SECTION THREE:

PERFORMANCE AND PRESENTATION

5. REFLECTIONS ON SOUND ART

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This chapter is concerned with sound (or sonic) art, as opposed to the art form known as music. This is, nevertheless, a quite difficult artistic category to describe straightforwardly. There are, for example, no boundaries that divide 'sound art' and 'music' in any total manner. Rather, the differences emerge through the ways in which the works are defined and presented within a nexus of – to name a few examples – creators, promoters, critics and audiences; how a work travels within particular institutional segments. There are, however, always points where such distinctions collapse, overlap or blur, because a work straddles borders that previously may have policed categorical tidiness.

David Toop argues that, at its most basic level, sound art is 'sound combined with visual practices' (Toop 2000: 107), organised in a manner that differentiates it from more traditional practices associated with 'music'. Such a definition points to the ways in which sound art is a largely multimedia form: a context-specific work that exists within the gallery space (generally perceived as a visual area) or as a site-specific installation. Nevertheless, such a basic definition could be questioned in the sense that there are pieces which often get designated as sound art that are not combined with visual practices, at least not in the conventional sense. For example, Jonty Semper's *Kenotaphion* (2001) is generally considered to be sound art, though it is a conventional CD release, not an installation: the double CD compiles two-minute silences that have been observed on Armistice Day (Poole 2001: 9). Why is it considered sound art? It is possibly because it falls outside of most people's definition of music and is presented within an artistic context (as a CD, presented by an 'artist'). In this sense, whilst

broad definitions are never entirely satisfactory, I would still rather follow Brendon LaBelle's general notion of sound art as a conceptual practice in which music/sound 'is both the thing *and* a reflection on the thing' (LaBelle 2006: 4). Thus, whilst in this chapter I will mainly give an overview of sound art that does contain visual as well as aural components (to differing degrees), I will not confine myself to such work. I will begin by tracing the roots of sound art within particular reflections on sound and music.

Organised Sound

One important theoretical line underpinning the practice of sound art is the questioning of the boundary separating noise from music. As Douglas Kahn has detailed, noise has often been perceived as music's 'other', as sound that does not easily fit into the dominant conceptions of musical practice. Western musical traditions, for example, have often distinguished *music* from *sound* in terms of the former's structural organisation into a series of harmonic sequences, whilst sound itself is differentiated from *noise* in terms of stability and uniformity (Kahn 2001: 72–83). Such views were modified drastically in the twentieth century, with a number of avant garde artists interested in the incorporation of less 'regular' sounds into 'musical' compositions. One of the most infamous of such interventions was by the Futurists, in particular Luigi Russolo, who insisted on the importance of noise and debated the tendency to block its presence from musical composition. For Russolo, reacting against the classical tradition, a new form of composition was needed in order to capture the spirit of the modern world, which he called *noise-sound* (Russolo 1913). Whilst he wrote that such 'noise-sounds' should ultimately be incorporated within a harmonic and rhythmic composition, Russolo nevertheless was a key figure in expanding the source sounds of musical construction.[1] Other inter-war avant garde artists were also experimenting with the presentation of noise in live performances: Hugo Ball, founder of the Dada movement, used grunts, coughs, screams and whistles in his 'simultaneous poetry', whilst Russian artist Arseni Avraamov directed a number of 'sound spectacles' which incorporated choirs, foghorns, artillery guns and factory sirens (Heon 2005: 91).

For Russolo the proliferation of machinery within society had profoundly altered the soundscape of everyday life, and he thought machines should be built to reflect this soundscape more suitably in musical form. Yet, ironically, whilst he aggressively praised technological progress, hopes for the commercialisation of his machines were dashed by such progress: just when there was hope of his Noise Harmonium going into production to accompany silent movies, the era of the 'talkies' consigned his machines to oblivion (Toop 2000: 110–11; Kahn 2001: 128). One of the next major events in organised sound, *musique concrète*, was very much influenced by recording technology developments, particularly the

commercial availability of magnetic tape recording (though it was first practised using phonograph recording technologies). Combined with the existing possibilities of microphone recording, practitioners associated with *musique concrète* – in particular Pierre Schaeffer, who began experimenting in 1948 – edited together the concrete sounds of everyday life into sonic montages. This was once again an organisation of sound that questioned the existing boundaries separating music from noise. It was an invitation to listen to a succession of sounds that had been recontextualised, ruptured from the flux of everyday life, and inserted within a deliberate series of sound events, often having undergone further manipulation.

Another important figure who questioned existing distinctions between noise and music was Edgar Varèse, who incorporated the dissonant sounds of sirens in compositions such as 'Ionisation' and claimed that he was an 'organiser of sound' rather than a musician. His 1958 composition for the Brussels Word Trade Fair, *Poème électronique*, stands as a landmark of sound art. Not only did this piece radically employ synthesised electronic sounds, but it was produced for a specially designed installation by Le Corbusier in the Phillips Radio Corporation Pavilion. It was therefore part of a multimedia installation, utilising 400 speakers in a series of rooms – creating a sense of sound travelling with participants as they moved from room to room – and also a series of projected images. Crucially, then, this piece, in conjunction with architectural space, drew people's attention to the materiality of sound, a concern that has preoccupied a number of subsequent sound artists (a point I will return to).

