Chapter 1

Introduction - Music, Sound and Space: Transformations of Public and Private Experience

By Georgina Born (this pre-publication version dated May 2012)

Topological music, sonic-spatial practices

> 'When new instruments will allow me to write music as I conceive it, the movement of sound-masses, of shifting planes, will be clearly perceived in my work, taking the place of linear counterpoint. When these sound masses collide, the phenomena of penetration or repulsion will seem to occur. Certain transmutations taking place on certain planes will seem to be projected onto other planes, moving at different speeds and at different angles…. We have actually three dimensions in music: horizontal, vertical, and dynamic swelling or decreasing. I shall add a fourth, sound projection – …[the sense] of a journey into space. Today, with the technical means that exist and are easily adaptable, the differentiation of the various masses and different planes as well as these beams of sound, could be made discernible to the listener by means of certain acoustical arrangements… [permitting] the delimitation of what I call "zones of intensities". These zones would be differentiated by various timbres or colours and different loudnesses. [They] would appear… in different perspectives for our perception…. [They] would be felt as isolated, and the hitherto unobtainable non-blending… would become possible.'[1]
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> 'Over the past few weeks the Old Schools Combination Room has been buzzing with workshops, talks, film showings and a steady stream of visitors and participants. Today, it was properly pumping. Responding to the refusal of University management to engage in any sort of discussion with the occupation of the Old Schools, protesters staged a noise protest in the afternoon, blasting music towards the Vice Chancellor's… office out of the windows of the Senior Combination Room…. We launched the noise protest - which involved amplifiers blasting music, an electric guitar, drums, pots, pans and chants over megaphones – in response to the University's refusal to engage in discussion…. and a group of students took drums to the main entrance of the Old Schools to be heard there.… If the University is more willing to implement a forcible and violent eviction than to speak to the students it claims to speak for, we must hold them to account for their choice.… We have collectively agreed upon and implemented a safer spaces policy, as a framework for addressing these concerns within our space….'[2]
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The two opening quotations between them lay out the terrain of this book. The juxtaposition of these vivid tableaux is intended to highlight the mutual relations between music, sound and space, as well as the generative potential of bridge-building between, on the one hand, the study of music and sound and, on the other, the study of spatial and social processes. In the first quotation, the French-American composer Edgard Varèse – who

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[1] Varèse 2004 (1936): 17-18.

[2] Statement by students occupying the Senior Combination Room, Cambridge University, in protest at the threatened cuts to university funding, 1 December 2010, www.defendeducation.co.uk/old-schools-occupation/safer-spaces-agreement

described his music as 'organised sound' and himself as 'a worker in rhythms, frequencies, and intensities' - inaugurated a discourse on twentieth- and twenty-first century music that has since grown exponentially in both influence and extent. The copious topological, spatial and mobile metaphors coined by Varèse to imagine and describe the sonic material of his musical works – shifting planes, colliding masses, projection, transmutation, repulsion, speeds, angles and zones – not only prefigure the later interest in spatialisation in electronic and electroacoustic music and what has come to be called sound art, but they point in the direction of the themes of this volume, echoing some of the core conceptual terms that it summons up. The second quotation comes from a website statement issued by students who occupied a central building in Cambridge University for several weeks in late 2010 in protest against major cuts to British university funding by the government. In reaction to the cuts, a campaign to defend public universities gathered pace in a number of cities: the 'defend education' movement.[3] What is striking in the statement is the prominent role given to music- and noise-making in the actions intended to elicit a public dialogue with the authorities, particularly collective acts of noisily mobilizing in and occupying public space, as well as the insistence on creating independent 'safer spaces' to foster self-organisation and participatory political dialogue. Issues of sound and space therefore had a focal place in the movement's political imagination.

The subject matter of the present collection congeals at the intersection of a series of related terms: music, sound, space, and how these phenomena have been employed to create, mark or transform the nature of public and private experience. While music and sound have long been employed to cultivate realms of both public and private experience,[4] these capacities accelerated with the burgeoning of sound media from the late nineteenth century. The early telephone, for example, was 'startling and pleasurable in its capacity to transmit bodily and intimate physical sounds, suggesting a fluid interchange of separated spaces, in which the interior of the body is transmitted… to the inner ear of the listener' (Connor 1997: 206); indeed 'a long series of literary phantasms… rewrite eroticism itself under the conditions of gramophony and telephony' (Kittler 1999: 56). In parallel, the gramophone and its precursors made it possible in the first decades of the twentieth century for music listening to be relocated from the music hall, jazz club or concert hall to the home or brothel, while radio broadcasts enabled music to accompany not only domestic life but factory labour and political meetings (Korczynski and Jones 2006). Already apparent is a dual movement that is characteristic of this history: both interiorising, in the domestic provenance of early sound media and the inter-corporeal, prosthetic uses of telephony, and exteriorising, in those media oriented more to engendering collective forms of life and work.

At the base of this collection is the conviction that 'perhaps the most important distinguishing feature of auditory experience… [is] its capacity to… reconfigure space'. With the development of modern sound media, according to Steven Connor 'the rationalized "Cartesian grid" of the visualist imagination… gave way to a more fluid, mobile and voluminous conception of space…. Where auditory experience is dominant, we might say, singular, perspectival gives way to plural, permeated space. The self defined in terms of hearing rather than sight is a self imaged not as a point, but as a membrane… a channel through which voices, noises and musics travel' (all Connor 1997: 206). As the chapters that follow demonstrate, however, the auditory self is also an embodied self that responds and re-sounds: in the words of Jean-Luc Nancy, sound is 'tendentially methexic (that is, having to do

[3] For the Cambridge branch of 'defend education', see http://www.defendeducation.co.uk/.

[4] Corbin (1998), for example, a historian of sound and the senses, charts how church bells produced communal experiences of sonically-mediated public space long before modern sound media, sonic publics that were traversed by hierarchical social relations while also engendering collective ritual, memory and passions.

with participation, sharing, or contagion)'; it 'spreads in space, where it resounds while still resounding "in me"' (Nancy 2007: 10, 7). But the contributors to this volume go further, proposing that the auditory self, as listener, musician, sound artist or sonic *flâneur*, can be positioned equally as a boundary point that impedes or stops the flow of music and sound, as well as being potentially initiatory in relation to sound and music - as much agentive and mediating as mediated.

The first part of this introduction aims to identify key conceptual themes running through the book, while suggesting how these themes link to existing discussions and move them in generative new directions. In this light, the second part gives an overview of the individual chapters, bringing out their singular contributions to the volume. The book, which has its origins in an interdisciplinary conference held at the Centre for Research in the Arts, Social Sciences and Humanities at Cambridge University, brings together scholars of music, sound, mediation and modernity.[5] It does so in order to address a series of changes in the contemporary experience of music and sound – changes that, as the chapters make clear, are associated with but not limited to their evolving forms of technological mediation. In this combination of preoccupations, the volume explores new ground. But it is also framed by a web of disciplinary and interdisciplinary areas of enquiry. Recent years have seen a veritable avalanche of scholarship devoted to the interconnections between sound and space, in some cases making links also to music and audio technologies. This is evident in the emergence and evolution of the overlapping interdisciplinary fields of film sound studies (Altman 1992a; Altman 1992b; Chion 1994; Lastra 2000), soundscape and sound studies (Schafer 1994 (1977); Connor 2000b; Kruth and Stobart 2000; Sterne 2003; Hilmes 2005), and auditory or aural culture studies (Bull and Back 2003; Drobnick 2004), as well as in the growing attention paid to these matters in history (Attali 1985; Chanan 1995; Corbin 1998; Smith 1999; Smith 2001, 2004b; Thompson 2004), anthropology and ethnomusicology (Feld 1982, 1996; Born 1995, 2005; Lysloff and Gay 2003; Erlmann 2004; Feld and Brenneis 2004; Fox 2004; Hirschkind 2006; Samuels et al. 2010), sociology (Bull 2000, 2007; DeNora 2000; Back 2007) and geography (Smith 1997; Leyshon, Matless, and Revill 1998; Revill 2000; Connell and Gibson 2003; Wood, Duffy, and Smith 2007). To these can be added developments in two further, sociologically-influenced interdisciplinary fields: science and technology studies (Pinch and Bijsterveld 2004; Bijsterveld 2008) and popular music studies (Whiteley, Bennett, and Hawkins 2005; Krims 2007). Manifestly, sound, space, music and technological mediation are high on the scholarly agenda.

However, such a profusion of research poses its own challenges; as one commentator observes, 'these various venues of academic work on sound phenomena so rarely speak to or take heed of each other' (Hilmes 2005: 252). A core aim of this collection is, then, to create productive cross-currents between fields that have hitherto developed without much mutual reference. A first way in which the volume experiments is by placing chapters that address questions of music and space, from the perspective of the music disciplines, into dialogue with others that examine sound and space. A founding observation of the collection is that musicology and the burgeoning literatures on sound and auditory cultures have proceeded largely in isolation from each other. On the one hand, research in sound studies has had little to say about music's inhabitation of and entanglement with the encompassing acoustic environment. This is despite the fact that the work of R. Murray Schafer and other seminal writings in this area have registered music's interconnections

[5] The conference, held in April 2008, is archived at http://www.crassh.cam.ac.uk/events/70/. I am grateful to those speakers, musicians and artists who gave presentations but were unable to contribute to this volume: Michael Bull, Ruth Davis, John Levack Drever, Brandon LaBelle, James Lastra, David Toop and Martin Stokes, as well as the respondents, Steven Connor, Ben Etherington, George Revill and Ben Walton.

with the wider soundworld (Schafer 1994 (1977), ch. 7; Bull and Back 2003, Part V). It is also despite the fact that from the outset soundscape research provided the stimulus for compositional activities, as in the music of Barry Truax, Hildegard Westerkamp and others. On the other hand, musicology and music analysis have continued to focus in recent decades primarily on those score-based lineages of twentieth-century Western art music that conceive of musical materials primarily in the terms of orthodox music notation. They have been slow as yet to respond to those parallel waves of post-1950s developments – experimental music, electronic, electroacoustic and computer music, interactive, site-specific and installation-based sound art, as well as electronic popular musics – in which musical thought and practice are irreducible to a score, where the ontological distinction between music and sound is disturbed,[6] and which foreground the creative possibilities - whether in recorded media, live performance or installations - of the mutable boundaries between music, sound and space.[7] The dominant academic music disciplines therefore continue to uphold the nineteenth-century formulation of musicology 'as a kind of musical philology' (Cook 2008: 58), making it difficult to address not only music as performance and event, but those many genres of twentieth and twenty-first century music that have embraced new materials, new performance practices and new media.

