Can Sound Function in Music?

Brian Bridges
School of Creative Arts
University of Ulster

Abstract

This paper will discuss issues in the integration of an expanded vocabulary of sonic materials in music (for the sake of brevity termed 'sound' in the title). It will examine this issue from three perspectives: (1) contextual and referential aspects of the use of such materials in composition, (2) timbral organisation in music, and (3) organisational influences in music derived from structures to be found in environmental sounds. It will largely focus on music rather than sound art (which I take to be the version of the sonic art-form which owes much to conceptual art), though it will touch on issues relating to how differences between the two art forms may be articulated. Indeed, it may be that the central question of this paper could be reframed as 'can sound function in music without it becoming indistinguishable from sound art?', or, more bluntly, 'is music which uses a wider range of sound materials actually music?'

'Sound', Music and 'Noise': definitions, delineation and an evolving relationship

The general term 'sound' may provide an alternative categorical description for expanded sonic materials which lacks the more negative connotations of the term 'noise'. Although 'sound' may be somewhat lacking in precision (music is, after all, based on the perception of sound pressure waves), 'sound' has the benefits of being an inclusive term, incorporating periodic vibrations (pitches) and non-periodic vibrations (e.g. metallophones, membranophones, many environmental sounds). Indeed, there are precedents for such a usage. Varèse famously termed a timbre-focussed approach to composition 'organized sound'. Cage used the same term to similar ends. In recent commentary, the use of 'sound' as a less loaded alternative to 'noise' has been favoured by Landy (2007).

Nonetheless, even if we favour the more neutral 'sound' in this discussion, the inevitable echoes and associations of the other term still persist and it may be useful to address them. 'Sound' and 'noise' may be synonymous for many. The use of an expanded sonic vocabulary in a musical context is still frequently described by many listeners as a somewhat unwelcome incursion of 'noise' into the hallowed ground of music. 'Music' (or, at least, periodic vibrations) and 'noise' have often been cast in opposition to each other in sources as diverse as harmony texts, acoustics texts and everyday conversation. Although both have their origin in very similar phenomena, they occupy two very different spaces in terms of mainstream musical discourse.

If 'noise' is held to be the version of the sonic phenomenon which contains materials with distributed inharmonic spectra, layers of harmonic material which approach such distribution, or sonic phenomena with elements which are difficult to parse/decode because of such characteristics, nonetheless it is the more dominant form within our sonic environment. Despite some aspects of the structure of noise–based materials

being harder to define than sound sources with periodic (or even discrete inharmonic structures), on a macro level, perceptual judgements can still be made with regard to shape, spectral distribution, and so on. 'Noise' does not simply imply complete and undifferentiated disorder.

An explicit and open–armed adoption of 'noise' as a key element in twentieth century music was initiated by various practitioners and movements: Russolo and the Futurists, John Cage's conceptually–based experimentalism, the 'organised sound' of Varèse, the modernist, chaotic, but still clearly 'instrumental' music of George Antheil's *Ballet Mechanique,* and the carefully organised recorded material of *musique concrète*. In these instances, the referential aspects of the new sonic materials often coexisted with the textural aspects of the timbres, even as the wider aesthetic world of non–harmonic timbre was being mapped through the use of novel combinations of sound sources. 'Timbre' became something of a Janus–faced concept more than at any previous time in the development of Western music. It began to be explored in its twin modes: as sonic 'signature' for identification/referential purposes (only a simplified version of this had previously operated with in music) and as 'sonority', sound texture in its own terms, or as placed in a mental space for assessing difference/similarity in relation to other known sources.

Two Timbres, Two Cages

Just as there are two conjoined but distinct concepts of timbre, there may also be two conjoined, but distinct, concepts of John Cage. On the one hand, Cage was of great significance in the development of contemporary composition. On the other hand, he was significant in the development of other art forms: performance—based work (including Fluxus), conceptual art and installation art. Can his significance in music be separated from his significance in other art forms, and, if so, what does it tell us about the dividing line between music and other creative forms incorporating sound?

Cage was one of the most important practitioner–theorists in twentieth century music to problematise certain key aspects of previous musical practice. His question could perhaps be stated as 'without the traditional containers of structure in music (specific pitches, melodic contours, harmonic timbres or structures derived from functional harmony), what is left?' Cage answered this question in three ways. One was simple and, arguably, quite traditional: rhythm/temporal organisation was an element in Western art music which had previously enjoyed a generally supporting role to that of pitch: Cage inverted the relationship in some early works. However, more fundamentally, Cage also raised questions regarding a dual function of timbre. On the one hand, this was based on an expanded range of materials used for their own sake but complete with the mimetic, contextual or, at least, associative properties of the original sources. On the other hand, this was based on more abstract questions of how such structures were organised in the mind of the perceiver, or, to put it another way, what elements or structures in a work's context encourage a participant or audience member to construct their version of the work and its structure.