Nevertheless, at this historical juncture the term 'sound art' was not in itself an accepted designation for a particular approach towards sonic composition. Even now, whilst it is a term that is gaining increasing cultural currency, it is still rather inchoate, dispersed amongst, and informed by, different institutional contexts, and not even accepted by some artists; Max Neuhaus – often described as a sound artist – rejects the term because it is too loose (Neuhaus 2000). Whilst the main emphasis in this chapter is on sound art within gallery exhibits or site-specific installations, the very porosity of the practice sometimes calls into question such straightforward categories. For example, was John Cage's seminal performance of *4′ 33″* in 1952 a live performance or was it something more akin to a sound installation? In terms of audience expectation it was contextualised as a live performance of music, but there was no 'music' present, in a traditional sense, thus challenging the very notion of live performance. Whilst, once again, the notion of sound art was not in general currency when this piece was 'performed', it has become a key event in terms of tracing the many influences and concerns of contemporary sound artists. This is because it was going against the institutionalised conceptions of music, attempting to draw attention to sound in a different way from the conventional (in this sense, through extending the boundaries of the composition beyond what was issuing from the musicians on a stage).

Following on from Cage's use of performance space to challenge listening habits, sound art has tended to manifest itself as a type of practice that invites people to pay attention to sound in new ways, beyond habitual processing. Commonly, sound is experienced in everyday life as non-artistic, except with the case of music. Sound art often attempts to challenge these demarcations through artistically arranging non-musical sounds, sometimes reconceptualising 'music' into contexts where its modes of consumption are reconfigured. It is manifested in a number of ways: objects, sound sculptures, and installations both inside and outside of galleries; live performances (both inside and outside of buildings); and more recently new avenues have been opened up through the development of digital technologies, particularly network technologies, which have led to the extension of sound artworks into platforms such as CD-ROMS and websites.

Materiality and Space

A recurrent preoccupation of a number of sound artists has been an interest in sound as a *material* presence within everyday life, which overlaps with interest in how different spaces can shape the behaviour of sound. It has often been assumed that sound is immaterial and temporal – absorbed by the ears, processed, but then lost in the midst of time. Of course, this is not true: sound is the product of material vibrations whose acoustic properties arise from their interaction with other physical properties. None the less, the lack of attention paid to the material aspects of sound is an area of research that many sound artists seek to address. In this sense, the sound artist can cross over into the terrain of physics, but does not follow standard scientific conventions; instead she or he creates an artistic piece that demonstrates a concept in action. Alvin Lucier, for example, states that he often uses scientific principles experientially rather than theoretically, in the process attempting to uncover the 'poetic beauty of nature' (quoted in Buck 2004: 44).

Lucier himself is a concert performer *and* sound artist, creating works for live performance as well as sound installations (sometimes it is difficult to place such work in either category, as it straddles both). His seminal piece *I Am Sitting in a Room* (1970) consists of text read out in a room, recorded upon a tape recorder, then played back and recorded on a second tape recorder. This process is then repeated a number of times, so that the resonant frequencies of the room increasingly impact upon the recording, eventually drowning out the clarity of the words themselves and producing amorphous, drone-like textures. It is a demonstration of how recording technology can 'capture' the characteristics of a space, and how that space itself can impact upon sounds in a particular manner (thus the piece will change according to the environment it is performed in). As Paul Morley has written, 'You can in fact begin to make out

the shape and size of the room if you listen to the music, from the way the music begins to develop in sonic reaction to its surroundings. The sound as it progresses creates a kind of aural diagram of the room' (Morley 2003: 33). Lucier has also constructed a number of sound installations, such as *Music on a Long Thin Wire* (1977), in which a long piece of wire is attached to a tuned oscillator and left to sound by itself. The sound can vary in terms of the length of the wire and the space within which it is placed, thus interacting in a kind of 'organic' manner with nature and the vibrations produced by human visitors.

A number of sound artists have interrogated the relations between sound and environment, thus drawing attention to the physicality of sound and its context-specific properties. These include (amongst many others) Michael Brewster, and Annea Lockwood, and Bill Fontana. Fontana, who has been creating sound sculptures since 1976, has described all sound as 'really a description of the space you put it in' (Cowley 2004: 82) and has attempted to map and explore a variety of sound spaces. For example, his installation at Leeds City Art Gallery, *Primal Soundings* (2004), uses recording devices such as acceleromoters (material sensors) and hydrophones (underwater sensors) to map a number of different sounds within the Yorkshire environment, including water in underground tunnels, wind farms, and recordings picked up from far beneath the earth's surface. These sounds are then transmitted within different spaces of the gallery, so the listener encounters a constantly changing sonic landscape as she or he moves through different rooms. Fontana's most recent project is the *Harmonic Bridge* (2006) at Tate Modern in London, which places a number of acceleromoters under the capital's Millennium Bridge. The various sounds of natural elements, as well as the movement of people and traffic over the bridge, combine with the architecture of the bridge itself, the sounds of which can be heard both in Tate Modern's Turbine Hall and at Southwark Underground station. In a sense, the everyday landscape here becomes transformed, in that architecture (the bridge) is turned into a musical instrument that is 'played' by its surrounding environment, resulting in a continuous 'improvised composition'. The result is an ever-shifting soundscape of scrapes, clangs and hums, not unlike a number of 'dark ambient' compositions produced by artists such as Lull and Zoviet France.[2]

