

## Timbral Threads: Compositional Strategies for Achieving Timbral Blend in Mixed Electroacoustic Music

Matt Collins

Faculty of Music, University of Oxford, Oxford, United Kingdom

matt.collins@music.ox.ac.uk

### Introduction

Within the discursive paradigms of electroacoustic music, an issue that many composers have confronted is the difficulty of producing works that feature both acoustic and electronic forces without some sense that there is an aesthetic disconnect between them. Recent literature in this area (e.g. Croft, 2007; McLaughlin, 2012) has often attempted to tackle this sense of disconnect by appealing to concerns relating to retaining or avoiding a sense of liveness and/or instrumentality, while the role that timbre may play in this issue has not been the subject of much discussion to date.

To begin to investigate the role that timbre may play in this sense of disconnect, this paper examines, specifically from the perspective of an unaided listener and reader, notions of timbral blend between the acoustic and electronic forces in two mixed electroacoustic compositions: ‘Salt Canyons’ from *The Inner Universe* (1983) by Priscilla McLean; and *RAS* (2000, rev. 2011) by Natasha Barrett. These works have been chosen because of what I believe to be the successful blending of their acoustic and electronic forces. This discussion will primarily take the form of a set of timbral analyses that establish common compositional strategies for achieving timbral blend. These analyses are then contextualised and situated in relation to the broader discourses on timbre and timbre analysis.

### Method

For the purposes of this paper, ‘timbral blend’ may be defined as the capacity of sounds from two or more physical sources to coalesce together in such a way so that the listener is not likely to determine that there is an aesthetic disconnect between them. This paper also introduces the idea of ‘timbral threads’. A thread of timbre is defined as a sound or set of sounds, which can either occur once, repeat a number of times, or sustain continuously for a given period, that could reasonably be perceptually categorised as being produced by one source. Importantly, the sound(s) in a single thread do not have to be only produced by one physical source – they need only be perceived by the listener as if they are originating from the same physical or imagined source, even if the nature of that source cannot be identified.

The two compositions are analysed by defining and describing the timbral threads that can be delineated within them. The language used to describe the sounds within these threads is as elementary as possible and invokes metaphor where it is necessary to do so. By examining these threads and exploring how they develop and interlink with each other, the compositional strategies used to achieve timbral blend between the acoustic and electronic forces within each work individually as well as across both works are ascertained. Each analysis is also preceded by an exposition of any relevant ideas, philosophies, aesthetic ideals, or compositional preferences of the composers concerned, so that the analyses themselves may also explore whether any of these have an effect on the compositional strategies used for the purposes of timbral blend.

### Results

The poster connected to this paper depicts graphical representations of the timbral threads within each work and how they link together. These threads are briefly summarised in written form below.

‘Salt Canyons’, by American composer Priscilla McLean (b. 1942), lasts ca. 7’52” and forms part of a group of compositions titled *The Inner Universe* (1983) for solo piano or piano and tape (McLean, 1983, pp. i, 48–49). McLean (1977, pp. 205–207) contrasts two different approaches to timbres used in

electroacoustic music: using abstract, non-referential sounds; and environmental/instrumental sounds. She problematises the exclusive use of these kinds of sound, before proposing a third approach, which she terms the use of ‘imago-abstract’ sound. This type of sound has a timbre that is not entirely abstract/non-referential, but is also not a direct reference to an environmental sound. This concept could help to suggest a contributor to this sense of a lack of acoustic-electronic timbral blend: that it is actually caused by a lack of integration between referential and non-referential sounds, and that a solution to this may involve using ‘imago-abstract’ sounds to blur the distinction between these two forces.

Thread ‘A’: Contains a ‘choir’ of piano overtones on the tape. This drone chord is then timbrally blended with a live piano sound of a mug being glided up piano strings. The blend is further created by sustaining the acoustic-sounding tape chord in a way that could not be done live, and by timbrally extending upon it using subtle electronic manipulations and the introduction of complimentary environmental sounds.

Thread ‘B’: Features a tape sound that sounds like a car braking heavily, in combination with harsh overtone pitches produced on the live piano. Here, both sounds used in isolation would likely be assumed to be of environmental and instrumental origin respectively – however, the timbral similarities between the sounds lead to doubt about their respective origins when they are used together.

Threads ‘C’ and ‘D’: Both of these comprise tape sounds that are timbrally identical to their live piano counterparts – the former featuring samples of low-pitched glissandi on the piano strings; the latter featuring samples of rapidly repeating prepared and unprepared piano notes. Because the tape sounds are heard at the same time as their live versions, the acoustic/electronic distinction is entirely removed.

