepts he was developing. I use the term articulation in two senses. First, articulation is “the action of putting into words an idea”, and second: “the state of being jointed” (‘articulation, n.,’ 2011, n. 1., 3.). In the first sense, Schaeffer’s structures of thought brought about new contrasts and associations; they were productive of new ways of conceiving of musical sound. In the second sense of structural articulation, Schaeffer joins together ideas to produce series of concepts both between the conceptual entities in a dyad or pair, and through connections or intersections between successive pairs. This method of thought is most clearly understood and exemplified in the work of Gilles Deleuze, whose two important texts *Difference and Repetition* (1968/1994) and *Logic of Sense* (1969/2004) were published in the years following Schaeffer’s *Traite des Objets Musicaux* (1966). In *The Logic of Sense* (see the section “Eighth Series of Structure”, 1969/2004, pp. 48–51) and in the text *How do we Recognize Structuralism?* (1972/2004), Deleuze provides a model for aspects of Schaeffer’s reading and application of structuralist thought.²¹

For this reason and because of the links between Aristotelian and Deleuzian metaphysics highlighted above, I have chosen to engage in a Deleuzian re-reading of aspects of Schaeffer’s writing. I understand the notion of a Deleuzian reading (1994, p. 54) not as a

²¹ What Schaeffer knew and thought of Deleuze, his contemporary, is for me an open question and a topic for future research.

reinterpretation of a given text in terms of the ontological and metaphysical categories of Deleuze's philosophical system but rather, as Deleuze suggests, as a form of portraiture that understands the concepts developed by any writer as already multiple and capable of producing new perspectives on the subject. This mode of reading is demonstrated in Deleuze's early writings on historical philosophers and is outlined in the essay *How do we Recognize Structuralism?* in which he asserts that "no book against anything ever has any importance; all that counts are books for something, and that know how to produce it" (1972/2004).

I believe this productive spirit is just what characterises Schaeffer's project, one which encompasses new forms of music and sound production, new modes of listening and importantly an influential body of writing. Often regarded as a polemic against the excessive abstraction of European modernism, a close reading of Schaeffer's output reveals a non-prescriptive reappraisal of the musical or musicianly as a system of differential relations with no pre-determined endpoint.

Part of Schaeffer's project was to re-engage with phenomenology. His *Traite des Objets Musicaux* or *Treatise on Musical Objects* (1966) represents the culmination of 20 years of empirical, experimental, creative and theoretical work that attempted to suspend both common-sense and scientific assumptions about the materials he was exploring. Schaeffer dealt with sonic phenomena as they *appeared*, not as represented by theory, but his phenomenology was alive to contemporary thought. His theories are often charged as exhibiting essentialism (Kim-Cohen, 2009, p. 94), but there is very limited evidence for this assertion: in fact his work demonstrates a thorough going pluralism. This view is supported not only by a careful analysis of the symbolic relations within his apparently structuralist system but also by numerous comments attuned to the possible such that "there are musics,

and that there are not solely differences of genres (such as lyrical or symphonic), but doubtless differences of nature. For the arts which involve the ear, there could be as great a variety as in the arts which use space” (quoted in Chion 1983/2009, p.188).

Exploring the Sound Object

One of Schaeffer’s key phenomenological concepts is the *sound object*: a fragment of sound as it reveals itself to perception when stripped of associations with physical causes or other meanings. Schaeffer shows how the sound object is an eminently flexible entity that will be shaped by, or will shape whatever set of specialist listening practices that are applied to it. In this way, the sound object and its correlated sounding and listening are, appropriately for sonic phenomena, an event or an effect of sound or more simply a *sound effect* that enfold the listener and the sounding in a surface of sonorous sense.

To demonstrate the practical significance of Schaeffer’s phenomenology, it is instructive to consider his approach to timbre. Schaeffer’s phenomenological orientation exposed the way in which the common concept of timbre stands for our tendency to think identity—it is a form of auditory cognition at work, conforming to the conventional “image of thought” that Deleuze attacks in his book *Difference and Repetition* (1968/1994, p. 129). Timbre is a tautological concept—a phantom that vanishes when pursued through the systematic musical experiments conducted by Schaeffer. Few theorists at the time recognised this (Puterbaugh, 1999, p. 63) and most employed a negative definition of timbre as the perceivable differences in musical sounds when pitch and loudness²² are kept constant. Many persisted with Helmholtz’s spectral definition (1954) in which timbre can be reduced to a sum of frequency components. The understanding of the complex multidimensional nature of timbre emerged slowly (Wessel, 1979) and a more nuanced and critical view only became

²² Note that loudness is a concept similar to timbre that should be susceptible to a more phenomenologically informed investigation. For a contemporary survey see Florentine, Popper, & Fay (2010) and Schlauch (2004).

mainstream in psychoacoustics in the last decade of the twentieth century (Bregman, 1999, p. 92).

In his early experiments in sound editing and mixing Schaeffer (1952/2012) discovered that an instrument timbre appeared to be transformed when the attack portion was removed or when the natural decay was postponed. He also noted the variations in structure of instrument timbre across the normal pitch range of an instrument. Unlike pitch or loudness, timbre cannot be continuously varied in any single perceptual dimension. In Schaeffer's system, because timbre is not susceptible to use as a differential function or unitary perceptual dimension, it is replaced by the more subtle concepts of *genre* or *criterion*.

In developing his unique terminology for the characterisation of sounds, Schaeffer recognised the concept of timbre as a shorthand for what Merleau-Ponty described as consciousness of "what things mean" (2002/1945, p. xv), a recognition that perception is bound up with the "world-as-meaning", which becomes apparent through the process of phenomenological reduction. This world of sonic meanings is evident in the identification of such musical typological criteria as *facture* (Chion, 1983/2009, p. 129), both a quality of perceived variations in the sustained portion of a sound and a clue as to the material and energetic aspects of sound production.²³ The identity of instrumental sound or timbre is apparently an effect of the sonorous—a sound effect.

A key moment in Schaeffer's exposition is the discovery of so-called *reduced listening*. This revelation came about as a result of experiments with the radio production equipment of the 1940s, particularly the lacquer disc recorder. When the groove in the disc whose depth or horizontal displacement is the analogue of the sound pressure produced by the source is accidentally closed by scratching the disc's surface, a repeating sound fragment is produced. After a short period the sound appears to lose its inherent connection to its material acoustic

²³ The French term *facture* shares a common root with the English word *manufacture* (Dack & North, 2006).

source and becomes an independent sound phenomenon, or pure acousmatic event. The term *reduced listening* borrows from Husserl's concept of phenomenological reduction²⁴.

This revelation highlights the differences in the objects of perception of the various senses and our naive assumptions about the nature of those objects. Whereas the unities of vision and touch seduce us into assuming that the objects of perception are physical objects (despite the everyday presence of such phenomena as sky and rainbows), reduced listening reveals the object of audition as an entirely different type of entity, which Schaeffer terms the *sound object*.

Schaeffer tells us that the term acousmatic is borrowed from the Greek Pythagorean cult in which the master is hidden behind a sheet to allow the disciples to focus on the aural transmission of the teaching rather than the presence of the Master (Schaeffer, 1966 p. 92). In the electroacoustic sound studio, recording media provide the necessary isolation from the physical source of a sound that encourages us to focus on its form and matter rather than its source, but as Schaeffer claims, it is repetition of the sound that allows us to lose our normal conditioned interest in the source and become fully aware of the sound object itself and all the details of its audible features. All broadcast media produce acousmatic sound, but some musics deal exclusively with the acousmatic nature of electronically produced sounds.

Philosopher Roger Scruton has asserted that the musical tones of the Western classical tradition have this acousmatic property by virtue of their existence as pure events independent and abstracted from their material instrumental causes (2009).

Schaeffer's Sound Effects

The term *sound effect* has several uses in Schaeffer's lexicon, which all link to the idea of an effect as a relationship that forms a type of listener or listening. Schaeffer's first

²⁴ The phenomenological reduction is a method of enquiry which gives primacy to appearances, bracketing out explanatory assumptions about a phenomenon. For an introduction to the Husserlian reductions or epoché and their subsequent development as a contemporary method, which was familiar to Schaeffer see Idhe (1977).

engagement with sound effects was with a collection of sound-making devices used to *illustrate* the scenes of radio drama production, including “clappers, coconut shells, bicycle horns ... door bells, alarm clocks, rattles, [and] whirlygigs” (1952/2012, p. 4), with which he hoped to develop his first concrete musical compositions. Schaeffer retains the pejorative use of the term “mere sound effects” but also indicates that such sounds can move “from being an effect to being a means of discovery” (1952/2012, p. 31).

In defining the sound object, Schaeffer elaborates on the longstanding distinction between sound and noise that commonly differentiates the organised sounds of musical instruments characterised by identifiable pitches and timbres of variable duration from all other environmental noises (1952/2012, p. 134). Schaeffer suggests that in concert, audio or audio-visual media, an ordinary listener will listen for a musical or a dramatic context in which to situate each type respectively. In this way the sound effect has a dramatic or dramaturgical function. Its *effect* is to orient the listener towards a particular form of sonic *discourse* or structure of audible sense.

In his earliest experimental concrete studies, such as the seminal *Etude aux Chemins de Fer* (Schaeffer & Henry 1998, [1948, disc 1, track 1]), Schaeffer notes that his use of the sounds of the railway station produces a “monstrous result” juxtaposing “dramatic sequences” with other more musically successful sequences.²⁵ The dramatic sequences in which “we witness events, departures, stops”, etc., achieve “popular appeal” but act to “constrain the imagination”. Whereas the possibly more musically successful sequences occur “where the train must be forgotten and only sequences of sound colour, changes of time and the secret life of percussion instruments are heard” (1952/2012, pp. 12–14). For Schaeffer, the techniques of isolation and repetition transform the anecdotal into the musical, resulting in a new principle

²⁵ I note Schaeffer’s use of the mythological concept of the monster as a joining together of disparate elements to create something new with unpredictable powers. He developed this idea in the 1944 radio drama *La Coquille À Planètes* (1990). The work itself is perhaps a metaphor for the joining of technology with the cultural reservoir of myth.

of sound organisation—the sound object, isolated from its function in either a conventionally musical or dramatic context and inviting attention on its intrinsic sonic properties alone.

A further use of the term *sound effect* is revealed in Schaeffer's description of the compositional process of these early concrete studies. One of the principles of Schaeffer's compositional approach was the discovery of sound characteristics that retained perceptual permanence but that could be subject to variation such that sequences or passages of musical values could be produced resulting in abstract structures of musical meaning (Chion, 1983/2009, p. 70). The model or archetype of this principle is the relationship between timbre and pitch. In conventional music, variations in pitch that make up a melody are made salient when produced by a single instrumental timbre. In this case the identity of the instrument timbre remains permanent while the pitch is varied. This permanence of the characteristic instrument timbre is the effect of, or is produced by variations in pitch and conversely the relative values of successive pitches are produced through the permanence of the timbre (1983/2009, p. 48). This structural relation of permanence–variation is axiomatic to Schaeffer's definition of instrument, musical object and to the concrete music that he was attempting to develop.

The experimental *evidence* that revealed the permanence–variation law and extended it beyond the conventional timbre–pitch relation emerged while playing a small loop of train material. Once again the process of isolation and repetition focuses the listener on the sound object free from reference to the material source; in this case the most salient feature that emerges is a complex rhythm.²⁶ By applying the crude equalisation filters then available as signal processing effects, Schaeffer was able to vary the “sound colour ... dark, light, dark, light” (1952/2012, p. 8). This produced two effects: first by varying the value of “sound

²⁶ The reader is encouraged to listen with an open mind/ear to the railway study to imagine what Schaeffer heard.

colour” a kind of permanence emerges for the rhythmic sequence and second, this permanence produces or amplifies the identity of the small sound fragment further overwhelming its meaning as a train sound and producing the independent sound object. As mentioned, this independent sound object capable of variation but retaining some perceptual permanence is the basis of Schaeffer’s definition of the instrument. Already in 1948, Schaeffer not only foresaw the development of a cybernetic meta-instrument (1952/2012, p. 18) (realised in today’s digital sampler) but held the view that the concept of *instrument* (Chion, 1983/2009, p. 53) was central to the definition of music itself, and that therefore any definition of instrument must be flexible enough to accommodate the concrete music he was working towards.

Another use of the term sound effect emerges in Schaeffer’s development of the concept of the sound object. The sound object follows Husserl’s concept of the transcendental object that emerges as a result or effect of the method of phenomenological reduction or epoché. In simple terms, the phenomenological reduction involves ignoring any preconceived notions of explanation or causality, and observing a given phenomenon merely as it presents itself to consciousness. Schaeffer notes that we are used to assuming or “implicitly postulating the physical cause [of a sound that] comes before the perceived effect”. For example, when we ascribe a physical cause as the name of a sound such as a *knocking-on-the-door*. However, by paying attention to the sound itself, in this case a *knocking sound*, we become aware that it is by our access to the sound, that the cause is inferred. Following Merleau-Ponty and Heidegger, Schaeffer notes that this “language of things” must be learnt and that “the habit we have formed of so easily identifying ... sources, [by] the various sounds they make hides this learning process from us” (1966, p. 337).²⁷ Prefiguring Schaeffer’s reduced listening Heidegger (1967, p. 207) asserted that:

²⁷ Unpublished translation by John Dack and Christine North used with permission.

what we ‘first’ hear is never noises or complexes of sounds, but the creaking wagon, the motor-cycle. We hear the column on the march, the north wind, the woodpecker tapping, the fire crackling. It requires a very artificial and complicated frame of mind to ‘hear’ a ‘pure noise’.²⁸

These observations show that the effect of many sounds is our habitual reference to their source but this may be overcome by the application of a “complicated frame of mind” which Schaeffer calls reduced listening.

By becoming aware of the sound object that precedes any explanatory cause and points to such a cause, we observe the *sound effect* taken up by Deleuze partly in his response to Husserl and forming the basis for his event-effect ontology (Williams, 2008, p. 129). For Deleuze, our experience of or encounter with the world is one of *making* sense of the objects and events that present themselves; or more accurately, sense arises or is produced as an effect in which the encounter is made salient. These effects and their consequences are well known and have been demonstrated in empirical recognition and identification studies (McAdams & Bigand, 1993, p. 155). Schaeffer also acknowledges the reciprocal nature of this form of effect in producing a listening subject of a certain specialisation or expertise. It is not so much the expertise of the listener that allows them to recognise or identify a certain sound or sound value; it is rather the sound object that invokes that expertise or listening intention of which it is the correlate. The process of recognition and identification run both ways as both the potential of the sound and the listener is actualised in a certain direction.²⁹ The sound becomes fixed under a certain aspect as does the listener as, for example, ornithologist, musician, poet or technician.

²⁸ For Heidegger, this aspect of listening demonstrates our “dwelling alongside what is ready-to-hand within-the-world” as part of his direct critique of Cartesian subjectivity.

²⁹ This process is demonstrated in the following chapter under Ambiguity and Sound Actualisation on page 141.

Modes of Listening

In an attempt to understand these effects of listening, Schaeffer developed a sophisticated and flexible listening theory. Once again this theory bears the hallmarks of structuralism but as I have indicated his form of thought shares many of the features of Deleuze's approach. Schaeffer's acousmatic revelation was perhaps not so much to hear the reduced sound object, but to hear clearly the everyday in all its naivety, multi-modal and differential complexity (Chion, 1983/2009, p. 11). For Schaeffer, ordinary listening is a dynamic process that is energised by a "two-fold tension" between the objective and subjective dimensions on one hand and abstract and concrete dimensions on the other. This pair of dualities resolves into the four series or modes that make up Schaeffer's model of ordinary listening. Schaeffer's ordinary and specialist listening modes comprise a potentially open-ended set of effects through which a listener is formed.

Several subsequent theorists have proposed models of listening to environmental sounds, for example Gaver (1993a), considering listening to sounds in the environment suggests two modes of listening: *everyday listening* that identifies sound sources as objects or events; and *musical listening* that focuses on the intrinsic properties or features of sounds. These ecological concepts of ways of listening musically are extended by musicologist Eric Clarke (2005) who identifies various *listening styles* associated with certain forms of subjectivity. Whereas the former has the benefit of simplicity and clarity and the latter adds some subtlety and complexity, neither of these models captures the descriptive power and dynamism of Schaeffer's approach. Table 2.1 below summarises Schaeffer's model of four listening modes that characterise so-called ordinary listening.

Schaeffer's Four Listening Modes

<p>4. COMPREHENDING [COMPREDRE] for me: signs before me: values (meaning–language) Emergence of a sound continuum and <i>reference to, confrontation with</i> extra- sonorous notions.</p> <hr/> <p>A meaning conveyed by SIGNS.</p> <hr/> <p>Comprehending, means grasping a meaning, values, by treating the sound as a sign, referring to this meaning through a language, a code (semantic listening; Abstract/Objective).</p>	<p>1. LISTENING [ÉCOUTER] for me: indexes before me: external events (agent–instrument) <i>Emission</i> of the sound</p> <hr/> <p>Events, causes, of which the sound is an INDEX.</p> <hr/> <p>Listening, means listening to someone, to something; and through the intermediary of sound, aiming to identify the source, the event, the cause, it means treating the sound as a sign of this source, this event (Concrete/Objective).</p>	<p>(1) & (4) OBJECTIVE because we turn towards the object of perception.</p>
<p>3. HEARING [ENTENDRE] for me: qualified perceptions before me: qualified sound object <i>Selection</i> of certain particular aspects of the sound.</p> <hr/> <p>Selected sound object by means of selective perception.</p> <hr/> <p>Hearing, here, according to its etymology, means showing an intention to listen, choosing from what we perceive what particularly interests us, in order to make a “description” of it (Abstract/Subjective).</p>	<p>2. PERCEIVING [OUIR] for me: crude perceptions, rough outlines of the object. Before me: crude sound object <i>Reception</i> of the sound</p> <hr/> <p>Raw sound objects by means of raw perception.</p> <hr/> <p>Perceiving, means perceiving by ear, being struck by sounds, the crudest, most elementary level of perception; so we “hear”, passively, lots of things that we are not trying to listen to or understand (Concrete/Subjective).</p>	<p>(2) & (3) SUBJECTIVE because we turn towards the activity of the perceiving subject.</p>
<p>(3) & (4) ABSTRACT because the object is stripped down to qualities that describe perception (3) or constitute a language, express a meaning (4).</p>	<p>(1) & (2) CONCRETE because the causal references (1) and the raw sound data (2) are an inexhaustible concrete given.</p>	

Table 2.1: Schaeffer's four listening modes adapted from Chion (1983/2009). The diagram shows four quadrants describing four modes of listening, each characterised by a combination or emphasis on subjective, objective, abstract or concrete aspects.

Schaeffer's model suggests the way in which listening, rather than being a process directed or carried out by the listener, is something that happens to or through the listener. This is not to assert that we could not direct our listening attention in certain ways by exercising expertise or habits of listening of one sort or another, but rather, when we do so we are inserting ourselves into these processes without fully being in control of them—we take our place within something called listening.³⁰ Although Schaeffer's description of everyday listening remains anchored in the transcendent Husserlian language of subjects and objects, it

³⁰ This paraphrases Williams' description of Deleuze's conception of thinking: “The Thinker Deposed” in Williams (2008, p. 175).

is clear that the subjective is partly determined by objective disciplinary practices, and what shows up as the objects of audition are conditioned by listening subjectivities.

Chion has selected the following ideas from Schaeffer's *Treatise on Musical Objects* to support this interpretation of the diagram of the four modes of everyday listening:

In every act of listening ... on the one hand there is the encounter between a person receptive within certain limits and an objective reality; and on the other hand, abstract value judgements, logical ways of describing, detach themselves from what is given in the real world, which tends to organise itself around these, but without ever being reduced to them.

Every listener can "specialise" in one "of the four poles which arise from this twofold tension" [between the abstract and concrete], but always in relation to the three others: "No specialist can in fact dispense with 'going round' the whole cycle of quadrants several times, because no-one can escape from his own subjectivity when dealing with a supposedly [abstract] objective meaning or [concrete] event, or from the [abstract] logical deciphering of a [concrete] event inexplicable in itself, and hence from the uncertainties and the progressive learning process of perception" (Schaeffer (1966) quoted in Chion, 1983/2009).

In Table 2.1, Quadrant 1 is the most basic or most apparent mode of listening, to the objective and concrete sources or causes; for example, to "hear the door slam". In this mode the intentionality of my listening is directed towards external objects. In this case sound is an index not only to external events as Schaeffer indicates but also to a larval subjectivity (Deleuze, 1968/1994, p. 78), passively synthesised but with the potential of blooming into a fully formed Cartesian or Husserlian subject oriented towards the recognised objects whose representations apparently occupy or form consciousness (1968/1994, p. 133).

In the second quadrant, perceiving is represented as a subjective and concrete experience of sound in everyday listening. In this mode sound is actualised not as some abstracted form but related to its reception as a raw and crude outline of the object. We could

think of this as the Heideggerian moment of everyday relation to equipment ready-to-hand, a moment in which being and listening are united. As Heidegger suggests, “this potentiality for hearing ... is existentially primary” and in our everyday being “the swirl of sensation” is not necessarily consciously organised to give shape to what is understood (2005).

The third quadrant is the first moment of abstraction in which subjective descriptive categories are invoked, leading to a dynamic focus on the object–structure relation (Chion, 1983/2009, p. 58) within which any sound is actualised. In this mode new values or descriptive categories of sound emerge through the opening of audition to the productive force of difference in relation to the repetition of previously acquired subjective or intersubjective values.

Finally, in the fourth quadrant, the fully abstract and semiotic mode of comprehending sound in which pre-existing objective values offer reference to and confrontation with the extra-sonorous. In Mode 4 we hear the meanings of words and signals.

As Nancy, points out the two poles of “sense (that one listens to) and a truth (that one comprehends)” (Nancy, 2007, p. 2) are inseparable and when mapped on to Schaeffer’s modes we see that moving around the circuit from Modes 1 to 4 we arrive where we began. The truth of a verbal assertion is not so very different from the truth of a correctly identified sound source. This truth or the sense that is made by the apprehension of the sounding life–world (Husserl, 1970, p. 104) establishes it as a material fact. In this observation is a germ of Husserl’s definition of the task of transcendental philosophy, as pursued by Kant, which “undertakes to understand the existing world as a structure of sense and validity” (Husserl, 1970, p. 99). The structure of this life–world (its ontic meaning) as a set of validities is brought into relief in the apprehension or intrusion of illusion, ambiguity and confusion, or in the form of the acousmatic revelation.

Schaeffer’s model of everyday listening has been adapted by other composers working with environmental sound, including Schaeffer’s student and fellow media theorist Michel Chion and Groupe de Recherches Musicales (GRM)³¹ alumnus, composer Denis Smalley.

Illustration 2.7 attempts to show the relations between the three systems.

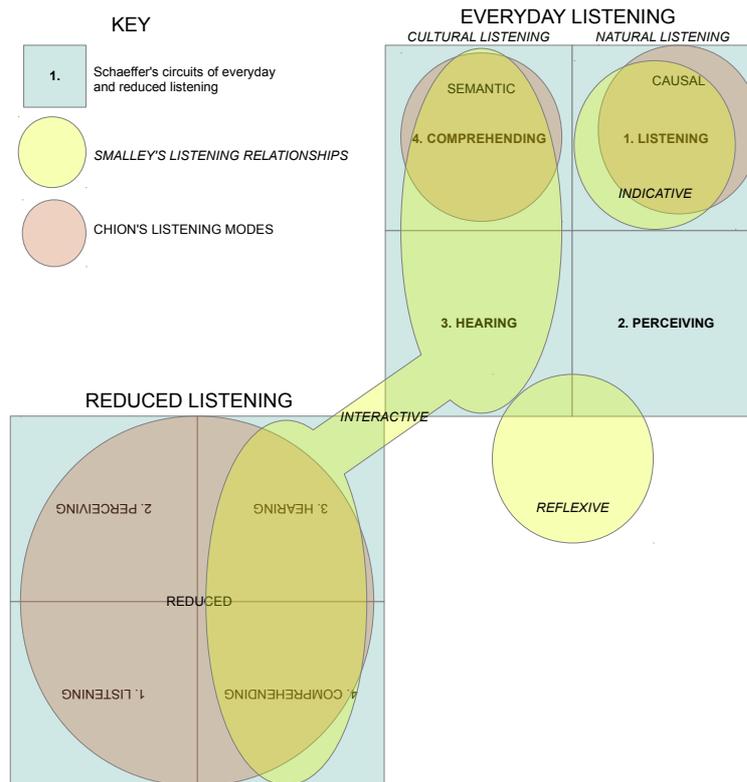


Illustration 2.7: Listening modes diagram. This diagram shows how Schaeffer’s initial model was adapted and developed by Michel Chion and Denis Smalley. Chion simplifies the model to include only causal, semantic and reduced modes, while Smalley adds the “reflexive” mode that captures emotional and mnemonic responses to sound left out by Schaeffer, and considers “interactive” listening as a more realistic description of the more focused listening suggested by reduced listening.

Chion clearly finds Schaeffer’s system unnecessarily burdened by the theoretical architectonics of the abstract–concrete, subjective–objective symmetries. He simplifies the system to include only three modes: causal, semantic and reduced (Chion, 1990). The reduced

³¹ Groupe de Recherches Musicales, the organisation within the French National broadcaster Radiodiffusion-Télévision Française, established by Schaeffer in 1958 following the reorganisation of the earlier Groupe de Recherche de Musique Concrète established in 1951 (Manning, 2003).

mode is shown as the obverse of ordinary listening through which the four modes are transformed by awareness of the independent sound object, which is paradoxically both transcendental and immanent. Smalley's introduction of the term "reflexive" seems to indicate that Schaeffer's excessive rationalism has deafened him to the emotional and mnemonic responses we have to sound. The highly subjective, reflexive or affective listening is discussed in the analysis of accounts of the anamnesis effect on page 215 below. Further, Smalley notes the ideal and unobtainable aspect of pure reduced listening and suggests that an informed listener to acousmatic music adopts an interactive listening strategy, moving focus from intrinsic to extrinsic elements in continual play with the sound (Smalley, 1996).

Schaeffer acknowledges that each term in this circuit or series is not a fixed entity; in fact he notes that every concrete externality is in reciprocal relation to the abstract. So for example, in Mode 1 listening, the concrete objective source that is identified is abstracted not just through recognition but as an abstract entity in its own right. For example, the violin heard in a rendition of Bach's solo partitas bears the generality that we refer to as violin timbre. Schaeffer is also at pains to point out that this is not a functional diagram (Schaeffer, 1966, p. 118). Although the modes seem to follow a clockwise process describing an apparent communicational model of listening, each listener and listening will proceed via various short-circuits or parallel paths. This point is taken up and examined empirically in the following chapter (see Illustration 3.22). Similarly, the focus of the expert will be different for each specialisation, resulting in "an infinite variety of objects of listening" (Schaeffer, 1966, p. 148).

Further, Schaeffer re-factors the diagram of ordinary listening in a way strikingly similar to the model of the Deleuzian virtual with the vertical axis dividing Sectors 1 and 2 related to the event, from Sectors 3 and 4 aligned with sense or meaning (see Table 2.2).

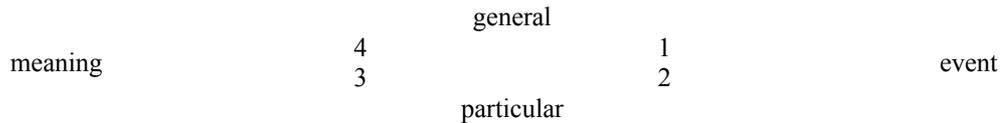


Table 2.2: Schaeffer's dangerous intersection. The diagram suggests that in any sound, listening is an encounter between events and the sense through which they are constituted, and that these sonic events draw together the general with the particular.

The horizontal axis appears to separate the general in Sectors 4 and 1, from the particular in Sectors 2 and 3 (Schaeffer, 1966, p. 317); but as Schaeffer indicates, reality is more complicated as each moment in the circuit has both potential and actual dimensions. The virtual circulates in each quadrant, or as Schaeffer claims the abstract and concrete are the twin isotopes of reality present in any encounter with the sonorous (Dack, 2002; Schaeffer, 1966, p. 24). This model of everyday listening contains the representational elements through which the listening subject can be assembled (Deleuze & Guattari, 1987, p. 71) at the noetic terminus of sonic experience with the sound object or event as its noematic correlate. Schaeffer shows how this differential system produces types or domains of listening expertise located at any of the four poles of, or indeed actualised at any point along, the series of listening modes. He maintains that the specialist listener is produced only in differential relation to the other three poles, not being able to escape “going around the four quadrants” (Schaeffer, 1966, p. 120) in any listening process.

Having established these series of the everyday and specialist, Schaeffer is able, by introducing the new symbolic term *reduced listening*, to produce a new dimension of listening to sound as pure event. This suggests both *listening-to-sound* as an event or encounter and, following Scruton, the sound object as a pure event existing independently of sources, causes and material objects. Rather than establishing reduced listening and its correlated acousmatic transcendental sound object as some sort of utopian virtual or purely differential mode of listening, it is perhaps more useful to consider all these aspects of sound as immanent to the field of sonic percepts. Schaeffer's abstracting and systematising tendency apparently

congeals the singular perception into a fixed percept³² within a typo–morphological system (Schaeffer, 1966, p. 389) of repetition and representation, supported by intersubjective agreement. However, it is apparent that Schaeffer’s programme for musical research does not provide merely the conditions of possibility that might determine a new music of the acousmatic. Rather, I propose that a Deleuzian reading of aspects of Schaeffer’s system, reveals the genetic process that has energised 70 years of diverse musical activity (INA, 2004), and stands to produce musics as yet unheard. By examining the consequences of the acousmatic revelation, it is possible to uncover the genetic processes implied by the new modes of listening that are produced, and that offer potential for yet new and unimagined relationships with the sonorous. Similarly, the ontology of the objects of audition, as suggested by Aristotle, can be seen to be multi-stable and dynamic, highlighting the potential dimension of their substance.

As an example of the form of thought that informs Schaeffer’s programme of musical research, he speculates on the prehistoric origin of music as the process by which the repetition of a percussive sound causes it to lose its practical meaning as the striking of a particular material object. This produces a new kind of listening detached from the exigencies of the life of the hunter–gatherer. Further, Schaeffer proposes that “the variation of something perceptible within the causal repetition accentuates the disinterested nature of the activity in relation to the instrument itself, and gives it a new interest, by creating a different kind of event, an event which we have to call musical” (1966, p. 43). As I have attempted to show, Schaeffer’s conception of the instrument and of the general notion of musical activity is founded on an understanding of the process of difference and repetition that underlies the

³² Note that in Deleuze’s system, percepts are imagined as being independent of a perceiving subject and instantiated in, for example, artworks that fix an independent “block of sensation”. An encounter with such a percept becomes an event opening the subject to new potentialities or affects (Deleuze & Guattari, 1994, pp. 163–199). However, the percept is also a provisional concept in Deleuze, not fully worked out in terms of how relations with it might be organised or what sort of entity a percept might be (1994, p. 132).

genesis of the new perceptual entity of musical sound. This invokes the *musicianly* form of listening, which is sensitive to these *structures of sonority* (1966, p. 334). This speculative narrative is paralleled in his imagining of a musicianly listening to the *universal symphony* comprising all the sounds of a complex environment that simultaneously form a unified whole, while being composed of discrete sonic streams. Once again, the potential of musicianly listening escapes the merely conventional constraints of what is culturally determined to be *musical*. In considering the universal symphony, Schaeffer follows American composer John Cage and the Romantic poets before him. It is evidence of Schaeffer's particular form of thought that he takes Cage's 1937 credo (Cage, 1968, p. 3) and subsequent musical practice and attempts to build a theory of music around it to support a particular form of systematic practical development. In this way Schaeffer shows himself to be at once romantic and modern.

Schaeffer's Structuralism Revisited

Now that I have introduced some of Schaeffer's concepts I can return to my claims regarding the usefulness of a Deleuzian reading of Schaeffer's apparently structuralist system. Schaeffer's models of listening, sound objects and experimental musical discourse bear all the hallmarks of the Deleuzian virtual. The structures invoked are themselves a form of infrastructure not actual in themselves, but only in the listening intentions, sounds and musics that they produce and that make them apparent. Borrowing, as did Deleuze, Proust's phrase, originally used to describe the revelatory experience of a particular sound, these structures are "real without being actual, ideal without being abstract" (1968/1994, p. 208; 1972/2004, p. 179).³³ As Schaeffer asserts, if listening is a creative act then it will only ever be partially susceptible to scientific investigation, and only partially susceptible to the methods of

³³ This phrase, found in *Time Regained*, from "Remembrance of Things Past" by Marcel Proust (1927/2012, Chapter III, para. 13), is possibly the strongest literary expression of the sound effect. Because of its significance this quote recurs throughout the thesis and is discussed further at Sound and the Narration of Memory on page 178.

hermeneutics; and an analysis of a musical composition may well be seen as an analysis or interpretation of a listening strategy.³⁴ Schaeffer acknowledges that the underlying issues of sound and music are a problematic in the Deleuzian sense and that his structural systems, far from grounding a solution, represent more an essay or attempt. For, as Deleuze states “a problem always gains the solution that it deserves based on the manner in which it is posed, and on the symbolic field used to pose it” (Deleuze, 1972/2004, p. 181). However, following Deleuze we should not think of Schaeffer’s contributions as a “provisional or subjective moment in the elaboration of our knowledge” of sound and music but rather but as a “full and complete objectality”—each structural pair or field organised in relation “to another series, constituted by other symbolic elements and other relations”. Each listener that encounters these structures “is not limited simply to reproducing or reflecting them”, they “organise themselves in another series capable of an autonomous development”.

Schaeffer provides a very concrete example of this concept of serial organisation in his exposition of the object–structure character of sonic perception. In the summary provided by Chion: “every object is perceived as an object only in a context, a structure, which includes it” (1990, p. 54), conversely every structure can be perceived as an object within a larger structure”. In Schaeffer’s phenomenological approach, enquiry into the objects of audition starts from the perceptual activity in which these structures emerge. For example, Schaeffer provides the terms *context* and *contexture* to describe respectively the object’s relation to other objects, and the object’s internal structure. Further, he notes that it is through the twin reciprocally determined activities of identification and description that we move up or down the structural series. This form of perceptual organisation need not be strictly hierarchical, as the listener may move freely within the structural field of the modes of everyday listening thereby linking one series of a perhaps more concrete nature to one that is semiotic or

³⁴ This point is taken up by Peter Szendy in relation to musical arrangements (2008, p. 35).

abstract, leading off in a “perpendicular chain of mutual reflexion ... [that] may branch off from any level” (1966, p. 280). However, the challenges presented by the differential nature of the immanent object–structure relation are also noted by Schaeffer, who highlights the so-called problem of infinitesimals by pointing out that proceeding down the perceptual chain potentially leads to infinitely small articulations and conversely proceeding up leads to the infinitely large structure exemplified perhaps by something like Pauline Oliveros’s *deep listening*³⁵ (Oliveros, 2005). Deleuze addresses the problematic by invoking the principle of reciprocal determination (Deleuze, 1968/1994, p. 171), which is consistent with the Schaefferian principal of object–structure immanence. For example, the features identified as the contexture of a sound event will be determined by the scale of sonic context or structure within which it is isolated as an event or object. Conversely the scope of the context is constrained within the field or structure in which the event or object is discernible as a unit or salient feature. For example, consider a recording of a box of bottles being placed on a table with a duration of three seconds. Each clink or scrape of glass against glass or cardboard could be compared in terms of its timbral contexture if considered in the context of the placing-the-box-of-bottles event/structure; however, these individual sonic differences would not be salient or determinable in the context of unloading-all-the-shopping. In this larger context, differences of gesture and material such as bag or box, plastic or glass, fast or gentle become salient or more determinate.

This is just one aspect of the differential or virtual nature of sound effects. Schaeffer also proposes the differential series of natural–cultural listening in which the perceptual field of the human auditory system lies at one end and the cultural working out in actual musical practices—such as scales, and rhythms—lies at the other. Each of these can be modified

³⁵ Oliveros’ deep listening includes listening exercises in which the listener is required to practice listening to the entire soundscape and to individual sounds and their relations simultaneously.

through practice, learning and creative production. Schaeffer confirms the Deleuzian position that these concepts or series of symbolic relations cannot be considered fixed or exhaustive, but that as systems of difference they are particular to the context of their use. In the conservatorium, listeners are organised in a symbolic series of expertise; sources are organised in other series, noise–music, instrumental–environmental, etc. To quote Deleuze (1972/2004, p. 183):

the determination of a structure occurs not only through a choice of basic symbolic elements and the differential relations into which they enter, nor merely through a distribution of the singular points which correspond to them. The determination also occurs through the constitution of a second series, at least, that maintains complex relations with the first. And if the structure defines a problematic field, a field of problems, it is in the sense that the nature of the problem reveals its proper objectivity in this serial constitution, which sometimes makes structuralism seem close to music.

Reflecting on the work of Schaeffer it is not surprising that Deleuze finds the composition of organised sound akin to a serial solution to the elements within a problematic field. Musical or other structures are not grounding originary principles: they are contingent on the selection of symbolic terms. Further, structures only arise in contradistinction or differentiation³⁶ to preceding structures in a series—of musical works, for example. Deleuze invokes the Lacanian metaphor of the “empty square” to describe “that wholly paradoxical object or element” that “the structure envelops” (1972/2004, p. 184). Sound is just such a paradoxical element, encompassing the paradox of location, the paradox of object/event ontology, its noun/verb paradox, etc. Sound, in its virtuality, “belongs to no series in particular”—not to the symbolic discourse of acoustics, music, communication, nor to

³⁶ In Deleuze’s terminology “differentiation expresses the actualisation of [the] virtual and the constitution of solutions”, in contrast to *differentiation*, which is the process by which concepts or problems arise. In this example, Beethoven’s Fifth symphony could be said to be actualised as a defined musical work by a processes of differentiation with the differential series of romantic or early nineteenth century symphonies.

phenomenology or hermeneutics, but to all at once. But, to quote Deleuze again, “this singular object is the convergence point of the divergent series as such. It is “eminently” symbolic, but precisely because it is immanent to two [or more] series at once”. Returning to the “empty square” metaphor, and inserting sound in the place of the place of Lacan’s literary reference, we can consider that sound:

is always displaced in relation to itself. Its peculiar property is not to be where one looks for it, and conversely, also to be found where it is not ... in this way, it is not something real, furthermore, it does not coincide with its own resemblance ... and it does not coincide with its own identity (1972/2004, p. 184).

If the real is the total combination of virtual and actual, and we assume this combination is never complete but always in a state of becoming, this Deleuzian reading helps to explain not only the paradoxical complexity of the nature of sound but helps us to see why Schaeffer’s work has spawned so much creative work and so much debate.

However, Deleuze identifies the risks and opportunities of this condition brought about by the “empty square”. This space demands to be filled by the imagination and, following Lacan, Deleuze notes that the imagination produces only identities. Sounds are effects arising from the structural relations of the symbolic terms that define the structure. They have a real and an imaginary dimension: the imaginary produces their identities under the ideology, music theory or epistemology at play within the structure. Hence Schaeffer’s sound object has taken on a life of its own in the discourse of electroacoustic music and communication theory. A creative (or radical) sound practice has the potential to overthrow the structural determinism of old symbolic orders and to find its power in the re-distribution of sonic singularities within its own symbolic terms. These sonic effects “must be understood at the conclusion of a process, of a properly structural, differentiated production” referred to by Deleuze as “strange static genesis” of physical, including optical and sound “effects”. This

genesis moves “from the conditions of a problem to the cases of solution, from the differential elements and their ideal connections to actual terms and diverse real relations which constitute at each moment the actuality of time” (Deleuze, 1968/1994, p. 183). Although sound composition or sound design may seem somewhat removed from the domain of Deleuzian metaphysics, Schaeffer’s interventions nonetheless demonstrate the parallels that Deleuze himself was keen to highlight in references, for example, to the musical chorus or refrain (1972/2004 p. 185). It is evident that difference is a defining aspect of Schaeffer’s approach. The Schaefferian lexicon (indicated here by the selection of terms in Table 2.3) is one of terms in differential relations. These are not oppositions but are often complementary terms, and in Schaeffer’s treatise the terms are assembled in series that compose its inter-related episodes.

Abstract	Concrete
Accident	Incident
Analysis	Synthesis
Balance	Originality
Composed	Composite
Context	Contexture
Continuous	Discontinuous
Criterion	Dimension
Density	Volume
Description	Identification
Duration	Variation
Form	Matter
Making	Hearing
Mass	Facture
Meaning (Sens)	Event
Meaning (Sens)	Index
Musical	Musicianly
Musicality	Sonority
Natural	Cultural

Object	Structure
Ordinary	Specialist
Permanence	Variation
Polyphony	Polymorphy
Prose Composition	Translation
Site	Calibre
Subject	Object
Value	Characteristic

Table 2.3: Schaefferian differential terms. These are the conceptual dyads that comprise Schaeffer's Treatise on Musical Objects. Their elaboration is beyond the scope of this chapter but several key pairs including object–structure, nature–culture, musical–musicianly and permanence–variation, have been used to demonstrate the concept of articulated structural series that forms the novel re-reading of Schaeffer's work developed in this chapter.

Schaeffer provides these structures to help us listen to what occupies the empty square, or to effectively postpone its occupation prior to the imagination filling it with what is not there (which is the ultimate aim of creative listening) or with the disappointment of lack of what our premature expectation demands. In practice, in the simplest sense and perhaps counterintuitively, it involves listening to what is present or actualised in a composition, performance, environment or sound, rather than critically hearing what is not present. This suggests that there is an infinite scope for learning new parameters of listening as Schaeffer and so many other creative listeners in the history of the sonic arts have shown. There is also endless potential for us as both listeners and as music makers for the production of new sonic effects. Like Deleuze, Schaeffer invites us to imagine or even practice an immanent listening that frees us from or moderates the tendencies, habits and constraints of expertise or the everyday. By following Schaeffer we submit to a process in which sound is re-imagined or experienced anew, and new effects of listening are discovered.

Schafer and the Composition of Soundscape (Sound as Music)

The second influential sound theorist that I will examine is the Canadian composer, and instigator of the acoustic ecology movement and soundscape studies, R. Murray Schafer.

In his book *The Soundscape: Our Sonic Environment and the Tuning of the World* (1993), Schafer reads the history of the West as a sequence of sound effects. Prior to identifying the principal sound effects of soundscape analysis—the soundmark, the keynote sound and the sound event—Schafer surveys Western history in two broad divisions covering the pre- and post-industrial phases. Schafer looks to literature to explore the history of the-making-sense-of sound. Schafer’s prose seems carefully attuned to the dual direction of this ‘making’: at once a coming to an understanding of sound, and in contrast, an observation of the creation of sense through sound. In this way, Schafer attends to both the reference and sense associated with the concept of sound.³⁷

Schafer constructs sound as relation between sources, listeners, places and times. Like Pierre Schaeffer before him, he is suspicious of the acoustician’s *signal*, an abstract entity independent of listening (1993, p. 128). Schafer’s extensive literary analysis was supported by the team of researchers in the WSP (Truax, 1999) and its data are stored in the WSP-SRL database. Schafer refers to this as a collection of *earwitness* accounts of sound. For Schafer, such earwitness accounts are a necessary resource in any diachronic or historical analysis of the soundscape where other forms of systematic sound measurement and recording are absent. The collection of literary texts by WSP researchers is paralleled by their collection and analysis of noise control bylaws (Schafer, 1993, p. 181), thereby contrasting the subjective and the personal with the forensic and cultural. Thus the analysis of the WSP is cognisant of what Pierre Schaeffer refers to as the “structures of reference” (Chion, 1983/2009, p. 34) that condition the audible. The sound references collected are analysed in terms of their historical period, starting with pre-historical and mythological references, and including written material from nearly every century from the fourth century BCE through to the mid-twentieth

³⁷ For Gottlob Frege (1948), sense is an intermediate between the objects of reference and their mental conception, brought about by the use of sign systems.

century, and those speculating about sound in the future. Sounds in the database are categorised under the following headings: natural sounds; human sounds; sounds and society; mechanical sounds; sounds as indicators; quiet, silence, echo and reverberation; reporter's attitudes to sound; mythological sounds; sound associations, similes and metaphors; sounds of times of day or night; and miscellaneous sounds, illusions, dreams and imagination.³⁸

The category headings suggest the ways in which sound makes sense as natural, human, social, mechanical sound, and so on, in various historical contexts. These categories of the sense of sound represent a way of ordering the conceptions that operate to produce the literary references to sound phenomena uncovered in the WSP. To understand this distinction between sense and reference suggested by the work of Schafer and the WSP, I draw on its origins in the work of logician Gottlob Frege (1948) and its subsequent critique by Deleuze. For Frege, sense is an intermediate between the objects of reference and their mental conception. Although conceptions cannot be shared outside of a single consciousness, sense is a partly shared entity that results from the common use of sign systems. As Deleuze points out, sense is always deferred in a paradoxical regress or proliferation of reference (1969/2004, p. 36; Zalta, 2012). Schafer's work with literary references to sound captures this proliferation with great precision. It is not that authors' attitudes to sound change over time and in different geographical and social contexts (although the WSP-SRL does capture the category of reporter's attitudes to sound); rather, Schafer's reading of the data shows how sounds become differentially apparent, or how they appear as effects on the surface of sense, in different contexts. Sound is not a fixed phenomenon. What is called sound shows up differently in different historical contexts as a relation within that context³⁹. In this way these structures of

³⁸ A complete set of sound classifications is presented on pages 139–144 of *The Soundscape* (1993).

³⁹ A development of this diachronic comparative soundscape analysis can be seen in the book *Acoustic Environments in Change* (Järviluoma, 2009) in which the soundscapes of five villages in Europe originally analysed by members of the WSP in 1977 are revisited identifying change not only in the soundscape but in the structures of reference of both the inhabitants and the researchers.

references produce both the audible and the various contextual categories such as the natural, the human and social.

Schafer's Sound Effects

Through literature Schafer comes to understand history as a series of sound effects. The material, spatial and political structures of human societies come to be shaped by and to reflect the sonic structures that accompany them. In this literature he finds what he refers to as the natural soundscape. Schafer's construction of the natural is not a simple one. It in itself is an effect shot through with the series of his concerns—lo-fi-hi-fi, pre-post-industrial, man-world, animal-land, analysis-design, music-noise. Schafer's natural starts from a literary speculation on the first sound heard in the womb of the individual mother, and the ocean as the womb of mother earth. The sound effect of water in all its multiplicity is mapped out but its nature is always in relation to a listener and the effect it has upon the ear and the literary imagination. The sound of water is one of the sounds of depth whether on the human scale or the planetary scale. It is also a sound of life. The natural is also characterised by the sounds of wind. In contrast to water effects, wind effects are of height, space, emptiness—a spiritual realm and death. Between these, the sounds of the earth are found to be sounds of the miraculous. Often these are unique sounds such as the sounds of volcanic eruption. The unique sounds of Rotorua's boiling sulphur pools, for example, are a soundmark so strange that they are no longer merely sounds to be described in terms of their morphological features. For Schafer they literally become, "infernal sound effects boiling up through ... a pustular sore on the skin of the earth" (1993, p. 26). These earth sounds reflect the potential of the chaotic⁴⁰ and apocalyptic that lies between the assertion of ordinary depth in water and spiritual salvation or annihilation in the heavenly heights. These elemental effects all find

⁴⁰ Note the echo of this elemental sonic effect which reflects the potential "chaos which brings about the undoing of the person" in the "rumblings" of a groundless ground, in "nineteenth series of humour" in Deleuze's *The Logic of Sense* (Deleuze, 1969/2004, p. 158).

their place within the natural soundscape. Clearly, though Schafer is concerned for the preservation of such things as historic soundmarks, and for the conscious design of future soundscapes, his attitude to the natural is not merely one of nostalgia for an idealised audible past being destroyed by the unstoppable forces of industrialisation (although this is a predominant theme). Schafer hears the natural as a complex and creative force, and his literary data support this form of audition.

In contrast to his method of analysis of the natural and pre-industrial soundscape, which relies on literary sources, Schafer turns to material culture to hear the modern industrial soundscape. This aural survey begins with a list of the materials and technologies that define the onset of the industrial age. The materials of this age are cast iron, steel, cement, compressed air and water, and importantly, steam. These materials deliver the technologies of industrialised manufacturing of textiles and of the industrial materials themselves, locomotion and mass transport on land and sea, mass and long distance communication via print and the telegraph, industrial-scale agriculture, and industrial food processing.

Although materials and technologies provide data of a physical and quantitative type, including comparative scales of measured noise level, sounds themselves retain their symbolic force. In the contemporary literature of the of the industrial age, Schafer finds earwitness accounts of the changing dynamics of power as the old order is overthrown, and as new spatial distributions of the *noise–power*⁴¹ effect (1993, p. 74) are brought into force through urbanisation and the linking of urban centres through communication and transport. In parallel to the shrinking of time and space brought about by these industrial technologies, Schafer finds a shrinking of acoustic space as increasing noise levels cause the acoustic horizon to shrink, and sonic diversity is diminished through the masking effects of noise.

⁴¹ Schafer develops the concept of 'sacred noise' to capture the effect of loud sounds that are embraced as marks of the powerful or divine forces at large in societies of different epochs.

However, this reduction of the sonic diversity of the symbolic order of the natural is accompanied by the creation of new sound effects: the sounds of industrialised warfare, the automobile and the aircraft. These sounds came to be symbolic entities in themselves connoting technical sophistication, strength and efficiency. In support of Schafer's analysis we now see the symbolic force of these sound effects integrated into the highly nuanced semiotic system of twenty-first century industrial and acoustic design (Jekosch, 2005).

In Schafer's narrative, the spatial and temporal transformations of the industrial age are accelerated with the advent of the *electric revolution*. Sound recording, broadcast and telecommunication technologies produce a schismatic effect on human consciousness that Schafer identifies as a new sonic effect he calls *schizophonia*. Schizophonia is the effect of "splitting sounds from their original [spatial and temporal] context" (1993, p. 88). Prior to the development of electroacoustic technologies, sound events were unique to their original context. Sounds such as speech and music could resemble earlier utterances or performances in different times and locations but they were never identical. Schafer does not go so far as to suggest that electroacoustic reproduction produces identical sounds, as he is sensitive to the effect of context on any sound. Rather, electroacoustic technologies greatly multiply the spatio-temporal context within which any given sound may occur thus resulting in the *schizophonia*.

Schafer uses the terms *original* and *identical*. The question of identity has both a metaphysical or ontological aspect and an epistemological aspect. That is, what is an adequate account of what it is for a sound to be, and what kind of processes would be required to identify or recognise an individual sound? Schafer neither addresses these questions directly, nor asserts that electroacoustic reproduction produces identical sounds. Although we might surmise that he follows Aristotle (Cohen, 1984) in assuming that as neither matter nor form

are shared by two sound events there is no identity, it is his concern for the effects of context that tells us that his conception of sound is not merely a materialist or formal one. The existence of the schizophrenic effect—and its resultant rupture of divisions between private and public space, past and present, local and remote—asserts the existence of a new unique sound effect in each instance of reproduction.

The multiplicity of schizophonia brings with it new effects of surrealistic juxtaposition and insertion, ubiquity of reproduced sound and the incessant presence of broadcast sound and background music. Schafer maps the changing forms of radio broadcasting to show how silence or absence of electroacoustic sound itself becomes a new jarring sound effect on the modern listener (1993, p. 95). Silence can be shown to have both negative and positive aspect. A positive silence allows for more focused and refined or concentrated listening and space for contemplation—a space that has been lost in the modern soundscape.

Schafer's sound effects in all their multiplicity are always described in relation or as relation to a listener or reader in a given context. The structure of the sound effects uncovered by Schafer always point in two directions. Their substance lies in a potential to affect and be affected. The sound effect is an effect on the listener and an effect on the phenomenon. As Deleuze suggests, the effect is “co-present and co-extensive with its own cause ... the cause is inseparable from its effects” (1969/2004, p. 82). An example of this metaphysics of sound effects can be heard in the way in which Schafer treats music as a special case among the sounds he surveys.

Music can be heard as both cause and effect, as a sonic medium that both reflects its historical circumstances and produces new modes of aesthetic engagement with the environment. In this way Schafer shows how music displaces the past and future into the present. Of all the anachronic effects in music, Schafer highlights the hunting or battle horn as

deployed in European concert music of the eighteenth and nineteenth century exemplified in works by Haydn, Weber, Brahms, Schubert, Bruckner, Wagner and Mahler. Clearly, the horn in this period takes on its function as an auditory icon (Gaver, 1997) or an iconic sound effect that still resonates today. Schafer shows how the orchestral horn⁴² is more than merely iconic of the battle or hunting horn and that its sense runs over mere denotation. Importantly, this powerful sound effect is shown to be both an anachronic and futural effect. In Schafer's words it "explodes the walls of the concert hall to reintroduce the country side" (1993, p. 106) in a nostalgic move of potent effect for eighteenth century listeners in the new urban metropolises of the European capitals. However, by the end of the nineteenth century, in Mahler's first symphony the various sonic transformations of the hunting horn "prefigure the transmogrification of the landscape itself [in which] today there is no open countryside left in Europe ... only fences and parks" (1993, p. 107). This form of *chronophonic*⁴³ effect (Augoyard & Torgue, 2005, p. 92) is also present in various other forms of musical innovation. Schafer cites the work of Pierre Schaeffer in "blurring the edges between music and environmental sound [as potentially being] the most striking feature of all twentieth century music". This work, taken in new directions by Schafer's colleagues in the WSP demonstrates the genetic force of Schafer's conception of sound on the music of the future. The works of these *soundscape composers* (Truax, 2002) and other forms of new electronic music function to produce the past in contradistinction to the present sonic event. Thus, musical effects are anachronistic, as through identification and recognition they bring the past into the present and suggest a possible future.⁴⁴

⁴² Schafer also shows how the horn icon is simulated and modified with various other woodwind instruments thus emphasising the iconic likeness or image (1993, p. 107).

⁴³ Chronophonic effects are characterised by their relation to time either through repetition or through their articulation of personal or cultural memory.

⁴⁴ These are the basic processes of differentiation and differenciation developed by Deleuze. Building on Deleuze's concepts of difference and repetition, the repetition effect is established and analysed by Henry Torgue (2005b).

Soundscape Analysis and its Synthetic Sound Effects

Finally, Schafer's important terms of soundscape analysis, which I treat as synthetic sound effects, are the keynote, the soundmark and the sound event. The definition of keynote sound is best presented in Schafer's own words (1993, p. 272):

In music, keynote identifies the key or tonality of a particular composition. It provides the fundamental tone around which the composition may modulate but from which other tonalities take on a special relationship. In soundscape studies, keynote sounds are those which are heard by a particular society continuously or frequently enough to form a background against which other sounds are perceived. Examples might be the sound of the sea for a maritime community or the sound of the internal combustion engine in the modern city. Often keynote sounds are not consciously perceived, but they act as conditioning agents in the perception of other sound signals. They have accordingly been likened to the ground in the figure-ground grouping of visual perception.

Repetition is the basis on which the keynote both in music and the soundscape is produced as an effect. The keynote is productive, through its passive synthesis⁴⁵ of the sound event, soundmark or sound signal, as the figure over the ground of the keynote sound. In this sense the listener's habituation to the keynote or background sound allows the unique sound event or soundmark to emerge as distinct without the listener actively seeking it. In this way the unique relational causality of the effect can be shown in that it produces the discrete sound event, which in turn produces the keynote in relation to it. Conversely, the general nature of the keynote sound is passively synthesised through the contraction of the particular sound events of which it is comprised. However this contraction is not independent of the broader set of contextual relations in which the keynote functions. The same could be said of the keynote as it functions in music both as a marker of the formal structure of the composition

⁴⁵ Deleuze uses the term *passive synthesis* to describe the way in which habituation or repetition creates the general from repeated particulars. In Deleuze's discussion this relates to the production of a passive apprehension of time passing as distinct from a more active engagement with memory. The ideas relate to the production respectively of the key note and sound mark (Deleuze, 1968/1994, p. 71).

and as it is produced through beginnings and repetitions, modulations and cadences that make it apparent or salient. Schafer uses the example of the 10-fold increase in noise complaints in Chicago following the introduction of new noise legislation (1993, p. 189). Here the keynote sounds of the community and its soundscape are made apparent and transformed into annoying sound events by recasting them through the formal discourse of noise regulation. Schafer also notes how often a traveller may make a local aware of the soundmarks of the territory (1993, p. 152) that were previously hidden by continuous repetition.

This leads to a second analytical term—soundmark—defined by Schafer as being “derived from landmark to refer to a community sound which is unique or possesses qualities which make it specially regarded or noticed by the people in that community” (1993, p. 274). Like the keynote, soundmark is a form of sound genera, species of which are formed through intersubjective community agreement. Like the landmark, the soundmark takes on an existence that originates in but extends beyond and becomes independent of any spatio-temporal specificity. The soundmark stands for a place and as a semiotic unit, has both reference and sense. Among the famous soundmarks referred to by Schafer is London’s Big Ben, the great bell in the clock tower of the Palace of Westminster (“Big Ben”, n.d.). The chime of Big Ben and the chime sequences of the Westminster Quarters that mark the quarter hours have become iconic in a highly diffuse manner. They have come to stand for London and the United Kingdom more broadly. For the British they are associated with television and radio news broadcasts, and for international listeners to the British Broadcasting Corporation’s World Service they potentially connote the authority of this broadcasting service and historically they may have sounded links to the centre of the imperial empire or to a state of colonial subjection. When heard by the traveller in London, the force of recognition collapses these diverse series of sense into the present.

These effects are summarised by Jean-Paul Thibaud (2005) in his essay on the synecdoche effect. Synecdoche is “a figure of speech in which a part is made to represent the whole or vice versa” (“synecdoche, n.,” 2011). In Thibaud’s definition, “the synecdoche effect is the ability to valorize one specific element through selection, [it] allows a structuring of space at the sonic level [and] favours the marking of places by associating sounds with them” (2005, p. 125). At a fundamental level, synecdoche and its corollary effect, asyndeton, which describes the perceptual erasure or ignoring of sounds, “are at the basis of any interpretation of the sound environment because they make it possible to create a gap between the physical sound of reference and the object of listening. In this sense, they are at the basis of the idea of the sonic effect itself”. According to Thibaud “the move from one valorization of a sound to another produces discontinuity in individual lived experience [and therefore] the effect operates in our perception of time according to the continuity/discontinuity binary”.

For Deleuze this constitutes an active synthesis in which memory plays an active role in the construction of the sound’s significance or signification. In its relation to the soundmark we can see how the effect also produces the articulation of space or more correctly the production of place (Cresswell, 2004). The link between Schafer’s soundmark and Thibaud’s synecdoche effect is further emphasised by its cultural dimension through which “cultural codes participate in the structuring of perception, and the [way in which] valorization of certain sound production accounts for the condition of a community at a given moment” (Thibaud, 2005, p. 126). This concept is expanded by Schafer in terms of the acoustic community, an entity that stands alongside geographical, political, religious and social conceptions of community, and which can be used to understand various spatial, organisational and material aspects of a given place (1993, p. 214). Further, the effect of the soundmark is to structure the identity of a place and its inhabitants both from the perspective

of the inhabitant and the outsider. The soundmark is an effect simultaneously grounded in place but paradoxically independent of source and listener.

The larger structures of keynote and soundmark are built upon the unit of the sound event for which Schafer offers the following explanation (1993, p. 274):

Dictionary definition of event: something that occurs in a certain place during a particular interval of time. This suggests that the event is not abstractable from the time-and-space continuum which give it its definition. The sound event, like the sound object, is defined by the human ear as the smallest self-contained particle of a soundscape. It differs from the sound object in that the latter is an abstract acoustical object for study, while the sound event is a symbolic, semantic or structural object for study, and is therefore a non-abstractable point of reference, related to a whole of greater magnitude than itself.

Schafer asserts the actual and relational dimensions of the sound event. For Schafer the sound event is bound to a state of affairs in which the sum of the parts exceeds the whole or in which the whole exceeds itself. In this paradoxical equation, the sound event exceeds its own identity. It is the non-abstractable symbolic, semantic and structural object from which symbolic, semantic and structural relations emerge. All events are structures comprising onset, continuant and decay, and a series of agents or entities involved in an evolving state of affairs. Sound events are the immanent object-structures of which the soundscape is comprised. R. Murray Schafer's sound events stand in contrast to Pierre Schaeffer's transcendental noematic sound objects that have been carefully removed from their context and through a process of reduction, epoché or reduced listening, both abstracted and concretised. Schaeffer's objective sound is carefully reduced to its own identity or intrinsic "in-itself-ness" prior to being inserted in a new set of overflowing relations through the process of musical composition. The sound event, on the other hand, is the incorporeal effect of bodies and their relations within the sound environment (cf. Deleuze, 1969/2004, pp. 8,

189) and it is this concept that leads to the sonic effect as developed by the third and final theorist examined in this chapter, Jean-François Augoyard.

Although this has by no means been an exhaustive survey of the rich and varied observations and speculations on sound developed through Schafer's numerous writings, I have attempted to recuperate the innovations in Schafer's thinking and listening that are sometimes overshadowed by the more conservative aspects of his approach.⁴⁶ In particular, by highlighting the ways in which sound is identified in Schafer's writing and observing the consequences of these ontological commitments I have tried to demonstrate the necessity and significance of the new form of reference to sound that has emerged in the preceding analysis. This form of reference, the sound effect, is explicitly developed by Augoyard and Torgue in their book *Sonic Experience: a Guide to Everyday Sounds* (2005).

Augoyard's Sonic Effects

Throughout the preceding discussion I have referred to the concept of the sonic effect described by Augoyard and his colleagues. These effects include specific examples such as the synecdoche effect described above in relation to the concept of soundmark. The sonic effect as an "object of study" has emerged as an integral element in my review of Augoyard's predecessors Pierre Schaeffer and R. Murray Schafer.

The Sonic Effect—a Monstrous Object

Augoyard's research follows a similar pattern to these predecessors in that it is an interdisciplinary project. Augoyard's intellectual orientation and his situation—in the context of the interdisciplinary research group on architectural and urban atmospheres at the French National Centre for Research on Sonic Space and the Urban Environment (CRESSON)⁴⁷—make this interdisciplinary approach appropriate. However, it is also something in the nature

⁴⁶ For example, see Augoyard's critique of Schafer's emphasis on the hi-fi soundscape (2005, p. 7).

⁴⁷ A branch of the National Scientific Research Centre and Ecole Nationale Supérieure d'Architecture de Grenoble (ENSAG).

of sound itself that makes this approach necessary. This necessity has been highlighted in both the earlier studies but it was Schaeffer who asserted most strongly the risks in bringing together various specialised disciplines with their specific objects of study. For Schaeffer the disciplines relevant to music research were music, acoustics, psychoacoustics and linguistics, with a philosophical orientation provided by phenomenology. For Schaeffer the main risk in combining these forces was highlighted by what he termed “the scientific prejudice”, a sort of intellectual imperialism in which the objects of study of each discipline are subsumed or referred back to a material or physical objectivity (Chion, 1983/2009, pp. 95–97). Although Schaeffer cautioned against this prejudice taking hold, he proposed that a new field of research could emerge, an *interdiscipline* that he termed *acoulogy*: the study of sound objects as perceptual phenomena. The reader might contrast Schaeffer’s transcendental sound object with the immanent form of pure relation that has emerged in my discussion of sound effects. It was perhaps the elusiveness of the sound object, the lack of intellectual traction of this idea, or more importantly the conflicts and competing forces within the discipline of music itself that resulted in acoulogy failing to take hold (Landy, 2007, p. 79).

R. Murray Schafer also pointed out the conflict that arises when experts refer to a supposed common basis for study, only to discover that what each is referring to is either not clearly defined or quite distinct on a phenomenal or ontological level.⁴⁸ Schafer had mapped out the inconsistencies that arise when the disciplines of acoustics, psychoacoustics, semantics and aesthetics attempt to describe sounds that obtain their identity from one or more of these disciplines. Schafer’s discussion highlights the complexity of reference to sound caused both by context, terms of reference and frame of reference. To borrow an example from Schafer, a seemingly uncomplicated reference to the sound of an alarm bell can be consistently described in terms of its acoustic properties; how they are perceived in terms

⁴⁸ The issue of operationalisation in psychology is discussed in the section on Sound Ontology on page 37.

of pitch, loudness, fluctuation, arousal and resulting auditory fatigue; the semantic meaning; or the aesthetic value—each description arising from one of the four disciplines respectively. However, when the context is changed from an unidentified alarm in the neighbourhood to a particular alarm which is only being tested, the semantic meaning and aspects of its aesthetics are completely transformed whereas its acoustic and psychoacoustic properties remain unaltered. In another example from Schafer, a sound such as an utterance of greeting may be identical or very similar in terms of its semantic and aesthetic content but may be radically different in its acoustic and psychoacoustic properties when uttered by people of different gender. A further transformation in the semantic and aesthetic content occurs when the personal relationships between the listeners are taken into account. Schafer does not pose this question in terms of the identity or underlying ontology of sound itself; rather he proposes a programme of research along ecological lines, which focuses on context and inter-relations in the acoustic environment or soundscape. He assumes that future research along these lines will uncover “the missing interfaces” that will explain such “sound enigmas” (1993, p. 150). It is not clear from this comment whether Schafer is falling back on the idea that there is a single universal science by which all things will be explained (a view not supported by Schaeffer, Augoyard or indeed Aristotle) or whether he has in mind the conceptualisation of a new form of reference to sound, such as Augoyard’s sonic effect.

Following a similar interdisciplinary approach, Augoyard assembled a team of researchers with specialist skills in sociology, urban planning, music, geography, architecture, engineering, acoustics and philosophy (2005, p. xix). Between them they attempted to establish a descriptive classification of a new entity or quasi-object termed the *sonic effect*. This approach contrasts with R. Murray Schafer’s research targeting the pre-existing entity of sound and the ecological formation of sound environment. However, it follows Pierre

Schaeffer's approach in characterising a new ontological entity as the object of study. For Schaeffer this new entity is the transcendental sound-object. Augoyard's move is more subtle: he is hesitant to define an object of study as such; rather his focus is on the virtual and the genetic processes by which the newly identified phenomenon emerges. Rather than Schaeffer's transcendental object, Augoyard's is immanent and relational. We can speculate that it is Augoyard's background in ethnography, and his exposure to Deleuze's ontology of surface effects as independent relations of pure difference or as pure events, that allows him to let go of the need for a clearly defined object of study as a precondition for rigorous research.⁴⁹ For Augoyard, the application of this new entity goes beyond the scope of aesthetics, which was the preoccupation of both Pierre Schaeffer and R. Murray Schafer. Augoyard's research is intended to be applied in the context of the social sciences, urban studies, and applied acoustics, and therefore must address sound phenomena of a greater scale than the sound object, and without the explicit bias for "aesthetic analysis, creation, and conservation" inherent in soundscape studies (2005, p. 7).

The sound effect echoes my interpretation of Aristotelian substance developed in the section above on Sound Ontology on page 37. On this view a definition can be found in a relation of interdependence between the potential and actual on one axis and matter and form on another. A sound effect must be defined in general terms, as a species of the more general category of sound effects, but always be open to the undetermined potential of its particular instances. The sound effect is "halfway between the universal and the singular". Augoyard asserts that the sound effect is paradigmatic; that is, each of the effects identified is an open container with which particular sound instances may be associated, and therefore a discussion of any effect "cannot dispense with examples" (2005, p. 7). Augoyard is happy to accept that

⁴⁹ This intellectual inheritance is made explicit in the interchange between Augoyard and David Ames Curtis (Augoyard, n.d.), translator of his seminal ethnography *Step by Step: Everyday Walks in a French Urban Housing Project* (2007).

the sound effect as a concept “is only partly understood”. This openness is not only a product of the paradigmatic nature of the effects but also because the instances must be determined syntagmatically; that is, as elements in a chain of relations and that without strong contextual determination, the effects could not arise.

Augoyard's conception has been critiqued by Steve Goodman (2009, pp. 45–47) who identifies the sonic effect with a continuation of the anthropocentric project of phenomenology. Goodman prefers to highlight a vibrational or micro-rhythmic status for sound and to characterise sonic experience in terms of free blocks-of-space-time or affect in manner of the later Deleuze (1987, p. 313). In this view sound takes its place adding dynamism to an assemblage in which the human body takes no priority over other bodies or entities. From my perspective this critique misunderstands both Deleuze's relation to the history of phenomenology⁵⁰ and Augoyard's understanding of effects within chains of relation as described above.

