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### Electroacoustic Music of Extended Duration: A Question of Format

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#### Introduction

Although popular music has a well-established connection to specific recording formats, most obviously in terms of duration, number of channels, available frequency and dynamic range, and currently, levels of data compression, electroacoustic music (and here we are only considering fixed media works) has generally tended to ignore these format restrictions at the level of composition and performance, and made appropriate compromises in the context of distribution on commercial formats. Some historical exceptions with instrumental classical music may be noted where pieces were composed for the commercial recording format of the day, but the Nonesuch label's commissions for Morton Subotnick in the late 1960s are regarded as the first electroacoustic pieces composed specifically for the LP format, a tradition that the author continued for his 1985 release of the *Sequence of Earlier Heaven* LP, and the later release of eight solo CD's after 1987. The crucial distinction is whether the CD format during recent decades has been regarded as a purely distribution medium for an arbitrary grouping of works designed for individual broadcast or concert performance, or as a compositional format for creating works, or sets of works of extended duration, something seldom encouraged by those programming electroacoustic music concerts. This tendency towards standardized durations raises the question as to the type of compositional thinking involved in the extremes of work duration – the miniature and the large-scale work, the latter influenced by the value placed on it in 19<sup>th</sup> century classical music, particularly with the symphony and opera.

#### The Fixed Medium and Artistic Practice

If we look back to traditional time-based performance practice in music, theatre, dance and various folk practices, in terms of today's familiarity with contemporary documentation media, we could say that these traditional forms were 'stored' via aural and body memory, often to impressive degrees of memorization and repeatability, and performers today still rely on those forms of memory. Western music notation over the last millennium, beginning as it did as an aid to memory, gradually became increasingly precise and prescriptive of performance norms and facilitated increasingly complex forms of music to emerge. However, each performed work still tends to balance or is some combination of improvisatory, interpretative freedom and repetitive consistency.

We can ask at what point in this process does the concept of a 'fixed work' emerge? Prior to the 19<sup>th</sup> century, performance practice seems to have been more adaptable to specific acoustic and social contexts. Jacques Attali (1985, ch. 3) suggests that the emergence of the paid

performance in the opera house and concert hall, from the 17<sup>th</sup> to 19<sup>th</sup> century, along with the publishing of scores, begins to fix the work for repetition, as well as providing a showcase for the virtuosic interpretation by the soloist. We can therefore also identify the architectural acoustics that facilitated this development as a technology for the musical communication of increasingly fixed concepts of works.

How has the electro-mechanical, and then electronic and now digital technology that developed since the late 19<sup>th</sup> century further changed these practices? Most obviously, new art forms have emerged, such as film, audio recording, video, television and digitally based new media, along with the enormous economic implications that have characterized these developments in terms of commodification and distribution. Here I will only deal with the range of approaches to the use of such fixed media, which I will place along a continuum.

Documented Performance ←-----→ Document as Performance

The more conservative practice, documented performance, implies a certain neutrality to the capture of a time-based event, but in fact such documentation is influenced by every aspect of the documentary medium, such as microphones, cameras and their placement, formats, degree of fidelity, as well as whether it provides a single modality (e.g. audio only) or both the aural and visual. One could suggest that all such documentation ‘distorts’ its subject, much as early anthropological documentary field practice with notation and later recordings distorted folk music practice. Moreover, the reproduction of any such document relies on the listener (and viewer) to develop a new form of perceptive competence in order to ‘reconstruct’ and understand the actual event in some later, mostly arbitrary context. In other words, nothing about the documented performance is neutral or objective; careful analysis will uncover a complex web of assumptions and communicational strategies that attempt to re-naturalize the experience.

It also needs to be acknowledged that the historical development of fixed formats parallels changes in listening habits and preferences, and perhaps performance practice as well (Thompson, 2002; Sterne, 2003; Symes, 2004; Katz, 2004). It is beyond the scope of this paper to discuss such changes, even though they deserve as much attention as the purely technological developments. However, one obvious impact of recordings has been to influence future generations of performers and listeners, particularly in those aspects involving improvisation, stylistic interpretation, aural tradition and so on. Jazz performers in particular tend to regard past performers that they have often experienced only through recordings as strong influences on their own style; classical performers may do so too, though in some cases it may not result in imitation. Listeners too may become familiar with specialized musical genres such as early music or music from other cultures when live performances are locally unavailable. Despite the standardization of commercial media that marginalizes such music, new performance groups and niche media may spring up to promote these types of music.

McLuhan (1964) suggested that a new medium tends to adopt the norms of a previous medium and only gradually begins to develop its own practices and forms. I am calling these emergent forms documents as performance, since they are often team produced (with expertise that is distinct from the creators and performers involved), and usually based on standardized production values and practices. However, they often give the illusion or image of an actual performance, ranging from the pseudo-real, through to idealized, and even hyper-real, and increasingly today to completely artificial, imaginary (i.e. ‘virtual’) constructed realities.