As if in response to this impasse in the academic music disciplines, one of the most cogent implications of the growing attention to sound across the humanities and social sciences has been methodological and epistemological. In part this amounts to a 'critique of "visualism"' (Erlmann 2004: 1; cf. Connor 1997): a concerted attempt to wrest the bases of human knowledge away from the long-standing hegemony of visual, text-based and representational models. For Veit Erlmann, a key figure in forging close relations between sound studies and the anthropology of the senses and of sound, a methodology attuned to 'hearing cultures' partakes in a larger project of 'sensuous scholarship': '"Hearing culture" suggests that it is possible to conceptualize new ways of knowing a culture and of gaining a deepened understanding of how the members of a society know each other' (ibid: 3). Steven Feld (1996: 94-95) traces the twin origins of this approach, showing how from the outset conceptual links were drawn between sound and space. He finds them in the work of music philosopher Victor Zuckerkandl (Zuckerkandl 1956) and anthropologist Edmund Carpenter (Carpenter 1960), both of whom propounded the idea of 'auditory space'. Zuckerkandl's writings, for instance, which drew on Bergson, William James and Heidegger, detailed how 'space is audibly fused with time in the progression and motion of tones', stressing 'the interpenetration of auditory space and time' (Feld ibid: 95). While Zuckerkandl's influence was felt among a generation of anthropologists of music, ritual and symbolism, Carpenter's was evident in the founding in 1970 of Schafer's World Soundscape Project which, integrating art and science, was the first research programme to focus on the nature of the sonic environment and resulted in the coining of soundscape studies and the concept of acoustic ecology. As Feld explains, 'Schafer's group began recording, observing, and acoustically analysing the sonic experience of space and place,… and developed an analytical vocabulary, a notation system, and a comparative framework for the study of acoustic space and its human interpretation and feedback' (Feld ibid: 95).

[6] See Nattiez 1990: chapter 2 on the heterogeneous and relational semantic content of, and the shifting classificatory distinctions between, concepts of music and sound as well as sound and noise with reference to both historical and cross-cultural research.

[7] For an attempt to classify and define the various movements composing this broad historical field of developments, and a commentary on musicology's relative neglect of them, see Landy 2007: 1-19.

While acknowledging the significance of the Schaferian lineage, Feld criticises its tendency to reify 'a visual-auditory great divide' (ibid: 96).[8] Rather than dichotomising vision and hearing, anthropology today – in the work of Feld, Erlmann, David Howes (Howes 1991) and others – advocates the embedding of interdisciplinary research on sound and hearing in wider cultural and historical analyses of the interplay between the senses: the study of 'sensory ratios' (Feld ibid: 96). Feld himself is a pivotal figure in both sound studies and the anthropology of the senses; he exemplifies a particularly generative direction, one that takes its orientation from another key turn in sound studies: to phenomenology, via Merleau-Ponty and later writers. Feld's work is exceptional in addressing both music and sound and their interrelations as part of a broader framework of inquiry which, in a classic paper from 1996, he identifies as a combination of 'social phenomenology and [a] hermeneutics of senses of place' (ibid: 91).[9] In this way he points to a second innovative dimension of this book, which responds to a common feature of the various (inter)disciplinary initiatives: the relative *under*development of analytical approaches to the *social* dimensions of the interweaving of music, sound and space. Each of the chapters in this volume addresses the social mediation of music, sound and space, whether from the perspective of their capacity to engender modes of publicness and privacy, their constitution of forms of subjectivity and personhood, their affective resonance, or their embedding in capitalist dynamics of commodification and reification. A core aim of this introduction is to show how, taken as a whole, the contributions augur a new kind of social phenomenology of music and sound, and one that expands considerably upon previous conceptions.

Feld stresses the embodied and spatialised nature and the affective entailments of sound perception: 'Sound, hearing and voice mark a special bodily nexus for sensation and emotion…. By bringing a durative, motional world of time and space simultaneously to front and back, top and bottom, and left and right, an alignment suffuses the entire fixed or moving body. This is why hearing and voicing link the felt sensations of sound and balance to those of physical and emotional presence' (Feld 1996: 97). With reference to his seminal ethnography of the Kaluli people of the rainforests of Papua New Guinea (Feld 1982), Feld introduces the concept of acoustemology (acoustic epistemology). With it he points to 'acoustic knowing as a centrepiece of Kaluli experience; how sounding and the sensual, bodily, experiencing of sound is a special kind of knowing, or put differently, how sonic sensibility is basic to experiential truth in the Bosavi forests' (Feld 1994). 'Acoustic

[8] See Ingold (2000a) for another insightful commentary, with reference to James Gibson and Merleau-Ponty, on the tendency to draw an opposition between vision and hearing in the work of such writers as McLuhan, Ong and Carpenter, and to equate vision with objectification or 'speculation' in the work of Jay and others. Ingold stresses instead the complementarity between visual, auditory and other sensory modalities, arguing from ethnographic evidence that in certain cultures vision as well as hearing amounts to a mode of participation or 'being' that is elicited by particular environments. He makes the ironic point that the critics of visualism invariably have their source 'in the very Cartesian epistemology that they seek to dethrone. What they offer, then, is… a critique of modernity dressed up as a critique of the hegemony of vision' (ibid: 287).

[9] It is beyond the scope of this introduction to address the important questions posed in anthropology about the relations between space and place (Feld and Basso 1996), and by ethnomusicology about the significance for music of place and locality (eg Stokes 1994; Solomon 2005a, 2005b; Wolf 2009), although certain chapters do address these issues. Suffice it to note Edward Casey's cogent critique, by way of a sensuous phenomenology, of any conception of place in which it is subsumed by what are thought to be primary, universalised categories of space and time, such that 'generality, albeit empty, belongs to space; [while] particularity, albeit mythic, belongs to place' (Casey 1996: 15). With reference to the philosopher A. N. Whitehead, Casey argues against 'the tendency to posit a plane of abstract perfection and purity [ie space or time] onto which complexities and dirty details come crowding [ie place]' (ibid: 45). Rather, 'space and time are themselves coordinated and co-specified in the common matrix provided by place' (ibid: 36). Casey's remarks are highly salient to the alternative accounts of space as well as the sonic-social phenomenology elaborated in what follows.

knowing', then, is an experiential knowledge based on the intimate relations between sound, space and place. Acoustemology invokes the way that 'space indexes the distribution of sounds, and time indexes the motion of sounds. Yet acoustic time is always spatialized…. And acoustic space is likewise temporalized' (Feld 1996: 97-98). This orientation is amplified by Feld's ethnography, in which Kaluli socialities more fully enter the frame, and in which he shows how Kaluli musical experience cannot be understood without reference to their wider ontology and ecology. For Kaluli, music is embedded in and constitutive of not only their environmental ecology and collective experience of space and time, but their social relations and rituals, emotions and labour. Feld charts in both ordinary and ceremonial music-making a series of ambiguities and fluidities concerning the boundary between collective emotion and the aesthetic and symbolic valencies of musical performance, as well as between improvisation and composition, music-making and everyday work and play, and individual and collective experience. Musical expressions therefore weave through and form an indissociable part of Kaluli socialities.

Several fruitful insights can be derived from Feld's work. First, he indicates the significance of a sonic-social phenomenology, one that is generalizable as both epistemology and method. Second, he shows convincingly that at the core of our embodied experience of sound and music lies the interrelation between, and mutual modulation of, space and time. Third, Feld portrays these modes of experience – sound, music, their spatialities and temporalities - as immanently affective and as generative of subjective impression, expression and transformation. And fourth, his insistence on the mutuality of these modes of experience, and of the sounded imbrication of bodies and environment, gestures also in the direction of a theory of mediation of sound and music:[10] of their complex and multiple, sensory and affective, material and social forms.

Space in / and music

If sound studies and the anthropology of sound have drawn illuminating links between sound and space, how have the music disciplines understood the relations between music and space? While 'space' has often been used in ambiguous and metaphorical ways in relation to music, it is possible to distinguish three broad ways of conceptualising space in/and music in these literatures: three distinct lineages of practising and cognizing musical spatiality.