Pierre Schaeffer and R. Murray Schafer were concerned directly with music, or more precisely with situating music more centrally within the larger total field of sonic materials, rather than on the periphery as exclusively pitched or rhythmic sound as it had been located traditionally. Further, Schafer treated the sound environment musically, in the sense that he thought it could be refined and perfected. Schafer brought the perspective of a composer with a critical ear, identifying sounds to include and sounds to reject in the composition of the ideal soundscape. Schaeffer also presented this attitude in his attempted classification of suitably musical sound objects. In contrast, Augoyard acknowledges that the urban sound environment is much like a musical instrument capable of producing a diverse range of sound effects. However, he insists that a programme of research that attempted to measure and predict—

⁵⁰ For a review of this history that supports my view, see the introduction to Don Ihde's *Postphenomenology Essays in the Postmodern Context* (1993, pp. 1–8).

analogous to musical acoustics or instrument design—would be of little interest. Rather than composer or instrument builder, Augoyard emphasises a parallel with performance, an interest in the way in which sonic effects can be played, conducted or produced within the urban environment.

Earlier ethnographic research on sound in the urban environment conducted by Augoyard identified the potential for four behaviours or “psycho-sociological processes: soundmarking of inhabited or frequented space; sound encoding of interpersonal relations; symbolic meaning and value linked to everyday sound perceptions and actions; and interaction between heard sounds and produced sounds”. From this, Augoyard concludes that these phenomena are neither subjective nor objective but “seemed like aesthetic operations including active shaping with particular local configurations of the physical sound element”(2005, p. 8). It is this conception of the aesthetic that demonstrates the apparently inevitable link between Augoyard’s sonic research and that of his predecessors.

In the book *Sonic Experience: A Guide to Everyday Sounds* (2005), a catalogue of sonic effects is presented. Each is described in terms that arise within the discourse of six “domains of reference”. Augoyard’s approach to managing the conceptual risks of interdisciplinarity is subtle. A domain of reference, according to Augoyard “can ... refer equally to the ensemble of possible discourses on each effect or to the contemporary domains of knowledge and practice through which the existence of a singular effect may be researched” (2005, p. 16). The distinction here is between what can be said in reference to particular identifiable phenomena within a domain, and a set of practices and knowledges that can be applied. Knowledge, practice and discourse are of equal value in this approach, and it is also possible to detect the apparent reversibility of the direction of reference in the preceding quote. To clarify this point, the term “domain of reference” refers both to discourses

and to disciplinary fields of knowledge and practice; however, “the ensemble of possible discourses” is both referred to by, and comprises terms of reference. Similarly bodies of knowledge and practice provide domains in which a singular effect may appear, and conversely the existence of a particular phenomenon or entity relies on the knowledge or practices that it produces. Another way of putting this is that discourse, knowledge and practice make sense of the sonic effects in their own ways, replacing the act of reference with the process of sense. This subtle use of language is no accident as this bi-directional logic of sense is central to the concept of the effect developed by Gilles Deleuze (1969/2004) and applied here explicitly to sound events by Augoyard (2005, p. 10).

The six domains, which retain a clear distinction in Augoyard’s text, include: physical and applied acoustics, architecture and urbanism, psychology and physiology of perception, sociology and everyday culture, musical and electroacoustic aesthetics, and textual and media expressions. The effects are organised under five broad categories as follows (p. 17):

1. Elementary effects are concerned with the sound material itself (pitch, intensity, timbre, attack, duration, release, shape of the signal), that is, the mode of propagation of the sound. Deeply rooted in contemporary acoustic knowledge, they are all quantifiable. Examples: filtration, distortion, resonance, reverberation.
2. Composition effects are concerned with complex sound arrangements and are defined by specific characteristics describing either the synchronic or the diachronic dimension of the context. These effects depend on the spatio-temporal flow of the propagation, and they can all be subjected to a physical evaluation of at least one of their components. Examples: masking, release, cut out, drone, telephone.
3. Effects linked to perceptive organization. These effects are mainly due to the perceptive and mnemonic organization of individuals placed in a concrete situation. We always locate them through the expression or perception of listeners. Moreover, characters that are specific to the culture and the sociability of

reference constitute an integral part of the particularities and the strength of the effect. Examples: erasure, synecdoche, remanence, anticipation, metamorphosis.

4. Psychomotor effects imply the existence of a sound action (be it a minimal movement) of the listener, or a scheme in which perception and motor function interact. Examples: chain, niche, attraction, phonotonie.

5. Semantic effects use the difference in meaning between a given context and its emerging signification. Decontextualization is always implied, whether it is provoked by shock, humour, or conscious play, or by adding aesthetic value to sound. Examples: delocalization, imitation.

Added to this is the category of electroacoustic effects many of which imitate acoustic effects but none of which are considered major effects.

Interestingly, these categories do not map simply to any disciplinary organisation that might determine what is heard, or define distinct modes of listening. Rather, sonic effects “make sense” on their own terms which must be resolved within the conceptual series or discourse of the domains of reference.

The complete list of effects is shown in Table 2.4, where effects in bold are the so-called major effects.

ELEMENTARY EFFECTS	COMPOSITIONAL EFFECTS	MNEMO-PERCEPTIVE EFFECTS
Colouring Delay Distortion Dullness Echo Filtration Flutter Echo Haas Resonance Reverberation	Accelerando Blurring Coupling Crescendo Crossfade Cut Out Decrescendo Doppler Drone Emergence Mask Mixing Rallentando Release Reprise Tartini Telephone Wave	Anamnesis Anticipation Asyndeton Cocktail Delocalization Erasure Hyperlocalization Immersion Metamorphosis Phonomnesia Remanence Synecdoche Ubiquity Wall
SEMANTIC EFFECTS	PSYCHOMOTOR EFFECTS	ELECTROACOUSTIC EFFECTS
Delocalization Dilation Envelopment Imitation Narrowing Perdition Quotation Repetition Sharawadji Suspension	Attraction Deburau Desynchronization Chain Intrusion Incursion Lombard Niche Phonotonic Repulsion Synchronization	Chorus Compression Print-through Expansion Fade Feedback Flange Fuzz Harmonization Larsen Limitation Noise-Gate Phase Rumble Tremolo Vibrato Wha-Wha Wobble Wow

Table 2.4: Augoyard's categories of sonic effects

Understanding Sonic Effects

One way of beginning to understand Augoyard's conception of the sonic effect is to start with the common idea of special effects or musical effects. These effects make sense as points of contrast, emphasis or transition that are added to the core musical or narrative material much like a form of ornamentation. However, such effects are often pointers to a larger field of meaning fundamental to perceptual and aesthetic experience. Take for example the architectural development of reverberation in the medieval European cathedral which

becomes an important musical effect in choral music and subsequently in concert music and in endlessly varied forms within the production of electroacoustic music and audio-visual media (Blessner & Salter, 2007). Reverberation effects cannot be accounted for within any single disciplinary discourse and the richness of their sense and reference permeates and contaminates each domain. Hence, reverberation is one of Augoyard's major effects.

Many fundamental sonic phenomena may be understood either as effects or more clearly articulated by considering their relation to the effects outlined in the guide. For example, the concept of loudness, apparently one of the most studied and best understood psychophysical phenomena, is one whose complexity makes any quantitative measure a mere proxy for the effect (Florentine, Popper & Fay, 2010, pp. 199–217). There is no entry for loudness in Augoyard's text but the effects of loudness are distributed among an interwoven network of complex effects that are in turn described in terms of their representation within the distinct domains of reference. Note that these effects are not caused by loudness, rather the other way round: our attribution of loudness arises only in relation to these effects. The effects that begin to trace the range of the loudness effect include the major effects of filtration, resonance, cut out, mask, ubiquity, repetition and niche. From the minor effects, loudness is associated with or otherwise related to attraction, cocktail, compression, coupling, crescendo and decrescendo, crossfade, debureau, decontextualisation, desynchronisation, dilation, emergence, envelopment, erasure, expander, filtration, haas, hyperlocalisation, incursion, intrusion, lombard, masking, mixing, metamorphosis, phonomnesia, quotation, remanence, reprise, repulsion, resonance, rumble, suspension, synchronisation, synecdoche, ubiquity, wall and wave. Although this list of adapted terms and neologisms does not help clarify the concepts for the uninitiated reader, its length indicates not only the complexity of an apparently straightforward phenomenon such as loudness (a complexity that is apparent to

most psychoacoustic researchers), but how the concepts contained in the catalogue of sonic effects might help to open up the study of such phenomena in productive ways. Within the descriptions of these effects are contained typical sound effects or special effects, comprising aspects of contrast, emphasis, transition, and presence that make certain sounds *stand out*, and none of which can be traced simply to an increased intensity of acoustic energy alone.

As a musical effect, we must assume that variations in loudness have been part of the structural and expressive apparatus of all musical cultures. However, within the European tradition, the tendency towards calibration emerges in the music of the Venetian high renaissance in the first notated references to loudness in the *Sonata Pian' e Forte* (1597) by Giovanni Gabrieli (Bryant, n.d.). This instrumental approach surely informed the earliest modern scientific laboratory-based psychophysical investigations of loudness. Presumably the musical origins of notated loudness represents the composer's attempt to capture and control the existing performance practice, which regularly used expressive and contrasting dynamic effects to interpret the music of the time. The score represents a type of reduction, simplification and specification of these practices. However, the underlying effects of contrasting dynamics are linked into the whole range of sonic effects alluded to above, and only this can account for their prevalence and significance in the sonic arts. No doubt this instrumental understanding of loudness continues to influence the approach taken over three centuries later in the psychoacoustics laboratory. Once again loudness as a concept is a reduction, this time of a scientific kind.⁵¹ In both the musical and scientific case, the dimensionalising tendency hides the subtlety and complexity of the effect itself (Gauthier, Tarr & Bub, 2010; Schlauch, 2004) thus highlighting the action of specialised domains of reference.

⁵¹ The epistemological approach taken in this thesis does not discount the value of explanatory pluralism. There is no question that a reductive approach can and has produced valuable insights into a range of phenomena, and Augoyard's work is just one of a range of contemporary approaches to inter-theoretic mapping (see McCauley, 2007).

There are many other effects related to musical discourse but perhaps the most interesting are those that relate to time, memory and identity, referred to as chronophonic effects. The major effect among these is repetition. Repetition is of fundamental importance to the structuring of our reality: “The repetition effect is defined as the feeling of reappearance of sound occurrences perceived as identical” (Torgue, 2005b). Identity has both a synchronic and diachronic dimension, but the diachronic is always the more abstract. As Henry Torgue explains, “the reprise integrates and condenses all that lead to it, like a recurrence, a sedimentation” (2005b). This has the paradoxical implication that although we can never hear the same sound twice, repetition is a sufficient condition for establishing identity.⁵² This necessarily leads to the abstraction of sounds that characterises our everyday talk about sounds and to the Aristotelian conception of definition that restricts definition to species in relation to their genera and differentia, but disallows definition of particulars. In this view all sound events are unique and therefore may only be referred to in the abstract as for example by use of the pronoun “that”—“Did you hear that?” or through a chain of predication—“I heard a dog bark”. Repetition produces a valorization in the domain of the everyday through habituation of the expected in contrast to the surprise of the unexpected. This creates the contrasting values of the unnoticed and the unexpected that support the ecological dynamics of Schafer’s keynote and soundmark. Torgue proposes that repetition and by extension the series of the everyday is made up of the “structural bipolarity” of the unnoticed and the unusual occurrence. Repetition has both a positive and negative pole in which on the one hand repetition produces the apparent difference between sound events, and on the other “to repeat is to reproduce the same”. The fundamental nature of repetition to our “perceptive life”

⁵² Note that for sounds, the synchronic condition cannot emerge if, following O’Callaghan (2009b), we accept that sounds are distally located. An identical sound emanating from a single location cannot be distinguished from itself, and two sounds from different locations can be neither numerically, materially or formally identical.

explains, for Torgue, its central place in musical expression and the widely held notion of music as the fine art of repetition.

Another major chronophonic, or more accurately *anachronic*, effect associated with both music and the everyday is termed anamnesis: “a semiotic effect [that] is the often involuntary revival of memory caused by listening and the evocative power of sounds” (Tourge, 2005). Although anamnesis is not restricted to musical sound, it is found in both the experience of a song that brings to mind the totality of a past experience, and in the functional role of repetition in opera and film scores in the form of leitmotifs, which function to structure the drama and create dramaturgic character identity. Anamnesis lies at the centre of the Deleuzian concept of the virtual developed in the novel *Time Regained* by Marcel Proust (1927/2012, Chapter 3, para. 13), in which the sound of cobble stones and the aroma of cake evoke the past and take on an existence “simultaneously in the present and in the past, real without being actual, ideal without being abstract”.⁵³ It is this conception of the real that is central to the account of sound given by the concept of the sonic effect. The virtuality of anachronistic effects is explored empirically in the following chapter.

A final chronophonic effect that demonstrates the range and scope of sonic effect is termed phonomnesis (Augoyard & Torgue, 2005, pp. 85–86). Phonomnesis links memory and imagination and is defined as “a mental activity that involves internal listening: examples include recalling to memory sounds linked to a situation, or creating sound textures in the context of composition”. This effect is explored and applied by some but not all professional composers, and is explored in the context of so-called non-cochlear sound art by Seth Kim-Cohen (2009). Phonomnesis admits the sounds of dreams, internal monologue and aural hallucination, and is related to other non-acoustic effects such as remanence and expectation

⁵³ This theme is developed under Sound and the Narration of Memory on page 178.

in which sound perception precedes or persists in relation to the onset or termination of an acoustic event.

What is Sound?

Augoyard's concept of the sonic effect provides a set of tools and examples for the creative analysis and synthesis of sound in various contexts from the creative arts to philosophy, the sciences and technology. It recuperates aspects of stoic philosophy in terms of the focus on events and relations rather than defined entities (Augoyard & Torgue, 2005, p. 10). It also echoes aspects of Aristotle's theories of substance and causality. It is important to grasp the idea that effects are not necessarily preceded by causes. As musicians, Augoyard's predecessors Pierre Schaeffer and R. Murray Schafer envisaged this and attempted to articulate it respectively using the available conceptual apparatus of structuralism and phenomenology; and ecological theory. But even in his preface to Augoyard's guide, and despite the subtlety of his theoretical and empirical work as outlined above (including his understanding of the relational aspect of soundmark as synecdoche), Schafer repeats the sedimented idea that sounds must be causes of subjective effects in the listener. My analysis, following Augoyard, asserts that it is Deleuze's virtual ontology of effects as independent relations of pure difference or pure events that provides the necessary step beyond defining sounds as intentional objects on the one hand and systematic ecological process on the other.

The question "What is sound?" returns us to the problem of sound, which opened this chapter. The structure of the question reveals the provisional answer offered in the preceding discussion. *What* is a pronoun standing for the thing that sound is considered to be. The verb *is*, is the present tense of *be*. However, apparently, sound is neither a thing (in the sense of an object), nor does it exist entirely in the present. As I have shown, sound is structured more

like an event that is continually falling into the past and being drawn into the future.⁵⁴ Sound is always in a state of becoming what it is not.

We are thrown back rather uncomfortably on Aristotle's definition of sound as the proper object of audition. Revising the question as "What do we hear?" is perhaps more revealing. As we have seen, what we hear is by no means a simple matter of acoustic stimuli, and the scope for what we hear seems inexhaustible.

For Aristotle, a good definition must include explanation (Bayer, 1998). In the preceding discussion we have seen several answers to the question "Why do we hear what we hear?". Schaeffer considers hearing in both everyday and specialist contexts and in so doing sets up the first of a set of structural series within which explanations for the processes of hearing, listening, perceiving and comprehending arise. In Schaeffer's analysis, the field of hearing is in some part cultural and part natural, hearing sound is linked to making sound, we hear both context and contexture, objects and structures. Hearing facilitates description and identification; it provides meaning and indexes to events and objects, characteristics and values, and so on. For Schafer, why we hear what we hear is because we are bound up as organisms in an ecological network of interdependence in which the aesthetic is just as important as the material in the quest for sustainable environments. Augoyard, on the other hand, suggests that the reason why we hear what we hear is the substantial nature of sound itself. Sound, or what we hear, is a series of event-effects through and into which flow the sense we have of ourselves and our world. Returning to Aristotle, sound must have both potential and actual dimensions, with each actualised sound containing the potential to affect and be affected, thus to be an effect. A sound's formal and material disposition within a given context of audition can contribute further to the explanation of what we hear. The apparently

⁵⁴ Or perhaps, more radically, the sonic past reaches into the future and its future reaches back to transform the past.

effective causes provided by the science of acoustics play a role in our sense of sound. And finally, the futural dimension in which sounds fulfil their role in what they are to become as sonic species through recognition and identification is central to an explanatory or descriptive account of sound.

Sound and Ambiguity

In order to further explore what it is that we hear, and to uncover the double meaning of the *sense* of sound we might look at the places where a simple stimulus–response model of sound breaks down. By focusing on moments of ambiguity, confusion or strong aesthetic impact we might discover an expanded range of sound’s potential. Examples of this process are reported by Schaeffer in reference to his acousmatic revelation (Chion, 1983/2009, p. 11) and collected by Schafer and his colleagues as literary earwitness accounts (Schafer, 1993, p. 8), and by Augoyard’s colleagues Pascal Amphoux and Martine Leroux respectively in the ubiquity and sharawadji effects (Amphoux, 2005; Leroux, 2005).

This form of exploratory research is undertaken in the subsequent chapters by gathering verbal accounts of auditory experience, and by applying an arts practice method.

Conclusion

In this chapter I have explored a range of philosophical and theoretical responses to the problem of sound, focusing on ideas from the two philosophers Aristotle and Gilles Deleuze. I have used these ideas to examine and interpret the way in which three key sound researchers—Pierre Schaeffer, R. Murray Schafer, and Jean-François Augoyard—have demonstrated a range of ways of listening to, describing and explaining sound. In each of these an attempt to more clearly define some aspect or perspective on sound phenomena has opened up new possibilities for understanding and hearing sound. In this chapter I have also

attempted to demonstrate the methodological orientation of the thesis by applying a radical logic to these key thinkers in the field of sound studies.

I conclude that an understanding of sound as a set of pure relations or sense effects, or more simply *sound effects* provides the necessary conceptual tools to go beyond defining sounds as intentional objects on the one hand or systematic ecological process on the other, following Schaeffer and Schafer respectively. During the course of this chapter and the following chapters I have developed the use of the terms surface-effect, event-effect, sense-effect, sonic-effect and sound-effect with or without the hyphen. This fluid vocabulary points to a dynamic aspect of sound that I am attempting to enunciate. The *sound effect* of the title of the thesis is linked to these terms in the following ways.

The sound effect is a surface-effect because it operates on the surface of our perceptual or experiential encounter with the world. It draws up elements from the depths of our expertise, experience and our enculturation but it does not remain submerged in these. It tends to rise up to transcend the materiality of its given context by producing a pure listening subjectivity and an ideal sonic object but it is always drawn down to the surface of an enfolding and unfolding experience.

The sound effect is an event-effect because as an event it draws together the past and the future. It only becomes evident in retrospect and it cannot be located at a particular point in time. The sound event marks out a moment in our accumulating sonic experience that produces our particular listening subjectivity and defines a sonic context.

The sound effect is a sense-effect because it marks out a particular experience as an identifiable event and is central to the-making-sense-of the entities and their relations that form an unfolding state of affairs. Sense arises or stands out as a salience that defines the sonic structural relations of a given state of affairs.

CONCLUSION

The sound effect is a sonic-effect because it describes the events and the sense we make of them as being or related to sound. The adjective effectively replaces the noun or the verb forms because what is being invoked cannot be reduced to a thing or an action—it is purely relation.

These conclusions regarding the sound effect are based on the re-articulation of the concepts surrounding the problem of sound described throughout this chapter. In the introduction to this thesis I posed the question: in what ways is the concept of the sonic effect useful for exploring the definition of sound? In the course of the chapter I moved a long way from the dictionary usages of the term *sound*, linked on one side to the general and on the other to the particular. Not only does the re-articulated sound effect take its place effectively enfolding these poles, it has been shown to be particularly useful in shedding new light on the work of the theorists examined. I propose that the conceptual approach taken in this chapter can provide an effective solution for progressing interdisciplinary research and for clarifying the conceptual basis on which productive research integrating the methods of the arts, humanities and the science, technology and engineering disciplines can proceed. It is now necessary to test the utility of this concept in an original investigation and to further explore its actualisation in listening experience.

It is perhaps moments of uncertainty about the nature of sound or more specifically of *a sound* that reveal its unstable or multi-stable ontology or vagueness. This chapter has highlighted aspects of the ontological complexity of sound. It rejects the position that it is merely our perceptual apparatus that produces a sense of uncertainty about particular sounds as they are assimilated into or accommodated by our perceptual schema. It suggests that it is the other way round: it is the substance of sound—to invoke the Aristotelian ontology, in both its potentiality and its actuality—that produces uncertainty, ambiguity, confusion and

creativity. The purpose of the following chapter is to examine the two-way traversal of this series of sonic effects by exploring first-person accounts of listening experience.

CHAPTER 3 ACCOUNTS OF SONIC EXPERIENCE: AN EMPIRICAL INVESTIGATION

Introduction

In this chapter I describe an empirical study based on earwitness accounts (Schafer, 1993, p. 8; Truax, 1999) of listening experience. Its purpose is to explore the uses and range of reference of the term *sound* and its cognates within a body of discourse as part of a systematic creative design strategy. In the course of this exploration I attempt to reveal to what extent the concept of the sonic effect is evident in ordinary discourse on sound.

The study is of an exploratory nature and attempts to follow a non-foundational, pragmatic (Hookway, 2010) approach, by adopting methodological and ontological flexibility in engaging with the problematic of sound. As a problem-based inquiry (Deleuze, 1968/1994, p. 168) it assumes that any result will amount to a new perspective on the problem, rather than attempting to resolve the problem or to establish a determinate grasp of reality.⁵⁵ For a discussion of the problematic and the orientation of the methodological perspective in this research see the Methodology section on page 28. The approach taken here is developed on the understanding that within empirical research:

it is perfectly acceptable to collect data in a more exploratory manner as long as it is recognized that it may be hard to understand the relationship between different variables. The “real world” is a complex place, and laboratory researchers often pay a price for ensuring that their experimental results are easy to interpret (Windsor, 2004).

The study was reviewed by the Human Research Ethics Committee of the University of Sydney under Ethics Protocol 10228. The 25 interviews on which the study is based explore the ways in which sounds of an ambiguous nature may be related to experiences of

⁵⁵ I note the potential conflict between the use of the term pragmatic and the denial of determinate outcomes. I refer the reader to Hookway's (2010) useful summary of the diverse history of pragmatic thought and to the work of Don Ihde (1993) as a particular representative within this tradition.

aesthetic engagement. This focus has two potential benefits. First, it has the potential to uncover aspects of the aesthetics of sound in the everyday that might remain hidden in more specialist contexts such as music or communication. Second, by considering instances of ambiguous sound it has the potential to reveal outlying or non-normative sonic phenomena. The study comprises a series of semi-structured interviews and subsequent analysis of interview recordings and transcripts. In each interview, participants were asked to narrate experiences in response to the following questions:

Q1. Have you experienced a situation where you could not determine the source or cause of a sound, or the sound you heard turned out to be caused by something other than what you initially thought?

Q2. Have you experienced a state of reverie or intense imaginative engagement or distraction as a result of your listening to a particular sound?

Q3. Has a reverie of this type ever resulted from a sound the source or cause of which was ambiguous or mistaken?

The study provides ample evidence that forms of reverie and aesthetic engagement can result from experiences of ambiguous or confusing sound and it begins to map the scope of these phenomena. The following is a typical account of the effects that can arise from this form of ambiguity:

I heard this sound which was this ethereal high frequency sound that was just absolutely like jaw dropping. I was like, my God, what is that sound? ... But somehow—like a kind of—there’s a sort of arresting stillness to it as well. Like in the sense that you feel ... held by it. In that sense time seems to be affected as well. Like you feel like somehow time’s suspended whilst you’re in the grip of the sound. ... in the thrall (I19Q3S1).⁵⁶

⁵⁶ Individual narratives are identified in this document by a code that references interview/participant number, question number and story number.

However, this inquiry raises many more questions surrounding the constructs on which it is based. For example, what is the relationship between these accounts and the concept of listening experience? What characterises aesthetic engagement in this context? What constitutes listening and the phenomena of sound to which it is related?

The study engages with these sub-questions by employing a form of content analysis with an emphasis on aspects of narrativity and the representation of sound and listening as effects of reference and sense, borrowing the categories of sonic effects developed by Augoyard. The analysis provides insights into the concepts of sonic identity, listening and sonic experience and highlights the distinction to be made between ambiguity and vagueness.

Background

Before describing the methods employed in the study I will briefly introduce some of the ideas relevant to its design. First, I reflect on the understanding of sound ontology reached in the previous chapter. I then consider the relevance of ambiguity to a study of the aesthetic experience of sound. As the study involves narrative accounts of experience I consider what aspects of narrativity and memory might be relevant to the design and analysis. Following this I consider the status of the interview as a research method in sound studies, and finally consider possible alternative approaches.

Sound Ontology

In the preceding chapter I outlined the ways in which the ontology or mode of existence of sound can be considered to be unstable. Following the ideas of Aristotle, the substance of the entity referred to by the term *sound* can be shown to have both actual and potential dimensions in both its general sense and in particular instances. In this discussion, sound is configured as a relation between causes, listeners and contexts; or between sense and reference. More recently, sound has been theorised as pure event (Scruton, 2009) or as sonic

effect (Augoyard & Torgue, 2005). This abstract ontology is made concrete by Augoyard in his examination of a repertoire of specific sonic effects under the aspects of various relevant discipline areas or domains of discourse including physical and applied acoustics, architecture and urbanism, psychology and physiology of perception, sociology and everyday culture, musical and electroacoustic aesthetics, and textual and media expressions. In each of these domains sound “shows up” in different ways. Augoyard’s analysis highlights the subtle way in which a specialist discourse and its object of study are co-constitutive; in this way both can be seen to be an effect.

Ambiguity

Among Augoyard’s sonic effects are several that highlight the role of ambiguity in the structuring of sonic experience. These effects, such as the Sharawdji effect, are often linked with a strong aesthetic impact.

The link between ambiguity and aesthetic responses is not new. In 1953 Anton Ehrenzweig highlighted the role of ambiguity in his psychoanalytic theory of unconscious perception in artistic vision and hearing (1975). Much of Ehrenzweig’s work relies on the systematic description of ambiguities in perception outlined by William James (1890b, p. 76).

The phenomenological investigations of Merleau-Ponty suggest the aesthetic charge of ambiguous perception in terms of its potential to produce “a break with a historical commitment to [self and a] break with a human world” while retaining a strong grounding in a physical context through the fluctuations of perceptual attention (2002/1945, p. 326).

More recent work in the cognitive neuroscience of artistic experience has also emphasised the significance of ambiguity (De May, 2006; Zeki, 2006). Cognitive models of auditory memory and perception suggest reasons why ambiguous events may stand out. As Snyder explains, echoing James’s insights of a century before:

BACKGROUND

we are most likely to notice and remember things when they do not fit exactly within our schemata. ... This means that noticing and remembering are most likely to take place when our expectations fail ..., hence specific episodic memories representing the failure of particular expectations are connected to those expectations by association: they are available to remind us at the relevant moment when we might need to consider updating a schema (Snyder, 2000, p. 99).

In these models a schema represents some form of mental structure formed by repeated exposure to environmental stimulus or repeated behaviour. For the cognitive scientist mental schemata provide the framework within which the processes of recognition or identification may succeed or fail.

Returning to Augoyard's repertoire of sonic effects we find effects of ambiguity such as *delocalization* and *ubiquity* resulting from difficulties in localizing a sound source. The *metamorphosis* or *sharawadji* effects—in which a fusing of parts and whole, or indistinct and perpetually changing parts of a sonic ensemble—causes ambiguity, confusion or aesthetic engagement. In *anamnesis* a sound context triggers a strong memory that is inserted confusingly into the current context, or conversely in *phonomnesis* a lived situation produces a sound that is imagined but not actually heard, or rather heard internally. These are only a few of the sonic paradigms uncovered by Augoyard's survey that highlight the different forms ambiguity may take in the structuring of sonic experience. Rather than applying a reductive approach to isolate the essential features of ambiguity, Augoyard provides a rich set of interconnections between the conceptual themes of various forms of discourse.

Narrativity

The data examined in this study amount to series of stories about listening experiences and sonic phenomena. In order to understand or interpret these stories, the words they

comprise, and the way in which they present their subject matter, it is useful to consider aspects of the structure of stories in general.

Wittgenstein asks us to consider the many ways in which words acquire their meanings. He suggests that the use of words in both specialist and everyday discourse should be considered an activity much like a game. He lists a number of so-called language games in which words are used differently, including, describing the appearance of an object or giving its measurements, reporting an event, speculating about an event, or forming and testing a hypothesis (Wittgenstein, 1998, p. 11). Analysing the interview transcripts amounts to unpacking the various language games in which sound appears and looking for its use in the various series of discourse represented in the interviews. The overarching language games in the interviews are dialogue between interviewer and interviewee, and the relating or narrating of an experience. Each of these comes with a set of conventions that constrain the use of language. The benefits of narratives for research interviews are that they are grounded in specific memorable incidents or events (Wengraf, 2001). This can direct the interview away from speculation towards reflection on more concrete experience. This concretisation can be enhanced by the encouragement of detailed description within the interview dialogue. Although the constraint or conventions of narrative can be beneficial it must be recognised that these games have rules and the speaker, whether aware or not, will by and large be playing by the rules.

Some of the rules of narrative are uncovered and described in so-called narrative theory (Barthes, 1975; Genette, 1980; Ricoeur, 1980) and although this may have been superseded in contemporary forms of discourse analysis (Gee, 2011), it still provides a useful lens to examine the ways in which sound shows up in the interview transcripts. As it turns out, the structure of narratives and the structure of sonic experience, as reported in the interviews,

have much in common and this is explored in the analysis below. Of particular interest is the way events are structured through three distinct forms of time. These may be referred to as plot time comprising the sequential unfolding of events within a story; narrated time as it is structured in the telling with various jumps forwards and backwards; and finally the time of the narration itself, which may be measured horologically and in which plot time may be expanded or compressed. Each of these time structures imposes itself on the sound event as it is reconstructed through a narrative account.

These accounts of sonic experience are filtered not only through the language games of dialogue and narrative but also through the filter of memory.⁵⁷

Matter and Memory

Although the operation of memory itself is beyond the scope of this study, this section considers a range of ideas relevant to the concept of memory as it relates to sound and storytelling. At first it may seem counterintuitive to investigate sounds and listener's experiences by simply asking them to describe them. The data available for analysis in this context, consisting of interview transcripts referring to memories or accounts of memories, appear to lack a concrete connection to the objects of study: experience or perception, and sound. However, this view presupposes a clear definition not only of experience as perhaps something that happens in the moment and that has a direct quality related to sensation, perception or action, but also of sound as a phenomenon related to or identified as acoustical events that might be recorded or produced with the appropriate technical equipment. The approach taken in this inquiry attempts, to the extent that this is possible, to hold off these definitions and to pay attention to how these objects of study reveal themselves in the data available. In this way the approach resembles the intuitive enquiry method of Anderson (2004,

⁵⁷ It is interesting to note that Genette's study of narrative discourse is based on an analysis of Marcel Proust's famous novel about memory, *Remembrance of Things Past* (Proust, 1927/2012).

2011). It treats the concepts or ideas in its formulation as problematic and does not discount our intuitions about the world.

The intuition that sound may be constituted by more than merely a perceptual response to external acoustical stimulus comes from a broad range of personal experiences including learning and forgetting perceptual skills, and the impact of ambiguous sounds themselves. There is sufficient *evidence* (Kelly, 2008) in both the philosophical and scientific literature to question any simplistic conception of an acoustic stimulus–response definition of sound. From the phenomenological philosophical tradition Merleau-Ponty observed that “one sees the harness and brittleness of the glass, and when, with a tinkling sound, it breaks, this sound is conveyed by the visible glass” (Merleau-Ponty, 2002/1945, p. 267). From the sciences, further evidence of the multi-modal nature of sound perception comes in the form of the McGurk effect in which visible labial articulation is shown to influence the identification of plosive consonant vocalisations (McGurk & MacDonald, 1976). Many other examples of this and other complexities are available in the literature on the influence of literacies on speech perception (Warren, 2008, pp. 194–199). These examples suggest that the object of study is not limited to acoustic events only but is related to vision, and previous experience or training.

As the interviews in this study show sounds often have a temporal scope that extends beyond what is acoustically measurable. Sounds can reappear and thereby acquire an identity in terms of quality rather than a numerical identity. For example, in the account cited above (I19Q3S1) the initial ethereal quality of the unknown sound persisted on repeated hearings over a period of six weeks or more before an attempt was made to discover the physical cause of the sound. Subsequent to the discovery that the sound *is* “the dynamic breaking of freight trains when they’re moving very slowly” (note the use of the copular verb *is* discussed later in

the analysis), the sound continued to retain some of its former identity as the arresting ethereal *sound*. Simple, singular experiences of sonic ambiguity can seem to leave a lasting impression; for example, in I12Q1S1 a strange sound heard on a fishing trip as a boy that turned out to be a bird has remained in the memory decades later and continues to colour the apprehension of bird sounds.

Genette (1980) analysed and codified the way in which the operation of memory is represented in the narrative structures found in novels. Similar structural forms can be detected in a wide variety of narrative forms such as those captured in these interviews. In these accounts we see the operation of these so-called narrative frequency structures. In Genette's terminology, iterative recollections comprise a series of memories of single events that combine to produce the general memory of a phenomenon; for example, the general memory of the sound of a horse whinnying, not tied to any one event but carried over from one iteration to another. Alternatively, singulative recollections are of one-off events. The context in which these structures arise in the interviews allows us to speculate on the force of these structures on listening experiences and the sounds that they contain.⁵⁸

The models of memory from cognitive psychology tell a related story. From the perspective of these models (for a summary see Snyder, 2000) the types of experience presented in the interview accounts are limited to a form of so-called explicit (available to consciousness and representable through language),⁵⁹ long-term memory known as episodic memory, related to sequences of events or episodes in the life of the person relating them. Episodic memory is liable to distortion as it is modified to fit the categories and schemata

⁵⁸ This theme is developed under Narrative Frequency on page 174.

⁵⁹ For the purposes of this exposition of diverse theoretical lenses, I assume that the concepts of consciousness and representation commonly used in the cognitive science literature are neither consistently applied within that tradition nor clearly defined. They are, however problematic, useful placeholders that although not specifically addressed in this research may come to be viewed from a new perspective in terms of the central problematic of sound. For further discussion of this approach to language see the Methodology section on page 28.

(Bregman, 1999) produced by repeated experience, naming and other knowledge processes. These knowledge processes are embedded within a second form of explicit long-term memory known as semantic memory, which is related to concepts, meaning and understanding. Whereas the well-known distortion produced by episodic memory (Guenther, 2011) may be an issue for the reliability of inquiries in a forensic context, it should be a benefit in a study attempting to identify aspects of the experiences of aesthetic engagement and the mnemonic and other structural⁶⁰ features of the sound effects to which those experiences are related.

It is likely that distinct memory processes are adapted to different sensory modalities (Crowder, 1993), and also that certain memory processes are oriented to events, objects, or episodes; and it seems even more likely that these processes are inter-related. The description offered here does not take adequate account of these distinctions and overlaps as identified by researchers in each area of specialty; however, the ideas presented provide a useful vocabulary relevant to imagining the sonic domain.

Other aspects of cognitive models of memory including the so-called rehearsal loop process by which elements of short-term memory are both held in consciousness—or form consciousness itself (Damasio, 2000)⁶¹—and committed to long-term memory may also be significant in understanding aspects of auditory attention “rumination, reflection, and obsession” (Snyder, 2000, p. 53).

The terms of these descriptions, including the language of association, have been in active use from at least the time of Aristotle (ca. 384–322 BCE). However, despite the complexities of the language of experimental cognitive psychology, this literature contains considerable amounts of compelling experimental evidence compiled over the last century for

⁶⁰ These structures do not determine or define the phenomenon: they merely emerge within the description of the phenomenon as it presents itself in the interpretation of the available data.

⁶¹ Important phenomena such as blind-sight suggest that consciousness and unconsciousness are closely inter-related.

the normative temporal and capacity constraints of the various functional units referred to in the relevant cognitive models (Levitin, 2011, 296).

The role of conscious and unconscious perceptual and memory processes has long been a theme in the psychology of aesthetic experience (Ehrenzweig, 1975; Freud & Strachey, 2010; Turner, 2006). One concern might be for the cultural specificity or generalizability of theories or models that might emerge from this research. In the psychology of art, the environmental context comprises a relatively limited set of culturally defined objects, texts, or musical works. However, in psychological investigations that attempt to model generally applicable cognitive processes, the issue of the scope of the environmental context and its corpus or repertoire of stimuli is a problematic issue. Rogers and McClelland's (2004, pp. 181–182) research into a parallel distributed processing model of so-called semantic cognition highlights the problems associated with finding a corpus of stimuli that addresses the diversity of exposure in the real experience of participants. A simple and limited set of interviews cannot hope to characterise or quantify a broadly representative range of actual experience either, but rather than relying on an existing corpus of, for example, textual material that is controlled in various ways to be normative or representative for a particular environment or population, the interview approach pursues hopefully divergent and under-represented aspects of experience that are directly related to the research questions under examination.

These ideas including those from experimental and cognitive psychology, narrative analysis, philosophy of perception and a range of sound studies form the preliminary interpretive lens or lenses whose influences are both resisted and inevitably colour the research design, data collection and preliminary readings of the transcript data (Anderson, 2004). However, I assert that the approaches taken in these diverse inquiries are not incompatible or incommensurable, but rather are complementary in that they encourage the

divergent thinking from which hopefully new insights can arise. Given the complex and uncertain nature of both experience and sound, the design of this study is intended to let new understanding of these problematic concepts emerge.

Previous Uses of Interview in Sound Studies

Barry Truax refers to earwitness accounts as a subset of oral or aural history:

“earwitness accounts form one of the few sources of historical soundscape documentation” (Truax, 1999). Earwitness accounts may be found in various literary and documentary sources, or gathered in interviews with inhabitants of locations of interest. The use of earwitness accounts in the soundscape studies of the WSP allowed researchers to describe the shift over time in not only the composition of urban and rural soundscapes but in attitudes to and behaviours surrounding these sounds (Schafer, 1993). Obtaining earwitness accounts continues to be a valuable source of data in contemporary soundscape research (Torigoe, 2005), often revealing new culturally or historically specific conceptions or experiences of the elements that comprise the soundscape.

Referring again to the models of memory current in the literature of cognitive psychology, retrieval from long-term memory relies on cueing. This cueing, which activates the associations between “chunks” of memory content, comes in three forms:

“(1) recollection, where we intentionally try to cue a memory; (2) reminding, where an event in the environment automatically cues an associated memory of something else; and (3) recognition, where an event in the environment automatically acts as its own cue. Recognition and reminding are spontaneous processes that are going on constantly” (Snyder, 2000, p. 70).

As previously noted, these concepts of association do not belong to the recent developments of cognitive psychology but originate at least as far back as Aristotle in the third century BCE. The linking of association processes in memory and perception to neural

connections in the brain and their strengthening through repeated use was posited in the work of James (1890a, p. 653). In Aristotle's conception, associations are made by a movement of thought (kinesis) starting "from a present intuition of some other, to something either similar, or contrary, [... or] contiguous with it" (Aristotle, 1984, 451b17–451b22). For James, "the machinery of association, as we know, is nothing but the elementary law of habit in the nerve-centres [which forms] the organized neural paths by which the cue calls up the experience" (W James, 1890a, p. 654).

Building on this understanding of the so-called "laws of association" many researchers aim to conduct interviews located in the environment in which relevant activities and potential triggers of association may exist. This basic principle of ethnography and anthropology is assumed not only to enhance the authenticity, validity or trustworthiness of the data collected but it can enable the researcher to bridge the gap between their world view and that of the informant. Further, a located research practice pays attention to the role of the body in the formation of experience and helps to overcome the possibility of an overtly intellectual representation of experience and the potential of objectifying the body in these representations (Pink, 2009, p. 24).

Classic examples of sound studies that take this approach are those of Feld (1990) and Augoyard (2007). By engaging in extended ethnographic field work in the forests of New Guinea, Feld was able to uncover a system of knowing-through-sound that he terms acoustemology or, later adopting Bourdieu's concept, habitus (Feld & Brenneis, 2004). His informants offer what appears to be a radical explanation of their ontology of sound, in particular, bird calls, that can only be understood as part of a larger network of environmentally and culturally embedded sound-making practices. By living with his

informants and sharing their daily activities and experiences he was able to come to an understanding of this radically different epistemic framework.

In Augoyard's research, the interview process was structured around everyday walks in the neighbourhood of an urban housing complex. The focus was on understanding *how* the informants engaged with their environment rather than attempting to uncover some indeterminate *why* of their behaviour or attitudes. Participants were asked to recount their walks at the end of a period of a few weeks. This open yet directed form of questioning was hoped to eliminate the "necessarily social and constraining relationship of the interview situation [and not to] promote a "content" that is already formatted by the hidden inclusion of categories within the questions". Augoyard notes that "everyday practice is necessarily forgetful" and asks "how is one to reawaken this experience of the everyday, which is often highly immediate in character and is forgotten as soon as it is enacted?". Augoyard speculates that when asked to recount an experience outside of its context, an informant "will respond in the style of the question, that is to say, in a general mode. Collecting his memories, he will produce an abstract collage [...] all lived qualities will disappear. In one time, he will have summed up his walking past". Considering the way in which memory operates in perception as the force behind recognition and identification (Snyder, 2000, p. 99), Augoyard formulates a reversed roll for memory in the structuring of experience relevant to its being recounted in an interview context:

Now, in everyday life, one does not appeal only to a memory of the past. There is also a memory enacted in the present—"protentional" memory, we would say, rather than retentional—the kind by which we organize our perceptions according to what will be memorable. In other words, one would have to take memory not only when it is no longer anything but a memory but still at the moment when it is constituted, at the very instant when it organizes the expression of a way of being

to which it will be able to relate later on. In the present, memory is the “tomorrow” of currently lived experience (p. 20).

The everyday walks project and other situated ethnographies based on interview data formed one part of the source material for the catalogue of sonic effects produced by Augoyard and his colleagues (Augoyard & Torgue, 2005).

Located interview techniques are ideally suited to eliciting and understanding “inhabitant expression” (Augoyard, 2007) relevant to the specific location or social context in which they are conducted. However, just as the wording of interview questions and the “necessarily social and constraining relationship of the interview situation” may overdetermine the content of the interview, the location necessarily constrains the range of experience reported. This will be a limiting issue where the contexts for the phenomena under investigation are not known in advance. One of the benefits of the interview process undertaken in my study that would not have occurred in either the located interview or experience sampling method, described below, is that it produces reports from a diverse range of contexts. For example, effects associated with dreaming are not reported among the repertoire of sonic effects by Augoyard.

Strengths and Weaknesses of Interview Method

Interviews present challenges in terms of the status of the data that they represent, and for imagining a form of analysis. There are many ways of thinking about the transcript: as positive facts, beliefs about facts, feelings and motives, standards of action, facts about behaviour or conscious reasons (Silverman, 2011, p. 119–120); as a co-constructed representation of a contingent reality (Kvale & Brinkmann, 2009; Silverman, 2011, p. 128); as a conversation conforming to conventions of verbal interaction (Kvale & Brinkmann, 2009, p. 221; Silverman, 2011, p. 210); as discourse constrained by the available language and considered as a set of ‘speech-acts’ (Silverman, 2011 p. 223; Wengraf, 2001, p. 7); as a

narrative structure with levels of content conforming to plot sequence, narration sequence, and conversational cues (Wengraf, 2001); as units of meaning considered of equal value and to be condensed, summarised and essences revealed (Hycner, 1985); or as symbolic or interpersonal interaction between the interviewer and participant (Foddy, 1993). Each of these views reveals a set of assumptions or theoretical focuses and oppositions around which a form of reality is actualised. In all their diversity they share common concerns for establishing a coherent framework in which the status of the utterances recorded in the transcript is reflected in the mode of analysis applied. By selecting the interview method each approach must deal with a range of problematics concerning the interview transcript as data. The problems are numerous and include the following.

There are problems with the interview data and questions (Foddy, 1993, p. 2): for example, on the level of facticity, factual questions sometimes elicit invalid responses, and the relationship between what respondents say they do and what they actually do is not always very strong. Respondents' attitudes, beliefs, opinions, habits, and interests often seem to be extraordinarily unstable: for example, small changes in the wording of questions sometimes produce major changes in responses (Kvale & Brinkmann, 2009, p. 151). Respondents commonly misinterpret questions. The sequence in which questions are presented can colour the responses: for example, answers to earlier questions can affect respondents' answers to later questions. The format and wording of questions in terms of open or closed questioning affects responses. Respondents often provide answers to questions when they appear to know very little about the topic. Finally, as previously mentioned the cultural or physical context in which a question is presented often influences how respondents interpret and answer the question.

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The epistemological frames implied in the list of attitudes to interview data presented above each represent a theoretical response to dimensions of the interview problematic. Each one enfolds the problems within a temporary reification of certain categorical or conceptual moments such as attitude, discourse, event, experience or narrative. Kvale suggests the bricolage approach to analysis, which “refers to mixed technical discourses where the interpreter moves freely between different analytic techniques”(Kvale, 2007). Whether Kvale has in mind an adoption of Lévi-Strauss’s *mythical thought*, (Lévi-Strauss, 1966, pp. 21–22) is not clear but following Lévi-Strauss, in bricolage:

in the continual reconstruction from the same materials, it is always earlier ends which are called upon to play the part of means ... The characteristic feature of mythical thought, as of ‘bricolage’ on the practical plane, is that it builds up structured sets, not directly with other structured sets [such as language] but by using the remains and debris of events.

We might interpret this in the context of interview methodology as the events of positivist, post-positivist, constructivist and other epistemologies leaving behind ontological and truth categories (their ends), which the bricolage method, applying mythical thought, uses as a means to “build up structures by fitting together ... the remains of [these] events” in the understanding that these structures are themselves problematic conditions to be taken up in further research and analysis. This defines a pragmatic approach not only to analytical techniques but to the underlying concepts, following James (2000), in asking only for their use value in the current context of enquiry. It is just such a paradigmatic approach that accounts for the promiscuous adoption of analytical tools in my analysis.

The problems associated with interview data cited above, which even (perhaps especially) within a pragmatic bricolage approach may undermine its analytical objectives, must be considered in the design and execution of the interview procedures. However, these

problems if taken account of, in the give and take of the interview conversations and in the subsequent reading of the transcripts, may also be rich rich sources of data. For example, the changing emphasis and presentation of attitudes, beliefs, opinions, habits, and interests, rather than undermining the strength of a participant's contribution, can increase the range of expression that informs the scope of terms such as *sound*. When these shifts in emphasis are observed and noted as the interview unfolds they stimulate further probing and allow both the interviewer and interviewee to see how a particular perspective may be constrained and to open it up to new interpretations. When respondents misinterpret questions (and hopefully the questions are not so closed as to close off this possibility), new horizons open up, further expanding the scope of the object of study, and thus the bricoleur makes use of the materials *present-at-hand*.

Alternative Approaches

I have noted the previous use of located interview methods in sound studies and their benefits in terms of richer associations and ecological validity. As discussed, the strength of this approach is also its limitation in that we do not know beforehand where the experiences we are seeking will occur. In a study that aims to explore the ways in which sounds of an ambiguous nature may be related to experiences of aesthetic engagement, I chose to open up the research to contexts not yet imagined.

Experience Sampling

One approach to removing geographical and temporal constraints is the experience sampling method (ESM) (Larson & Csikszentmihalyi, 1983). Hurlburt and Heavy (2006) provide a critical overview of this approach in which a signalling device or beeper is used to prompt participants to record their current *inner experience*. Their claim is that this method overcomes not only the lack of context in interview methods but also addresses the basic

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issues that have made introspection to be unreliable. The main advantage of the ESM is that it minimises the effects of memory, as participants are asked to record their thoughts and inner experience immediately prior to the beep rather than in retrospect. The ESM was employed by Sloboda in a study of music listening and found to be “a robust method for exploring daily musical experiences” (Sloboda, O’Neill, & Ivaldi, 2001).

The disadvantage of the ESM for research into specific experiences such as ambiguous or confusing sounds is that it is highly unlikely that the beeper will be synchronised with one of these events. Perhaps a more promising method for capturing irregular events is the use of a journal or diary. Stone, Kessler and Haythomthwatte (1991) provide a useful overview of the issues in journaling daily events. One of the main limitations of journaling is the tendency not to report, due to inconvenience or disinclination on the part of the participant. This is particularly the case where the events themselves can seem insignificant or are unnoticed, as is often the case with confusing sounds.

The other difficulty with recruiting participants to maintain a journal record or respond to a survey or questionnaire in the ESM is that each method requires a definition of the phenomena to be observed and recorded for the participants to know what to look for. This runs counter to the exploratory approach in this project, in which it was hoped that new ideas about sound would emerge by paying attention to the expressions of the participants rather than imposing a standard view from the outset. However, an informal journal method was adopted as a preparatory first step in this research project to capture and make concrete my personal perspective on the phenomena.

Issues in Introspection

Interview methods, journaling and experience sampling rely on the assumption that aspects of experience are available to and can be reported as a result of introspection. It is

apparent that many aspects of auditory perception are not available as conscious mental processes. This is confirmed by a range of demonstrated auditory illusions; for example, the continuity illusion in which a section of masked speech is restored by what the auditory system can infer is missing (Bregman, 1999, p. 345; Warren, 2008, p. 150).

Not only is introspection criticised because it gives the illusion of access to all mental processes⁶² (Nisbett & Wilson, 1977), but because historically it had failed to provide consensus on the existence or character of individual mental processes under investigation (Hurlburt & Heavy, 2006, p. 46). On the basis that introspection may provide some useful data, Hurlburt offers a set of guidelines for approaching reports of introspection that are similar to those often proposed for interviews in general (Kvale, 2007). These guidelines include the adoption of a necessary scepticism, minimisation of time lag between the experience and the report, and a focus on specific concrete episodes. This focus is echoed in the “particular incident narrative” proposed by the biographic narrative interpretive method of Wengraf (2001) and others. This focus interprets the “self-theorising” tendency that can emerge in accounts of experience, as unreliable and as a cause of theory-guided recall that can distort accounts. Although in an empirical study the reports in many particular cases, employing similar methods can be compared, providing good evidence for stability or variability in the contents or structure of experience. However, Hurlburt does not suggest that experience sampling can stand alone as a method: “Introspective observations are of psychological constructs – attributes that are difficult or impossible to define operationally. Those who would use introspective observations should therefore explore the relationships of those observations to other kinds of research results” (2006, p. 58). From within the psychological sciences this call for triangulation or construct validation between different

⁶² William James highlighted what he called the psychologist’s fallacy that methods of access to inner experience would not obliterate the experience itself, or that an observer indeed has access to mental facts at all (1890a, p. 196.)

kinds of observation, research methods, and bodies of data and evidence seems entirely reasonable. It also gives voice to the personal and subjective experiences of individuals and finds a way to treat their reports as valid within a larger framework of scientific investigation.⁶³

Language and Thought

Reports of introspection comprise a unique body of verbal material containing references in language to experiences, perceptions, feelings and thoughts. The relationships between the structure of linguistically expressed concepts and the underlying structure and processes of cognition itself are a matter of debate. According to the theories of cognitive linguistics these verbalised conceptual structures, including relational and process schemata such as containment (*in, inside, out of, into*) and balance (Gibbs & Colston, 2006) can be mapped onto cognitive structures. The idea that our conceptual categories combine with perception to form judgements about the world can be found in Kant's *Critique of Pure Reason* (1787/1929). However, in the case of introspection into perceptual experience (as is captured in this study) there is no clear mapping between an assumed physical domain of perception, an intermediate domain of verbal references, and a vaguely articulated domain of perceptual experience. It is highly likely that the reported perceptual experiences (if not the experiences themselves) are structured by the concepts embedded in both linguistic and cognitive structures. In cognitive linguistics it is assumed that these structures are dynamic as a result of what is termed *meaning extension* (Geeraerts, 2006a, p. 6) through tropes such as metaphor and metonym. These tropes escape the domain of language and become effective as a description of cognitive image schemata, which are themselves dynamic in nature.

⁶³ The origins of behaviourism are rooted in Skinner's critique that introspection lacks open public access to discrete, isolatable and observable phenomena of inner experience: therefore, the differential discrimination of the language to describe inner experience is limited (1976). In contrast, Remez and Trout (2009) critique the philosophical approach in which what is apparently self-evident for a particular philosopher in their experience is taken to be universally and self-evidently true to all. They give examples of this attitude from Descartes, Locke, Hume, Berkley and others.

Therefore, in the context of the studies in this thesis I adopt the idea of the dynamic nature of perceptual processes and their objects, and I assume some relation between their representation in the collected verbal reports and the processes themselves (this is the basis of learning). Further, I treat these reports not as evidence of particular processes and entities that are basic to cognition and perception, but rather as possible modes or ways of listening and of the possible entities or ontologies of sound. I allow the participants to expand my thinking on what sound and listening are, as configured in their accounts. In cognitive linguistics these possible modes of cognition are explored in particular instances of linguistic structures. There is debate within that field as to whether relationships between terms within a polysemic⁶⁴ field reflect universal relationships within cognitive processing. For example, in English the verb *hear* can mean both auditory perception and comprehension or understanding, in a phrase like “I hear what you’re saying”: this is referred to as *transfield*⁶⁵ *semantic extension*. The claim is that the obvious connections between the auditory sense modality and language comprehension can be compared to the connections between vision and cognitive processes related to knowledge and belief represented by the polysemy of the word *see* in a phrase such as “I see it all now”. Evans (2000) provides evidence for variability in these relationships across cultures. Evans shows that in contrast to European languages, in which vision is more commonly related to cognition and knowledge by transfield extension than are the other senses, “Australian languages recruit verbs of cognition like ‘think’ and ‘know’ from ‘hear’, but not from ‘see’”. The notion of cultural transformation in sensory modes and their link to cognition is not unique to cognitive linguistics and was postulated earlier by Whorf (1956) and taken up in the context of technological literacies by Ong (2002).

⁶⁴ Polysemic words or phrases may have many possible meanings: this range of meanings makes up the polysemic field.

⁶⁵ The term *transfield* refers to extension from one semantic field—that is, perception, to another: cognition. This is in contrast to *intrafield* extension: for example, from one sense modality to another, in for example, “I see what you’re saying”.

Evidence of linguistic schemata specific to expressions of sonic experience emerge within the interviews and the sometimes polysemic use of sound-related terms is explored in the subsequent analysis below.

Sound and Literature

Interviews would not be the only method of obtaining a corpus of references to auditory experience. Following Schafer, the analysis of literary sources has become an increasingly important tool in the evolving field of sensory studies. A useful recent example of this is Folkerth's (2002) analysis of sound in the works of Shakespeare, which makes wide-ranging observations about the historical, dramaturgical and cultural aspects of sound in Shakespeare's works for theatre, and his general milieu. Although this work could be seen as a synchronic study, the WSP-SRL database (Truax, 1999) has both synchronic and diachronic analytical potential. The database could provide a useful corpus of material for a more systematic analysis such as computer-aided content and concept analysis. Indeed, the database can be seen as being central to definition of the *soundscape* as a concept giving rise to its formulation as a topic or object for study.

Summary of Background to the Study

In this survey of the background to this empirical study I have attempted to carefully detail and clarify the problematic nature of accounts of auditory experience. Once again a problematic of this kind is not susceptible to a final solution: the problems remain to be multiplied by the domains of reference applied to them. In this survey I have considered aspects of the ontology of sound that allow it to be present within the discourse, and I have noted the role of ambiguity particularly in studies into the aesthetics of sound. I have considered the structures and constraints imposed by narrative accounts. The specific ways in which narrative is related to sonic experience were explored by considering historical and

contemporary models of memory as they relate to auditory cognition. I have also touched on previous uses of interview in the sound studies literature and explored some of the many issues associated with interview data. In light of these issues I have surveyed alternative approaches to researching sonic experience including experience sampling and other forms of introspection, issues raised by the field of cognitive linguistics and the use of literature as a source of accounts of auditory experience.

The result of this investigation is an approach that does not treat the assembled data as a set of reports of *actual* experience but rather a body of discourse that reveals the *potential* dimension of sound and the sometimes concealed sense-making processes hidden in sonic events. This approach allows the data to be treated in a flexible and creative way applying a bricolage of typological and taxonomic analysis. One of the potential outcomes of the research reported in this chapter is to provide insight into possible approaches to the analysis of texts relating to sonic experience. This provides scope for future research work in this area.

Method

In this section I describe the specific method applied in the design and execution of the study. I consider the sampling and recruitment of participants, the interview procedure, methods for coding and data analysis and presentation of results.

Sampling

As an exploratory study, the selection of participants was primarily based on convenience; however, the nature of the population was considered in the design of the study. At first it was assumed that experts from the field of sound design and music composition would form a purposive selection of key informants. This expert group could be characterised as having a consistent professional practice of working with sound and therefore, it was assumed, would be more likely to identify and articulate aspects of their listening experience

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of aesthetic significance. However, as the task of defining listening expertise in order to construct the sample group was more carefully considered, this proved to be both a practical and conceptual problem.

To start with, the idea of a population that the sample might be considered to represent is problematic from a number of perspectives. From a reductive point of view the move to non-probabilistic sampling discounts normative representation of a population. Although the study has some resemblance to scientific method, there is no clearly defined object of study to which a hypothesis can be attached, therefore this resemblance is merely on the basis of empiricism. In its most basic sense, empiricism is an approach that attends to evidence gathered from observation rather than to the priority of ideas and argument. As the object of study is not defined prior, then the approach must be one of radical empiricism that assumes that rather than there being a population of subjects who have listening experience, experience itself constitutes the subjects that make up the population (James, 1912/2003, p. 21). In a similar radical vein, the study is not designed to uncover the characteristics of the auditory experience of a group of subjects but rather to assemble or create new representations that themselves may in turn create new subjectivities. Clearly these representations will not have a generality in the way that the products of scientific investigation are said to be general. It is this concept of generality that allows subjects to be seen as equivalent or replaceable. In a scientific study, the subjects are particular individuals but generally replaceable or interchangeable, whereas in this study, if aspects of experience appear to be repeated in successive accounts or in the presentation of the data or analysis, this should not be seen to represent a general effect of a particular cause but rather a series of singularities within a universality of the singular (Deleuze, 1968/1994, p. 1). Each experience is not in this sense to be seen as a repetition of an identical effect but rather the representation or description of the

effect is a repetition of each unique experience. This reversibility of the causal chain is a central aspect of the effect ontology outlined in the preceding chapter.

The selection of participants thus could be considered more like the idea of imaginative variation in experimental phenomenology (Ihde, 2012, p. 81), but unlike phenomenology, the study does not aim for the adequacy of the description of the phenomenon.

Despite the contrast in epistemological orientation with current study, the concern with the selection of participants in controlled listening experiments does highlight some important ideas about listener expertise. In discrimination tasks it has been shown that there can be great variation in the capacity of listeners from different backgrounds—for example, between so-called experienced and naïve listeners—and that training effects both internal and external to a particular experiment can have a significant influence on the results (Warren, 2008, p. 138). There is also evidence to indicate that the quality judgements of expert listeners may not predict the preferences of so-called naïve listeners (Bech & Zacharov, 2006; Rumsey, Zielinski, Kassier & Bech, 2005). The categorisation of expert and naïve can be determined by screening for application-specific exposure or listening experience, and in well-designed studies by testing and, where relevant, training. The specific abilities that might be tested for experts include “hearing acuity [determined by audiometry screening], and reliability and repeatability in matching, detection and discrimination” tasks (Bech & Zacharov, 2006, p. 123, 126). The observation that in the assessment of audio quality, different listeners, including so-called experts, use different ‘strategies’ for evaluation (Bech & Zacharov, 2006, p. 125) suggests that expertise is task specific and can only be assumed where some intervention such as task-specific training and testing has taken place within the experimental context. Even consistent variation both across and within subjects in such basic measures as

pure tone hearing threshold audiometry tests has been described (Bech & Zacharov, 2006, p. 124), indicating the range of variability in acuity.

These considerations suggest the limited usefulness of a general concept of listening expertise as a means of developing a stratified or purposive sampling approach. Listening expertise would only be a useful concept in particular cases where specific skills have been acquired and evaluated. As the population is difficult to define and the sample size was necessarily small due to the choice of semi-structured interview, an approach to sampling that employed both convenience and an attempt at variation or heterogeneity within the sample group was attempted. As the interview recruitment progressed participants were selected based on gender and professional background with a view to increasing diversity. A total number of 25 participants were interviewed. This number had the advantage of being small enough to allow detailed analysis and large enough to give some variety in response. Participants were not selected with regards to, or asked about hearing impairment, and only one discussed the impact of this on his listening.

Interview Procedure

The following questions were provided to participants prior to the interview,⁶⁶ in order to prepare them:

How do you rate your listening expertise? (1–7) ___ for example:

- 1 – Normal listener
- 2 – Music lover / birdwatcher
- 3 – Amateur musician
- 4 – Audiophile / serious record collector
- 5 – Trained musician / studio hobbyist
- 6 – Regular performer
- 7 – Professional musician / audiologist / audio engineer / producer

⁶⁶ See the complete the 1.1 Participant Information Statement on page 337.

Other listening skills/experience?

Following are the questions that will be discussed during the interview. You are not required to give written responses but you may like to jot down notes prior to the interview to aid your memory.

Question 1. Have you experienced a situation where you could not determine the source or cause of a sound, or the sound you heard turned out to be caused by something other than what you initially thought? If so can you describe the actual experience, avoiding explanations or generalisations, describing both what you heard and your state of mind?

Any other experiences of this type?

Question 2. Have you experienced a state of reverie or intense imaginative engagement or distraction as a result of your listening to a particular sound? If so can you describe the actual experience, avoiding explanations or generalisations, describing both what you heard and your state of mind? Any other experiences of this type?

Question 3. Has a reverie of this type ever resulted from a sound the source or cause of which was ambiguous or mistaken? If so can you describe the actual experience, avoiding explanations or generalisations, describing both what you heard and your state of mind?

Any other experiences of this type?

Interviews were conducted in a variety of locations including my office, the offices of the participants or other convenient locations. The interviews were audio recorded.

The first question requires the participant to rate their listening expertise. As discussed above, the concept of listening expertise is not well defined. At the time the questionnaire was developed advice was sought regarding the collection of these data. Two views were expressed: one viewed the rating scale approach as unproblematic but regarded the example

descriptors as potentially confusing; the other viewed an inventory-style checklist as preferable, as the rating scale could not be used for statistical purposes on its own due to a lack of a measure of reliability. During pilot testing the expertise question provided a useful discussion point to initiate a conversation that suggested a range of approaches to listening beyond those listed. The example categories listed could have been revised to include a wider range of listening activities, as those included are skewed towards the norms of musical practice. This is discussed in the section on listening and listening style on page 220.

This opening discussion was viewed as valuable as it partly fulfilled the function of an initial contextual narrative freely adapted from the *single question aimed at inducing narrative* (SQIN) as proposed in the biographical narrative interview method by Wengraf (2001). It also had the desirable effect of equalising the research relationship by opening up the possibility of different types of expertise that participants may have, which are potentially more valuable than those perceived to be held by the *expert* researcher.

The following questions were designed to elicit *particular incident narratives* (PIN), once again following aspects of the interview method proposed by Wengraf and others. The key feature of the PIN and the narrative approach in general is that it attempts to focus the discussion on description of actual experiences, avoiding explanations or generalisations and grounding the discussion in sensory and contextual detail. Narratives of this type can be viewed as combining the so-called cardinal functions of sequence and consequence (Barthes, 1975, p. 248).

The inclusion of sensory and contextual detail is considered in the context of forensic interview to both assist in accurate recall and to bring forward information that the participant may not consider to be relevant. Fisher and McCauley's cognitive method of forensic interview (1995) also suggests the re-telling of the story starting at different points in the

narrative, thus reorganising what Genette refers to as narrative time (1980, p. 33). This re-sequencing or introduction of new *anachronies* (1980, p. 35) of the narrative is intended also to bring forward new information. One also assumes that this may help to uncover fabrications, or deliberate omissions in the context of criminal interrogation.

However, in evaluating the effectiveness of the cognitive interview technique with children, Memon and his colleagues (1997) found that it in addition to producing more correct detail, the method could also produce more so-called confabulations where details were reported by participants that were not present in the original incident. Barthes points out the complex relationship in cardinal functions between narrative chronology and narrative logic where the selected presentation of the sequence of events reveals or conceals the potential consequences and therefore the interpretation of those events such that “there is a strong presumption that the mainspring of the narrative activity is to be traced to that very confusion between consecutiveness and consequence, what-comes-*after* being read in a narrative as what-is-caused-by” (1975, p. 248).

Therefore, this disrupting of the narration or telling of the story proposed by the cognitive interview method is also a disruption of the narrative sense, the *meaning* of the elements or events, “since what is noted [in a given sequence of events] always tends to be seen as what is ‘worth noting’” (1975, p. 248). In the forensic context, the intended result is an accurate account of events; however, in the context of this project the same method can produce a more diverse reading within each account, ultimately leading to a more comprehensive picture of accounts of listening experience in general as contained in the discourse of the particular participants.

As the language introduced in both the questionnaire and the interview questioning was considered likely to influence the types of detail contained in the accounts, a was

prepared to guide the interviews and to ensure that participants were responding to a similar context (see Appendix 1.2 Interview Script). It is possible that a less structured approach may have produced more diversity in responses, but the semi-structured approach was adhered to as it was intended that the story categories would be significant in the analysis. Each of the three sections of the interview included an opportunity for guided accounts and more free responses. The complete script is included in Appendix 1 on page 338.

It is apparent that the terms *sound* and *source* are repeated in the questions and some of the implications of this wording are discussed in the section on Sound Reference on page 182.

Transcription

A professional transcription service was employed to produce electronic text transcriptions, which were synchronised with and used alongside the original audio recordings within the text analysis markup system TAMS Analyzer (Weinstein, 2011). This provided access to the non-verbal but audible paralinguistic aspects of the accounts. The transcription formatting also allowed the transcripts to be coded for participant identity and question context.

Method of Analysis and Presentation of Results

The method of analysis blends typological analysis based on Augoyard's system of sonic effects with a more taxonomic classification grouping of empirically derived content within the transcripts (Bailey, 1994).⁶⁷ This approach, as discussed above, has been referred to as bricolage, borrowing from the anthropological method of Lévi-Strauss's (Kvale, 2007;

⁶⁷ What appear as typological categories from Augoyard's repertoire of sonic effects are considered by Augoyard as paradigmatic or associative and themselves represent a bricolage. To quote Augoyard the sonic effect is "halfway between the universal and the singular, simultaneously model and guide, it allows a general discourse about sounds, but cannot dispense with examples. Rather than defining things in a closed way, it opens the field to a new class of phenomena by giving some indication of their nature and their status" (2005, p. 9).

Lévi-Strauss, 1966, pp. 21–22). The analysis amounts to an attempt to *make sense* of the transcripts, which is one aspect of the contribution to knowledge made by the study.

Although the tools of computer-assisted qualitative analysis⁶⁸ allow both typological and taxonomic structures to be applied to or generated from transcripts and in this way are agnostic, they do impose their own reductive and “arboreal”(Deleuze & Guattari, 1987, p. 17) logic on the process of analysis. This has also been referred to as the “logic of classes” (Bailey, 1994), which impose or produce sense—classification being both a noun and a verb. The tools for searching, selecting and sorting, change the way in which the transcripts are read. However, they also provide enhanced access to the materiality of the interview situation through synchronised audio playback and this is often a corrective factor where there is a tendency to make different voices sound similar in the reductive process of reporting on the data.

Textbooks in qualitative analysis (e.g. Silverman, 2011) often suggest that by including quoted material from interview transcripts we can allow the participants to “speak for themselves” to reveal their truth and not impose that of the researcher. Although I have attempted to follow this advice, it creates a paradoxical situation. Paying very close attention to how participants express themselves word for word reveals an indeterminacy that appears to be both in the participants mode of expression and in its interpretation. By taking account of this indeterminacy, I do not allow the participants to “speak for themselves”, perhaps even suggesting that in their use of language they are not competent to do so and equally that the readers of this thesis will not be competent to interpret their utterances without the assistance or imposition of my interpretive efforts. I argue however, that it is the very nature of the phenomenon under investigation and the insights my research attempts to uncover, that forces this imposition as I peel back the veneer of common-sense through which we interpret simple

⁶⁸ In my analysis I have used both a simple spreadsheet, and Matthew Weinstein’s TAMS Analyzer (2011)

utterances about sound. An example of this analytical approach is the unpacking of the simple phrase “it sounds like” on page 199 in which it is asserted that the multi-stable nature of this expression reflects on the inter-relational ontology of the phenomenon.