Various musical genres have tended to place their emphasis at different points along this continuum. For instance, classical music has traditionally identified the live performance as the norm and any reproduction an image of it, whereas popular music tends to view the recording as the ‘real’ document (ready for marketing), with any live performance striving to simulate it for promotional purposes (Théberge, 1997), even if that entails lip-synching or other artifices.

However, documented performances of live events and concerts are not the only manifestation of this conservative practice. Today one can hear recordings of, say, classical solo or chamber music where close miking places the listener at a seemingly impossible proximity to the instruments. I also recall a recent release of the complete Beethoven piano sonatas where the fixed microphones placed the listener about 10 rows back from the stage in an empty hall. While this may seem ‘neutral’ to a recording engineer, one has to ask whether sitting in such a deserted hall for dozens of hours is really a ‘natural’ or ideal way to listen to this music!

As early as the 1950s, more adventurous performers, in the case of Glenn Gould for instance, or record producers, such as the legendary Decca producer John Culshaw, began to challenge the classical norms about recording practice. Gould famously ‘retired’ from the concert hall to the recording studio, reportedly to avoid the endless repetition and exhibitionist expectations of concert performance, in order to experiment with the relatively simple audio manipulations of editing and microphone placement to achieve unique musical results that he felt would not have emerged through live performance (Gould, 1966). Even more dramatically, Culshaw exploited the introduction of stereo and the LP format to embark on the ambitious studio recording of the complete Wagner Ring cycle of four operas, beginning with *Das Rheingold* in 1958 (Culshaw, 1972). By taking the opera out of the live performance context, he could, for instance, record many of the magical effects found in these operas that would be difficult to reproduce live, such as the 18 tuned anvils representing the Niebelungen slaves, or the shaking of a 20-foot steel sheet to portray the thunderclap following Donner’s striking of the rock (another anvil), immediately followed by six harps portraying the Rainbow bridge. Besides careful mixing of the soloists with the large orchestral forces, audio techniques were also used, for instance by recording Alberich’s ‘invisible’ transformation scene inside an isolation booth and adding reverberation. Today, Culshaw’s Ring, conducted by Georg Solti, which took about 8 years to complete, is regarded as one of the best classical recordings ever produced, as evidenced by the numerous digital re-issues of the analogue masters. And where audio technology failed, such as portraying the Rhine Maidens singing *below* the Rainbow Bridge, psychological suggestion came to the rescue as press releases and other commentary suggested that this was indeed possible in the then new stereo medium; critics obliging agreed to this illusion, following the adage that ‘you hear it when you believe it.’

Electroacoustic music traditionally treats the fixed work in terms of a ‘master’ recorded in a professional audio format – with appropriate mixdown reductions (for instance from multi-channel to stereo or 5.1) – and the commercial recording formats (LPs, CDs, 5.1, mp3) as a distribution format, usually intended for marketing or promotion. Concert performance typically multiplies the number of speakers through which the stereo or multi-channel master is reproduced, thereby facilitating two- and three-dimensional soundfields to be created around an audience. However, the question remains as to whether the creation of an LP or CD (or any of today’s digital formats) presents an opportunity for compositional work, particularly of extended duration, or are these formats simply a vehicle for an arbitrary grouping of pieces for individual performance or broadcast?

## The Recording Format as a Vehicle for Works of Extended Duration

As mentioned earlier, Morton Subotnick's works commissioned by Nonesuch for their LP label, namely *Silver Apples of the Moon* (1967) and *The Wild Bull* (1968), are regarded as the first pieces of electroacoustic music (or electronic music as it was then known) composed specifically for a commercial recording, the stereo LP. In 1977, I was fortunate to publish my first solo LP *Sonic Landscapes* on the Canadian Melbourne label, but it was clearly a collection of four unrelated pieces, as was the following double LP, *Androgyne*, published in 1980 with six works. However, in 1985, on the occasion of the International Computer Music Conference being held in Vancouver, I was able to launch my own record label, Cambridge Street Records (CSR), with its first disc, *Sequence of Earlier Heaven*. I had quite consciously composed the four works it contained with the view to their integration on this disc. Side One consisted of two pieces, *East Wind* and *Nightwatch*, for a solo instrument (recorders and marimba respectively) combined with soundtracks derived from those instruments, and Side Two consisted of two computer-synthesized works, *Wave Edge* and *Solar Ellipse*. The guiding macro-compositional plan reflected the traditional *I Ching* pattern of trigrams paired as opposites in a cycle, as visually presented on the cover of the LP, along with the associated symbolism and the four hexagrams, one for each work, which guided their composition. Since the trigram pattern is also associated with the points of the compass, the starting letter for each title represented the combination of North, East, South and West that was involved. I subsequently wrote an article about the entire process for the *Leonardo* journal (Truax, 1986).