A dominant, formalist approach to musical spatiality, allied to score-based, visual and graphic representations and analyses of music, limits itself to a concern with the internal

[10] It is important to clarify the term mediation in relation to music and sound. In earlier writings I pointed to the importance of understanding music as 'inherently "meditational" - liable to mediation' (Born 1991: 158), in the sense that music is always (but variably) experienced through a constellation of aural, notational, visual, performative, corporeal, social, discursive and technological forms - forms that mediate the music (or sound). Such an approach makes it possible to 'move beyond… impoverished and essentialist notions of how music conveys meaning by developing an analysis of the multiple, specific forms in which it is experienced', allowing us to grasp 'the multitextuality of music-as-culture, and the need to analyse its particular forms – aural, visual, technological, social, discursive – as an ensemble' (ibid.: 159). This conception in some ways converges with the general definition of mediation given by Bruno Latour (2005), which he develops through a contrast: 'An *intermediary*, in my vocabulary, is what transports meaning or force without transformation…. *Mediators*, on the other hand,… transform, translate, distort, and modify the meaning of the elements they are supposed to carry' (ibid.: 40). Mediation, then, transforms both elements in the relation posited by it: for example, by writing of music's social mediation I refer to how music is transformed by its social manifestations, as well as to how the social is transformed by music (see the later section, 'Social mediation, multiaccentuality and the ontological politics of space').

operations of musical sound conceived primarily in the terms of what is called 'pitch space'. To illustrate from recent work: Edward Campbell, in his study of the music and philosophy of Pierre Boulez, writes that 'the concept of musical space, in the sense of pitch space, is a fundamental one for many writers' (Campbell 2010: 220) and cites approvingly the metaphorical reading of musical space in Zuckerkandl (1956) and Roger Scruton (1997) in this regard. Campbell explains that 'From a spatial perspective, tonal music can be thought of as tracing paths through pitch space by means of the system of keys and their modulation to distinct but related regions', and he continues by way of the Second Viennese School's alternative, dodecaphonic manipulation of pitch space in the form of the twelve-tone row, as well as Schoenberg's idea of the 'unity of musical space' (ibid). Campbell is persuaded to engage in the analysis of pitch space because of its central place in Boulez's musical poetics, and he charts its changing status in Boulez's writings, particularly the efflorescence of spatial concepts in his Darmstadt lectures in which he argued for 'the conception and realisation of a *relativity* of… musical spaces' and distinguished two main pitch-space states, 'smooth' and 'striated', as the basis for an expanding taxonomy including such sub-species as curved, regular and irregular striated pitch spaces (ibid: 222-224).[11] A similar spatial ontology is palpable in dialogues between composers, for example in commentaries by Boulez and Alexander Goehr on what they perceive to be problems with Messiaen's compositional style. As Arnold Whittall describes, they charge Messiaen with having 'no idea of musical levels: all was surface' (Goehr 1998) and with accomplishing the mere juxtaposition as opposed to development of musical ideas, a failing linked to his lack of interest in constructing 'organic wholes' in the tradition of Germanic organicism (Whittall 2007: 244-245).

It is intriguing that since the 1970s analogous spatial metaphors have been a feature of psychoacoustical research. Here space is no longer conceived intramusically, but as a property of the interface between sonic or musical object and perceiving subject. This stance is manifest both in theories of auditory perception that focus on the way that sonic sensory data are grouped and segregated by individual listeners into what are called 'auditory streams' (Bregman 1994 (1990); Bregman et al. 2000; McAdams and Bregman 1979),[12] and in theories concerned with the analysis of perception of musical timbre in terms of 'timbre space' (Wessel 1979). The latter paradigm is symptomatic of the close interconnections that arose between research on psychoacoustics, music synthesis techniques and new aesthetic possibilities in computer music (Born 1995). In the words of David Wessel, 'In our research on musical timbre, … [s]ubjective judgments of perceptual contrast between sounds provide the basic input data to multidimensional scaling programs that produce geometric representations… [and] a good statistical relationship is sought between the distances in the space and the contrast judgments between the corresponding tones. The spatial representation is given a psychoacoustical interpretation by relating its dimensions to the acoustical properties of the tones' (Wessel 1978). In sum, a Euclidean and statistical model of timbral space is derived from subjective perceptions in order, in part, to drive sound synthesis controls; we might say that the normative and technical enfold and order the subjective and perspectival.

Despite the prominence of such spatial thinking in twentieth- and twenty-first century music and music analysis, it has not been uncontroversial. The philosopher Vladimir Jankélévitch, to cite an outspoken critic, rejects spatial metaphors: 'In effect, the general

[11] Boulez's distinction between smooth and striated space was given wider philosophical and political resonance by Deleuze and Guattari (Deleuze and Guattari 1987: chapter 14), which has in turn stimulated further spatial orientations in social theory, eg Osborne and Rose 2004: 211.

[12] On the intuitive deployment by composers of Bregman's psychoacoustical principles, see Harley 1998.

characteristics attributed to "music" often exist only for the eye, by means of the conjuring trick of graphic analogy. The simple particularity of writing… will suffice for us to characterize the melodic "arch"; and a melody that is outside all space, as a succession of sounds and pure duration, is subjected to the contagion of graphic signs…. Music is not calligraphy projected into space, but a lived experience analogous to life' (Jankélévitch 2003: 91-93). Katherine Bergeron, in turn, interrogates the musical canon and the learning of scales as disciplinary musico-spatial formations. Scale playing presupposes a particular discipline: 'playing "in tune". This also implies an ordering of the body, a disciplining of the ear'; while the canon amounts to 'an ideal of order made material, physical, visible. In the scale… such order is also audible, materialized as a finite set of intervals, perfectly tuned by mathematical calculation, by the ratio – the numerical representation… [of] "reason"' (Bergeron 1992: 2). For Bergeron, the canon and the scale combine musical and social regulation; each advocates 'a collection of discrete values produced out of a system that orders, segments, divides' (ibid).

A second conception of space in/and music is evident in diverse practices and discourses of 'spatialisation' associated with multichannel techniques of studio recording and manipulation and loudspeaker projection as they developed in both popular musics and electronic, electroacoustic and computer art musics from the 1950s onwards. In these traditions, the localization of sound in physical and perceptual space, as well as the creation of senses of virtual space and of sonic-spatial movement and evolution both between and within sound objects (Chowning 1977), are harnessed to aesthetic ends either as part of the desired musical effect or as a primary element in the compositional imagination. Like 'pitch space' formalism, this second discourse of space prominent in electroacoustic and computer music invokes notions of spatial and musical autonomy. But in the absence of score-based methods of analysis for these mainly non-notated musics, it has necessitated the invention of quite different frames of reference. These can be gleaned from reflections by electroacoustic composers who have also become theorists. Trevor Wishart, for instance, poses the notion of aural 'landscape' against the compositional philosophy espoused by Pierre Schaeffer and the Groupe de Recherches Musicales, which centred on the idea of 'acousmatic' music: music based on the 'abstraction of the recorded "sound-object" from any dependent relationship to its origins' (Wishart 1986: 43). With 'landscape' Wishart aims to valorize the aesthetic salience of modes of sonic experience 'related to our recognition of the source of the sounds' (ibid: 42). Comparing the approaches to 'landscape' adopted by the composers Luc Ferrari and Bernard Parmegiani, Wishart notes that 'changes in aural perspective on an object' obtained by certain recording techniques 'produce quite different acoustic results and when they are juxtaposed in the aural landscape our sense of aural perspective is transformed' (ibid). He distinguishes various types of 'acoustic space', such as the illusion of two-dimensional space, movement of sound-objects through virtual space, and 'convolution' - imposition of 'the acoustic characteristics of any pre-analysed sound environment upon a given sound object' (ibid: 45).

An alternative perspective on spatialisation comes from the composer-theorist Denis Smalley, who claims unequivocally that 'acousmatic music is the only sonic medium that concentrates on space and spatial experience as aesthetically central' (Smalley 2007: 35). Smalley's writings travel from an early focus on 'spectro-morphology' - 'an approach to sound materials and musical structures which concentrates on the spectrum of available pitches and their shaping in time' (Smalley 1986: 61) – to a recent concern with 'space-form and the acousmatic image' (Smalley 2007). The later article attempts nothing less than a phenomenology of the potential spatial forms afforded by acousmatic music. Several features are notable, not only in themselves, but for what they reveal about the strengths

and limitations of distinctive styles of phenomenology of sound and listening. Smalley's 'space-form' mode of analysis, while acknowledging the co-evolution in music of space and time, offers emphatically 'an approach to musical form, and its analysis, which privileges space as the primary articulator. Time acts in the service of space' (ibid: 56). On the basis of a nuanced auto-ethnographic description of an evening soundscape in a village in southern France, Smalley derives a remarkable taxonomy of analytical terms for the perception of spatial sound: zoned, proximate, behavioural, perspectival, distal, utterance, agential, vectorial, panoramic, ouverture/enclosure, approach/recession, diagonal forces and so on. Distilling his initial analysis, Smalley arrives at a 'holistic view. This holistic space comprised an array of zoned spaces'. With reference to a group of prominent sound sources, he observes: 'I could regard the frog-river-crow zone as a *nested* [sonic] *space* (spaces within a space)' (ibid: 37).[13] He proceeds to identify a sonic vector, 'the space traversed by the trajectory of a [moving] sound' (ibid, note 8) caused in this instance by passing cars, which 'delineates the peripheral border of the whole', as well as shifting figure-ground spatial relations between fixed (a river, cicadas) and emergent-passing (bird song) sound sources. Smalley's analysis, which moves from the acoustic ecology to its implications for composition, is a tour de force. We will have reason to return to the idea of zoned and nested sonic spaces.

But in addition, through its detailed investigation of the relational nature of spatialised sounds, and of the propensity of sounds to create a sense of spatial boundaries via shifting and nested sonic horizons, Smalley's analysis compares favourably with that of the philosopher Don Ihde (Ihde 1976), often considered the standard work in the phenomenology of listening and sound. Ihde himself acknowledges the relational nature of perception and of phenomenological knowledge. He establishes a series of principles: that human auditory focus is omnidirectional, while sound is generally experienced as located and as directional; that sound perception proceeds through a variable focus on one or other sound, through backgrounding and foregrounding; that sound perception is characterized by its continuity, by the 'ebb and flow of noise' and movement of sound; and that sound can be perceived spatially in the guise of hearing sonic shapes, surfaces and interiors. Yet despite these findings, Ihde does not develop a conceptual inventory as rich as Smalley's to account for the multiplicity of sonic forms, trajectories and interrelations composing the sonic environment. And in discussing sound's capacity to create boundaries or horizons, Ihde insists that, perceptually, such boundaries can only be temporal, not spatial: 'Although I may be "immersed" in this "sphere" of sound, I cannot find its boundaries spatially. The spatial signification of a horizon is obscure' (Ihde: 102). If sound has a boundary, Ihde contends, 'in the case of the auditory field that horizon appears most strikingly as *temporal*' (ibid: 103). Later, indicating the confines of Ihde's a-historical, a-social phenomenology of sound, we will see that this is problematic: that music and sound can articulate spatial and socio-spatial as well as temporal boundaries.