The blending of analytical approaches has led to some repetition in the presentation, which I have attempted to minimise.

Coding Stories and Sound References

Two code sets were developed. One code set was applied to a list of stories as described in the results section below. Each story was characterised in terms of narrative frequency, sonic effect, form of sound reference, context, perceived and actual sound source, state of mind, attention type and Schaefferian listening mode.

The second code set was applied directly to the text of the transcripts. An initial approach was to adopt a sound classification and naming strategy similar to a common approach used in cataloguing sound effects in audio-visual sound production. This system differentiates sounds by identifying an object, an action and a description of the action or object. Occasionally this naming system identifies a gesture or event; for example, whoosh>short, crash>car>glass. In the context of audio-visual production there is no ambiguity about what sound is and how it is intended to be used. However, in coding the transcripts a more general concept of *sound reference* was used. Sound references included not just causes under the object>action>description schema described above, but general classes or groups of sound, such as beach sounds, descriptive onomatopoeia and various forms of reference to sound such as “a sound”, “sound of”, “sounded like”, etc. These coding strategies, described in more detail below, revealed the diverse ways in which sounds appear in narrative accounts.

Results

Participants

A total of 25 interviews were conducted, ranging from 21 to 86 minutes in length with an average duration of 41 minutes. Age and gender were recorded, although six participants chose to withhold their age. The sample group included 10 females and 15 males. Of the 19 participants that reported their age, the youngest was 20 years and the oldest 63, with the mean age being 40 years and median 39 years. Participants came from the professional groups shown in Table 3.1, indicating a sample heavily skewed to the creative arts professions and those engaged in education or research, either as students or teachers.

Occupation	Number	Occupation	Number
Music teacher	1	Educationalist	1
Musician / academic	2	Acupuncturist	1
Musicologist	2	Artist / designer	1
Art theorist / curator	1	Composer	1
Musician / research student	2	Dancer / performer	1
Media artist	2	Theatre / media designer	1
Music professor	1	Music critic / musicologist	1
Writer / cultural historian	1	Librarian	1
Music student	2	Photographer	1
Composition student	1	Playwright / academic	1

Table 3.1: Participant occupations are skewed towards professions in the creative arts and education.

Participants were asked to rate their listening expertise prior to a discussion of the concept of expertise. The sample group is skewed towards those whose professional activities include some form of critical listening, although both ends of the scale are represented, as indicated in the graph in Illustration 3.1.

RESULTS

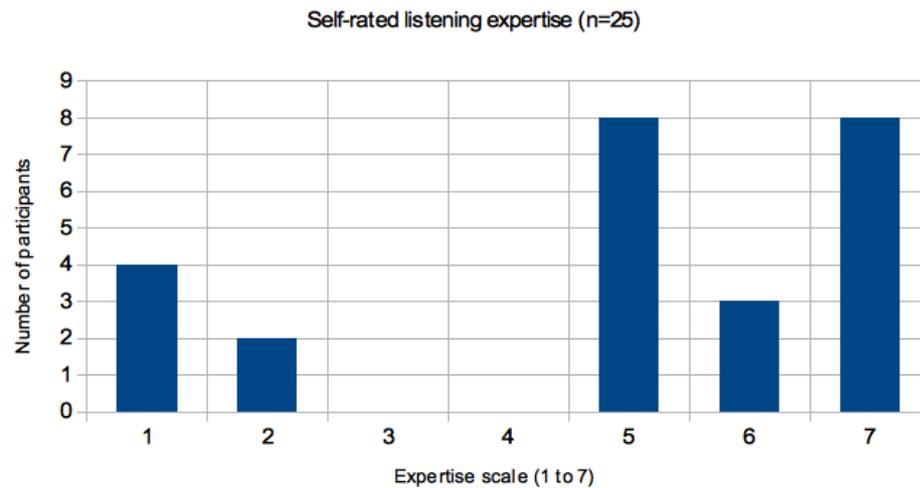


Illustration 3.1: Participant self-rated listening expertise. The group includes mainly those who practice some sort of critical listening, although representatives at both ends of the spectrum are included.

Stories and Story Type

The interview transcripts were divided into discrete accounts or stories. A total of 131 separate stories were collected. In the text that follows, individual accounts are referred to using a code; for example, I3Q2S1 refers to the first account or story (S1) made by interview participant 3 (I3) in response to Question 2 (Q2).

Initially, each story arose in the context of one of the three interview questions: Question 1, stories of ambiguous sounds; Question 2, stories of imaginative engagement with sounds; or Question 3, stories of ambiguous sounds that resulted in imaginative engagement. However, during the course of the interview or the subsequent analysis, many stories were reclassified from Question 1 stories, to Question 3 stories. As the subsequent analysis shows, there is a moment of imaginative engagement in each of the listening experiences described; however, when the stories are interpreted in the context of an interest in the relationship between imaginative engagement and ambiguity, it becomes apparent that many cases of simple ambiguity encompass a more sustained or prolonged engagement. This resulted in an

almost complete reversal of attitude for the participant in some cases when this was pointed out. For example, I14 noted that he will always try to identify a sound first before engaging with it imaginatively. He therefore did not think that there was anything worth reporting under Q3 even though the movement to “try to identify” is the obvious first step in engagement. On a similar note, I18 commented, “I don’t know. It’s hard for me to enjoy something unless I know what it is, very hard to be honest. It’s just my mentality of having to work things out”. Here again is the overlooked or undervalued need and process “to work things out”. This attitude mirrors that of I14, who elaborated:

on my notes I wrote for question 3 ...⁶⁹ that I don’t think that’s ever happened. I wrote that I believe that perhaps I’m incapable of this. I tend to work out a sound before surrendering to it ... if it confuses me ... the first thing I do is start turning my head to try and locate it. Then if that still doesn’t do anything then I will actually move around and work things out ... then once I’ve sussed it out then I’ll actually start listening to it.

In each of these cases, apparently simple experiences of ambiguity had prompted a closer engagement that stayed with them in their imagination or had kept their focus for long periods of time. When it was pointed out that rather than being insignificant or non-existent, the role of ambiguity was quite apparent in their accounts, the realisation was usually at least partially acknowledged, as for example by I14: “so yeah to a degree, I mean you have changed my mind on it a bit”.⁷⁰ The number of stories in each category before and after reallocation is indicated in the graph in Illustration 3.2.

⁶⁹ As is obvious, I am “reading against the grain” in these analyses; however, I have always attempted to retain the original sense of the quotations. Where I have used ellipses (...) it is to improve the flow of the text and I judge the elements left out to be repetitions or forms of speech that do not modify the meaning as presented.

⁷⁰ This apparent *leading* of the participant was part of what was intended to be a balanced give-and-take that opened out the range of ideas for discussion.

RESULTS

Number of stories by question

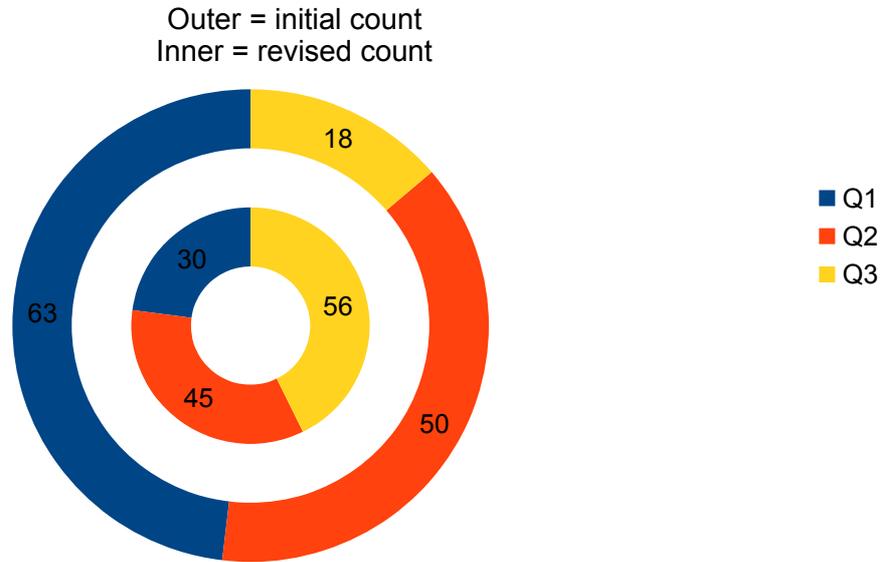


Illustration 3.2: Stories by question type. The story categorisation was revised from the question number to which they were a response (outer ring), to the category that best matched the content of the narrative, which was not always apparent to the narrator.

Stories per participant

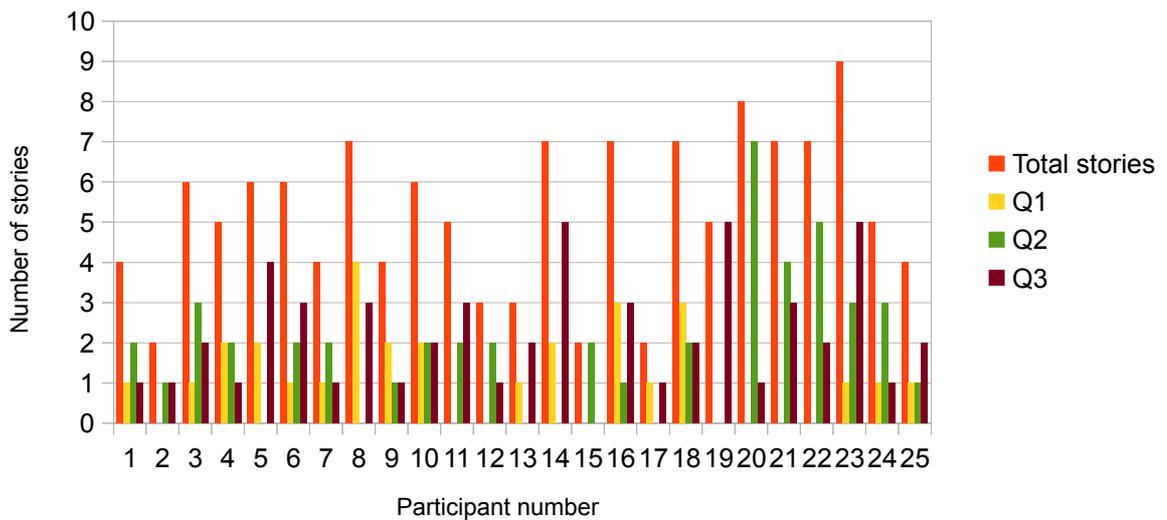


Illustration 3.3: Stories per participant. This graph shows that stories of each type are broadly distributed among the participants.

The graph in Illustration 3.3 shows the total number of stories from each participant and the number of stories of each type. Although these data do not show the richness of the qualitative data from each participant, they do give an indication that stories of each type were distributed among the participants, rather than all coming from a few key informants who may have been sympathetic to the perceived aims of the study. The average number of stories from each participant was 5.25. The maximum number of stories (9) was offered by I23, who was on a par with I14 and I19 for the number of Q3 stories contributed. The smallest contributions came from I2 and I15 with two stories only from each.

Each account was considered in the context of the whole interview to determine how it contributed to the listening characteristics being represented by the participant and the narrative style demonstrated in the interview. Subsequently, the accounts were summarised and tabulated with reference to narrative frequency, sonic effect, form of sound reference, perceived and actual sound source, state of mind, attention type, listening mode and ambiguity. Some of these items are summarised under relevant section headings below and the terms are discussed in more detail in the analysis section following.

Analysis—Accounts of Listening Experience

The data being analysed are accounts of listening experience offered in interview situations in response to questions that constrain the responses in terms of the terminology used and the focus or topic of the question. The initial objective of the study was to explore the role of ambiguity in the aesthetic response to sound. None of these three terms (ambiguity, aesthetic response, or sound) is well defined and so the function of this analysis is to uncover the ways in which these three broad concepts and the relations between them are revealed within the discourse of the participants. The analysis begins by considering the ways in which sounds acquire their identity. Next, I examine how the experience of sound is represented or

structured in terms of narrative frequency. The analysis then moves to consider how sound is referred to within the discourse of the participants. I then analyse the representations of sounds, listening and sonic experience in terms of two theoretical frames—first using the typological system developed by Augoyard and colleagues (2005), and then using the concept of modes of listening as defined by Schaeffer (Schaeffer, 1966; Chion, 1983/2009).

Ambiguity and Sound Actualisation

This section considers the processes of recognition and actualisation through which sounds succeed or fail to gain their identity. In some cases sounds are ambiguous or open to more than one interpretation. In these cases sounds display the potential dimension of their sonic substance.⁷¹ In other cases the final identity of the sound is actualised immediately in the process of recognition. In several stories sounds attract attention and are recognised as sounds, but their identity remains expressed as “this” or “that sound”.

Most stories in response to Question 1 took the form of a sound initially recognised as one thing (a particular sound type or source) and subsequently identified as another. After the reorganisation of Stories and Story Type described on page 137 above, out of the total 131 stories collected, the initially perceived and actual sound was identical in 70 stories. In the other 61 stories a progression from misrecognition to subsequent identification occurred.

Table 3.2 shows this distribution between stories.

Perceived = actual	Perceived ≠ actual	Q1 perceived = actual	Q1 perceived ≠ actual	Q2 perceived = actual	Q2 perceived ≠ actual	Q3 perceived = actual	Q3 perceived ≠ actual
70	61	8	22	38	7	24	32

Table 3.2: Perceived and actual sound. Sounds could be correctly or mistakenly identified. In Question 1 and 2 these are distributed as expected. Interestingly, Question 3—involving engagement from ambiguous sounds—shows 43% initially correctly identified sounds and 57% ambiguous sounds.

⁷¹ Here I am building on the interpretation of Aristotelian metaphysics made in the preceding chapter in the section on Sound Ontology on page 37.

This progression from false recognition or identification was not universal in Question 1 stories. In eight cases the identity of the sound was either not resolved or remained the same throughout but there was something ambiguous about the sound. Of these, five were cases of spatial ambiguity: either delocalization—a sonic effect in which the location of the source cannot be resolved—or ubiquity, where the sound seems to be coming from everywhere at once⁷² (Amphoux, 2005). In one story, the listener was awoken from a dream by a tap dripping (I17Q1S2). The sound seemed to emerge from the dream and the dream sound seemed to maintain its identity as a *dream sound* even once the “real” tap had been turned off. This could be thought of as a special case of the sonic effects of incursion, intrusion or remanence (Augoyard & Torgue, 2005). In incursion or intrusion an unexpected or unwanted sound enters a space or modifies the character of a moment causing a change in behaviour; whereas remanence is the continuation of a sound in the imagination. A final group of stories in this category described the experience of living with hearing loss in which things are partially heard and remain ambiguous. In these stories the listener describes going through the stages of trying to identify sounds; in some cases accepting sounds as not clearly defined, and in others “bluffing” his way through conversations. These processes are not unique to cases of hearing loss and are also described in the context of the ubiquitous effects of filtration (Balay, 2005) and masking (Delétré, 2005) in which portions of the spectral content of a sound are either removed or obscured.

The majority of stories elicited by Question 2, sounds retained their identity throughout the story. In the seven that were transformed in the course of the narrative several demonstrate the potential of sound to expand and occupy a larger domain of experience. In these stories a simple sonic experience was transformed to become equated with or predicated

⁷² See the section below on page 210 for a more thorough description of relevant sonic effects from Augoyard’s repertoire.

of, variously: a sense of time or place (particularly with birdsong) (I4Q2S1, I11Q2S2); a multi-modal evocation or re-presentation of an exact milieu or location (I6Q2S1, I3Q2S2); a sense of personal identity or spirituality (I11Q2S2); a sense of self at another age or special personal relationship (I18Q2S1, I3Q2S2); temporal form or proportion (I22Q2S1); or a series of dream paradoxes (I22Q2S2-3).

It is tempting to describe this apparent expansion as mere association or evocation, but aspects of the narratives affirm that this occupation by sound of the domains of place, atmosphere, milieu, spirituality and personal identity is intrinsic to sound itself. This assertion is supported by the use of terms such as “sound of” within the narratives, implying a mereological relation, which is explored in more detail in the section on Sound Reference on page 182.

The distinction between the initially perceived and finally actualised sound was more evenly balanced in stories elicited by Question 3 in which ambiguity was linked to imaginative engagement or aesthetic experience.

By considering the outlying cases first I have exposed the usefulness of the categories of Augoyard’s repertoire of sonic effects including the spatial effects of ubiquity and delocalization. I have also introduced the concepts of recognition and identification, which will require more scrutiny in the context of each question, and have indicated the possibility of sound to encompass various forms of experience including the experience of place and self.

Question 1—Sources and Causes

Question one elicits stories about sources and causes, and their initial and subsequent determination:

Have you experienced a situation where you could not determine the source or cause of a sound, or the sound you heard turned out to be caused by something other than what you initially thought?

This form of questioning was intended to be easily comprehensible without further explanation, and not burdened by theory or jargon. However, the question is heavily weighted towards a form of indexical listening in which sounds are posited as indexes to material causes.⁷³ This form of expression also implies a common-sense theory of efficient causality. It could be expected that these features of the discourse would constrain the range of experiences and sound types elicited.

In addition to the cases of spatial ambiguity cited above, there are two broad categories of story: first, there are those that follow a sequence from recognising the sound as being caused by one source only to later realise that it is caused by another different source. In the second category however, what is initially recognised as a sound of some general type, for example, a mechanical sound, a strange sound, an unknown sound, a whirring sound;⁷⁴ and these sounds are finally identified as being caused by some particular thing. These varying forms of sound reference are treated in more detail in the section on Sound Reference on page 182 below.

Before examining some examples of the stories elicited by Question 1 it is useful to consider some aspects of the concept of recognition. The term *recognition* suggests that hearing the familiar is a form of epistemic cognition: *to know again*. In his account of the *repetition* effect, Augoyard describes the fragile first listening, which is characterised by a “perceptive innocence over which the sound object, unheard up to that point, is inscribed ... Successive listening brings a progressive sedimentation that allows mastered apprehension of structure and the sometimes complex comprehension of the play of elements” (Augoyard & Torgue, 2005, p. 94).

⁷³ Schaeffer’s Type 1 listening moment, see Schaeffer’s Four Listening Modes on page 59 for more detail.

⁷⁴ These are linked to Schaeffer’s Type 2 and 3 listening modes.

In summarising cognitive models of recognition and identification, Snyder (2000, pp. 10–11) considers recognition as a form of consciousness involving the interaction of short- and long-term memory, names and concepts:

Recognition [is] essentially the automatic activation of some particular contents of long-term memory that have some relation or association with current perception. ... Recognition occurs whenever what we see or hear seems familiar, which is much of the time. The recognition mode of consciousness consists of information from the environment entering short-term memory through the activation of long-term memory. Identification occurs when we not only recognise something, but are able to connect it with memories of its name and associated with its concept.

In considering theories of the activation of long-term memory I return again to the long history of the concept of association. In 1817, the romantic poet Samuel Taylor Coleridge reflected on the “law of association” and traced its history from Aristotle via Descartes and Hume to his present time (Coleridge, 1984/1817). Coleridge placed considerable weight on Aristotle’s assertions regarding the processes of association:

In the practical determination of this common principle to particular recollections, [Aristotle] admits five agents or occasioning causes: first, connection in time, whether simultaneous, preceding, or successive; second, vicinity or connection in space; third, interdependence or necessary connection, as cause and effect; fourth, likeness; and fifth, contrast. As an additional solution of the occasional seeming chasms in the continuity of reproduction he proves, that movements or ideas possessing one or the other of these five characters had passed through the mind as intermediate links.

Even in Coleridge’s time the idea of neural networks among the “fibres” of the brain had some currency, and the thought that connections between these fibres might provide the “intermediate links” that would support both creative flights of the imagination and the “occasional seeming chasms” of misrecognition is evident in the work of his philosophical

and literary contemporaries. However, the significance of this discourse goes beyond an examination of the operation of memory. If the initial phases of auditory perception act like a “probe” linking short-term memory to long-term memory, this process can be seen as a scoping of the potential dimension of sound. This potential links the listening subject through their personal history to the present and the possible future of their environment. Even in normal cases in which identification happens automatically or instantaneously, the latent potential sonic dimension is present. In these cases the *present* goes unnoticed. However, where recognition fails and identification comes only with an effort or with a surprise, then the actualisation of sounds becomes evident.

Actualisation

As Snyder suggests, identification occurs “when we not only recognise something, but are able to connect it with memories of its name and associated with its concept”. Linking this to Aristotle’s theory of association, identification of an *actual* sound or actualisation involves the marriage or association of a name, a concept, a repetition of likeness, a differential distinctness or contrast, a sequential or consequential order (including spatial organisation) and a subsequent (or antecedent) necessity in terms of causal explanation. When one or more of these factors align, the potential dimension of a sound is attenuated and the actual *presents* itself. A *real* sound becomes present, as opposed to something imagined or mistaken, or something emerging or in the background.

It is perhaps no coincidence that these factors, including sequence and consequence, are the essential features of narrative (Fludernik, 2005). Whereas recognition occurs within time so to speak, as one of a continual flow of events, identification and actualisation is distributed throughout or draws together the three distinct phases of narrative time: past, present and future. As Paul Ricoeur (1980), suggests it is this aspect of narrativity that allows

entities to move outside of time or the continual sequence of events, to become whole (gestalts or genera) and in so doing, paradoxically, be made present. Following Ricoeur's existential analysis, it is when the three orders of time are unified that the identity of a sound is confirmed and the sound is actualised.⁷⁵

This perspective on the structure of sound is necessarily amplified by the narration of accounts of listening experience and Question 1 stories provide the paradigmatic narrative structure in which the processes of recognition and identification can take their place. Examining the stages and varieties of recognition and identification in the stories may help to highlight the moments of potentiality and actualisation that some sounds go through.

Question 1 stories can be broadly characterised as representing two modes of listening. The first is linked to Schaeffer's Mode 1 listening to sounds as indexes to external objects or events. The second relates to Schaeffer's Modes 2 and 3, perceiving raw sounds or hearing qualified sound types.⁷⁶ The move from potential to actual within these stories follows the four possible trajectories between index and sound type (type>index, type>type, index>type, index>index). In addition to these, Schaeffer's fourth listening mode, comprehension, is invoked both in reference to animal and human vocalisations and to certain types of signal sounds, such as sirens. Music also features as a general sound type, and as specific pieces, and particular performances or electroacoustic reproductions. Finally, the path to actualisation is sometimes complicated by an extended phase of metamorphosis occupied by unstable and indeterminate identities.

⁷⁵ The unification or the role of the future in the forms of present recuperates Aristotle's famous four causes particularly the teleological, see the discussion under Schaeffer and the Sound Object (Music as Sound) on page 48.

⁷⁶ For a detailed description see Schaeffer's Four Listening Modes on page 59. The term *index* is taken from Schaeffer's listening model but it is worth considering its range of potential meaning. An index points to some other contextually related phenomena. Indices play a role in Peircian semiotics in which they are contrasted to arbitrary or conventional *symbols*, and *icons* linked by similarity or shared features (Short, 2007).

Sound type to index

Several stories contained mechanical sounds that were clearly defined in terms of their source, and several contained undefined mechanical sound types that were subsequently resolved to their sources. For example, in I9Q2S2 a sound heard while driving that could have been a car fault or road noise resolved itself as a plane in the sky. The car as a listening environment featured in five stories and is significant perhaps because of the high degree of potential for masking (Delétré, 2005) and metamorphosis (Chelkoff, 2005) effects, or the vigilance of the driver.

Other general sound types such as scratching or scraping gestures, clicking, or unknown or indescribable sounds, were featured. For example, in I8Q1S6 a strange clicking sound was finally identified as a gecko. Interestingly, this story took place on a trip to Fiji and geckoes were previously unknown to the participant. Even when looking straight at the gecko the sound was not attached to it as a source for some time, as in her mind “lizards don’t make sound”. This conflicting visual stimulus resulted in a delocalization of the sound. In I9Q1S2, delocalization caused by the acoustics of a domestic interior resulted in an odd, unidentified sound taking several days or more to be identified as bird feet on the roof heard through a skylight. This form of temporal organisation is discussed in more detail under Narrative Frequency on page 174.

Sound type to sound type

In several stories the potential dimension of the sounds was more strongly weighted and hence ambiguity remained. In I14Q1S3, the participant woke up to a strange humming sound that was difficult to locate and got out of bed to locate it, but was unsure whether it was inside or outside. The cause was never resolved and the sound remained an unknown humming. In a remarkably similar story, in I24Q1S1 an annoying electrical hum has been in the

bedroom for all the five or six years the participant has lived there. Every once in a while he notices it and finds it annoying enough to search for, to no avail.

Sound type to music

Music, either in specific named pieces or as a general class of sound, appears in 54 of the stories. This reflects the background of the population of participants, but also occurred for the non-musicians in the sample group. Many of these stories involve mistaking music for some known or unknown sound. For example in I5Q1S2 a strange sound turns out to be music on the radio. For a professional musician this is cause for an intense response:

Then I heard this sound that sounded—I did have absolutely no idea what it was. I do remember that being an intense—an idiot moment. I guess it would be almost like embarrassment. Like if someone had been there I would have been intensely embarrassed at what I was doing. It was totally ridiculous that I was looking for a sound that was a piece of music.

Index to index

In several similar examples, music is mistaken for a specific cause. In I4Q1S1 recorded music is misidentified as a mechanical fault in the refrigerator and in I5Q1S3 the music is mistaken for the washing machine. In these particular examples the confusion can be explained by the nature of the music, which in each case was a form of experimental electronic music in which the instrumental sources were all unknown or unique. I13Q1S1 takes place while driving with music playing in the background. A siren is heard causing the participant to check in the mirror and then finally realising that the sound was part of the music. In this case the sound was integrated into or emerged from the activity of focus, which demonstrates the powerful effects of attention on the structure of sonic foreground and background.⁷⁷

⁷⁷ Note that Augoyard proposes the pair “event/duration” as a structure more relevant to the sonic domain than the visual domain. The interplay of attention and the temporal dimension in the structuring of the sonic event is implied in the discussions on narrativity in this thesis, see Actualisation on page 146, Narrativity on page 107, and Narrative Frequency on page 174 for more detail.

Among the range of sources indexed by sound a dripping tap appeared in four stories. In I7Q1S2, what was heard as a tap in an unfamiliar house over a period of days was resolved into the sound of a frog when it was recalled that this had been mentioned in passing by the owner. In this story, the powerful effects of recognition resist the available knowledge that might otherwise provide support for identification.

In two stories the vocalisations of a cat and a baby or small child are confused. In I10Q1S2 the sound of a cat outside reflected from an internal wall produces the strange and unexpected phantom sonic image of a baby in the house. In I14Q1S4, a striking example of the metamorphosis effect (Chelkoff, 2005) causes the combination of a child's snoring and an unknown sound outside to produce confusion. The vigilant parent waits for the sound to resolve and his fears are calmed by the identification of a passing cat as the source.

In another example of the effects of vigilance, anticipation (Augoyard & Torgue, 2005, p. 25) and metamorphosis, in I16Q1S1 the participant pre-hears the doorbell or phone in the sound of a vacuum cleaner or exhaust fan. In I18Q1S2 traffic noise is heard as thunder during a game of golf—an incursion (Augoyard & Torgue, 2005, p. 65) that causes the participant to rush through her game.

Intermediate sounds—metamorphosis

Chelkoff (2005) describes the metamorphosis effect as being characterised by instability or meta-stability in the sonic ensemble. In some of the stories collected, a form of oscillation occurs in the identity of a sound where the potential dimension of the sound is more fully expressed. Sometimes the trajectory is clear; sometimes the narrator is more equivocal about the sequence of sounds in the story. In these stories the sound goes through a number of intermediate phases before resolving to its ultimate actualised identity.

Several stories recount the progression from a sound type to an intermediate index to a final index. For example in I8Q1S1 a “scrapey, scratchy sound” that could be an intruder in the

house is resolved into a piece of plastic moving in the breeze. The participant notes that his heightened vigilance was implicated but also describes the way in which he considered a range of “rational” possibilities for the cause of the sound. In I18Q1S4 a rustle in the grass while bushwalking produces the sound of a snake but ultimately is visually identified as a lizard. These stories demonstrate the role of the visual modality and causal explanation in sound actualisation. In I8Q1S2 a “loud crackle, thump kind of sound” is assumed to be an intruder in the house as she is woken from a half-sleep. As she strains to identify the sound it seems to switch continuously from the possibility of being just the fridge to being an intruder. In this process an explanatory narrative of the intruder’s progress through the window and through the house emerges within the sound. This complex apprehension is finally resolved into being actually just the fridge making noises.

In several stories an initially recognised index is transformed into an indeterminate intermediate sound type before resolving to become an actualised index. In I8Q1S4, birds outside the window cannot be located and therefore become a “clicky–clacky sound”. The sound or the birds seem to be “playing games” with the listener until the actual birds are finally located. As I have shown, birds, mechanical sounds, music and dripping taps feature in several stories. In I4Q1S2 what appears to be a mechanical fault in the car becomes an indeterminate “mechanical clanky sound” before it resolves into electronic music from the CD player. In I6Q1S4, the sound of frog and dripping tap are again confused. This time however, the sound remains as a strange frog/tap hybrid that appears in the context of both actual frogs and actual dripping taps. The frog/tap becomes an independent auditory schema in the participants listening imagination.

Index to sound type

In several stories sounds move from an initially recognised cause to become an indeterminate, unrecognisable or non-existent sound type.

In I10Q1S1, while lying in bed the participant hears a dog making a strange sound and is concerned enough to get out of bed and go to investigate but the strange sound was no longer present. The participant noted that he is sensitive to dogs in general and has since become a dog owner. In I16Q1S2 the participant hears a siren while driving in the car. She looks in the mirror and prepares to pull over but there is nothing there. Perhaps there was something pitched about the motor noise or it is possible that there was a siren in the distance, but the identity of the siren-like sound is never resolved. In I16Q1S3 the participant relates a story about staying in an unfamiliar apartment and hearing a tap dripping at night and getting out of bed and checking all the taps but not finding it. It could have been the ceiling fan but the source remains unresolved. She does not like dripping taps and is concerned about water conservation. An unfamiliar environment plus a concern for water produce the recognition of a dripping tap but once the attempt at identifying the source is exhausted the ambiguous dripping-tap-sound is accepted and withdraws into the background. The sound *presents* itself and withdraws.

Aspects of comprehension—Mode 4 listening

Finally, as we have seen in the stories above, Question 1 reveals a form of semantic listening (Chion, 1983/2009, p. 20) in which sounds are interpreted as signs or signals with specific meanings, for example, speech, vocalisations, sirens, machines malfunctioning, doorbells and phones. In these cases sounds have the potential to be actualised as a broader meaning and motivation for action or response. Often when sounds speak the language of living entities or the language of things (Merleau-Ponty, 1973, p. 7; 2002/1945, p. 322; Schaeffer, 1966, p. 337) they can be misinterpreted as in the case of the incursion of thunder/traffic into the interrupted golf game in I16Q1S1. Similarly, animal vocalisations can be recognised as one set of meanings only for the interpretation to be revised. In I18Q1S3 the sound of the participant's dog in pain causes her to go outside to check on the dog, only to

discover that the 18-month-old puppy is not in pain but is defending his territory against a possum in the backyard. Rather than being confused about the source, the participant is mistaken about the meaning of the dog's vocalisation. The sound is actually one of assertion or aggression not pain.

Sources, Causes and Effects

The responses to Question 1 have provided evidence to outline the sound effect as a constellation of factors that produce not only sources and causes, but also listeners configured as confused, frustrated, annoyed, embarrassed, amused, nervous or hyper-vigilant. The sounds uncovered in these responses are correlations between environments, contexts, preoccupations, events and engagements. Sounds emerge from these narrative structures as quasi-narrative structures themselves, complete with characters and locations. Just like narratives, sounds are actualised when they incorporate a name; a concept; a sequential or consequential order with antecedent or subsequent necessity in terms of causal explanation; and elements of repetition of likeness or distinctness or contrast. But, like stories, sounds always contain a potential to draw in the general and the particular: the general, in terms of sound types; and the particular in terms of indexes to things, and meanings. And, like stories, sounds have the potential to turn out differently in the end. Finally, by examining stories in response to Question 1 I have touched on the ways in which sounds assert their presence, become present by configuring spatial relations, or constitute the present by drawing in past experience and producing future action.

Question 2—Aesthetic Experience

Question 2 proposes a model of aesthetic experience:

Have you experienced a state of reverie or intense imaginative engagement or distraction as a result of your listening to a particular sound? If so can you

describe the actual experience, avoiding explanations or generalisations, describing both what you heard and your state of mind?

In this implicit model, aesthetic experiences are unusual, intense, engaging or distracting. They involve the imagination, or something referred to as *reverie*. Although imagination may be broadly recognised as something to do with creativity or with the production of mental images, what constitutes reverie was less widely recognised by the participants. My thinking in developing this question was informed, perhaps overly determined, by reading the phenomenological investigations of Gaston Bachelard (1969, 1971, 1987) in which reverie is the source of “the primal and psychologically fundamental ... creative imagination” (1987, p. 13). I provided differing amounts of prompting in the presentation of this question and the responses varied accordingly. The following interchanges appearing in the transcripts scope the range of what was understood by the term reverie in the context of the interviews:

Participant 1: I have no idea what sonic reverie is but I’ve got a fair idea of what it means to me.

Facilitator: The second question is about the reverie so that’s where you’re listening to sound and it captures your imagination and perhaps puts you in a bit of a daydream.

Participant 1: All the time.

Facilitator: The second question is probably a bit more undefined but I’ve used this term reverie which you pointed out is not really clear what it means. If you look at it in the dictionary it says things like daydreaming and all that sort of thing and I think...

Participant 3: I think of Debussy.⁷⁸

⁷⁸ French composer Claude Debussy (1862-1918).

Facilitator: Right, yes absolutely. So the Impressionists were all about those types of states...

Participant 3: I got very interested in the way Kancheli⁷⁹ uses silence and for me that's my reverie. It's sort of really going into the idea that the canvas of all the sounds is built on this silence in his music.

Participant 4: So that sense of reverie in terms of making my principal focus the sounds that I was hearing and enjoying those sounds in the environment is different to the previous story, yes.

Facilitator: So the second question is about—so I've used these terms intense imaginative engagement, distraction...

Participant 6: Reverie is nice though.

Facilitator: Reverie is not a—I mean it's an interesting term that is not really in current use but it's related to these other ideas...

Participant 6: It was the one that sparked my memory of this event...

Participant 7: Reverie, in terms of reverie, it's also—it's a really strong physical connection to what's happening in the sound for me, so with [that drone music] and those band saws and extractor fans, there was a kind of slow rising and falling, but lots of that happening in different cycles and phases. I just connect it into me to these feelings of kind of swelling and ebbing and flowing and layers of intensity happening inside my own body, and that for me is a kind of a reverie kind of feeling, yeah.

Facilitator: Now I've used this term reverie which is not a common term.

Participant 14: Well I was actually sitting there thinking okay I can use it in a sentence but I don't know the actual definition of it. I was taking it as being like a vigorous joy perhaps.

⁷⁹ Georgian composer Gia Kancheli (b. 1935).

Participant 20: I would say that that induces massive—it catapults one into a space of—a space of reverie, some kind of level of meditation.

Participant 20: Well I mean I stick the iPod in the ear and I listen to my playlist when I’m driving up and down the freeway and it really does help. I do go into reveries when I listen to music.

In these seven specific responses to the term, reverie is variously acknowledged as: a regular occurrence; a recognised aesthetic outcome of the work of some 19th and 20th century composers; related to focus and enjoyment; an appropriate term for certain types of aesthetic engagement; descriptive of experience that can be qualified by strength; an experience with an internal dynamic that is related to embodied experience; like a vigorous joy; a meditative experience with its own spatial characteristic; and associated with listening to music.

Modes of Experience

This loose set of characterisations does little to establish a concrete working definition for reverie. It may be interesting to consider what other types of experience are reported in response to this question. The Table 3.3 condenses the “states of mind” that characterise the modes of aesthetic engagement described in response to Question 2. Perhaps unsurprisingly these fall into six distinct categories of what could be termed *emotion types*. However, Table 3.3 attempts to link states of mind to both a context and a sound with which they are correlated. The contexts include specific locations and specific activities. These implicate an environmental context or an embodied action in the construction of a “state of mind”.

State of mind	Context	Sound
immersion, count = 17	concert, music listening at home, art school painting class, at the ballet, overseas, media analysis task, asleep/dreaming, visiting a new	music, birdsong recording, recorded media, shakuhachi, TV, birdsong, music and environmental
focused, engaged, captivated, immersed, aural-visual convergence, surprise at		

hearing temporal form, fascination, identification with music, imaginative engagement, sense of place, intense focused listening, emotional identification, reverie on God's work, creative	building, in the garden, in performance, at home, woodworking workshop	sound, machine sound, musical sound, improvised music, specific opera duet
reverie, count = 11	in car, at meeting, at home, at a cafe, loud concert, bushwalking, concert hall, desert, Buddhist temple, listening to iPod at home, music while driving	music, birdsong, loud urban sound, natural environmental sound, lizard, temple bell, nothing
detached, meditative, focus beyond self, switched off, daydream, distracted, daydreaming, reverie on the voice of dinosaurs, daydream-memory, reverie		
surprise, count = 9	a park overseas, a new outdoor location, in performance, lecture, iPod walking, waiting for bus, music listening at home, driving	music, aeroplane, temporal form, sound track, dream sound, reverberation
gobsmacked, amazed, surprised, ecstatic, uplifted		
comfort, count = 5	half awake in morning, at home, beauty salon, bush holiday	hairdryer, environmental sound, ambient music, absence of urban sounds, specific music
comfort, sleep, relaxation, calm, relaxed, meditative, comfort-memory		
anamnesis, count = 5	listening to media, at the horse races, outdoors, listening to iPod at home, lecture, while composing	news theme, spoon on saucepan, magpies, music, electronic musical sound
remembering, anamnesis, reminiscence, daydream, memory		
discomfort, count = 4	outdoors drug use, a tent in the outback, ambient music, in performance	possum, dingo, music-own-instrument, ambient music
intrigued, fear, contemplating absence, anxiety to relaxation, anxiety-confusion		

Table 3.3: Modes of aesthetic experience. Context and embodied action are associated with a “state-of-mind” linked to the aesthetics of sonic experience.

Illustration 3.4 indicates the relative significance of the six states of mind described in response to Question 2. It suggests that in this context, aesthetic experience is characterised most strongly by descriptors related to immersion, followed by reverie, surprise, comfort and anamnesis, and finally discomfort. Note however, that the nodes in this diagram are themselves a product of the interview narrative, which necessitates naming. For example, the states of discomfort, anxiety and fear are merely the most significant moments through which the narrative passes in its description of a larger aesthetic experience characterised by other “states” of mind. Aesthetic experience is a dynamic process that does not necessarily move from state to state.

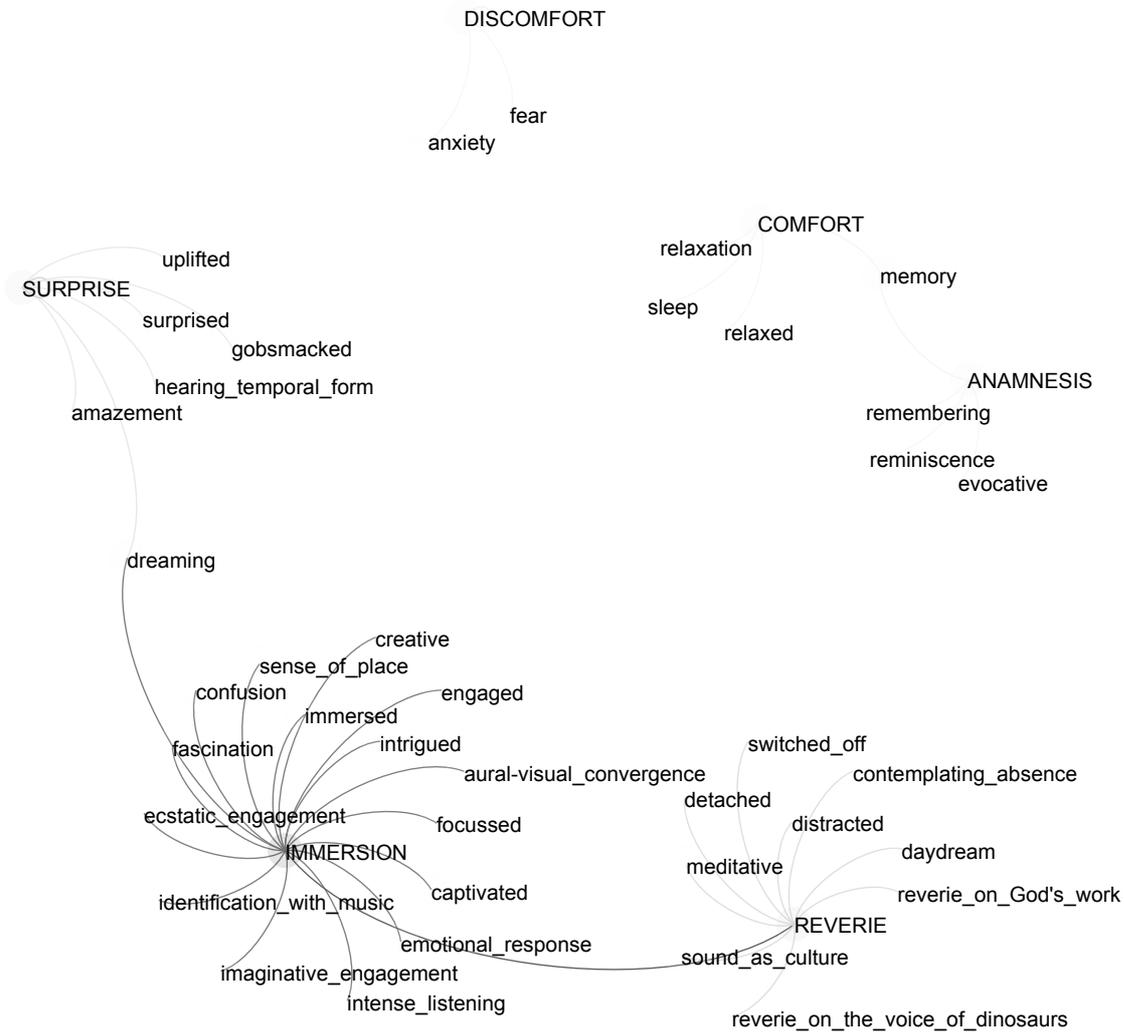


Illustration 3.4: Reduction of state of mind descriptors to six key types. While this diagram attempts to rank the significance of the six states of mind, aesthetic experience is a dynamic process which does not necessarily move from state to state.

In Illustration 3.5, the relationships between the larger categories of state of mind, the states themselves, the context and the reported sound indicate no simple set of correlations to which these conditions may be reduced. The size of the text labels shows relative number of occurrences for each term in the story summaries. Note that a central coordinating term —“mind”—has been inserted to link each of the six categories. This arrangement suggests *mind* as a correlate or *condensate* of the categories, their species of transitory states, the sonic

2. However, the contexts and sound descriptors are otherwise diverse, and broadly distributed throughout the stories. This complexity brings into question the apparent order in the reduction of states of mind to six distinct categories. It has been shown that this reduction and ordering emerges when verbal descriptors are applied to states of mind or emotion; this has been referred to as *emotional colouring* (Cowie, Sussman & Ben-Ze'ev, 2011, p. 18). Cowie raises several problems with respect to the use of specific emotion terms in research in an emotion engineering context. First, terms may be quite nonspecific and may cover a wide range of *actual* experience. Second, many experiences are characterised by overlapping, concurrent or rapidly sequential emotions, and emotions may have divergent temporal scope.⁸¹ Third, the use of these terms may be bound by linguistic and social rules and therefore may refer to similar forms of experience but be applied or used in different contexts. These reflections indicate that the emotional colouring produced by the use of concepts or terms make this form of analysis problematic. Further, this form of abstraction can lead to a dissociation of emotion or states of mind from bodily action or environmental context. Despite these reservations, as Augoyard and Torgue point out, sonic effects are always complex and “sound undeniably has an immediate emotional power ... [and] this surplus of feeling that exists in the perception of sounds in a spectacular context (such as the soundtrack of a movie) ... does not disappear in the everyday sound environment” (Augoyard & Torgue, 2005, p. 11).

Several examples from the stories elicited by Question 2 highlight this tension between the emotional colouring in the diagrammatic reductions above, the inference of *state-of-mind*, and the underlying flux of aesthetic experience. In I5Q2S2, for example, a report of attending a particular concert of experimental music included reference to an:

⁸¹ The temporal scope of these effects is discussed further at Narrative Frequency on page 174.

almost ecstatic reverie, ... confusion, anxiety, ... [a] loss of time [that] was incredibly intense, ... total immersion in the sound to the point of loss of self, ... floating, spatialised, ... I felt a whole lot of things because it had been really intense ... these kinds of things were happening in the sound.

Although the interview account gives a sense of the dynamics of the experience we can assume that it is in itself a reduction and filtering of aesthetic experience through the medium of dialogue and remembering.

These data provide a map of aesthetic experience from an *internalist* perspective. Internalist accounts of aesthetic experience highlight factors internal to the viewer or auditor as being the defining characteristics of the aesthetic. The predominant mode of immersion highlighted in the preceding analysis is typical of internalist accounts of aesthetic experience (Iseminger, 2003, p. 99).

Table 3.3 also provides details for an *externalist* account of aesthetic experience, by paying attention to the significance of the context in which the experience occurs and the features of the stimulus for that experience. Some traditional institutional contexts like the concert hall or recorded media are well represented in these accounts. Music in various forms and contexts features in 25 of the 50 experiences collected at Question 2. Also present are the sounds of *nature* in eight of these stories. Nature is sometimes represented by a lack of sound, sometimes invoking images of majesty or fear conforming to aspects of the sublime. Nature sounds and contexts also invoke memory.

What is more interesting than these forms of mere repetition of existing categories of the aesthetic are the characteristics of the 22 stories that fall outside the predictable. Here, we find reveries caused by the aesthetic charge of the ubiquity (Amphoux, 2005) of loud sounds of conversation and noise at a cafe (I12Q2S1); the comforting drone of a hairdryer while half asleep in bed in the morning (I12Q2S2); the slow deliberate approach of traffic noise outdoors

at night (I14Q2S1); the startling anamnesis of an old news theme on the radio or the rattle of “Mum’s old aluminium saucepans” reproduced in a period television drama (I16Q2S2) or the thunder of hooves on the track at the races (I18Q2S1); the fascinating debureau (Augoyard & Torgue, 2005, p. 37) or absence of the voice of a giant crocodile (I20Q2S6); the phonotonic (Augoyard & Torgue, 2005, p. 86) euphoria produced by the resonance of large Japanese temple bells (I20Q2S7); the surprising perception of temporal form in a media soundtrack (I22Q2S1); the multifarious presentation of sound in dreams; a fascination with the reverberation effects (Blessner & Salter, 2007) of new spaces and places (I22Q2S4-S5); and the surprising sonic aesthetics of machines and their unpredictable lives (I9Q2S2).

This list begins to touch on the true diversity of the aesthetic experience of sound that makes sound such a rich medium for artistic exploration and a constant joy to the many listeners who hear its aesthetic potential outside the socially constructed norms of aesthetic engagement. The list above includes a diverse range of sounds encompassing the natural, the domestic, the industrial, the cultural, the mediatic and the psychological. The range of contexts is equally diverse.

To say that context is important is to state the obvious. But what is context other than a distribution of the sonic effect? The context comprises features that are significant or salient⁸² to the listener. The context and the sound bear a mutual influence on each other within each narrative. Where electroacoustic sound is involved the ecological link between the sound and its contexts becomes more complicated. For example, the news theme music reported in I16Q2S2 may appear in many physical contexts and may more often than not be linked with a particular anamnesis. The Oxford English Dictionary (“context, n.,” 2011) provides a useful definition for context as: “the circumstances that form the setting for an event, statement, or idea, and in terms of which it can be fully understood”. This definition hints at the reversible

⁸² In order for an element to signify it must first stand out either consciously or unconsciously.

comprehension of the sound effect/event that makes the context “fully understood ... in terms” of the sound event.

In conclusion, it appears that the responses to Question 2 never fully escaped the model of aesthetic experience proposed in the question, which appears to have constrained the dialogue and its narratives. This discourse reproduces categories of aesthetic experience such as immersion, content such as music, and contexts such as the concert hall or the natural environment. However, there is also ample evidence for a more diverse model of aesthetic engagement that encompasses noises and silences of all sorts that can occur in unexpected locations. These factors also serve to highlight the multi-stable status of the entities that form relations within these narratives of aesthetic experience. Thus, the listening subject, the sound and its context are all effects of the relations of which the events are composed. In this reading a narrative event, like other events is no more than a coming-into-relation.

Question 3—Ambiguity and Aesthetic Experience

The analysis of Question 2 suggests an underlying ambiguity in the basic terms of the discourse on sound. Notwithstanding these observations, Question 3 prompts participants to discuss the role of ambiguity in their experiences of sound:

Has a reverie of this type ever resulted from a sound the source or cause of which was ambiguous or mistaken? If so can you describe the actual experience, avoiding explanations or generalisations, describing both what you heard and your state of mind?

Question 3 falls back on the prescriptive discourse of sources and causes and states of mind. Once again it subsumes aesthetic experience under the heading of *reverie*. Interestingly the question repeats the formula of “describing what you heard”, reiterating the Aristotelian conception of sounds as the proper objects of audition. However, as I have already noted, in the transcripts what can be heard encompasses a diverse range of phenomena including things

that Aristotle took to be “incidental” to the objects of audition including material objects, events, people, animals, weather, sound types, memories and meanings. This suggests that some sounds reported in response to Question 3 are often not merely ambiguous but are, in a technical sense, vague. The term *vague* implies both narrative descriptions that are uncertain, indefinite, or unclear, but also sounds for which it is not possible to state at which point what is heard moves from one mode of existence to another. This point is taken up again on page 234 below.

Types of ambiguity

The analysis of Question 1 highlights the process of actualisation that occurs between recognition and identification. That analysis highlighted the role of sounds as both indexes to sources, and general sound types in cases of mistaken sound identity. In the analysis that follows I will draw out particular characteristics of ambiguous sounds as they appear in the transcripts. In these stories ambiguity imparts a strong aesthetic character to the experiences described. The sounds are engaging because of their multivalent qualities. Once again what can be heard encompasses a diversity of phenomena and contexts, this time including dreams and dream sounds, complete stories-within-a-sound, aspects of agency both of the listener and of imagined sonic or causal agents, plus a preponderance of musical sounds. Note that some of the stories included here were reported in response to Question 1 but as explained above in the discussion of story type on page 137, a strong aesthetic response was apparent in these stories.

Dreams and hallucinations

So-called hypnogogic or hypnopompic hallucinations which occur while half asleep are common experiences (Jones, Fernyhough & Meads, 2009).⁸³ These experiences are

⁸³ Sounds heard while waking are referred to as hypnopompic, whereas sounds heard while falling asleep are hypnogogic.

considered in more detail below on page 229, however, several participants report occasions that appeared to have a strong aesthetic charge.

In I16Q1S4 the participant reports hearing the bedside clock while waking from sleep: in the dream state there is a “like a buzzing or a humming, it’s a constant noise” but while waking she becomes aware that it is the clock ticking. Strangely the morphology of the sound is transformed in the dream. In the dream the sound source is intriguingly unknown but on waking she discovers she is hearing the clock ticking and somehow the two sounds are found to be the *same*. This sameness of two distinctly different sounds adds to the intrigue of the unknown dream sound to create a memorable effect.

I10Q1S3 contains the reminiscence of a mother sleeping at home alone with a small child and waking from a dream hearing footsteps, and immediately getting up to find nothing. This story shares many of the features of other dream stories or stories featuring hyper-vigilance. However, what sets this story apart is the detailed memory of both the impact of the sound and of the realisation of the fact that the sound was an hallucination, and the detail of the imagined sound. The participant reports:

I was bolt upright; I had my shoes on before I knew what I was doing. Going to investigate. It was nothing. It didn’t exist. It was a hallucination. ... I haven’t had another occasion where there was anything quite as real as that.

The ambiguity in this case lies in the experience of something quite real that is simultaneously nothing. This story links to another feature of ambiguous sounds with aesthetic charge. The participant notes that:

it’s curious that I remember that, because one forgets so much of this kind of thing. I remember it as a sequence of noises, very explicit. A door opening, the sound of something going, like a door handle, the door itself being thrown open and footsteps coming into the house. It was quite explicit and quite sequential.

Although this description contains a sequence of sounds that create an imagined scene, there are also reports of a complete story-within-a-sound.

Story-in-a-sound

I17Q1S1 contained the story of a very recent experience of being asleep at night and being woken by:

this rustling in the gravel”, “I didn’t hear the fence move, I just heard the gravel ... it was one noise, it wasn’t a series of different noises ... I automatically thought ... it’s a person and they’ve jumped over the fence ... a burglar that’s jumping over your fence in all black and you imagine a torch light and the fact that they’ve just jumped over your fence and their shoes in the gravel and you just think, oh ... crap.

When I probed—“so the dressed in black and the torch light, now, do you think that was in your mind at the time or that you just added that detail now?”—the participant was emphatic “No. It was all there”.

A similar example occurs in I8Q1S7. While watching a movie at home at night, the participant hears the combined sound of a scream and rattling gate. At first hearing it is imagined it must be in the movie soundtrack. The second time, it appears to be coming from the front gate outside the house. The sound is identified correctly but she imagines it is her father and there is some crisis, he is panicking and her mother is injured or dead. She wakes her husband and he goes to find not his father-in-law but a young boy at the gate in distress. Once again the sound triggers a complex and detailed scenario with all the narrative features of character, location sequence and consequence. The assertion in this analysis is that what is heard is a story or scenario-within-a-sound. The particular form of sound reference that appears in these stories—*it* or *it is*—does not show up in the sound reference content analysis on page 182 below as it is not necessarily co-located with the word *sound*; however, the narrative context confirms that the pronoun *it* stands in place of what is heard.

In another example of the story-in-a-sound in I21Q1S1, a confusing hissing sound heard at home while sitting alone in the evening is assumed to be some aggressive animal outside in the garden. After hearing it a couple of times and getting up to investigate he discovered it was an automatic aerosol dispenser his wife had installed without his knowing it. This complex composite sound made up of an actuator and a jet of aerosol fluid, had become an animal outside in his hearing, but the actual device was behind him on the wall. When this was revealed he smiled at himself for being fooled. He was reminded of the experience when a similar device was installed at his place of work: it made him smile every time he heard it. This combination of delocalization or spatial ambiguity and the repetition of the effect in subsequent sounds is repeated in several stories.

Occasionally the features of the narrative heard in a sound become quite fantastic, as in I8Q1S3. Here a strange flute-like instrument is heard while walking in the city. The sound was strange and she is apprehensive about the people in this location. As she walks under an underpass the sound becomes intriguing and she has the image of an elf or dwarf making elven or dwarfish music. As she emerges from under the underpass she sees a busker on top of the rail bridge playing a piccolo. Perhaps the instrument was unfamiliar and the spatial location made the effect stand out. She smiled when she discovered the source and thought about her imaginative sonic fantasy.

A characteristic of the story-in-a-sound form is the role of character or agency within the story. Here the sound is not just an object or event; it is actively produced by some agent. Other forms of ambiguous agency appear within the transcripts.

Agency

I10Q1S4 does not exhibit the necessary features of sequence and consequence that would make it conform to the story-in-a-sound type. The participant hears a persistent scratching in a large crack in an unfamiliar house in which she is staying: “It didn’t

particularly sound like an animal, it sounded like a human working with a tool. It had a sort of strength and deliberateness to it". The sound caused enough anxiety or fear to make her call her husband in the middle of the night, and has remained memorable.

Another dream story shows the potential reversal of agency or expansion of personal agency. In I16Q1S5 the participant is dreaming that she hears a butcher bird and in her dream she is whistling back to the bird. On waking she hears an actual butcher bird outside the window.

This reversal of agency can work in the opposite direction as well. In one of a series of stories about the production of music by performing musicians (I6Q1S1), the participant describes performing in an electroacoustic ensemble and being unsure about which performer was producing an undesirable feedback effect,⁸⁴ getting angry about a particular performer assumed to be responsible, then discovering that he himself was producing the sound.

I6Q1S2 describes a slightly more complicated example of mistaken agency in which the performer is listening to his own sound and then trying to modify it with an effect device. Rather than changing what was perceived as his sound, the effect modified another sound that turned out to be his. On reflection, this experience highlighted the character of this type of improvised performance for the participant, of breaking down the agentic identity of the individual performers and subsuming it within the group identity.

Production and reception of musical sound

Given the large number of study participants with a musical background, it is unsurprising that many stories contained reference to musical sound and several refer to the aesthetic effects of ambiguity.

⁸⁴ The feedback or larsen effect describes an electroacoustic phenomenon where a loop is caused in an amplifying system between a loudspeaker and microphone creating an uncontrolled tone or tones of increasing amplitude.

I13Q3S1 is a story about hearing the improvising jazz trio “The Necks”⁸⁵ on more than one occasion in concert. The performance technique used causes the impression of other sorts of instrumental timbres being present in the wash of sound the ensemble produces. This caused a “dream-like” state in which the sounds seemed to move around the room. This story links the effects of delocalization, ubiquity and metamorphosis to a musical context.

A story about a musical ensemble that assembles a similar set of effects (I25Q3S2) describes listening to the David Hykes (b. 1953) Harmonic Choir 30 years prior. Echoing the preceding story the participant states: “it wasn’t clear to me how the sound was made, where the sound came from. It was as if there was an instrument that was making it”. This experience obviously had a powerful and lasting impression. It:

was an experience of sound that took me out of myself in a way ... the sound became colour and shape and it had texture and became something that was liberating or something—it was sort of dangerous or threatening and it sort of had all those sorts of characteristics and went through an emotional encounter with the music. ... Quite a tangible reality that one does not always frequently encounter but it’s still very real. It brings you in touch with something that sits in your consciousness that you don’t sort of journey into all that frequently.

Often the pleasure or attraction of ambiguous sounds is produced through aspects of the specialist listening of musicians. For example, I18Q3S1 contains a report of the intrigue of listening to a pop recording and trying to work out the production method used on a particular percussion sound. In I18Q1S1 this fascination with the production processes behind the sound is described as a sonic interest in the *trace* of the producing gesture and ambiguity in the reception of that trace.⁸⁶ The effect is repeated in I11Q1S2, a story about listening to some music and hearing a particular instrumental timbre and “wondering exactly how they made

⁸⁵ Chris Abrahams (piano, organ), Tony Buck (drums, percussion, electric guitar) and Lloyd Swanton (bass guitar double bass).

⁸⁶ For an introduction to the intended use of this term see Gayatri Chakravorty Spivak’s translator’s preface to “Of Grammatology” (Derrida, 1998).

that sound". I3Q1S1 expands on this specialist fascination by describing a section in Giya Kancheli's (b. 1935) "Light Sorrow" (1984) in which the effect of a gunshot is created using orchestral instruments. Confusion arises for the listener in two ways. First, when listening to the piece at home on CD for the first time, the sound is unexpected and appears to be an actual gunshot that "cuts right across the kind of sonic landscape". Subsequently, for this trained musician, trying to discover the actual instrumentation used to achieve the effect is confusing until she acquires a copy of the score.

Each of these stories links production to reception. Several stories focus on the role of reception in the aesthetic experience of ambiguity. Interestingly, each of these stories relates to the experience of various forms of electroacoustic music.

I11Q1S1 describes hearing or recognising environmental sounds within what turned out to be synthesised experimental music. In I2Q1S1, strange and not clearly identifiable instrumental sounds in alternative pop music create pleasant and imaginative engagement. The listener imagines a primitive, raw sound culture. These stories highlight the importance and reciprocal relationship between sources or causal processes, and reception in the experience of sound; and that this relationship can be the site of creative action on both the production and reception end of the chain of experience.

In I5Q2S1 a concert of minimalist experimental music included passages of very quiet sound material that seemed to cause the sounds of the environment to be amplified and incorporated into the music, creating an ambiguous amalgam of sound. This form of sonic amalgam can produce an engaging *confusion*, which returns to the etymology of this term as meaning 'mingle together' ("confusion, n.," 2011). These experiences can occur in a range of contexts. For example, I19Q3S3 is a general story about sounds combining in the street; for example, loud Arabic music playing in an approaching car combined with the squeal of a

truck’s brakes producing something “like a huge accordion, if you could imagine an accordion the size of a bus or something like that. So you don’t really know quite what it is”. Or in I19Q3S4, a story about an unexpected accidental “mashup”⁸⁷ created while using the computer, by the looping menu soundtrack of a DVD being mixed with a techno track on a YouTube soccer clip that created an amazing sound that: “was this techno sort of bass but then there was this ninth chord in brass and woodwind and metal percussion and wow, this is the best thing I’ve ever heard”. This strange and confusing sound ironically caused the participant to go to the effort of recording it to capture it permanently.

Electroacoustic and mediatic effects

Related to the perception of electroacoustic instruments are several stories referring to the reception of other electroacoustic and mediatic effects. I14Q1S5 is a story about walking with friends into a disused train tunnel and sharing a moment of fear when:

there was this sound coming out of the tunnel that reminded me of like demon voices from a horror movie. ... We all just stood there looking at each other. Then I said, ‘it actually sounds scary doesn’t it?’ Because it did, it really actually sounded weird and disturbing. Then we all laughed.

The strange acoustics of the tunnel created this effect, which reminded the participant of particular films he had heard. For just a split second he and his friends were frightened by the sound even though they knew it was just people talking loudly at the other end of the tunnel. “It was just ridiculous that it was anything like we were thinking that it might have been. But it just sounded exactly—and more convincingly than any of those things [heard on movie soundtracks] as well”.

⁸⁷ Mashup is a contemporary digital folk music form in which elements from diverse musical sources are combined to make incongruous musical results.

Location

As several of these stories have indicated, affixing a location to the source of a sound is an important stage in identifying it. Localisation effects occur in 58 of the 131 stories collected, demonstrating the significant role of spatial perception in the aesthetics of sound.⁸⁸ The effects of spatial ambiguity are further explored on page 214 below. One example occurs in I9Q1S1 in which the participant reports hearing a strange whispering sound while walking beside her house: “I was sort of looking around trying to work out where this whispering, this whispering, whispering was coming from. ... It wasn’t quite vocal but it wasn’t a garden sound ... it wasn’t a bird sound”. The acoustic effects of the eaves and wall of the house made the direction of the sound difficult to pick and so after some repetitions of the experience she stopped to find it and eventually discovered that it was the leaves of a flax plant rubbing against each other.

This story is interesting in that it is not only the spatial ambiguity that makes the sound engaging but also the lack of clear identity. As I have shown in the analysis of Question 1, sounds can share a general identity with a class or type of sounds, or have a particular sonic identity. For example, in the preceding story the sound initially has a vocal, whispering identity, before finally achieving a particular identity as a sound event or as a part, property or process of an object or objects. In this way sounds expose their potential dimension in the process of acquiring a form of actuality.

Identity

Identification necessarily plays a role in every account as the narrative presents subjects and objects. However, when identity becomes ambiguous, sonic experience can assume an engaging aesthetic dimension.

⁸⁸ This important aspect of sonic art is explored by composer–theorist Denis Smalley (2007). The philosophical significance of the spatial location of sounds is further explored by O’Shaughnessy (2009), Nudds (2009), and Casati and Dokic (2009).

I8Q1S5 is a brief story about a bird sound heard when camping that amused the participant and her partner every morning because it had a regular periodicity, which was unbird-like: “When something’s like at a regular rhythm you just can’t ignore it”. In this story what gives the sound its salience, in this case it is periodicity and regularity, disrupts its identity.

Another bird sound in I22Q3S1 captures a participant’s imagination. Having moved to Australia recently he hears a bird call that he does not recognise. It sounds like a baby crying, which is very out of place where he lives in a university residence. It “is just weird and creepy and it’s startling and then—oh it’s that damn bird again. So I’m used to it now but it took a while”.

I19Q3S1 is a story about hearing a strange sound: “this ethereal high-frequency sound that was just absolutely like jaw dropping” while lying in bed at night. It turned out to be the dynamic braking of freight trains but the participant did not learn this until much later. This sound was the beginning of a creative obsession with train sounds and is only one of a number of similar stories presented by the participant. The environmental frequency of train sounds highlights an important aspect of this type of general sound: repetition and temporal structure.

Temporal structure

When accounts of listening experience link the particular to the general they do so with some form of repetition. This repeating may encapsulate varying periods of time including reminiscence from the distant past or the coalescing of several hearings over a shorter time period. The following examples suggest the scope of these features.

I11Q3S1 is a story about hearing a piece of electronic music in a music class and not knowing how the sound was made but being really captured by the specific story of the music which related to war-time experiences. When probed to describe the particularities of the

experience, the participant found this difficult to pinpoint; and it may be that the listening being referred to was a reflection on a number of different experiences of the same music. In the interview I noted that the implication here is that listening can be distributed in time and space and this is what is captured in the verbal report.

Returning to I12Q1S1 in which, as a young boy, the participant hears a particular bird call on a fishing trip. The sound was unrecognisable at the time and it took a while to realise that it was a bird. The sense of auditory confusion has stayed with the participant and is recalled whenever he infrequently hears this particular bird.

I14Q1S1 is a story about hearing a train in a new house around five years previously. It started as a low throbbing sound and caused the participant to go outside to try and locate it. It appeared to be coming from the opposite direction to the train. Its identity was not immediately resolved. He occasionally hears it again and it is a source of pleasure, although at the time he associated it with the fear he felt during the Newcastle earthquake.

The importance of temporal structure in accounts of listening experience warrants further investigation and is the next point in my analysis of the interview data. The subsequent sections leave behind the question categories and consider all of the stories from the perspectives of narrative time, terms of sound reference, sonic effects and listening style.

Narrative Frequency

There are two distinct types of story in the interview data: those that relate one-off events and those that refer to experiences that have recurred. This distinction is instructive if we consider the relationship between the form of these accounts and their content specifically, references to sounds, and the experiences that appear to constitute them.⁸⁹

In reports of listening experience, listening is often distributed in time and space. For example, in two separate accounts, the participants report confusion over the identity and

⁸⁹ As I hope to show, the form is in some respects just as significant as the content.

location of a sound that could be a frog or a dripping tap. In I6Q1S4 this confusion has repeated itself over some years and in several different houses. In I7Q1S2 the confusion persisted across several instances over a period of about a week and was specific to a particular house in which the participant was staying. The advent of electroacoustic recording media has perhaps made the experience of hearing ‘the same sound’ more apparent. Experiences related to repeated hearings of recorded music are contained in 11 separate accounts; for example, in I3Q1S1 a particular piece of recorded music heard over a number of instances in various locations and times maintains aspects of its identity and unique features while being subject to modification as the listener’s knowledge of the work increases.

This form of repeated hearing can contribute to a class of culturally shared sounds or experiences such as ‘the dawn chorus’ of birds heard just before sunrise, as referred to in I11Q2S2.

Narrative Discourse

As the data we are dealing with here are narratives of listening experience, an appropriate theoretical frame is one that deals specifically with the structures present in the relating of memories of events and experiences. Such a framework is developed in Genette’s structural analysis of narratives in the concept of narrative frequency (Genette, 1980 p. 113). Narrative frequency is the term given to the various types of repetition that can occur within a narrative. Genette draws the distinction—fundamental to narrative analysis—between the narration or telling of the story on the one hand, and the events that make up the story on the other.⁹⁰ Repetition can occur in both the narration and in the events. In this analysis I am concerned specifically with repetition or otherwise in the events, and these Genette divides into two classes. Events with *singulative*⁹¹ frequency are those that occur only once. In the

⁹⁰ In his close analysis of narrative frequency, however, Genette shows that in Proust’s *Remembrance of Things Past*, the structure of lived experience and its re-telling appear to be closely related.

⁹¹ The term *singulative* is Genette’s neologism.

interviews, these unique memorable events occur in the majority (92 of the 131) of stories collected. As Genette points out, these elements of narrative are so commonplace and so *normal* that prior to his intervention they did not have a name. In contrast to the singulative, events that occur on more than one separate occasion in the story are termed *iterative*.

Genette notes that “strictly speaking the identity of these multiple occurrences is debatable”. For example, the dawn chorus is not the same from one day to another:

The ‘repetition’ is in fact a mental construction, which eliminates from each occurrence everything belonging to it that is peculiar to itself, in order to preserve only what it shares with all the others of the same class, which is an abstraction ... and ... what we name ‘identical events’ or ‘recurrence of the same event’ is a series of several similar events considered only in terms of their resemblance.⁹²

The identity or otherwise of repeated events is determined by the aspects of iterative diversification.