In 1987 I brought out my first CD on the CSR label, *Digital Soundscapes*, but again this consisted of re-issues from previous LP's, plus the new work *Riverrun*, all loosely associated with the CD title. With subsequent CD's, I also tried to create a thematic unity such as the Pacific Rim inspired pieces on the 1991 CD with that title, or the temporal cycles found on *Song of Songs* (1994), and the sense of interiority explored in the pieces on *Inside* (1996). Stylistic unity with soundscape compositions informed *Islands* (2001) and text and voice based pieces with *Twin Souls* (2001). My opera *Powers of Two* followed in 2004, and in 2007 I composed a cycle of four works that I conceived of as journeys of the human spirit from the perspectives of the sacred (*Temple*), humanism (*Prospero's Voyage*), aboriginal culture (*The Shaman Ascending*) and Zen Buddhism (*The Way of the Spirit*). In 2014 I hope to bring out my 9<sup>th</sup> solo CD, *The Elements and Beyond*, with pieces inspired by water (*Chalice Well*), fire (*Fire Spirits*), air (*Aeolian Voices*) and earth (*Earth And Steel*), plus a work for piano and soundtracks, *From the Unseen World*, that seems to take us beyond the earthly realm. I have also proposed a cycle of four soundscape compositions under the collective theme of *The Isle of Avalon* which could be presented in concert or installation form.

The value I find in thinking about the recording format as a context for music of extended duration is not that which is associated with large-scale work in the 19<sup>th</sup> century, privileging the symphony or opera, though the artistic weight of those forms still can be felt in our culture. Rather the value for me resides in the increased compositional demands, the deeper engagement with materials, and the reflective listening stance that it encourages. Electroacoustic music concerts seldom allow for such large-scale performances as would be found on an entire CD, though I have been fortunate to have a few 'solo' concerts of late. Concert curators, including myself, are normally constrained by the need for a variety of composers to be represented, and therefore pieces in the 10-12 minute range or less make this process easier. French acousmatic music is often longer, as are the concerts that result, but in North America and the UK, shorter events of one to two hours are favoured. Competitions are sometimes pressured to allow longer works, but usually the winners are in the 10-20 minute

range in terms of duration. As a teacher of electroacoustic studio production (including both musical and ‘sound’ pieces), I know that projects of increasing duration are useful for student composers to develop their compositional skills. The 3-minute exercise, for instance, nicely leads to a 6-8 minute substantial project, and then to a challenging 10-12 minute work to occupy an entire semester, for instance.

However, what are the implications for the practices outlined here in the face of the newer digital formats and distribution networks that have rapidly emerged in the last few years?

## **Format Theory and the Downloadable Soundfile**

Jonathan Sterne (2012), in his excellent, interdisciplinary cultural analysis of the mp3 format, has proposed a format theory that “invites us to ask after the changing formations of media, the contexts of their reception, the conjectures that shaped their sensual characteristics, and the institutional politics in which they were embedded” (p. 11). He avoids a simple, technological determinism associated with something as seemingly straightforward as recording formats, by tracing their origins and the entire cultural context within which they are entwined, including their appropriation by users.

The questions that I frequently hear (often extending to some version of ‘moral panic’) concern both the reduced fidelity of the mp3 format – and the worry that listeners neither notice nor care about it – and whether an information-saturated society is producing a generation of listeners with short attention spans. These concerns combine quite uneasily with the compositional issues outlined in this paper if we recognize that the individual downloadable soundfile has succeeded the CD as the format of choice for a younger generation, with the 5.1 format for commercial entertainment. Will these developments further marginalize electroacoustic music, particularly in terms of works of extended duration and multi-channel formats? What will happen to the experience of intense reflective listening and a deeper engagement with the subject matter that seem to be key with musical works of extended duration?

I cannot hope to solve all of these problems here, assuming this current situation is indeed serious for artistic concerns and not just another metamorphosis of listening habits similar to the many such changes that have occurred over the previous century. However, I would like to conclude with some examples of alternatives that are suggested by soundscape composition (Truax, 2002, 2008). This emergent practice has clearly benefitted from both extended duration and multi-channel formats, and therefore it seeks out opportunities for performance and dissemination that bypass the commercial formats. Here I am thinking of multi-channel installations and concerts that provide an immersive experience unavailable otherwise as one option. It is ironic that the digital medium that has produced the mp3 soundfile format is arguably the first that has almost no significant constraint on duration or sound quality, and yet ‘shorter with less quality’ has become the norm. On the other hand, there is no reason why websites, webradio and podcasts cannot be used for artistic purposes (with environmental implications from the perspective of soundscape composition) that bypass the more obvious commercial constraints on format. However, any such shift in practice may require less privileging of the acousmatic concert work. Time and experimentation will be needed, as well as fresh artistic imagination, but examples of soundscape composition may well hold some useful clues to more progressive uses of the fixed medium.

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