Returning to Smalley, it is notable that his analytical taxonomy acknowledges the spatiality both of sound's technological mediation and of its social mediation in performance. Yet these elements of his conceptual scheme are barely developed. Smalley's phenomenology certainly extends that of Ihde, but given its minimal account of social and technological mediation, it offers ultimately an expanded, if rigorous and elegant, sonic formalism. Moreover, while Smalley's initial analysis is garnered reflexively from auto-ethnography and is perspectival, derived from embodied listening, subjective experience and location,

[13] Smalley's notions of perceived sonic zones and nested sonic spaces bear comparison with Simon Emmerson's concept of nested 'soundfield frames' (Emmerson 1998).

the essay is oriented to discerning normative principles. Overall, his scheme therefore exhibits a tension between the perspectival and a certain objectivism. This interpretation gains support from Patrick Valiquet (2011), who highlights the presumption of structural autonomy that tends to prevail in discourses of spatialisation in electroacoustic and computer music. As Valiquet shows, such claims to autonomy are accompanied by the occlusion of how, through 'discursive, social, and technical work,… composers and theorists were able to rationalise their appropriation of the technical apparatus of multichannel stereophony from the telecommunications and entertainment industries while simultaneously constructing an aesthetic of spatialisation which delegitimised commercial music and sound design' (ibid: 41).

A commitment to spatialisation continues to characterize electroacoustic and computer music and related research today, and takes diverse forms. As attested by recent computer music symposia, sessions on 'spatial sound' combine technical, psychoacoustical, philosophical and aesthetic concerns.[14] Despite this breadth and the current interest in virtual spatialities, musically-oriented virtual worlds and the 'strange ontologies' that they might entail – for example, 'worlds that present alternative models of being-in-time' (Wakefield and Smith 2011: 14) – what is striking about ongoing work in this second lineage is its resiliently Euclidean orientation. If 'strange ontologies' are envisaged, it is generally by engineering sensibilities bound still to the orthodoxies of 'computer-human interaction'.

A third distinctive set of understandings of space in/and music departs radically from the two previous lineages described, subsuming a heterogeneous range of aesthetic and ideological orientations. If they exhibit any unity, it is by virtue of a determinedly anti-formalist stance that responds to the two formalisms outlined, in the process exploding their conceptions of space.[15] This third lineage is associated today with soundscape composition and sound art, as well as live and experimental electronic and computer music.[16] It is perhaps particularly identified with sound art, by which I refer to such practices as sound installation, site-specific and public sound works, practices that operate at the borders of an array of conceptual, performance, intermedia and digital art practices (Kahn 1999, LaBelle 2006, Salter 2010). This broad interdisciplinary field includes both performance events, installations and works that involve electronic and computer mediation and others that do not, or only minimally so. The genealogy of sound art is often traced back to Varèse's notion of organised sound, through the post-War tradition of Cageian and post-Cagean experimental music delineated by Michael Nyman (Nyman 1974),[17] including the work of such figures as Christian Wolff, LaMonte Young, Alvin Lucier and Max Neuhaus, as well as the Fluxus movement, happenings, installation and minimalist art (LaBelle 2006, Landy

[14] See, for example, the papers collected in Adkins and Isaacs 2011.
[15] But for attempts to forge potential links or a transition between the second and third lineages, see Myatt 1998 and, in particular, Truax 1998.
[16] The definition of these music and sound art movements, as implied above (note 7), remains fluid and contentious; writers take different views on the substance and meaning of, and the relationship between, sound art, soundscape composition and live electronic music (see, for example, Demers 2010 and, for a critique of the term 'sound art', Kahn N.D.).
[17] The term 'experimental' in relation to music is also contentious. Demers criticizes Nyman's (1974) historical analysis, preferring a structural use of 'experimental' to refer to 'anything that has departed significantly from norms of the time' (Demers 2010: 7). However, such a structural understanding is itself weakened by lack of historical specificity and lack of attention to musicians' self-understanding. Piekut, in contrast, follows these self-understandings (adapting a methodology from Bruno Latour), arguing that the term 'experimental' is performative and that the network of discourses, practices and institutions that it engendered should be understood as historical achievements (Piekut 2011: 5-8).

2007, Demers 2010). For sound artist and writer Brandon LaBelle, Cage's experimental practices set 'the stage for a heightened consideration of listening and the "place" of sound', positioning music 'in relation to a broader set of questions to do with social experience and everyday life' (LaBelle 2006: xii-xiii). He adds to the genealogy Group Ongaku, an avant-garde Japanese improvising collective of the early 1960s who - manifesting a 'radically physical relationship to the material world' (ibid: 37) - met at different locations to improvise using found objects and instruments, radios and tape recorders. Through Group Ongaku, LaBelle expands the forefathers of sound art to encompass movements and figures committed to a sonic-spatial politics of the urban condition and the everyday, from anthropological surrealism to Situationism, Henri Lefebvre to Michel de Certeau (ibid: chapter 3). Indeed, practices in this lineage strain against the very category of art: for Guy Debord, Situationism's 'experimental attitude' (Wark 2009: 9) informed a poetics of space that necessitated 'collective experiences of space and time that have their own singular coherence but [must not] ossify into mere art artifacts' (quoted in Wark 2009: 25).[18]

Space in this third lineage therefore moves out beyond the musical or sound object to encompass 'exterior' spatialities: the spatialities configured by the physical, technological and/or social dimensions of the performance event or sound work. While it is plain that none of these dimensions are limited to musics of the last century, let alone to sound art, live electronic or computer music, recent decades have witnessed an escalating and self-conscious creative engagement with them on the part of artists and theorists. Within this broadly anti-formalist camp it is helpful to make three further distinctions in regard to the orchestration of space, which are not mutually exclusive and indeed may overlap: between, first, those events and works that focus experimentally on the performance space or situation; second, those events and works that encompass the wider sounding environment or acoustic ecology ('natural', built, architectural or human), as well as those attentive to a specific site or place; and third, those events and works that by means of digital technologies such as the internet, virtual environments, massive multiplayer game networks, mobile telephony, locative media, GPS or ubiquitous computing technologies configure several simultaneous and shifting locations or virtual spatialities.[19]

In contrast to the previous lineages, space in this broad area of practice is conceptualised therefore not in terms of the internal operations of musical form, nor in terms of the perception of evolving musical or sound objects, but as multiple and constellatory. Creative practices in this lineage attend to a spectrum between the space of musical or sonic performance or practice, on the one hand, and the space of everyday, 'found', designed or technologically-enhanced sonic environment or site, on the other. By virtue of an engagement with acoustic environment or soundscape, any a-priori distinction between sound and music tends to be effaced, just as the bounded, ritualised scenario of the concert

[18] I am grateful to Robert Adlington for drawing my attention to the conflict over the question of art between Debord and Walter Olmo, one of very few composers involved in the Situationist International. Debord criticized Olmo's attempted contribution to the SI via his idea of 'musical experimentation' because he was still working with 'a 19th-century conception of the composer presenting his personal works', an attitude that Debord abhorred and contrasted with how the 'acoustic portion of a Situationist event' should '[be] *unitary* in its means and in its ends' (Debord 2009: 83). On the core SI tactic of 'unitary urbanism' as a type of collective creativity, see Wark 2009: 12-16.

[19] See Salter 2010 chapter 8 (esp. pp. 338-348) on art and sound works centred on interactive installations, environments and performances that combine a number of these digital media to effect the exploration of public space or to mobilise vastly distributed collectivities. See also Borgo 2011 on the distributed musical performance potentials of cyberspace; and Rebelo 2003 on the several orders of space potentially animated by interactive digital environments, in which the musical work yields a 'configuration of interactions' such that the user becomes a 'performer of space'.

hall is troubled or replaced by the migration of focal musical and sonic experiences into quotidian life or the social or virtual world. Being inventive in relation to space, site and movement has become integral to the creative imagination. Moreover in sound art, as in electroacoustic music, practice and theory appear closely conjoined, as is evident in LaBelle's articulation of the conceptual grounding of sound art: 'Sound is intrinsically… relational', and at the core of sound art is an 'activation of the existing relation between sound and space…. Sound and space converse by multiplying and expanding the point of attention, or the source of a sound: the materiality of a given room shapes the contours of sound, molding it according to reflection and absorption, reverberation and diffraction' (LaBelle 2006: ix, xi). At the same time, 'sound makes a given space appear beyond any total viewpoint: in echoing throughout the room, my clapping describes the space from a multiplicity of perspectives and locations, for the room is here, between my palms, and there, along the trajectory of sound…. What we hear in this clapping is more than a single sound and its source, but rather a spatial event' (ibid: x). Sound art, LaBelle contends, effects a transition from the concert setting 'toward environments, from a single object of attention… toward a multiplicity of viewpoints, from the body toward others, [thus emulating] the very relational, spatial and temporal nature of sound itself' (LaBelle 2006: xii). It should be obvious how significant is the challenge issued by sound art to the prior lineages of space in/and music described. Because of sound's perspectival and relational nature – in the sense that it is always experienced from particular subjective and embodied, physical and social locations - and thus sound's multiplicity, its capacity to overflow measurement and containment, in sound art it is knowingly employed to produce modes of sonic-spatial experience that transcend Euclidean forms.