Iterative Specification and Determination

Genette explores the construction of identity and repetition within the iterative series by introducing the concept of iterative diversification, which is comprised of internal determination and internal specification (Genette, 1980, p. 139). Internal determination provides repeated detail that describes the essential elements of an experience whereas internal specification provides specific details of one occurrence. This brings into play the role of the singulative within the iterative. As noted, of the 131 stories collected, the majority (92) include accounts of singulative listening experience. Sixty-four are iterative stories, 25 of

⁹² Genette refers to de Saussure’s discussion of synchronic identities, realities and values in the search for a unit on which to build a science of linguistics. De Saussure uses the principle of the arbitrariness of the sign to argue against identities and for values. However, as I hope, the collected accounts of listening experience show, de Saussure’s “vague plane of sounds” extends beyond the relation of utterance to thought and into the context of the values of listening experience itself (de Saussure et al., 1974, pp. 107–113). This extension had presumably already been understood by Schaeffer in his distinctions between the abstract and concrete in the context of the circuits everyday listening (Chion, 1983/2009, p. 22).

which include singulative internal specification by which each occurrence is differentiated or diversified.

For example, in stories such as I3Q1S1 in which hearing a certain orchestral effect in a piece of recorded music is related, the first hearing provides specific details of the shock of incursion or intrusion⁹³ caused by an unexpected sound. However, the story becomes iteratively diversified, as in repeated listenings the sound is transformed and subsequently determined in the search, eventually with the aid of the score, for the details of the technical method of sound production. Aspects of the initial effect remain in the re-telling, thus revealing the significance of the diversified account despite the sound's ultimate determination. In I4Q2S2 a more general iterative account of engagement with the timbral qualities of recorded popular music is supported by specific examples that help to clarify the determining characteristics of this engagement and the characteristics of the listening that it encompasses. In some instances—for example, I5Q1S3—what at the outset appears to be a singulative account, in this case of a housemate becoming annoyed by mistaking a recording of experimental music with a faulty appliance, becomes more significant when it is reported that this was just one of many similar examples.

Occasionally a singulative experience spans several events over a period of days. For example in I23Q1S1 the occurrence of a strange popping sound near the backyard of a new house takes several occurrences to resolve the identity of the unknown sound (nearby fireworks). Whether in each hearing the range of possible solutions⁹⁴ is increasing in the imagination or decreasing towards a narrowing target, we cannot tell. As with the iterative mode perhaps the listener hears “that sound” again and its ambiguity or vagueness⁹⁵ is what stands out in the experience. When the final set of evidence allows a deduction it is perhaps a

⁹³ These terms are explored under Relevant sonic effects on page 210.

⁹⁴ We might refer to these as potential actualisations.

⁹⁵ The technical sense of vagueness in contrast to ambiguity is explored on page 234.

loss of “that sound” and all its multiple possibilities that occurs rather than, or at the same time as a gaining of a final conclusion and identification.⁹⁶

The specification of an iterative event may itself produce an effect where what is expected is not realised, resulting in a “double-take”. For example, in the context of audio-visual media in I19Q3S4 a familiar style of music soundtrack is suddenly transformed when overlaid with music of another genre, producing an unexpected “mashup”: “this techno sort of bass but then there was this ninth chord in brass and woodwind and metal percussion and wow, this is the best thing I’ve ever heard”.

Genette contrasts a narrative structure of “scene and summary”⁹⁷ that includes a consciously reflexive or reflective approach to experience in which summary reflection accelerates the synthesis of experience and its objects with the structure of the singulative and iterative, which produce “assimilation and abstraction”.⁹⁸ Although the scene and summary structure was introduced into the interviews by the summing up and probing inherent in my interview technique, it was largely absent from the accounts of the participants themselves.

Sound and the Narration of Memory

Genette’s account of the temporal aspects of narrative frequency is instructive in considering the relation of accounts of listening experience to the composition of the experiences themselves. Genette observes “interpolations, distortions, temporal condensations ... three terms [that] obviously designate the three main kinds of temporal ‘distortion’, according to whether they affect order, duration, or frequency”. Genette observes that authors and storytellers cannot be relied upon to produce reliable accounts of experience: “Thus, the

⁹⁶ This follows the form of the murder mystery, refined by Agatha Christie, in which the final deduction rehearses several possible explanations. Further, the relationship between preconscious and conscious processes in these cases is not clear. There is no reason to assume that an abductive process should conform to Peirce’s rule of economy, and this is where the scope for aesthetic engagement arises.

⁹⁷ In which exposition is followed by condensed recapitulation (Genette, 1980, p. 96).

⁹⁸ These concepts are in contrast to Piaget’s structuralist theories of accommodation and assimilation in the context of learning (1950/2005, p. 143). We might expect the singulative to be associated with accommodation. Genette highlights abstraction rather than assimilation for iterative repetition.

anachronism⁹⁹ of the narrative is now that of existence itself, now that of memory, which obeys other laws than those of time ... The variations in tempo, likewise, are now the doing of ‘life’, now the work of memory, or rather of forgetfulness” (1980, pp. 157—158). As I have indicated, in the forms of narrative frequency, specification and determination appear to play a role in both perception and in its description in narrative accounts; and despite the attempts to carefully ground the interviews in descriptive detail, there is no way to untangle these distortions.

Elaborating on the effect of temporal distortion, Genette introduces the structure of the event, which is produced through “the work of memory, which reduces (diachronic) periods to (synchronic) epochs and events to pictures—epochs and pictures that memory arranges in an order not theirs, but its own” (1980, p. 156). Ironically, the reference to pictures, does not sit well with the more richly phenomenological mode of his chosen author Marcel Proust¹⁰⁰ and we might well augment or replace those pictures with sounds and aromas.¹⁰¹ Nonetheless, a tension will always remain between the forensic dimension of periods and events and the dimension of experience in which events become sounds. The sound-event is just those two dimensions—the actual and the potential—held in tension with each other. Its effect is just the reduction of periods to epochs or forensically articulated events to sounds. From a Deleuzian perspective, the structural tension between the singulative and iterative cases in the participant’s accounts highlights the way in which sonic identity emerges in the context of a ‘virtual pure difference’¹⁰² (1968/1994, p. 42), which produces sonic event-effects. Deleuze replaces Aristotle’s term *potential*, with the concept of the *virtual*—a dimension always present in the forensic real that makes the actual always different from itself. The relevance of

⁹⁹ Anachronism includes placing events out of sequence or inserting events from one time period into an account of another (Genette, 1980, p. 157).

¹⁰⁰ As previously noted, Genette uses Proust’s *Remembrance of Things Past* as the object of analysis in his text.

¹⁰¹ Like Proust, I6Q2S1, I1Q1S4, I18Q2S1 all specifically cite olfactory images.

¹⁰² That is a difference in which the identical is characterised by both internal and external difference.

this connection to Deleuze's post-structural perspective is made apparent by observing that it is Proust's account of sonic anamnesis that is the common point in both Genette's and Deleuze's analyses of the synthesis of events. Although Genette's entire thesis is based on an analysis of Proust's *Remembrance of Things Past* (1927/2012), Deleuze also refers to Proust in his analysis of memory and the structure of experience (1968/1994, pp. 85, 122), and in his definition of the virtual (1968/1994, p. 208).

It is worth quoting Proust's account of sonic experience at length here as he is able to articulate aspects of the sonic effect that resonate with many of the interview participants' accounts, especially those dealing with the effect of anamnesis. The reader is encouraged to explore the centrality of the sonic domain to Proust's thesis by reading Chapter III, paragraph 13 of Book 7 *Time Regained* of which the following is an excerpt:

I began to discover the cause [of this effect] by comparing those varying happy impressions which had the common quality of being felt simultaneously at the actual moment and at a distance in time, because of which common quality the noise of the spoon upon the plate, the unevenness of the paving-stones, the taste of the madeleine, imposed the past upon the present and made me hesitate as to which time I was existing in. Of a truth, the being within me which sensed this impression, sensed what it had in common in former days and now, sensed its extra-temporal character, a being which only appeared when through the medium of the identity of present and past, it found itself in the only setting in which it could exist and enjoy the essence of things, that is, outside Time. ...

Let a sound, a scent already heard and breathed in the past be heard and breathed anew, simultaneously in the present and in the past, real without being actual, ideal without being abstract, then instantly the permanent and characteristic essence hidden in things is freed and our true being which has for long seemed dead but was not so in other ways awakes and revives, thanks to this celestial nourishment.

This remarkable passage has had a powerful influence on twentieth-century thought across a range of methodological orientations as I have explored, from Ricoeur's phenomenology, to Genette's structuralism and Deleuze's post-structuralism.¹⁰³ Proust's passage suggests the way in which a listening subject can be produced within the sonic effect. It also pre-empts the anamnesis effect introduced by Torgue (2005a): "anamnesis, a semiotic effect, is the often involuntary revival of memory caused by listening and the evocative power of sounds". Torgue takes account of the potential temporal and physical distortions associated with anamnesis: "we cannot talk of physical criteria in the case of the anamnesis effect. Subjective projection takes precedence over all acoustic transformations and eventual distortions of the initial sound sequence". Importantly, in line with Proust, Torgue acknowledges the strong aesthetic potential of anamnesis, highlighting remembrance not only of music but also spoken language and "various sonic features ... linked to craft and rural life ... particular types of machines, tools, or commercial practices".

One example of a singulative account that reinforces this is contained in I1Q1S1 in which the slapping flag-pole halyards in St Martin's Place, Sydney, evoke the memory of a terrifying sea voyage. The sound is confusing because it is associated with a yacht and the sea but is occurring in a city street. The source of the sound is not initially obvious. The sound results in a rising anxiety that mirrors the anxiety in the memory: "but also a longing for the sea when on a calm day you just look around and you see nothing but sea and land is far, far, far away". This strong link between narrative frequency, anamnesis and the aesthetics of sonic reverie is repeated in several stories and is explored further on page 215. However, it would be wrong to think that these reveries of re-presentation can be accounted for entirely by the recurrence or recognition of acoustic phenomena or "physical criteria" as Torgue suggests,

¹⁰³ I note that the chronological sequence of cited texts contradicts the apparent sequential progress of theory making the application of terms such as structuralism and post-structuralism dubious.

and this is borne out in several participant stories in which “subjective projection” takes priority.

These accounts include both singulative and iterative and describe the evocation of a milieu or atmosphere in which the acoustic elements or sounds described are not necessarily present. For example, I23Q2S1 contains a reflection on an emotional response to a piece of music and how the music triggered memories of an experience with similar emotional *content* but that the music itself was not present in the memory of the events of that experience. Aspects of this type of listening were repeated in I23Q2S3 describing the use of particular pieces of recorded music played on a portable music player specifically to reproduce a particular “uplifting” feeling associated with the time of day. A different form of anamnesis is related in I6Q2S2, a story about making an electronic sound for a composition project that reminded the participant of “a sense of the coldness in the Himalayas” and of an intense experience on a recent trip to that part of the world.

Despite these exceptions, Proust’s narration of memory captures the important aspect under which listening can be understood as a *re-cognition* in which sound and thought express themselves both inside and outside of time.

Sound Reference

Having considered the ways in which sounds occur and reoccur in the narration of listening experience, I will now discuss the ways in which sounds are *referred* to within this discourse. It is quite likely that my scripted questions and my subsequent use of language influenced the subsequent references to sound in both my probing and clarifying but also, significantly, in the development of sound references in the participants’ responses. The specific wording of the questions used in most interviews was: “Can you tell me a story about a situation where you could not determine the source or the cause of a sound or the sound that

you heard turned out to be caused by something other than what you initially thought?”

Despite this priming effect, an interesting range of sound references emerged in the participants’ responses. The content analysis presented here is not informed by cognitive linguistics, and although its presentation may bear some resemblance there is no experimental evidence to support any assertions made in this section that might appear to link the thinkable to the sayable or the audible. The analysis merely observes regularities in the accounts and uses them as a means to think through the ways in which sound flows through the accounts, is represented as a phenomenon, or is used as a concept.

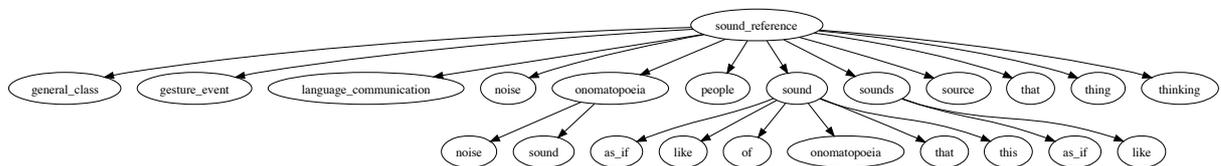


Illustration 3.6: Sound reference code families. This diagram indicates the hierarchical structure of the principal code families used to identify instances of reference to sound in the transcripts.

Illustration 3.6 displays the principal code families used to identify instances of reference to sound in the transcripts. Each of these is discussed below.

General Classes and Abstract Types

Often sounds are reported as instances of a general class or tokens of an abstract type as shown in Illustration 3.7. Despite their generality, in nearly all cases the stories contain reference to particular sounds with concrete features.

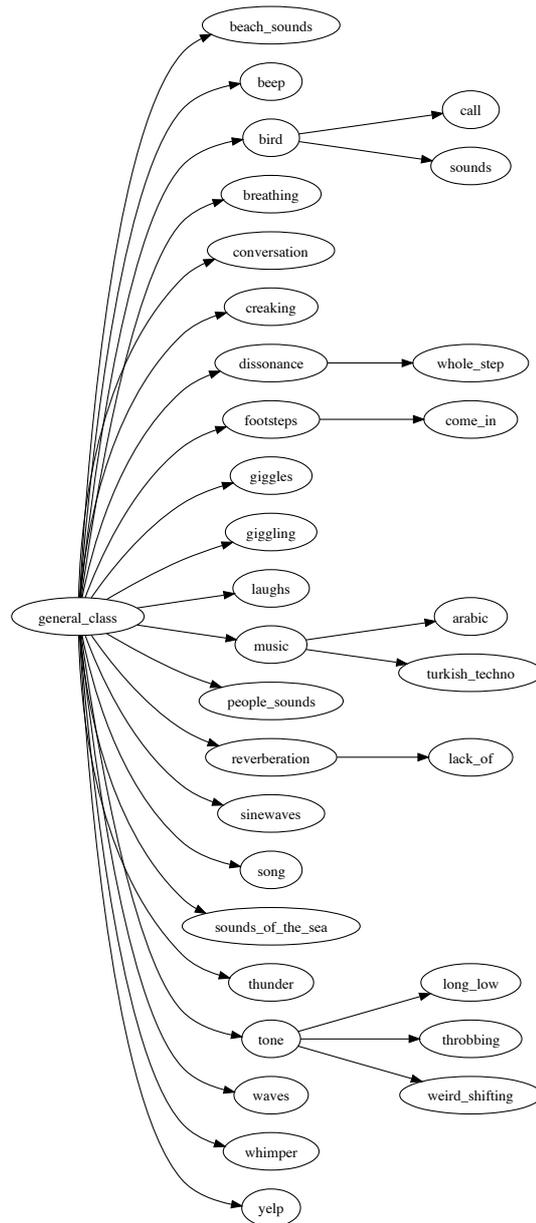


Illustration 3.7: General class sound references. These forms of reference name particular sounds which belong to a larger class of generalised sound types. By naming the sound itself rather than its source this form of reference is linked to the notion of sound object or the acousmatic presentation of sound.

What makes these forms of speech different to others is that they are often references to what Schaeffer might have termed sound objects: that is, sounds identified independently of sources or events. This construction is related to the acousmatic, pure event or immaterial object ontologies of Scruton, O’Callaghan and others. Typical examples are the bangs and buzzes detailed under the heading onomatopoeia on page 190 and reported in several stories

in I23, for example. In these stories the sounds often remain as general types for several days until a material cause can be convincingly identified. Sometimes the source itself is of an abstract type, for example the waves in I17Q2S1. This abstraction has both an aspect of narrative frequency—as the participant relates the different times during his life at which he has encountered waves—and a temporal multiplicity, even in a particular physical instance. Waves come in succession and are both discrete and continuous, but the general type or class of waves also has a range of characters depending on the weather conditions and the nature of the body of water. The wave is considered a major sonic effect by Torgue, as its morphology is repeated in a wide range of sound and other phenomena (2005c). This indeterminacy and lack of boundary conditions tends to make abstract sounds more like a paradigmatic set rather than typological classification.

Music

Important examples of this form of reference to immaterial sonic object—structures are contained in the many references to music. These come in the forms of “listening to music”, “hearing music”, “enveloping ... music”, “there was this ... track of music”, plus the qualified “Turkish music” and “Arabic music”. These occur in 11 of the stories and are distinct from 14 instances anchored to particular forms of electroacoustic reproduction, or are of particular named compositions. This group of named compositions seem to have much more of a type—token ontology (Wollheim, 1980) than the less specific genera of music, which is made significant by its repeated occurrence in the transcripts and clearly indicates an important item in the list of the audible.

Vocalisations

There is an important difference between the items that can be included under the heading of vocalisations, and the items under music. Whereas the former are named specifically as “music” by the participants, the transcripts offer a diverse list of vocalisations

that receive this heading only as a category in presentation here. That is to say, the participants do not report hearing *vocalisations* as such, rather they hear breathing, conversation, giggling, laughing, whimpers, yelps and bird calls. We might call these species of the genera of vocalisations, which could be further divided into human and animal and so on. Two interesting aspects of these forms of sound reference present themselves: the way in which the balance of the potential and the actual are controlled by narrative context; and the implication or containment of agency within the sound. These two aspects are closely related.

Take, for example, a whimper or a yelp (we could easily replace these with examples of scratching discussed under gesture and onomatopoeia below) presented as an object of audition. These sounds, though strongly actualised as distinct sound objects, are not highly specified in the narrative and therefore exhibit a dominant potential dimension related to the genera to which they belong.

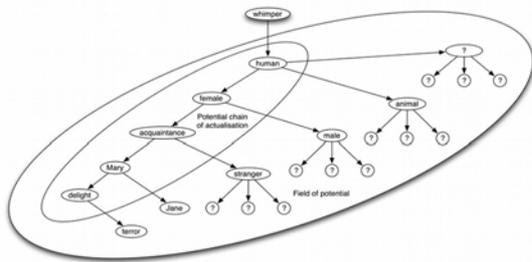


Illustration 3.8: Chain of actualisation

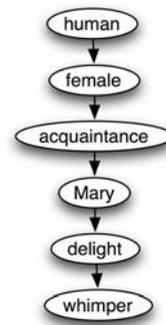


Illustration 3.9: Chain of specification

Illustration 3.8 attempts to show how an actual whimper may be further specified leaving behind a field of potential.¹⁰⁴ In contrast, illustration 3.9 shows how contextual detail in the narrative may tightly specify, for example, as “Mary’s whimper of delight”.

Further, part of the field of potential of these vocalisations is an implied or perceived sense of agency within the sound. For example, I23 is attentive to “sounds of frustration or

¹⁰⁴ Note that elements in this chain need not be organised as binary pairs and the direction of actualisation need not flow in one direction only.

anxiety” in her customers and I24 hears a “ghost manifested in the form of breathing”. Agency is also associated with sounds such as the frightening scratching in a wall reported by I10. Perceived agency links Schaeffer’s Mode 1 listening in its trajectory towards comprehending.

A more general form of vocalisation that occurred in at least three stories was referred to as conversation. For example, I18 felt something comforting about hearing conversation where “you don’t know what the words are” but there is a human presence. This form of sound has similarities to the general form of music, described above in that it may be contrasted to hearing a particular conversation in the way that hearing music may be contrasted with hearing a particular composition.

Several references were made to hearing aspects of language and communication on which conversation is built. In the context of customer service, I23 describes “listening to the tones of the conversation ... [to detect feelings of frustration] ... because a lot of the times ... [what people] say to you is not necessarily what they mean or what they want”. I25 described “listening very closely to what people say and not just on a superficial level—but sort of hearing what’s beneath the sort of text, so listening for the sound as a dynamic and as a means of communication”. These accounts suggest three levels of what can be heard in conversation. First, “the tones” suggest aspects of intonation and perhaps loudness and tempo, or form; “what people say” implies the level of verbal content; and finally beneath these can be heard both emotion and a “dynamic” perhaps relating to the unfolding process of conversational interaction. In addition to hearing what we might term intra-personal emotion and interpersonal dynamics, I25 describes interacting with a pre-verbal infant and hearing in the child’s vocalisations the emergence of language:

you can hear someone making communication that is language but it’s not developed language, so there’s something going on—you suddenly realise that this baby actually understands what I’m saying and has got a sort of a sense of

rhythm—hasn't got words but there's actually, there's a language here and this is where language comes from.

The participant relates hearing that “this child is gaining consciousness”. This is a very direct account of what is referred to as *voice* by Aristotle and Ihde, as discussed under Sound Ontology on page 37.

Gesture–event

Related to the general classes and abstract types are terms that refer to sound events linked to a gestural cause. References of this type are shown in Illustration 3.10. The importance of gesture in sound analysis has been asserted by many researchers including the music theorists Pierre Schaeffer (1966), Denis Smalley (1997), and Naomi Cumming (2000), but also by cognitive scientist William Gaver (1993a). Whereas Schaeffer and Smalley are concerned with the musical manipulation of sounds or sound objects and the abstraction of their audible links to causal events, Gaver asserts the ecological priority of events as the objects of audition by stating that “everyday listening is the experience of hearing events in the world rather than sounds per se”. In contrast, Chion (1990) has noted the powerful specificity of forms of reference such as bang and gurgle in his analysis of the effects tracks of audio-visual media, an observation that runs contrary to the understanding of most specialists that demand specification in the abstract terms of their discipline.

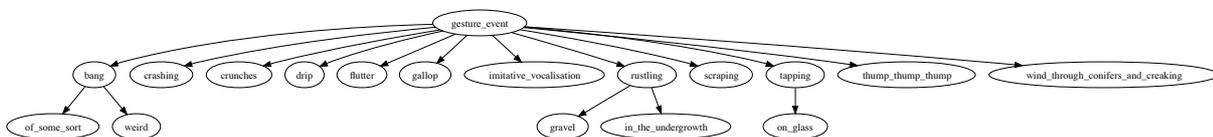


Illustration 3.10: Gesture–event sound references encompass the “language of things” which characterises everyday listening experience in an ecological context.

Participants report hearing sounds, sound gestures and events and it is not always clear what is being referred to. Some sounds have an object-gesture-event structure built in to their form of verbal reference, such as the footsteps reported in I10Q1S3. A footstep is clearly a

sound produced by a foot (usually shod) in the process of stepping. In this example the footstep event gathers together the object and gesture. This form of expression is essentially vague¹⁰⁵ despite carrying a strong specificity. However, context can be relevant in disambiguating what is heard.

In the example of I10Q1S3 the footsteps can be heard to “come in” to the house, causing extreme anxiety. Despite the sound being “quite real”, it turned out not to be caused by an intruder as suspected, “it was nothing, it didn’t exist, it was a hallucination”. Whether or not it was an hallucination adds further complexity to this particular case, but clearly what was heard here was an *actual* sound rather than an *actual* event. Further examples of reports referring to sounds rather than events include I23Q1S2 in which the participant reports: “I heard a bang of some sort and didn’t really have a context of what it could have been”. The qualifier “of some sort” implies a class of sounds that bear the name “bang”. This use of a qualifier for a particular member of the class of bangs appears again in I14Q1S4, in which the participant “heard a weird bang out the front”. In this case, like the case of the footstep, the sound is located and therefore points to the possibility of a causal event.

Often the narrative frequency has a role in clarifying what is heard. For example, five participants report encounters with drips. For several of them drips, reoccur both at different times within a story and within their broader sonic experience. In cases where the source or location of the drip cannot be determined, what is clearly heard is a particular instance or recurrence of the familiar class of drips.

In addition to bangs and drips, reference is made to crashes, creaks, crunches, flutters, rustling, scraping, tapping and thumps. Many of these gesture–event sound names are examples of onomatopoeia or words that are made to sound like the sound that they name, or

¹⁰⁵ The term *vague* is used in a technical sense implying that it is not possible to state the conditions by which we could differentiate if what is heard is a foot, a step or a footstep. This point is taken up again on page 234.

like a sound associated with the thing that they name (an example of this second type is the name cuckoo for the bird that makes a similar sound—this is an iconic sound term). Often, as noted by Chion, these words have a powerful specificity linked to the multi-modal character of their denotation. Crunch, flutter, rustle and tap contain an entire sensorium of referential capacity. These words retain a strong link to the phenomenology of sensory experience in which Merleau-Ponty's language of things and Aristotle's common sense express themselves. That is to say, in these words the audible, tactile and the visible are tightly linked. This link between the sense produced by experience and forms of vocal expression is referred to as phonaesthesia (McArthur & McArthur, 2005).

Onomatopoeia

Onomatopoeia terms do not always stand alone for the objects of auditory perception as in the gesture–event grouping above. In the transcripts they are often linked to other forms of reference such as the terms sound or noise. In these cases the terms take on an adjectival form.

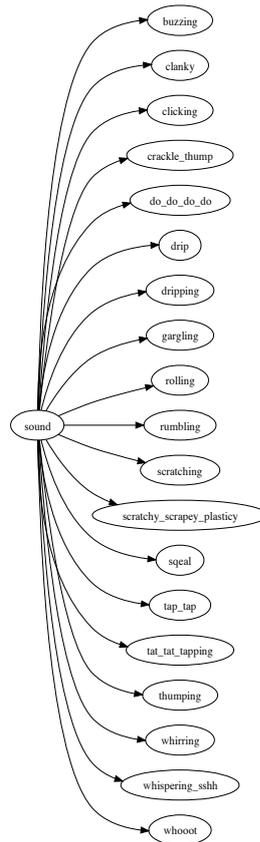


Illustration 3.11: Sound onomatopoeias as adjectives specifying the word “sound”.

Illustration 3.11 shows the list of onomatopoeia terms linked as specifying adjectives to the term sound. For example in I18Q1S2 a rumbling sound assumed to be thunder becomes traffic noise.

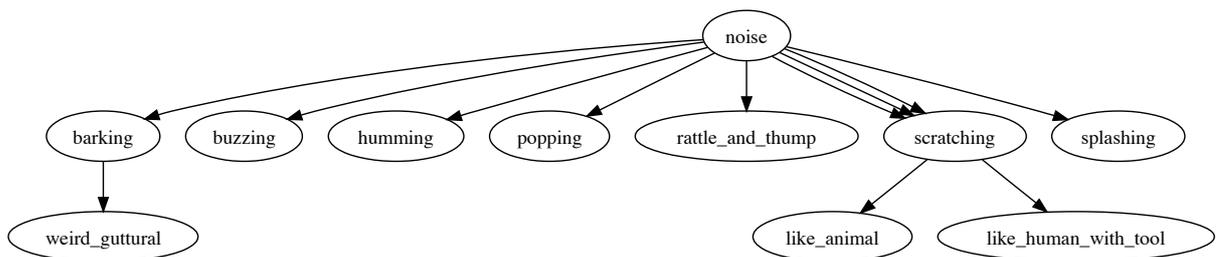


Illustration 3.12: Noise onomatopoeias specifying the term “noise”.

Illustration 3.12 shows the list of onomatopoeic terms linked as specifying adjectives to the term noise. There is no clear distinction here between the choice of noise or sound as is often employed in theoretical texts on sound and music and also in dictionaries (e.g. see the

entry on sound in McArthur & McArthur, 2005), although the presence of several compound adjectives and the comparative preposition *like* may suggest that noises are sometimes less independent than sounds. For example, in I14Q2S2 a possum is described as producing a “weird kind of guttural barking noise”. Here the term noise is made meaningful through careful description.

Table 3.4 contains a complete list of 47 onomatopoeic terms used in the transcripts specifically to identify or refer to sounds. This list does not include such terms as used in descriptive or explanatory passages.

bang bark barking beat beep buzzing cars clanky clatter clicking clicky-clacky crackle	crackle-thump crashing creaking do-do-do-do drip dripping gargling giggling hum humming popping rattle and thump	rolling rumbling rustling scrape scratching scratchy-scrapey-plasticity splashing squeal tap-tap tapping tat-tat-tapping thump	thump-thump-thump thumping tinkering twanged whimper whipping whirring whispering whoot whoosh yelp
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Table 3.4: List of onomatopoeias

Noise

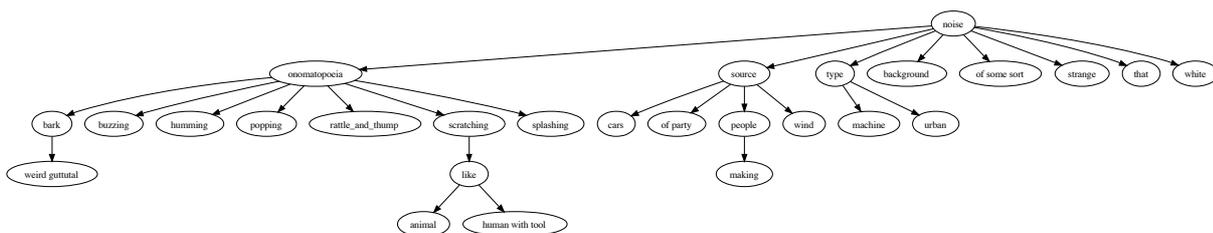


Illustration 3.13: Noise sound references are conventionally associated with noise as unwanted sound. In addition to the onomatopoeia, there are also general classes of noise, and indeterminate types of noise.

Illustration 3.13 shows the varieties of noise referred to in the transcripts. In addition to the onomatopoeias already discussed, some particular sources produce noise. These include sources conventionally associated with noise as unwanted sound, such as cars, parties and people, plus wind. There are general classes or types such as machine noise and urban noise,

plus indeterminate types such as “some sort of noise” or a “strange noise” or just “noise”.

There are also more particular references to “that noise”.

Background noise is what we might refer to as a structural noise in that it defines a set of relations within the audible. Finally, white noise is a very specific abstract class of sound.

In I23Q1S6, white noise is not used in its technical sense to describe a random variation in amplitude with energy distributed equally throughout the spectrum; rather, this technical term is adopted to refer to a deliberate masking noise produced by a fan used to improve the participant’s sleep, which would otherwise be interrupted by other noises in the street.

Sound

Illustration 3.14 shows the major groupings of references using the term sound. Each of these groupings is discussed here.

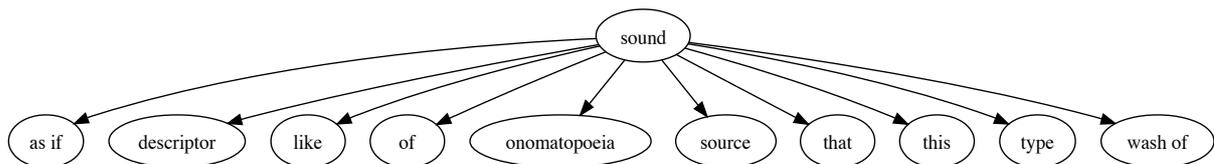


Illustration 3.14: Classes of reference to “sound” are the most abundant in the transcripts. This could be due to the use of the term “sound” in the interview questions.

Possibly due to my use of the word *sound* in the interview script, references to a phenomenon named sound are the most abundant in the transcripts. Whereas there are only 20 references to noise, there are 74 references to sound. These references are often qualified or modified with an adjective or noun. Of the qualifying adjectives, 19 are onomatopoeias including, for example, references to “a clicking sound”, or “a buzzing sound”. Some qualifying adjectives use technical language such as “high-frequency”, or “high-pitched”, whereas others are evocative, such as “a strange animalistic sound”, or “a weird choking sound”. Qualifying nouns refer to sources; for example, “a drum sound”, a “freight train sound”, etc.

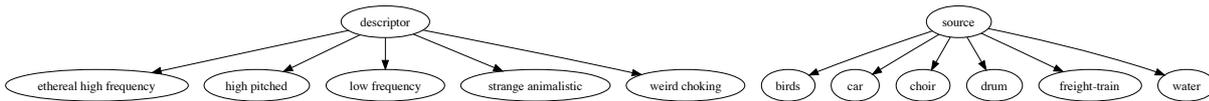


Illustration 3.15: Sound qualifiers. The term “sound is often qualified with either a descriptive term or by use of an adjectival noun indicating the source.

Less specific than the source qualifiers—such as those shown in Illustration 3.15—but less general than other adjectives are those terms that specify a general sound type such as an “electronic sound”, a “garden sound” or “a mechanical sound”. These are shown in Illustration 3.16.

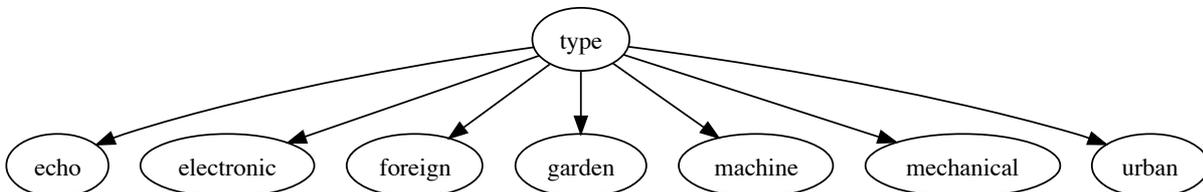


Illustration 3.16: Sound type qualifiers are less specific than source qualifiers but less general than other adjectives.

This, that, structures

Apart from the instances of unwanted noise and the technical language of sound; the references to sound considered so far (including the general, particular and intermediate varieties) parallel references to noise. Particular sounds can also be specified with the pronouns “this” and “that”, and sound structures may also be referred to; for example, “a wash of sound”.

In summary, there are seven groupings of references including the word *sound* excluding the compound form of *sound like* and *sound of* (discussed below):

1. specific unnamed sounds (this, that sound)
2. specific source qualifiers (car sound)
3. specific abstract technical descriptors (high-frequency sound)
4. intermediate general sound types with indeterminate reference to sounds and sources (garden sounds, mechanical sounds)
5. general sound types with reference to sounds (buzzing, clicking)

6. imagined or evocative descriptors (strange animalistic)
7. sound structures (background, wash of).

Sounds

Illustration 3.17 shows references to the term *sounds*.

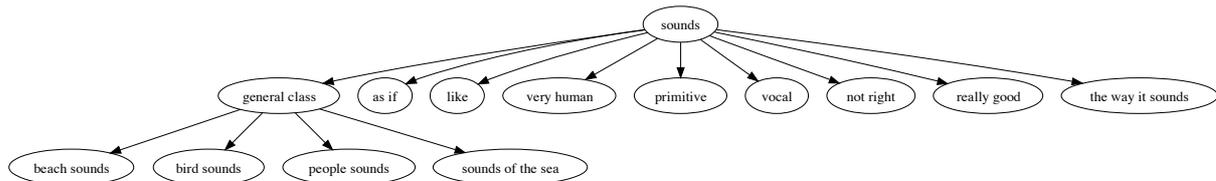


Illustration 3.17: References to sounds. The term *sounds* appears in the transcripts as either a plural noun or a verb.

The term *sounds* appears in the transcripts as either a plural noun or a verb. The verb form has two possible closely related senses. The plural noun is applied to general classes of sound such as “beach sounds”, “bird sounds”, “people sounds”; and to sounds as parts or properties of a larger entity such as “sounds of the sea”. This latter grouping is discussed in more detail on page 201 under the heading *sounds of*.

The exact sense of the verb form is often vague or unclear. It may be interpreted as the action undergone by an object or thing in the process of producing sound; for example, in the phrase “the bell sounded twice”. This form seems archaic and there are no clear examples of it in the transcripts. The use of the present or past tense, *sounds* or *sounded*, is determined by the focus, perspective or order of the narrative in story time or narrative time (Genette, 1980, pp. 33, 185), although this does not seem to have an influence on the intended sense.

11Q1S2 provides several good examples of the verb form, which may help to reveal some of the possible senses: “but the way that it sounds, I can barely even describe it, it’s just—it just sounds really—I’m trying to get the sound in my head and trying to articulate what it even sounds like”. This set of three incomplete attempts at describing a sound seems to incrementally change the emphasis in “it sounds” from the action of a source to the active

perception of the listener. Note also that the *it* in this example changes the sense from a thing or object producing sound, to a sound being heard. The extract contains three instances of the term *sounds*: “the way that it sounds”; “it just sounds really”; “what it even sounds like”. The first phrase can be read as ‘the way *it* (which could be either the source or the sound itself) produces sound’, or ‘the way I hear it’. The second phrase—“it just sounds really”—seems to be reaching towards an elusive descriptive term to specify or characterise the sound. The final iteration could be replaced with the phrase ‘I’m trying to think of a sound I have heard that is similar to it’. The phrases “sounds as if”, “sounds like” and “sounds of” each produce a slightly different sense that can clarify these distinctions and are each considered under their respective headings below.

There are a few more examples of the use of *sounds*: I2Q1S1 refers to “music that sounds primitive”; I1Q1S2 describes an instrumental sound that “sounds really good”; I22Q2S3 refers to “a weird bird in Australia that sounds very human ... very vocal”. These phrases suggest possessing a sound that could be described in a particular way, or possessing or producing a sound that has a certain property. These examples move the emphasis back to the sound source, in the sense that sounding means possessing or producing a particular type of sound rather than being perceived in a certain way. Note, however, that each of these examples contains a very strong sense of interpretation of sound as primitive, good, human or vocal. Thus the term *sounds* implies an equivocation between the subjective and objective, the abstract and the concrete, placing *sounding* firmly in the middle of Schaeffer’s model of everyday listening.

Finally, there are several cases of cross-modal sounding, for example in I6Q2S2 the participant describes “a very long, low tone and it sounded like—it didn’t give me as strong a

sense of smell but definitely a sense of the coldness in the Himalayas”. Here *sounding like* can be read as either *evoking* coldness or literally as *sounding* cold.

To summarise, *sounds* has four inter-related senses within the interview transcripts:

1. the plural noun form (beach, bird sounds)
2. a process of producing sound (sounding)
3. an act of hearing a source, sound or a sounding (the way it sounds to me)
4. Possessing or producing a sound described or evaluated in a particular way (sounds good, primitive).

As If

As if is used as a phrasal conjunction; for example, “it sounds as if somebody is closing a door” (I3Q1S4). This usage suggests a sort of *fictionalism* or “trying out” of a causal hypothesis (Vaihinger, 2001). *As* can be used by way of comparison between the perceived sound and a known sound type of which this occurrence may be a token. The *if* is a form of conditional conjunction. In I3Q1S4 the participant, trying to explain the repeated sounds attributed to a ghost, appears to be creating an explanatory fiction: ‘if someone were to have closed a door in the ceiling space, it would have made that sound’. This usage is similar to the preposition *like*, meaning “having the same characteristics or qualities as [or] similar to” (“like, prep.,” 2011). In this case what is heard is both a ghost and a sound or *sounding like* “somebody ... closing a door”, keeping two possibly fictional alternatives in play. Once again this seems to sit between the Schaefferian agent–instrument structure of Mode 1 listening in which the sound is an index to external events involving an agent, and Mode 4 comprehending *as if* the ghost were attempting to communicate its presence through sounds.

The comparison and conditional conjunction form is repeated in I10Q1S2 but this story lacks the fictionalism of the previous example and contains more of an explanation or

description of how *it* (something that happens) sounds or is perceived: “Something that happens in the street at the front sounds as if it’s happening right beside you”.

Sound/s Like

Illustration 3.18 shows the two families of reference *sound like* and *sounds like*.

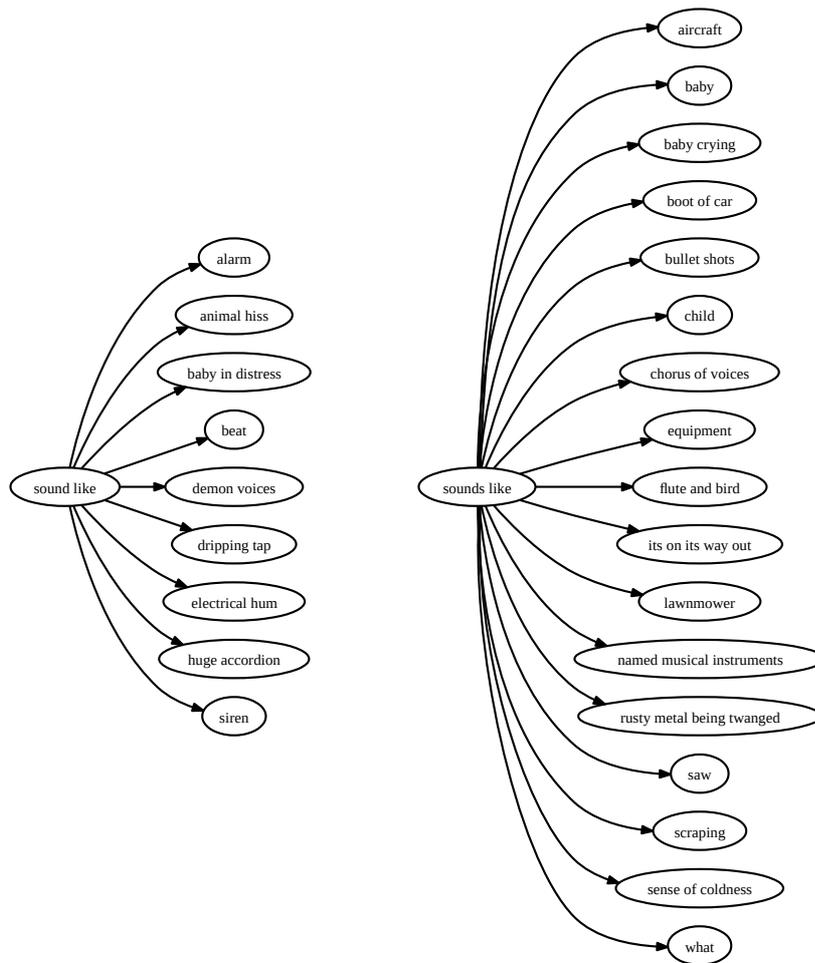


Illustration 3.18: Sound/s like expands the distinctions between noun and verb forms and suggests a form of comparison used to aid the description or specification of a sound or sounding.

These expand the distinctions already made between the noun and verb forms and senses of sound and sounds. As noted, the preposition *like*, meaning “having the same characteristics or qualities as, [or] similar to” (“like, prep.,” 2011), suggests a form of comparison used to aid description or specification.

Sound like

The case of *sound like* inherits the features of the term *sound* described above but extends and develops the range of reference. In this context the comparison can be reduced to six groups:

1. a sound like a source, for example a “baby in distress”
2. a sound like an imagined source, for example a “huge accordion”
3. a sound like a source producing a sound, for example a “dripping tap”
4. a sound like a sound–source hybrid such as a siren or an alarm (in these cases the word sense cannot be disambiguated)
5. a sound like another sound, for example an “electrical hum”, or “animal hiss”
6. and finally a sound like an imagined sound, for example “demon voices”.

Sounds like

First, *sounds like* inherits the three inter-related verb-like senses of *sounds* described above: a process of producing sound (sounding); an act of hearing a source, sound or a sounding; possessing or producing a sound described or evaluated in a particular way.

Further, there are at least two distinct meanings operative at once in the expression “it sounds like”. A direct literal reading follows the sequence: pronoun, verb, preposition. *It*—the sound source, is sounding or producing sound in a manner similar to. An alternative reading might be: *it*—the sound source, is sounding or producing sound, which results in a sound similar to. The second reading is suggested by the phrase “it sounds to me like”, which has a semantic or otherwise interpretive mode (e.g. when trying to characterise the behaviour or identity of sound source). This second reading might expand the phrase as follows: “what I am hearing is a sound similar to”. Once again, this changes the emphasis in “it sounds” from the action of a source to the active perception of the listener.

A third reading might be “*it*—the sound—is sounding, in a manner similar to”. This apparently irrational or circular idea—relying on a definition of sound as being a thing that

makes sound (or sound sounds)—should not be discounted straight off. A similar formulation can be found in Heidegger’s thing that things (Heidegger, 2001, p. 172). Here Heidegger suggests that the thing *in itself* or in the truth that it reveals of itself, is, a presencing or standing out (salience), moreover a gathering together of its potential into an actual, not solely formal or material, but relational. Heidegger uses the rather poetic formulation of the manifold–onfoldedness. On this reading, when a sound sounds, or when a sound sounds like, it draws together the many aspects under which sound may be said to exist. The instability or multi-stability in the meaning of this simple phrase “sounds like” captures the inter-relational nature of sound in the way in which we refer to it in our discourse.

The aesthetic use of the effect tied to the multi-stable ambiguity of “sounds like” is repeatedly represented in the transcripts; for example, in BQ1S1 the participant refers to a particular musical composition in which “in a very, very quiet passage suddenly what sounds like bullet shots cut across the music and it’s like a mimicking of a real gun firing, a gun going off”. Later, the participant describes her interest in examining the musical score to discover how the effect or sound is produced. This example highlights the role of context in the inter-relationships of “sounds like”. In this case the context comprises a musician listening to music in which sounds as musical tones are already both independent of their sources and at the same time tied to them as a specific orchestration. In this context the “what sounds like” suddenly emerges or stands forth. The nature of this “what” enables it to “cut across the music”. Further, “it’s like a mimicking of a real gun firing”. It is not “like” a gun shot but rather it has an iconic semiotic nature of a different order to the context of the musical sign system from which it emerges. What emerges in this narration of a listening experience could be considered as a particular intensity of excursion through the cycle of Schaeffer’s listening

modes. The “what sounds like”, the effect or phenomenon being reported, is the inter-relation of the perceptual process and its physical and cultural contexts.

Finally, the participant in I21, discussing the listening expertise he acquired as a trained mechanical engineer referred to the common practice of diagnosing a fault by listening. “If it was a common wear problem, then you could ... say, okay [it] sounds like it’s on its way out” (meaning: likely to fail). Here the listener is inferring or comprehending a state of affairs. A similar response might be expected in conversation; for example, ‘it sounds like you have been having some problems’.

In summary, the list of terms in illustration 3.18 to which the comparisons of sounding are being made in the transcripts is summarised in the following list of eight items. I note that though a summary list adds clarity, it does little to capture the complexity of the discussion above:

1. source (aircraft, baby, lawnmower) including ambiguous sources (flute and bird)
2. source producing a sound (baby crying, rusty metal being twanged)
3. qualified sound (bullet shots)
4. unknown or indescribable sound (I can barely even describe what it sounds like)
5. sound gesture (scraping)
6. sound structure (choir of voices)
7. cross-modal impression (sense of coldness)
8. state of affairs (sounds like it’s on its way out).

Sound/s of / of Sound

Illustration 3.19 depicts 15 instances of the phrase *sound of*, plus several variations. Illustration 3.20 shows 29 instances of the phrase *of sound*. The stories containing these allow me to consider a range of relations that obtain between sound and other entities.

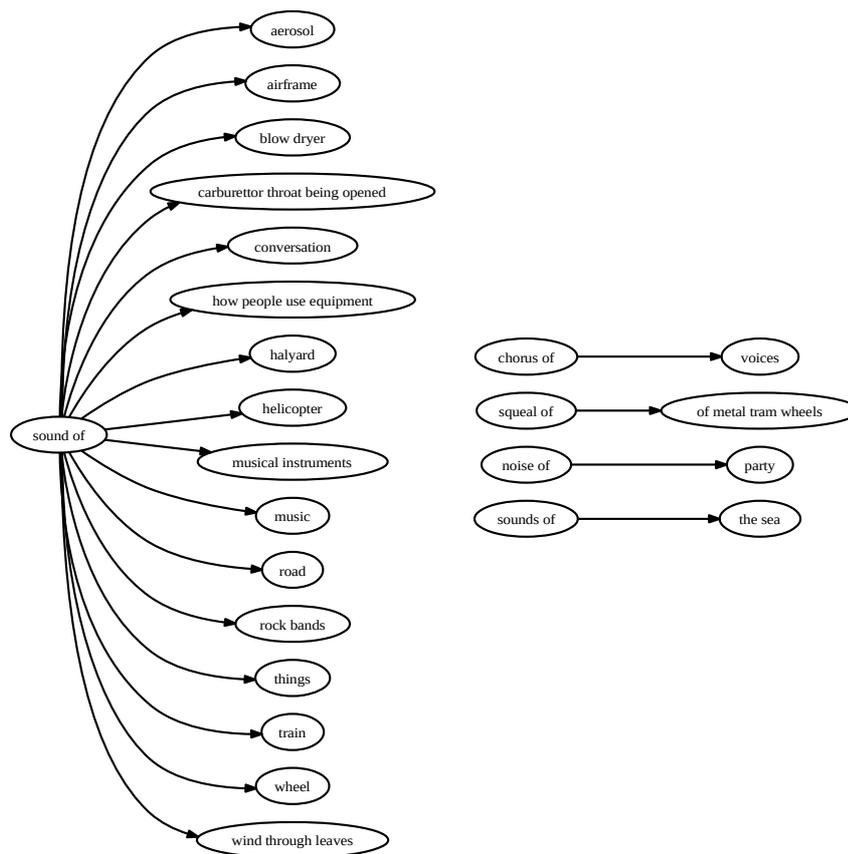


Illustration 3.19: Sound of. Instances of the phrase “sound of” and its variants suggest sonic relations of parts to wholes, categories and particulars, actions of objects, and form and matter.

Sound of

The preposition *of* is listed in the Oxford English Dictionary as having the following senses relevant to the interpretation of instances of *sound of* (“of, prep.,” 2011):

1. “expressing the relationship between a part and a whole”
2. “indicating an association between two entities, typically one of belonging”
3. “expressing the relationship between a general category or type and the thing being specified which belongs to such a category”
4. “expressing the relationship between an abstract concept having a verb-like meaning and a noun denoting the subject of the underlying verb”
5. “indicating the material or substance constituting something”.

Although this list addresses common usage, the possible relationships of wholes to parts and parts to parts has concerned philosophers for millennia (Varzi, 2009). This area of

logic is referred to as mereology. The characteristic vagueness of the term sound is highlighted by considering both mereological categories of part-hood and the range of connotations in the discourse of *of*. A comprehensive mereological analysis of the 15 elements in the list above is outside of the scope of this discussion, but I will consider some of the examples given.

In I21Q1S1 “the sound of that aerosol ... insect spray, ... automatic dispenser” has the participant confused for some time and quite amused when he discovers that it is not an angry cat hissing as he had imagined. In the story the sound is a part of the aerosol dispenser in several senses. For this listener the abstract and concrete of sonic experience are tightly bound and the discussion moves from the subjective to the objective as the sound is actualised. First, he describes the sound in terms of “an animal hiss, ... like a cat getting its back arched, that sounded a bit full on, it was creepy”. Then, on resolving its source, both the sound and the term aerosol are defined in a single phrase: “the actual release of the vapour from the can”. Although the sound may be thought of as a property related by association of belonging to the aerosol dispenser being operated (Sense 2), for this listener, *aerosol* (particles dispersed in air) is essentially a sonic construct as the main means of its production is the turbulent discharge of air or gas held under pressure, producing both a dispersal of liquid particles into air and a characteristic aerosol sound. From this view aerosol is a specific instance of the category of sound (Sense 3). As I have shown, sound has a verb-like meaning suggesting, in a more limited way, Sense 4. However, for this listener, the explanatory material structure of the sound bound up in the periodic release of turbulent vapour suggests a material or substance constituting something (Sense 5).

In I22Q2S5 the participant is hearing the acoustics of interesting new buildings by “just listening to the footsteps and the conversation, not the words of the conversation but the

sound of the conversation”. Here conversation comprises words and sound expressing the relationship between parts and a whole (Sense 1).

In a more evocative story (I1Q1S1) the participant hears the violent slapping sound of a flagpole halyard in the city, which reminds her of a terrifying sea voyage. In this story the relation of association-by-belonging extends through the local sound to one remote in time and space that appears in the present. In this dramatic anamnesis the participant is hearing the emotion of fear associated with the memory but she also hears the embodied experience of wet and cold. Edmund Husserl notes that in all the varied appearances brought about by changing perspective “[our] gaze passes through the appearances toward what continuously appears through their continuous unification: the object, with the ontic validity of the mode ‘itself present.’” (1970, p. 105). However, in this example and others (e.g. I3Q2S2), the listening “passes through” the present sound and the objects it makes apparent, to sounds and objects remote in time and space and to broader experiences of fear, warmth, love, proprioception, etc., that are *heard* in the present moment. This image of “passing through” is usually expanded in discussions of sound. For example, Nancy highlights a difference between “visual presence ... [and] acoustic penetration”. However, the ear is also typically held responsible for dissolving the ground of an objective world as Nancy again asserts: “in the case of the ear, there is withdrawal and turning inward, a making *resonant*, but, in the case of the eye, there is manifestation and display, a making *evident*” (Nancy, 2007, pp. 3–4.). These considerations demonstrate the complexity of the relations between sounds as objects and other entities complicating the notion of sounding as presencing suggested in the section on Sounds like on page 199.

In addition to the phrase *of sound* there are many other sets of sonic relations reported with the preposition *of*. In I14Q1S5 the strange acoustics of a disused railway tunnel produce

the effect of a “huge chorus of slightly different pitched voices”. Here again, we are presented with a structural relationship (chorus) described in technically accurate terms (slightly different pitched voices) of the sonic whole and its sonic parts. In I4Q3S1, reference to “the squeal of metal tram wheels on the rails” presents both an onomatopoeia and an instance of sonic metaphor. The metaphor is effective because the vocal qualities of the sound are expressed in the sound of the word and because squeal functions as both a noun and verb in this context. In contrast I1Q1S1 and I1Q1S3 “the sounds of the sea” and “the noise of the party” seem to present relations of association (Sense 2).

Of sound

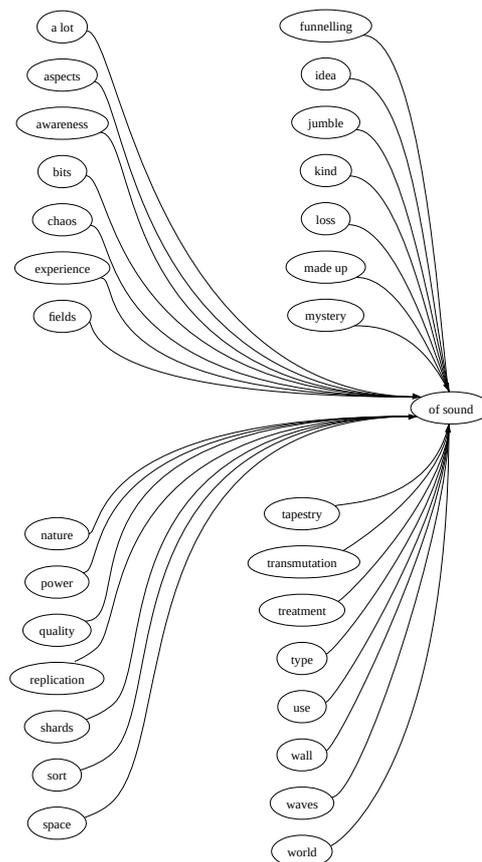


Illustration 3.20: Of sound. Includes structural relations such as sorts, kinds and ideas suggesting a sort of categorical listening, plus other forms of sonic structure.

The references in which the word *of* precedes the word *sound* suggest relations of either receptive perceptual structures (Sense 3) or relations of action on sound (Sense 4). Of the structures, the most significant are *sorts*, *kinds* and *ideas* of sound, accounting for 20 of the 46 occurrences and suggesting a sort of categorical listening produced in the discourse. Several of the structural relations constitute metaphors of structure such as a wall, a wash, a wave, shards, a tapestry, or a world of sound. These structures are organised in Illustration 3.21.

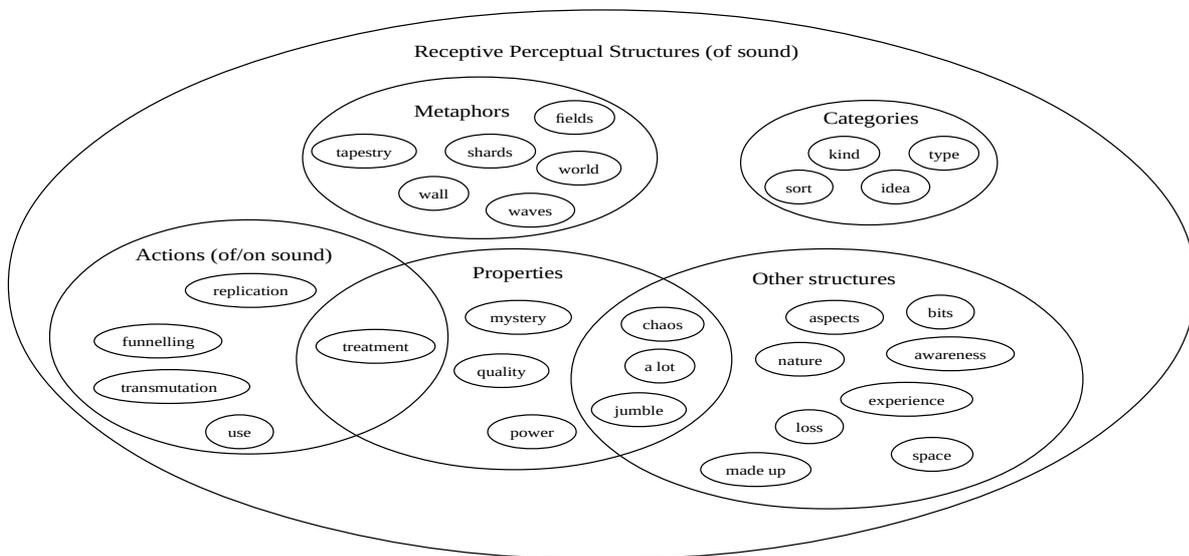


Illustration 3.21: Structures Of Sound. This diagram organises the various forms of receptive sonic structures suggested by the transcripts.

Other terms used in the accounts function as properties of sound or are structural properties such as a jumble or chaos.

These relations *of sound* emphasise the subjective and abstract engagement with sound through which hearing is constructed or represented in many of the accounts.

Hearing–thinking–that

Many of the accounts narrate a sequence of hearing and reflecting on hearing. Some even suggest a form of auditory cognition or *thinking–hearing*. These accounts usually

include reference to an unknown sound using the preposition *that*. The following list of extracts gives the scope of these forms:

I21Q1S1: this sound which was like a—I heard it and I thought, what the hell was that?

I4Q1S1: then I suddenly started thinking that's a very weird sound ... I thought what is that?

I8Q1S2: I wake up thinking, shit what was that?

I8Q1S6: thinking what the hell is that?

I3Q1S3: thinking its raining and actually it's just the wind blowing really loudly if you're inside

I6Q1S4: thinking it's a frog ... I'm always in this state of is that the frog or the tap?

I11Q1S2: I think it's a guitar

I16Q1S1: When I'm vacuuming and I think I hear the phone ring or I think I hear the doorbell

I16Q1S2: think I've heard sirens

I16Q1S3: I thought I heard a tap dripping

I18Q3S1: I thought what's that high pitched tinkering?

I19Q3S2: But initially I thought is it an electronic sound?

I23Q1S2: I was just hearing noises and going, what the hell is that noise.

I19Q3S2: it was like that moment of apprehension, it was like my God what is that sound?

This narrative form may be attributed to an insistence, on my part as an interviewer, that the participants reveal an intimate or secret self-discourse recalled from the moment of perception and transform this into an “other-oriented discourse [which is necessarily] self-conscious” (Sternberg, 2005 p. 233). The significance of this self-narration or self-discourse is brought into question by Sternberg’s elaboration of this basic narrative form. How much of these elements of self-discourse emerge in the interview process and how much were present

in the initial perceptual experience is impossible to tell, but as Sternberg reflects, the role and motivation of the character(s) of self in this discourse are likely to have an influence on the perceptions that comprise its experience. This points to one aspect of listening expertise that is glimpsed occasionally in the interviews, where the participant reveals something of their self-identity by allowing listening to have a certain character, often of an aesthetic or a technical dimension. As Chion observes of the Schaefferian modes of perceiving and hearing, these are classed as “subjective because we turn towards the activity of the perceiving subject”. This awareness of the subjective dimension of listening therefore allows for a self-conscious self-discourse that adds another layer to mere critical listening.¹⁰⁶

Sound as Culture

Several participants reported a unique sensitivity to sound as culture, sound as space or sound as inhabitation. For example, I23 discusses her recent move from the acreage of the family home to a suburban house and how she has become obsessed by the noises of the neighbourhood, all of which are new, strange, weird, confronting and uncomfortably close. She discusses them not only with me but with her family and friends. According to her account this has transformed her relationship with sound. Now she finds her family noisy and has herself become preoccupied with containing and reducing the noise she makes in her own environment given the sonic proximity to her neighbours.

Further accounts describe a national sonic character particularly related to music. I20Q2S4 relates an awareness or understanding on entering “the Japanese aesthetic space of sound which is so specific and so particular” and contrasts this with the sonic culture of Bali

¹⁰⁶ Critical listening is a term used in communication studies and musicianship and music production. In communication critical listening has aspects of both critical thinking and a “metacognitive self monitoring” (Wolvin, 2010, p.22) which echoes the idea of self-conscious self-discourse. However, in music production the idea of critical listening has a quite different sense of expertise built into it. In the music technology approach to critical listening, expertise can be practiced and acquired in order to identify and correct deficiencies in a musical arrangement or to identify and produce certain musical effects. Often the assumed acquisition of critical listening skills can be an impediment to awareness of the subjective dimension of perception (Bech & Zacharov, 2006, p. 124).

and with some urban areas of Sydney. In the stories this understanding was often experienced as a visitor or outsider or during a period of transition, acclimatisation or acculturation, and perhaps this transition from outsider to familiarity is a necessary condition, along with sensitivity, to reveal this aspect of sound.¹⁰⁷ Sometimes tourism, rather than an intense and prolonged exposure, produces this sensitivity; for example, in I21Q3S1 Peruvian folk music heard in a Japanese park produces a strange cultural dissonance.

Culture has been described as a set of relations that produce an exchange, circulation or production of meanings (Du Gay, 1997). Becoming aware of the meanings attached to sound in the flux of culture is represented as participating in the culture. This awareness is a form of cultural understanding and in this sense sound is culture. For example I25 discusses the idea of a musical discourse community related to the musical life of his spouse's family and his sense of learning about it, learning to listen in a certain way, with a certain knowledge, but being an outsider. "So I know her country by her music", but this knowledge is influenced by the representations of the country and its music from his exposure to its circulation in the media. He comes to know his wife and her family by being with them *on their country* and with their music. For him, this opening up of listening: "it's sort of knowing my social relationships". Reflecting on how his wife might hear the music of his place and background he considers "through those listening things—in a way there's a whole story about society and social relationships".

He also considers the role of cultural actors such as popular music producers that through their expertise as listeners influence the production of new music and thereby communicate their listening into the broader culture. This observation of the cultural transmission of listening has been made by Peter Szendy in the context of orchestral

¹⁰⁷ See Augoyard's concept of inhabitant expression which reveals the way in which everyday reality is covered over by competing modes of discourse (2007).

arrangements of piano pieces (2008). I25 also reflects on his experience of the use of music in funeral ceremonies “to choreograph the emotions of the event”: this is “something that over time has been refined traditionally”.

These references to sound–culture expand on the simpler forms of sound reference in this section and impose the structures of a larger discourse ranging from an intimate personal level to an encounter with a social–acoustical order. This links the analysis presented here to the broader acoustic human ecology. As I have shown, it is common for forms of sound reference to carry multiple functions within a single utterance. Sound terms can be simultaneously symbolic (e.g. sound or sounds), iconic (e.g. various onomatopoeia) and indexical (e.g. the various general and abstract types). In simple forms of expression, such as “What was that scratching sound?” (I10Q1S4), the sonic sense overflows any simple notion of sound reference. Unpacking this phrase; *that* functions as index, *scratching* is iconic and *sound* is symbolic.¹⁰⁸ However, in the narrative context of the mother alone in an unfamiliar old house “that scratching sound” carries a powerful psychological charge linked to a broader cultural discourse.

Relevant sonic effects

The concept of the sonic effect is introduced on page 84 as both an analytical tool and phenomenon not located in a particular sound source, medium, or listener but comprising a surface that enfolds the listener, the source, the context, medium, form and matter; and on which these relations *make sense* as sound. In Augoyard’s repertoire of sonic effects, ambiguity and aesthetic experience are subsumed within the presentation of various particular sonic effects. The categories of these effects make an obvious tool for the analysis of the interview transcripts and 105 stories contain clear examples of sonic effects from Augoyard’s repertoire. Sixty-four stories can be interpreted as examples with a paradigmatic relation to a

¹⁰⁸ Once again I adopt the Peircian terms (Short, 2007).

single effect. Forty-one stories are compounds of several effects that seem to be related within the context of a specific sonic experience.

Table 3.5 lists all the 34 relevant effects by rank. All quoted definitions in this section are taken from the text *Sonic Experience: a Guide to Everyday Sounds* (Augoyard & Torgue, 2005), and the reader is referred to that text for the effects not described below.

Count	Effect	Thematic Category A	Thematic Category B
26	delocalization	mnemo-perceptive	spatial
24	metamorphosis	mnemo-perceptive	identity
21	intrusion	psychomotor	spatial
12	anamnesis	mnemo-perceptive	mnemo-temporal
12	ubiquity	mnemo-perceptive	spatial
12	incursion	psychomotor	mnemo-temporal
9	attraction	psychomotor	identity
7	anticipation	mnemo-perceptive	mnemo-temporal
7	phonotonic	psychomotor	mnemo-temporal
5	decontextualisation	semantic	mnemo-temporal
5	decontextualisation	semantic	spatial
4	cut-out	compositional	mnemo-temporal
3	larsen	electroacoustic	identity
3	phonomnesia	mnemo-perceptive	mnemo-temporal
2	reverberation	elementary	spatial
2	immersion	mnemo-perceptive	spatial
1	crescendo	compositional	identity
1	crossfade	compositional	identity
1	drone	compositional	identity
1	emergence	compositional	identity
1	mask	compositional	identity
1	mixing	compositional	identity
1	resonance	elementary	identity
1	lombard	electroacoustic	identity
1	remanence	mnemo-perceptive	mnemo-temporal
1	chain	psychomotor	identity
1	deburau	psychomotor	mnemo-temporal
1	desynchronization	psychomotor	mnemo-temporal
1	synchronization	psychomotor	mnemo-temporal
1	sharawadji	semantic	identity
1	envelopment	semantic	spatial
1	sharawadji	semantic	spatial

Table 3.5 Relevant sonic effects. Effects are ranked by occurrence in the transcripts and categorised using Augoyard's themes and a set of three themes that have emerged in this research, namely: spatial, identity and mnemo-temporal effects.

Although Augoyard considers each of the effects from the perspective of the disciplines of physical and applied acoustics, architecture and urbanism, psychology and

physiology of perception, sociology and everyday culture, musical and electroacoustic aesthetics, textual and media expressions; what is reflected in this analysis is how reports in everyday language reflect, extend and develop the paradigmatic sets of phenomena that make up each effect. In Augoyard's analysis, the various effects are divided into six thematic categories (*Thematic Category A* in the Table 3.5) and the reader is referred to original text for an elaboration of these groupings (2005, p. 16).

An alternative reduced set of thematic categories emerges in my analysis. These divide the effects into groupings such as those related to spatial structures, sonic identity or memory, temporal structures and imagination (these headings are listed under *Thematic Category B* in the Table 3.5). The problem with both forms of categorisation is that sonic effects tend to collapse the distinctions being made. For example, in stories recounting the *delocalization* effect that “implies recognition of an error in localizing a sound source”, the effect often results in uncertainty or confusion over the identity of the sound or its source. Similar distinctions can be found with *anamnesis* described in Augoyard's text as, “an effect of reminiscence in which a past situation or atmosphere is brought back to the listener's consciousness, provoked by a particular signal or sonic context”. Anamnesis can involve both *incursion*, where the flow of time is interrupted by memories from the past, and *intrusion* where a sound strongly associated with some past location emerges unexpectedly in an incongruous location. Further, anamnesis often becomes what Truax refers to as a sound romance where sounds are “remembered nostalgically, particularly when idealised or otherwise given special importance” (1999). In Truax's research, the object of the romance is usually a disappearing sound and in the accounts collected here the memory *structures* the identity of the sound to the extent where the participants imply that they are hearing the spatially and temporally remote remembered sound and its context, rather than the local one.

Therefore, though the groupings of spatial, mnemo-temporal and identity may initially seem attractive, they do little to advance on the descriptive power of the effects themselves. Despite this limitation, in the light of the preceding analysis it is interesting to note the distribution of the effects among these categories.

Spatial Effects

Spatial effects are the most prominent—occurring in 70 stories but accounting for only eight of the effects listed above. These are delocalization and intrusion (already mentioned); *ubiquity*, *immersion*, *envelopment* and *sharawadji*, associated with the quantity and distribution of sound sources; *decontextualisation*, which is “the incongruous intervention of a sound ... for example, from the private domain heard in a public space”; and finally the elementary effect of *reverberation*, which gives character to both sounds and the spaces that contain them.