Fontana's sound art also probes into the sound of the environment: partly, in a manner that can be linked to Cage as well as composer/sound theorist R. Murray Schafer, to encourage us to listen to our everyday environment more attentively; partly to zoom in on the environment and to magnify sounds that we may not otherwise be able to hear. In the latter respect, technology and nature – which have frequently been placed in opposition – grow in symbiotic tandem with one another. That is, expanding developments in technology enable us to hear more and more sounds, thus expanding the environmental soundscape. Sounds that were previously beyond the hearing range of humans

have now loomed into focus through the prosthetic augmentation of our sensory apparatus. In addition, as Fontana himself has pointed out, these works can play around with perception, particularly through their potential to rupture sight-sound expectations. For example, the usual sounds heard outside of Southwark tube station are overlaid by the amplified sounds of the Millennium Bridge, which can create a strange tension between what the eye leads the ear to expect. This foregrounds how our senses are intricately linked and how our brains hardwire associations through experience and memory.

Technology and Modernity

Whilst recording technologies have enabled us to listen to nature more carefully, such technologies developed in tandem with a shift towards urbanism, when the sonic ambience of many humans was undergoing considerable transformation. The late nineteenth and early twentieth centuries brought forth a new host of sounds, amplifying the variety and degree of sonic information: trains, cars, factories, aeroplanes and an ever expanding network of mechanical devices, as well as the noise of densely packed crowds of people, were amongst the contributors. This alarmed many and led to the development of a number of noise abatement campaigns such as the Anti-Noise League, which was founded in Britain in 1933 (Bijsterveld 2003: 172). The composer and sound theorist R. Murray Schafer, however, took a different line, arguing for a more detailed understanding of our sonic environment. He argued in 1973 that the world was becoming more low-definition than previously: with so many sounds now vying for our attention and overlapping with one another, it was difficult for us to hear any single sound with clarity, compared to ancient times when, because sounds were scarcer, we could hear them in higher definition. Thus, for Schafer, the advent of 'hi-fi' recording and playback technologies was, contradictorily, appearing as the world was turning 'lo-fi' (Schafer 2004: 32). Nevertheless, whilst countering noise abatement campaigns, there was a vestige of noise aversion within Schafer's thesis: it was clear that he bemoaned the proliferation of 'hi-fi' technologies, believing that they contributed to our inability to hear properly.

Whilst Schafer's tendency to rail against certain noises has been criticised on many occasions, he has nevertheless proven an influential figure within the world of sound art, particularly through the establishment of the World Soundscape Project, which was an attempt to map the changing sound environment and engage in 'acoustic ecology'. German sound artist Christina Kubisch sums up the ambivalent respect that many sound artists feel towards Schafer in her claim that 'I don't belong to the eco-faction like Schafer . . . But I think his approach is tremendously important. He was one of the first to place importance on simply listening' (quoted in Toop 2004: 78). Despite

Schafer's aversion to certain industrialised sounds, he and his Soundscape cohorts nevertheless recorded many such sounds in their documents of aural life. They therefore utilised 'hi-fi' technologies to sample the sounds of everyday life, to rip aural moments from their everyday contexts and to isolate them for scrutiny. Such audio 'snapshots' recalled the techniques of Pierre Schaeffer and other *musique concrète* practitioners, who also edited the sounds of the everyday, albeit for different – more avowedly 'artistic' – purposes (and were more interested in modifying such sounds). Likewise, there are a number of subsequent sound artists who have explored the urban soundscape in different ways, and also many who have reflected upon the very nature of sound technologies.

One particularly striking manifestation of sound art within urban space focuses upon mobility through one's external environment and a transformation of sonic ambience via certain technological processes. Kubisch herself has been involved in this line of work through her 'electromagnetic induction' works. These began in the early 1980s as interactive gallery installations, whereby people could experience different sounds according to their movements via a pair of magnetic headphones that responded to electrical wires placed around the room. This work was then extended into a series of 'electrical walks', as the headphones picked up signals from a range of electrical fields within the environment, emanating from technologies such as surveillance cameras, mobile phones, computers and ATMs. A person's lived environment is thus transformed into a type of virtual installation, enabling him or her to hear a unique pattern of sounds and also to perceive a very real, but usually imperceptible, aural dimension permeating living space. These walks thus tap into an alternative sonic realm and create a schism between perceptual modes: only the sense of hearing is technologically transformed, but the other senses are nevertheless affected through the rerouting of sensual co-ordinates.

In a sense, Kubisch's work can be compared, though certainly not reduced, to the ways in which many people's cultural lives were undergoing such schismatic transformations from the early 1980s onwards, with the advent of the Walkman. A major difference is that the Walkman feeds the ear with the personal selections of its individual users; the 'electrical walks' were not designed to fit into pre-existing aural tastes, but rather to introduce participants to a new phonic experience. Nevertheless, there is a comparison to be made in that the Walkman also allows its users to enter a mobile, secret listening event (Thibaud 2003: 330). Such listening is also part of Janet Cardiff's *The Missing Voice (Case Study B)* (1999). In this walk, the participant is handed a Discman and headphones at a library in Whitechapel, London, and proceeds to walk around the area whilst, sonically, a narrative unfolds so that the spaces walked through become part of the fiction unfolding in the listener's head.

