
EDITORIAL

What is the ‘image of sound’? This special thematic issue explores some of the potentials, as well as the complexities, of a range of approaches and emerging explanatory models that fall within the scope of this question. The issue attempts to cover broad ground under the auspices of the term ‘sonic imagery’, and to approach the topic in a manner of direct relevance to electroacoustic music studies. It aims to offer a small contribution to elucidating what approaches to electroacoustic music based on sonic imagery might offer our understanding, simultaneously as both theoretical concept and phenomenon of experience: that is to say, experience of musical listening and its relationship to experience of listening-within-the-world. At first glance, the term sonic image may perhaps appear to be something of an oxymoron – particularly so in light of electroacoustic music’s historical tendencies to reject strongly forms of ‘visualism’ in the advancement of its sonic and aural agendas, as well as the technologically created acousmatic listening situation that underlies so many forms of electroacoustic practice and reception. It would certainly seem essential to acknowledge the considerable historical, habitual and philosophical baggage that accompanies the term ‘image’, as well as to be clear from the outset that we are not referring to phenomena of merely (and crudely) ‘mental pictures’ – albeit of aurally elicited ‘mental pictures’ – that might relate to past ‘pictorial’ accounts of human imagination. Can the ‘sonic image’ be described and studied? Has the development of technologies, and associated cultural and artistic practices, created a phenomenon of such complexity that it is ultimately resistant to analysis or language-based elaboration? (After all, it does seem to insinuate itself in an array of non-trivial matters: the nature of conscious experience, multi- and trans-modal perception, cognition, theories of human imagination, the nature and processes of meaning of formation, and our feeling and understanding of what is ‘internal’ and what is ‘external’ to name but a few!) In their various ways the contributors to the issue answer this question ‘no’. Through work as teachers, composers, performers, concert promoters and so on, readers will be familiar with the wide and variable range of quasi-synaesthetic responses that people recount in relation to electroacoustic music. For some practitioners,

notions based around imagery form essential aspects of their aesthetic and poetic motivations, or inform their working procedures. And the term does appear (albeit infrequently) in some theoretical accounts, perhaps most notably with François Bayle’s explanation of *musique acousmatique* (Bayle 1989; Misch and Blümröder 2002), where *l’image de son* is adopted in relation to C.S. Pierce’s tripartite approach to semiosis in a move ‘outwards’ from the indexical trace of the recorded sound to the figurative of the acousmatic artistic experience. However, there is no sense of any really systematic approach to the topic, and so one of the aims of this issue was to consider the question: How can the ‘sonic image’ be described and studied?

It could be argued that musical imagery is a subset of auditory imagery, which is in turn a subset of mental imagery. Musical imagery is a vast and pluralistic topic and as a term has a very wide number of alternative meanings and uses, as is well represented in Godøy and Jørgensen (2001) – an introduction to the sheer scope and diversity of the topic. Auditory imagery is a term that appears with greatest frequency in the hard sciences, and of course in relation to research into speech and other areas as well as music. The use of the less common term ‘sonic imagery’ in this issue’s call for contributions was informed by an attempt to focus the scope of its eventual contents, and has resulted in a degree of relativity and interchangeability in terminology used. Thus, let us assume at least for the purposes of what follows, that sonic image, sound image and acoustic image are to all intents and purposes synonymous, that they are used by the contributors as representing facets of musical imagery that might be of particular importance to electroacoustic music in particular, and by the same token that they are facets of mental processes of particular relevance. Imaging and imagining are clearly not synonymous, and consideration of imagery may lead us to numerous phenomena that are not dependent upon the physical presence of sound. It has been observed from various quarters that there are considerable similarities between mental imagery and perception. Whilst the privileged position of perception is fairly ubiquitous within the study of electroacoustic music, it is rare to encounter a collection of work formulated from this current

perspective. The articles share an important connection in that they assume, from their various perspectives, a position of referring to events and processes experienced by listeners *whilst listening to music* (even in the second part of the neuroscience contribution, Miranda's discussion of brain function – sequencing and higher-order structures – assumes a situation of listening to music played through loudspeakers). Thus the discussion can be understood within a broader context of an ever-increasing concern beyond 'structural listening' within music scholarship over the last couple of decades, and in a sense as pointing beyond the now quite well-rehearsed debate regarding the 'problem' of the analysis of electroacoustic music. The issue can be thought of in two related parts. The first 'group' of three articles approach the theme from three distinct approaches with their own distinctive methods: phenomenology, neuroscience and audiovisual theory. The second 'group' of four articles focus on the role and nature of imageries more explicitly and specifically within acousmatic listening.