Second in significance to delocalization is intrusion, which occurs in 21 stories. Intrusion is “linked to territoriality [creating] a feeling of violation of that space, particularly when it occurs in the private sphere”. This was a significant theme in many stories that related states of heightened vigilance often associated with parenting and childcare and often including waking from sleep. Stories of intrusion often included mistaken localization, *metamorphosis* where the sound identity changes, or *phonomnesis* where a sound is imagined.

The next most significant spatial effect was ubiquity: “an effect linked to spatio-temporal conditions that expresses the difficulty or impossibility of locating a sound source. In the major variant of this effect, the sound seems to come from everywhere and from nowhere at the same time”.

Mnemo-temporal and Imaginative Effects

Mnemo-temporal and imaginative effects occur in 54 stories and include 11 of the effects listed. The most significant of these are anamnesis and incursion, occurring in 12 stories each.

Anamnesis is “an effect of reminiscence in which a past situation or atmosphere is brought back to the listener’s consciousness, provoked by a particular signal or sonic context. Anamnesis, a semiotic effect, is the often involuntary revival of memory caused by listening and the evocative power of sounds”. Perhaps unsurprisingly, music features in nine of these stories as a trigger of strong memories and associations. However, other sounds such as birdsong, horse racing and a slapping halcyard are all linked to the anamnesis effect. Many accounts include other sensory or situational detail. For example, I18Q2S1 describes the experience of going to the horse races and the memory of a much loved grandfather. The sound of hooves on the track is not easily separated from the flying up of earth, the physical presence and power of the horses. I1Q1S4 highlights the link between a particular aroma and a piece of music and the memory of a dinner party. Either the smell can evoke the music or the music can evoke the smell, or both together can evoke the whole situation.

As I have mentioned, the anamnesis effect is central to the historical genesis of the effect ontology in the work of Gilles Deleuze and in the structuring of his concept of the virtual (1968/1994, p. 209). Returning again to the famous quote¹⁰⁹ from Proust (1927/2012, Chapter 3, para. 13) we can understand this as a particularly powerful multi-sensory anamnesis. In this text Proust recounts his effort to understand how a cluster of sensation (“taste of the dipped madeleine, metallic sound, feeling of the uneven steps”) comprising an “instant liberated from the order of time” could create a consciousness of “man liberated from the same order” and a subsequent dissolution of personality or reinforcement of identity. This

¹⁰⁹ See the elaboration of this quote under Sound and the Narration of Memory on page 178 above.

distinction between the instant of repeated sound and its “irradiation” of the self (the anamnesis effect), and the reflection on this experience, is what Deleuze refers to as the distinction between the passive and active synthesis of time. For Deleuze, it is this passive synthesis that also forms the general sound type (the horse hoof, the halyard slap) out of the particular sound event. The stories of horses’ hooves and the halyard slapping produced in the research interviews are actively produced memories (reflecting the active synthesis of time) that recount the arresting moment of anamnesis.

Interestingly, many of these accounts of anamnesis are coloured by emotional responses. This is what Smalley referred to as reflexive listening or what we might now refer to as *affective* listening (Smalley, 1996). These affective properties also emerge in several of the other mnemo-temporal and imaginative effects.

Just as the intrusion effect “creates a feeling of violation of ... space”, the incursion (or *irruption*) effect “refers to an unexpected sound event that modifies the climate of a moment and the behaviour of a listener” and thereby interrupts the unfolding of time. Several accounts of anamnesis include aspects of incursion where the memories and emotion linked to a sound transform an otherwise prosaic situation. For example, in I21Q2S1 the sound of magpies is linked with the irruption of a previous state of being and emotion into the present state. In I20Q3S1 a mysterious throbbing sound that occurs during an adolescent party *séance* transforms the situation into one of fear and anxiety.

Incursion is associated with imaginative responses as well as emotional ones. In I9Q2S1 a composer describes the way in which a musical idea half heard on the radio puts her into a mode of musical creation overriding her previous activity. In I14Q1S2 a strange repeated acoustic phenomenon causes the participant to withdraw from conversation and seek explanations involving several competing hypotheses.

The other effects in this group include *anticipation* in which “someone waiting for a sound to appear will ... actually hear—the expected signal, even if no sound has been emitted”. In the interviews, anticipation occurs in states of vigilance as well as in musical performance.

Similarly, *phonomnesis* “refers to a sound that is imagined but not actually heard”. However, *phonomnesis* is like the active counterpart to *anamnesis* in that it “is a mental activity that involves internal listening [including] recalling to memory sounds linked to a situation, or creating sound textures in the context of composition”. Once again this is linked to states of vigilance but is also reported in the context of dreaming.

Finally, although *phonotonie*, which “characterises the feeling of euphoria provoked by a sound perception” is only a minor effect in Augoyard’s repertoire, it does capture some of the stories in which several participants recounted the strong aesthetic impact of particular sounds, sometime music, which went beyond mere reverie towards something more ecstatic.

Effects of Sonic Identity

As I have shown, the representation of sonic identity in ordinary discourse and the process by which a sound gains its identity is of primary significance in an account of the sonic effect. Often these effects cannot be separated from effects of spatial ambiguity such as delocalization, or effects of memory and imagination such as *anamnesis* and *anticipation*. The most significant effect of sonic identity in the stories is *metamorphosis*: “a perceptive effect describing the unstable and changing relations between elements of a sound ensemble”. As Grégoire Chelkoff (2005) goes on to explain, “‘ordinary’ listening may sometimes be metamorphic. An absence of perceptive intention [or focus] allows each sound to be heard simultaneously, with no preference or particular attention ... in which case, nothing emerging from the environment is perceived as ‘a single sound’”. However, as in Pauline Oliveros’s

deep listening exercises (2005), the instability of metamorphosis allows unique and unexpected sonic structures to emerge.

For example, in I19Q3S3 the sounds of Arabic music playing in an approaching car combined with the squeal of a truck's brakes produce something like a giant accordion. Metamorphosis may also include the transformation of a single sound. In the previously mentioned example in I16Q1S4 of waking from sleep, in which a constant "buzzing or a humming" is transformed into the ticking of a bedside clock, the two sounds are resolved into a single identity. In I7Q2S2 woodworking machines in a workshop produce an engaging musical complexity of the sound of all the machines running together. This sound seemed to be somehow connected to the participant's physical self "as ebbing and flowing layers of intensity happening" inside his own body. The unstable effect of a complex sound mass in metamorphosis is related to Martine Leroux's (2005) description of the *sharawadji* effect: "an aesthetic effect that characterizes the feeling of plenitude that is sometimes created by the contemplation of a sound motif or a complex soundscape of inexplicable beauty". This idea is so evocative that it has stimulated a range of creative responses in the sonic arts even if it is not so significant in the stories collected here.

At the opposite pole of sonic identity is *attraction*: "a phonotropic effect in which an emerging sound phenomenon attracts and polarizes attention, be it conscious or not". For example, "a siren, which manifests itself exclusively in the sonic sphere, and whose source often cannot be located, illustrates the attraction/repulsion duality that characterises the emergence of certain sound events" (Augoyard & Torgue, 2005, p. 27). The siren attracts attention in several stories that are made notable by the addition of delocalization or ubiquity effects.

The interdisciplinary significance of sonic effects as an analytical tool can be seen in a discussion of perhaps the most fundamental effects of sonic identity, the *synecdoche/asyndeton* pair. It is the subjective¹¹⁰ effect of synecdoche that isolates or valorises one sound from among others and enables selectivity in hearing. These terms come from the technical lexicon of linguistics and are adopted by Augoyard for their paradigmatic use in the description of these sonic effects. In everyday listening, synecdoche refers to the movement from the subjectivity of mere *perceiving* to a more concentrated *hearing*, or to the more objective modes of *listening* to events or causes, or the *comprehension* of messages or meanings. Perhaps the focus on identifiable sounds in the transcripts is the result of the structure of the interviews that insist on the description of particular sounds, events or experiences. As I have shown in the description of metamorphosis, the accounts do not always include synecdoche. In several stories, the emergence of a single valorised sound is significant only on the background of an undifferentiated *field* of sound. Importantly, synecdoche relies on its complementary effect of asyndeton or erasure, in which a portion of the sound field is not heard or actively ignored.

The two processes are central to what is referred to in the psychological literature as selective attention. Although the features that enable the segregation of an auditory scene into separate streams that may be attended to has been well described (Bregman, 1999; Cusack & Carlyon, 2004), the synecdoche effect remains an important topic for psychoacoustic science. It has been postulated that selectivity in listening develops with age (Leibold & Werner as cited in Schlauch, 2004, p. 334). These studies also show the effect of loudness in competing attention tasks with adults; however, it seems unlikely that loudness would be the only determinant of attentional preference. Studies reported by Neuhoff (2004a, p. 97) show that

¹¹⁰ As I hope I have demonstrated, subjectivity in this sense is not so much about dependence on an individual's perception or consciousness for the existence of a phenomenon, rather the phenomenon is co-constitutive of the individual, and in this sense it is an effect.

humans respond differently to apparently approaching rather than receding sounds and that they will attend to approaching harmonic tone complexes more than approaching noise. In addition to the influence of age, other types of experience or training may influence on a listener's attentional preferences or capacities. Studies in the design of auditory display (Walker & Kramer, 2004) show the influence of training in discrimination tasks. These studies, while providing valuable experimental evidence for aspects of the synecdoche effect, do not begin to describe the complexity of these largely subjective phenomena. The concepts surrounding the synecdoche effect often rely on operationalised definitions. In the discussion above I have used the terms valorisation, preference and attention. As Jones and Yee (1993) point out, terms such as attention defy definition because they are an "inferred construct" and "definitions of attention become theories of attention". Similar issues surround terms such as loudness (see Schlauch, 2004, p. 327). It is for these reasons that Torgue and Augoyard (2005) adopt the concept of effect as a paradigmatic container for such constructs that can be addressed from a range of disciplinary perspectives, and I argue that it is in the nature of sound itself that such indeterminacy obtains. These processes of selectivity and salience are the underlying mechanisms that structure sonic identity and its related effects.

Listening and Listening Style

The preceding discussion of the way some sounds stand out and others do not for certain listeners at certain times in certain contexts, suggests a possible ordering of listening attention or listening intention into listening modes or perhaps listening styles. The concept of attention has been critiqued from a cultural perspective by Crary (1999) placing it firmly in its historical context bringing into question any universally applicable model. This analysis further supports the idea of listening styles that may be adopted in various contexts. Discussion of such styles appears in the musicological literature; for example, Clarke (2005)

surveys such styles as the *submissive* style that may be appropriate to focused immersion in Western art music. This style is the result of training, enculturation and the design of spaces and contexts in which it may be performed. Similarly in the literature on interpersonal communication, the styles and techniques of *effective* listening are described (Wolvin, 2010). In contrast to the idea of style are the more normative descriptions of listening modes that may be prevalent in various contexts. For example, Gaver suggests a dichotomy between everyday listening and musical listening (1993b). As I have previously discussed a similar distinction between ordinary and specialist listening modes was introduced by Schaeffer in his attempt to develop a theory on which to build the listening style necessary for the understanding and deployment of musical objects in acousmatic music.

Given the possible diversity of listening styles it is interesting to examine the interview transcripts to explore the sometimes idiosyncratic styles apparent in the participant's reports. Some participants exhibited characteristic listening styles, attitudes or self-image. For example, I8, I10, I17 and I23 reported aspects of vigilance and anxiety, especially in their home environment. However, the listening styles of these individuals were further differentiated; for example, I23 described her sensitivity to the sound she was making herself and also a reflective attitude to her communication listening skills at work. I10 reported vigilance particularly related to the sound and wellbeing of dogs in her environment.

Other participants, for example I4, I7, I9, I14 and I19 reported an openness to the aesthetic properties of environmental and musical sound, or perhaps a musical attitude to environmental sound. Once again these listening styles were each unique and differentiated; for example, I4 was very clear about the typological features of sound in which he was interested, including texture and timbre, whereas I19 and I14 were engaged by the strange and

mysterious aspects of ambiguity, and 17 connected morphological features of sound environments to an organismic image of biological processes within himself and others.

Neither the concept of listening style nor listening expertise can fully capture the individuality with which these components are combined in individuals. For example a highly mechanistic and functional approach to sound in I21 and I22 can be combined respectively with acute sensitivity to anamnesis, or reverberation and resonance in architectural or sonic milieu.

The Circuit of Everyday Listening

Given that Schaeffer was possibly the first to systematically imagine the analysis and development of listening styles in general and the deployment of a particular listening style, his framework of everyday or ordinary listening is used here to consider the circuits of listening made apparent in the interview transcripts.¹¹¹ Schaeffer's model has the benefit of flexibility and dynamism despite its lack of engagement with affective listening as discussed on page 59.

Illustration 3.22 below demonstrates an approach to working empirically with the concepts in Schaeffer's circuits of everyday listening. It is a data visualisation of the interpreted circuits through the four listening modes that are contained in the accounts of listening experience obtained in the interviews. Each story was interpreted as describing a unique circuit through Schaeffer's four listening modes and was coded in terms of the passage through the modes. A diagram of this type was imagined by Schaeffer (1966, p. 120, (translation by John Dack and Christine North used with permission):

Even within a given discipline therefore, one single diagram is not enough to account for all our listeners' approaches. We would come near to a figurative representation of the complexity of the auditory process if, on the one hand, we

¹¹¹ Clarke's (2005, p. 144) criticism of the utility of Schaeffer's listening modes seems to ignore his discussion of the structural distinction between everyday and specialist, and musical and musicianly listening.

evened out the emphasis placed on each section in a given “run-through” of the cycle, and on the other hand, superimposed such “run-throughs” one on top of the other in an, as it were, vertical third dimension. In this case the overall result would simultaneously reflect the type of discipline, the personality of the experimenter and the successive stages of its development.

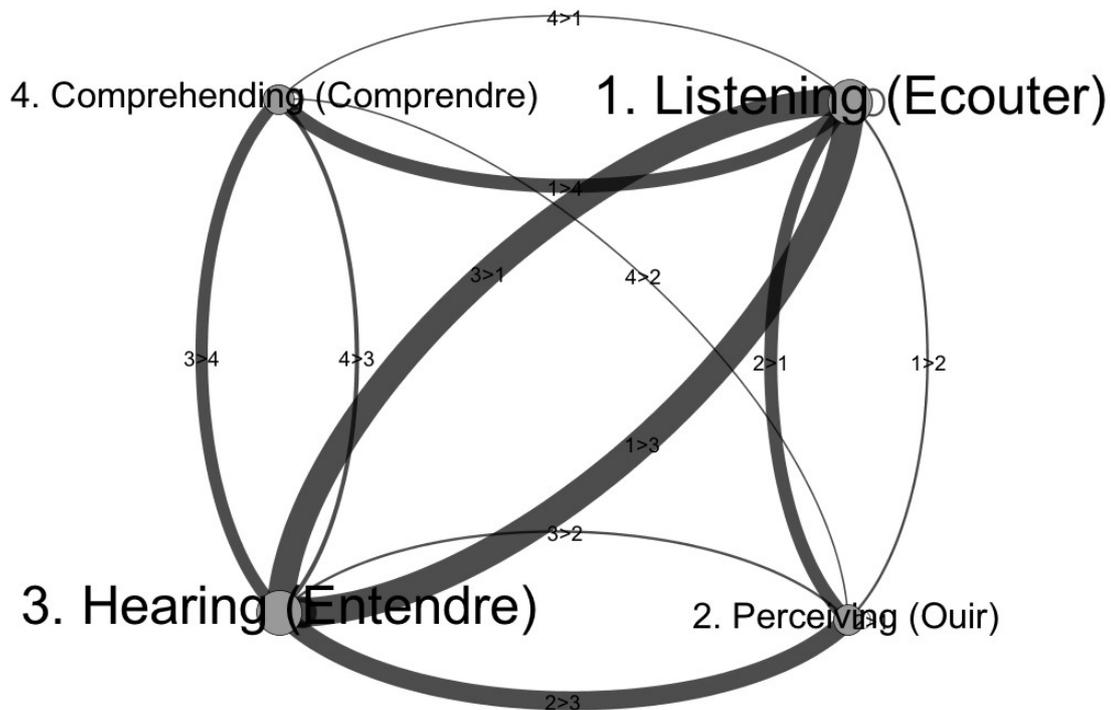


Illustration 3.22: Circuits of everyday listening data visualisation. This diagram takes Schaeffer’s suggestion of graphing a “run-through” of the circuit for an individual and applies it to the entire group of participants and the stories they produced.

The diagram shows the four listening modes described in table 2.1 on page 59. The weight of the lines shows the frequency of each transition and text size indicates the relative significance of each mode. These features together suggest Schaeffer’s vertical third dimension. Rather than representing the discipline, personality or expertise of one individual, this diagram shows a composite of the entire sample group in the context of a particular discourse determined by the interview questions. Many more data would be required to produce a representation of a single individual’s listening trajectories. However, the diagram does suggest the predominant modes or listening characteristics that may be described in

response to the questions asked. The diagram shows that the predominant narrative trajectory in the stories was from the objective, concrete sources or causes of Mode 1 *listening* to the subjective and abstract descriptions of sounds *heard* in Mode 3. An almost equal second trajectory followed the reverse path from description to identification. The next most significant trajectory went from the concrete description of the *perceiving* subjectivity (Mode 2) to the subjective features of the sound *heard* (Mode 3).

Table 3.6 displays the frequency of individual transitions from one listening mode to another. These transitions occurred within a narrative constrained by a single step from one mode to another in 49 cases, or within a more complex narrative trajectory encompassing three or more modes in 57 cases. In 12 stories the account was made in terms of a single listening mode. These distinctions are shown in table 3.7.

Mode transition	Count
1>3	33
3>1	31
2>3	22
1>4	16
2>1	15
3>4	14
3>r	11
3>1	7
4>1	6
4>r	6
1>r	6
4>3	5
3>2	3
1>2	3
1>2	3
4>2	2
4>1	2
r>1	2
2>1	1

Table 3.6: Frequency of listening mode transitions

In table 3.7, the letter “r” indicates that reflexive or affective listening is apparent in the account. In these cases the four modes seemed inadequate to capture the listening style being evoked in the narrative. The order in which the r is located in the sequence is less obvious in these accounts as the reflexive mode as an affective state is part of the totality of the account of perception and not as clearly distinguished as the other modes, which may be why Schaeffer chose to leave it out of his analysis. However, in some accounts it clearly comes first or last.

Count	Circuit	Count	Circuit
11	2>3>1	2	3>1>3
8	1>3	2	3>1>r
7	1>4	2	3>2>1>4
7	3>3	2	3>r
6	3>4	2	r>1>3>4
6	4	1	1
5	1>3>1	1	1>2>1
5	1>3>4	1	1>4>1
5	1>r	1	2>1>3>1
5	3>1	1	2>1>3>r
4	2>3	1	2>1>3>r
4	2>3>r	1	2>2
4	4>r	1	2>3>1>4
3	4	1	2>3>1>r
3	1>4>3	1	3>1>3>r
3	2>1	1	3>2>1
3	2>1>3	1	3>4>r
2	3	1	4>1
2	1>2	1	4>2
2	1>3>r	1	4>2>3
2	1>4>r	1	4>3
2	2>1>3	1	4>3>1

Table 3.7: Frequency of unique listening circuits.

From the point of view of this analysis, Schaeffer’s description of everyday listening holds the status of a theoretical framework. It is carefully constructed within Schaeffer’s

architectonic system of concepts, not least the distinction between abstract and concrete, subjective and objective. It is not certain whether the model originated in introspection or in informal or formal empirical observation but the fact that it has served as a basis for subsequent enquiries (Chion, 1990; Smalley, 1996) that have sought to modify or develop it indicates its value. At the very least the Schaefferian listening modes provide a useful hermeneutic tool in developing the concept of the sonic effect.

To explain how this framework was applied as an interpretive strategy I will describe the method in general and pick out one example. When a listener's account indicated a clear progression around the circuit of everyday listening as defined by Schaeffer, it was noted as a numerical sequence against the particular story. Smalley's additional adapted mode of reflexive listening was significant, especially in cases of anamnesis, and so this was also noted. A typical entry is exemplified in I6Q1S4 where the participant relates a story about staying in an unfamiliar house and *listening* to a dripping tap. On being unable to locate the source, closer *hearing* reveals the sound is actually a frog close to the front door. In this case the narrative starts the circuit in Mode 1, *listening* to the source, a tap. A moment of uncertainty leads to Mode 3 in which a closer *hearing* of the qualities of the sound including its morphology and spatial location, leads back to Mode 1, this time *listening* to a frog not a tap. This was coded as 1>3>1. These codes were transformed into dot graph description language (Gansner, Koutsofios, & North, 2010) to produce the graph in illustration 3.22.

Other Listening Modes

Reduced listening

Schaeffer describes reduced listening as a specialised listening mode correlated to his conception of the sound object. The sound object is an intentional object that may be uncovered by turning away from the causes and meanings associated with ordinary listening. In a practical sense reduced listening is most readily associated with Mode 3 *hearing* but as

shown in Illustration 2.7 on page 62, Schaeffer considers it to be the obverse of ordinary listening in that it takes account of all the modes in a form of perceptive *bracketing*. Reduced listening occurs in several of the stories where the narrative dwells in descriptive passages between Modes 2 and 3.

Polysemy of Apprehension

Apprehension describes a form of listening that compresses aspects of listening, hearing, comprehending and perceiving into one event. Apprehension is a noun with three distinct meanings:¹¹²

1. anxiety or fear that something bad or unpleasant will happen, suggesting an aspect of affective listening
2. understanding related to but not synonymous with comprehension
3. the action of arresting someone, suggesting grasping or taking hold of.

According to the Oxford English Dictionary (2014) the word's origin is in late Middle English in the sense of learning or acquisition of knowledge from the late Latin *apprehensio* via *apprehendere* meaning seize or grasp. Related to Smalley's reflexive listening relationship, apprehension can be seen to run in two directions. Considering the listening styles characterised by vigilance and anxiety, sound can trigger apprehensiveness. In these cases, the thump in the night seizes the entire attention and imagination of the listener. Conversely, the thump is captured by the listener's imagination and transformed into an intruder complete with costume and malicious intent.

In contrast to comprehension, which according the Oxford English Dictionary (2014) implies to "grasp mentally", apprehension often involves a complete embodied experience with cross-modal sensory detail, and is accompanied by physical manifestations of emotion such as muscle tension, stillness or movement. Apprehension implies a greater weighting to

¹¹² For a relevant definition of polysemy see "The definitional practice of dictionaries and the cognitive semantic conception of polysemy" in Geeraerts (2006b).

subjectivity than comprehension, which carries the possibility of the objective comprehensiveness of a meaning–language sign system.

Apprehension is exemplified by the reported experience (I10Q2S2, I11Q2S1) of being “captivated” by a piece of music, but this captivation also works in two directions. Smalley’s concept of reflexive listening opens up the process in which a sound can “attract and hold the interest and attention” (“captivate, v.,” 2011). However, an emotional response can also be viewed as capturing the sound and transforming it to fit the mode of apprehension. For example, for I10 a recording of an oratorio on a religious theme captures the participant’s mind but is subsumed into a sense of aesthetic detachment that is carried from the listening experience into a confrontational situation. Rather than the drama and spirituality of the work leaving its impression on her, in this account both the music and the subsequent encounter were captured and transformed.

The relationship between apprehension and confusion in some of the stories highlights the contrast between apprehension and comprehension. Confusion can both capture and grasp the mind of the listener and also be associated with apprehensiveness or fear. These effects contrast with the clarity implied by comprehension. Reflecting on the role of confusion in sonic experience in I19Q3S1 the participant states:

I think it’s a really interesting question because I think when you don’t know what something is, like personally when I find that I don’t know what the source of something is there is this moment of apprehension that is in itself spellbinding. For me personally I usually have like a kind of rush of images that come into my mind that accompany that moment.

I1Q1S1 dramatically suggests the potentially broad scope of apprehension in a confusing sound episode linked to a powerful anamnesis:

All I could hear were those—and I didn’t know at the time what it was but those stays on the flagpoles absolutely whipping and that sound! The sound of the stays

on those flagpoles. I was confused. I thought where's this coming from? ... All these thoughts coming rushing into your space and your cognitive brain is trying to sort out, okay, okay ... I'm going why am I hearing sounds of the sea here? What is it? I was looking around everywhere and then I – I was so confused. There's buses and there's trucks and there's people you're bumping into and you're going where's that sound coming from? It took me back to the extent that I could feel that same anxiety again but also a longing for the sea when on a calm day you just look around and you see nothing but sea and land is far, far, far away.

Dream Listening and Daydreams

As noted many stories include the transition from sleep to waking, or relate episodes of dream listening. Dream listening has been noted as a significant literary theme and a range of examples are catalogued by the WSP. Sounds heard during the transitions between waking and sleeping are discussed in the literature on hypnagogia (Jones et al., 2009; Jones, Fernyhough & Larøi, 2010) and hallucination. In addition to dream listening, several stories include aspects of daydreaming. In one unique example, I12 reported the common experience of entering Mode 2 listening spontaneously as a sort of daydreaming, often diverting him from a conversation in a cafe or other noisy environment such as a loud concert. He describes the experience of not thinking but perceiving the rough outlines of sounds without listening to or comprehending anything in particular.

Accounts of dream listening include reference to both acoustically present sounds with material causes in the environment and sound images produced within a dream. Often these are not distinct as the acoustic sound is transformed within the dream. In the previously quoted example in I16Q1S4, a bedside clock is heard while waking from sleep as “a buzzing or a humming” and once awake the participant becomes aware that it is the clock ticking. The incorporation of external stimuli including sounds into dreams has been studied as a means of understanding dream processes (Pace-Schott, 2003, pp. 2, 227). The process of conceptual

coordination (Pace-Schott, 2003, p. 132) has been described as characteristic of the production of causal or explanatory images that associate with acoustically present sounds heard during sleep.

In a contrasting example in I22Q2S2 the participant explains that he practices lucid dreaming. This extraordinary story is about a dream in which the participant is playing the shakuhachi to a piano accompaniment, reading the notation and hearing the sound a tone flat or sharp, then realising the score was for b-flat clarinet.

Discussion

In this study I have attempted to engage with the problematic of sound by employing the device of structured conversations that explored the role of ambiguity in the aesthetic response to sound. None of these three terms (ambiguity, aesthetic response, or sound) was well defined and so the function of this analysis was to uncover the way in which these three broad concepts are revealed and operate within the discourse of the participants. The study forms a logical intermediate step providing empirical substantiation of the concepts explored in Chapter 2, and providing an analysis of the materials and processes that might be applied in the radical design strategies to be examined in the next chapter.

Despite the diverse range of sonic experience uncovered and the diversity in interpretive and analytical response that this stimulated, the material in this chapter may be summarised under the following inter-related headings. First, aspects of sonic identity and actualisation are significant. These are correlated with aspects under the second heading of listening and sonic experience. Linking these two is a consideration of the distinction between ambiguity and vagueness which emerge when the entity of sound is considered as pure relation.

Sonic Identity and its Actualisation

I noted early in the analysis the inherent constraint that dialogue demands naming. Events, objects and experiences are named and described in the process of talking about them and are thereby identified. However, the forms of reference that occur in the dialogues are specifically a subset of the forms of reference to actual sound. These conform to what Wittgenstein (1998) would have described as the language game of sound. The particular performance of this game in the interviews is a form of descriptive narration (as opposed to other forms of performance for example composition, analysis or explanation). In these narrations, sound is identified and actualised with varying degrees of differentiation and repetition leading to the actualisation of the particular and identification of the general. In this performance of sonic memory general sound types and particular sonic events are shown to be co-constitutive. Sound references range from specific qualified sounds or sources such as a freight train sound, to intermediate sound types such as a mechanical sound, to more general sounds (often onomatopoeias), such as a buzzing sound.

Despite the apparent formalism in this analysis that might be seen to separate the data from “actual” experience, it appears that a form of self-narration plays a role in sonic experience as described in the accounts. In addition to this, I observed that sounds emerge from these narratives as quasi-narrative structures themselves, complete with characters and locations. Just like narratives, sounds are actualised when they incorporate a name; a concept; a sequential or consequential order with antecedent or subsequent necessity in terms of causal explanation; and elements of repetition of likeness or distinctness or contrast.

Sound actualisation occurs in parallel to a form of temporal integration in which the past and future of the sound are brought into the present. Following Heidegger and Ricoeur, I noted that the presentation of sound or *presencing* is related to a particular sense of the word

sounding, which names the process by which sounds make themselves present or salient. In this sense sounding is an event-effect in which sound (to use a visual metaphor) becomes apparent.

The initial phase of this sonic presentation is often in the form of recognition as a precursor to identification or misidentification. Recognition suggests the potential dimension of sound. The potential dimension of sound is further expanded by the apparent occupation by sound of the domains of place, atmosphere, milieu, spirituality, culture and personal identity within the narratives. The stories suggest that rather than a mere link of association, these aspects are intrinsic to sound itself.

Sounds are also heard as signs or signals with specific meanings; for example, speech, vocalisations, sirens, machines malfunctioning, doorbells and phones. In these cases sounds have the potential to be actualised as a broader meaning and motivation for action or response. In addition to these forms of actualisation, sounds are presented as object-structure relations using the prepositional constructs, *sounds of* and *of sounds*.

As I have mentioned, sounds assert their presence as event-effects or sense-effects and many of these are characterised by invoking Augoyard's repertoire of sonic effects. Most significant of the effects of sonic identity are metamorphosis occupied by unstable indeterminate identities, attraction and synecdoche effects by which sounds are differentiated from the sonic background, and a range of effects of spatial ambiguity such as ubiquity or *sharawadji* by which complex soundscapes take on an aesthetic quality.

Listening and Sonic Experience

In this chapter I have characterised sonic experience as a dynamic process that links a listener and its embodied action to an environmental context that in narrative discourse sometimes emerges as the representation of a "state of mind". I noted that this process has the

potential to be conditioned by a listening style that links the personal history or expertise of the listener to a listening intention in a given cultural or sonic context. This suggests that what is actualised or identified (heard) in any sonic experience is determined to a large extent by these factors.

A particular range of aesthetic experiences were characterised by descriptors related to immersion, reverie, surprise, comfort, anamnesis and discomfort. I noted that these forms of reference were influenced by the terms of discourse in the interviews and the apparent emotional colouring of its language. I also noted that these experience types must be understood by balancing factors internal to the listener with external factors such as context.

Once again sonic effects provided a useful lens to understand listening and sonic experience. Sonic memory in the form of anamnesis played a significant role in the collapse of large expanses of time in the accounts of these experiences. Sonic incursion was shown to disrupt the unfolding of smaller segments of time. The imaginative effects of anticipation and phonomnesis demonstrated the significance of internal listening.

I noted that a particular form of experience characterised by the term *apprehension* captured aspects of the collapsing relation between the subjective and objective that emerged in several stories and seemed to draw together several sonic constructs.

In this chapter listening and sonic experience emerge as an encounter or event at the intersection of two or more histories or series of events describing sources, listeners and other entities. Conversely, sonic experience has been characterised as a field from which sonic effects such as listeners and sounds and the identities or entities, structures and relations to which they are linked emerge.

Ambiguity and Vagueness

Identity effects such as metamorphosis and spatial effects such as delocalization highlight the necessary distinction to be made between ambiguity and vagueness in the context of this chapter.¹¹³ In the metamorphosis effect an unstable relation obtains between the sound ensemble and a particular sound, which results in an unstable sound identity. In these situations sound identities may be ambiguous in that they can be identified as one sound or another such as is demonstrated by the various frog–drip stories. However, these examples also highlight the way in which there can be vagueness in the identification of the sound as it is often not possible to state at which point the sound loses its *frogness* and becomes a drip. There can be no objective criteria by which this distinction can be made. Indeed in at least one story the listener allows the sound to remain a frog–drip or it re-occurs as a frog–drip in a new situation.¹¹⁴

A similar situation occurs with delocalization. The sound may be incorrectly localised in the opposite direction to the physical location of its source possibly due to reflection or some other multi-modal phenomenon. In these cases the localisation cues can be ambiguous suggesting one direction or the other. However, the ubiquity effect highlights the possible vagueness of sound localisation where a sound appears to be coming from a range of directions at once or vaguely one direction that cannot be localised with any acuity. This may be due to the acoustics of the enclosing environmental space involving occlusion, to the angle of incidence of the sound relative to the listener's orientation¹¹⁵, or due to a highly diffuse or distributed sound ensemble.

¹¹³ Ambiguity and vagueness are similar but different concepts to accuracy and precision. For a discussion of vagueness and ambiguity see Sorensen (2013).

¹¹⁴ This observation contrasts with the description of compositional approaches to diphones in electroacoustic music, see; for example, the discussion in the liner notes of Trevor Wishart's *Red Bird* (Wishart, 1977).

¹¹⁵ Due for example to the cone of confusion for laterally presented sounds (Moore, 2003, p. 248).

Interestingly, apart from internally heard sounds, sounds are nearly always distally located and form part of the environmental context in which the listener is situated even when this is ambiguous or vague. This is true for specific sounds and their sources and for more general sound types. Once confidently located however, a sound's identity is usually confirmed and actualisation is strongly linked to localisation.

Conversely, effects of spatial ambiguity and vagueness are amplified in the potential dimension of the sounds reported in the transcripts. The experience of a sound event such as a footstep was also shown to be structurally vague in that there is no clear distinction between object, process or event: foot, step, or footstep respectively. Each is a sonic effect in a dynamic mode of listening.

Conclusion

In the course of this exploration I have attempted to address the second research question posed in the introduction to this thesis to reveal to what extent the concept of the sonic effect is evident in ordinary discourse on sound. Evidence has emerged for the great variety of ways in which sound is referred to in everyday language and the ways in which what can be heard is represented. The analysis demonstrates the challenge that is presented for the formulation of a stable and comprehensive definition of sound. In this way sound is shown to be a paradigmatic concept or an open-ended set of relations. The categories of sonic identity and actualisation, sonic experience and listening, and the inherent ambiguity and vagueness within and between them can usefully be thought of as event-effects or more simply as *sound effects* that result from the relational ontology of sonic phenomena.

The function of an empirical study such as this is not just to observe regularities in a body of discourse but to engage in a research practice from which theoretical and conceptual materials can emerge which can then be applied in other fields of practice. So what are the

specific conclusions can be taken forward? Discourse on sound reveals that effective design should not start from the experience of sound as a subjective or objective response to stimulus which may be operationally manipulated but rather should consider sonic experience as the intersection of ongoing bi-directional processes of actualisation, of identification, and narration. Auditory cognition in this view is temporally and spatially extended.

A radical design must apply a form of imaginative variation (Ihde 1977, p. 39) to determine the field and focus of its approach. Just as the WSP combined texts, verbal accounts and attempts at systematic measurement and recording as means to develop an instrumental understanding of the sonic environment, I propose a form of design that utilises similar tools and embraces the ambiguity and vagueness that lie at the heart of sonic experience. In the designs detailed in Chapter 5 aspects of this approach are described and demonstrated.

CHAPTER 4 RADICAL SOUND DESIGN: A PRACTICAL INTERROGATION

Introduction

Creative practice is a method of critical thought as much as it is a method of production and representation. In this chapter I explore the ways in which two creative works produced in the course of this research project contribute to an understanding of the sound effect and demonstrate what can be considered a radical approach to sound design. In the iterative cycle of research practice this chapter explores and demonstrates how creative practice feeds back into the development and interpretation of the concept of the sonic effect and radical sound design. In the introduction to the thesis I asked: “What sort of design strategy could be based on the concept of the sonic effect and what might result from this approach?” Two elements of this iterative design strategy were described in detail in Chapters 2 and 3. Chapter 2 developed theory and Chapter 3 applied an empirical lens to discourse on sound. As I explained in the introduction, each iteration of the research process is enmeshed in the others and each contains aspects of the practical, the theoretical and the empirical as they unfold. The aspect of a radical design strategy shown in this chapter demonstrates the materiality of critical thought.

The initial phase of each of the two projects described here comprised a brief survey of sound art that deals with text-based sound, and the spatial presentation of sound; and the results of these surveys are included. Each of the works have had public outcomes during the period of the research undertaken for this thesis and are described in detail in order to show how a radical approach can address both form and material aspects of sound design. The first creative work is a collaborative work presented by contemporary performance company de Quincey Co, which employs texts derived from the literary works of the nineteenth century English author Thomas de Quincey. The second is a gallery installation exhibited at First

Draft Gallery in Sydney. In this work a multi-directivity loudspeaker system is used to present environmental sound material in the gallery space. In both works sonic density, spatial ambiguity and unstable ontology are employed as aesthetic devices, blocks of sensation¹¹⁶ or sonic effects.

¹¹⁶ The idea of the block of sensation as an independent virtual entity comprising percepts and affects that constitute an art work is developed by Deleuze (1994, p. 164).

Ghost Quarters



Illustration 4.1: GHOST QUARTERS, CarriageWorks 2009; dance Tess de Quincey, video Sam James; photo Mayu Kanamori

Ghost Quarters was a 40-minute performance installation presented at CarriageWorks, Sydney, 9–16 May 2009. A scene from the production is shown in Illustration 4.1. The work is part of a long-term group collaborative project titled *The Opium Confessions*, exploring the writings of Thomas de Quincey (1785–1859) and spanning several years with several distinct creative outcomes. *The Opium Confessions* was initiated by writer Jane Goodall and Body Weather performer Tess de Quincey, in partnership with me as sound designer, video artist Sam James and lighting designer Travis Hodgson. *Ghost Quarters* involved a collaboration between poet–vocalist Amanda Stewart, and a photo installation by Mayu Kanamori—including a short audio-visual work by Mayu Kanamori and me. Five performances were presented over a two-week season at Track 12 in CarriageWorks, with each performance

followed by an audience forum led by key academics and writers. *Ghost Quarters* was funded in part by a grant from the InterArts board of the Australia Council for the Arts (Application Reference: 132376) and support from the School of Communication Arts at the University of Western Sydney.

Contextual Development: Text-based Sound Work

The first phase in the development of the project was to establish the historical context in which the work was to be situated. This section describes aspects of the preliminary research that informed subsequent creative decisions. A central theme in this preliminary research was to understand the history of the interplay of sound and sense in text-based sound works. A central question was to determine what treatments and techniques would be appropriate to the development of a contemporary electroacoustic work that could connect the world of eighteenth and nineteenth century European literature, thought and language with audiences in twenty-first century Sydney.

The oral traditions of song, poetry and storytelling can be seen as methods for expanding the scope of human consciousness both in terms of its internal capacity for sequences of ideas and in its externalising capacity for the recording and transmission of ideas. These oral traditions also prefigure aspects of literate and institutionalised cultures, which see the emergence of performed texts. Within the scope of European history, public oratory in political and educational contexts formalised methods of delivery within the study of rhetoric. This formalisation emerged in parallel to the first written dramas in the ancient Greek tradition. In both drama and rhetoric the sound of the voice was of central importance. In the study of rhetoric the refinement of phrasing, pace and emphasis was referred to as *Pronuntiatio* (Olmsted, 2006). The delivery of texts with a concern for the sound of the voice is central to staged drama, radio drama, cinema and performance poetry. However, in all these

cases the semantic content takes precedence over the sonic content even though the former relies on the latter both for its existence and its effectiveness. This balance between sound and sense and the slippage towards a focus on one over the other is of central concern in text-based sound works. The twentieth century witnessed an intensive exploration of this balance in a range of these art forms.

Cinema extended the paradigm of staged drama by replacing the static frame of the proscenium with the dynamic frame of the lens and by expanding the possibilities for the scenic context of the drama. Sound cinema arose simultaneously with the electronic medium of the radio. The cinema soundtrack introduced the “voice-over” narration that effectively replaced the inter-titles and sub-titles of the silent cinema. Eventually the close-up shot would find its sonic parallel in the whisper and sigh, expanding the range of vocal perspective of the stage in the same way that the lens had expanded the range of the image.¹¹⁷ Radio had already captured this intimacy with close-talking narration. Although the conventions of Hollywood drama maintained a strict hierarchy of voice-over other soundtrack elements, and narrative and dramatic sense over sound, other possibilities had been explored by a European avant-garde keen to maintain the creative advances of silent cinema. However, it is the logic of the narration or voice-over that gains its structural sense from its relation to the image that is of interest here.

The production of sense that arises in this specific audio-visual context is perhaps best demonstrated by an experimental artist’s film such as *The Girl Chewing Gum* (1976) by English artist–film-maker John Smith, in which the voice-over played over the shot of a busy urban street appears to be directing the action. At some point the viewer becomes aware that it is the voice-over and not the action in the shot which is fictional. However, like the

¹¹⁷ This development was dependent on the development of new, quiet camera technology and post-synchronised dialogue replacement techniques, rather than new microphone technology (Bordwell & Thompson, 2008).

production of visual depth in the Necker cube visual illusion (Ihde, 1977); the viewer is invited to switch their perception—production of narrative sense between the voice-over as direction or, as description, at will. The voice of the director—narrator implies or creates the presence of an unseen observer (Chion, 1990), but the temporal and causal relationship to the image in this example is ambiguous at the start and eventually amusing.

A similar development can be established in the case of radio drama and radiophonic art; however, in radio, sounds are stripped of their relation to visual images. This state has been referred to as acousmatic by Pierre Schaeffer (Chion, 1983/2009, p. 11) and as schizophonic by R. Murray Schafer (1993, p. 88). Something like this could be said of both the sounds of narrative speech or of traditional tonal music in that these sounds do not refer entirely to their source or cause, the human speaker or instrument, but rather to the semantic or musical structures that are transmitted to or created by the listener. In fact, in his work on musical aesthetics, Roger Scruton has used the acousmatic condition to establish the ontology of sound as pure event (2009, p. 58) and used this as a basis for a philosophical theory of tonal music. Further, Scruton refers to Aristotle's assertion that "the voice is the sound of meaning [and] therefore is distinct from all other objects of hearing since we hear it in another way" (Scruton, 2009, p. 65). Frances Dyson, reiterating and expanding Schafer's concept of schizophonia also makes the point that, as a result of its presence saturating all sorts of contemporary media especially with the advent of digital sound technologies, for the "media literate" contemporary listener, the voice has lost its connection to the body as an index of its production and has become a sort of *sound effect* (Dyson, 2009, p. 137). Dyson refers to this development as the "recording effect".

In addition to its dislocation of the voice, radio introduced the world of sound effects, augmenting and contextualising music and speech. This was the world of sounds that first

inspired Pierre Schaeffer to explore the acousmatic properties of sound exposed by radio, in Schaeffer's words a "miracle machine" and "chamber of wonders" (Dack, 1994). And so it is that speech and music can have a special status as the elements of semantic or musical structures, as signifiers pointing beyond their physical sources. Radio art is the art of creating these structures or audible texts comprising speech, music and sound, dissolving the divisions between each. Radio art and its flexible use of voice became a key reference point for the sound design employed in *Ghost Quarters*.

As Dyson suggests, the semiotic potential of environmental sound and synthesised sounds (sound effects) has been embraced beyond the media in the world of product design and developed by specialists in the field of sound design and communication acoustics (Jekosch, 2005). However, radio provided the platform for the artistic exploration of this fluid semiosis. As French composer Luc Ferrari reflects: "I wanted to make a language situated both on the musical level and the dramatic level. The use of realistic elements allowed me to tell a story, or allows the listener to invent images for himself because montage allows ambiguities..." (quoted in Dack, 1994). This impulse propelled radiophonic art and developed in parallel with Schaeffer's programme of musical research, which aimed at developing a whole new musical language of sound objects.

However, the possibilities of a radiophonic art harnessing the acousmatic properties of speech and sound remained. In the radio studio the balance between sound and sense in voice production was no longer constrained by the skills of the performer. A whole new range of possibilities opened up with the careful manipulation of the razor blade and micro-editing or brassage techniques. British sound artist Trevor Wishart's work exemplifies a systematic study of the possibilities of sound manipulation almost on par with Schaeffer's heroic efforts. His text *On Sonic Art* and the sonic art works such as *Red Bird* (1973–77) (Wishart, 1977) and

Vox I (1982) (Wishart, 1990) explore the huge range of creative possibilities for the voice in this new creative context. In fact, in *Red Bird* the values of sound and sense usually ascribed to sound effects and speech respectively are reversed with speech becoming more like an instrumental sonic device punctuated by clear and distinct sound effects such as the sound of a book's pages and birdsong. In addition to foregrounding paralinguistic vocalisations, *Red Bird* also introduces the radiophonic diphone, a device in which one sound is transformed into another. In this process a sound begins at some recognisable point of origin and moves through some more or less indeterminate, ambiguous mid point to a recognisable destination thereby creating a concrete metaphor. For example in *Red Bird* the sound of the "s" in the word "listen" transforms into a fly buzzing, or in the astonishing middle section, human whispers transform into bird sounds opening up to the sounds of the entire animal kingdom. This deconstruction of the sonic matter of voice was taken up in the design for *Ghost Quarters* not through the use of the diphone but through the use of repetition, spatial layering and simultaneous multi-voicing.

Of course radio is not the only place where the balance between sound and sense in the delivery of text has been pushed to its limits. The world of opera had long exploited the loosening of sense through the use of melody, repetition and simultaneity. The opera trio used effectively in Mozart's opera buffa works *The Marriage of Figaro* (1786), *Don Giovanni* (1787) and *Così fan tutte* (1789) was used to shift the listener's attention between the levels of melody, harmony, libretto, characterisation, and as a sonic indicator of narrative complexity and dramatic crisis or farce. Elsewhere in the contemporary musical world the role of voice beyond song was being exploited. Among all the possible combinations of more or less natural speech offered by recitative, ranging across free and fixed rhythm and pitch, Arnold Schoenberg employed a form of *sprechstimme* (spoken voice) in his melodrama for voice and

chamber ensemble *Pierrot Lunaire* (1912): this work takes the idea of recitative and changes it by specifying a fixed non-natural speech rhythm and pitches that slide between notes and syllables. The performer is instructed not to sing and paradoxically¹¹⁸ “at no time to derive the mood and character of the individual pieces from the meaning of the words, but always solely from the music” (quoted in Goltz, 2006). This has the effect of integrating the speech into the ongoing musical counterpoint and loosening the grip of sense over the words. This effect may be characteristic of the expressionistic cultural moment in which this work arose.

Contemporary to Schoenberg’s work, Filippo Tommaso Marinetti was devising a new literature and performance art of “words in freedom” (Goldberg, 1988). Marinetti’s specific goal was to promote sound over grammatical semantics, in works such as the battle reportage *Zang Tumb Tumb* (1912–14). In both its concrete published form and as performances, Marinetti attempted to find a new mode of authentic sense in both the graphic form and the dramatically performed onomatopoeias of the text. Marinetti’s work paved the way for the development of sound poetry (Kostelanetz, 1980), but following the Italian futurists, the Zurich DADA movement made a more decisive assault on sense by developing the method of simultaneity—“a contrapuntal recitative in which three or more voices speak, sing, whistle, etc., at the same time in such a way as the elegiac, humorous, or bizarre content of the piece is brought out by these combinations” (Hugo Ball quoted in McCaffery, 2009). These works lie at a possible border between sonic art and text-sound-art in a continuum of linguistic flow within the broader stream of language and paralinguage as detailed by Wishart (1996, p. 299).

¹¹⁸ The interpretation of these instructions has been the cause of considerable debate: see Goltz (2006) for a performer’s perspective view of this that serves to highlight the complexity of speech delivery in musical contexts. It should also be noted that Schoenberg was possibly referring, through this vocal style, to other contemporary musical styles, notably Berlin cabaret with all the connotations for speech and voice in this cultural form. Note also the reversal of gender in *Pierrot Lunaire* which has a male character usually performed by a female actor or vocalist, which may also serve to alter the balance of sound and sense in the work.

This discussion highlights some key exemplars in the spectrum of text-based works that informed the use of the voice in the development of *Ghost Quarters*. As *Ghost Quarters* was to be presented in a theatrical context, developments in the theatre were also considered. Presumably Schaeffer was familiar with the controversy over the radio production of Antonin Artaud's *Pour en Finir avec le Jugement de dieu* (1948) in which Artaud demonstrated his stated aim from the manifesto *The Theatre of Cruelty* to "put an end to the subjugation of the theatre to the text, and to recover the notion of a kind of unique language half-way between gesture and thought" (Artaud, 1970). Experimental theatre developed in many diverse directions over the course of the twentieth century as did experimental music, radio, cinema and ultimately video, installation and digital arts, each approaching voice and text in different ways in different contexts.

One final point in this cursory survey of text-based sound works that informed the development of *Ghost Quarters* must touch on the decisive turn in digital arts practice that is the advent of the database. This medium, prefigured by the literary cut-up methods of Tristan Tzara, William Burroughs and others, changes the focus of aesthetic perception in literary arts. As Peter Gendolla asserts, quoting Noah Wardrip-Fruin, the literary arts are "those arts we sometimes call fiction, poetry and drama (as well as their close cousins). I mean the arts that call our attention to language, present us with characters, tell us stories and make us reflect on the structures and common practices of such activities". The aesthetic dimension in the reception of these texts is their self-referentiality or reference to the practices of structuring words into literary texts. The change brought about by digital methods in the literary arts is that by transforming the fixed structures of literary texts (Gendolla uses the term *data sets*) into dynamically arranged structures, the aesthetic attention is drawn to the process whereby new structures are created during reception. This requires the audience to

“read both process and data” (Gendolla, 2009, p. 167). The database approach is central to the design of *Ghost Quarters* and perhaps to aspects of its aesthetic impact.

In this brief survey undertaken as part of the development of *Ghost Quarters*, I highlighted some points in the diverse range of twentieth century art practice where the voice has been used not merely as a declarative, performative or narrative medium, but where its poetic potential has tended more towards the value of sound over sense. This survey stayed within a fairly conservative domain of high-art practice, ignoring many of the developments in hip-hop, rap and scratch, and many techniques from electronic and digital music—the vocoder for example. These approaches and their contemporary references were not considered likely to contribute to a potential solution to the challenge of connecting the world of eighteenth and nineteenth century European literature, thought and language with audiences from twenty-first century Sydney.

To summarise the key techniques taken up in the subsequent sound design we aimed at the following:

- breaking down the sense of the texts to highlight their sonorous surface
- simultaneous presentation of text elements
- multi-voiced presentation of text elements
- spatial diffusion and motion
- automated sequencing based on database techniques.

Conceptual Development

As a creative development project with a public performance outcome, the work demonstrated the relationship between research and practice on many levels.¹¹⁹ Several research questions were central to the development process. Key among these was how to find

¹¹⁹ For a discussion of the “levels of research” in creative projects see Goodall (2009).

a way to engage a contemporary dance/theatre audience with de Quincey's writings. The problems identified in this respect related to the identification of key themes of relevance to a contemporary audience including drug abuse, homelessness, and de Quincey's visionary and expansive sense of the human mind; and the challenge of presenting these in a performative context while avoiding the potentially alienating, dense, baroque complexity of de Quincey's written style. An associated question was how to successfully integrate the elements of text, physical performance, and image and projection design, staging and sound in a development and production process that was essentially collaborative.

Script Development

The text for *Ghost Quarters* drew on a selection of Thomas de Quincey's best-known works. These included the autobiographical *Confessions of an English Opium Eater*, first published in 1821, and *Suspiria de Profundis*, a sequel to it, published in 1845. These works, within de Quincey's discursive meanderings, describe the preconditions for opium addiction, and the hallucinatory activity of the mind under its influence. A second group of source texts include a collection of essays on the subject of murder: the two pseudo-lectures *On Murder Considered as one of the Fine Arts*, published in 1827 and 1839 respectively, and a postscript to these entitled *The Avenger*, published in 1854, and a short article *On the Knocking at the Gate in Macbeth* from 1823.

These texts and others from de Quincey's extensive oeuvre were studied by the collaborators over an extended period from January 2007 to March 2008 and after considerable discussion, Jane Goodall prepared a selection of text fragments and episodes for recording in September 2008. An early note taken during this process dated March 2007 records Jane's ideas for the text at that stage.

1. fragments, aphorisms, epigrams, small poetic capsules
2. strip text back, edited and recomposed into new sequences (multi-voiced)
3. use baroque style verbatim as background material (textural babble, frenetic/unstable).

Two other key ideas guided the selection. First, we did not want his words spoken live by a physically present performer: it was proposed that the performer's body must be free to express, represent and enact without being anchored to a fixed, signified identity. Second, from our readings, his prose came across to us as multi-voiced, and we were interested in the persona and perspective shifts through which he achieves dramatic changes of register and which are characteristic of his labyrinthine sentence structures.

The risk, identified early, was the potential disorientation caused by loss of narrative form and semantic structure, a complete loss of sense and total ambiguity. This potential ambiguity would likely result for an audience sedimented with the structural conventions of sound employed in the theatre, cinema and television in which the primacy of the text and therefore the voice that delivers it is guaranteed. In these conventional forms, the sound of the voice is the carrier of a semantic and narrative content and therefore distinct from other soundtrack elements such as music and sound effects. In this convention the voice nearly always occupies the sonic foreground, relieving the audience of the burden of selective perception, which may involve split-second choices as to where attention should be focused in the interests of comprehension. As Murray Schafer has suggested: "when language becomes unintelligible, it enters into one of three states: music, noise, or silence" (Schafer, 1989). For Schafer, noise is unwanted or distracting sound, and silence is the disorienting and alienating effect characteristic of being alone in a foreign country (Schafer attempts to recuperate this last condition by imagining the liberating aspects of being alone with ones own thoughts).¹²⁰

¹²⁰ de Quincey also makes this point demonstrated in the quote "... I had all around me ... the music of the Italian language ... and I listened with pleasure ... for the less you understand of a language, the more sensible you are to the melody or harshness of its sounds..." (1985/1821, p. 46).

Like Schafer, it was my hope that through careful preparation and spatial presentation we would be able to manipulate these three states successfully and balance the unintelligible with the intelligible, the music and alienation, and use the noise of speech for dramatic purpose. My success in achieving this aim is considered in the discussion of voice as a sonic effect on page 270. Further, initial reading of de Quincey's use of sound indicated that a central concern for him was to expose the "workings of the mind". This and other aspects of de Quincey's use of sound is considered in more detail on page 253. Fragmentation of the text was in some way intended to bring to the audience's attention, the otherwise automatic processes of composition and apprehension (Lancashire, 2004). It was also intended that by taking a holistic approach to the creation of narrative through projected image, movement, spatial relationships, and non-verbal as well as verbal sound components we would achieve an integrated outcome that might carry our audience with us.

An initial four-day workshop from the 22nd – 26th of September 2008 at the Rex Cramphorn Studio at the department of Performance Studies at the University of Sydney implemented the refined collaborative strategies of Tess de Quincey's established process in performance development. These include an open and direct form of dialogue. This dialogue is supported by the use of whiteboards to capture ideas and sketch concepts. Interactions in this process are based on respect and foster trust, all key ingredients for effective collaboration. This workshop process resulted in an overall thematic or dynamic form for the work which is represented in the working score sketch in Illustration 4.2. Initial voice recordings were made and initial software development was also undertaken during this period.

The text selections prepared by Goodall were reworked into a more or less sequenced script of text units which formed the basis of a studio recording session in which the text was performed by Tess de Quincey, Jane Goodall, Amanda Stewart and myself. These recordings would form the basic sound material from which the work was composed. In this process a range of alternative performance modes were experimented with and possibilities were explored. These approaches included vocal trios and variations in perspective and stress. During these sessions we also captured a range of extended vocal material performed by Amanda Stewart. These improvised vocalisations captured the essential quality of sound material at the uncertain intersection of voice and sound effects as described in the survey of text-based sound works above. Stewart's extensive expertise as poet and performer were invaluable in realising these effects and guiding the recording process. At this time decisions were also made regarding the database structure in terms of text identification codes for subsequent file-naming and retrieval. This structure is summarised below.

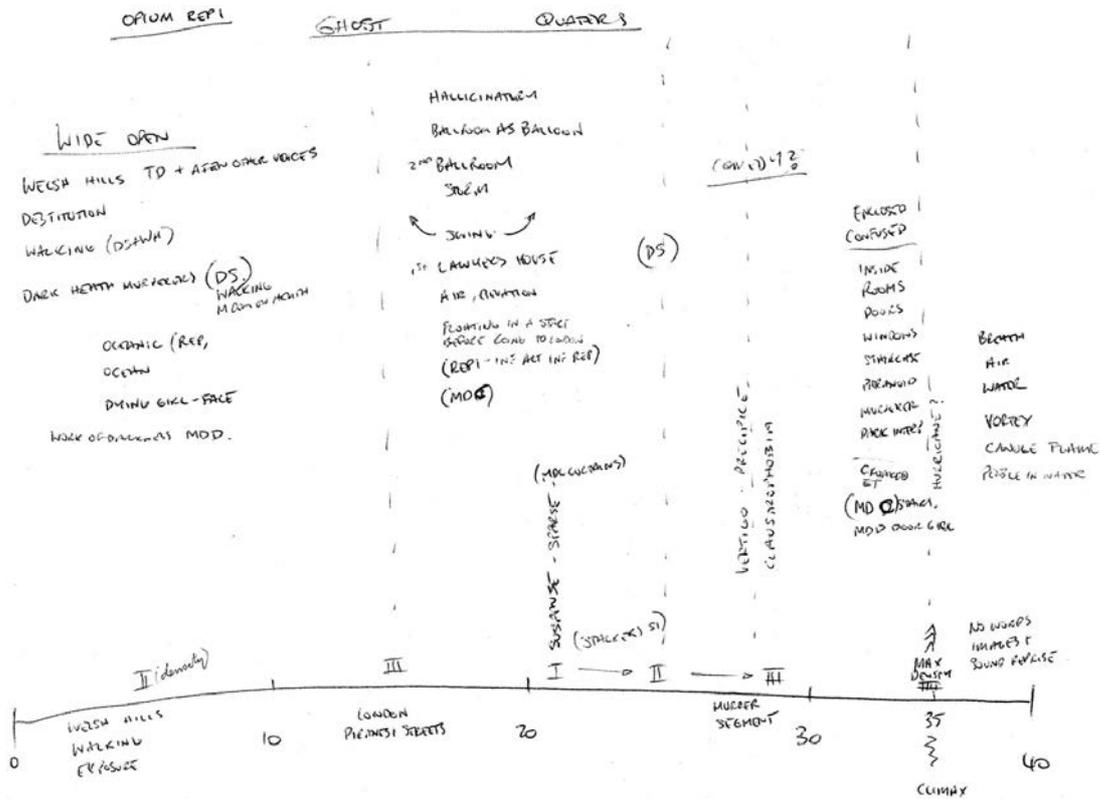


Illustration 4.2: Ghost Quarters working score, September 2008.

The selections included 72 brief poetic fragments, and a series of sequences recomposed by Jane Goodall with the following structure:

Phase one: free expanse (Density II, Tension >)

Images: Welsh hills and valleys, twilight, walking, lone tent in the night landscape, breathing mountain air.

Dark side: The murderer on the heath.

Sequences: Welsh hills (9), lyrical sequences (5), dark side (2).

Phase two: wild space (Density III, Tension >>>>>)

Images: Ballroom, wild weather, deserted lawyer's house – empty, many rooms, no lighting London streets – labyrinth, lost girls, abandoned child.

Sequences: lawyer's house (5), ballroom (3), hallucinatory (3), reprise of free space (1).

Phase three: murder (Density I ... II ... III, Tension > ...>>... >>> (suspense build – sometimes dropping III to I, e.g. ‘What is he doing on the other side of the door’ – whisper into vacuum))

Images: Paranoid house – stairs, window, doors – never the sum of its parts – never a coherent structure, presence approaching, breathing, whispering.

Sequences: stalker (1), murder dialogue A (1), murder dialogue B (1), murder dialogue B (1), murder dialogue D (1).

This material was subsequently edited into 853 separate audio files with file names indicating the name of the performer and the text sequence, for example the file “JG-WH8_overmastering_fiend.wav” was performed by Jane Goodall, contained an extract from the sequence “Welsh hills 8”, and included the words “overmastering fiend”. This approach to descriptive file-naming is characteristic of sound effects library management in film post production. Filenames contained the information required for subsequent retrieval. Each sound file was given a unique numerical identifier as the database index. The software design is covered in more detail below on page 262.

Sound in de Quincey or de Quincey's Acoustemology

During the recording and editing of this material I was guided or influenced by a close reading of de Quincey with an ear for his use of sound description and sound images. In my reading of de Quincey I have not sought to understand his use of sound as it reflects on a broader contemporary ecology of sound, such as might be found in sound studies such as Folkerth's broad ranging analysis of sound in Shakespeare (2002). Rather, I have paid attention to de Quincey's development of sound as a literary device within the context of his unique critique of human knowledge, reasoning and experience as seemed appropriate to the themes of the creative project of which this reading was a central part. Like many of his

precursors in the English Romantic movement, and particularly his mentors Coleridge and Wordsworth (Lindop, 1985, p. viii), de Quincey was sensitive to auditory experience and exhibited the tendency to use sound as a symbolic device. He also used sound as an effective dramatic and narrative device adding sensory realism to engage the reader. But more importantly, de Quincey was interested in the role of sound in the production of sense, linking his imaginative experience with the world of literary allusion.

The two selected essays *On the Knocking at the Gate in Macbeth* and *Suspiria de Profundis (Sigh from the Depths)* take sound effects as their central conceit. The knock and the sigh, echo or reverberate throughout de Quincey's writing.¹²¹ For example, the knocking effect explicitly links the two essays *On the Knocking at the Gate in Macbeth* and *On Murder Considered as one of the Fine Arts* (1985/1823, p. 82) and de Quincey uses this recurrence of the effect as a means of critically analysing its use within Shakespeare's dramatic tragedy *Macbeth*. Within this context of literary allusion and reworked memoir, de Quincey develops what might be considered an acoustemology (Feld, 2003) or theory of knowing-through-sound.

His first observations on sound arise in a typically cursory philosophy of *musical effects* developed in the context of his ongoing experiments with opium. De Quincey's theory is influenced by his reading of Kant's critiques of reason and judgement.¹²² His central claim for musical aesthetics follows Kant's dual critique of empiricism and rationalism. He asserts that it is not merely "by the ear [we] communicate with music", rather it is "the reaction of the mind on the notices of the ear, (the *matter* coming by the senses, the *form* from the mind) that

¹²¹ Perhaps mainly through the exigency of journalistic re-use, but also as a sort of literary palimpsest as proposed in *Suspiria* (de Quincey 1985).

¹²² He makes the typically self-deprecating observation that once he had overcome the worst of his addiction "my brain performed its function as healthily as ever before: I read Kant again; and again I understood him, or fancied that I did". Six essays based on his readings of and about Kant appear in the 21 volume complete works (de Quincey, 2003). For Kant's use of the terms *matter* and *form*, see the *Critique of Pure Reason* (1787/1929, A20/B34).

the pleasure is constructed". Opium's stimulation of the intellectual faculty facilitates his ability "to construct out of the raw material of organic sound an elaborate intellectual pleasure". The details of this drug-induced phonotonic (Augoyard & Torgue, 2005, p. 86) include a peculiar anamnesis, prefiguring Proust, in which events of the past appear "as if present and incarnated in the music" and are made sublime (de Quincey, 1985/1821, pp. 45–46). In de Quincey's analysis the audience is not the passive recipient of the expressive content of musical sound;¹²³ rather he is active in the construction of aesthetic judgements in which the understanding provides a form by which the sensory sonic matter may be transformed into its full aesthetic effect.

In the essays *On the Knocking at the Gate in Macbeth* and in *Suspiria de Profundis* we see a more thorough working out of the *sound effect*. The force of the knock and the sigh as effects are traced through various literary excursions linking Shakespeare's *Macbeth* to news reports of a series of notorious murders in London in 1812: the Williams murders. These become the topic of a series of essays by de Quincey starting with *On Murder Considered as One of the Fine Arts* in 1827 (de Quincey & Morrison, 2006). These essays themselves become a rich source of sound effects, each one with a potent influence on literature and the audio-visual media (especially in the context of crime thrillers) of the twentieth century. In these essays de Quincey moves beyond the limited Kantian correlated ontologies of concepts and objects-as-given to a more expansive and playful relationship between events (such as the knocking) and the effects which either produce or fail to produce sense.

In his explanation of the *knocking* effect, de Quincey compares it to another carefully considered sound effect, the *sigh* produced by a person regaining consciousness after fainting. This sigh signifies the "recommencement of suspended life" and it in turn relies for its effect on a preceding silence on which it is superimposed, or as de Quincey explains, the silence

¹²³ Prefiguring Edward Hanslick (1957/1854).

relies on the sigh for its meaning to emerge. The process by which the preceding state of affairs is moved from the sensible unconscious to the understanding, whereby a retrospective judgement can be made to “make known audibly” not that which is presently audible but that state of affairs which has just passed away, is a central acoustemological concern of the essay. This non-sequential (and therefore non-consequential) re-framing or transformation of the events, states of affairs, and their related or correlated effects or meanings is a repeated device in de Quincey’s use of sound effects.¹²⁴

In his analysis of effects such as the footstep and the sigh he develops a “multi-modal” image which combines the entire sensorium including the auditory, the visual and the conceptual. De Quincey asserts that “far more of our deepest thoughts and feelings pass to us through perplexed combinations of *concrete* objects, pass to us as *involute*s in compound experiences incapable of being disentangled, than ever reach us *directly*, and in their own abstract shapes” (1985/1845). Here, de Quincey extends his critical view of the understanding and provides support for the idea of a *con-fusion* or folding-in or wrapping-around in an *involution* of object-images. Equally, in linking the sigh to the sound of a “solemn wind”, “the one sole audible symbol of eternity”, or the voice to the “the laughter of the sea” (1985/1845, p. 144) de Quincey acknowledges and contributes to the construction of the quintessentially romantic metaphor (Abrams, 1957) of “nature’s music”.

Therefore, it is the ontological and epistemological insights that arise from his presentation of sound effects rather than the sounds represented that are of most interest in this reading. In each of the sonic domains he develops: reflections on music, knocking in Macbeth and the Williams murders, and the sigh anamnesis, de Quincey elaborates on their effect on consciousness and what they reveal about cognition. Ultimately, it is de Quincey’s

¹²⁴ For a useful discussion of the relationship of series of events, effects and states of affairs in the work of Deleuze, see Colwell (1997).

presentation of human cognition, the imagination and the power of dreaming; and through his discursive writing style the representation of a unique de Quincean expansive cognitive style¹²⁵ (Lancashire, 2004), that became the focus of the sound design. De Quincey's creation of atmospheres and atmospheric effects and his concept of sense and the challenge of negotiating the sense of his highly mannered style were also key factors in the design. De Quincey's deconstruction of the subject and shifts in perspective implied a multi-voiced presentation of the text. Speech and utterance became the principle sonic materials in the composition augmented by a few abstracted environmental sounds used in a non-indexical manner.

Sound Design

The sound design was conceived as one component within a multi-dimensional experience encompassing multi-channel projected scenic elements, lighting, costume, and physical performance. The integration of these elements informed by the theoretical and creative context is characteristic of the radical design approach I am attempting to describe.

The performance mode was to be semi-structured with an element of improvisation. The intention was to experiment with scale and spatial orientation in a nebulous environment of translucent drapes, designed for immersive projection and sound. Sam James', projection design employed two projectors vertically oriented in a transverse configuration at opposite corners of the space. Images would fall on seven vertical gauze curtains in the central performance area and on the end walls of the venue. The video was to be mixed live, partially improvised within a set structure. Another intention was to avoid conventional audience orientation to the performance area by placing small blocks of seats throughout the performance area. Unfortunately, the constraints imposed by the projection design and

¹²⁵ Note that work on cognitive stylistics seems to be based on models of speech production rather than acknowledging the augmentation of cognition by the written word both in production and reception.

ultimately by the safety requirements of the venue prevented this design idea from being executed. However, the sound design and speaker layout was adopted with this approach in mind. The ultimate layout saw seating arranged on either side and halfway across each end wall with a central performance area marked out with vinyl dance flooring.