Through this project, Cage pursued his most radical departure in liberating expanded sonic materials from a concern with defined sound structures (and perceived parameters) of individual sonic events. To quote Brandon LaBelle (2006), 'Music for Cage seems to become unquestionably about form more than content.'

'Sound', for Cage, was more important as a means of exploring the nature of the world rather than for its own sake, in effect liberating one definition (expanded range of sonic materials as structural influence) from another (the timbral structure of individual auditory events), even before he began to explicitly examine 'silence'. In this, he occupied some unexpected common ground with previous musical practice which had prioritised the syntactical aspects of dissonance over the sensory aspect. However, in this case, the project at hand was an investigation of structures in the environment and perception rather than the more prescriptive assumptions about perceptual structures drawn from Pythagorean thought. In this, his project is conceptual, and hence applicable to sound art, yet also explicitly engages in a dialogue with Western music. Perhaps this is the main aspect which unifies the 'two Cages': in this case, the Cagean approach has relevance for both fields and can perhaps best be seen as occupying both the 'sound art' and 'music' spheres.

Music, the Listener and the Sonic Environment

The materials for the expanded sonic vocabulary which developed in Western music in the middle of the twentieth century owed some of their existence to a changing soundscape which was a result of technological change in the industrialised world. The sonic environment provided both inspiration and source materials to the Fururists, Cage and the *musique concrète* school. For Schaeffer and the *musique concrète* composers, technological developments allowed them to interrogate the general soundscape (technological or 'natural') still further. Experiments with this end in mind such as the removal of attack transients and the prolongation of certain timbral elements through the creation of closed loops provided a way in which this expanded vocabulary of materials (including both non-technological and technological elements) could afford some insight into the workings of timbre as a percept. These experiments and subsequent compositional activity provided clues as to how timbral structure might be used as an organisational principle in the creation of new musical forms which attempted an approach based upon *abstractions* of environmental sound rather than *abstract constructions* of pitch-based materials. For Cage, however, one of the key ideas behind the use of expanded sonic materials was that 'the function of Art is to imitate Nature in her manner of operation' (Cage, 1967). As Emmerson (2007) notes, 'Cage's famous dictum can be misunderstood here: nature's 'manner of operation' does not imply that the results need somehow to be perceived as 'real world sounds'; rather, they can be viewed as structural principles.

An investigation of the construction/reconstruction of soundscape materials was attempted much more recently by Bregman (1990). Through a number of studies, a number of organisational principles based upon 'environmental regularities' (Bregman, 1993) are suggested as working assumptions by the auditory perception system. Some of these principles even explain basic features of music within Common Practice styles (sequential grouping by pitch proximity, simultaneous grouping due to harmonicity in complex tones and analogous grouping principles in chords). However, the principles with relevance for note–based music are specific and limited cases based on the more general principles of environmental regularities, which relate more directly to music which explores other aspects of sound in greater detail - work which uses materials which are even more similar to those occurring

within the general soundscape. Patterns and groups of objects are created based on the following basic principles: (1) *Unrelated sounds seldom start and stop at exactly the same time*; and, (2) *Sound events or sequences of related sound events tend to change their properties slowly*. Such straightforward principles provide a starting point in the perceptual organisation of our auditory experience, with Bregman's work providing some endorsement of Cage's original intuition: that perceptual organisation utilises the same basic rules whether it be in a created artwork or the active perception of the soundscape.

However, the question remains as to whether the referential aspects of the expanded range of sonic materials based on 'real world' sounds affects the perception of their functioning in the aesthetic domain. The *musique concrète* approach (or, at least, the theory) was, initially, to decontextualise such materials as much as possible, based on the assumption that they could only function primarily in the aesthetic domain (as articulated through timbre–space) based on the removal of focus on contextual information. The Cagean approach was to frame them within a context such that music as an abstract art form was problematised by their presence and interaction. Both approaches clearly attempted to integrate an expanded range of sonic materials into music, yet both present problems in relation to the present investigation. Many pieces of musique concrète (and, later, electroacoustic music), illustrate the difficulties of decontextualising sound materials and obscuring their sources. Semantic associations and a somewhat unintended mimesis of the 'real world' often result. Yet if the combined virtual map of timbre–space and the movement of sources generated through hearing a piece of sound-based music is being drawn on the basis of the same principles used for such 'real world' audio, do associations of some of the objects matter if the overall soundscape appears plausible based on known rules of behaviour of objects and events in real environments? If synthetic or otherwise decontextualised sound objects are perceived in the same fashion as ones with obvious sources, surely structural articulation along the lines of environmental principles is salient enough, even if other associations are made.