Figure 2 Participants using magnetic headphones in one of Christina Kubisch's *Electrical Walks* – Magnetic Forest, Kyoto, 1991 (courtesy Christina Kubisch)

Kubisch's and Cardiff's mobile pieces draw attention to accustomed ways in which we often hear in public space. By layering new sonic information upon our movement through familiar space, they reconfigure expected sight-sound connections. As a result, we may well become aware of how we often process and filter everyday sounds, but rarely pay them thorough attention. Such a concern is certainly a component of a number of Max Neuhaus's sound works. His *Listen* (1976), for example, consisted of stamping people's hands with the word 'listen' and then directing them through an urban walk in New York. Participants were thus encouraged to focus more attentively on their surrounding aural fabric, to pay attention to the nuances of sounds they often took for granted. Neuhaus also constructs public sound installations, such as *Times Square* (1977), in which he installed sound-generating devices in a subway ventilator underneath a small triangular patch in Times Square. The result is a subtle transformation of phonic ambience within this small area, which changes in relation to the surrounding city sounds: thus the electronic sound is more noticeable late at night, when the traffic becomes less frantic.

Music Technologies

Many of the preceding examples of sound art make use of recording technologies in order to open up new ways of hearing, but there is also a line of sound work that incorporates musical technologies and foregrounds them within the actual work itself. At the 'Sonic Boom' exhibition at the Hayward Gallery, 2000, there were a number of works that employed music technologies within their remit, thus drawing attention to the material machines that produce and process sound in different ways. These included Pan Sonic's *2 × 50 Hz Thru Leslie Speaker*, a work in progress that produced two similar pitches to create a beat frequency, the sound rising and falling as the speaker rotated; and Lee Ranaldo's *HWY SONG*, which displayed a TV monitor within the sound-hole of a 1920s Stella guitar, presenting a loop of a stretch of highway. Whilst the former primarily focused upon the materiality of the sound-producing objects, the latter seemed to display the object in order to reveal, via the film loop, its mythological connotations. Both of these concerns were woven into another exhibit, Christian Marclay's *Guitar Drag*, a video installation that featured an amplified Fender guitar tied to the back of a truck and dragged across various surfaces. The work addresses not only the texture of sound that the guitar is capable of producing in unlikely contexts (which is incredibly noisy), but also addresses the mythology of the guitar (guitar songs about the road, guitar abuse by performers), as well as the subject of racial lynching in the rural south, the location in which the drag takes place.

All of the above artists are also musicians, though Ranaldo and Pan Sonic are more associated with their musical work than Marclay, who crosses over into the sound art world on a more frequent basis, often creating works that blur the line between sound art and music. Having exhibited his work in a number of galleries throughout the world, Marclay frequently addresses the materiality of sound in relation to the various media through which it is transmitted. In his DJ work in the 1980s, Marclay began to incorporate a number of scratched and modified records into his work (including broken and melted records), which he termed *Recycled Records* (1980–6). These pieces, which became the basis for his first standalone artwork, created collages constructed from such pieces, delving into the sheer physicality of vinyl as a medium: not only foregrounding the manner by which vinyl's encounters with the physical world through time often affect the noise signals it produces (through the accumulation of dust and scratches), but also seeking out the possibilities of new sound signals within objects conventionally regarded as damaged and thus useless. These concerns were also strikingly addressed in Marclay's *Record Without a Cover* (1985), which was a limited edition record (50 copies) sold without a cover, so that it would deliberately degrade in its unprotected state (on the side of the record without grooves, there is an instruction not to store

the record in a protective package). This, once again, addresses issues of time and degradation: this is a 'functional' artwork that exists in the lives of the individuals who purchase it, and which will change according to the manner in which they store it in their particular surroundings. If, as instructed, it isn't placed in a protective cover then it will be subject to a continual process of change, so that the piece of music inscribed upon the vinyl will undergo a continual, entropic transformation. The piece is also, as David Toop has pointed out, a sly comment on record collecting, a subtle subversion of the compulsive respect and shielding from harm that serious collectors accord their prized possessions (Toop 2004: 169–70).