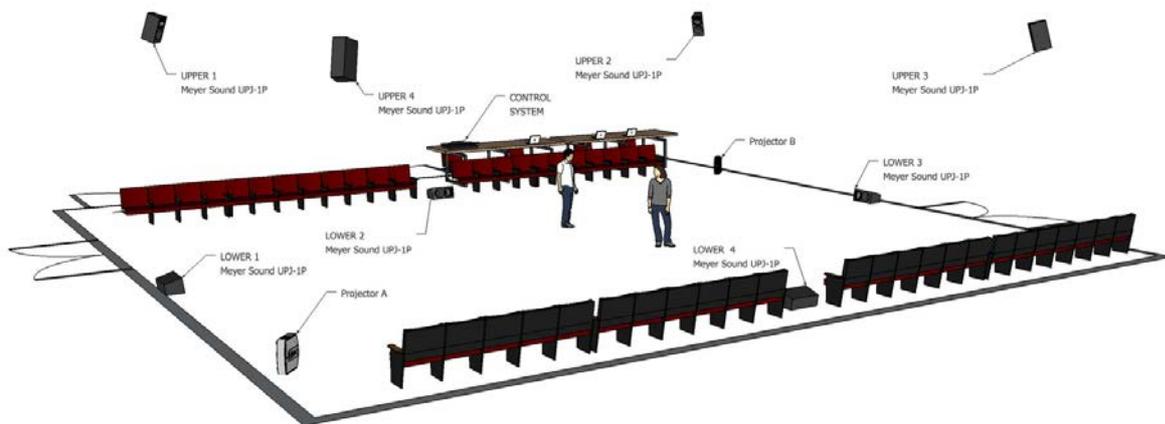


Illustration 4.3: Ghost Quarters system layout—eight loudspeakers form the vertices of an irregular square-based decahedron or square anti-prism enclosing the audience in a continuous sound field.

A central idea in the sound design was rather than creating a sense of immersion¹²⁶—of being bathed in sound; to create an enclosing surface of sound from which sounds would recede or conversely adhere. This image of a surface was inspired partly by the geometrical

¹²⁶ A useful critique of immersion in the media arts is provided in Frances Dyson's *Sounding New Media: Immersion and Embodiment in the Arts and Culture* (2009).

metaphors of Deleuze's philosophy of sense and immanence discussed in Chapter 2. Deleuze proposes a plane or surface of sense, ontologically independent of subject and object on which, through intensive processes the virtual is actualised (1969/2004). This idea seemed to marry with de Quincey's textual discursiveness and also seemed to echo and extend his critique of the Kantian understanding. To create this surface effect the sound projection would be continually dynamic using vector-based intensity panning to keep sounds moving across this virtual surface, and direct-to-reverberant intensity ratio control to manipulate the perceived distance of sounds receding behind the surface. This integral linking of theoretical and technical concerns forms the basis of the radical design approach demonstrated by the project.

Eight loudspeakers were used, four at each corner of the auditorium at approximately four metres height with the axis aimed at the obliquely opposite corner towards the seating area. The other four loudspeakers would ideally have been located beneath the floor, but the compromise was to place them on the floor at the centre of each wall with the axis directed towards the seating area on the axially opposite wall. In this formation the loudspeakers form the vertices of an irregular square-based decahedron or square anti-prism as shown in illustration 4.3. This would provide eight triangular regions surrounding the sides of the audience in which phantom sound images could be projected.

The sound design in Ghost Quarters was composed so that the audience's attention would fluctuate between the four Schaefferian modes of listening, hearing, perceiving and comprehending. This oscillation of attention would be attempted by manipulating perceptual aspects of the so-called cocktail-party effect (Arons, 1992) which allows a listener to attend to one or more conversations among many (Shinn-Cunningham & Ihlefeld, 2004). The key

parameters¹²⁷ that could be manipulated in the design were spatial separation of sources, spatial continuity, loudness difference, speech intelligibility through reverberation and filtering, spectral constancy or constancy of object-hood or identity, and density and word-rate of competing sources. Schema-based effects (Bregman, 1999, p. 395) could perhaps also be manipulated through the introduction of ambiguous non-speech materials.

The research in this area indicates that none of these parameters is likely to improve the ability to correctly interpret a voice-message if the statistical probability of the word sequences presented is low compared to a contemporary corpus relevant to the listener, or if the syntactical structure does not follow relevant rules. The phrases and units of text selected from de Quincey's writing were chosen specifically because of their unique and unexpected combinations of word sequence this being a central aspect of their poetic value. As a designer one can only speculate as to what the relative influence of any of these parameters will be and it is highly likely that there is no "average" audience member to target in the design.

At several points in the performance we decided to present clear narrative units of text that would be attended to for their specific semantic content. For example in cue number 1069 at 1' 45"¹²⁸, the scenic context is established with the exposition starting with the phrase "on leaving school by stealth...". This was achieved by presenting these items in one voice (other options were always available in the database of recorded material) and by ensuring an adequate level difference between the single foreground element and the background material. The use of a single voice and the resulting effect of perceptual constancy or continuity which forms the perception of object-hood or identity (Bregman, 1999) contrast to the rest of design where it is over-ridden by using voices with different genders, and accents. The actual level difference between foreground and background required for intelligibility could be minimised

¹²⁷ These are parameters in the systems design that should be ideally correlated to perceptual criteria, to use the Schaefferian term.

¹²⁸ See the full version of the Ghost Quarters performance video included as a data file on CD-R appendix.

by harnessing the effect of binaural un-masking which improves the detection of a signal in noise if the signal is presented to one ear in a background presented to both ears. In effect this was achieved by making the foreground sound stationary or slowly moving thus also improving its spatial continuity and making it stand out among competing sounds without relying on a large level difference. At other times during the performance it was hoped that overwhelming the audience's cognitive capacity by the number of simultaneous lines of text presented would enhance the sense of immersion and integration in scenes where the narrative line concerned threshold experiences of terror and disorientation for example in the climactic section from 31' 50". In addition to this it was hoped that the breakdown of semantic listening would move the audience into the subjective domain of the Schaefferian listening modes of perceiving and hearing and therefore towards a mode of reduced listening (Michel Chion, 1983/2009, p. 26) in which the voices presented become musical material or sound objects attended to for their intrinsic sonic properties rather than as human voices. This shift in which the semantic may be subordinated to a sudden encounter with raw sounds would hopefully be enhanced by an orchestration of non-verbal effects whose causal agency is uncertain. These sounds included various wind effects, footsteps and creaks, and small impact sounds from a variety of materials, many of these sounds had their origins in de Quincey's texts and can be heard throughout the piece.

A central design concept was the aim to achieve variability in the moment-to-moment composition of the sound material within a fixed scene-level framework. Tess de Quincey's BodyWeather performance paradigm is largely improvisational, in which the body is experienced as an extension of or integral with the environment. Whereas the lighting and video operators chose to have manual control to follow and respond to the performance improvisation, I chose to let the computer compose the moment-by-moment selection of

sound material thereby creating the unpredictable environment in which the performance would take place and to which it would respond. The technique by which this is achieved is described below. The characteristics of that environment including the range of texts elements, and the density and rate of movement was however, under direct control and could be changed from one scene to the next. The probability of any unit of text being presented was determined by the current range selection within the database of sounds and the number of versions of each text unit being present in that range. Sound files were identified with an index number prefixed with the scene number as described above. Individual sound files could be selected for foreground presentation at any time. This was necessary where the specific selected texts defined the mood, location, or content of a scene. This approach could be characterised as a form of database aleatory.

System Design and Production

The sound system design for *Ghost Quarters* responded to a range of practical requirements. Firstly, it was to be implemented within a very short production timeline during a ten-day workshop from the 20th – 30th April 2009. This requirement meant that it would have to leverage existing system and software components wherever possible. Secondly, there was practically no production budget and therefore the hardware would be limited to what was available from the project sponsors. The installed system is shown in Illustration 4.4.

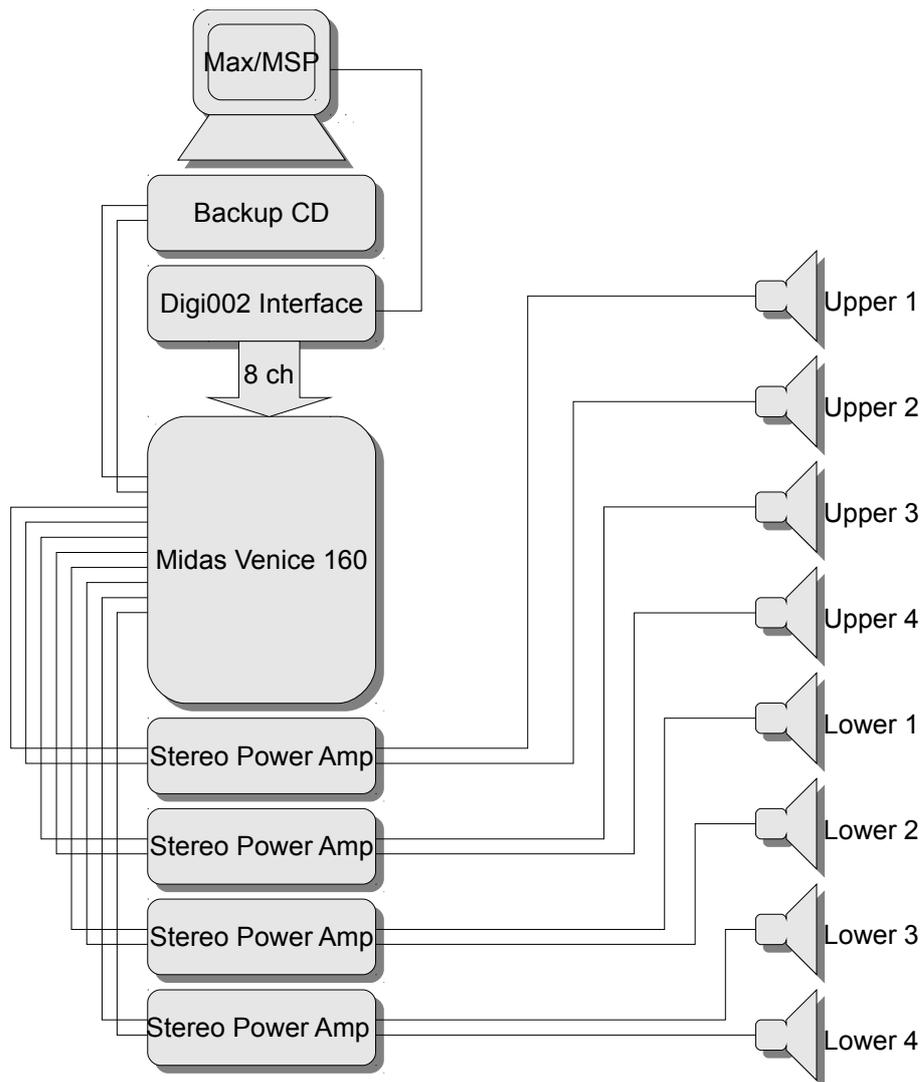


Illustration 4.4: Ghost Quarters system schematic

Playback, show control, signal processing and panning were all implemented by myself in the Max/MSP graphical programming environment (Zicarelli & Puckette, 2009) running on an Apple MacBook computer. An analogue audio console was fed from the eight audio outputs of the audio interface plus two channels from a CD back-up with a rendered stereo version of the sound. The software design implemented in Max/MSP included the following features as shown in the software schematic in Illustration 4.5:

- show-control/cue list sequencer
- show control user interface
- ad hoc cue builder/dispatcher

- sound file loader/manager
- vector-based amplitude panning (VBAP) loudspeaker setup
- output matrix
- 4 x multi-channel playback with algorithmic mixer and reverberation control

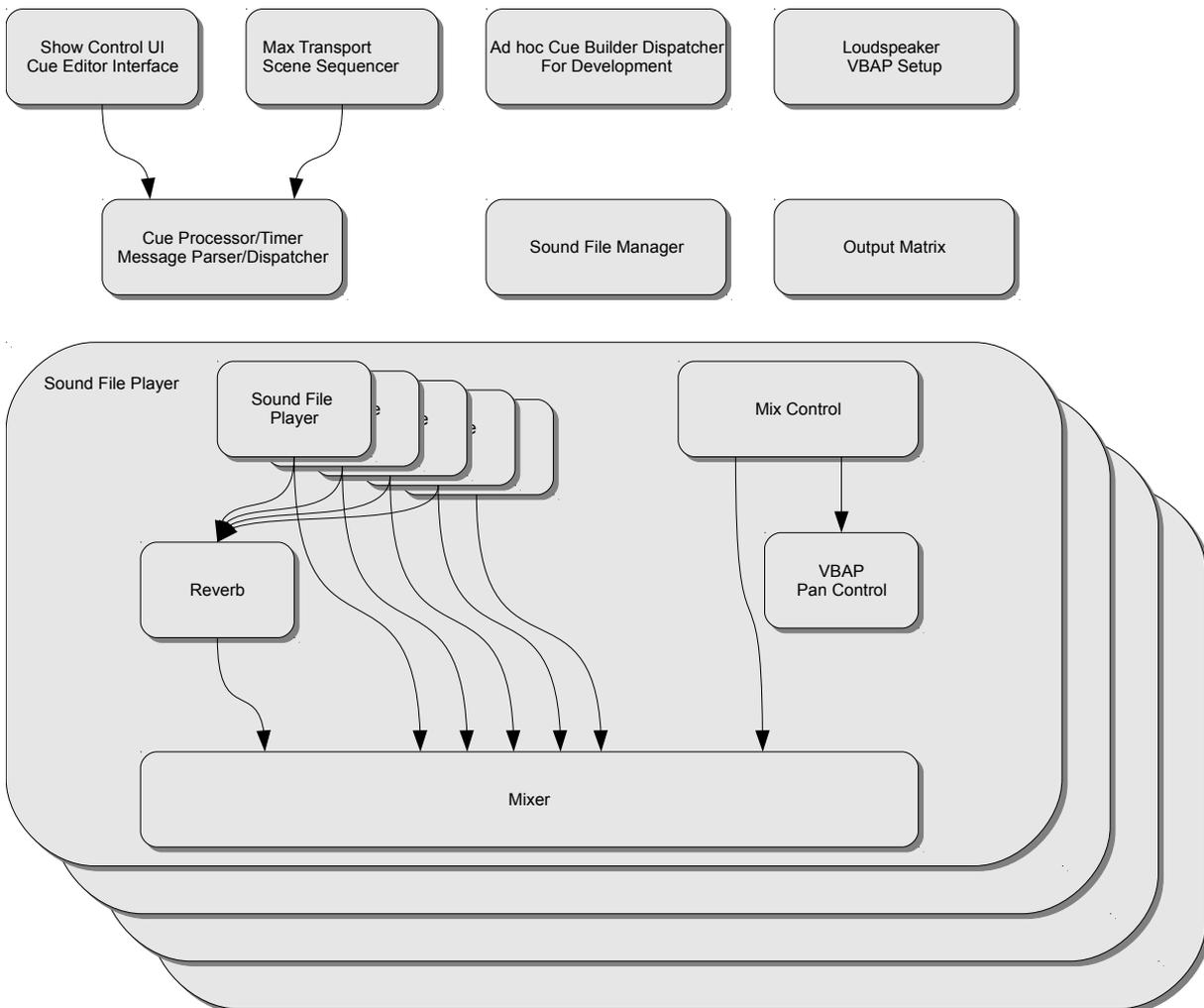


Illustration 4.5: Ghost Quarters Software Schematic

Algorithmic playback and panning

Each of four playback modules contained five sound file players configured as one-shot “cart-machine” devices with a sequential polyphony management providing a maximum of five simultaneous sounds per player for a maximum total of 20 simultaneous sounds in four

discrete locations. In practice, three playback modules were used for background sounds with one kept for specific foreground cues. Playback could be controlled by sending a specific cue number or by activating a randomised cue generator which could be given a range of cue numbers and a cue rate in milliseconds and time randomisation. Algorithmic panning was achieved with each playback module containing a vector-based amplitude panning mix coefficient generator using the VBAP algorithm developed by Ville Pulkki (1997). Once again each pan control could be sent a specific altitude and azimuth angle and pan time or a smoothed randomised panning effect by sending a random angle rate and pan time and time randomisation command. Each playback module contained a distance control with a digital reverberator, low-pass filter and mix control. The perceived distance and level could be controlled by sending the module, fixed level, direct-to-reverb ratio, reverb size, and high-frequency roll-off and fade time commands. Alternatively the source level and distance could be randomly controlled by sending a level, mix, fade time and time randomisation command.

Show control and score syntax

The show control system was required to allow ad hoc cues to be compiled and executed easily, but also to allow manual cues with timed follow-ons and timed scene-level cues to be sent in an automated way. These requirements mirror many of the features of the MIDI Show Control specification (MIDI Manufacturers Association (MMA), 1991) but with arbitrary parameter names and values with integer, float and string (symbol) data types. Three levels of automation were present in the final system: single cues to activate the algorithmic mixing and playback systems; a self-timing cue list scheduler and parser which was used for intra-scene-level automation; and a list of time-points using the in-built Max Transport system which were used to activate the scene-level cue-lists. The complete cue list syntax comprising cues, global parameters, and module parameters, is presented in full as an appendix on page 360.

Final score

The final *Ghost Quarters* score is included as Appendix 2.8 on page 362. Listed below are the scene-level cues, their relative timing and major cue numbers. Note that the scene names retain their links back to the original script material.

```

-00:00:01      Q10  -preset
00:00:00      Q1000 Welsh Hills Opening Atmos.
00:01:00      Q1100 Welsh Hills Opening 0-5
00:03:00      Q2000 Welsh Hills 2 5-10
00:05:00      Q3000 Welsh Hills 3 10-15
00:08:00      Q4000 Lawyers House -> Ballroom
00:15:00      Q5000 Hallucination, Ballroom, Lawyers House 2
00:20:00      Q6000 Murder Segment A-B
00:25:00      Q7000 Murder Segment C-D-DI
00:30:00      Q7500 Climax Build
00:32:00      Q8000 FINAL EMPTINESS
00:38:00      Q8500 (Manual) Final Voice-Over
00:40:00      Q9000 FadeOut and Finish

```

Sound file management procedure

Due to the large number of individual sound files (853 in total) a considerable amount of effort went in to effectively managing this material. As the database relied on fields contained in the filenames, files had to be renamed on more than one occasion. I wrote several scripts in the Python language (van Rossum & Drake, 2011) to manipulate filenames and to modify the contents of files using the SoX (Norskog & Bagwell, 2011) command line programme.

Audience Forum

Each evening after the performance a Forum programme opened up a dialogue with our audiences so as to discuss responses and readings of the work with a focus on the following themes:- Ghosted Spaces; Destitution & Night Spaces; Perspectives on Addiction and Imagination; Murder as Performance. The Forum programme involved the collaborative artists and the following speakers:- journalist and broadcaster Caroline Baum, poet Pam Brown, painter and social ecologist Dr Bendon Stewart, media expert Dr Roman Danylak,

dramaturg Dr Paul Dwyer, and author/scholars Dr Sara Knox, Dr Chris Fleming, Prof Gay McAuley, Assoc Prof Ian Maxwell, and Dr Paul Sheehan. For more detail please see the programme of Forums in Appendix 2.4 on page 356. In addition to extending the creative work into an opportunity for a richer public discourse on the selected themes, the Forum programme provided an opportunity to evaluate the aspects of the work which engaged the audience and perhaps highlight short-comings. The discussions on spaces of the night, destitution and ghosted spaces highlighted the distinction between physically occupying and engaging or negotiating with a space and a more imaginative encounter which might be had in texts such as de Quincey's or in a theatrical context in which the audience or reader is a passive observer. Not only did this discussion highlight aspects of geographical, political and social engagement referred to in work on site-specific art and site-sound art as discussed above on page 275 in the section on spatial sound art, it considered the impact of personal interactions with inhabitants of these spaces. It became apparent in the discussion that these unique interpersonal experiences were largely beyond the scope of artworks contained within the covers of a book or the walls of a performance venue. An aspect of this idea of personal contact was contained in the original designs of breaking up the seating and distributing it throughout the performance area. The physical engagement of navigating a space was taken up later in the design of the gallery work *Sharawadji* described in more detail on page 284.¹²⁹

Discussion on the imaginative dimension of spatial engagement clearly indicated that both projection design and the sound design had a strong impact. The term *immersion* appeared frequently in the discussion implying that audience members both felt immersed or bathed in an enveloping field of sound and that the entire performance environment filled their attention. These were clearly positive responses but the subtle concept of a *surface effect*

¹²⁹ The concept of engaging with real personal accounts of lived experience became the focus of a further installation project entitled *Visionarium*, not reported on in the thesis.

described under sound design above, in which sounds would emerge or recede from surrounding surface had clearly been a feature of my sonic imagination that was not audibly apparent to the audience. However, comments on the dynamic character of the sound, image and lighting indicated that this was read in a range of ways congruent with the artistic intention of the collaborators. One key element that was of concern to some members of the audience, that had also been an underlying issue in the development of the work was the tension between the semantic content of the text and its use as textural or musical material. Some audience members were frustrated rather than engaged by their inability to follow a coherent narrative in the way the text was presented. I take up this point later in the discussion section on page 270.

Evaluation

Four of the five performances were at 100% capacity, and significant numbers of people had to be turned away. de Quincey Co solicits audience feedback and actively promotes its works to the widest possible audience. The project received an overall very positive audience response and de Quincey Co received 15 very positive feedback emails. The comments in these emails were of a general nature however several comments referred to the sound design:

“Being fully immersed in a sea of sound and visuals”

“Richly layered and textured vocal composition”

“Sophisticated poetic abstraction”

“The sound design was exquisite – so finely layered and texturally balanced. Having heard text multi-tracked over and over again throughout my life, this treatment was by far one of the most successful. As a sound designer I walked away feeling extremely awestruck at the level of artistry demonstrated in the sound work.”

“Using text was unusual. The atmosphere was thick with meaning as layers of voice met projected image”

“I was hooked from the first moment of the ‘horror film’ sound of the creaking door”

“An astonishing piece of theatre ... voices circulating through the space passing from clarity to bare audibility”

“An amazing, immersive exploration of an altered state of consciousness”

These comments highlight the perceived effects of immersion, layering and texture, motion and the reading of sound effects. The terms layering and texture support the idea of a surface structure described above. However, these terms stand in contrast to the idea of immersion where sound fills the space or fills the mind. This contrast demonstrates the way in which the use of spatial or structural metaphors often reflect individual forms of reference to the phenomena of sound. These responses can be compared with the other sound structures captured in the interviews in Chapter 3.

In terms of public impact, the project was the subject of a feature article in the national daily newspaper *The Australian* in Appendix 2.9 at page 367, and one review in the bi-monthly national arts journal *RealTime* in Appendix 2.10 at page 369. The critic in the *RealTime* review indicated that, for him, we did not achieve an appropriate balance in the quantity and choice of textual material presented. He also provides an interpretation of the multi-voiced presentation which for this reviewer seems to challenge the perceived need for a coherent identity for the speaker. Perhaps if this material was to be reworked into a radio play the shifts in perspective and mood could sensibly be achieved by a variety of delivery styles from one performer.

In addition to this the collaborators engaged in an informal reflective analysis of the project. The process of reflection and discussion among the collaborators and trusted fellow practitioners could have been the most effective form of evaluation and this method should have been more thoroughly formalised and documented. This was a key practical professional

discovery that will be pursued more systematically in future projects. Although de Quincey Co's professional approach to seeking feedback through audience questionnaires provides useful data to assist in corporate strategies and representations to funding bodies, the practice of relying on a trusted expert advisors for candid and focused feedback to develop the quality of the work is perhaps much more effective. Relying on trusted expert advisors who share a similar knowledge-base and world view, and who can be relied on for candid no-nonsense feedback for the development of a personal arts practice is in direct contrast to the formal, objective, expert-panel, peer-evaluation method proposed by Smith and Dean, and the work of Amabile that they cite (Smith & Dean, 2009, p. 24). The expert panel method of evaluation is targeted at addressing issues of accountability and quality within the context of academic research and while it is probably the best approach in that context it may still be subject to institutional biases that do not aid in the development of new knowledge and innovative practice in an arts-research environment where the perspective, biases and trust of a candid advisor may be more effectively understood and employed by the artist–researcher.

Discussion: Voice as Sonic Effect

The *Ghost Quarters* sound design was the result of an intensive collaborative process and also an ongoing research into the poetics of sound composition. Background research in the area of twentieth and twenty-first century arts practice indicated the potential issues of utilising text in a performance context. Although there is an extensive list of precedents that indicate the possibly diverse ways in which texts can be presented, spoken word seems to present a contemporary audience with some particular challenges. Schafer describes the situation in which sense breaks down as resulting in three possible outcomes: noise, music or alienating silence (Schafer, 1989), and the history of the avant guard is littered with angry or alienated non-comprehending audiences. *Ghost Quarters* was not overtly provocative as it

provided the necessary contextual elements to actively engage its audience. However, it still presented issues that challenged the audience and these seemed largely to do with the role and presentation of spoken text. Some audience members were frustrated rather than engaged by their inability to follow a coherent narrative in the way the text was presented. The shifting gender, accent and tone, rather than suggesting divergent and shifting perspectives was confusing and disorienting. For example, the *RealTime* reviewer assumed that this was intended to mean de Quincey “heard voices”— voices in his head rather than the voices of his head. These *effects* point to an important aspect of the ontology or phenomenology of voice. The concept of a “dramaturgical voice” standing “between the enchantment of music, which can wordlessly draw us into the sound so deeply that the sound overwhelms us, and the conversation of ordinary speech, which gives way to a trivial transparency that hides its sounded significance” as suggested by Ihde (2007, p. 167) is perhaps central to understanding the complexities underlying these responses. Ihde highlights the multiplicity of significations being made in the voice of human utterance.¹³⁰ There are at least two sides of being, implied by voice. On the one hand a “voice-less” voice of reason pointing to the logos to which the listener may attend asserting a particular intensive actualisation or seriality¹³¹ of meaning in the text. On the other is an “embodied significance” bringing with it the “existential voice” of the “*whom* of the saying” in relation to “the *I* to whom something is said”. This embodied significance asserts a *who* on top of or in relation to the *what* of the voice and in an explicit relation to the listener. Each of these steps of coming into being might be considered as *effects* of the voice.¹³² These ideas are confirmed by Deleuze who describes sound as a surface effect

¹³⁰ This concept of voice is built upon a broader understanding of *voice* as being descriptive of the semiotic potential of entire scope of the audible aspects of the world. The use of voice is extended by Deleuze in the term *univocity* (1969/2004, p. 203) to make ontological claims about distinctions between subject and object: crudely speaking, all elements of the world speak with one voice, to assume the priority of a subjective perspective is to speak *equivocally*.

¹³¹ It is interesting to see Ihde’s use of a Deleuzian terminology with a similar meaning but different derivation.

¹³² This effect had also been noted by Smalley (1996, p. 98).

with a “double reference”, referring on one side to bodies “as a noematic attribute” and on the other to “propositions as expressible entities”. Deleuze claims that sound “organizes these two terms as two series which it separates, since it is by and in this separation that it distinguishes itself from the bodies from which it ensues and from the propositions it renders possible” (Deleuze, 1969/2004, p. 209). As Ihde suggests, the “trivial transparency” of everyday conversation makes the sounding surface of the voice “invisible”, and Schaeffer indicates that “ordinary listening” tends towards the concrete and objective aspects of the source or cause of the sound, the *who* of the saying; and *comprehending* the abstract objective property of the semantic meaning of what is being said (Chion, 1983/2009, p. 21). This “ordinary listening” covers over or hides the subjective side of listening which is still going on and is automatically taking account of or *perceiving* (to use Schaeffer’s terminology) the *what* of the voice and the attention or intention of *hearing*.¹³³ It is this hidden interaction of the four listening modes which has so powerful an *effect* in constructing the identity of the speaker and its structuring relation to the listener. In this way, not only does the voice render present a uniquely differentiated speaker but also renders the listening subject through its attention to the voice.¹³⁴ The *what* of the voice with the unique continuity of its particular mass, grain and allure¹³⁵ creates an identity behind the dramaturgical voice. Even as Ihde’s dramaturgical voice points to the possibility of a further expanded experience of the being behind or in the voice through adopted accent and characterisation, these “transformations” do not “diminish the significance of one’s being in speech”. However, the voice of the actor which creates the being of characters by employing the texts of the author points to an underlying trans-individual possibility of speech which shares a common language. As Ihde points out

¹³³ This is essentially a restatement of the Kantian notion of concepts and sensations combining to facilitate judgements.

¹³⁴ For another view on the relationship of subject to voice see Nancy (2007) who asserts the inherent tendency of listening to amplify the singular/plural essence of self.

¹³⁵ For a description of Schaeffer’s morphological criteria that define the “distinctive features” or “properties of the perceived sound object”, see Chion (1983/2009, p. 158).

“dramaturgical voice plays within the intersubjective possibilities of language ... but such possibilities are inherent in the voices of language from the beginning. This possibility is threatening to a concern with and ‘authentic’ voice, which is a concern with a *single* voice”. It is precisely this common concern which is voiced by the *RealTime* critic when he asks for “just one voice”, “just to make a little more sense of the man and his condition”. It was precisely the opposing tendency of the “intersubjective possibilities” within de Quincey’s texts that we were attempting to bring out through the use of multiple voices presented in simultaneity as one possible bridge between the experience of reading and live performance. However, the *effect* of the materiality of spoken voice is to over-ride the accepted idea not only that the author speaks with the multiple voices of his characters, but that the reader too contains the being of these multiple characters and their imagined voices as part of the reading experience. Where written language sometimes achieves the effect of attenuating the transcendent subject, for some members of the audience, despite the spatial and chaotic treatment of the voice, its material presence amplified these transcendent subjectivities and caused an unpalatable dissonance.

One possible solution to this design problem would be to provide an intermediate level of sound abstraction¹³⁶ between the non-vocal sound effects and the voice. This could take the form of a kind of noise-speech (Bailes & Dean, 2009) as heard in for example Paul Lansky’s synthetic voice composition *Smalltalk* (1990), or a series of acousmatic diphone transformations between voices. The addition of material of this nature may go some way to assist in the breaking down of the speaker-listener duality.

¹³⁶ Really a concretisation; for useful review of the use of the terms abstract and concrete, see Dack (2002).

Sharawadji



Illustration 4.6: Sharawadji—Firstdraft Gallery, Sydney 2011

Sharawadji was a sound installation work exhibited at First Draft Gallery in Sydney between the 27 July and the 7 August, 2011. In this work a specially designed multi-directivity loudspeaker system was used to present algorithmically sequenced environmental sound material in the gallery space. Sonic density and spatial ambiguity were employed as an aesthetic device. The title *Sharawadji* is drawn from the catalogue of sonic effects based on the work of philosopher, urban planner and musicologist, Jean-Francois Augoyard (Augoyard & Torgue, 2005). The sharawadji effect is characterised as “arising in a situation of rupture, where perceptive confusion gives way to an inexplicable aesthetic pleasure”. This installation

work focuses on the aesthetic aspects of spatial presentation of sound. It attempts to isolate this aspect among all the other potential compositional devices associated with sound works.

Contextual Development—Spatial Sound Art

The first phase in the development of this work considered aspects of the use of space in the development of contemporary gallery installation. The concepts of sound, space and time are tightly interwoven both in their general usage and in the various specialist knowledge domains related to each. Each term is fundamentally ambiguous and complex. The notion of a *spatial sound art* implies an art of or relating to space that employs sound as a material; however, as our apprehension of space is defined partly by visual, kinaesthetic, tactile and imaginative domains (every sensation is spatial (Merleau-Ponty, 2002/1945, p. 256)), it is reasonable to expect that spatial sound art will refer to these modes of experience as well. The focus of this preliminary research uncovering how aspects of spatial and aesthetic effects related to the sharawadji effect have been dealt with in previous practice and what might be learnt from this practice.

To some extent all sound art is spatial, as sound is, broadly speaking, experienced within an acoustic context. Exceptions to this include conceptual works that highlight the imaginary dimension of sound and sound technologies such as Yoko Ono's "*TAPE PIECE III/Snow Piece*" (1963) in which instructions are provided to record the sound of snow and then use the recording tape to wrap a present (cited in Kahn, 1999). Even works such as this might be considered to refer to spatiality,¹³⁷ but some works focus on the spatial presentation or spatial context of sound more specifically. Any attempt at division and classification will necessarily pose problems for cross-over cases; however, spatial sound art has been identified as a distinct category by authors such as Ros Bandt (2001).¹³⁸ Echoing Bandt's division of

¹³⁷ If we accept, with Merleau-Ponty that spatial phenomena have both an abstract and a concrete dimension.

¹³⁸ Ros Bandt provides six categories: site specific; sculptural; automata and kinetic works; interactive; installation; and spatial sound works.

spatial sound works into “spatial sound design and spatial music” on the one hand and “place as acoustic space” on the other, Georg Klein (2009) proposes the division of these works into spatial sound works (raumklang) and site–sound work (ortsklang). In spatial music of the first half of the twentieth century in works by Varese, Stockhausen and Boulez; Klein identifies a tendency to treat space as an abstract concept or compositional parameter, whereas with the advent of sound installation art, space was dealt with in a concrete manner responding to the acoustic, geographical and political specificities of the site of installation. Of course, this division into concrete and abstract, following Schaeffer (Chion, 1983/2009, p. 37), is too simplistic and polemical (and as Chion points out, a misreading of Schaeffer’s intention). The composers cited by Klein had a strong sense of the concrete production of sound and the limitations and potential of the concert hall, performers, instruments and loudspeakers to deliver the sound in this concrete context. Further, these composers necessarily modified the selection and range of spatial musical parameters based on expert knowledge, experience and experimentation. However, the distinctions between abstract and concrete mirror the ontological categories of sound itself (Schaeffer’s two isotopes of reality: Chion, 1983/2009, p. 37). It is interesting to note that as our interpretation of the focus of the work moves to one pole or the other we are necessarily drawn to or confronted by detail from the opposing pole. This is true both in terms of spatiality and sound ontology. To clarify this point it will be useful to consider some examples.

Bandt’s work on sound sculpture in Australia (2001) has the merit of combining careful description and documentation with an interpretive narrative, rather than constructing a theoretical frame for the works it presents. The section on “place as acoustic” space (pp. 20–37) opens with a description of the site-specific (ortsklang) work *The Edge of the Trees* by Janet Laurence and Fiona Foley (Laurence, 1995) installed in the forecourt of the Museum of

Sydney. The work combines sculptural elements, objects, inscriptions and integrated sound playback. The artist provides a descriptive statement on her web site which is copied in full here (Laurence, n.d.) :

Both an exhibit of the museum and a public sculpture, on the site of first
Government House

there is the memory of the site

the botanical memory

the Eora memory

the colonial memory

through a language of

materials

naming

mapping

SANDSTONE

Sydney's historical building material

the substance on which Sydney is built

the ground for Eora camps...

engraved with:

names of people—Eora men and women in Sydney around 1788–1850

names of places—in the harbour from Dawes 18th century notebook

STEEL

links to the steel and glass

of the museum architecture

extending the building and site housing substances

oxides from nature

and cultural life of the people

shells and midden ash

WOOD

a grove of pines once stood here

these pillars were trees from around Sydney

ironbarks and tallowood

recycled back into the ground after their industrial history as posts in a Pymont foundry that became the McWilliams Building

their checks have opened as windows of substances symbolising, memorising
from earlier lives here

honey

pipe clay

bones

resin

shells

oxides

ash

ENGRAVED NAMING

species from pollen readings of the Governor's garden

in latin and in aboriginal language

names of the First Fleeters

labels in zinc

CORTEN STEEL

rusting back into nature
symbolic red bleeding into the sandy ground
transformation of culture into nature and back again

THE SOUND

an aural map
naming places of occupation
Koori voices record a moment in time
within the 29 pillars

The Edge of the Trees
as a symbolic space—
a membrane where two cultures looked through to each other—
here they mingle and intertwine
a weaving towards the future

As Bandt suggests, the vertical columns of wood and stone, the objects and inscriptions, invite the audience to move in and around the work, exploring its details and revealing the recorded voices integrated into it. This physical, bodily and aural engagement with the spatial region of the work suggests the region-space or space-of-action of Heidegger and Merleau-Ponty (Arisaka, 1996, p. 37; Merleau-Ponty, 2002/1945, p. 284) rather than some abstract idealised world-space.¹³⁹ However, as Laurence suggests in her evocative text, the work is also “a symbolic space”. In addition to its physical arrangement, which propels the audience physically, to move and linger, the installation sets itself up not as a narrative but as

¹³⁹ For a detailed investigation of the phenomenology of space in sound art see Voegelin (2010, Chapter 4)

a symbolic site. Even here the idea of symbol has a double connotation, the work is “a membrane” between two cultures and between the past and present of the site itself; and the work comprises physical symbolic items: inscriptions, artefacts, spoken and written words, the columns themselves. This doubling or multiplied ontology is repeated in the sound content, in the artist’s words: “THE SOUND / an aural map / naming places of occupation / Koori voices record a moment in time / within the 29 pillars”. The sounds are names of things and places, memories, voices of a people, voices of a time, sound of a constructed place. At the same time, these are actual acoustic sounds, declarations and statements close and distant depending on the listener’s position within the installation, and they are permeated by the sounds of the city, the distant ferries, police sirens (as captured in Bandt’s rendering of the work in the CD accompanying the book) and other voices. This work addresses the acoustic, geographical and political specificities of the site in a way typical of site–sound works as characterised by Klein.

In presenting the background research to the *Sharawadji* installation—rather than contrasting the culturally and temporally specific nature of *The Edge of the Trees* to musical works employing abstract compositional processes such as spatial counterpoint, or comparing it to works that either rely on the theatrical conventions and the controlled acoustic environment of the concert hall, or works which attempt to create a musical discourse of virtual (as in virtual reality) space using contrasting artificial reverberation, multi-speaker presentation using wavefield synthesis, ambisonics or some other arbitrary “containing musical space” (to borrow again from Merleau-Ponty’s categories of spatial experience (2002/1945, p. 284))—I will present an example of so-called experimental music. This choice does not discount the apparent value of constructing an argument around Klein’s site–sound – spatial–music distinction, and by making this choice I miss the opportunity to critique the

spatial discourse of electroacoustic music. However, an example of experimental music adds interesting complexity and highlights the important move from a temporal to a spatial focus in sound art as opposed to music.

Alvin Lucier's *Music on a Long Thin Wire* (Lucier, 1980) stands at the junction between experimental music practice and sound installation art. The work's genesis was a classroom demonstration of the modes of vibration of a string fixed at both ends. With this as a starting point, Lucier considered the design of "a very long monochord—one which could be installed on a concert stage or occupy a gallery space" (Lucier, 1980, CD liner notes). At this point in his career Lucier's thinking was clearly not constrained by the conventions of concert hall presentation and his creative practice spanned conceptions of music, sound and gallery practice.¹⁴⁰ Lucier's album notes describe the work:

"Music on a Long Thin Wire" is constructed as follows: the wire is extended across a large room, clamped to tables at both ends. The ends of the wire are connected to the loudspeaker terminals of a power amplifier placed under one of the tables. A sine wave oscillator is connected to the amplifier. A magnet straddles the wire at one end. Wooden bridges are inserted under the wire at both ends to which contact microphones are imbedded, routed to a stereo sound system. The microphones pick up the vibrations that the wire imparts to the bridges and are sent through the playback system. By varying the frequency and loudness of the oscillator, a rich variety of slides, frequency shifts, audible beats and other sonic phenomena may be produced (Lucier, 1980).

The piece has been performed as a musical work, installed in art galleries and other public spaces and also, interestingly (from the point of view of mediatised spatiality), existed as a five-day continuous radio broadcast. Lucier has stated his interest in acoustical phenomena as a basis for his creative work. He has also expressed interest in the visual aspect of the work as he states: "I've been doing a series of pieces that have to do with seeing sound.

¹⁴⁰ The utility of these distinctions has been critiqued by Max Neuhaus (2000/2011) amongst others.

Music on a Long Thin Wire is one of them. You can see the modes of vibration of the wire” (Moore, 1983). Interestingly, in this quotation, sound is equated with the specific physical displacement of a sounding object presumably correlated with the audible phenomenon, and thereby apparently asserting a physicalist ontology for sound (see Scruton, 2009, p. 57). Not only does this highlight the potential materiality of sound but points to a necessary fusion of the senses in sonic experience.¹⁴¹ The work is presented over two loudspeakers, creating an impression of audible spaciousness. The sound is a continuous and constantly changing drone. Sound material of this type and duration apparently refers to itself rather than some structuring compositional intention or conventional institutional practice. As Cox (2006/2011) points out, the experimental musical practices of the mid-twentieth century, by embracing chance and process and by distancing themselves from the concert hall, were moving away from the control of musical events in time as the principle compositional focus. At the same time, sound art practice was becoming more concerned with the expression of space through sound. Cox quotes musician and sound art pioneer Max Neuhaus: “Traditionally composers have located the elements of composition in time. One idea that I am interested in is locating them instead in space, and letting the listener place them in his own time”, and “communion with sound has always been bound by time. Meaning in speech and music appears only as their sound events unfold word by word, phrase by phrase, from moment to moment. [These] works ... [remove] sound from time, and set it, instead, in space” (Cox, 2006/2011, p. 83). This analysis implies that by subtracting divisions of time and sequence as a structuring element in sound works, and by placing them in specific locations (especially the art gallery concerned as it is with the presentation of spatial works such as sculpture) that allow the audience to move and change their spatial relation to the work (unlike the concert hall), there is a necessary change of focus in the work—to space. However, this is not a

¹⁴¹ For a detailed discussion of this idea see Merleau-Ponty (2002/1945, pp. 262, 267).

phenomenological space-of-action. The seemingly endless sound field of *Music on a Long Thin Wire* does not promote interaction or dancing, rather it suggests calm contemplation and a focus on listening and the sound material itself, perhaps even contemplation of the otherwise invisible spatial or material properties of sound such as wavelength and standing waves. This is an intellectualised space, contrasting to the space of relative position or regions that might be engaged with by moving around and observing the mechanical structure of the work and moving through the quasi-stereo sound field. These three distinct but interpenetrating aspects of the phenomenology of spatial experience are explored in detail by Merleau-Ponty (2002/1945, pp. 288–293). On the one hand is a pre-reflective space defined by the relative positions of things; on reflection we are influenced by an intellectual or geometrical conception of space as a containing entity in which things including ourselves are disposed. This second conception of space is akin to the Kantian precondition of experience (Merleau-Ponty, 2002/1945, p. 256), which only becomes apparent through experience. The third aspect of space is grasped through a careful phenomenological process in which the tightly bound processes of perception and action provide the key to identifying the embodied condition of spatiality that lies disguised behind both the pre-reflective and intellectual apprehensions of space. Starting from the concrete materiality of a demonstration of musical acoustics, by eliminating the temporal divisions of musical events, and by inserting the work in the gallery space, Lucier has created a work that highlights the ambiguous nature of spatial sound. This work invites the listener to engage in a timeless contemplation of ever-evolving, immersive resonances but at the same time to consider the material form of their origin.

As useful as is Klein's distinction between the categories of site-sound and spatial sound works, the examples explored above demonstrate the coexistence of aspects of the ontological character of these two poles in any instantiation of sound in a given art work.

Sound is a complex multi-stable phenomenon therefore, any comprehensive design may have to account for physical (including technical, acoustic, structural and other visual aspects) and geo-social aspects. However, *effective* design must rely on an institutional/conventional framework for its reception. *Radical* design apparently embraces the multi-stable nature of sound in disrupting institutional contexts of its reception.

This presentation of the initial phase of development necessarily selects and summarises key points from a long immersion in contemporary arts practice. Its inclusion here is intended to show that elements of this immersion are carried into the work itself. This art historical context confronts the broader conceptual concerns of the research that results in the work.

Conceptual Development

The development and execution of the work is in itself a form of conceptual development. Theory and practice are not so easily disentangled. How are we to substantiate or evaluate any claim that sound is in some way a “surface effect” (Deleuze, 1969/2004, p. 210) or that sounds can operate as some form of loosely defined “sonic effect” (Augoyard & Torgue, 2005)? We may employ an introspective method such as phenomenology. We might extend this method to assist in the interpretation of texts or ethnographic data that refer to sound or listening experience. We might employ the techniques of speculative philosophy.¹⁴² In order to develop an experimental method it would first be necessary to define the object of study. I have used the word *sound* but it is not at all clear to which aspect of this umbrella term I am referring. To be fair, contemporary sound researchers employing the scientific paradigm are becoming more and more cognisant of the complexities of this term, and are slowly finding ways to deal with the confounding factor of cognition in studies on sound perception.¹⁴³ It

¹⁴² These three methods represent the work of Ihde and Merleau-Ponty, Augoyard and Deleuze respectively which in turn had influenced this research.

¹⁴³ An early example of this is the section entitled “The Precedence Effect: A Case of Cognition” in (Blauert, 1997, p. 409), a few examples of the recent trends in this area are found in Merer et al. (2010), and Zeitler et

seems unlikely that an experimental context could reveal the types of effects that are of interest in this research. However, in this project I have adopted the second non-scientific usage of the word *experiment* as defined by the Oxford Dictionary of English Dictionary; namely “a course of action tentatively adopted without being sure of the outcome”. Any experimental context imposes a set of ecological conditions that are usually designed to control or minimise the influence of irrelevant variables. This approach improves the internal validity of an experiment but may have negative consequences for the external validity (Neuhoff, 2004b, p. 8). However, any form of experiment brings with it a context. This understanding lies behind the ethnographic approach of in situ interviews in the work on urban ambiances by Augoyard and the CRESSON research group (2005, 2007) and expanded in the sensory ethnography of Pink and others (Pink, 2009). One idea behind this creative work is to provide the conditions to foreground a particular type of perceptual experience. This is useful for two reasons: the first concerns the process of *prose composition/translation* as defined by Schaeffer, whereby perceptual knowledge is made concrete by developing the ability to identify, describe and then manipulate particular phenomena (Chion, 1983/2009, p. 97); the secondly is that the work addresses the subjectivities of perception by experimentally (in the weaker sense) isolating a particular set of phenomenal structures. To explain this second point I will refer to two repeated themes in the interviews conducted on the topic of ambiguous sounds. One typical response when probed about experiences of ambiguous sound goes something like this: “oh I’m sure I am having these experiences all the time but they just don’t stand out for me, for example ...”. A second type of response goes like this: “oh, there’s this sound that’s really been annoying/fascinating me and I’ve really tried but I just cant figure out what it is/where it’s coming from, I hear these types of things all the time.” The issue of whether a phenomenon “stands out” or not, if understood in terms of reflexivity or

al. (2006) and, from the ecological view point, Rosenblum (2004).

intentionality, is dependent on factors of context, habit and training, and the nature of the stimulus. As Augoyard points out, for sounds heard in an everyday environmental context “the physical signal is under a perceptive distortion, a selection of information and an attribution of significance that depends on the abilities, psychology, culture, and social background of the listener” (2005, p. 8). One function of the work then, is to manipulate the context and stimulus to facilitate the foregrounding of the phenomenon or make the phenomenon “stand out” to a subjective consciousness that may or may not be habituated or trained to attend to such phenomena. This outcome is intended to allow the audience to experience their own subjective response to these conditions and in this way gain some knowledge of the phenomena. This form of knowledge stands beside other forms of knowledge about the phenomena presented in written form elsewhere in the thesis. In both instances, the knowledge is constructed reflexively just as are the formative experiences themselves, whether these are experiences of reading or of listening and engaging with an artwork. A concrete example of a knowledge-oriented form of artistic intervention that attempts to direct the audience to such experiences within an ecologically coherent context is seen in the practices of soundwalking (Westerkamp, 2001) or deep listening (Oliveros, 2005) in which a structured interaction with the environment is guided by the artist.

Perhaps a more realistic explanation of the motivation for the work is the pleasure I experience in making things and listening. However, this pleasure is itself linked to the context of Schaefferian translation leading to developing new sonological competencies that are of use and value to me as a researcher. In previous gallery work I have explored aspects of audible space by inserting abstract and concrete sound material into everyday found objects displayed in the gallery (*Soniferous Objects*, Australian Centre for Contemporary Art, Melbourne, 2000), or by inserting similar material into the built environment (*Motion*, St

Katharine Docks, London, 1998). In a theatrical context such as *Ghost Quarters* I have worked with the spatial presentation of sound material, including spoken word, in a way that seeks to highlight the acousmatic aspect of the material itself. Rather than resulting from loudspeaker presentation, this conception of the acousmatic is linked to the existence of sound as language, mental images or poetic images. Considered from this perspective sound loses its status as object or event and becomes pure effect.

In Augoyard's catalogue of sonic effects, the entry on *sharawadji* tells us that the expression was brought back to Europe by seventeenth century travellers to China and that it denoted an unexpected perception of beauty in the absence of any discernible order or arrangement (2005, p. 117). The example he gives is of the historical attitude of the Chinese to a beautiful garden that strikes "the imagination because of its absence of design ... in which case it is said that its *sharawadji* is admirable". Augoyard notes that this "absence of design" conceals a "virtual order" by which we can assume he is referring to an immanent process or abstract structure (Deleuze, 1968/1994, p. 185) out of which the effect is actualised.¹⁴⁴ The *sharawadji* effect is a "brutally present confusion [in which] we lose both our senses and our sense" (Augoyard & Torgue, 2005, p. 117). These images resonated with my experiences of both natural and manmade soundscapes of great complexity in which foreground elements were rare or absent, leaving a seemingly infinite set of sounds spatially dispersed. Sound environments such as the dawn chorus in a rainforest, the footpath in the centre of a large city, the entry hall of a major urban railway station or large multi-storey shopping centre all feature in my aural imagination. I had also had similar experiences listening to the output of a computer algorithm that used pseudo-random number sequences to determine the pitch, loudness, duration, onset interval and timbre of several streams of

¹⁴⁴ I make the assumption that Augoyard's use of Deleuzian terms is calculated. This is based on several references to Deleuze's texts in the endnotes and in his explicit statement about Deleuze being a key teacher and formative influence on his methodology made in the correspondence in Augoyard (n.d.).

synthesised sound. In these experiences attention oscillates between object and sequence identification and immanent virtual order. From a sound design perspective this experience raises anxiety about a potential “negation of compositional craft” (Augoyard & Torgue, 2005, p. 118) and a descent into “meaninglessness”. However, we see a recuperation of the value of this experience in the use of chance procedures in the works of artists such as John Cage, and this aspect of the *sharawadji*, a potential that “paradoxically can be completely fabricated” is a key element of Augoyard’s definition of the effect.

One example of this form of fabrication that informed the development of the *Sharawadji* installation is the careful design resulting in an impression of disorder as an element of traditional Japanese design (Juniper, 2003). A sonic example of this in garden design is a device known as the *suikinkutsu*—a water-filled resonant ceramic enclosure that is buried and covered with stones, often located near a stone water basin. When water enters an aperture at the top or condensation within the vessel drips into the water below, the *suikinkutsu* produces a resonant sound that is difficult to locate and an apparently random sonic occurrence that appears to have no discernible cause (Yoshikawa, 1990, p. 93). This design represents a distillation of some of the features of the *sharawadji* effect. The sound itself is a mixture of the banal (a drip) and strange. Its strangeness is contributed to by its spatial ambiguity (ubiquity/delocalization) and its unique reverberant and resonant qualities: it appears to be “coming from an unknown and uncontrolled elsewhere”. The sound is decontextualised (Augoyard & Torgue, 2005, p. 37) or inserted incongruously into the soundscape, resulting in a “rupture of meaning”. The *suikinkutsu* demands an active or dynamic listening engagement: its momentary presence alters the listener’s perception as they seek out its source and are then confronted by the *actualised* soundscape in all its complexity “and this tension, the sustained and contained attention to what is presently taking place, to

the emerging sonic form is mixed with pleasure and animates it". The suikinkutsu is a distillation but is of a different kind to sharawadji, which unlike the simplicity and sparseness of the suikinkutsu, is a complex confusion. Augoyard points to the links between sharawadji and Kant's definition of the sublime of nature, which is characterised by a "chaos ... and most irregular disorder". The sublime, unlike the beautiful—which is a property of the objects of nature—is more an effect on or in our "attitude of thought which introduces sublimity into the representation of nature" and gives us pleasure (Kant, 1790/1914, p. 104). It is this characteristic of the sublime presented by sharawadji that challenges the interior–exterior boundaries of the self. Augoyard notes that this is like the characteristic of sound itself to flow around obstacles and penetrate the ears, which are without defence.

As Augoyard also makes the assertion that in the sharawadji effect "the sound material loses its sense", sharawadji is "a circumstantial effect of sense and going beyond sense" (2005, p. 119). In Kant, "the sublime ... is to be found in a formless object, so far as in it or by occasion of it boundlessness is represented", "the beautiful as a concept of Understanding ... is bound up with the representation of quality" whereas the sublime as a concept of Reason, is bound up with quantity (Kant, 1790/1914, p. 102). My design in response to these ideas, and as a heuristic first step, sought to somehow identify the perceptual primitives of sound and present them *en masse*, thereby in creating a "formless object", in a spatial context that stimulates an active engagement on the part of the listener. As I discuss below, this was a useful but naïve approach, and the materials developed in various irrational and subjectively chosen directions.

Sound Design

The perceptual primitive of sonic experience has been variously identified as an object, an event, or a gesture (Gaver, 1993a; O'Callaghan, 2009a; Rosenblum, 2004; Smalley,

1997; Van Valkenburg & Kubovy, 2004). Each of these ideas was assessed through imagining a minimal primitive that might be of sonic interest and as a unit in a larger structure may be built up to form a dense mass of formless sound suitable for manipulation with a focus on an outcome of sharawadji.

First, the object: in ordinary listening, a sound and the object linked to it as its cause are usually conflated (e.g. a dog bark: Q: “what was that sound”; A: “just a dog”). A sound that drew in images of things experienced in the world might not be primitive enough for my uses, although in typical sharawadji situations the soundscape is made up of many identifiable sounds thrown together in a mass. However, the object referred to by the sound of the dog is not just the physical material creature—there is also a pure sound object: *the bark*, or in its indefinite abstract sense as a class or type, *a bark*. In comparison, Schaeffer’s conception of the sound object (Chion, 1983/2009, p. 32) that arises as a result of reduced or focused non-causal listening, which is valued for its intrinsic sonic properties, gets closer to my idea. However, it would be unreasonable to expect Schaefferian reduced listening as a requisite skill for my gallery audience (for a discussion of Schaeffer’s modes see page 308 below). Still, Schaeffer’s notion of the “suitable object” approaches what I am looking for. The sound objects suitable for use as musical objects in Schaeffer’s programme have several requisite characteristics (Chion, 1983/2009, p. 106). They must:

- be simple, original and at the same time easily “memorable”, with a medium duration; therefore be balanced typologically
- lend themselves easily to reduced listening; therefore not be too anecdotal or too loaded with meaning or emotion
- combined with other sound objects of the same genre, be capable of producing a predominant and easily identifiable musical value.

Without going into the complex system of Schaefferian typology, a balanced sound object is one that has enough variation during its life to make it interesting but not so much change as to make it not unified or discrete. Schaeffer notes that each sound object when examined closely is actually made up of a series of micro-objects connected in a structure (Chion, 1983/2009, pp. 58, 63) and conversely when two or more objects are assembled they form a larger object/structure (for example, one metal tin struck makes a “ting sound” with a sharp bright attack and a briefly sustained inharmonic resonance; many “tings” combined is a “crash” or a “clatter”. This relationship is referred to by Schaeffer as context/contexture (the inter- and intra-object relationships respectively). However, this tendency for chains of sounds to become micro-narratives or events is perhaps both counter to my objective of finding suitably primitive material and an inescapable aspect of the sound object.

So we now come to consider the second category of perceptual primitive of sonic experience—the event. As we have seen, combinations of sounds seem to belong to causal chains or events: for example, a clatter of falling cans. The event model is also a useful conceptual frame for a perceptual primitive for sound. Events usually occur at some distinct location over a determinate period of time; they involve the interaction of some causal source or sources and are characterised by change over time (O’Callaghan, 2009b, p. 37). In addition to these observations, as previously mentioned, Merleau-Ponty pointed out that what we hear is not defined by the limitations of our auditory sensory apparatus, but that sounds (or more broadly objects of perception) are multi-modal entities: “one sees the harness and brittleness of the glass, and when, with a tinkling sound, it breaks, this sound is conveyed by the visible glass” (2002/1945, p. 267).¹⁴⁵ The idea of sound events or articulatory events is common in speech perception research, and as Rosenblum (2004) points out, listeners are not only likely to identify sounds as events involving objects but they are also very sensitive to (and can

¹⁴⁵ See also the McGurk effect in McGurk and MacDonald (1976).

accurately describe) properties of the material causes such as size and shape, and to the dynamics of their interaction: position, velocity and mass. This sensitivity to the dynamics of interaction of objects within events points to the final category of perceptual primitive—the gesture.

If, as it seems, on a simplified primitive level, sounds are perceptually associated with events involving objects moving or interacting in some way and what we hear are the dynamic properties of those interactions, these terms may all be bundled up in the concept of gesture. This aspect of sound was identified and used as a descriptive tool and to some extent as a compositional principle by composer Denis Smalley (1997). Smalley noted that in the electroacoustic studio sounds may be recorded, modified or synthesised resulting in material that was perceptually closer to or more removed from some primitive gestural cause.¹⁴⁶ Sounds too far removed from conceivable gestural causes might not in Schaeffer's terminology be suitable musical objects, and in fact looking at the balanced objects within Schaeffer's typology there is a direct correspondence to forms of gestural cause (Chion, 1983/2009, pp. 124, 195). Smalley defined a gesture as "*an energy–motion trajectory which excites the sounding body*". Reaffirming Merleau-Ponty's observations, Smalley notes that the "gesture-process is tactile and visual as well as aural. Moreover, it is proprioceptive [and] in this way sound making is linked to more comprehensive sensorimotor and psychological experience" (1997). The important point for Smalley is that the gesture referral process runs in both directions: from the listener to the source gesture and from the causal gesture to the sound. In this way, the gesture is the phenomenal correlate reflexively constructed.

The result of this analysis is that it was assumed that in order to obtain materials that focused the listener's attention away from structuring or compositional concepts or meaning bearing relationships among sounds it would be useful to aim for sounds that could be easily

¹⁴⁶ Smalley uses the term gestural surrogacy.

described in terms of gestures. And so it was that among the 459 sounds prepared for the work, 264 had file names such as thump, bang, rattle, rustle, scrape, drip, roll, spin, wipe and scrabble. In each of these categories there were multiple versions of each type of gesture often differentiated by length or material—for example, “LongWoodScrape-3.wav”—thus achieving Schaeffer’s requirement for variation in perceptual value.

Two other concerns influenced the sound design: context and spatial complexity. As Augoyard’s work on sonic effects demonstrates, the physical context often has a determining influence on the reception of sound both in terms of the physical structure of the environment and the resulting ambience. Working on the assumption that the attitude of the listener can be more consistently determined by some contexts in which the sounds are placed, than in others, and that some spaces are formed by more consistent social conventions, the art gallery was selected as just such a conventional site. Manipulating the conventions of the art gallery is a central theme in what is known as *installation art*. Installation art expands the exhibition practice of sculpture in three ways: “first, the aspiration to create a more direct involvement between the viewer and the work of art; second, the observation that installation art presents the viewer with fragments that must be explored and assembled in a manner that ‘activates’ the viewer; and, third, the expanded sculptural tactic of deconstructing the traditional concept of the precious work of art via the use of found objects and materials”. Contemporary installation art plays with and relies upon “the institutional fabric of the art gallery/museum”(Coulter-Smith, 2006). This institutional fabric coalesces a range of attitudes, behaviours and representations. Works presented in the gallery, even though they may be assembled from everyday objects, are represented or framed as things of value worthy of close attention. The gallery, despite being opened up to engage the very young and house audiovisual media, is still largely a site of quiet contemplation. Installation practice, as noted,

promotes a dynamic engagement with three-dimensional works, rather than, a static observation, and this in turn highlights the role of the viewer in the construction of the work. These institutional conventions have led to the gallery being a favoured (though not exclusively) site for so-called sound installation art (or just sound art) often developed by practitioners who might otherwise be recognised as musicians, dissatisfied with the restrictive conventions and architecture of the concert hall.¹⁴⁷ It is just this context defined by its attitudes, behaviours and representations that makes the gallery an obvious location to experiment with a distilled or reduced version of the sharawadji effect. The obvious alternative to this approach is to use an already complex environmental location, but in this case, the desire to stimulate a particular aesthetic engagement with sound (or sonic effect) rather than just any engagement was paramount. It is likely that a work positioned in an urban or other ready-made environment would be subject to a greater diversity of readings due to the intersection of habitual or goal-oriented engagement with the environment and the heterogeneous aspects of “inhabitant expression” defined by the “moments of lived experience”(Augoyard) of the occupants of such a space. Rather than sharawadji, this would more likely result in effects of incursion and intrusion of unfamiliar sound material into an otherwise familiar ambience (Augoyard & Torgue, 2005).¹⁴⁸

The discussion of the gallery space presented above explains to some extent the important choice of context for the work. It also shows how this context within the history of installation art brings with it certain attitudes towards the use and perception of space by gallery visitors. Installation art encourages a dynamic engagement with the gallery space as a region in which the work is sited and through which the visitor negotiates their interaction and

¹⁴⁷ For example, the works cited above by Alvin Lucier. This aspect of sound art and its definition in contradistinction to its works being seen as music is critiqued by Neuhaus (2000/2011).

¹⁴⁸ This speculation will likely form the basis of a subsequent research project that will attempt to combine the various methodologies of this project with a more functional objective in sonic intervention for example in digital signage.

reception of the work. In the sharawadji effect, the listener is situated in among the profusion of sounding objects or noises—the sounds are not presented or projected from some idealised surface or framed between loudspeakers or behind a screen. This mirrors the way in which installation work typically breaks away from the idealised conventional pictorial spaces of the smooth gallery wall and containing frame. Following Georg Klein's definition, this work falls into the category of spatial sound works (*raumklang*) (2009). The work takes the description of a complex soundscape in terms of multiple sources with unique directivities and orientations to the listener, and attempts to demonstrate this description in sound utilising a limited set of technical resources.

The design approach adopted in this project for the simulation of spatial complexity attempts to emulate the construction of a naturally occurring soundscape made up of many sources at various spatial dispositions relative to the listener—each source with its own unique frequency-dependent directivity and orientation relative to the listener. For practical implementation it was necessary to simplify this ideal. The first simplification was to design a speaker with the minimum number of channels and driver units that was still able to achieve some complexity in terms of directivity. Other approaches were examined and considered, including the dodecahedral designs used for instrument simulation, synthesis and musical performance (Cook & Trueman, 1999; Trueman, Bahn, & Cook, 2000). In this approach the directivity of acoustic instruments is measured and then simulated in staged performances of electroacoustic music using physically modelled synthetic instruments with extended performance capabilities. In recent years this approach has been developed to create large ensembles of laptop computers each with a hemispherical directivity controlled acoustic source on stage, thereby mirroring the acoustic distribution of sources in a typical instrumental ensemble (Trueman, Cook, Smallwood, & Wang, 2006). A more modest

approach to enhancing the diffusion and thereby immersive qualities of surround systems in cinemas using dipole designs is proposed by Holman (1990) and the dipole design is also evaluated for music reproduction in the home and studio by Linkwitz (1992). These approaches all contrast with attempts to recreate a sound field on a plane or other surface such as is attempted in the various approaches to wavefield synthesis (Boone & Verheijen, 1993) or ambisonics (Gerzon, 1985).

Speaker design and measurements

In the design solution for this project the total number of sources and their spatial distribution are constrained by the practical limitations of rigging loudspeakers, the number of discrete channels of playback available and the cost of construction. Various tessellations of a sphere were evaluated and the tetrahedron or quincunx was selected as the geometry offering the best trade-off between channel count and acceptable directivity coverage. The dihedral angle of the tetrahedron is approximately 70.5 degrees yielding an angle between axes of adjacent loudspeaker drivers, mounted at the centre of each of the four faces, of 109.5 degrees. When compared to the mid-frequency beam angle of the selected 100mm-diameter loudspeaker drivers (sound pressure level 10 dB below on-axis level at approximately 50 degrees off axis), this provides acceptably uniform coverage when all drivers are fed with identical signals.

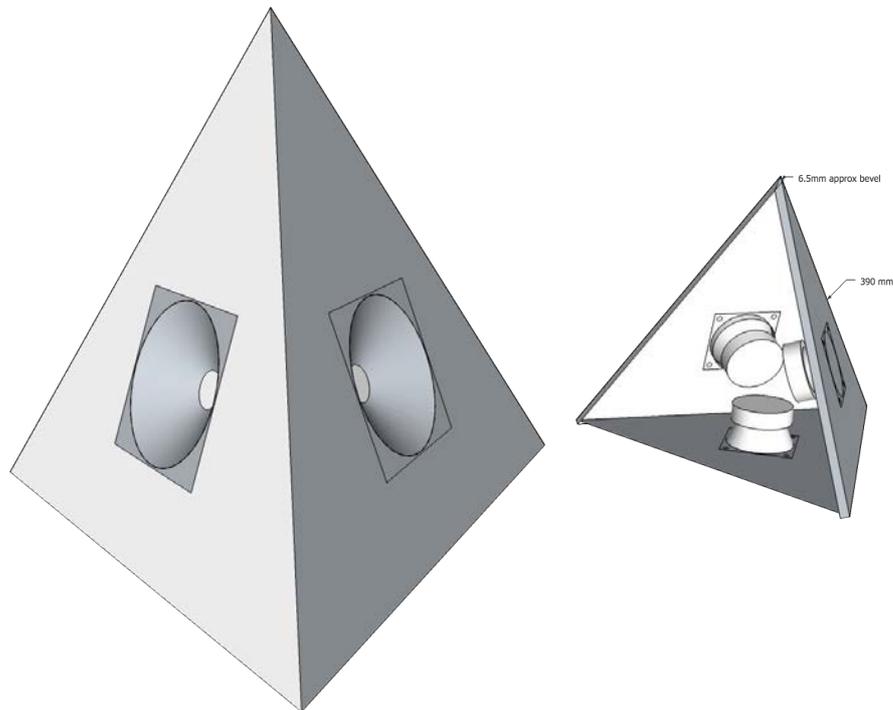


Illustration 4.7: A four-channel, tetrahedron design was selected as offering the best trade-off between channel count and acceptable directivity coverage in order to achieve the complex sound-field intended for the installation. This image shows the 3-D construction model used in the loudspeaker design. Eight tetrahedral loudspeakers were constructed for the installation giving a total of 32 audio channels.

3-D modelling showed that the minimum edge length to prevent physical interference between the drivers was 390 mm. This gave the enclosures a volume of just under 7 litres. The selected co-axial two-way loudspeaker driver units (Response model CS2370) are designed for use in cars and have a relatively high Qts value of 1.015, indicating optimum low-frequency performance in an infinite baffle. Placing four drivers in a sealed enclosure would result in reduced low-frequency output, but this compromise was deemed acceptable for the application. The loudspeaker enclosures were constructed from glued 6mm, medium-density fibre board with internal bracing, and fitted with a 6mm internal female thread for hanging or stand mounting. The enclosures were filled with polyester fibre wool to reduce internal resonances (the enclosures were found to resonate slightly at around 500Hz).

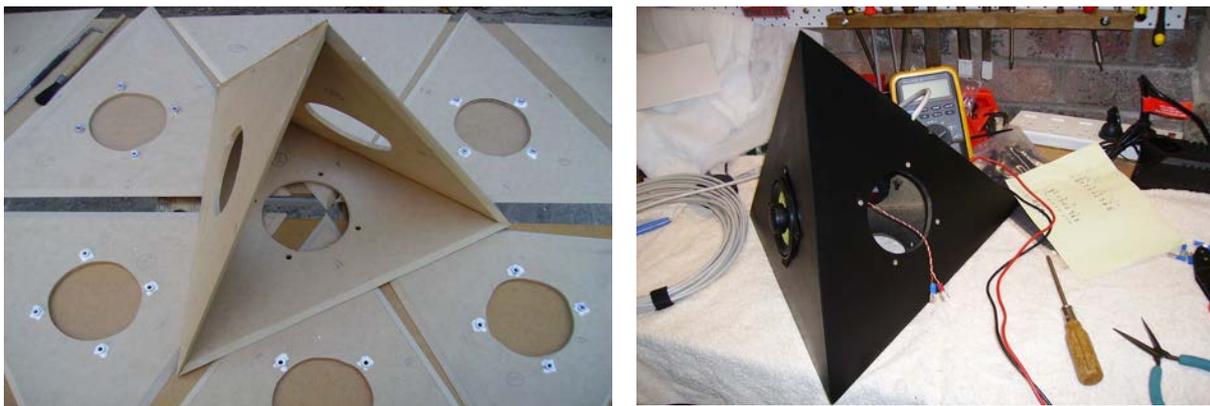


Illustration 4.8: Loudspeaker construction in progress. An edge length of 390mm resulted in an internal volume of just under 7l resulting in reduced but acceptable low-frequency output. Enclosure resonance at around 500Hz was damped with polyester fibre.

The frequency response and propagation pattern of the loudspeakers were measured in the anechoic chamber in the acoustics laboratory at Sydney University using the swept sine impulse response method (Farina, 2000).