Pitted firmly against the dominant historical formalist tendencies of Western musical culture and scholarship, Michael Filimowicz and Jack Stockholm offer an introduction to a phenomenological philosophical account of our lived experience of acoustic images. They allude to categories of phenomenological wonder, phenomenological distinctions between the different perceptual modalities, and sound in relation to history of thought and epistemology, and they introduce and develop important aspects of acoustic imagery as it might pertain to specifically electroacoustic musical experience: sound as perception of interiority, relationships between acoustic and electronic sound, meaning and experience. They present a three-dimensional heuristic of image space (featuring axes of similarity/contrast, periodicity/aperiodicity, referential/abstracted, ontological/psychological). They problematise the concept of abstraction, and present ideas of holonic fields, narrativity and bodily imagery (compare discussion here with that within Godøy's later article). What they describe as the rhizomatic nature of the acoustic image instantiates a semiotic network or chain of culturally specific associations that, although 'messy' to disentangle, establishes the phenomenon of acoustic imagery as experiential and interpretative, and therefore intersubjective. Following Heidegger, they establish our perception of sound within a realm of the hermeneutically 'pre-understood', but suggest that much contemporary music is formed of sound for which we do not necessarily have any such pre-understanding. Following Schaeffer, they remind us that the visualism rejected through *musique concrète* was the visual-as-source-and-cause of the audible. The acoustic image, however, is an 'internal' image

that is not necessarily attached to the 'external' visual of a sound's source or material origin. Schaefferian phenomenological bracketing leads us to an imaginal production whose results may be very different in character from the visual-objective-causal context of a sound's origin, thus the acousmatic imagination is not limited to the merely causal but is instantiated in a much richer network of relationships – and these can be elucidated phenomenologically.

From an apparently utterly different perspective, that of neuroscience, Eduardo R. Miranda's article also points ultimately to the intimate relationship between mental imagery and perception. Mental imageries are scaffolds for music perception since musical imagery is a by-product of the inherent abstracting and predicting properties of the brain. His article does not attempt to define imagery in any semantic or music theoretical sense, but rather outlines those known neurological mechanisms and processes that are involved in its creation. A summary of relevant neuroscience around which there is clear consensus is presented in a manner intended for musicians and which – we hope helpfully for some – does not assume prior knowledge of this field. The paper outlines the physiology of auditory pathways, and introduces abstraction, representation, anticipation and organisation of auditory music information along with their roles in the formation of mental imagery. Some tentative suggestions towards a functional map of the musical brain are offered, and the theoretical concept of cortical music mental modules is introduced. Early on in the auditory pathways information from different sensory modalities (e.g. visual, somatosensory) is combined (and visual information can effectively modulate the auditory signal). The processing of spatial localisation of sound occurs very early on in the auditory system. The fact that the inferior colliculus sends some information bypassing the auditory cortex to vital areas of the brain – such as the superior colliculus (which performs early integration with the visual system), the reticular formation (involved in autonomic processing) and cerebellum (involved in motor coordination) – indicates that the brain begins to use information on sound localisation very early indeed. Our experience within our environment reshapes our brain 'circuitry' (plasticity). Presumably increased knowledge of this might be relevant to the ecologically informed theory of perception that lies behind discussion later in the issue. Miranda reminds us that music is established as a rich domain for neuroscience research. He also reminds us that some scientific research continues to exhibit rather circumscribed notions of what music is. He speculates that a more intimate relationship between both neuroscience and music theory, and neuroscience and technology development might bear rich fruit. A better (scientific)

understanding of our musical brain may lead to the development of new types of technologies, especially for electroacoustic music. Following Miranda's analogy of the jigsaw puzzle, a better understanding of the complexities of the puzzle pieces both known and unknown will be essential to distinguishing imagery functions and types discussed in the terms of other disciplines elsewhere in the issue.

John Coulter discusses a theoretical framework of media pairing which has its origins in attempting to transcend a paradox. The paradox is based upon a direct comparison of audiovisual artwork featuring electroacoustic music and visual or quasi-visual mental imageries within some listeners' experience of acousmatic listening. Within the familiar spectrum featuring abstraction at one pole and the referential at another, the aural modality is considered in relation to the visual to consider the nature of homogeneous and heterogeneous audiovisual relationships. When do moving image and electroacoustic sound achieve mutual support in expressing artistic ideas, and when do they detract from each other or create cognitive confusion for the listener-viewer? And with what vocabulary might we discuss specific instances of relationships as experienced to arrive at a better understanding? Examples of the author's own practice illustrate concomitant and isomorphic media pairings and support the description of parametric and mapping-based strategies for creating them. Coulter suggests that the ideas presented extend beyond more traditional fixed media audiovisual relationships to pertain to interactivity, live electronics performance and hyper-instrument design. His ideas are based on the possibly controversial premise that there might be little difference between our experience of the audiovisual and acousmatic. In this sense, the work is a development of Coulter's previous paper outlining listening-viewing tests, 'The Language of Electroacoustic Music with Moving Images' (2007).