It might be thought that a precursor to these practices can be found in the 'musicalization of space' (Sterken 2001: 268) envisaged by Iannis Xenakis in works such as the *Polytopes*, a series of large-scale multi-media and architectural installations created between the late 1960s and early 1970s. In them, light and sound were projected while changing over time, producing multiple, dispersed and overlapping sound spaces, with the intention that listeners would perceive 'the music in a different way according to his or her location…. The acoustical space is no longer homogeneous, but divides itself into different spatial areas' (Oswalt 1991). In this way the 'abstract and multi-layered *Polytopes* try to open the audience's mind to diversity and simultaneity' (Sterken ibid: 271). In subsequent works Xenakis also pursued temporal differentiation, such that '[t]ime is no longer absolute. Several time divisions and different tempi exist side by side' (Oswalt op cit). The aim was to elicit active participation by the audience, who have themselves 'to effect the operation of synthesizing the poly-temporality of the proposed spectacle' (Sterken ibid: 271). Yet despite the apparent anticipation of sound art's relational universe in these works, they remain resolutely if ambiguously formalist, crafting audience participation and the staging of multiplicity through expanded compositional controls. Rather than affirming audience participation, such works pose acutely the need to assess its nature and extent, as well as the limits of the transformation of the socialities engendered by the work.[20]

It is by contrast with the formalism of the *Polytopes* that a last element in the third, post-formalist lineage can now be discerned. For it is here that we encounter explicit, if uneven, attempts to engage with the social dimensions of musical and sonic practices. This is evident in social, political and ethical preoccupations woven through the works and writings of a

[20] Art theorist Claire Bishop makes an analogous point in her critique of the paradigm of relational aesthetics (Bourriaud 2002): '[E]very art work—even the most "open- ended"—determines in advance the depth of participation that the viewer may have with it…. The tasks facing us today are to analyze how contemporary art addresses the viewer and to assess the quality of the audience relations it produces' (Bishop 2004: 78).

number of sound artists, live electronic and computer musicians, commonly with reference to ideas of participation, interactivity, collaboration or community. They take a range of forms. Perhaps most prominently, in a tradition seen to originate in Cage's *4' 33"*, the focus is on performing and listening bodies as they enact forms of spatiality, on reconfiguring the musical division of labour through experiments in composer-performer-audience relations. Because this 'exterior' spatiality - the performance 'context' - encompasses aspects of the sociality of performance, it is often taken to be equivalent to an engagement with social or political dimensions of the musical work or event *per se* – an assumption that will later be questioned. Other artist-theorists are concerned with the distributed interactions and virtual spatialities engendered in network or telematic performances (Renaud and Rebelo 2006; Rohrhuber 2007). Julian Rohrhuber, for example, portrays network music as comprising 'a broad range from collaborative composition environments to sound installations and improvised music ensembles' (Rohrhuber 2007: 140). He charts the transition from an objectivist 'information aesthetics' model in the 1950s through the 'interactive, conversational' network paradigm of the 1960s and 1970s in the work of groups like the League of Automatic Composers and The Hub. Rohrhuber argues that these groups advocated the 'active participation of the algorithm' and 'opened up the social relations among the musicians' (ibid: 148), redefining interactions between artists and audiences and raising questions of 'power-structure, rules, authorship and group-formation' (ibid: 155). Yet other writers consider the ethics of the use of naturalistic recordings in soundscape works. For John Drever, the creative appropriation of such recorded sounds by extraction from their original environment risks a 'psychic usurpation' or plundering that can be mitigated only by cultivating sonic responsibility and reciprocities (Drever 1999: 28).[21]

At this point it is productive to bring out the implications of the relational understanding of music, sound and space immanent in this third lineage. They centre on three kinds of irreducible multiplicity at work in musical and sonic experience. All three depart from Euclidean and Cartesian understandings of space in/and music, all are interwoven, and all may be operationalized in different ways in musical or sound art practices. The first is the multiplicity of any human subject's experience of music and sound as s/he inhabits a particular physical or virtual space, performance venue or site: music and sound as mediated by subjectivity and corporeity, as well as by a given location and by (potential) movement through it. The second is the social multiplicity given by the existence in the same performance space, site or event of many (diverse, often previously unrelated) human subjects, whose gathering, however, constitutes a novel set of social relations, and whose experiences of music and sound are variant – mediated, as before, by subjectivities, corporeities, locations and movements. The third foregrounds temporal mediation: it is the multiplicity effected in any musical or sound performance or work by the continually evolving sonic-spatial-temporal constellation composed of the mutual modulation - the relative ebb and flow, beginning and ending – of component sound events in a given, durative acoustic environment. Taking account of all the elements in these multiplicities - music and sound, space and time, subjectivity and sociality: all are immanent in the experience of music and sound, and all are continually involved in the mediation of the other terms. Abstractly, the six elements can be conceived as composing a dynamic matrix in which each term potentially mediates all the others, together forming a constellation of multidirectional, virtual transformations.[22] But this tidy image pins down what is more aptly portrayed as a decentred, mobile and unruly flux of mediations. Nonetheless, in

[21] Drever's concerns take on a post-humanist cast in Jason Stanyek and Benjamin Piekut's reflections on the ethics of human-nonhuman sonic assemblages, where they question the 'human exceptionalism' invariably present in discussions of the ethics of recording; see Stanyek and Piekut 2010: 34.

[22] By 'virtual', I point to the emergent properties of this matrix of mediations, as synergistic pluripotentialities.

phenomenological terms we have arrived via the third lineage at a position close to Feld's, detailed earlier; and the common aspiration of the heterogeneous musical and sonic practices gathered under this lineage is that, in principle, all of these elements and their mutual mediations *can* be the locus of experiment and invention.

In sum, in all three lineages of cognizing spatiality in music and sound addressed in the previous pages, space is regarded as an element of the creative imagination and as an artefact of musical or artistic practice: space is both *produced* and *transformed*. But only in the third lineage is the ineluctably *social* nature of these processes to the fore; space is conceived as multiple and constellatory, as mediated and mediating. In their reflections on social, ethical and political matters in an array of musical and sonic practices, artists in this broad camp animate in diverse ways and to different degrees sound's multiple mediations, pointing beyond the formalisms of the pitch space and electroacoustic lineages. The attempt is made to think music, sound, space and the social together.

Theorising space

How do these ways of conceptualising space in/and music, as well as the perspectives outlined previously from sound studies, the anthropology of sound and the senses, compare with thinking on space elsewhere, particularly in geographical and social theory?

The theorisation of space in contemporary geography is remarkably consonant with the ideas presented so far. In the most general terms, for geographers today space is the focus of an epistemological revolution involving a rejection of Kantian conceptions of space as an 'absolute category' in favour of the tracing of a series of 'species of space' (Crang and Thrift 2000: 24). For Nigel Thrift, it is necessary to 'abandon the idea of any pre-existing space in which things are embedded for an idea of space as undergoing continual construction… through the agency of things encountering each other in more or less organized circulations. This is a relational view of space in which, rather than space being viewed as a container within which the world proceeds, space is seen as a co-product of those proceedings' (Thrift 2009: 96). Space is here conceived as plural, as the outcome of social and material practices, and as indivisible from time; indeed, space and time should be understood as 'combined in *becoming'* (Crang and Thrift ibid: 3, emphasis added). It follows that rather than think of space as static, unitary and unconnected to time, it should be interpreted as inherently mobile and in motion (Thrift 2006). A variant of this stance is articulated by Doreen Massey, for whom space is 'the product of interrelations', the realm in which 'distinct trajectories co-exist…. Without space, no multiplicity; without multiplicity, no space' (all Massey 2005: 9). 'What is needed', Massey contends, 'is to uproot "space" from that constellation of concepts in which it has so unquestioningly… been embedded (stasis; closure; representation) and to settle it among another set of ideas (heterogeneity; relationality; coevalness)' (ibid: 13).

Other directions in spatial thinking connect more precisely with the ideas already outlined. One such direction is evident in the philosophical geography of Michel Serres who, in contrast to a 'metric theory' of space-time, proposes a topological account of 'spacing and timing' focused on 'relation-propositions'. Topology is regarded here as the 'science of proximities and ongoing or interrupted transformations' (Bingham and Thrift 2000: 290), and the aim of such a topological enquiry is '[h]ere and there, locally, [to] identify fractures and discontinuities, elsewhere, on the contrary, relations and bridges' (Serres 1977: 200, quoted in Bingham and Thrift ibid: 291). The topological undertaking is concerned with articulating processes that lie 'outside of measurement but within relations' – 'the closed

(*within*), the open (*out of*), intervals (*between*), orientation and directionality (*toward*, *in front of, behind*), proximity and adherence (*near, on, against, following, touching*), immersion (*among*)' (all Serres 1994: 71, quoted in Bingham and Thrift ibid: 290) and so on. It is striking how Serres's topological lexicon echoes Smalley's inventory of sonic-spatial relations as well as Varèse's evocative opening to this introduction. A different link is provided by the current geographical turn to non-representational theory (Thrift 2008). This stance is evident in Derek McCormack's writings on dance, which reverberate with similar challenges in the analysis of music. Of particular salience is his intention to supersede representational models by cultivating corporeal and affective understandings of spatial experience. McCormack remarks on the 'contagious and visceral' affectivity occasioned by dance, which is 'poorly understood if framed by theories of representation' (McCormack 2008: 1828). Noting the 'relation between rhythm and the spaces of which moving bodies are generative' (ibid), and with reference to Lefebvre's notion of rhythmanalysis (Lefebvre 2004), McCormack adopts a concept of rhythm in order to think through the coexistent yet disjunct, 'lively and chaotic' (ibid: 1829) flows and fluxes that compose the spatial experience not only of dance, but of urban and everyday life.[23]

An alternative, direct link between geography, music and sound is found in the work of geographers who write specifically on music. This sub-field ranges from a concern to probe 'the production of spaces of classical music [as well as] the variegated spaces of contemporary pop culture… [while questioning] the socially constructed boundary between these spheres' (Leyshon et al 1998: 5) to attempts to create 'musical methodologies' informed by ideas of music-making as an 'emotional process that builds identities, [creating] spaces of community and belonging' (Wood et al 2007: 885). Scholarship in this area has learned from the tendency to reduce the study of musical spatialities to 'practices associated with music rather than music's sonic qualities' (Revill 2000: 597). In reaction, consideration is given to the properties of musical sound as they inform 'the moral geographies of landscape, nation, and citizen' (ibid), registering how aesthetic codes mediate this relationship and, for example in the case of nationalist musics, how 'cultural geographies of exclusion and inclusion are performed in sound' (ibid: 598). The geography of music recognises both that music and sound can be enrolled as means of social regulation and control – through the production of subjectivities, the enactment of power, the organisation of spatial boundaries and the affirmation of identities – and that they may also be used to contest and evade such regulation (Smith 1997, Revill 2000). Particularly significant for this volume is the attention paid to the way that music and sound can create, mark or reconstruct social and spatial boundaries. Susan Smith, for example, argues that music, like art, 'is a medium through which boundaries are established and transgressed, and in which difference is marked out and challenged' (Smith 1997: 502). Taking 'three cuts across history', she examines the role of aural and musical cultures in the socio-spatialities of Renaissance Italy, Edwardian England, and post-civil rights black America. On the latter, with reference to jazz and rap, she contends that music both embodies and illuminates the struggle over access to public space, community resources and the interpretation and valorisation of black expressive cultures. In this way her work converges with ethnomusicological and other scholarship concerned with music's capacities to articulate, reinforce or reshape the boundaries of social identity formations (Stokes 1994; Born 2000; Born and Hesmondhalgh 2000). The geography of music therefore shows how music and sound mediate wider social and socio-spatial relations. It is perhaps less attuned to the ways in which music and sound can engender socialities and spatialities that are

[23] For an application of rhythmanalysis to sonic experience through the notion of 'sonic warfare', entailing the extension of an 'ontology of vibrational force into the… context of viral capitalism', see Goodman 2009: xix.

irreducible to, if crossed by, those prior relations - to music and sound as *initiatory* of socio-spatial relations.