Philip Jeck and Janek Schaefer are two other artists who address the materiality of vinyl and how it can be manipulated beyond the remit of conventional usage. Like Marclay, Jeck and Schaefer create gallery installations as well as taking part in live performances and releasing audio recordings; like Marclay, they also partake in an experimental type of 'turntablism'.[3] Jeck's most recognised work is his 1993 piece *Vinyl Requiem* (1993, with Lol Sargaent), which was a performance for 180 Dansette record players, twelve slide projections and two movie projectors. Jeck's work, which also includes the piece *Off the Record* (1996, included in the Sonic Boom exhibition), resurrects old media hardware and brings it alive, though at the same time reflecting on the antiquated status of such media. By using old records on multiple old turntables, and looping segments to play in tandem, Jeck creates a dense noise-scape that is like a requiem for these objects, an 'exploration of the ghost world created by vinyl's gradual dissolution' (Shapiro 2002: 171). Schaefer, meanwhile, specialises – amongst many other pursuits – in constructing his own custom-made turntables. Inspired by Jeck's *Vinyl Requiem*, Schaefer constructed one record player that could play three different records simultaneously, which he calls the 'Tri-Phonic Turntable' (Schaefer 2001: 73). The player can be played at a number of different speeds, as well as backwards, and plays records that Schaefer specifically cuts for incorporating into these pieces (featuring, for example, locked grooves and found sounds). Schaefer has developed an improvisatory approach to performing on this turntable, which has developed through chance, and has also developed a simpler twin turntable for easier portability. His approach mixes indeterminism and environmental sampling with a creative bypassing of predictable consumptive patterns. He is a kind of exploratory, semi-scientific sound artist, modifying hardware and software in an attempt to explore the untapped potential sounds of everyday objects.

If I have focused upon the presence of vinyl at length within this brief overview, it is not to suggest that other recording and playback technologies are rarely addressed within the world of sound art. It is to suggest, however, that vinyl does seem to generate a particular fascination: as a form of media that is becoming outmoded it is suggestive of memory, nostalgia, preservation and

decay, yet it has also enjoyed a longer life and tended to engender a more vociferous collecting culture than other related media. Additionally, as Toop has highlighted (2004: 181), there is a real physicality about vinyl which makes it ripe for incorporation into sound art practice: unlike a cassette, for example, or newer digital playback formats such as the CD and MP3 files, we can actually see the information traces in the vinyl grooves, can see the stylus make its way across the surface of the vinyl during playback, and can detect the physical reasons as to why a record may not be playing the way we want it to (such as when the stylus cannot continue past a scratched area). It may be the case, however, that other media formats will grow in interest as their own particular properties are uncovered and celebrated. This appears to be occurring, to an extent, with the case of the audio cassette: in particular, its enabling of home taping and the construction of personalised compilation tapes has been seen as important, and it is increasingly perceived as playing a crucial part within the development of 'DIY culture'.[4]

Interactivity

As a visitor to the 'Sonic Boom' exhibition in 2000 I found two particular things seemed to be lacking: an ability to become fully immersed within many of these works (a problem I often experience within gallery spaces), but also – perhaps more specifically related to the exhibition – opportunities to interact with the pieces. I don't believe that interactivity is always a positive dimension within a piece of art, but there were certain pieces here that I thought could have benefited from a more interactive dimension, particularly the works by Brian Eno and Pan Sonic. One of the few pieces that did allow for interaction was Christina Kubisch's *Oasis 2000: Music for a Concrete Jungle*, which allowed visitors to don headphones, walk onto the Hayward Gallery's Sculpture Court, and move around a changing sonic landscape, via the installation of magnetic induction cables. The piece demonstrated how interactivity could be built into sound artworks in a positive manner, opening up a singular space of immersion within the rigid environs of the public gallery.

In line with the increasing spread of networking technologies across the globe, interactivity within artworks has become a growing concern. This interest in network art has precedents, such as the Fluxus group and its international, cooperative nature, which itself was an outgrowth of the spread of global telecommunications. Nevertheless, newer forms of communications technologies – in particular the Internet, but also mobile phones – have altered the ways in which artists utilise and address technologies and their social implications. The growth of digital technologies has often been linked with increasing interactivity, because of the ways in which networked technologies allow users to take part in instantaneous feedback with the media that they are engaging with.[5] One particularly

striking example of an attempt to create an interactive sound artwork in relation to digital networking is Henrik Frisk's *etherSound* (2003), which was a specially designed instrument that could be played by anybody who sent an SMS from their mobile phone. The information within the SMS was converted into control signals that were then sent to a sound synthesis engine (Frisk and Yoshida 2005: 122). In this, Frisk was aiming to raise the level of public interest in sound art by engaging people in the actual process of sound production, through the use of an extremely widespread piece of communications technology. Though people did not know how the technology was converting their text messages into sounds, they were aware that they were contributing to the sonic emissions, and were thus centrally involved within the creative process.

Frisk has written about this piece and its aims, amongst which were:

- opening up sound art to people often excluded from the 'class hierarchies' linked to arts consumption;
- engaging participants in the art work and breaking down the roles between engineer, composer, audience;
- stimulating, through interactive processes, the participants into a reflective consideration of sound;
- creating a sound work that links to the wider growth of communications within everyday life, through the production of a collaborative art work that exploited the potential of communication networks. (Frisk and Yoshida 2005: 127)

In terms of the networking aspect of the work, it does reflect a broader sociological trend in terms of how sounds are generated through a collaborative, interactive process, but in a way that is not entirely predictable. Of course, the design of the software means that the resultant sounds are circumscribed to an extent, but the fact that they are produced by the types of text messages sent by participants instils in the work an unpredictable dimension. The process by which individual elements contribute to a greater, complex whole is in line with theories about 'complexity' and 'emergence' that have been observed not only within the physical sciences, but also within the social sciences (a good example is Urry 2003). Certainly, then, this piece does to an extent confuse any simple attribution of authorship: it is the result of continual contributions from a number of individuals. Yet there is still a hierarchy at work here that places doubt upon the claims made by Frisk and Yoshida that there is 'no obvious author to credit' (2005: 126). Frisk created the sound installation and is credited with doing so, whilst Yoshida commissioned it (for part of a project entitled *Invisible Landscapes*); the people who merely contributed to the overall sound within a specific context only had a fleeting moment of authorship, in comparison to the sustained credits that the creator/commissioner will enjoy.