Windsor (1997) has a similar perspective to Cage (and Bregman) when he notes that:

> 'Musical sounds, whether made up from pitches or timbral configurations, originate in the environment with which we are familiar, an environment which is undeniably musical. The musical significance of any sound rests upon our familiarity with the musical environment to which our perceptual systems have become attuned.'

The environment, in this case, is taken to be musical because certain basic principles of what is possible in music perception derive from the perception of environmental audio based on the recognised 'environmental regularities' noted by Bregman. Put another way, a view of perception as related to such environmental structures—termed an *ecological* approach, after Gibson (1966, 1979)—holds that organisms perceive based on sensitivities to structural regularities in the environment.

Windsor, however, also notes the role of culture within this process and implicitly takes issue with the decontextualising *musique concrète* approach. 'Listening to music is a search for meaning and this search is constrained by our familiarity with the physical and cultural invariances of the world' (Windsor, 1997). The focus on the

aesthetic and formal/abstract structures in such music based on explorations of timbre (as sonority) can be viewed as 'partial and contingent, relative to the perceptions and actions of an organism within a structured environment' (Windsor, 2000).

Windsor relates meaning in this music to the perceptions and responses to a structured environment, based on 'lawfulness' of this virtual environment on the one hand (conforming to known environmental principles) and contradiction/modification of this lawfulness on the other, refining it with 'novel structures whose lawfulness emerges only in relation to that piece or a specialised context' (Windsor, 2000). In effect, music creates a virtual sonic environment based on an engagement with known principles of environmental 'lawfulness'. In this view, music is more based upon the creation of an internally consistent virtual environment, a virtual reality, than on more fixed referential/semantic issues. As such, the early *musique concrète* attempt to avoid referential aspects of the sound materials used can be viewed as somewhat redundant. Furthermore, in this context, the use of sound materials can be viewed as quite unproblematic in musical composition: timbre perception provides clues as to environmental structure, so even if it has other associations, we are still likely to focus on spectromorphological issues in our search ('hunt' as Gibson would have it) to make sense of the artificial environment presented to us. Even 'reduced listening' is, perhaps, not so reduced after all.

Conclusion: Relationships Between Sound–based Music and Sound Art

Music with an expanded range of what may be termed 'sound–based' materials (after Landy) utilises elements which reflect more typical cases of environmental sound than traditional pitch–based musical forms. However, the use of such an expanded range of sound materials is problematic in terms of the perception of the resulting form as 'music' if the original assumptions of *musique concrète* are to be believed. In its attempts to focus attention on an aesthetic result in its investigation of timbral structure, such music obscures contextual elements of sources through actions such as (in its prototypical form) the removal of both the attack transient and visual cues to the sound source's identity through acousmatic presentation. However, it has been argued here (following Windsor) that the removal of contextual information does not completely decontextualise a sound object within the context of a resulting soundscape, but merely provides it with a *composed*, framed context.

This suggests a solution to the problem of such music's relationship with sound art. Music with sound–based materials functions as music through an exploration of a grammar of timbral and other environmental structures which are not necessarily undermined by more obvious semantic/mimetic associations. It primarily addresses the soundscape and its organisational principles: this is its claim to similarity with the more abstract traditional approach to pitch–based music. On the other hand, sound art may be thought of as that which prioritises references to activities and ideas *beyond the soundscape* (and its organisational principles).

Of course, music itself can reference activities beyond the soundscape and may base some of its structures of meaning primarily on cultural materials (in programmatic or sampling–based/plunderphonic work). In the light of this case, the definitions must be restated. Music which addresses activity beyond the soundscape but which contains a multitude of events highlighting the *causality* (or formal structuring) of this

environment is, I would argue, still 'music' in its primary (formal) dimension. That which addresses cultural materials through sound whilst more generally eschewing a primary focus its formal structure is more better considered as sound art. (Windsor notes that his approach to analysis based on ecological perception founders to some extent in cases where a significant element of the use of these materials is semiotic: perhaps this endorses the current division.) Even conceptual works with a singular focus on elements related to the structure and operation of the soundscape could be termed 'music' by these definitions: Alvin Lucier's *I am Sitting in a Room* and La Monte Young's *Composition 1960 #7* are but some examples. Cage's *4'33* may not occupy such a position of clarity (it raises many general cultural issues quite apart from investigating questions relating to the sonic environment itself), but this equivocal position is consistent with Cage's status as a figure at the intersection between music and conceptual art.

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