Just such a perspective is offered by a last direction in geographical theory relevant to this book: the work of Henri Lefebvre, in a compelling contemporary reading by Stuart Elden (2004). It is Lefebvre's *The Production of Space* (1991 (1974)) that is taken to have inaugurated the theoretical shift away from Kantian categorical conceptions of space and time to a focus on space as a 'historical production', where '[p]roduction… - deriving from Marx, Hegel, and Nietzsche's notion of creation – …[is] grasped as both a material and a mental process' (Elden 2004: 184). Of particular interest for this volume is the combined influence on Lefebvre's oeuvre of both Marx and Heidegger, the legacy of which is his emphasis on the multiple, concrete and abstract modalities of socially-produced space, and in particular his conceptual triad of space as perceived, conceived and lived: *l'espace perçu, conçu, vécu*. Spatial practices, in this scheme, result in a constellation of physical, conceptual and lived spaces. Heidegger's influence is tangible in the focus on lived experience and the use of the active verbs 'to inhabit' and 'to dwell' in relation to space (ibid: 190). While under the influence of Marx, Lefebvre proposes that 'Just as the social is historically shaped, so too is it spatially shaped. Equally the spatial is historically and socially configured'. For Lefebvre, in what amounts to an abridged version of the six-term matrix of mutual mediations proposed earlier in this introduction (pp. 36-37), 'The three elements of the social, spatial and temporal shape and are shaped by each other…. [S]pace is not merely "the passive locus [*lieu*] of social relations"' (ibid: 193). Lefebvre's singular contribution is therefore to propose an approach that is not only phenomenological but critical, attuned to the social, and concerned with the spatialised operations of power. His example has been taken as the stimulus for analyses of 'struggles over the organization and meaning of space' and the 'production of "counter-spaces" of resistance', as well as 'juxtapositions within social space and its nested spaces within spaces in which very different rules apply' (all Shields 2006: 149).

If geographical theories of space resonate well with the themes of this book, it is also striking that in terms of phenomenological acuity they are matched, if not surpassed, by the adventurous conceptual turns advocated by certain writers on electroacoustic music and sound art. This raises the provocative thought that music and sound - in their capacity to catalyze and augment the relational propensities of lived space, in this way generating complex and motile topological forms - elicit especially subtle reflections on spatial processes. Music and sound, we might say, are particularly fertile conduits for spatial experience in that they have the capacity both to compound and to orchestrate in novel and affective ways the spatial affordances of social life writ large. It is to this set of possibilities that we now turn.

For a critical phenomenology of musical / sonic publicness and privacy

While the perspectives outlined in the previous two sections are productive in opening out the conceptualisation of music, sound and space, in order to address the material presented in this book a further conceptual move is necessary – one that is largely missing from those bodies of literature. It is the need for systematic consideration of the ways in which the social and technological mediation of music and sound enter into and animate their spatialities. If music's technological mediation has received growing attention in recent decades in ethnomusicology, popular music and media studies,[24] its social mediation, as I

[24] For an overview, see Born 2009a.

mentioned before, has been relatively neglected.[25] It is not, however, these general processes that form the core of this collection but a pronounced and spatialised facet of them: the capacity of music and sound, through their social and technological mediation, both to produce or initiate and to reconfigure public and private experience. Reference to the categories 'public' and 'private' sparks longstanding critical debates over their regulative, normative and gendered overtones associated in particular with their status as the bedrock of certain traditions of liberal thought (Pateman 1983; Strathern 1988; Coombe 1998; Landes 1998: 274-280).[26] When sundered from those usages, however, the concepts continue to have salience as ways of capturing key dynamics at different scales and across a range of temporalities of social life (Gal 2002; Warner 2002; Hayden 2010).

For the purposes of this book, the terms public and private are generative in several ways. To begin with, when interpreted adjectivally - in the active sense of the public-izing (or public-making)[27] and privatizing propensities of music and sound – they register processes that are at once both social and spatial. Moreover, abandoning any merely dualistic conception of the terms makes it possible to highlight the relational nature of their articulation, their mutual constitution and multiplicity. Productive here is Susan Gal's semiotic analysis of the public/private distinction in which she portrays the categories as not only relational and encultured, but fractal-like and recursive, such that they are capable of generating 'multiple nestings' (Gal 2002: 81). Note the echo of Smalley's account of nesting as a relational dynamic in spatialised sound (p. 28); and in some of the chapters that follow we trace how musical and sonic experience can afford recursive relays of publicness and privacy, through their nesting and zoning, in part through the profusion of experiential forms engendered by the consumer audio industries of late capitalism. Without succumbing to static, dualistic accounts of the public and private, it is nonetheless important for this book to retain an analytical sense of the terms as potentially antithetical. Only in this way is it possible to grasp how the privatization of music and sound can indeed entail the erosion or occlusion of certain public modes of experience. Where Gal takes the categories public and private to be primarily conceptual and linguistic, however, when examining their constitution by music and sound it is necessary to expand the frame to encompass their material and social, corporeal and affective qualities: to move, in short, from a semiotics to a critical phenomenology of their lived, embodied and institutionalised forms.

In calling for a critical phenomenology of the musical or sonic orchestration of public and private experience, in all its socio-spatial dimensions, the present collection joins with a spate of efforts in anthropology, cultural, media and sound studies to recast phenomenology in fully historical (Sterne 2003; Smith 2004a), cultural (Csordas 1997; Connor 1999, 2000a) and social (Feld 1996; Porcello 1998; Born 2011, 2012) terms. In Jonathan Sterne's resonant words, 'There is no "mere" or innocent description of interior auditory experience. The attempt to describe sound or the act of hearing in itself – as if the sonic dimension of human life inhabited a space prior to or outside history – strives for a false transcendence. Even phenomenologies can change' (Sterne 2003: 19; cf. Smith 2004b: 39). While for

[25] With the notable exception of writers in the anthropology and sociology of music: see, for important contributions, DeNora 2000, 2003; Hennion 1993, 2003.

[26] See Weintraub 1997 for a standard interpretation of the categories of the public and private, which, it is suggested, invoke two 'fundamental, and analytically quite distinct' criteria: degrees of visibility, and degrees of collectivity or the relative priority of private or public interests (ibid: 4-5).

[27] Michael Warner draws attention to the processes, and paradoxes, of public-making in relation to literary-textual publics. As he notes, 'when people address publics, they engage in struggles… over the conditions that bring them together as a public. The making of publics is the metapragmatic work newly taken up by every text in every reading. What kind of public is this? How is it being addressed?' (Warner 2002: 12).

Steven Connor, what is at stake is a cultural 'enlargement of phenomenology' (Connor 1999: 23) such that it encompasses the 'affective, somatic dimensions of cultural experience' (ibid: 18), as well as the 'conditions of temporality, corporeality' and collectivity (ibid: 21). In turn, the social phenomenology demanded by the chapters that follow departs from the models provided by Alfred Schutz (Schutz 1971 (1964)) and Pierre Bourdieu (Bourdieu 1990: 130)[28] in that it necessarily encompasses not a singular 'social', but the multiple valences of social mediation immanent in music and sound including hierarchical and antagonistic dimensions of human sociality (Born 2012). As we shall see, while a culturally and historically enriched phenomenology is necessary, it is not sufficient to account for the diverse types of socio-spatial mediation of music and sound described in this book. For what is required, as the chapters show, is an analytics that - following Lefebvre - combines such a phenomenology with a critical analysis of their social and institutional forms.

Central to this volume are questions to which this conceptual scheme responds: how is it that music and sound, catalysed by their social and technological mediation, engender such a profusion of modes of publicness and privacy? Sometimes constructing strongly bounded zones of experience, sometimes also recursive assemblages - a range of forms of private-in-public, virtual public-in-private, private-in-private, or public-in-public? How is it that, contra Ihde, music and sound can produce not only temporal but spatial horizons and boundaries - boundaries the physical, aesthetic and moral obduracy of which are attested to as much by the leakage of sound across them as by its containment within them?[29] Recall the extent to which present-day audio media are used to effect a series of radical transformations of musical and auditory experience: the mobile phone affording a genre of private-in-public communication; the iPod and headphones engendering mobile, individuated listening enclaves nested within the wider acoustic and social environment; soldiers using personal audio media and headphones inside tanks in battle to construct a sense of intimate, affective space and identity which occludes the ambient sounds of violent warfare; and the virtual musical publics afforded by internet-based distributed music-sharing and music-making encountered within the privacy of participants' domestic settings and offline lifeworlds. The proliferation of audio media therefore results in a situation in which acoustic environments are increasingly multiple, recursive and topologically malleable. This in turn depends on the potential of music and sound media both to demarcate and reinforce social and psychological boundaries through the creation of sonic autonomy and segregation, and to overcome such boundaries through sound's omnidirectional, mobile and enveloping materiality, as well as through the mediated weaving of translocal sonic connections.[30]

That the questions posed above pertain not only to the technologically-mediated music cultures of the twentieth and twenty-first centuries, however, but to other cultures and earlier eras is evidenced by anthropological and historical scholarship. Bourdieu's classic analysis, for example, of the socio-spatiality of the Kabyle house (Bourdieu 1979), in which he anatomised the gendered classification and spatial segregation of male and female

[28] See Throop and Murphy (2002) for a critical comparison of the social phenomenologies of Bourdieu and Schutz.
[29] See the chapters by Rice and Bohlman. Stanyek and Piekut (2010) coin the twin terms 'perforation' and 'leakage effects' for the 'paradoxical co-process of connection and disconnection' (ibid: 22) inherent in sound recording from the outset: Edison's recording studio of 1888. The spatial segmentation of the studio, they argue, has always been accompanied by 'perforated' means of channeling sound from one zone of sonic isolation to another, as well as by leakage of sound beyond the channels, so eliciting attempts to control the leakage.
[30] For an analysis of these tendencies in relation to 'sonic Afro-modernity', see Weheliye 2005: ch. 4.

habitation and movement, is also *inter alia* an analysis of attempted sonic segregation – whatever subversive leakages may have occurred. Focused on the social discipline manifest in unyielding physical and symbolic boundaries, the study implicitly attests also to the gendered zoning of sound in this environment. Indeed Bourdieu's account culminates in what amounts to a fractal analysis – in terms of 'the endlessly repeated application of the same principle of division' - of the gendered classification of space as it is equated in this 'mythico-ritual system' with a series of spatialised oppositions between public and private life (1979: 142-3).