This is not, however, to detract from the fact that this does create an interactive piece that involves participants in the creation of an ongoing sonic composition, and also relates to networks and communication technologies in a relevant manner.

etherSound can, in some respects, be linked to another form of interactive aural form with a growing tradition: generative music, another mode of sound practice that has been linked to notions such as emergence. Generative music is not a new phenomenon, but it has become more prevalent within the digital age. A key theorist and practitioner of generative music is Brian Eno, who states that: 'the idea of generative music is to think of the role of the composer differently: not as someone who specifies and builds a whole piece of music but as someone who designs a few seeds that flower and fruit in different ways, including ways that the composer couldn't have anticipated' (quoted in Gray 2006: 18). Eno sees 1960s avant garde composers such as Terry Riley and Steve Reich as playing key roles within the development of generative music. Riley's *In C* (1964), for example, specifies a set of rules out of which a composition will emerge, as opposed to a more rigid score that musicians must adhere to. The piece consists of fifty-three bars of music in the key of C, which the musicians can proceed through at any speed they choose. This piece thus contains within it a sense of indeterminacy, as the ways in which the musicians interlock is left open for each performance. Reich's *It's Gonna Rain* (1965), meanwhile, is a piece generated by two tape machines playing the same loop. Whilst they start off in synchronisation, the inconsistency of the machines leads them to slip out of synch and, in the process, generate a shifting and complex set of sound relations. It demonstrates how an extremely simple beginning can, from a set of basic rules, form into intricate yet unpredictable shapes.

Eno himself developed these ideas as crucial components within his composition process, using Koan software to create pieces that developed complex, unpredictable results from simple instructions. With these generative pieces, the same simple instructions will result in different pieces each time, which are also endless (though, of course, they have to be edited if released on CD). Thus, to some extent, control of the composition is relinquished by the artist and given over to chance procedures. Whilst much of Eno's work in this area – which has also extended to image-based work – has tended to be limited in terms of user interaction, generative music has been developed further by others in such directions. For example, the German collective Oval developed a generative project entitled *Ovalprocess* (2001), which encompassed a software application, audio CDs, and three interactive sound installations. Continuing the act's attempt to question the production and consumption of music in contemporary society (they are well known for damaging CDs and producing music out of the resultant glitches), this project is an attempt to engage users in a fuller understanding of the work processes involved in digital music production. It

also lets them intervene in such production, thus further opening up the process of music production. This tends to extend Eno's comments about the artist relinquishing control: here, the sounds are not only moving away from the artist's starting point, but are doing so through the intervention of many others. Thus, whilst the authorship of the piece is still very much related to Oval (it would be erroneous to claim that there is no hierarchy here), they act as the facilitators of a project which is then modified in unanticipated directions, continuing for an indefinite period.

Sound Art and the Internet

Interactivity is, of course, a key concept associated with the Internet, with its ability to connect people from spatially distinct locations so they can write to, speak to, and view others from afar. The Internet opens up fresh opportunities for sound art praxis, some examples of which I will survey in this final section. Whilst the capability of accessing sound artworks on the Internet is far from universal, the ability to encounter such work is nevertheless far greater than it is for a site-specific installation. In this way, the net contains the potential to open up access to works such as *ethernet* to a broader audience, though issues such as class hierarchies cannot be thought of as being magically resolved in this way, as is implied in the comments made by Frisk: potential opening up is not the same as actual opening up, and it is likely that class, as well as other factors, will still play a part in issues such as who has knowledge about the existence of such sites, as well as who will actually be drawn to them.

There are a number of different types of sound art projects on the web, which can vary in type and kind. I shall survey a few basic examples: pieces that do not allow users to modify the sound work in any way; pieces which allow an individual user to interact with the sound work; and pieces that open up active intervention by more than one person (so that the sound work is inscribed by a virtual community that extends beyond a single instance). The first example is the most basic, and does not utilise the interactive capabilities of the Internet. It is perhaps because the net is so commonly connected to the concept of interactivity that this mode is the rarest of the three upon the Internet. Such examples may perhaps therefore be criticised for not actually exploiting the inherent possibilities of the net. Yet this view is rather ungenerous and also rather restrictive in that it implies that the Internet is comprised of ontological essentials, and that artwork designed for it should therefore fall in line with this prescriptive essentialism. The problem with this is two-fold: first, essentialist descriptions of any media platform generally tend to fall down in the light of further scrutiny, particularly regarding the fact that media platforms generally are in a constant state of technological flux; secondly, and more pertinently in this case, there is the fact that certain media often transmit content that has been designed

for other media, or that some media are actually designed with the knowledge that they are going to cross platforms.