Thread ‘E’: Contains short rapid runs of piano note samples on tape, electronically altered to sound like muted versions of some prepared pitches played on the live piano earlier in the work. As both the piano and tape samples sound more like a mandolin being plucked, they create ambiguity about which, if any, of these sounds are live and which could be, for example, pre-recorded samples of a mandolin on tape.

**RAS** (2000, rev. 2011), by British composer Natasha Barrett, lasts ca. 9’32’’ and is written for ‘percussion quartet, electroacoustic sound and live electronics’ (Barrett, n.d.). Barrett (1997, pp. 30–31, 34–36) writes about what she terms as a ‘sound-world realism’ frame of reference within acousmatic music. She argues that this realism frame of reference exists on a continuum. A sense of ‘maximum’ realism exists when a ‘real’ sound is in a ‘familiar’ virtual space. Conversely, a state of ‘minimum’ realism is achieved when real and ‘synthetic’ sounds are used together in a familiar space. Finally, in between these extremes are real and synthetic sounds in ‘unfamiliar’ spaces, and synthetic sounds in familiar spaces. These ideas could be helpful in suggesting a contributor to a lack of timbral blend in mixed electroacoustic works – perhaps sounds used together in spaces which perceptually increase a sense of realism are likely to also give more of a sense of timbral blend.

Thread ‘A’: Mostly features isolated and short acoustic sounds (e.g. timpani or rototom hits), which serve as timbral springboards for what are usually much longer and denser expanses of (mostly) electronic sound. These springboards, due to their clear gestural development and frequent repetition, provide a sense of timbral blend despite the considerable timbral shifts that occur within them.

Thread ‘B’: Begins with sparse acoustic sounds from the matrix that sound metal-like. These sounds timbrally evolve over time, with an increasing use of both live electronic manipulation and similar-sounding pre-recorded sounds, but this evolution is gradual and subtle enough to ensure that how much of what we are hearing is acoustic, electronic, or a combination thereof is ambiguous.

Thread ‘C’: Contains an electronic pad-like sound that persists throughout the work, beginning initially as a timbrally extended version of the timpani and rototom glissandi. It is not clear, however, at what point the acoustic glissandi sonically end and the electronic sound begins due to their timbral similarities.

Threads ‘D’, ‘E’, ‘F’, ‘G’, ‘H’, and ‘I’: All of these threads feature pre-recorded environmental sounds that at some point are electronically manipulated. The origins of these sounds are usually ambiguous, but

more importantly, the electronic qualities of these sounds serve to blend very well with the live acoustic sounds they often sit alongside with (mostly sounds from thread ‘A’).

A large majority of the live acoustic sounds in both of these compositions either have origins that are unfamiliar to the majority of the listeners but are still likely to be identifiable, are ambiguous enough to be unrecognisable even when heard in isolation, or would be recognisable if not for the fact that they are disguised in some way within the prevailing texture. This potentially suggests that a lack of source recognition or familiarity enables a variety of timbral possibilities to become available. If the acoustic sound is completely unrecognisable, then the sound has a much larger potential to be used alongside electronic sounds of any kind and retain a sense of timbral blend.

Common strategies used to influence the nature of most of the electronic sounds in the works include either the use of pre-recorded or live delayed acoustic sounds that are subject to either no or minimal electronic manipulation, or pre-recorded environmental sounds that are subject to different levels of perceptible electronic manipulation depending on the musical context. Passages that feature environmental sounds with little or no manipulation, so that their sources are recognisable, do not feature any familiar or recognisable acoustic sounds at all, and are often reached through very gradual timbral evolutions from non-environmental soundworlds. Passages which feature environmental sounds with a very noticeable amount of manipulation tend to transform the sounds in such a way so that their origins become ambiguous, and often start to sound more like the acoustic sounds they sit alongside. Importantly, there are very few sounds across both works that are obviously synthesised. These strategies suggest that, similar to the acoustic sounds, the less recognisable or familiar an electronic sound is, the more potential that sound has to blend with its acoustic counterpart.

Turning to the composers’ aesthetic philosophies, it is significant that Barrett’s ‘sound-world realism’ concept plays an important role in both compositions. The vast majority of the sounds in both works have, I would contend, a ‘real’ origin. The spaces which these sounds are situated in are initially unfamiliar, as the soundworlds throughout are not something we would find in the real world. However, these spaces remain the kinds of spaces we experience throughout the works; thus, by Barrett’s definition, the spaces become non-real-world spaces over time. Consequently, the combination of real sounds and spaces that become familiar over time mean that the perception of realism increases over the course of both works. This lens through which to look at these works, therefore, may give a real insight into how mixed electroacoustic compositions construct a sense of successful timbral blend.