Cultural-historical research offers similar insights. By examining 'sonoric landscapes' represented in 17th century European painting, Richard Leppert shows how they convey a 'concern for ordering the world sonically' (Leppert 1998: 294) through depictions of the hierarchical social organisation of music, sound and speech, and in particular by figuring an evolving 'tension between the public and private in music' (ibid: 291). In the foreground of a painting from 1607, for example, serfs labour in the garden of a chateau, while in the background a musical performance with an 'amatory function' evokes contemplation by a group of nobility, 'an etiquette that turns music from an inherently participatory activity into a passive one in which the listener maintains physical stasis by exerting the cultural force of will against the body's desire' (ibid: 300). In this image, ironically, 'the political capital of privacy, [and] the sonoric-visual signs of that privacy, music making and lovemaking together, have to be made visually public' (ibid: 303). Leppert argues that the contemplative listening of the aristocracy and other elements of the public-private tension materialised in these images prefigure the later 'troubled fetishization of privacy that serves as a defining characteristic of the bourgeoisie in the 19th century' (ibid: 314). Yet they are also different: here, '[c]ontemplative listening is not philosophically removed from the world, as later aesthetic theory would have it; it is instead the sign of one's control and domination of the world… As such, it *is* an exercise of power' (ibid: 302), wherein the capacity to command music into existence, to create an enclave of passive consumption and to be subjectified by it have become focal.

Research on later centuries continues to highlight the evolving, relational construction of the socio-spatialities of musical publicness and privacy. James Johnson in his account of opera and concert hall listening in late 18th and early 19th century Paris identifies the emergence in the 1770s and 1780s both of 'individuals *qua* individuals [who] formed and announced their own musical judgements' and of 'a corresponding sense of unity through sentiment, [giving] birth to the notion of a single musical public' (Johnson 1995: 92). Musical experience 'turned listeners simultaneously inward and toward other like-minded spectators' (ibid: 94), while the musical public, composed of a small elite, 'effectively challenged traditional absolutist patterns of judgment' (ibid: 93). The first decades of the 19th century, he argues, saw in turn the rise of bourgeois individualism and its manifestation in 'intensely subjective' modes of musical experience in which 'interior communion met… romantic spirituality' (ibid: 277). Absorbed listening and attention to music's abstract meaning were accompanied by a policing of manners and 'anonymous and rule-bound' (ibid: 233) allegiance to notions of decency and respectability, as well as a belief in the harmonious social unity thought to be reflected in such experiences. In his wider analysis of the same period, Richard Sennett traces a series of urban social and architectural transformations that wrought an obsession with privacy. In concert life the changes were evident in the development of silent, self-disciplined, contemplative and interiorised spectatorship allied to the cultivation of personal feeling - a bourgeois 'act of purification' that amounted to 'a defense against the experience of social relations' (Sennett 2002 (1977): 214, 213). 'Silence made it possible to be both visible to others and isolated from

them' (ibid: 217). For Sennett, escalating processes of individuation and privatisation in urban life, as in music, effected an erosion of social interaction; by the end of the 19th century, 'the whole rationale of public culture had cracked apart' (ibid: 218).

What these works reveal is the extent to which the production of privacy and publicness by music and sound, manifest in the individuation and aggregation of experience, was fuelled by social and cultural processes and transformations that long predate the modern audio technologies that would later compound these tendencies. But the mediation is emphatically two-way: just as distinctive social hierarchies are ensounded – embodied in music and sound - so music and sound produce their own irreducible socialities and spatialities, which, however, are traversed by wider social relations.

If these studies attest to large-scale transformations in the nature of musical privacy and publicness – changes that are at once aesthetic and subjective, social and spatial - then other writers augment this scheme with reference to the catalysis provided by changing technologies. In his innovative study *The Audible Past* (Sterne 2003), Jonathan Sterne traces the evolving, inter-medial materiality of recorded music and sound through their relations of borrowing and differentiation from adjacent media, and the resulting semiotic and phenomenological affordances.[31] By uncovering how these shifts are entangled in social, cultural and economic dynamics, Sterne makes good the neglect of technological mediation while avoiding the errors of technological determinism.[32] He outlines the technical and industrial correlates of the processes analysed by Sennett in the emergence in the late 19th and early 20th centuries both of the technical capacity to isolate and localize sound and of 'audile technique', a type of listening associated initially with medical use of the stethoscope and with sound telegraphy (ibid: chapter 3). This technicized listening, he argues, entailed the extension of hearing and its separation from the other senses, as well as the individuation of the listener in a novel kind of personal acoustic space. As a result, '[b]y the 1920s, the possibilities for collective listening to sound reproduction technologies presumed a prior individuation and segmentation of acoustic space', the 'sonic equivalent of private property' (ibid: 159, 161). Audio technologies therefore heralded the 'collectivised isolation of listeners' (ibid: 166), promoting music's burgeoning commodification.

Technological mediation features also in Jody Berland's seminal account of the contribution of radio in constituting the plural spatialities of Canadian cultural life. Her work makes three valuable contributions. First, she augments our understanding of the public-making capacities of music and sound by highlighting the role of 20th century cultural technologies such as radio in the creation and sustenance of 'stranger' publics: publics that exist 'by virtue of being addressed' (Warner 2002: 67). These are publics engendered solely by participation in mediated discourses or other circulating forms of cultural material. It is a participation that demands attention but which is otherwise quite

[31] James Lastra offers an alternative framework for analysing the evolving materiality of audio media in relation to contiguous media as well as broader social, cultural and economic conditions: 'a four-term dialectic' of 'device, discourse, practice, and institution' (Lastra 2000: 13).

[32] Technological determinism is the critical term applied to reductive models of history that portray changes in technology as the prime movers in, and as determining, wider historical transformations; the standard critique is MacKenzie and Wajcman 1999. Alternative approaches trace the industrial, scientific, political, social and cultural conditions that foster technological change, noting its contingency and path-dependence and how it is catalysed by forces - existing and emerging markets, the interests of the state, social relations and cultural developments – that synergistically condition the technologies that ensue. Sterne's is a particularly compelling example of such a history, adding an account of the processes by which, after periods of experimentation and instability, technologies emerge as fully-fledged media when they finally become stabilized (Sterne 2003).

minimal and does not ‘saturate identity’ (ibid: 71), so that individuals may belong to multiple publics and counterpublics. Berland’s second contribution is to insist that processes of subject formation are as central to the constitution of the technologically-mediated stranger publics of the twentieth and twenty-first centuries as they were to the historical developments reviewed earlier. It is through emotional identification that listeners are both subjectified and constituted as a public or publics by audio media: ‘musical sounds, radio practices, social institutions, and listeners collaborate in “placing” listeners in their affective and topographic worlds' (Berland 1998: 138). Her third contribution is to observe how the interplay between public and private in audio media has to be traced recursively both within and across scales, not only in the spatialities of individual listening practices but, importantly, in the spatialities constructed by radio’s industrial forms. Thus, on the imbrication of spatialities in quotidian listening: ‘CDs, boomboxes, and car radios enable music to mediate personal and public space..., connecting us to something outside the actuality of physical space. And just as cultural technologies like radio mediate between the production of music and the production of us as audiences, so [radio’s spatiality] mediates between us and the diverse spaces we inhabit' (ibid: 131). Berland shows, moreover, how the competing institutional bases of Canadian radio proffer distinctive forms of subjectivity, spatiality and imagined community, a provision evidencing twin dialectics of private and public: transnational commercial music radio industry as opposed to national public broadcasting, on the one hand; local or community radio as opposed to national radio, on the other.

A final example of the relational constitution of public and private, in the context of the legal conditions of late capitalism, takes us to the heart of the digital music economy in the guise of BitTorrent, a filesharing protocol designed in 2001 to enable the transfer of large files which has been used to circulate software, computer games and video as well as music. BitTorrent attracted notoriety through its association with the Swedish website, The Pirate Bay, where it was deployed to facilitate downloading and filesharing practices involving systematic copyright infringement. BitTorrent invokes not only the public-ization-privatization dialectic, but the mutual articulation between copyright law and inter-medial materiality. The BitTorrent software architecture draws on wider developments in distributed computing; its circulatory architecture has the effect that any single music file being sought by a filesharer is itself ‘socialized’ or collectivised into a cloud of fragments of the file, dispersed across the personal computers of thousands of anonymous users - the so-called ‘swarm’. The Pirate Bay, as an ‘index service’, supplied ‘tracker’ files that provided users of the service with the coordinates of ongoing, independent BitTorrent swarms, thereby enabling users to reassemble the fragments and experience the files musically. Through the combined individuation and socialization of digital files wrought by the BitTorrent architecture, and the ‘balanced reciprocity’ (Sahlins 1974) that this necessitates, The Pirate Bay encouraged copyright law to be circumvented; in effect, there was no one-to-one relation between a supplier, a downloader and a complete musical track. And indeed, in a legal case brought in 2009 against The Pirate Bay, the criminal convictions related to ‘assisting’ the making available of copyright-protected content rather than distributing the material. Months later, The Pirate Bay decentralised further by replacing their centralized tracker files with ‘distributed hash tables’ (Anderson 2009), reshaping the protocol and its instrumentally-engineered virtual public into a fully rhizomic system. The intention of these manoeuvres was, then, to enable music to circulate freely among dispersed individuals while socializing risk and evading music’s corporate-legal privatization.