Jem Finer's *Longplayer* (2000) is a piece that exemplifies the difficulties inherent with arguments based on ontological suppositions. It is a sound installation designed to play for a thousand years (before it will start again from the place where it began); it takes an existing piece of music and chops it into six sections, then combines these sections into further permutations, a process that takes a thousand years to complete before it repeats the same combination. Finer designed this to be played in concrete spaces and it was first installed (as a computer program) in the lighthouse at Trinity Buoy Wharf in East London. It has since been installed in locations within Alexandria, Egypt; Brisbane, Australia; and Rufford Park, near Nottingham. The placing of a live stream on the Internet (which began in 2004) simply allows Finer to extend the reach of this sound work, which is suited to transmission in both concrete and virtual spaces because it runs on a computer program. Even, however, in cases where the physical dimensions of the sound piece may be an important factor in actually 'being there' (at the physical place where the installation exists), the reproduction of such sounds on the web, or (as is more common) on a CD, does not invalidate this alternative means of transmission. Like, perhaps, watching a widescreen film on a modestly sized television, the experience may not live up to encountering it in a cinema (or, in this case, at the site of installation) but it is not thereby rendered worthless. By arguing in favour of the above types of work being displayed upon the Internet, I am not dismissing attempts to exploit what have been seen as some of the unique strengths of the medium (though we must be aware that these may be transitory rather than ontologically fixed). Rather, I am adopting a flexible view of the status of art on the Internet, which can take a variety of guises and can exploit different strengths of the medium's multifaceted properties.

If interactivity is seen as a crucial strength of the net then this is also reflected in the amount of sound art there that integrates an interactive dimension. Singular interaction, in all its forms, is far more common than actually interacting with an interface *and* with other distant users at the same time. Creating a sound art piece that allows for synchronous (or nearly synchronous) interaction amongst different people at the same time is far more difficult to design. Nevertheless, there are works that allow for such interaction, and these are pieces that Álvaro Barbosa has termed 'shared sonic environments', which are 'openly shared spaces' where members of an 'on-line community can participate in a public event by manipulating or transforming sounds and musical structures or by simply listening to music created collectively' (Barbosa 2003: 57). These shared environments harness the strengths of the Internet by connecting a network of spatially dispersed users and uniting them in virtual space, so that new forms of sonic collaboration are possible. Such synchronous (or virtually

synchronous) networking, which allows people to respond to the inputs and outputs of others almost instantaneously, has been enabled by the exponential growth of computing power and network speed, as well as increasing access to such technologies.

An example, as noted by Barbosa, is Phil Burk's *Webdrum* (2000, now in its second version), a virtual drum machine that allows up to eight people to play at one time in order to 'jam' with each other. The software is simple to use and has the advantage of enabling people with little technical or musical skill to be able to play. The problem with this is that the simplicity results in a general lack of parameters to explore; thus for people who have even had a fleeting experience with music software programs such as *Rebirth*, the results feel somewhat flat. And whilst the interactive jamming with unknown others in real time is undoubtedly *the* main point of such a program, there are problems with actually finding a person to jam with. A similar problem exists with Chris Brown and John Bischoff's *Crossfade*, two separate, yet related, interactive soundworks (*Eternal Music* from Brown and *Aperture* by Bischoff) that allow up to four separate users to interact. Again, these pieces are relatively simple, yet sonically more interesting than *Webdrum* in that they allow users to drag their mouse over an area in order to create rich, shifting noise patterns. These pieces, because they are capable of creating denser sound textures than *Webdrum*, are perhaps closer to more 'traditional' examples of sound art than Burk's piece, which is closer to a more simplified, yet network-capable, piece of audio software. Yet all of these pieces, because they blur the lines between audio software and sound art, could be seen as continuing the lineage of sound art in a broader sense, as hybrid sonic pieces that defy easy categorisation and thus draw our attention to the ways in which we classify sound objects.

Another line of interactive sound work on the net is non-synchronous interaction between spatially distinct people. One particularly interesting example of this is an educational project aimed at children aged between nine and fourteen, entitled *Sonic Postcards* (2005), which is run by the Sonic Arts Network. This project is aimed at encouraging children to become more aware of their sonic environment. Through the help of workshop leaders they are introduced to their sound environment, take recordings of it and then edit these sounds on audio editing software. They then convert these sonic compositions into MP3 format and email them to other schools involved in the project (as well as vice versa), thus gradually building up a network of sonic environments. The results are then available for anyone with Internet access to view on the sonic postcards website, which enables people to select various schools, to listen to a number of MP3s of the surrounding area, and also to view photographic images taken by members. A less 'educational', more international, but similarly collaborative work is the *Sonda* project (2005), originating in Barcelona. A found piece of sound was posted on the Internet and people were invited to

modify the sound in any way that they wished as long as they did not add additional instrumentation. The results were once again posted onto a website for everyone to experience. Unlike the sonic postcards project – which creatively engaged with specific environments – this work was concerned with reimagining the same sound. Site-specificity as such did not play a role in the way that the sound became modified, though global location was important in that each person taking part in the finished project is placed on a world map. This not only visually emphasises the global nature of the project but also invites visitors, if they wish, to speculate upon whether any patterns exist between the location of the modifiers and sound that they produce.