With Daniel Barreiro's article, the focus of the issue turns more specifically to acousmatic listening. His survey introduces key topics and summarises in terms of existing theoretical contributions, in particular Smalley and Godøy. Some consideration is given to compositional concerns as well as the theoretical. Within the dynamism of listening processes, imagery is a means of reinvigorating theoretical approaches to electroacoustic musical discourse. The binary pairings of *anecdotal* and *abstract* and Smalley's *intrinsic* and *extrinsic* (along with *source bonding*) are identified for critique from a perspective of imagery. He considers developments in post-Schaefferian theorising of electroacoustic music, exemplified by the composer Jonty Harrison's simultaneous wanderings of musical discovery along rue Schaeffer and Schafer Street (as he has formulated it in an *Empreintes Digitales* CD liner note). Any initial assumption that

mental imagery is associated particularly with the *indicative* seems too simplistic. The listening imagination is central (a foretaste of Kim's later article) and a connection is made between electroacoustic gesture and motor imagery, an embodied cognition approach based on the re-enactment of what we perceive (a foretaste of Godøy's later article). For Barreiro, the concept of the sonic image is one that could possibly integrate – or even unify – theoretical binarisms (such as intrinsic and extrinsic) and their related varieties of listening strategies as developed within the literature.

In Suk-Jun Kim's 'Imaginal Listening: A quaternary framework for listening to electroacoustic music and phenomena of sound-images', acousmatic sound images are the result of two facets of listening processes: perceiving and imagining. In fact, Kim argues that listening to electroacoustic music is just as much an act of imagining as it is of perceiving. Informed by the phenomenological tradition, four primary image types are identified that are at the heart of the disembodiment and displacement of the acousmatic listening situation, those of body, place and their respective negations. Drawing upon the work of Edward Casey, Kim expands upon the importance of imagining within the perception of acousmatic music and poses two challenging questions: what do imaginative listeners imagine and how do they imagine it? The relationship between perceiving and imagining within listening is the basis of his concept of *acousmatic reasoning*, the means by which he suggests that listeners navigate his quaternary framework. He adopts Casey's formulation of imaging, imagining-that and imagining-how to elucidate the body/non-body and place/non-place sound image illustrated with several examples from pieces from the repertoire.

The implications of research into sound-action and mental imagery are applied to the concept of Schaeffer's *objet sonore* in Rolf Inge Godøy's 'Images of Sonic Objects' and, simultaneously, to how our understanding of the way our experience of continuous flows of musical time are chunked might be informed by developing accounts of signification based on embodied theories of cognition and meaning. His article addresses the sense in which imagery may pertain to memory and to models of knowing and understanding which have their roots in metaphor. The paper develops Godøy's idea that motor imagery may prove to be a deep structure of musical sound and musical meaning and applies this within the specific context of acousmatic listening. He offers what for some might be new perspectives from which to approach the phenomenon of gesture within electroacoustic music, and in a sense his consideration of musical imagery in terms of action imagery seems to offer renewed cognitive legitimacy to – as well as a refreshed perspective on – the *objet sonore* (and

Schaeffer's *typologie* and *morphologie*). Avenues for further research are clearly and usefully outlined and some examples of application of such knowledge are given.

Gary Kendall's 'Meaning in Electroacoustic Music and the Everyday Mind' develops his previous work relating to schemata, and tackles head on the complex issues of signifying processes in electroacoustic music. In particular, he does this by asking the question: Do listeners experience meaning in electroacoustic music and meaning in everyday life in fundamentally different ways? One of a number of thinkers who have been influenced by ecologically informed theory, his position is that we do not, and thus he disagrees with the widely cited work of William W. Gaver (1993). Work with its roots in cognitive linguistics and metaphor (notably Johnson and Lakoff) has made considerable ground in recent years and it is interesting to see this (here also drawing upon Turner and Fauconnier) applied in this context, forming the framework for discussion in which schemata, events and auditory gist are the key concepts. A range of approaches to patterns of understanding within dynamic processes of listening are extrapolated, moreover his application of conceptual binding and blending enables us to envisage the interactions of image-based processes as they might pertain to longer musical timeframes of relevance to our apprehension of form and structure.

There is an inherently partial nature to this issue: much of the discussion arises from relatively new or emerging areas of enquiry. It brings together a range of disciplinary approaches and perspectives and highlights that, whilst the topic is incredibly plural, there are significant overlaps and intersections between various explanatory schemes. They seem to have ramifications that transcend disciplinary divides. It is interesting to note that all of the contributions point (whether implicitly or explicitly) to vital questions of understanding, signification and meaning. Embodiment is central: embodied approaches to listening point to a state of affairs in which mental imagery can be

considered as synonymous with the content of the music, or even the meaning of the music. In addition to increased awareness across and between the various approaches represented here, how might they more directly input to each other? For example, what specific questions might scholars of electroacoustic music ask of neuroscientists? How might a variety of possible empirical methods be used to more systematically detail how mental images arise from different aspects of listening to electroacoustic musics? To what extent are these subjective or intersubjective, individual or shared? In other words, how might we build bridges between the cognitive and the cultural? On behalf of the contributors, I hope that readers do find this fertile ground for further thought and discussion. I would also like to express my gratitude to Simon Emmerson, Eduardo Miranda, Denis Smalley and Simon Waters, who along with myself, contributed to a symposium on this topic I organised here at De Montfort University in March 2008 which was a catalyst for this issue and which convinced me it was an interesting and viable idea to pursue.

Simon Atkinson

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