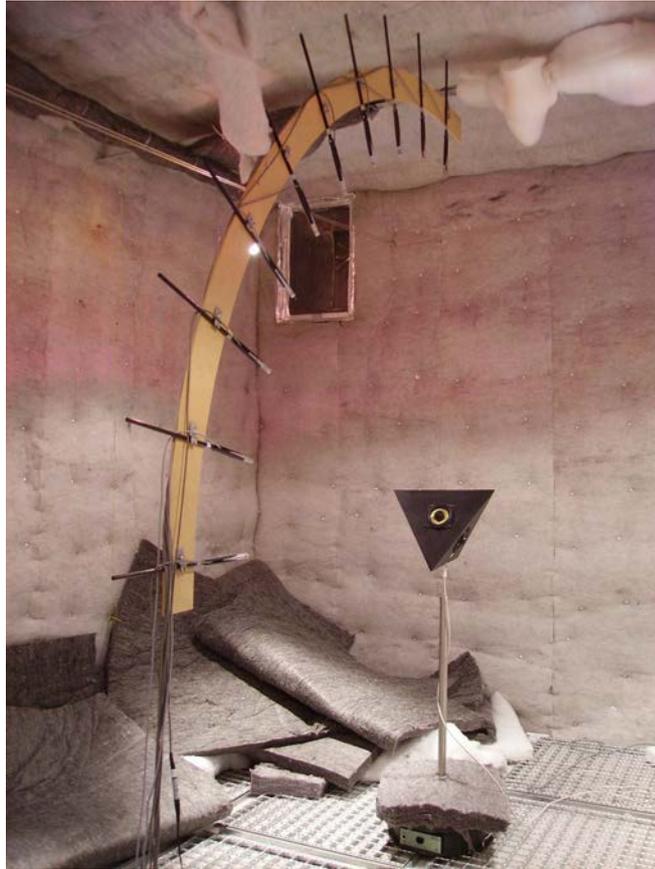


Illustration 4.9: Loudspeaker measurement setup

Measurements were made at 10 degree intervals of azimuth and elevation in half-hemisphere of the radiation pattern. This process was automated and made efficient by making 10 simultaneous recordings with microphones placed at 10 degree intervals of altitude and using the Brüel & Kjær type 9640 turntable synchronised with the recording system. This method was proposed by Dr Densil Cabrera. Sweep recordings were convolved using the Aurora measurement plugins for Adobe Audition (Farina, 2011).

Illustrations 4.10–4.12 show the on-axis frequency response of a single driver, the octave band polar response and a 3-D plot of the absolute pressure and phase propagation pattern at 1000Hz. These data indicate that although the performance of the system is not of a particularly high standard it does provide adequate on-axis reproduction and a reasonably uniform directivity in the low and mid-bands.

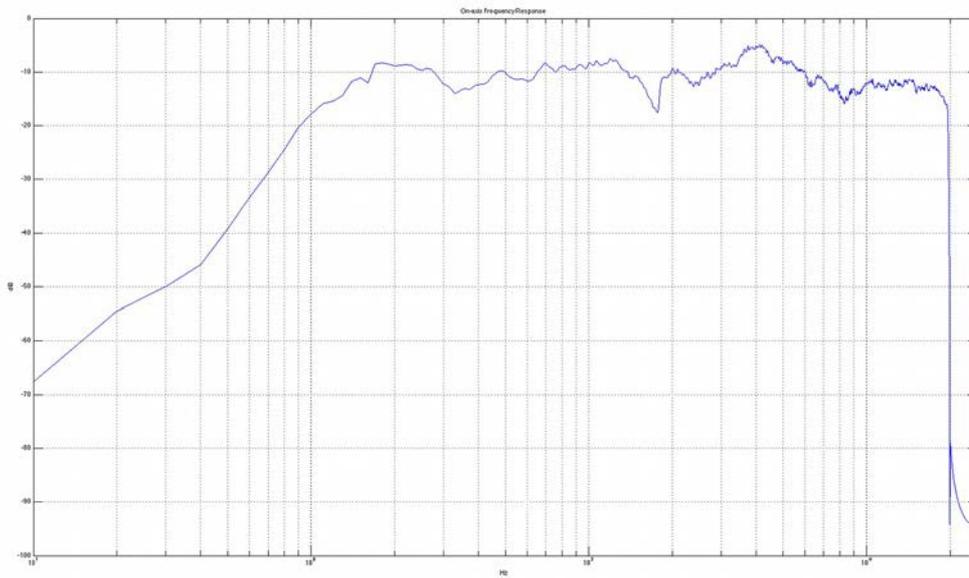


Illustration 4.10: On-axis Frequency Response of Sharawadji Loudspeaker

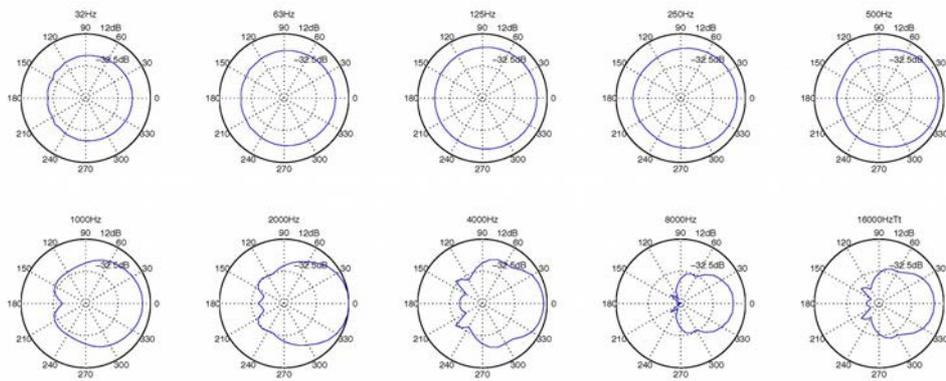


Illustration 4.11: Octave-band polar response of sharawadji loudspeaker

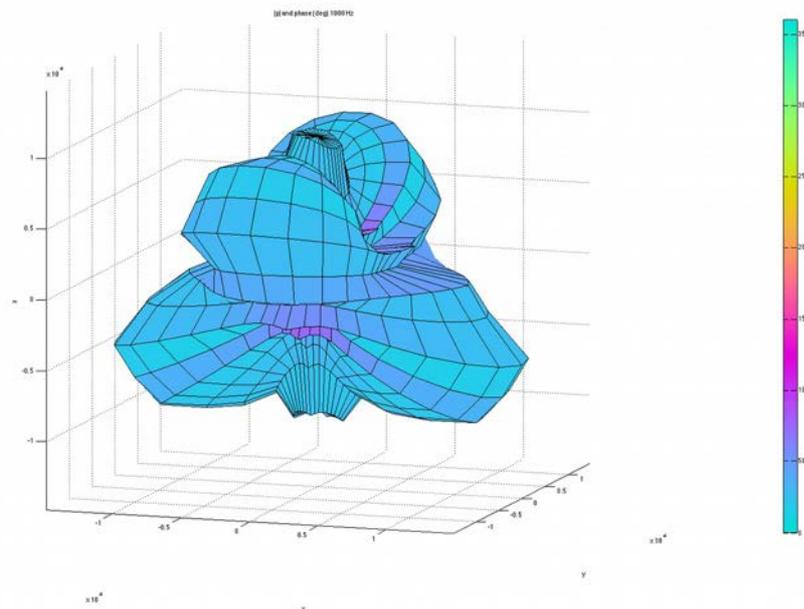


Illustration 4.12: 3D propagation pattern at 1kHz of sharawadji loudspeaker

Although the spatial resolution of the system is not adequate to reproduce the complex propagation patterns of real-world sources, further work could be done in exploring the potential of the system; for example, in the design of dynamically “steered” synthetic sources.

System design and production

Eight tetrahedral loudspeakers were fabricated, giving a total number of discrete channels of 32: four per enclosure. This number was chosen as I had available a 32-channel audio interface and the available gallery space (5m x 5.3m) would allow a circulation space of 1.5m between loudspeakers when suspended in a grid. Two 16-channel power amplifiers were constructed using low-cost, low-power, class-D modular amplifier modules.

Sound palette

Sounds for the project were recorded in various locations. The gesture-type sounds were recorded using a collection of wooden and plastic objects from my children’s toy box, plus a diverse collection of metal, wood, textile and other fabricated objects that I have acquired for the foley studio in which I teach post-production for film and television.

When experimenting with early prototypes of the tetrahedral loudspeaker I had played a selection of birdsong recordings. These sounds produced a particularly powerful spatial impression. At the time, I speculated that it was the presence of different natural reverberation in the recordings superimposed on the reverberation of the listening room that created this effect. However, it may also be attributed to the schematic apperception of bird sounds and their usual disposition and dynamic properties. I added to my existing collection of bird sounds by recording in a small aviary containing 20–30 birds. With all eight loudspeakers set up for testing, the 32 channels of massed bird sounds created an overwhelming effect and it was decided to retain this material in addition to the gesture sounds. This serendipitous discovery suggests that *sharawadji*, being an effect of complex sonic environments, finds complexity in the contrast between sounds in which intrinsic and extrinsic properties are in competition for our attention. Perhaps, where gestures elude our naming as things but rather remain as events or pure gesture (bangs and thumps) they are heard in contrast to the voices of things with meanings in our ecological repertoire.

Following this discovery, one final group of sounds, with properties halfway between gesture, sign and signal, were produced. These sounds were created in the bathroom with a set of plastic toy seals. These hollow objects include a fipple or whistle channel and edge at the top so that when they are placed in the water they make a turbulent whistling sound as they rise and fall. Each time the object is moved it creates a unique whistle gesture with unstable pitch and amplitude. A large number of these sounds were recorded and when played *en masse* created a strange ambiguous watery field that seemed to have the properties of respiration, birdsong and a wind instrument all at once. Once again, this sound was found to be very effective and was included in the final project.

In total, 459 sound files were prepared with durations lasting from half a second through to 30 seconds. These included 50 wood and plastic toy box gestures, 214 foley gestures of various materials, 64 bird sounds and 131 water and whistle sounds.

System schematic

The system, as shown in Illustration 4.13, was housed in 19" equipment racks. The loudspeakers were fitted with CAT5 four-pair cable which was connected via RJ45 connectors to a Krone terminal field and then to the power amplifiers.

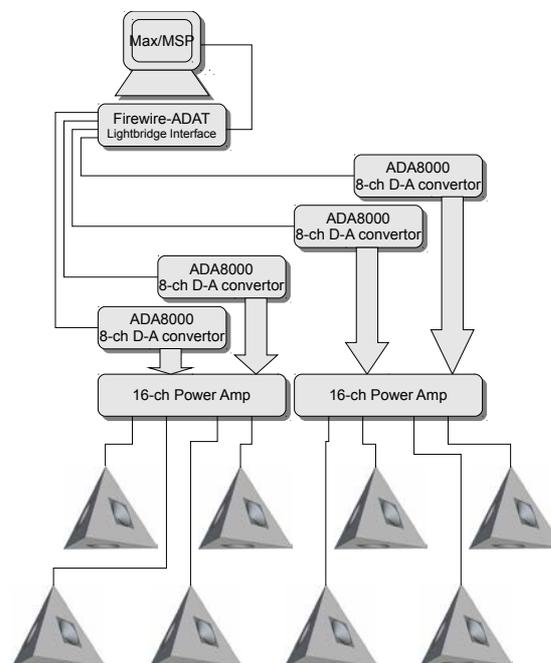


Illustration 4.13: Sharawadji system schematic

Software design

The software design, as indicated in Illustration 4.14, re-used the Max/MSP-based show control cue-sequencing system employed for *Ghost Quarters*. In this system no intensity panning was used as each sound file player addressed the four discrete outputs for each loudspeaker. A similar approach to randomised playback rate and file selection within a

specified range was employed. Eight players each with eight cart-type playback channels gave a total simultaneous channel count of 64, feeding 32 separate outputs. The system was configured to automatically load on boot-up and play continuously for unattended operation.

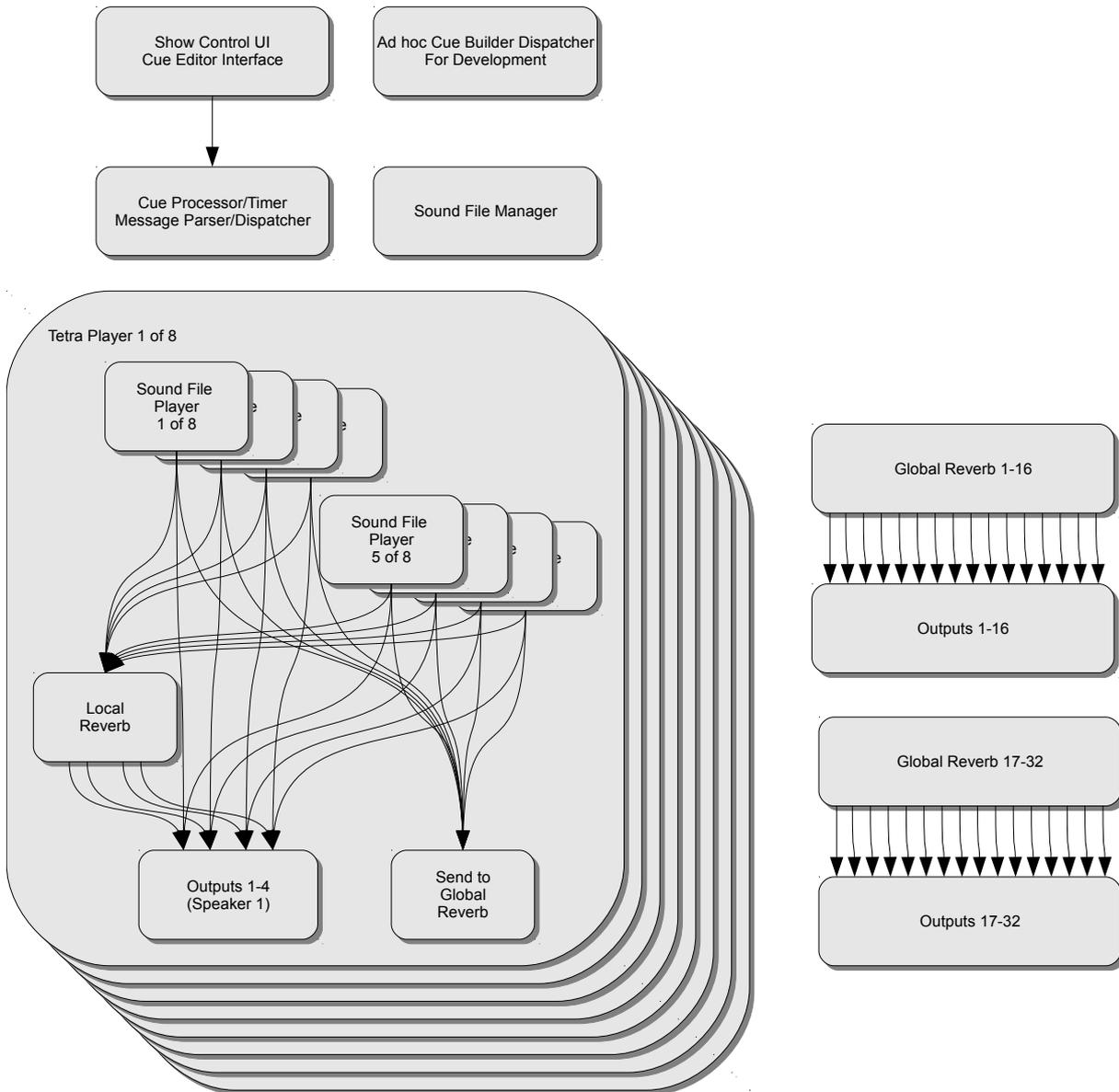


Illustration 4.14: Sharawadji software schematic. Eight, eight-channel playback modules provide 64 channels of sequenced-randomised playback. The inclusion of a local and decorrelated 32-tap global reverb enhances the immersive qualities and coherence of the sound field.

Two artificial reverberator designs were implemented, both based on the reticulating all-pass (Moorer, 1979), plate-class design after Griesinger (reported by Dattorro, 1997). This

design was modified by expanding the network of power-conserving comb-filter output taps so that for the local reverb included in each playback module a total of four de-correlated outputs was available for each loudspeaker (Stautner & Puckette, 1982). The selection of output nodes and comb-filter delay times was made by ear, selecting for smooth, uncoloured reverberation. The second, global reverberator was provided by two independent units with 16 de-correlated outputs each. These two reverberators provided a total of 32 individual de-correlated outputs; one for each driver unit. The global reverb could be fed from any or all playback modules. This arrangement provided a very diffuse and immersive effect in the gallery space, which worked particularly well with the water and whistle sounds. In addition to an extended section of whistle sounds feeding the global reverb with a decay time of approximately one second, several cues were designed to send a single impulsive sounds to the reverb with a decay time of around six seconds. This latter effect was not subtle and produced a strong delocalization effect (Augoyard & Torgue, 2005, p. 38) that was repeatedly observed to cause members of the gallery audience to turn their heads in confusion and surprise.

Final score

The final score was for a simple overlapping episodic structure. There were five episodes, each lasting for approximately nine or ten minutes and including three minutes of overlap with the preceding episode, three minutes of one class of sound, followed by a further three minutes of overlap with the following episode. The final episode included elements from each class of sound: toy box gestures, birds, foley gestures, and water and whistle sounds. It was assumed that there would be a diverse range of audience engagement with the work (Falk, Dierking & Boyd, 2011), and therefore the piece should not rely on an extended period of engagement for its effect. However, for those that did stay for 45 minutes or more, there should be enough variety to hold their attention. Hopefully those whose initial tendency

was for an engagement of 30 seconds or less would be drawn into the space by whichever moment in the score they happened to enter. The design meant that it was likely they would enter at a time of transition where new material was emerging that would encourage them to stay. This behaviour was noticed in gallery visitors on a few occasions. Variety was provided in terms of the sound material itself and in terms of the density of presentation.

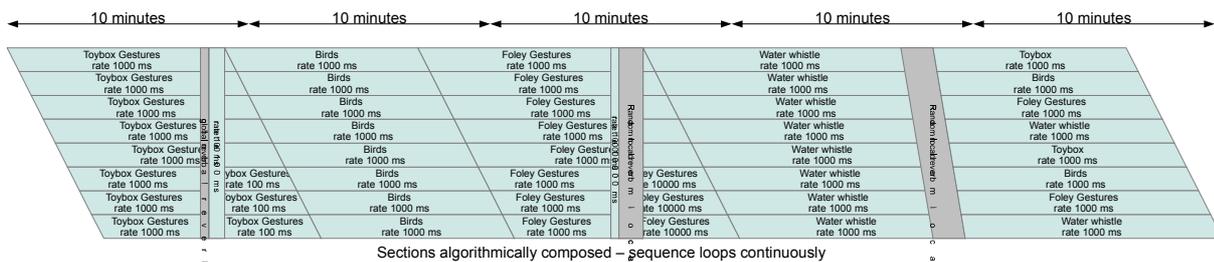


Illustration 4.15: Sharawadji final score. The compositional design aimed for variety in terms of the sound material itself and in terms of the density of presentation. This strategy targeted periods of engagement ranging from 30 seconds or less, up to the full 45 minutes of a complete cycle of the work. Each rendition is unique due to the aleatoric playback process with a fixed overall structure.

Installation

The eight tetrahedral loudspeakers were hung at heights varying from around 1.5 to 1.8 metres on a grid of approximately 1.5 metre centres. The speakers were lit following gallery conventions with individual spotlights highlighting their status as exhibitable objects and creating a visual asymmetry (see Illustration 4.6 on page 274). This layout was intended to encourage the audience to move in and among the loudspeakers, changing their perspective and allowing close-up listening; thereby breaking down the idea of an ideal listening position or “sweet spot” typical of spatial audio systems. Following the discussion of spatial sound art on page 279, this dynamic engagement, typical of installation art practice, was also intended to break down the convention of an idealised or transcendental world-space and provide instead a concrete empirical region-space in which to confront the sound material. This was

intended to provide a more experientially vivid sense of immersion to facilitate the sharawadji effect.



Illustration 4.16: Sharawadji installation in progress showing installation technicians Richard Mills, Matthew Hiley, Rachael Mackay, Kelly-Marie Gomes

As the exhibition shared the gallery with three other works, the gallery space was partitioned with thick wool theatrical curtains. It was assumed that the sound from the street and from adjacent gallery spaces would permeate the exhibition area and that these sounds would be incorporated into the work, extending the spatial scope of the effect. The wooden floor above was the source of occasional footsteps passing overhead and these were particularly effective when merged with the thumps and bangs of the wooden toy box sounds in the work. Small stools were placed in the exhibition space to encourage extended listening.

Evaluation

Over a two-week period, not including the opening night, the gallery received 104 visitors. I engaged in naturalistic audience observation as part of normal professional practice

and as this process was neither systematic nor reviewed for ethical research practice I will not report on this in detail, apart from the observation that audience behaviour matched that reported in the literature and as predicted as a basis for the compositional design. This behaviour was characterised by three typical modes of engagement. The first was those gallery visitors that move rapidly through the gallery spending 10 – 60 seconds briefly observing each work. On several occasions, visitors of this type stopped and walked through the loudspeakers rather than passing by through the access way. The second and most common, type of observed visitor typically spent around 5 minutes in the space, long enough to hear at least one episodic transition in the work. The third type stayed for more than 10 minutes and used the seats provided as well as moving through the space.

I informally requested a group of key peer informants to provide candid feedback. Once again this process was engaged in as a part of normal professional practice and was not systematic or reviewed for ethical research practice. Rather than provide a detailed analysis of this feedback I will briefly summarise in the discussion below, two listening attitudes that appear to be constructed in the context of the work.

Discussion

At this point in the thesis it is appropriate to draw together several themes from the preceding chapters to illuminate aspects of the concept of radical sound design that are relevant to this work. As Michel Chion points out, the mode of listening adopted or reported by a listener is determined by its object as an object of auditory knowledge (Chion, 1990, p. 25). The existence of different modes of listening suggests the different modes of existence of sound. The idea of a mode of listening has been variously framed as a hearing intention by Schaeffer (Chion, 1983/2009, p. 27), a listening relationship by Smalley (1996) or a listening style associated with a subject position by, Clarke (2005). In each of these systems a

perceptually oriented approach is taken to exploring the experience of sonic phenomena, and in each a three-fold relationship between a listener, a sound source and a cultural and ecological context is implicated in what is heard. The summary of listening modes on page 62 inspired by Schaeffer suggests a set of overlapping and interpenetrating “moments in a circuit of everyday listening”. Together these approaches include six inter-related aspects of listening and by reflexive correlation six classes of sonic entity: (1) indexes to objects and events, (2) perceptions not consciously organised, (3) sounds heard or qualified according to a subjective listening intention, (4) semiotic units, (5) sound objects or pure events and (6) affects or memories. According to Schaeffer, most everyday listening stays in what he considers the objective quadrants that are concerned with identifying things in the world (1), and significations for example in language or music (4), in most cases we are *listening* in order to *comprehend*. Occasionally our focus changes to the subjective modes in which we *perceive* the broad context of the sonic environment, which is usually filtered out by our selective attention, and we *hear* the specific sonic details of something we have actively selected—perhaps as part of some activity—and become aware of how our attention is shifting.

My experiments with this work have suggested that the sharawadji effect is mainly concerned with Schaeffer’s second, subjective, concrete mode of perceiving, of being aware of both perception and the “rough outlines of objects”. However, a sustained sharawadji must divert the ear into the other three modes without setting up extended simple structures of coherent meaning or allowing time to dwell on the beauty of single sounds. This speculation suggests that the sharawadji effect is extremely fragile, and the informal comments of several listeners attest to this.

As suggested above, I noted two listening attitudes associated with the work and these echo the two classes of listeners constructed in the interviews in Chapter 3. In both of these

listening attitudes, the visual impact and physical layout of the installation was important. The lighting and elegance of the installation seemed to frame the listening engagement. The first listening attitude is characterised by attention to the apparent motion and spatial presentation of the sound material. This attitude is also aware of a sense of perspective—close-up and distant, and engaged with moving through the space. This type of listener is perhaps characterised by a particular type of expertise associated with the subjective modes and an interest in both listening and sound materials.

The second attitude is attentive to emerging patterns within the sound, and to apparent meanings and associations within and between individual identifiable sounds. This type of listener exhibits an expertise in interpretation and an interest in the objective and shared, culturally relevant forms and values of the sound.

The design apparently had both these listening attitudes in mind without having clarified them beforehand. Perhaps the emerging interpretation of the interview data had influenced this embryonic knowledge. However, the discussion above of the approach to the design, concerned with isolating a model of perceptually primitive sound gestures; and the approach to production that admitted bird sounds and the halfway gesture–signal whistle sounds, demonstrates how this knowledge played out in the development of the work. My assessment of the finished work is that sounds of the gestural type provided an ontologically engaging pallet for listeners of the first attitude and that the clearly identifiable material confused or complicated their engagement. Conversely, for those of the second attitude the concrete and abstract aspects of the apparently melancholy whistling, teeming birdlife and clatter of machinery and the environments and relationships they represented, were complicated by the confusing and anonymous gestures. This ontological and epistemological confusion aligned in my thinking and my listening with Augoyard's assertions regarding the

sharawadji effect's "brutally present confusion [in which] we lose both our senses and our sense". This summary is undoubtedly a drastic oversimplification of the infinitely complex web of attitudes, intentions and experiences of contemporary gallery attendees and their relationships to sound. However, consideration of the Schaefferian listening modes provides a way of understanding the variables that can be manipulated in the design of a spatial sound work, and shows that design occurs but not always *by design*.

Conclusions—What is Sound Design?

In this chapter I have outlined how an interest in the metaphysical structure of sound in terms of its ontology or modes of existence, and the resulting types of knowledge or epistemic frames that arise in these contexts, may be combined with a detailed practical approach to working with the physical and material means of production to create new designs to exploit the properties of the sound effect and its apprehension. This approach, when placed in a historical context of relevant sound works, begins to allow the formulation of a concept of sound design. By first considering what sound is, one may plan to employ it in a given context. However, during this process new understandings emerge just as new technologies and knowledge are brought to bear. In this way theory plus practice produce new knowledge and new perceptions and behaviours, and the sum of these processes can be described as a design process. There is a strong irony in the use of the term *radical* to describe this approach as its etymology implies getting to the roots underlying the topic. However, as we approach the roots we discover that rather than being grounded they are only relevant in the context of specific branches of knowledge, and as the roots grow so do the branches. This realisation is the key to my idea of a radical design approach.

In the introduction to the thesis I asked: "What sort of design strategy could be based on the concept of the sonic effect and what might result from this approach?" In the course of

two creative research projects, sound was considered in terms of its conceptual and perceptual dimension in the effects of the understanding. The workings of the sound effect were reflected back from the nineteenth century literary perspective of Thomas de Quincey and, in the process of attempting to harness spoken text in a theatrical context, we were presented with the formation of both the transcendental and empirical subject in the presence of voice. An experiment in the spatial presentation of sound involving new technical means exposed the reflexive relationship between sound materials and the complex structures of listening.

From this perspective, sound design is not the creation of new sounds or new acoustic events to perform a function in a given context for a given audience. Sound design is the discovery of sound anew, not just new dimensions of sound as a pre-existing domain of experience or knowledge. Similarly, sound design does not bring to bear listening expertise on a problem of communication, rather sound design is the discovery of listening. Radical sound design meets the challenge of the crisis of ambiguity in which there is no given context or audience; just singular constellations of effects. At the same time it is situated in a practical negotiation with collaborators and institutions. What these collaborators and institutions represent are bodies of expertise, ways of knowing and listening. Design is not the discovery of new potentials, revealing the previously hidden connections. Sound design can be the production of new effects, the actualisation of new singularities. As functional or instrumental design exercises, these projects could not be considered highly successful. However, it is as moments in an iterative cycle of research and arts practice that I have attempted to establish their value. This approach to sound design employs a type of auditory triangulation (Carter, 2001) involving making and listening with an ear for epistemic gaps or ambiguity and a critical attitude to the role of existing technologies in reproducing existing epistemic order.

CHAPTER 5 CONCLUSIONS

In this final, brief chapter I will map out what I understand to be the main contributions to knowledge made by this research and consider how it may serve as the basis for future research and practice.

At the outset the following questions were posed:

1. In what ways is the concept of the sonic effect useful for exploring the definition of sound?
2. How is the sonic effect evident in ordinary discourse on sound?
3. What sort of design strategy could be based on the concept of the sonic effect and what might result from this approach?

The overall research design combined a theoretical intervention into sound ontology, with an empirical investigation into accounts of listening experience, and a practical interrogation in the form of two research-led creative practice projects that expanded and developed the findings of the preceding studies. This design has produced a range of answers to the questions outlined. The project developed the idea of an *interdiscipline* as espoused by Pierre Schaeffer: that is, a discipline that defines its own objects of study and knowledge and does not rely on any one privileged discipline or domain of knowledge for its validity. As I understand it, this is one possible approach to the development of subsequent fruitful interdisciplinary research. This is an understanding I hope to test in future collaborative work.

Just as Schaeffer's experimental musical research drew on and contributed to aspects of musicology, psychoacoustics, sound technology and music composition, this project touches on various disciplines. It makes an initial contribution to the more contemporary field of sound studies situated within the humanities. It does this by re-appraising the work of pioneers in the field, Pierre Schaeffer and R. Murray Schafer in light of the concept of the

sonic effect. This concept, introduced by sociologist and musicologist Jean-François Augoyard, has previously been applied in the study of urban ambiences, but in my research it is expanded and developed as an effective tool for both sound studies and sound design. This theoretical work critically and creatively examined the ontology or mode of existence of sonic phenomena and is based on the post-structural theory of the *effect*, which I take to be the basis of Augoyard's approach. This key concept compares the phenomena of our experience with the notion of an effect, not as consequential to a cause but as a set of relations each specific to its context.

These theoretical concerns were then reflected and further developed through an analysis of verbal accounts of listening experience. These accounts, collected through semi-structured interviews provided a pool of material that allowed me to consider how the concept of sound is used and structured within ordinary conversation. This further elaborated and provided some empirical foundation for what a sound effect might be outside of the theoretical discourse developed earlier. The extensive analysis presented in this chapter considered sounds under the novel aspects of their actualisation, and the varied forms of reference by which sounds are invoked in speech. These innovative forms of analysis were supported by a new look at the more conventional concepts of listening and sonic experience and an application of Augoyard's repertoire of sonic effects.

Finally, having deconstructed or diffracted sonic phenomena through the various lenses of these analytical methods, sonic effects were explored and developed as the basis of a creative strategy in the field of sound design for performance and installed sonic art. In these projects, design was not approached as a strategy to achieve specific pre-planned outcomes in terms of a target user or audience experience. Rather, a more radical approach was adopted in which design was imagined as an attempt to interrogate not only sounds in their various

guises, but also technologies of sound production, and the flow of audible sense. The intended outcomes of this form of radical design are firstly a discovery of the materials and forms that are being manipulated, and secondly an experience in which audience (and creator) subjectivities are produced.

This approach puts a novel spin on the idea of research and development, which integrates the theoretical, empirical and practical and embraces the complex web of research-led practice proposed by Smith and Dean (2009).

The Sound Effect

In Chapters 2 and 3, I set out to discover in what ways the concept of the sonic effect is useful for exploring the definition of sound and how the sonic effect is evident in ordinary discourse on sound.

The concept of the *effect* deployed in this research is not susceptible to easy definition. Effects can only be traced out in their genetic conditions or in other words by observing how they are produced and what they produce. Although this idea was originated and first applied to sound by Gilles Deleuze it was Jean-François Augoyard who developed it into a coherent field of study. Augoyard identified basic sonic effects such as filtration and resonance, which are apparently tightly defined in the domain of science and engineering. However Augoyard and his colleagues show how there is always an excess of sense in the context of production and reception. I have suggested that other very basic effects not mentioned by Augoyard, such as loudness and timbre, are shown to be poorly defined in the specialist literature or rather have become reified or operationalised to the extent that their phenomenology is covered over by their measurement, classification or modelling. The production, respectively, of salience or identity in each of these effects offers ongoing avenues for research.

The forms of expression gathered in the accounts of sonic experience in Chapter 3 also demonstrate a range of effects. Although some of these—such as the structural or compositional effects like wall or wave—repeat and extend the descriptions collected by Augoyard, others—such as the effects of actualisation of general sound types and particular sound events—are more basic and their analysis as effects rather than as universal processes of perception or cognition suggest further fruitful areas of research. My contribution in this particular study is to test, expand and show the application of the concept in an empirical setting. Importantly, the preliminary work in Chapter 2 in which I traced a possible background to the deployment of the conceptual apparatus of the effect, contributed to but did not determine the analysis in the subsequent study. Rather, the particular context of the interview situation was highlighted in the discovery of narrative structures both within the accounts and within the sonic experiences to which they referred.

To clarify the concept of the effect it is useful to consider the paradigm case of the special effect or sound editor's sound effect. Despite appearances to the contrary, these effects are not decorative or ornamental elements added on to an underlying reality, rather they are centrally constitutive of that reality. Effects such as these and similar musical effects can be identified, described, catalogued, collected and deployed but not fully understood. Or rather, their description and deployment produces a particular understanding or constraint on apparent reality. Definitions of such effects are always theories of their operation. Sound effects such as these can be fruitfully explored under the conceptual frame of the effect, previously identified variously as sense-effect, event-effect or surface-effect. Sound effects produce sense, establish events and adhere to the surface of an unfolding reality. Sound effects are pure relation, leading to new, but always provisional models in their application. This

provisional modelling and application is the basis of the form of design developed in Chapter 4.

Radical Design

In Chapter 4, I attempted to discover what sort of design strategy could be based on the concept of the sonic effect and what might result from this approach.

I have shown radical design to be a design approach that builds basic concepts and new techniques and technologies to create the conditions under which new realities, outcomes and forms of apprehension may evolve. Radical design goes to the roots of a phenomenon. Rather than unearthing the ground on which a given reality is based, this form of design develops new material technologies in parallel with new technologies of the understanding for the materials it applies. This approach aims to forge new paradigms of reality; it imagines experience independent of an audience, and through which a new audience may be formed. This is of course an idealised prescription of radical design that can never fully escape the realities and conditions within which it emerges. In this way radical design engages with a given context both in terms of the potential and actual dimensions which underlie a given reality.

In this research project, radical design has emerged in the course of creative collaboration and independent research operating within an imagined *interdiscipline*. However, to be really fruitful, radical design might extend as a coordinating or contributing element in collaborative interdisciplinary research. Its value in this context should be as a form of productive radicalism that considers the sense that is produced by available technologies or undermined by reified concepts. It may serve as a method of facilitating the leaps in understanding that are required to progress our understanding of the world we inhabit.

Each step in the projects presented in this thesis plays a role in the deployment of radical sound design. These steps include concept production, methodological analysis, empirical analysis, historical analysis, technological innovation, creative collaboration and audience testing. Given such a broad scope of operation, an approach of this type is more effectively developed in collaborative teams.

Future Research

Having established in principle, and demonstrated in practice, the paradigm of radical sound design and its articulated concept of the sound effect, the next step is to consider ways in which this approach will be constructively deployed within the context of contemporary sound research. If this approach is to have a significant impact in the research landscape it must find ways to articulate with current research. In addition to the public outcomes described in Chapter 4, aspects of the research have been presented in conferences focused on communication science, musicology, electroacoustic music, and literature.¹⁴⁹ A completed book chapter is currently under revision for an edited collection on the philosophy of music, and an article has also been submitted for a journal focusing on sound studies. These outcomes indicate the diversity of disciplinary areas upon which the research touches. Like its interdisciplinary predecessors of experimental musical research, soundscape research, and research into sonic space and the urban environment, it is hoped that the new concepts and methodological approaches identified in this thesis can contribute to a broad range of disciplines.

¹⁴⁹August 2007 International Conference on Music Communication Science, UNSW. *Towards an Effect of Confusion*; June 2009 Electroacoustic Music Studies Network Conference, Buenos Aires. *Towards an Understanding of Confusion*; October 2009 College of Arts Conference, UWS. *Accounts of Listening Experience*; October 2010 Auricle Sound Cultures Conference, UTS. *Sound Ontologies*; October 2010 Musicological Association of Australia Conference, UWS. *Exploring Sound Ontologies*; July 2012 Music and Philosophy Conference, UWS. *Restructuring Schaeffer's Sonic Objects*; July 2013 Australian Association of Literature Conference, UNSW. *Schaeffer's Sound Effects*; June 2014 Electroacoustic Music Studies Network Conference, Berlin. *Into-Place Sound – Sound Installation Art*

In addition to continued innovative work in the sonic and performing arts, several avenues for new research contributions can be identified. The analysis of retail spaces and other urban environments in terms of their sonic composition can be transformed by the application of the effect paradigm. The playful use of effects of spatial ambiguity and sonic incursion can potentially contribute to the design of these spaces and the sonic augmentation of mobile devices, digital signage and other information delivery systems. These designs could be based on the aspects of sound actualisation and an economy of auditory attention identified in the thesis. These ideas may also have a role to play in the development of new approaches to broadcast, and interactive and mobile content delivery in the age of loudness normalisation (International Telecommunications Union (ITU), 2011).

The proposed applied creative research has a potential economic and social benefit and can be linked to more basic research. For example, the study of the perceptual aspects of loudness can be integrated with a radical approach to applied sound design. In this approach, the conventional analysis of loudness as a reified operationalised concept gives way to the expanded view emerging in the literature; for example, of loudness effects such as *looming* (Dean & Bailes, 2010), which may inform a model of environment or context-specific salience.

It is this critical, experimental and productive approach to concept or construct analysis aligned with practical real-world applications that is the basis of this thesis and that will hopefully form the basis of fruitful ongoing interdisciplinary research.

CHAPTER 5 CONCLUSIONS

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APPENDICES

Appendix 1: Interviews

1.1 Participant Information Statement

Title: Auditory Confusion and the Poetics of Sonic Reverie

(1) What is the study about?

This study is designed to extend our understanding of the experience of auditory perception.

(2) Who is carrying out the study?

The study is being conducted by Ian Stevenson and will form the basis for the degree of PhD at The University of Sydney under the supervision of Dr Denis Cabrera.

(3) What does the study involve?

This study involves a simple interview conducted in person or with iChat, Skype or similar internet audio conferencing system, in which you will be asked questions about experiences you may have had while listening to various sounds in the past. The interview will be audio taped for later transcription.

(4) How much time will the study take?

The interview will take around 50–60 minutes.

(5) Can I withdraw from the study?

Being in this study is completely voluntary—you are not under any obligation to consent. You are free to withdraw your consent and to discontinue your participation at any time without prejudice.

(6) Will anyone else know the results?

All aspects of the study, including results, will be strictly confidential and only the researchers will have access to information on participants. A report of the study may be submitted for publication, but individual participants will not be identifiable in such a report.

(7) Will the study benefit me?

Participation in the study is of no direct benefit to you.

(8) Can I tell other people about the study?

Please feel free to discuss your participation with other people.

(9) What if I require further information?

When you have read this information, Ian Stevenson will discuss it with you further and answer any questions you may have. If you would like to know more at any stage, please feel free to contact Ian Stevenson on 0407135475 or by email at i.stevenson@student.usyd.edu.au.

(10) What if I have a complaint or concerns?

Any person with concerns or complaints about the conduct of a research study can contact the Senior Ethics Officer, Ethics Administration, University of Sydney on (02) 9351 4811 (Telephone); (02) 9351 6706 (Facsimile) or gbriody@usyd.edu.au (Email).

1.2 Interview Script

As you know I am interested in three types of experience. It may be that you have read the questionnaire and are confused about my area of interest. That's OK. It may be that these experiences are not something you can recall, that useful for me to know as well. I am going to ask you simply to tell me a story about whatever you think is relevant. I'll try not to interrupt. Take as much time as you like. I might take a few notes so I can recall the salient points. You

can see that there are three types of experience I am interested in. It may be that they are not clearly separated in your experience.

Question 1: To start, can you tell me a story about a situation where you could not determine the source or cause of a sound, or the sound you heard turned out to be caused by something other than what you initially thought? Tell me about the experience the context and the events surrounding it. Describe both what you heard and your state of mind.

Any other experiences of this type?

Question 2: Can you tell me a story about a situation where you experienced a state of reverie or intense imaginative engagement or distraction as a result of your listening to a particular sound? Tell me about the experience the context and the events surrounding it. Describe both what you heard and your state of mind.

Any other experiences of this type?

Question 3: Has a reverie of this type ever resulted from a sound the source or cause of which was ambiguous or mistaken? If so tell me about the experience, the context and the events surrounding it. Describe both what you heard and your state of mind.

Any other experiences of this type?

1.3 Interview Story Summaries

- I1Q1S1 Slapping flagpole halyards in St Martin's Place, a city location, evoke the memory of a terrifying sea voyage. The sound is confusing because the sound is associated with a yacht and the sea but is occurring in a city street. The source of the sound is not initially obvious. The sound results in a rising anxiety that mirrors the anxiety in the memory. This causes a strong desire to locate and resolve the sound source. The story includes details of the sounds in the city location and the sounds in the sea voyage.
- I1Q1S2 Listening to a recording of Jean-Claude Risset's electronic composition "Little Boy" during a music lecture evokes images of the listener's father and the context of the Second World War.

APPENDICES

- I1Q1S3 The location of the sound of a party in the neighbourhood is difficult to determine. It appears to be nearby but it actually comes from the other side of the highway. In this story it is not the sound itself that is confusing; but, it is its location which is indeterminate.
- I1Q1S4 Not a story so much as an observation about the link between hearing, smelling and the evocation of memories. The discussion includes reference to a dinner party and the music played. Either the smell can evoke the music, the music can evoke the smell or both together can evoke the whole situation.
- I10Q1S1 A story about hearing what sounded like a dog while lying in bed at night (1:00AM) and being concerned enough to get out of bed and go to investigate but the sound was no longer present. She is sensitive about dogs in general and has recently become a dog owner.
- I10Q1S2 A general description of an acoustic phenomenon in a previous house where sounds outside across the street would appear to be coming from in the garden or in the house. Perhaps a strange reflection. A particular case of a cat that sounds like a crying baby. An acoustical phantom image places the sound “behind a wall”.
- I10Q1S3 A reminiscence about being home alone with a small child and waking from a dream hearing footsteps and immediately getting up to find nothing. An hallucination.
- I10Q1S4 A story about being home alone and hearing a vigorous scratching from the adjoining flat through a crack in the wall and being concerned enough to call her husband at 1:00AM
- I11Q1S1 A story about listening to an unfamiliar piece of music in a music class and imagining the sounds were an environmental recording when they turned out to be made by noise instruments.
- I11Q1S2 A story about listening to some music and hearing a particular instrument al timbre and wondering exactly how they made that sound.
- I12Q1S1 A story about hearing a particular bird call on a fishing trip when young. The sound was unrecognisable and took a while to realise that it was a bird. The sense of auditory confusion has stayed with him and is recalled whenever he infrequently hears this bird.
- I13Q1S1 A story about driving with music on and being focused on driving with music in the background and hearing a siren and checking in the mirror and then realising it was in the music. The sound was integrated into the activity of focus.
- I14Q1S1 A story about hearing a train in a new house about five years ago. It started as a low throbbing sound and caused him to go outside to try and locate it. It appeared to be coming from the opposite direction to the train. He occasionally hears it again and it is a source of pleasure, although at the time he associated it with the fear he felt at the time of the Newcastle earthquake.
- I14Q1S2 A story about a strange acoustic phenomenon that occurs at his mother’s house near the airport. A strange turbulence sound that occurs minutes after a plane has

passed. It is very puzzling, though its occurrence is always associated with a plane.

- I14Q1S3 A story about waking up to a strange humming sound that was difficult to locate and having to get out of bed to locate it—now unsure whether it was inside or outside or if the cause was ever resolved.
- I14Q1S4 A story that seemed like an everyday aside to explain being a bit fearful and vigilant as a father with small children, about lying in bed the night before hearing a choking sound from his daughter and a sound outside. Lying worrying about intruders until the sounds resolved into the cat locked outside and his daughter cleared her throat.
- I14Q1S5 A story about walking with friends into a disused train tunnel and hearing spooky voices that sounded just like a movie horror voice effect. The strange acoustics created this effect. For just a split second he and his friends were frightened by the sound even though they knew it was just people talking loudly at the other end of the tunnel.
- I16Q1S1 A general story about a frequent experience of hearing either the doorbell or the phone either while the vacuum cleaner is being used at home or when the exhaust fan is on at work in the clinic. This is at least a weekly occurrence. Often she turns off the vacuum cleaner to check the phone. It is important not to miss a phone call as it may be client.
- I16Q1S2 A general story about hearing sirens while driving in the car. Perhaps there is something pitched about the motor noise. She looks in the mirror and prepares to pull over but there is usually nothing there. It is possible that there was a siren in the distance, but this is never resolved.
- I16Q1S3 A story about staying in an unfamiliar apartment and hearing a tap dripping at night and getting out of bed and checking all the taps and not finding it. It could have been the ceiling fan. She does not like dripping taps and is concerned about water conservation.
- I16Q1S4 A story about hearing the bedside clock while waking from sleep, in the dream state there is a “like a buzzing or a humming, it’s a constant noise” and while waking she becomes aware that it is the clock ticking. Strangely the morphology of the sound is transformed in the dream. In the dream the sound source is unknown but on waking she discovers she is hearing the clock ticking and therefore it is identified as the sound she was hearing though transformed in the dream.
- I16Q1S5 A brief dream story to contrast to the preceding clock story in which she is dreaming that she hears a butcher bird and in her dream she is whistling back to the bird. On waking she hears the butcher bird.
- I17Q1S1 A recent story about being asleep at night and being woken by the sound of an intruder dressed in black with a torch jumping the fence and landing with a single impact on the gravel behind the house

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- I17Q1S2 A story about hearing a drip while asleep and being woken by it and having to turn it off. He did know which tap after listening for a while and the sound seemed to emerge from a dream.
- I18Q1S1 A general story about attending an experimental music performance and being unsure not of the source of a sound—it would probably be coming from a laptop—but of the production processes behind the sound; for example, if it is a sample of an instrumental phrase or a note-level sample that has been sequenced using MIDI. He refers to this as an aspect of the trace of the producing gesture and ambiguity in the reception of that trace.
- I18Q1S2 While playing a game of golf he mistakes the sound of traffic on a nearby road for thunder and becomes anxious that his golf game will be interrupted. It takes several hours to realise that it is traffic not thunder, meanwhile he has been rushing his game.
- I18Q1S3 The sound of his dog in pain wakes him up and he goes outside to check on the dog but discovers that the 18-month-old puppy is not in pain. He is unsure about a possum in the backyard. Rather than being confused about the source, he is confused about the meaning of the dog's vocalisation.
- I18Q1S4 A story about bushwalking and having seen several snakes, being vigilant for rustling sounds and hearing one very close, then being relieved that it was only a lizard. He felt that this was not ambiguous as he was actively listening for snakes. I asked if he were listening for rustling, or snakes, or if he heard rustling, a snake or a lizard
- I2Q1S1 Strange and not clearly identifiable instrumental sounds in alternative pop music create pleasant and imaginative engagement. The listener imagines a primitive, raw sound culture.
- I2Q1S2 Starts a story about playing EA band music where when performing he is not sure if he has made the sound or not. The recording stops before the story is complete...
- I21Q1S1 A story about a confusing hissing sound at home while sitting alone in the evening. He assumed it was some aggressive animal outside in the garden. After hearing it a couple of times and getting up to investigate he discovered it was an automatic aerosol dispenser his wife had installed without his knowing it. It was a complex sound made up of an actuator and the jet of fluid; it had become an animal outside in his hearing, but actually the device was behind him on the wall. When this was revealed he smiled at himself for being fooled. He was reminded of the experience when a similar device was installed at his place of work; it made him smile every time he heard it.
- I23Q1S1 A story about moving into a new house and hearing a strange popping noise, intrigued she went into the backyard to find its source, not finding it she moved to the front yard and it stopped. A few nights later she heard it again and went to the front yard. She was surprised to discover it was fireworks being used by someone in the neighbourhood. The idea that it was fireworks had not entered her consciousness. She thought it was close but it turned out to be more distant.

- I23Q1S2 Another story from the new house: her bedroom is at the front of the house and she is often disturbed by the traffic in the street. On one night she “was quite freaked because I heard a bang of some sort and didn’t really have a context of what it could have been”. Later, after hearing similar noises, she discovered that the carports of the adjacent houses are in line with her bedroom. She has assumed that “someone comes home later at night—they might have shift or whatever”. She observes that: “I’m making stories behind all these noises”.
- I23Q1S3 Another new noise from the new house: a buzzing sound that appeared to be coming from down the street but turned out to be coming from the house opposite in which the neighbour works on cars in his garage at night.
- I23Q1S4 Another story from the new home: the sound of some home maintenance work from the house behind, but it was difficult to determine where the sound was coming from. She speculates that the amount of greenery has been reduced in the street as a result of tree and shrub removal.
- I23Q1S5 A general story about being anxious about the strange wind noises in her new house soon after she moved in and was alone for the first time. She was wondering if there was someone in the house. She reflects that she probably hears those noises now but does not notice them.
- I23Q1S6 A story about the boy over the road who has a billycart and rides it up and down the hill. On the first hearing she “thought oh my God, what’s that, looked out and it was him running up and down the hill”. She felt reinforced in her response to this strange sound when her father had a similar response when he visited.
- I24Q1S1 A story about an annoying electrical hum in the bedroom. It has been there for all the five or six years he has lived there. Every once in a while he notices it and finds it annoying enough to search for. He has checked all the electrical appliances in the house and even gone out into the back yard to search for it; he would check in the ceiling if he could but the space is too small.
- I25Q1S1 A general reflection on the process of partially hearing things; for example, on the train and going through stages of trying to identify the sound. He reflects on his partial hearing impairment and how he often “bluffs” his way through communication if he feels it is not necessary to clarify what has been said.
- I3Q1S1 Describes a section in Kancheli’s *Light Sorrow* in which the effect of a gunshot is created using orchestral instruments. Confusion arises for the listener in two ways. Firstly, when listening to the piece at home on CD for the first time, the sound is unexpected and appears to be an actual gunshot that “cuts right across the kind of sonic landscape”. Subsequently, for this trained musician, trying to discover the actual instrumentation used to achieve the effect is confusing until she acquires a copy of the score.
- I3Q1S2 Thinking it’s a plane and not a train and then listening more closely and then thinking no, that is a train.
- I3Q1S3 Thinking its raining and actually it’s just the wind blowing really loudly if you’re inside. Rain is another one of those things that’s comforting.

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- I3Q1S4 A ghost at home, around lunchtime, most days, a sound as if somebody is closing a door and it seems to come from up in the ceiling, not sure what it is. Have tried to discover to no avail. Not a cause for anxiety.
- I4Q1S1 Listening to EA music streaming on computer, forgetting about the streaming while it downloads then when it starts mistaking it for the fridge malfunctioning.
- I4Q1S2 I listen to quite a lot of acousmatic music in the car and sometimes I have to pause the CD or whatever it is just to make sure it's not the car making some clanky sound and that it is actually imbedded in the sound score that I'm listening to at the time.
- I5Q1S1 A story about waking to the sound of interesting experimental music, then realising there is no stereo in the apartment and seeking the source of the sound. It turns out to be the neighbours washing machine. The participant begins to question the influence of ideas about the aesthetics of environmental sound/music on his listening habits.
- I5Q1S2 A story about putting on a CD of experimental music, forgetting the CD is on, then becoming concerned about the source of a strange sound, looking out the window and door, eventually even looking behind the stereo to find its source. Finally a feeling of intense embarrassment when he realises the sound is the CD he just put on.
- I5Q1S3 A story about a flatmate hearing him playing experimental music on CD that sounds like a washing machine off balance on spin cycle. The flatmate goes to check the washing machine then gets irate when he realises it was the CD. This apparently happened more than once.
- I6Q1S1 A story about performing in an electroacoustic ensemble and being unsure about which performer was producing an undesirable feedback effect, getting angry about a particular performer assumed to be responsible, then discovering that the sound was produced by himself and feeling guilty and subsequently considering how this reflected on his tendency to judge others.
- I6Q1S2 A story about performing in an electroacoustic ensemble and listening to his own sound and then trying to modify it with an effect. Rather than changing what was perceived as his sound, the effect modified another sound that turned out to be his. On reflection, this experience highlighted the character of this type of improvised performance of breaking down the identity of the individual performers.
- I6Q1S3 A story from 20 years ago about a strange noise that is only noticed once it stops. Its identity cannot be determined. The experience is shared with another person who is sharing an illicit joint of marijuana while parked in an isolated location. Subsequently over a number of weeks, strange things happen including accidents, theft, and vehicle breakdown. These strange events seem somehow linked to the incident with the strange sound, which is subsequently referred to as a 'ghost'. The memory of this experience has remained after many years.
- I6Q1S4 A story about mistaking a dripping tap for a frog and vice versa. Links to childhood instruction about dripping taps. The effect has been repeated and is linked to the house he is living in and the adjacent ponds with frogs. He relates

one occasion of going to turn off the dripping tap to discover the sound was coming from the frogs outside. Subsequently he is unsure whether the sound is a frog or the tap.

- I7Q1S1 Hearing a complex siren-like sound echoing through the valley behind the house, he got up to listen and was unsure if it was cicadas or a siren. The sound was interesting but ambiguous. Eventually it was resolved to be a siren.
- I7Q1S2 A story about a dripping tap sound heard while house sitting in an unfamiliar house. The sound continued for several days and could not be located. At some times of the day the sound could not be heard. Eventually it was recalled that there was mention of a frog living in a tub of water. After this it became obvious that the sound was in fact a frog and not a tap.
- I8Q1S1 A story about hearing a strange brief “scrapey, scratchy” sound inside the house during the day while working and being concerned to find out its source. Perhaps it was an intruder or an animal inside the house. Being unable to locate the source and considering a range of rational possibilities she insisted that her partner get up and look. He did and discovered a plastic container that had been blown off the table and across the floor by the fan. She felt a little foolish and reflected on how she was anxious but her partner did not give it a second thought.
- I8Q1S2 A story that is an example of a common experience: she is a light sleeper and often wakes when hearing noise—especially when she knows a door or window is open in the house; she is concerned about intruders. While asleep in bed she hears a loud crackle, thump kind of sound; she wakes her partner to see if he heard the sound, then she gets out of bed to find the sound. She believes it could be the fridge and waits for the fridge to make the sound again to confirm that that is what it was before returning to bed.
- I8Q1S3 A story about hearing a strange flute-like instrument while walking in the city. The sound was strange and she is apprehensive about the people in this location. As she walks under an underpass the sound becomes intriguing and she has the image of an elf or dwarf making music. As she emerges from under the underpass she sees a busker on top of the rail bridge playing a piccolo. Perhaps the instrument was unfamiliar and the spatial location made the effect stand out. She smiled when she discovered the source and thought about her imaginative reaction.
- I8Q1S4 A story about hearing birds outside on the fence while working on the computer. Over several days she went to see where the birds were but couldn’t locate them. She was intrigued by the “clicky-clacky” sound and went to find them but to no avail. Eventually she found them hidden, nesting on top of a disused air conditioner. The sound was originally very annoying. When she found them she laughed; she says that birds are always playing tricks on her.
- I8Q1S5 A brief story about a bird sound when camping that amused her and her partner every morning because it had a rhythmic sound which was un-birdlike: “when something’s like at a regular rhythm you just can’t ignore it”. Her father had an aviary—perhaps this is why birds attract her attention.

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- I8Q1S6 A story about hearing geckoes for the first time in Fiji and being unable to locate the sound source even when looking at the geckoes, because in her mind lizards don't make sound.
- I8Q1S7 While watching a movie at home at night, a scream and rattling gate is heard. At first hearing it is imagined it must be a movie. The second time, it appears to be coming from the front gate outside the house. The sound is identified correctly but she imagines it is her father and there is some crisis, he is panicking and her mother is injured or dead. She wakes her husband and he goes to find a young boy at the gate in distress. The sound triggers a complex scenario in her mind.
- I9Q1S1 A story about hearing a strange whispering sound while walking beside her house. It wasn't quite vocal and not quite garden like. The eaves and wall of the house made the direction of the sound difficult to pick and so she stopped to find it and eventually discovered that it was the leaves of the flax plant rubbing against each other. The sound was interesting and, as a composer, she made a note of it as a possible title for a composition "Whispering Flax". Perhaps it belonged to her country of origin New Zealand; she would follow up by looking for references to it in New Zealand poetry.
- I9Q1S2 A story about the occasional odd sound from around the skylights in the house that appears to channel sound from outside, often apparently birds feet. When heard the sound is confusing because it's not immediately clear where it's coming from.
- I10Q2S1 A story about listening to a Handel oratorio before a crisis meeting. The music left her in a state of mind that changed the whole dynamic of the meeting to one of Zen-like detachment
- I10Q2S2 A story about a concert of Bach St Matthew's Passion with Andreas Scholl and being captivated by seeing him visualise the spatial trajectory of an extended decorative effect.
- I11Q2S1 A story about being captivated by the lyrics of a song.
- I11Q2S2 A report that has a mix of specific detail; for instance, the location in a particular room in the house, and a general repeated experience of hearing the dawn chorus. This captures his imagination by changing his perspective from himself to the world. It also makes him reflect on the religious theme of God's work.
- I12Q2S1 A repeated experience often when talking in a noisy cafe or at a noisy concert. His mind becomes distracted and switched off. Sometimes daydreaming sometimes just absent and characterised by Mode 2 listening/perceiving of voices and other sounds.
- I12Q2S2 Describing the effect of hearing a hairdryer in the next room in the morning, it is very soothing: "massages my brain" and sends me back to sleep.
- I14Q2S1 A story about listening late at night on a hill above a road while heavily intoxicated and hearing a car approaching from a great distance and not believing that it could be heard for so long before it passed by, and doubting if it was a car or not.

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- I14Q2S2 Another story about an intoxicated midnight walk and hearing the strange sound of a possum screaming nearby and not being sure what it was or where it was.
- I15Q2S1 A general story about listening while bushwalking. This is an opportunity for focused listening that brings her awareness into the present. Often it is the occasional lyrebird that captures her attention as their secretiveness and vocal facility is of great interest.
- I15Q2S2 A general story about going to orchestral concerts and being enveloped and engaged in concentrated listening. This happens in the concert hall rather than when listening to CDs and is related to the whole body in space context of the concert hall.
- I16Q2S1 A summary story about listening to music either in a concert or on the radio and having her mind wander to thinking about many other things apart from the music. She asserts that this happens when the music is really good, but that she is disappointed and a bit guilty when it's over because she has not been listening to it.
- I16Q2S2 A general story about anamnesis including the following examples: the old ABC news theme—remembering the kitchen in the 1970s where the radio was; or I heard a spoon on a saucepan before and that reminded me a bit of Mum's old aluminium saucepans.
- I18Q2S1 A story of anamnesis about visiting the horse races and how this reminds him of his grandfather now passed away. The sound includes the galloping hooves but also the visual aspect of the earth flying up and the sense of the animal's strength and velocity and smell of being close to the track. All this brings the grandfather and his way of being into memory.
- I18Q2S2 An exercise in art school of being played a sound, perhaps birds, and being asked to image the sound with paint not representationally but in terms of pace and rhythm.
- I20Q2S1 As a child going to the ballet she "always felt that the body was completely insufficient to match the largeness of the sound, the music is so magnificent, why can't the body match that?"
- I20Q2S2 A story about her first trip to Bali, having grown up steeped in the Western musical tradition, and being exposed to a completely foreign musical world, different scales, different timbres, different modes of organisation. She was "gobsmacked".
- I20Q2S3 A story about studying tabla in Benares and being involved in a ceremony that involved playing through the night, and she was part of this event in which the sound of the tabla could be heard all over the city through the night. It was a special type of listening because it gave a sense of community, of commitment, of gigantic space; a total sensory experience.
- I20Q2S4 On visiting Japan "entering some of the Japanese aesthetic space of sound which is so specific and so particular exemplified by a recording of the clay flute from the Edo period".

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- I20Q2S5 A story about being shocked and amazed by the sound of a lizard at Lake Mungo that made her think about being alive in a time with dinosaurs.
- I20Q2S6 A story about a crocodile living in a cage in a friend's backyard in Darwin that she has visited at least twice: "there weren't any sounds that I'd associate particularly with him other than I was splashing a—and I would have expected there to be after this particular kind of—when this mouth opens, it's a huge, great big mouth. You expect the most gargantuan sound to come out and it didn't. That's the inversion of sound".
- I20Q2S7 Recalling the reverie stimulated by the Buddhist large singing bowls heard in Japanese temples.
- I21Q2S1 An acute anamnesis caused by hearing the song of a magpie taking him back to a theatrical production, he recalls the look of the set and other aspects of the show.
- I21Q2S2 Another acute anamnesis from the music track used in a show he worked on in which a pyrotechnic effect went wrong and someone was hurt. He was operating the effect and now when hearing the sound he is taken back to the show. Now many years later he would like to dispel the anamnesis so he can enjoy the music as he did before it became associated with this accident.
- I21Q2S3 The music of a particular duet in "The Pearl Fishers" never fails to produce an "emotional response in that is unambiguous and effective".
- I21Q2S4 A story about a trip to the Northern Territory and being in a tent and being woken at night by a dingo howling right outside the tent. It was frightening and brought the sense of being in nature dramatically to mind.
- I22Q2S1 A story about remembering a film from 30 years ago when asked to write a paper about it; he remembered the sounds and interpreted the proportions of duration as a golden mean.
- I22Q2S2 He practices lucid dreaming: this is a story about a dream in which he is playing the shakuhachi to a piano accompaniment, reading the notation and hearing the sound a tone flat or sharp, then realising the score was for b-flat clarinet.
- I22Q2S3 Another dream story about watching the television and hearing the same sound coming from another room, complete with three-dimensional reverberation. In the dream he gets up and turns the TV off so he can hear the other sound.
- I22Q2S4 A story about visiting a home on the edge of the desert after seeing an opera and being struck by the almost anechoic property of the desert acoustics.
- I22Q2S5 A general discussion of his attitude to new architectural spaces; he always listens carefully to the reverberation, often stimulating it with a click. It is a peculiar fascination of his.
- I23Q2S1 This story starts off with a particular case of anamnesis caused by listening to a song on an iPod that she used to listen to when at University: the song reminded her of a close friend from that time that she had lost contact with. The story then goes on to describe her emotional response to music and how music can trigger memories that it is not present in but has a similar emotional content.

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- I23Q2S2 A story about being soothed and relaxed by the ambient music in a beauty salon.
- I23Q2S3 A story about a time when doing work experience she happened to play an Enya track on her walkman when leaving work and walking to the bus stop. The music fitted the trajectory of her walk and the trajectory of leaving work and being excited about the evening ahead; it made her feel uplifted. She repeated the experience each time on her weekly attendance when she left the building.
- I24Q2S1 A story emerging from his explanation of listening expertise, of lying in bed and listening to the sounds around him and producing a visual map of the environment. This is a source of pleasure. “It takes me into a very beautiful, meditative state”.
- I24Q2S2 A particular story about anamnesis from music—a rockabilly track, listened to while driving, takes him back to the days of dancing in the local hall. This story expands to general observations about the type of thinking that listening to music while driving stimulates. For example, a song makes him think about the herd mentality of his young days as a mod and how this reflects on evolutionary psychology.
- I24Q2S3 A story about a recent trip to the bush. The absence of urban sounds was enriching and meditative.
- I25Q2S2 A story about hearing a concert in Calcutta 35 years ago. This was the first experience of improvised music at a high level. The experience was totally absorbing, leading to a sense of total identification with the performance and the sound.
- I3Q2S1 The way Kancheli uses silence and for me that’s my reverie, this idea of the void but in a way you know where Heidegger kind of stops, Kancheli allows you to go further because of the idea of the silence.
- I3Q2S2 Rachmaninoff Piano Concerto No 2 triggers the memory of listening to the piece as a child at home with her father. The original experience was also one of intense engagement with the sound. The memory includes home and the fire, and the love for the father.
- I4Q2S1 Hearing a lark in the garden on arriving in England and thinking about Vaughan Williams and the lark as a sonic signature of England and having “arrived”.
- I4Q2S2 A general discussion of the engagement of listening to the timbral qualities of recorded music in popular and experimental styles as being a source of imaginative engagement.
- I5Q2S1 A story about a minimalist experimental music performance where the very quiet sound material caused the sounds of the environment to be amplified. The performance captured the attention of the entire audience.
- I5Q2S2 A story about a Francisco Lopez concert. Very loud, audience blindfolded, ecstatic reverie, loss of time perception, some anxiety. The sound included many layers, giving a sense of immersion and being lifted up, a loss of spatial orientation. Caused intense concentration.

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- I5Q2S3 A story about a Shoji Hano concert in which the extreme physical performance and volume caused “near panic” and wish for it to stop but never stop, and a desire not to talk to anyone for days after.
- I6Q2S1 A story about hearing Hildegard Westerkamp’s “Gently Penetrating” in a lecture after having recently travelled to India. While hearing the sound and having a strong impression of the aroma and experience of Delhi, he was amazed to learn that the recording was made in the exact same location.
- I6Q2S2 A story about making an electronic sound for a composition project that reminded him “a sense of the coldness in the Himalayas” and of an intense experience on a recent trip to Ladakh.
- I7Q2S1 A story about listening to a Thomas Korner CD and having a totally ecstatic experience and imagining this music as being his future.
- I7Q2S2 Hearing the wood working machines in a workshop and being engaged by the complexity and music of the sound of all the machines running together. The sound was connected to his physical self as ebbing and flowing layers of intensity happening inside his own body.
- I9Q2S1 A story about being in a conversation and then switching to an analytical focused listening to something on the radio as a source of ideas for music composition. She notes that she is composing all the time; thinking of ideas and jotting them down.
- I9Q2S2 A story about an unknown sound while driving in the car—it could have been the radio or a fault in the car and possibly turned out to be a plane passing overhead. “it was almost the sound of the road and that constant sound but it wasn’t, it was different and it caught me by surprise”.
- I11Q3S1 A story about hearing a piece of electronic music in class and not knowing how the sound was made but being really captured by the specific story of the music. When probed to describe the particularities of the experience it was difficult to pinpoint and it may be that the listening being referred to was a reflection on a number of different experiences of the same music. In the interview I note that the implication here is that listening can be distributed in time and space and this is what is captured in the verbal report.
- I13Q3S1 A story about hearing the band “The Necks” on more than one occasion in concert. The performance technique used causes the impression of other sorts of instrumental sounds being present in the wash of sound the band produces. This causes a “dream-like” state in which the sounds seem to move around the room.
- I13Q3S2 A story about operating a PA as a novice and being really engaged in the music and not noticing the feedback. Finally realising that the sound was not part of the performance and snapping out of the musical reverie.
- I18Q3S1 A report of the intrigue of listening to a pop recording and trying to work out the production method used on a particular percussion sound.
- I19Q3S1 A story about hearing a strange sound: “this ethereal high-frequency sound that was just absolutely like jaw dropping” while lying in bed at 2.30AM. It turned out

to be dynamic braking of freight trains but he didn't learn this until much later. This sound was the beginning of a creative obsession with train sounds.

- I19Q3S2 A story about hearing a strange bird sound from within a disused jail at 2AM while making sound recordings—it was a mysterious and magical sound.
- I19Q3S3 A general story about sounds combining in the street; for example, Arabic music playing in an approaching car combined with the squeal of a truck's brakes for the sound of something like a giant accordion.
- I19Q3S4 A story about an accidental "mashup" created while using the computer by the looping menu of a DVD being mixed with a techno track on a YouTube soccer clip that created an amazing sound that "was this techno sort of bass but then there was this ninth chord in brass and woodwind and metal percussion and wow, this is the best thing I've ever heard". This strange and confusing sound caused him to record it.
- I19Q3S5 A story about a field recording trip in Alice Springs recording a train approaching from the distance; it produced a strange sound that was quite unexpected and it was not apparent that it was a train at all.
- I20Q3S1 A story recalled from more than 40 years ago, as a child she had a séance with friends home from school. During the séance they seemed to contact various dead relatives and then they all heard a low sound and the dog heard it too, some heard a beating sound like drums from one side of the house from the sea; others heard a rumbling sound from the other side of the house from the forest. All the girls were frightened and deeply affected. The memory including the sound stayed with her and she recalls her father counselling her against messing with the occult.
- I21Q3S1 A story about being in Tokyo in a large park and hearing music in the distance that didn't fit somehow and being intrigued and moving closer to find out and discovering that it was produced by Peruvian buskers; totally the wrong cultural associations, it seemed entirely wrong and out of place.
- I21Q3S2 A story about hunting on a relative's farm property as a boy. Hunting was all about listening and self-control.
- I22Q3S1 Having moved to Australia recently there is a bird that he doesn't recognise. It sounds like a baby crying, which is very out of place where he lives in college rooms: "is just weird and creepy and it's startling and then oh it's that damn bird again. So I'm used to it now but it took a while".
- I22Q3S2 A general observation about the use of prefiguring sounds across scenes in movie soundtracks, the assumption being that movie makers are hoping the audience will get some imaginative engagement from the ambiguity.
- I24Q3S2 A story from his student days 40 years ago, living in a room in an old Georgian house with a heavy breathing ghost. He searched for its source but was informed by the landlady that it was a ghost. He was initially concerned but eventually accepted it and it stopped worrying him. He regards this memory as a good story and this is perhaps why it stayed with him. Also it was a very strange and unexplained experience.