Perhaps the most prevalent type of sound artworks on the net, though, are those pieces that allow for some kind of interaction between a single user and the virtual piece itself. Within this category there is a real growth of a certain type of such work known as soundtoys. Whilst there is no rigid definition of soundtoys, the term broadly refers to any audiovisual work that uses new technologies on the web. Generally, soundtoys tend to be interactive and for single users (in that they are generally not co-ordinating the interface with a number of spatially distant online visitors). They can vary in type, but most prominently include online music instruments, audiovisual installations, and generative audio tools. The amount of work that has been classified within this admittedly broad category is testified by the fact that there now exists a specific website devoted to soundtoys, which lists a number of artists working in this area and also some of the works that they have produced. There is actually far too much work here to give any kind of adequate overview, so I will merely end this section by pointing out a couple of interesting works that exist here.

Michael Szpakowski's *Work* (2002) lies somewhere between an online installation and a generative work, and is an attempt to create a visual shockwave piece that is closely tied to the audio content. The visuals consist of seven Muybridge-inspired dancers, whilst the sound is a looped piano piece. The user can then, at any point, click on a highlighted figure, which adds another loop on top of the existing one, and also alters the movements of the dancer. Whilst the basic material is always the same, there is an indeterminate element built in which depends on the precise point at which the user clicks on, so that different rhythmic combinations can exist each time the user visits. Whilst the piece is relatively simple, it takes advantage of the complexity-through-simplicity pieces that stand as key moments within generative music: as the piano lines accumulate and overlap, there is in particular an echo of Steve Reich's *Piano Phase* (1967), though there is more layering at work here, and there is also a visual dimension added to the mix. Neil Jenkins's *Tag Navigator* (2006), on the other hand, is a piece that is more concerned with digital sounds and images. In a sense, it could be seen as a meta-work, as it is a sound object that links to other soundtoys in existence. It is thus an interface that animates a series of words that

float in to, out of and around the screen (movements influenced by your mouse), accompanied by bouncing digital sounds. If you click on a word, you will be given details of a sound work linked with that word and be able to click into that work and explore it, whilst the digital sounds of the *Tag Navigator* continue at the same time.

Conclusion

Whilst 'sound art' is still a relatively hazy concept, there is nevertheless a growing awareness of this mode of artistic practice. This is testified not only by the increasing mentions of 'sound art' in articles, in books and on the web, but also by the increase in academic courses devoted to sound art and the increase of sound art exhibitions within galleries over the past decade or so. It is clear that this has become a demarcated field, with a growing institutional respectability. Such points should not be overstated, though: whilst this is an expanding field, it is still fairly marginal, and there still exist ocular prejudices within the gallery. The architectural spaces of galleries are often designed with a concentration upon visual phenomena, though the growth of sound art exhibitions will probably lead to the future gallery space becoming more aurally focused. Of course, sound art cannot be limited to the gallery, but neither can other forms of art practice, and it is – as LaBelle has argued (2006) – the case that visual art's breakaway from gallery confinements in the 1950s and 1960s (with site-specific art and happenings) was a key context for the emergence of sound art. In this sense, it could be argued that only now is sound art being recuperated by institutional space, tamed by the very forces that once repelled it. Less pessimistically it may be argued that the art world is finally waking up to a dimension that it criminally overlooked for much of the twentieth century.

Whilst defining sonic art remains problematic, creative practice focusing on the nature of sound will inevitably continue to grow. After all, it is not as though sound is going to disappear: as technologies mutate and proliferate, new sounds will be emitted, heard, categorised and manipulated. Sound art's strength resides in its exploration of our aural worlds, worlds which we perhaps too often take for granted, unless of course our ears feel as though they are under assault from unwanted noise. Sonic art is often designed so that we may reflect upon the sounds we filter out of our immediate perception, attuning aural sensation, encouraging speculation or perhaps a more active exploration of the sonorous flow that continually surrounds us.

Notes

1. His practical attempts to realise these ambitions were made possible through his creation of noise machines (*intonorumori*). Public performances, however, were met with general hostility.

2. 'Dark ambient' is a form of music that moved away from the 'New Age-y' associations that ambient music had accrued by the late 1980s and early 1990s, in order to express a sense of unease. A key compilation of dark ambient tracks is the 1994 release *Isolationism*, compiled by Kevin Martin.
3. Turntablism is the manipulation of records in order to create new sounds. It is most commonly associated with hip-hop, and includes techniques such as scratching and beat matching.
4. In fact, there was a recent art project which celebrated the cassette for these very reasons: *Blank Tape Spillage Fete* was a project set up by Matt Hunt and Mat Fowler in which they sent out blank cassettes to a number of different people to fill up in any way they wish, and asked them to produce accompanying artwork for these cassettes. 'Fetes' were then set up to preview artwork and cassettes (in London), which also featured live bands. The contents of the cassettes were also accessible through the project's website at http://www.blanktapespillagefete.com.
5. Actually defining interactivity is a difficult task, particularly as there are different *types* of interactivity. I will use the term here to refer to a particular form of interactive engagement, a *functional* mode that refers to users/audiences/participants being able actually to modify in some way the media/artwork that they are engaging with (Lister et al. 2003: 20).

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