In relation to McLean’s idea of ‘imago-abstract’ sound however, I would argue that this kind of sound does not seem to be synonymous with the idea of timbrally blending acoustic and electronic sounds. Both works are successful at achieving the latter despite the prolific use of referential sounds. Particularly in ‘Salt Canyons’, while there are several sounds in the work that arguably do meet the criteria of being ‘imago-abstract’, all of these sounds are still first heard in a referential context, thus endangering their ambiguity of origin when later heard in their ‘imago-abstract’ form.

In conclusion, the compositional strategies used to achieve timbral blend in these works are multifarious and varied. Nevertheless, there are a small number of strategies which can be assimilated into one unifying strategy that can be found across both works. Sounds, regardless of origin, whose sources are less easy to identify, or less familiar to the listener, are more likely to blend and integrate with each other. Equally however, it must also be noted that the means used to make sounds less familiar are manifold in these works, and that any strategies unique to individual works are not any less important or useful.

## **Discussion**

These results and the methods used to obtain them will require further investigation, as the issues discussed in this paper engage not just with compositional questions, but questions across the various discourses of timbre. Furthermore, a longer study on the role of timbre in mixed electroacoustic music would need to examine a much wider and more representative range of works, as a larger sample size

would allow for a greater certainty over which, if any, compositional strategies used for ensuring timbral blend are common and shared. A more comprehensive study should also attempt to account for any musical factors, such as harmony, gesture, and structure, that might act in dialogue with timbre during any given composition. It might also seek to investigate whether timbre may play a role in the practical challenges performers often face when playing mixed electroacoustic works.

An examination of conceptual metaphor theory as it can be applied to the semantics of timbre, by Wallmark and Kendall (2018), was the primary influence on the methodology used in this paper. The theory proposes that language acts as a system for human embodiment. Highlighting two metaphors that are very commonly used – ‘sound is light’ and ‘sound is texture’ – the authors link these into their claim that there is concrete evidence for “‘weak synesthesia’ between auditory, visual and tactile modalities in non-synesthetic individuals’. They argue that one possible explanation for this, based on a theory by Lawrence Marks (1975), is that timbre-based synesthetic metaphors provide a shortcut by which we can meaningfully distinguish cognitive stimuli for ourselves and to others. This theory, therefore, suggests that the use of certain metaphors to describe timbre does not depend entirely on individual subjectivity, but rather reflects a deeply embodied, culturally situated intersubjective form of communication.

Selecting the methodology most appropriate for identifying different compositional approaches to timbre is a perilous task. I would argue that a phenomenologically grounded approach to the analysis of timbre should be curated on the basis of how listeners, across different cultures, directly experience timbre both in the moment(s) of listening, and how they reflect upon the phenomenon and its effects on the music they have previously listened to. The conceptual metaphor theory described above, as applied to our experience of timbre, appears to closely build upon this phenomenological notion of timbre, because it theoretically allows for the possibility of a kind of, albeit culturally situated, timbral analysis that uses descriptive and metaphorical language to convey the timbral devices employed in a musical work to the reader in a way that potentially allows said devices to be meaningfully understood.

## **Acknowledgments**

This research is supported by the UK Arts and Humanities Research Council.

## **References**

- Barrett, N. (n.d.). *Instruments and Live Electronics*. Natasha Barrett  
[http://www.natashabarrett.org/live\\_electronics.html](http://www.natashabarrett.org/live_electronics.html)
- Barrett, N. (1997). *Structuring Processes in Electroacoustic Composition* (Doctoral thesis), City University: London. <http://openaccess.city.ac.uk/7468/>
- Croft, J. (2007). Theses on liveness. *Organised Sound*, 12 (1), 59–66.
- Marks, L. E. (1975). On Colored-Hearing Synesthesia: Cross-Model Translations of Sensory Dimensions. *Psychological Bulletin*, 82 (3), 303–331.
- McLaughlin, S. (2012). If a tree falls in an empty forest: Problematization of liveness in mixed-music performance. *Journal of Music, Technology and Education*, 5 (1), 17–27.
- McLean, P. (1977). Fire and Ice: A Query. *Perspectives of New Music*, 16 (1), 205–211.  
<https://doi.org/10.2307/832858>
- McLean, P. (1983). *The Inner Universe*. MLC Publications.
- Wallmark, Z., & Kendall, R. A. (2018). Describing Sound: The cognitive linguistics of timbre. In A. Rehding & E. I. Dolan (eds), *The Oxford handbook of timbre*. New York: Oxford University Press.  
<https://doi.org/10.1093/oxfordhb/9780190637224.013.14>