APPENDICES

- I25Q3S1 A general story about how hearing impairment allows you to choose which conversations to be part of. This can be liberating and result in being alone in your imagination but this can also have a negative side in that your imagination can be full of negative thoughts or paranoia.
- I25Q3S2 A story of an intense reverie caused by listening to the David Hykes Harmonic Choir 30 years ago: “that enabled me to put—to make of it what I wanted, which was an experience of sound that took me out of myself in a way” It was unclear how the sound was produced: “so the sound became colour and shape and it had texture and became something that was liberating or something—it was sort of dangerous or threatening and it sort of had all those sorts of characteristics and went through an emotional encounter with the music. It came to represent various transitions and transformations. Quite a tangible reality that one does not always frequently encounter but it’s still very real. It brings you in touch with something that sits in your consciousness that you don’t sort of journey into all that frequently”.
- I4Q3S1 Leaving a festival of acousmatic music, hearing the sound of the trams in the night and thinking that this was a continuation of the concert music appearing outside, leading to an imaginative engagement with the environmental sounds and an affirmation of the aesthetic experience of the night’s concert.

Appendix 2: Ghost Quarters

2.1 Ghost Quarters video documentation complete performance 37'54"

CD-R disc in front cover filename: *GHOSTQUARTERS.m4v*

Credits

Production: de Quincey Co

Dance: Tess de Quincey

Script: Jane Goodall

Voices: Tess de Quincey, Jane Goodall, Ian Stevenson, Amanda Stewart

Vocal effects: Amanda Stewart

Video: Sam James

Sound design: Ian Stevenson

Lighting: Travis Hodgson

Video documentation camera: Russell Emerson

Video documentation editor: Sam James

2.2 Ghost Quarters video documentation short version 5'08"

CD-R disc in front cover filename: *GHOSTQUARTERS Short.mp4*

Credits as above.

2.3 Ghost Quarters Programme Page 1

Written and produced by de Quincey Co May 2009



Sam Hawker has been producing theatre and performance for the last 8 years, recently working with B Sharp (Belvoir Street Theatre), Casula Powerhouse and independent companies:- Murri Fulla Films, Tangent Productions and Australian Performance Exchange. Sam is Artistic Manager for Parnassus' Den and has recently founded Arts Radar, an administrating and producing company.

THANKS to Mathew Hiley, Craig Miller, Mark Mitchell, all staff at CarriageWorks, Performance Space, Department of Performance Studies at The University of Sydney, School of Communication Arts and Writing & Society Research Group at The University of Western Sydney, School of English, Media and Performance at the University of NSW and De Quincey Co Board.

De Quincey Co is a performance company based in Sydney which builds on several decades of work by dancer-choreographer Tess de Quincey in Europe, Japan, India and Australia. The dance work is based in **Body Weather** which is a contemporary dance training founded in Japan by butoh dancer Min Tanaka, melding Asian and Western practices and thought. De Quincey Co is Australia's leading Body Weather company. Founded in principles of dialogue and exchange, Body Weather is an open exploration which proposes the body as an environment reflecting the greater environment. Rather than forwarding the conception of an ideal, symmetrical body, the broken, manipulated body is suggested as a site of beauty with its scars of lived experience. The 'wounded dancer' foregrounds shadows as a way of reading light.

De Quincey Co Board: David Robb – chair, Vanessa Bateup, Tess de Quincey, Rani Haywood, Bradford Johnson, Vicki Middleton and Kate Towey.

De Quincey Co
tel: +61 2 4340 8861
email: info@DeQuinceyCo.net
web: www.DeQuinceyCo.net

GHOST QUARTERS the first dream of **THE OPIUM CONFESSIONS**

The Opium Confessions was first developed through the residency program at Performance Space in partnership with Critical Path.

This project has been assisted by the Australian Government through the Australia Council for the Arts, its arts funding and advisory body. It has also been supported by CarriageWorks, Performance Space, Department of Performance Studies at The University of Sydney, The University of Western Sydney and by De Quincey Co which is assisted by Arts NSW, Department of the Arts, Sport and Recreation.



9 - 16 May 2009

CARRIAGEWORKS

Ghost Quarters Programme Page 2



De Quincey Co welcomes you to

GHOST QUARTERS

The first dream of *THE OPIUM CONFESSIONS*

"What else than a natural palimpsest is the human brain? Everlasting layers of ideas, images, feelings, have fallen on your brain as softly as light. Each succession has seemed to bury all that went before. And yet in reality not one has been extinguished."

Thomas De Quincey

dance: Tess de Quincey
writing: Jane Goodall
sound: Ian Stevenson
vocals: Amanda Stewart
video: Sam James
lighting: Travis Hodgson
photo installation - foyer: Mayu Kanamori
graphic design: Gail Priest
photographs: Russell Emerson
production management: Clytie Smith
project management: Sam Hawker
financial management: Sue Procter and Virtual Admin Solutions

We do hope you'll stay for the **Forum** after the performance and have an informal exchange and discussion with us.

*

This work forms part of *The Opium Confessions*, an overarching enquiry into the writings of Thomas De Quincey (1785-1859): poet, opium addict, wandering adventurer, genius of the imagination.

De Quincey burst onto the literary scene in 1821 with his best known publication *Confessions of an English Opium-Eater* and in the decades that followed he produced works of fiction, biography and various modes of autobiography, as well as essays on a remarkably diverse range of topics. Besides his writings on the mysteries of time, memory and suffering, De Quincey is known for a series of mock lectures on the art of murder. Turning morality on its head, he coolly dissected the art of murder and celebrated its perfections in a style that has inspired a long line of writers on crime, detection, aesthetics and violence.

During his teenage years, De Quincey ran away from school and lived rough in the Welsh and English countryside for many months as he made his way to London on foot. This experience of destitution gave him an estranged relationship to domestic space, and a fascination with architecture as wilderness. It also led him to addiction and hallucination. Through this performative engagement in his writings, we are looking for strong contemporary resonances with the visions that show us the world as a larger reality, a place of vastness and uncertainty, filled with the changing weathers of the psyche.

The composition of *Ghost Quarters* was a collaborative, hybrid process involving sound and image in spatial counterpoint with live performance. This uncanny rendering never quite escapes the force of De Quincey's idiosyncratic prose, and works to bring out the many voices in which his writing seems to speak.

THE ARTISTS

Dancer TESS DE QUINCEY draws from dance, graphics and sculpture on the basis of Body Weather practice to create performance environments. Her main emphasis has been on inhabitation and the nature of place, developed in both city and desert terrains in Europe, India, Japan and Australia. She introduced Body Weather to Australia in 1988 and founded De Quincey Co in 2000.

Writer and Dramaturg JANE GOODALL is the author of three psychological thrillers, the most recent of which is *The Calling* (Hachette, 2007). Her first novel, *The Walker* (2004) was featured in the 2005 National Books Alive campaign and was joint winner of the Ned Kelly first crime novel award. Jane has also published numerous critical works, including *Artaud and the Gnostic Drama* (Oxford University Press, 1994), *Performance and Evolution in the Age of Darwin* (Routledge 1992) and *Stage Presence* (2008), which has been shortlisted for the Theatre Book Award in London. She is the joint winner of this year's Calibre Prize, for an essay on the human footprint.

Vocalist AMANDA STEWART is also a poet and author who has created a variety of publications. From 1983-93 she worked full time as a radio producer at the ABC in Sydney and then became a freelance artist, creating a diversity of publications, performances, film and radio works in Australia and abroad. She collaborates with many musicians and artists and is a cofounder of the Australian ensemble, Machine For Making Sense and the Netherlands trio, Allos. I/T, her Book and CD set of selected poems, won the 1999 Anne Elder Poetry prize and is available from SPLIT records.

Video Artist SAM JAMES is a filmmaker with a background in architecture. His collaborations in new media, dance and theatre integrate the moving image in balance to the live body, encompassing space, rhythm and time. The projections expose the subconscious of natural and urban environments and objects as a paradoxical language. He works with a wide range of independent artists and companies such as Sydney Dance Company as well as with new media performance, site-specific performance artists and with live improvisation.

Sound Designer IAN STEVENSON is a sound artist, researcher, designer and engineer. His work has appeared in theatres, broadcast media and public spaces in Europe and Australia. His current research is in the area of auditory confusion and the poetics of sonic reverie. He lectures in Digital Music and Electronic Arts at the University of Western Sydney. He recently produced and recorded a double CD of contemporary chamber music works by Australian composers plus a premiere recording of a new work for viola and voice by American composer Chinary Ung, released on the Wirripang label (Music of the Spirit WIR 003).

Lighting Designer TRAVIS HODGSON works as a lighting designer in theatre and dance and has most recently designed for De Quincey Co's *Triptych*, *The Stirring* and *embrace: GUILT FRAME*, with PACT Theatre & Redfern Community Centre in *Gathering Ground*, Team Mess in *Killing Don*, Rachel McDonald in *La Vera Costanza*, and Chris Ryan in *What Was Wood Became Alive*. Travis holds First Class Honours in Performance Studies at The University of Sydney for his thesis on *place, performance and CarriageWorks*.

2.4 Ghost Quarters Forum Programme

Written and produced by de Quincey Co May 2009



GHOST QUARTERS PROGRAM OF FORUMS

Saturday 9 May

GHOSTED SPACES – Prof. Gay McAuley and Dr. Paul Dwyer, critical writers on performance and Pam Brown, poet.

Wednesday 13 May

DESTITUTION & NIGHT SPACES – Dr. Brendan Stewart, artist.

Thursday 14 May

OPEN CONVERSATION – Caroline Baum, journalist and artist.

Friday 15 May

PERSPECTIVES ON ADDICTION AND IMAGINATION – Dr. Roman Danylak, media artist, Dr. Paul Sheehan, cultural critic and Dr. Chris Fleming, philosopher.

Saturday 16 May

MURDER AS PERFORMANCE – Assoc. Prof. Ian Maxwell, critical writers on performance and Dr. Sara Knox, novelist and critic.

Caroline Baum is a well-known journalist and broadcaster, presenter of *Caroline Baum Talks 2* (Ovation) and *Talking Books*. Her photographs have been published in *The Good Weekend* magazine and she has had exhibitions at the Hazelhurst Regional Gallery and as part of Artscape at Byron Bay.

Pam Brown's most recent book is *True Thoughts* (Salt Modern Poets, 2008). Another collection, *Authentic Local*, is due from Papertiger Media's imprint, in June 2009. She was poetry editor for *Overland* from 1997-2002 and currently co-edits *Jacket Magazine* www.jacketmagazine.com. She keeps a blog <http://thedeletions.blogspot.com>

Dr. Roman Danylak has worked as actor, writer and director in film, theatre and multimedia for the past thirty years. Recently, he completed doctoral studies in interactive design at the Creativity and Cognition Studios, UTS. His interactive artwork, *To be or not to be*, based on Shakespeare's play *Hamlet*, was exhibited in 2007 in Sydney's Powerhouse Museum. He speaks regularly on art and technology at both local and international events. www.romandanylak.com

Dr. Paul Dwyer has extensive experience in youth and community theatre and is the Company dramaturg for *Version 1.0*, with whom his most recent production is *The Bougainville Photoplay Project*. He lectures in Performance Studies at Sydney University.

Dr. Sara Knox is the author of *Murder: a Tale of Modern American Life* (1998) and her ongoing scholarly research is concerned with death, violence and representation. Her novel *The Orphan Gunned* (2007) was shortlisted for the Commonwealth Literature Prize.

Dr. Chris Fleming is a lecturer in Humanities at the University of Western Sydney, with research interests in philosophy, literature and the history of science. His most recent book is *Rene Girard: Violence and Mimesis* (2004) and he is working on a study of drugs, addiction and writing.

Prof. Gay McAuley is an Honorary Professor in the Department of Performance Studies at the University of Sydney, where she established Performance Studies as an interdisciplinary centre and pioneered the application of ethnographic methodologies to the study of rehearsal process. Her books include *Space in Performance* (University of Michigan Press, 1999), which was awarded the Rob Jordan Prize by the Australasian Drama Studies Association, and *Unstable Ground* (2006), a collection of essays on Performance and the Politics of Place.

Assoc. Prof. Ian Maxwell is the author of *"Phat Beats, Dope Rhymes": Hip Hop Down Under Comin' Upper* (2003), and has published widely on the performing arts. He lectures in Performance Studies at Sydney University and is currently President of the Australasian Association for Theatre, Drama and Performance Studies and Vice-President of Performance Studies International.

Dr. Paul Sheehan is the author of *Modernism, Narrative and Humanism* (Cambridge, 2002) and is currently completing a book on Violence and Aesthetics. He is a lecturer in the English Department at Macquarie University.

Dr. Brendon Stewart has been a senior lecturer in Social Ecology and Psychology at the University of Western Sydney. He is also a painter. In recent years, he has been assisting at a refuge for homeless men in Sydney, and was involved in the last city census of the homeless.

2.5 Ghost Quarters Media Release

Written and produced by de Quincey Co May 2009

deQco
De Quincey Co

MEDIA RELEASE: April 2009

De Quincey Co presents

GHOST QUARTERS

9 - 16 MAY 2009

CARRIAGEWORKS

the changing weathers of the psyche



De Quincey Co welcomes you to *Ghost Quarters*, the first dream of *THE OPIUM CONFESSIONS*.

The work forms part of an overarching enquiry into the writings of Thomas de Quincey (1785-1859): poet, opium addict, wandering adventurer, genius of the imagination. This performative engagement with his writings touches the experience of destitution, addiction and the spatial uncanny, evoking strong contemporary resonances.

Ghost Quarters is a live intermedia event by some of Sydney's leading interdisciplinary artists featuring dancer/choreographer **Tess de Quincey** (Australia's leading exponent of the Japanese derived Bodyweather performance practice) in a collaborative artwork scripted by **Jane Goodall** with sound design by **Ian Stevenson**, images by **Sam James** and vocals by **Amanda Stewart**.

In an intimate yet epic exchange between artists and audiences, *Ghost Quarters* unleashes visions that show us the world as a larger reality, a place of vastness and uncertainty, filled with the changing weathers of the psyche. We focus in on how human beings experience interior and exterior space. During his teenage years, De Quincey ran away from school and lived rough in the Welsh and English countryside for many months as he made his way to London on foot. This experience of destitution gave him an estranged relationship to domestic space, and a fascination with architecture as wilderness. It also led him to addiction and hallucination.

Ghost Quarters draws on his post-traumatic visions to experiment with uncanny spatial relationships for a contemporary audience. Now, the home as a primary symbol of domestic and economic security is at risk and increasing numbers of people experience the anxiety states associated with homelessness. Yet these states can also teach us to know new and changing weathers as the governors of daily life.

As part of the event, a post-show forum will bring together a stimulating range of guest speakers each night ranging from poets, musicians and philosophers to those who work in refuges for the homeless, to contextualise and unwind the historic and contemporary themes of this piece and to engage in a discussion with audiences.

About previous De Quincey Co performances:

"a new De Quincey Co piece is a rare gift... It's a privilege to experience."

Deborah Jones, **The Australian**

"... it is an engrossing and energising experience."

Jill Sykes, **The Sydney Morning Herald**

"the work is elegant, simple, complex, profound, stark, elusive ...a wonderful journey of shared discovery."

James Waites, **Australian Stage**.

"one of the most haunting and captivating dance performances I have ever encountered."

Shoba Rao, **Daily Telegraph**

Details

GHOST QUARTERS

Dates Wed-Sat 9-16 May at 8pm;
Venue CarriageWorks - Track 12, 245 Wilson Street, Eveleigh
Tickets Entry by voluntary donation
FORUM & POSTSHOW TALK each evening as part of the event
Bookings 0420 293 139 or bookings@DeQuinceyCo.net

For further media information:

Sam Hawker 0420 293 139 or SamHawker@DeQuinceyCo.net



www.DeQuinceyCo.net

THE ARTISTS

Dancer TESS DE QUINCEY draws from dance, graphics and sculpture on the basis of Body Weather practice to create performance environments. Her main emphasis has been on inhabitation and the nature of place, developed in both city and desert terrains in Europe, Japan, India and Australia. Born in Wales, a background in ballet in London was followed by independent and company work within contemporary dance and visual arts in Denmark. She was then a dancer with Min Tanaka and his Mai-Juku performance group in Japan for six years, 1985-91 which has provided the strongest influence on her performance work; based in the Body Weather practice founded by Min and his company the body is proposed as an everchanging environment reflecting a greater environment. She introduced Body Weather to Australia in 1988 and founded De Quincey Co in 2000.

Writer and dramaturg JANE GOODALL has an enduring fascination with the uncanny. She is the author of three psychological thrillers, the most recent of which is *The Calling* (Hachette, 2007). Her first novel, *The Walker* (2004) was featured in the 2005 National Books Alive campaign and was joint winner of the Ned Kelly first crime novel award. Jane has also published numerous critical works, including *Artaud and the Gnostic Drama* (Oxford University Press, 1994), *Performance and Evolution in the Age of Darwin* (Routledge 1992) and *Stage Presence* (2008), which has been shortlisted for the Theatre Book Award in London. She is the joint winner of this year's Calibre Prize, for an essay on the human footprint.

Vocalist AMANDA STEWART is also a poet and author who has created a variety of publications, performances, film and radio works in Australia, Japan, the US and Europe. From 1983 to 1993 she worked full time as a radio producer at the ABC in Sydney and in 1990, with Nicolette Freeman, co-wrote and directed the award winning film, *Eclipse of the Man Made Sun*. She has collaborated with a diversity of musicians, dancers and artists and is a co-founder of the Australian ensemble, Machine For Making Sense and the Netherlands trio, Allos. With composer, Colin Bright, she wrote the opera, *The Sinking of the Rainbow Warrior* which was performed at the 1997 Sydney Festival and adapted for CD and radio in Australia and Germany (2003). Her CD/Book set of selected poems *I/T* was short listed for the NSW Premier's Literary Awards and won the Anne Elder Poetry Prize at the FAW National Literary Awards in 1999. Recent publications include the short play, *Solace* in *Beckett Pause*, Sondersahl, Vienna, 2007, *Dust* on *Wittenerstage New Chamber Music* CD, WDR, Cologne, 2007 and her work features in *La Barque No5*, La Barque, Paris, 2008.

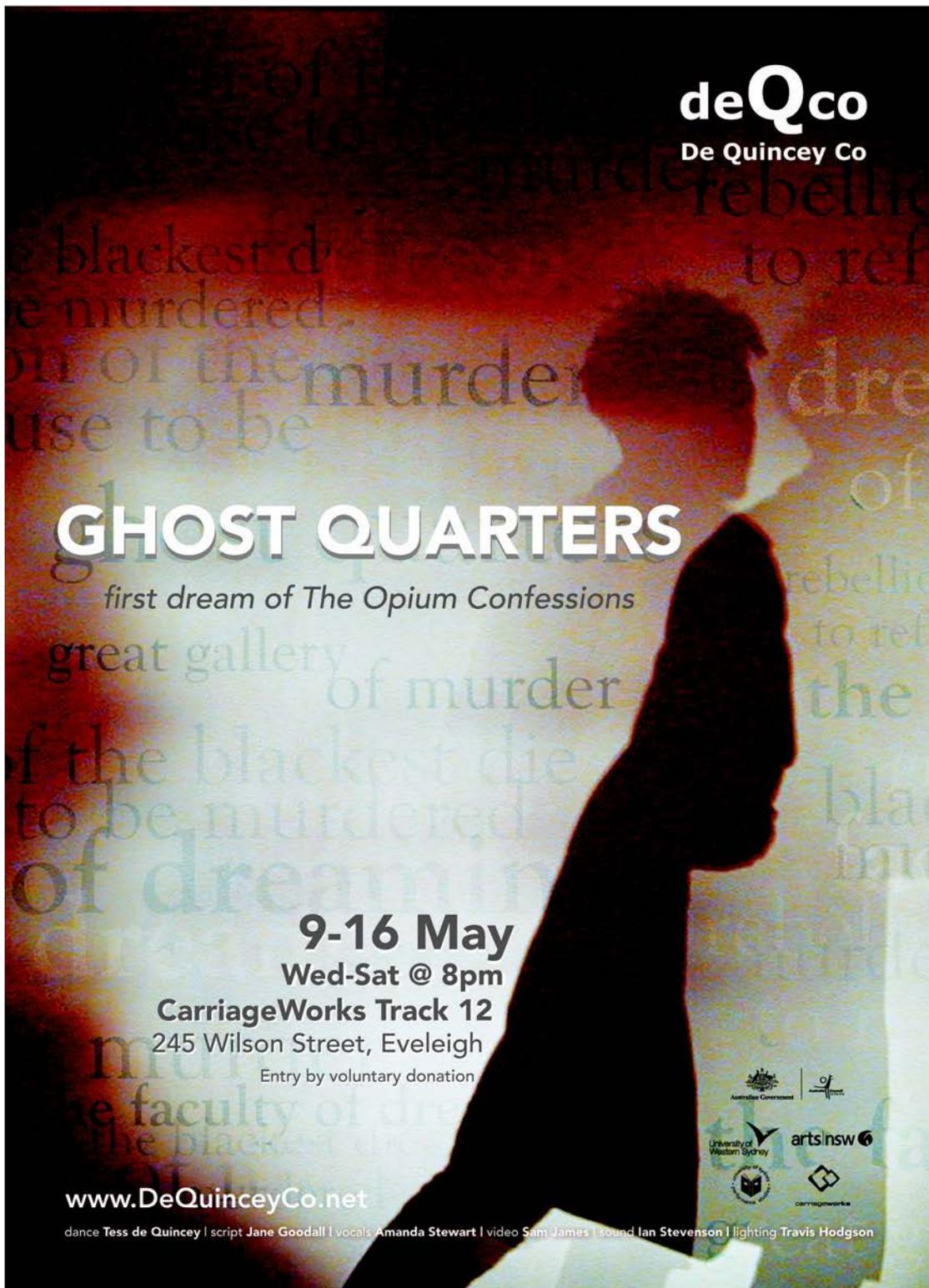
Video Artist SAM JAMES is a filmmaker with a background in architecture. His collaborations in new media, dance and theatre integrate the moving image as an equivalent to the live body, encompassing space, rhythm and time. The projections expose the subconscious of natural and urban environments and objects as a paradoxical language. His super 8 film *Nun's Night Out* by choreographer Julie-Anne Long, won Best Australian Dance Film at the Australian Dance Awards whilst his dance films have been screened extensively nationally and internationally. He works with a wide range of independent artists and companies such as Sydney Dance Company and The Australian Ballet as well as with new media performance, site-specific performance artists and with live improvisation.

Sound designer IAN STEVENSON is a sound artist, researcher, designer and engineer. His work has appeared in theatres, broadcast media and public spaces in Europe and Australia. His current research is in the area of auditory confusion and the poetics of sonic reverie; and new interfaces for musical expression. He lectures in Digital Music and Electronic Arts at the University of Western Sydney. In recent years he has worked in R&D and product management for leading Australian technology companies including Fairlight and DSP Media. Living in London from 1992-1997 he worked for leading sound design firm Autograph Sound Recording. His specialised technical skills have been employed in West End and international touring productions for Cameron Macintosh (*Les Miserables*, *Martin Guerre*), the Really Useful Group (*Starlight Express*, *Cats*) and the Peter Hall Company ('97, '98 repertory seasons *Old Vic*, *Piccadilly Theatre*), amongst many others. He also worked on broadcast productions for BBC local radio, Channel 4 and ITV. From 1987-1990 he was technical director of Theatre Sound Australia Pty Ltd, designing and supervising sound production for the Gordon Frost organisation, Melbourne Theatre Company, Queensland Theatre Company, Barry Humphries, Expo 88, and others.

Lighting Designer TRAVIS HODGSON works as a lighting designer in theatre, opera and dance and has most recently designed for De Quincey Co's *Triptych*, *The Stirring* and *embrace: GUILT FRAME*, with PACT Theatre & Redfern Community Centre in *Gathering Ground*, Team Mess in *Killing Don*, Rachel McDonald in *La Vera Costanza*, and Chris Ryan in *What Was Wood Became Alive*. Travis holds First Class Honours in Performance Studies at The University of Sydney for his thesis on *place*, performance and CarriageWorks.

2.6 Ghost Quarters Poster

Produced by de Quincey Co May 2009



2.7 Ghost Quarters Show Control Syntax

CUES

There are two types of cues: normal cues which start with the letter **Q**, and cues with follow-ons which start with the letter **F**, e.g.:

Qnum, F followTime recname arg1 argn;

Qnum, Q recname arg1 argn;

Where:

Qnum the cue number (1000s for major cues, 10s for auto-follow-ons. The cue number is followed by a comma.

F The letter F for a cue with a subsequent auto-follow-on.

followTime the time in milliseconds after which the subsequent auto-follow cue will execute.

recname the parameter name.

argn the arguments to that parameter.

Q The letter Q for a cue with no auto-follow-on.

Each cue is terminated with a semi-colon.

GLOBAL PARAMETERS

GLOBAL-sflist replaces the current sound file list and activates loading files into memory.

Parameter 1: **listName**, type: symbol, no spaces

GLOBAL-reset stops cueList, stops playback, set vols to unity.

Parameter 1: **bang**, type: symbol

GLOBAL-vol master volume control for all play modules.

Parameter 1: **gain**, type: float, gain in decibels

fade, type: int, ramp time in milliseconds

MasterVol

Parameter 1: **gain**, type: float, gain in decibels

fade, type: int, ramp time in milliseconds

QDesc display cue description text in show-control UI

Parameter 1: **description**, type: string, cue description

MODULE PARAMETERS

Each PlayMod has a single argument module number **n** which identifies it, all module parameters are prefixed with the module number and a hyphen.

n-playCue play a specific sound file, note that if all sound file players are currently playing this will fail. Use n-stopAll to prepare.

Parameter 1: **cueNum**, type: int, sound file number as specified in the sfList.txt file

n-stopAll stops all currently playing sound file players, note these work in "cart mode" so that they will not stop until the current file has finished.

Parameter 1: **bang**, type: symbol, stop play back

n-playRND random playback of specified sound file range at specified rate

APPENDIX 2: GHOST QUARTERS

- Parameter 1: **1/0**, type: binary, activate random cue generation.
- Parameter 2: **min**, type: int, lowest file number in range.
- Parameter 3: **max**, type: int, highest file number in range.
- Parameter 4: **rate**, type: int, rate at which new numbers are generated in milliseconds.
- Parameter 5: **rateRND%**, type: float(0-1), percentage of variation of rate time - prevents rhythmic effects.
- N-pan** set fixed azimuth and elevation and ramp time.
- Parameter 1: **AZ**, type: int, set angle of azimuth in degrees.
- Parameter 2: **EL**, type: int, set angle of elevation in degrees.
- Parameter 3: **Spread**(0-100), type: int, set spread or divergence between adjacent speakers.
- Parameter 4: **Gain**, type: float, gain in decibels.
- Parameter 5: **Rate**, type: int, pan time in milliseconds.
- n-panX** send sound to specific loudspeaker
- Parameter 1: **vol**, type: float, gain in decibels.
- Parameter 2: **outputnum**, type: int, output number, refer to patch sheets or VBAP setup for speaker allocation.
- n-panRND** randomised panning
- Parameter 1: **1/0**, type: binary, activate random panning.
- Parameter 2: **rate**, type: int, rate at which new coordinates are generated in milliseconds.
- Parameter 3: **rateRND%**, type: float(0-1), percentage of variation of rate time - prevents rhythmic effects.
- n-rev** set fixed reverberation
- Parameter 1: **RT**, type: int (0-100), set reverb decay time, 100 is infinite.
- Parameter 2: **HFdamp**, type: int (0-100), set high-frequency damping.
- n-revRND** randomise reverberation parameters
- Parameter 1: **1/0**, type: binary, activate random reverb parameter change.
- Parameter 2: **rate**, type: int, rate at which new parameters are created in milliseconds.
- Parameter 3: **rateRND%**, type: float(0-1), percentage of variation of rate time - prevents rhythmic effects.
- n-vol** set fixed output level of player
- Parameter 1: **vol**, type: float, gain in decibels
- Parameter 2: **ramptimemSec**, type: int, ramp time in milliseconds.
- n-mix** set the direct to reverberant ratio or distance.
- Parameter 1: **drydB**, type: float, direct signal gain in decibels
- Parameter 2: **wetdB**, type: float, reverb gain in decibels
- Parameter 3: **RT**, type: int (0-100), set reverb decay time, 100 is infinite.
- Parameter 4: **rate**, type: int, ramp time in milliseconds.

APPENDICES

n-mixRND randomise the mix of direct to reverberant sound or perceived distance.
Parameter 1: **1/0**, type: binary, activate random direct to reverberant ratio or distance mixing.
Parameter 2: **rate**, type: int, rate at which new values are generated in milliseconds.
Parameter 3: **rateRND%**, type: float(0-1), percentage of variation of rate time - prevents rhythmic effects.

2.8 Ghost Quarters Score

```
10, F 0 QDesc preset;  
30, F 0 1-vol -100 1000;  
32, F 0 2-vol -100 1000;  
34, F 0 3-vol -100 1000;  
35, F 0 4-vol -100 1000;  
52, F 0 1-playRND 0 166 166 1000 0;  
54, F 0 2-playRND 0 166 166 1000 0;  
56, F 0 3-playRND 0 166 166 1000 0;  
58, F 0 1-stopAll 0;  
60, F 0 2-stopAll 0;  
62, F 0 3-stopAll 0;  
63, F 0 4-stopAll 0;  
71, F 0 1-mixRND 1 5000 0.2;  
72, F 0 1-panRND 1 5000 0.2;  
73, F 0 2-mixRND 1 5000 0.2;  
74, F 0 2-panRND 1 5000 0.2;  
75, F 0 3-mixRND 1 5000 0.2;  
76, F 0 3-panRND 1 5000 0.2;  
77, F 0 4-mix 0 -60 50 5000;  
78, F 0 4-mixRND 0 5000 0.2;  
79, F 0 4-panRND 1 5000 0.2;  
80, F 0 1-vol 0 1000;  
81, F 0 2-vol 0 1000;  
82, F 0 3-vol 0 1000;  
83, F 0 4-vol 0 1000;  
100, Q MasterVol 100 5000;  
1000, F 0 QDesc WH Opening;  
1010, F 0 1-vol 0 15000;  
1020, F 0 1-mixRND 1 5000 0.1;  
1025, F 0 1-panRND 1 5000 0.1;  
1030, F 0 2-vol 0 5000;  
1040, F 0 2-mixRND 1 5000 0.1;  
1045, F 0 2-panRND 1 5000 0.1;  
1050, F 0 3-vol -10 5000;  
1060, F 0 3-mixRND 1 5000 0.2;  
1065, F 0 3-panRND 1 5000 0.1;  
1066, F 0 4-vol 0 5000;  
1067, F 0 4-mixRND 0 5000 0.2;  
1068, F 0 4-panRND 1 5000 0.1;  
1069, F 5000 1-playCue 166;  
1070, F 240000 2-playCue 166;
```

APPENDIX 2: GHOST QUARTERS

1071, F 5000 1-playCue 166;
 1072, F 240000 2-playCue 166;
 1073, F 5000 1-playCue 166;
 1074, Q 2-playCue 166;
 1100, F 0 QDesc Rand WH Opening;
 1101, F 40000 3-playRND 1 100 166 2000 0.1;
 1106, F 0 4-mix 0 -60 20 1000;
 1108, F 38000 4-playCue 118;
 1110, F 35000 4-playCue 149;
 1112, F 0 2-mixRND 1 5000 0.2;
 1114, F 0 3-mixRND 1 5000 0.2;
 1116, Q 3-vol 0 5000;
 2000, F 0 QDesc WH2;
 2010, F 1000 1-playRND 1 200 259 5000 0.3;
 2018, F 0 2-mixRND 1 5000 0.2;
 2020, F 10000 2-playRND 1 200 259 5000 0.3;
 2030, Q 3-playRND 1 200 250 5000 0.3;
 3000, F 0 QDesc WH3;
 3010, F 1000 1-playRND 1 300 351 1000 0.3;
 3020, F 10000 2-playRND 1 300 351 5000 0.3;
 3030, Q 3-playRND 1 300 351 5000 0.3;
 4000, F 0 QDesc BallroomLawyersHouse1;
 4001, F 0 1-playRND 0 100 101 1000 0;
 4002, F 0 2-playRND 0 100 101 1000 0;
 4003, F 0 3-playRND 0 100 101 1000 0;
 4004, F 0 1-mixRND 0 5000 0.2;
 4005, F 0 2-mixRND 0 5000 0.2;
 4006, F 5000 3-mixRND 0 5000 0.2;
 4007, F 0 1-mix -100 -100 80 15000;
 4008, F 0 2-mix -100 -100 80 15000;
 4009, F 16000 3-mix -100 -100 80 15000;
 4020, F 0 1-stopAll 0;
 4021, F 0 2-stopAll 0;
 4022, F 0 3-stopAll 0;
 4023, F 0 1-vol -6 500;
 4024, F 0 2-vol 0 500;
 4025, F 0 3-vol 0 500;
 4026, F 0 4-vol 0 500;
 4113, F 0 1-mix 0 -100 50 500;
 4114, F 0 2-mix 0 -100 50 500;
 4115, F 500 3-mix 0 -100 50 500;
 4118, F 0 1-panRND 1 5000 0.1;
 4119, F 20000 4-playCue 404;
 4120, F 5000 1-playRND 1 467 498 2000 0.3;
 4121, F 25000 4-playCue 411;
 4122, F 5000 4-playCue 405;
 4123, F 0 1-playRND 1 400 414 4000 0.3;
 4124, F 0 2-playRND 1 467 498 2000 0.3;
 4125, F 0 3-playRND 0 300 350 5000 0.3;
 4126, F 0 1-mixRND 1 5000 0.2;
 4127, F 0 1-panRND 1 5000 0.2;
 4126, F 0 2-mixRND 1 5000 0.2;
 4129, F 0 2-panRND 1 5000 0.2;
 4130, F 0 3-mixRND 1 5000 0.2;

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4131, F 90000 3-panRND 1 5000 0.2;
 4500, F 0 1-playRND 1 415 498 4000 0.3;
 4501, F 0 2-playRND 1 415 498 2000 0.3;
 4502, F 10000 3-playRND 0 415 466 5000 0.3;
 4509, F 0 QDesc Ballroom IS VO 10:55;
 4510, F 25000 4-playCue 417;
 4515, F 0 1-vol -6 5000;
 4516, F 0 2-vol -6 5000;
 4517, F 4000 3-vol 0 5000;
 4518, F 0 4-vol 6 5000;
 4519, F 1000 3-vol -100 500;
 4520, F 0 3-vol -9 20000;
 4521, F 1000 3-playCue 499;
 4533, F 2000 4-vol 6 5000;
 4535, F 25000 4-playCue 444;
 4536, F 0 3-mixRND 1 1000 0.2;
 4537, F 0 3-panRND 1 1000 0.2;
 4538, F 3000 4-vol 6 5000;
 4539, F 20000 4-playCue 423;
 4551, F 0 1-vol 0 5000;
 4552, F 0 2-vol 0 5000;
 4553, F 0 3-vol -1 25000;
 4554, Q 4-vol 0 5000;
 5000, F 0 QDesc HallucinateBallroomLawyersHouse2;
 5001, F 0 1-vol 3 10000;
 5002, F 0 2-vol 3 10000;
 5003, F 0 3-vol 3 10000;
 5003, F 0 4-vol 0 5000;
 5010, F 0 1-playRND 1 500 583 1000 0.3;
 5012, F 0 3-playRND 1 500 583 2000 0.3;
 5020, F 180000 2-playRND 1 583 599 2000 0.3;
 5021, F 0 QDesc Piranesi Build;
 5022, F 0 1-vol 6 10000;
 5023, F 0 2-vol 6 10000;
 5024, Q 3-vol 6 10000;
 6000, F 0 QDesc MurderSegmentA-B;
 6001, F 0 1-vol -8 10000;
 6002, F 0 2-vol -8 10000;
 6003, F 0 3-vol 0 10000;
 6005, F 0 4-vol 2 1000;
 6010, F 0 1-playRND 0 600 642 1000 0.3;
 6012, F 0 2-playRND 0 600 642 2000 0.3;
 6014, F 20000 3-playRND 0 600 642 2000 0.3;
 6016, F 15000 4-playCue 636;
 6017, F 10000 4-playCue 633;
 6018, F 62000 2-playRND 1 600 642 5000 0.3;
 6019, F 0 4-vol 4 5000;
 6020, F 40000 1-playRND 1 600 642 5000 0.3;
 6030, F 0 4-vol 8 2000;
 6032, F 0 1-vol -8 5000;
 6034, F 3000 2-vol -8 5000;
 6035, F 55000 4-playCue 639;
 6036, F 0 1-vol 0 10000;
 6037, Q 2-vol 0 10000;

APPENDIX 2: GHOST QUARTERS

7000, F 0 QDesc MurderSegementC-D-DI;
 7001, F 0 1-mixRND 1 5000 0.2;
 7002, F 0 1-panRND 1 5000 0.2;
 7003, F 0 2-mixRND 1 5000 0.2;
 7004, F 0 2-panRND 1 5000 0.2;
 7005, F 0 3-mixRND 1 5000 0.2;
 7006, F 0 3-panRND 1 5000 0.2;
 7007, F 500 1-vol 0 5000;
 7008, F 500 2-vol 0 5000;
 7009, F 500 3-vol 0 5000;
 7010, F 500 4-vol 0 5000;
 7015, F 0 1-playRND 1 700 720 5000 0.2;
 7020, F 10000 2-playRND 1 700 720 5000 0.3;
 7030, F 5000 3-playRND 1 700 720 1000 0.2;
 7040, F 15000 1-playRND 1 700 720 1000 0.2;
 7041, F 0 1-vol -6 5000;
 7042, F 0 2-vol -6 5000;
 7043, F 5000 3-vol -6 5000;
 7049, F 0 4-vol 3 1000;
 7050, F 30000 4-playCue 718;
 7051, F 0 1-vol 0 5000;
 7052, F 0 2-vol 0 5000;
 7053, F 30000 3-vol 0 5000;
 7060, F 0 1-vol -6 5000;
 7061, F 0 2-vol -6 5000;
 7062, F 5000 3-vol -6 5000;
 7063, F 0 4-vol 5 1000;
 7064, F 40000 4-playCue 719;
 7065, F 0 1-vol 0 5000;
 7066, F 0 2-vol 0 5000;
 7067, F 10000 3-vol 0 5000;
 7070, F 0 1-vol -10 5000;
 7071, F 0 2-vol -10 5000;
 7072, F 5000 3-vol -10 5000;
 7073, F 1000 4-vol 5 1000;
 7074, F 23000 4-playCue 720;
 7080, F 0 1-vol 0 5000;
 7081, F 0 2-vol 0 5000;
 7082, F 0 3-vol 0 5000;
 7083, Q 4-vol 0 5000;
 7500, F 0 QDesc Climax Build;
 7502, F 0 1-playRND 1 750 946 500 0.3;
 7504, F 10000 2-playRND 1 750 946 100 0.1;
 7506, F 15000 3-playRND 1 750 946 100 0.1;
 7508, F 5000 1-playRND 1 750 946 50 0.1;
 7510, F 5000 2-playRND 1 750 946 50 0.1;
 7512, F 5000 3-playRND 1 750 946 50 0.1;
 7520, F 0 1-mixRND 1 500 0.2;
 7522, F 0 1-panRND 1 500 0.2;
 7524, F 0 2-mixRND 1 500 0.2;
 7526, F 0 2-panRND 1 500 0.2;
 7528, F 0 3-mixRND 1 500 0.2;
 7530, F 5000 3-panRND 1 500 0.2;
 7531, F 1000 1-vol 10 15000;

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7532, F 1000 2-vol 10 15000;
 7533, F 1000 3-vol 10 15000;
 7534, F 0 1-mixRND 1 250 0.2;
 7535, F 0 1-panRND 1 250 0.2;
 7536, F 0 2-mixRND 1 250 0.2;
 7537, F 0 2-panRND 1 250 0.2;
 7538, F 0 3-mixRND 1 250 0.2;
 7539, F 15000 3-panRND 1 250 0.2;
 7540, F 500 1-vol 20 25000;
 7541, F 500 2-vol 20 25000;
 7542, F 30000 3-vol 20 25000;
 7543, Q MasterVol 108 55000;
 8000, F 0 QDesc FINAL EMPTINESS;
 8010, F 0 1-playRND 0 750 946 50 0.1;
 8011, F 0 2-playRND 0 750 946 50 0.1;
 8012, F 0 3-playRND 0 750 946 50 0.1;
 8013, F 0 1-mixRND 0 5000 0.2;
 8014, F 0 2-mixRND 0 5000 0.2;
 8015, F 0 3-mixRND 0 5000 0.2;
 8016, F 0 1-panRND 1 5000 0.2;
 8017, F 0 2-panRND 1 5000 0.2;
 8018, F 0 3-panRND 1 5000 0.2;
 8019, F 0 1-mix -40 0 120 500;
 8020, F 0 2-mix -40 0 120 500;
 8021, F 500 3-mix -40 0 120 500;
 8030, F 0 1-stopAll 0;
 8040, F 0 2-stopAll 0;
 8050, F 0 3-stopAll 0;
 8051, F 0 1-mixRND 1 5000 0.2;
 8052, F 0 1-panRND 1 5000 0.2;
 8053, F 5000 1-vol 10 500;
 8054, F 5000 1-playCue 1013;
 8055, F 0 2-mixRND 1 5000 0.2;
 8056, F 0 2-panRND 1 5000 0.2;
 8057, F 15000 2-vol 0 500;
 8058, Q 2-playRND 1 1000 1018 5000 0.3;
 8500, F 0 4-vol 3 1000;
 8508, F 1000 4-mix 0 -100 70 1000;
 8502, F 0 4-playCue 1019;
 8505, F 0 1-vol -100 70000;
 8507, F 0 2-vol -100 70000;
 8508, Q 4-mix 0 -6 70 70000;
 9000, F 0 QDesc FadeOut and Finish;
 9010, F 30000 MasterVol 0 30000;
 9020, F 0 Record 0;
 9030, F 0 1-stopAll 0;
 9040, F 0 2-stopAll 0;
 9050, F 0 3-stopAll 0;
 9060, Q TimeLineControl stop;

2.9 Ghost Quarters Feature—The Australian page 1

THE AUSTRALIAN

Ghostly genius dances into family history

Ian Cuthbertson | May 11, 2009

NEWS that dance artist Tess De Quincey will explore the writings of Thomas De Quincey - legendary 18th-century English poet, opium addict, wandering adventurer and "genius of the imagination" - in a multimedia and dance event called Ghost Quarters raises the question: is she related to him?

"Well now, I'm supposed to be," says De Quincey. Then peals of her laughter fill the lofty performance space of Carriageworks in Sydney's Redfern.

De Quincey knows genealogy is an inexact science. However, she is taken by various parallels in the lives of De Quinceys through the generations.

Early life losses are a theme. Her grandfather, for example, died three days after her father was born.

By the time Thomas was eight years old he had lost his sister Jane, his sister Elizabeth and his father.

"My dad was cut off from that side of the family because his mother remarried," De Quincey says.

"I grew up believing we were directly related. And the funny thing is, my dad looks so much like Thomas. It's really quite unnerving."

Whether the blood link is viable or not, sharing the name has led to a lifelong curiosity and identification.

"For a long time it has been in the back of my mind to get to know him better," De Quincey says.

In part, this has taken the form of re-reading works such as *The English Mail-Coach*, Thomas's three-part essay that first appeared in *Blackwood's Edinburgh Magazine* in 1849.

The essay, regarded as among the writer's finest works, describes the mail coach system in England, and is noted for being a piece of writing that mixes the techniques of fiction and nonfiction.

"I was reading *The Mail-Coach* again recently. Although I do find him overwhelmingly complex at times, there are passages that leave me just gobsmacked," De Quincey says.

"My mother thinks he would have been just impossible. But I don't have that feeling about him at all.

"He was such a very affectionate person to his wife and daughters. I suppose I'm a bit biased because I constantly impose my Dad's image on to him.

"Thomas went out of his way to stand behind a lot of women who were starting to write, when they would not generally have been accepted into what was considered a male field.

"I always felt with my Dad that he's not of the patriarchy. And I feel that way very deeply about Thomas.

"It's not particularly overt, but when you start digging down into how he operated and what he stood for, he was always making these very open relationships with women. That interests me enormously."

Having conceived the general idea of a dance work inspired by Thomas's writings, the next step was to approach her long-time friend, academic and crime writer Jane Goodall, whose response to the idea of working with De Quincey was an enthusiastic: "Yes: we should do that!"

Goodall brings much knowledge and experience to the project.

In a 2007 paper entitled *The Cut of Their Boots: Fashioning the Crime Novel*, Goodall wrote: "The work of fashioning a crime novel is all about cutting a dash, dramatic lighting, colour and texture: about designing strange encounters between the familiar and the unexpected."

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Ghost Quarters Feature – The Australian page 2

Speaking of her collaborator, De Quincey says: "We've known each other a long time, but it was a very different thing to suddenly start working in the studio together, mining these texts."

There's a sense that while the process has been rewarding, it has been just a beginning and an education about how the two might better work together in future.

"We always intended this to be a small event; a stepping stone to something bigger. While we were creating (*Ghost Quarters*) we were thinking: where can we imagine this other thing going?"

"So having done this, we would approach the next thing very differently, perhaps with the music and the images as well as the words and the movement together from the outset.

"Probably we would want to tease open possibilities of other forms, to see new forms coming into being."

New forms are not exactly new territory.

In 2005 De Quincey Co-produced *Five Short Solos*, works that took place separately but concurrently in small gallery spaces. In a kind of highbrow version of musical chairs the audience - divided into five groups before the work began and allocated a different starting point - moved from one solo to the next.

Reviewing the work, *The Australian's* Deborah Jones wrote: "The experience is almost shockingly intimate. In these very small spaces it's possible to hear every breath, to smell the bodies at work and to look directly into a dancer's eyes."

De Quincey's approach, honed in Japan, is based on a technique known as Bodyweather and has led to highly praised work. She describes the process as being fundamentally different from Western dance.

"It's actually not about self-expression. (In the West) we are always striving to go from the centre outwards. Whereas our work is almost the other way around.

"In my own practice I am beginning see everything in terms of dialogue. And I realise that my work is about creating environments of exchange. We strive to hold around the centre of all things, engage with that centre, and simply be danced by it."

Ghost Quarters is performed at CarriageWorks, Sydney, Wednesday to Saturday.

2.10 Ghost Quarters Review—Realtime page 1

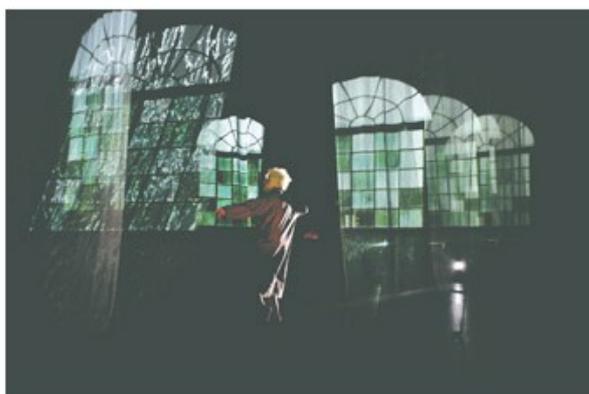
realtime 91

June-July 2009

Dance

the dance of inner space

keith gallasch: de quincey co, ghost quarters



Tess de Quincey,
Ghost Quarters
photo Mayu Kanamori

WATCHING DE QUINCEY CO'S GHOST QUARTERS IS LIKE WITNESSING THE GROWTH OF A FOREIGN ORGANISM, ONE THAT TRIGGERS IN EQUAL PARTS CURIOSITY AND ANXIETY. NOT SURPRISINGLY IT'S AN APTLY GOTHIC EXPERIENCE. THOMAS DE QUINCEY (1785-1859), THE ESSAYIST WHOSE WRITINGS INSPIRED THIS WORK, NUMBERED AMONG HIS ENGLISH ELDERS AND PEERS THE PIONEERS OF THE LITERARY GOTHIC. ADDING ANOTHER LAYER OF EERINESS IS THE POSSIBILITY THAT TESS DE QUINCEY, HERE EMBODYING, OR SHOULD I SUGGEST CHANNELLING (IF IN NO WAY ENACTING), THE GREAT MAN, IS POSSIBLY ONE OF HIS DESCENDANTS.

Ghost Quarters evolves like an expanding, multiplying cell. The audience, embraced by surround sound, sits on either side of a large installation, its long strips of translucent material rising high into the ceiling. Projected onto and through them are immersive images created by Sam James that evoke the now dream-like environments—unkempt nature, a haunting household with ornate chairs and chandeliers, a huge industrial space (using CarriageWorks itself)—the writer once travelled through and by which he was psychologically shaped.

Ghost Quarters Review—Realtime page 2

De Quincey is curled on the floor, quivering into life, or is it possession? As she rises to engage with this strange space, in movements that seem to alternate tremulously between claustro- and agoraphobia, so do images, visual and aural, begin to consume us. Shimmering grass reappears, grown spookily tall, an arched window appears on high, beckoning but threatening as the relentless chatter of the sound score suggests murder.

Later De Quincey grapples with the hung material, pulling it after her as if to take control of the writer's disturbed vision (he wrote *The Confessions of an Opium Addict*), then ventures out towards the audience, almost as if seeing us, pushing at some inner boundary. Finally, she exits through a huge creaking CarriageWorks door to the outside world, as if perhaps released.

If *Ghost Quarters* is an intriguing work replete with moments of palpable tension and sublime beauty, it is also a work not fully grown. De Quincey is, as ever, fascinating to watch, but my engagement with *Ghost Quarters* was disturbed by the chattering sound score, a word salad reminiscent of experimental radio works of recent decades. The credits attribute the vocals to Amanda Stewart, but there's an altogether odd mix of voices, accents and vocal styles, while the setting for Stewart's own delivery is pitched so low as to make her often unintelligible.

Jane Goodall's text, drawn from Thomas de Quincey's writings, is interesting in itself, when you can pick it out from the echoing repetitions and layerings (presumably intended to suggest that he 'heard voices'), but there doesn't seem to be a lot to it. Each of its several key passages relate to moments in the essayist's life, to events, psychological states and to ideas about nature and murder, but they are slender, leaving you greedy for more. No amount of sound manipulation and design can compensate. Why not something more from Thomas, just to make a little more sense of the man and his condition? This need not be a surrender to the conventions of documentary or narrative. And as there's one Tess embodying Thomas, why not then one voice, Stewart's? *Ghost Quarters* is a fascinating work that has room to grow, to become an organism both more spacious and dense.

De Quincey Co, *Ghost Quarters*, first dream of *The Opium Confessions*, dance Tess de Quincey, script Jane Goodall, vocals Amanda Stewart, video Sam James, sound Ian Stevenson, lighting Travis Hodgson, CarriageWorks, May 6-10

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Appendix 3: Sharawadji

3.1 Sharawadji video documentation Mock-up short version 2'27"

CD-R disc in front cover filename: SHARAWADJI Short.m4v

3.2 Sharawadji video documentation Mock-up Complete 22'44"

CD-R disc in front cover filename: SHARAWADJI.m4v

3.3 Sharawadji Post Card 1



3.4 Sharawadji Score

```
100, F 0 QDesc RESET;  
101, F 1000 dsp open;  
102, F 10000 dsp start;  
110, F 0 MstLvl -100 1000;  
120, F 0 1-Lvl -100 1000;  
121, F 0 2-Lvl -100 1000;  
122, F 0 3-Lvl -100 1000;  
123, F 0 4-Lvl -100 1000;  
124, F 0 5-Lvl -100 1000;  
125, F 0 6-Lvl -100 1000;  
126, F 0 7-Lvl -100 1000;  
127, F 0 8-Lvl -100 1000;  
160, F 0 1-Play 0;  
161, F 0 2-Play 0;  
162, F 0 3-Play 0;  
163, F 0 4-Play 0;  
164, F 0 5-Play 0;  
165, F 0 6-Play 0;  
166, F 0 7-Play 0;  
167, F 1000 8-Play 0;  
168, F 0 PlayerGates 1;
```

APPENDIX 3: SHARAWADJI

200, F 0 Desc PRESET;
 210, F 0 MstLvl -17 1000;
 220, F 0 1-Lvl 0 1000;
 221, F 0 2-Lvl 0 1000;
 222, F 0 3-Lvl 0 1000;
 223, F 0 4-Lvl 0 1000;
 224, F 0 5-Lvl 0 1000;
 225, F 0 6-Lvl 0 1000;
 226, F 0 7-Lvl 0 1000;
 227, F 0 8-Lvl 0 1000;
 1000, F 0 QDesc Start1ToyBox;
 1010, F 0 1-minFile 100;
 1020, F 0 1-maxFile 148;
 1030, F 0 1-PlayRate 1000;
 1040, F 30000 1-Play 1;
 1100, F 0 QDesc Start2ToyBox;
 1110, F 0 2-minFile 100;
 1120, F 0 2-maxFile 148;
 1130, F 0 2-PlayRate 1000;
 1140, F 30000 2-Play 1;
 1200, F 0 QDesc Start3ToyBox;
 1210, F 0 3-minFile 100;
 1220, F 0 3-maxFile 148;
 1230, F 0 3-PlayRate 1000;
 1240, F 30000 3-Play 1;
 1300, F 0 QDesc Start4ToyBox;
 1310, F 0 4-minFile 100;
 1320, F 0 4-maxFile 148;
 1330, F 0 4-PlayRate 1000;
 1340, F 30000 4-Play 1;
 1400, F 0 QDesc Start5ToyBox;
 1410, F 0 5-minFile 100;
 1420, F 0 5-maxFile 148;
 1430, F 0 5-PlayRate 1000;
 1440, F 30000 5-Play 1;
 1500, F 0 QDesc Start6ToyBox;
 1510, F 0 6-minFile 100;
 1520, F 0 6-maxFile 148;
 1530, F 0 6-PlayRate 1000;
 1540, F 30000 6-Play 1;
 1600, F 0 QDesc Start7ToyBox;
 1610, F 0 7-minFile 100;
 1620, F 0 7-maxFile 148;
 1630, F 0 7-PlayRate 1000;
 1640, F 30000 7-Play 1;
 1700, F 0 QDesc Start8ToyBox;
 1710, F 0 8-minFile 100;
 1720, F 0 8-maxFile 148;
 1730, F 0 8-PlayRate 1000;
 1740, F 30000 8-Play 1;
 1750, F 0 QDesc RevAllOut;
 1760, F 0 1-RevAllOut 1;
 1761, F 0 2-RevAllOut 1;
 1762, F 0 3-RevAllOut 1;

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1763, F 0 4-RevAllOut 1;
 1764, F 0 5-RevAllOut 1;
 1765, F 0 6-RevAllOut 1;
 1766, F 0 7-RevAllOut 1;
 1767, F 0 8-RevAllOut 1;
 1770, F 0 1-Rev 10;
 1771, F 0 2-Rev 10;
 1772, F 0 3-Rev 10;
 1773, F 0 4-Rev 10;
 1774, F 0 5-Rev 10;
 1775, F 0 6-Rev 10;
 1776, F 0 7-Rev 10;
 1777, F 10000 8-Rev 10;
 1781, F 0 1-Rev -100;
 1782, F 0 2-Rev -100;
 1783, F 0 3-Rev -100;
 1784, F 0 4-Rev -100;
 1785, F 0 5-Rev -100;
 1786, F 0 6-Rev -100;
 1787, F 0 7-Rev -100;
 1788, F 0 8-Rev -100;
 1791, F 0 1-RevAllOut 0;
 1792, F 0 2-RevAllOut 0;
 1793, F 0 3-RevAllOut 0;
 1794, F 0 4-RevAllOut 0;
 1795, F 0 5-RevAllOut 0;
 1796, F 0 6-RevAllOut 0;
 1797, F 0 7-RevAllOut 0;
 1798, F 0 8-RevAllOut 0;
 1799, F 0 9-RevAllOut 0;
 1800, F 0 QDesc GoFasterToyBox;
 1810, F 1000 1-PlayRate 100;
 1820, F 1000 2-PlayRate 100;
 1830, F 1000 3-PlayRate 100;
 1840, F 1000 4-PlayRate 100;
 1850, F 1000 5-PlayRate 100;
 1860, F 1000 6-PlayRate 100;
 1870, F 1000 7-PlayRate 100;
 1880, F 30000 8-PlayRate 100;
 1890, F 0 QDesc RevAllOut;
 1891, F 0 1-RevAllOut 1;
 1892, F 5000 1-Rev 10;
 1893, F 0 1-Rev -100;
 1894, F 0 1-RevAllOut 0;
 1900, F 0 QDesc Birds1;
 1905, F 0 1-Lvl -6 1000;
 1910, F 0 1-minFile 600;
 1920, F 0 1-maxFile 663;
 1930, F 0 1-PlayRate 1000;
 1940, F 30000 1-Play 1;
 2000, F 0 QDesc Birds2;
 2005, F 0 2-Lvl -6 1000;
 2010, F 0 2-minFile 600;
 2020, F 0 2-maxFile 663;

APPENDIX 3: SHARAWADJI

2030, F 0 2-PlayRate 1000;
 2040, F 0 2-Play 1;
 3050, F 30000 MstLvl -26 5000;
 2100, F 0 QDesc Birds3;
 2105, F 0 3-Lvl -6 1000;
 2110, F 0 3-minFile 600;
 2120, F 0 3-maxFile 663;
 2130, F 0 3-PlayRate 1000;
 2140, F 30000 3-Play 1;
 2200, F 0 QDesc Birds4;
 2205, F 0 4-Lvl -6 1000;
 2210, F 0 4-minFile 600;
 2220, F 0 4-maxFile 663;
 2230, F 0 4-PlayRate 1000;
 2240, F 30000 4-Play 1;
 2300, F 0 QDesc Birds5;
 2305, F 0 5-Lvl -6 1000;
 2310, F 0 5-minFile 600;
 2320, F 0 5-maxFile 663;
 2330, F 0 5-PlayRate 1000;
 2340, F 30000 5-Play 1;
 2400, F 0 QDesc Birds6;
 2405, F 0 6-Lvl -6 1000;
 2410, F 0 6-minFile 600;
 2420, F 0 6-maxFile 663;
 2430, F 0 6-PlayRate 1000;
 2440, F 30000 6-Play 1;
 2500, F 0 QDesc Birds7;
 2505, F 0 7-Lvl -6 1000;
 2510, F 0 7-minFile 600;
 2520, F 0 7-maxFile 663;
 2530, F 0 7-PlayRate 1000;
 2540, F 30000 7-Play 1;
 2600, F 0 QDesc Birds8;
 2605, F 0 8-Lvl -6 1000;
 2610, F 0 8-minFile 600;
 2620, F 0 8-maxFile 663;
 2630, F 0 8-PlayRate 1000;
 2640, F 60000 8-Play 1;
 3100, F 0 QDesc Foley1;
 3105, F 0 1-Lvl 0 1000;
 3110, F 0 1-minFile 700;
 3120, F 0 1-maxFile 913;
 3130, F 0 1-PlayRate 1000;
 3140, F 30000 1-Play 1;
 4100, F 0 QDesc Foley2;
 4105, F 0 2-Lvl 0 1000;
 4110, F 0 2-minFile 700;
 4120, F 0 2-maxFile 913;
 4130, F 0 2-PlayRate 1000;
 4140, F 30000 2-Play 1;
 5100, F 0 QDesc Foley3;
 5105, F 0 3-Lvl 0 1000;
 5110, F 0 3-minFile 700;

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5120, F 0 3-maxFile 913;
 5130, F 0 3-PlayRate 1000;
 5140, F 30000 3-Play 1;
 6100, F 0 QDesc Foley4;
 6105, F 0 4-Lvl 0 1000;
 6110, F 0 4-minFile 700;
 6120, F 0 4-maxFile 913;
 6130, F 0 4-PlayRate 1000;
 6140, F 0 4-Play 1;
 6150, F 30000 MstLvl -17 90000;
 7100, F 0 QDesc Foley5;
 7105, F 0 5-Lvl 0 1000;
 7110, F 0 5-minFile 700;
 7120, F 0 5-maxFile 913;
 7130, F 0 5-PlayRate 1000;
 7140, F 30000 5-Play 1;
 8100, F 0 QDesc Foley6;
 8105, F 0 6-Lvl 0 1000;
 8110, F 0 6-minFile 700;
 8120, F 0 6-maxFile 913;
 8130, F 0 6-PlayRate 1000;
 8140, F 30000 6-Play 1;
 9100, F 0 QDesc Foley7;
 9105, F 0 7-Lvl 0 1000;
 9110, F 0 7-minFile 700;
 9120, F 0 7-maxFile 913;
 9130, F 0 7-PlayRate 1000;
 9140, F 30000 7-Play 1;
 10100, F 0 QDesc Foley8;
 10105, F 0 8-Lvl 0 1000;
 10110, F 0 8-minFile 700;
 10120, F 0 8-maxFile 913;
 10130, F 0 8-PlayRate 1000;
 10140, F 30000 8-Play 1;
 10200, F 1000 1-PlayRate 10000;
 10210, F 1000 2-PlayRate 10000;
 10220, F 1000 3-PlayRate 10000;
 10230, F 1000 4-PlayRate 10000;
 10240, F 1000 5-PlayRate 10000;
 10250, F 1000 6-PlayRate 10000;
 10260, F 1000 7-PlayRate 10000;
 10270, F 10000 8-PlayRate 10000;
 10270, F 0 1-RevRnd 1;
 10271, F 0 2-RevRnd 1;
 10272, F 0 3-RevRnd 1;
 10273, F 0 4-RevRnd 1;
 10274, F 0 5-RevRnd 1;
 10275, F 0 6-RevRnd 1;
 10276, F 0 7-RevRnd 1;
 10277, F 65000 8-RevRnd 1;
 10300, F 0 1-RevRnd 0;
 10301, F 0 2-RevRnd 0;
 10302, F 0 3-RevRnd 0;
 10303, F 0 4-RevRnd 0;

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10304, F 0 5-RevRnd 0;
 10305, F 0 6-RevRnd 0;
 10306, F 0 7-RevRnd 0;
 10307, F 0 8-RevRnd 0;
 10400, F 0 1-Rev -100;
 10401, F 0 2-Rev -100;
 10402, F 0 3-Rev -100;
 10403, F 0 4-Rev -100;
 10404, F 0 5-Rev -100;
 10405, F 0 6-Rev -100;
 10406, F 0 7-Rev -100;
 10407, F 0 8-Rev -100;
 11100, F 0 QDesc Whistle1;
 11105, F 0 1-Lvl 0 1000;
 11110, F 0 1-minFile 1000;
 11120, F 0 1-maxFile 1130;
 11130, F 0 1-PlayRate 1000;
 11140, F 30000 1-Play 1;
 12100, F 0 QDesc Whistle2;
 12105, F 0 2-Lvl 0 1000;
 12110, F 0 2-minFile 1000;
 12120, F 0 2-maxFile 1130;
 12130, F 0 2-PlayRate 1000;
 12140, F 30000 2-Play 1;
 13100, F 0 QDesc Whistle3;
 13105, F 0 3-Lvl 0 1000;
 13110, F 0 3-minFile 1000;
 13120, F 0 3-maxFile 1130;
 13130, F 0 3-PlayRate 1000;
 13140, F 30000 3-Play 1;
 14100, F 0 QDesc Whistle4;
 14105, F 0 4-Lvl 0 1000;
 14110, F 0 4-minFile 1000;
 14120, F 0 4-maxFile 1130;
 14130, F 0 4-PlayRate 1000;
 14140, F 0 4-Play 1;
 15100, F 0 QDesc Whistle5;
 15105, F 0 5-Lvl 0 1000;
 15110, F 0 5-minFile 1000;
 15120, F 0 5-maxFile 1130;
 15130, F 0 5-PlayRate 1000;
 15140, F 30000 5-Play 1;
 16100, F 0 QDesc Whistle6;
 16105, F 0 6-Lvl 0 1000;
 16110, F 0 6-minFile 1000;
 16120, F 0 6-maxFile 1130;
 16130, F 0 6-PlayRate 1000;
 16140, F 30000 6-Play 1;
 17100, F 0 QDesc Whistle7;
 17105, F 0 7-Lvl 0 1000;
 17110, F 0 7-minFile 1000;
 17120, F 0 7-maxFile 1130;
 11300, F 0 7-PlayRate 1000;
 17140, F 30000 7-Play 1;

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18100, F 0 QDesc Whistle8;
 18105, F 0 8-Lvl 0 1000;
 18110, F 0 8-minFile 1000;
 18120, F 0 8-maxFile 1130;
 18130, F 0 8-PlayRate 1000;
 18140, F 20000 8-Play 1;
 18150, F 0 QDesc RevAllOut;
 18160, F 0 1-RevAllOut 1;
 18170, F 5000 1-Rev 0;
 18190, F 0 2-RevAllOut 1;
 18200, F 5000 2-Rev 0;
 18210, F 0 3-RevAllOut 1;
 18220, F 5000 3-Rev 0;
 18230, F 0 4-RevAllOut 1;
 18240, F 5000 4-Rev 0;
 18250, F 0 5-RevAllOut 1;
 18260, F 5000 5-Rev 0;
 18270, F 0 6-RevAllOut 1;
 18280, F 5000 6-Rev 0;
 18290, F 0 7-RevAllOut 1;
 18300, F 5000 7-Rev 0;
 18310, F 0 8-RevAllOut 1;
 18320, F 30000 8-Rev 0;
 18330, F 5000 1-Rev -100 5000;
 18340, F 0 1-RevAllOut 0;
 18350, F 5000 2-Rev -100 5000;
 18360, F 0 2-RevAllOut 0;
 18370, F 5000 3-Rev -100 5000;
 18380, F 0 3-RevAllOut 0;
 18390, F 5000 4-Rev -100 5000;
 18400, F 0 4-RevAllOut 0;
 18410, F 5000 5-Rev -100 5000;
 18420, F 0 5-RevAllOut 0;
 18430, F 5000 6-Rev -100 5000;
 18440, F 0 6-RevAllOut 0;
 18450, F 5000 7-Rev -100 5000;
 18460, F 0 7-RevAllOut 0;
 18470, F 5000 8-Rev -100 5000;
 18480, F 10000 8-RevAllOut 0;
 19000, F 0 QDesc Toybox1;
 19005, F 0 1-minFile 100;
 19010, F 10000 1-maxFile 148;
 19015, F 0 QDesc Birds2;
 19017, F 0 2-Lvl -8;
 19020, F 0 2-minFile 600;
 19030, F 10000 2-maxFile 663;
 19035, F 0 QDesc Foley3;
 19040, F 0 3-minFile 700;
 19050, F 10000 3-maxFile 913;
 19055, F 0 QDesc Whistle4next4follow;
 19060, F 0 4-minFile 1000;
 19070, F 10000 4-maxFile 1130;
 19080, F 0 5-minFile 100;
 19090, F 10000 5-maxFile 148;

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19095, F 0 6-Lvl -6;
19100, F 0 6-minFile 600;
19110, F 10000 6-maxFile 663;
19120, F 0 7-minFile 700;
19130, F 10000 7-maxFile 913;
19140, F 0 8-minFile 1000;
19150, F 10000 8-maxFile 1130;
19160, F 0 1-minFile 200;
19170, F 5000 1-maxFile 520;
19171, F 0 1-minFile 1000;
19172, F 0 1-maxFile 1130;
19175, F 0 QDesc SlowDown;
19180, F 5000 1-PlayRate 10000;
19190, F 5000 2-PlayRate 10000;
19200, F 5000 3-PlayRate 10000;
19210, F 5000 4-PlayRate 10000;
19220, F 5000 5-PlayRate 10000;
19230, F 5000 6-PlayRate 10000;
19240, F 5000 7-PlayRate 10000;
19250, F 5000 8-PlayRate 10000;
19255, F 0 QDesc StopEachAfter5secs;
19260, F 5000 1-Play 0;
19270, F 5000 2-Play 0;
19280, F 5000 3-Play 0;
19290, F 5000 4-Play 0;
19300, F 5000 5-Play 0;
19310, F 5000 6-Play 0;
19320, F 5000 7-Play 0;
19330, F 5000 8-Play 0;
20000, F 0 QDesc restart;
20010, Q Qnum 0;
30000, F 0 1-Play 0;
30010, F 0 2-Play 0;
30020, F 0 3-Play 0;
30030, F 0 4-Play 0;
30040, F 0 5-Play 0;
30050, F 0 6-Play 0;
30060, F 0 7-Play 0;
30070, F 0 8-Play 0;
30080, Q QDesc pause;