Social mediation, multiaccentuality and the ontological politics of space

Earlier, we encountered a dynamic matrix of six mutually mediating terms – music and sound, space and time, subjectivity and sociality – all of which are immanent in, and may be creatively reimagined by, musical and sonic assemblages (pp. 36-37). But to develop an analysis of the public-making and privatising capacities of music and sound it is necessary at this point to zoom in closer on the sixth term: the social mediation of music and sound. For, rather than a singular sociality, music engenders four planes of social mediation. In the first plane, music produces the intimate microsocialities of musical performance, music ensemble and sound installation site: the social and corporeal interactions and intersubjectivities set in motion among performers and audience or other participants. In the second plane, music animates imagined communities (Anderson 1991 (1983)), aggregating its listeners into virtual collectivities or publics based on musical and other identifications. In the third plane, music is traversed by and refracts wider social formations: the hierarchical and stratified social relations associated with differences of class and age, race and gender, ethnicity and religion. In the fourth plane, music is mediated by a range of institutional forms that enable its production, reproduction and transformation, including market and non-market exchange, elite, religious and state patronage, and late capitalism's multipolar cultural economy.[33] All four planes of social mediation enter in dynamic ways into musical and sonic assemblages. The four are irreducible to each other and each has a certain autonomy; yet they are articulated in contingent ways through relations of synergy, affordance, conditioning or causality.[34]

Two key points follow. First, such an analytics of social mediation makes is it possible to distinguish between the different degrees and kinds of co-present and virtual sociality, as well as of individuation and aggregation, privatisation and public-ization, afforded by today's ramifying musico- or sonic-social-technological assemblages – from BitTorrent-enabled filesharing, to iPod listening, to live laptop ensemble, to internet-based distributed music-making. The framework amounts to an anti-metaphysical, non-essentialising, empirical analytics of the diverse and changing forms of the social mediation of music and sound; and it permits us to discern such differences without succumbing to a tragic metaphysics of musical co-presence and its loss, or a dualism that valorises the aurally authentic over what is deemed to be artificial or secondary.[35]

Thus, in addition to a phenomenology that incorporates culture, history and materiality, we require one attuned to the social: a sonic-social phenomenology that attends to the ways in which musical or sonic assemblages are traversed by the four planes of social mediation and their complex and non-linear interconnections. This in turn allows us to uncover a universe not of consensual social relations, but of sometimes agonistic and dissensual relations - pointing to music and sound as the terrain on which not only aesthetic but social,

[33] The topological metaphor of the plane is intended to capture both the autonomy of and the mutual interferences between the four dimensions of social mediation described. The metaphor clearly has limitations, failing as it does to convey the fleshy, human qualities of these socialities.

[34] On the analytics of four planes of social mediation, see Born 2011, 2012, and on the concept of a musical assemblage, Born 2005, 2012. The idea of a musical assemblage addresses the way that music's mediations take a number of forms - social, corporeal, discursive, visual, technological and so on – which cohere into constellations that endure and take particular historical shapes.

[35] See Sterne's (2003: 20-22) critique of the metaphysical privileging of co-presence in sound studies; and Auslander's deconstruction of ontologies of live performance that associate it with notions of presence, immediacy or 'community', posited as 'other' to mass mediatization and 'the economy of repetition' (Auslander 1999: 44, and ch. 2). Instead, he argues persuasively, 'the historical relationship of liveness and mediatization must be seen as a relation of dependence and imbrication' (ibid: 56).

cultural, religious and political differences, inequalities and oppressions may be played out. Here we might recall Leppert's feudal socio-musical hierarchies, or Johnson's bourgeois imaginary of harmonious social unity, both associated with the creation of privatised subjectivities and bounded enclaves of elite musical experience. We might refer to how, in the massified public consumption of BBC radio by women workers in British factories during World War 2, broadcast music was used to impose industrial discipline and motivate workers engaged in repetitive manual labour. While singing by workers was generally prohibited, spontaneous singing would sometimes erupt on the shop floor: a resistant appropriation of 'Music While You Work' fuelled by class- and gender-based antagonisms (Korczynski et al. 2005; Korczynski and Jones 2006). We might consider children's use of audio media to create 'private' environments within 'private', domestic space, evading the 'universal' music played by middle-class mothers in the 'public' areas of the home by sequestering themselves in the acoustic of the iPod or the zoned privacy of the bedroom – dynamics redolent of generational struggles and incommensurable musical tastes.[36] Or, finally, we might invoke the conflictual Cairo soundscape created as legions of competing mosque loudspeakers and cassette recorders blast out the calls to prayer of Islamic groups, a threatening 'cacophony' that is perceived by secular Cairenes and adherents of other religions 'as the violent imposition of religious discourse onto the nonreligious space of public life' (Hirschkind 2006: 125-6).

In other words, the analytics of social mediation proposed here recognises the multiplicity and multiaccentuality of the spatialities of musical and sonic performance and co-presence (the first plane) as they are traversed by wider social differences (the third plane). This takes us a considerable way in theorising the social multiplicity of musical and sonic space identified earlier (pp. 36-37), beyond ideas of the self-presence of space or of its universal or unifying qualities. The concept of multiaccentuality draws on an analogy with Vološinov's theory of the embedded nature of the linguistic sign in, and its generative transformation by, social relations. As Vološinov explains, social multiaccentuality refers to the way that '[e]xistence reflected in the sign is not merely reflected but *refracted*. How…? By an intersecting of differently oriented social interests within one and the same sign community' (Vološinov 1986 (1973): 23). By moving (again) from a semiotics to a phenomenology, the idea of the social multiaccentuality of the sign can be taken to sonic-spatial experience and its agonistic and antagonistic, dynamic and experimental potentials. Several later chapters point to a politics of space played out in musical- or sonic-social interactions that are mediated by entrenched social divisions of ethnicity, religion, nationality, ideology or expertise. What is extraordinary is how such divisions can produce both extreme sonic violence[37] and, on the contrary, attempts through music to assuage the damaging consequences of social division and disadvantage.[38] More common is the playing out in sonic-social interactions, involving more or less explicit conflict, of disjunctive and competing, encultured and embodied experiences of sounding space. As certain chapters attest, such disjunctures can engender an ontological politics over the nature of and the boundaries between public and private space, as well as over the stewardship of, and the right to dwell in and travel through, such spaces.[39]

[36] This interpretation is based on unpublished research in the mid 2000s by an American IT corporation on how the use of audio and other media in American middle-class American homes - and particularly the main 'public' family room, the 'great room' - were crossed by conflictual family dynamics of generation and gender.
[37] See the chapter by Cusick.
[38] See the chapters by Cook, Dueck and DeNora.
[39] Thanks to Andrew Eisenberg for this application of the concept of multiaccentuality, developed in his chapter. Similar issues are portrayed in the chapters by Rice and Bohlman.

The second key point arising from the analytics of social mediation detailed in this section is that all four planes can be the locus of significant transformations. Indeed, it is the subtle potentialities engendered by both the autonomy of and the mutual interference between the four planes of social mediation that may be generative of experimentation and emergence in musical and sonic assemblages. This can take the form of experimentation with the microsocialities of performance, practice or site, with the assembling of novel musical publics, with the crystallisation via musical affect of innovative social identity coalitions, or with the nature of music's institutional forms. Thus, whether the amatory music of feudal nobles, with its experiment in privatised and hierarchized performance socialities (Leppert 1998); or Canadian music radio's iterative performance in domestic spaces - against a default global-American audio imaginary - of a national imaginary through a 'project involving distinct activities and values with respect to location, publics, scale and community' (Berland 1998: 130); or the fostering through the performance socialities of music therapy of a space of asylum that supports clients' psychological and social integration;[40] or the inventive amplification of voices from the aboriginal community in their confrontation with the state in the sound installations of Anishnabe Canadian artist Rebecca Belmore:[41] what we confront are an array of experiments that turn on intervening in and juxtaposing in novel ways the distinctive planes of social mediation of music and sound.

On musical and sonic publics

Music's public-making capacities are also elucidated by the analytics of four planes of social mediation. Of the four, it is the first two – the microsocialities of performance, ensemble or site, and musically imagined community - that most obviously entail the production of lived space, *l'éspace vécu*: through the spatiality of performance and sonic co-presence, and through the space of circulation and of affective contagion (Brennan 2004; cf. Goodman 2009).[42] These spatialities are produced by two types of musical public-making, as a number of chapters show: by the co-present publics assembled by performance or site, and by the virtual or stranger alliances and collectivities generated by the mediated circulation of music and sound. At issue is the capacity of music to engender emotional identification in its listeners, an identification that is at the same time musical, cultural and social. A musical public is, in this sense, an aggregation of the affected, of those participating in or attending to a musical or sonic event (DeNora 2003: 45-56; Born 2009b: 88). As the anthropologist Karin Barber puts it, writing of the public for the African musical genre *kiba*, we should consider 'not so much how *kiba* [performances] address audiences as how audiences constitute themselves around *kiba* and thus affirm the things they have in common' (Barber 1997: 355-356).[43] The multiaccentual and factious propensities of sonic-social interaction described in the previous section are therefore matched by a contrasting dynamic: by the capacity of music and sound to promote affective unities, with the potential to overcome difference or disinterest through aesthetic mutuality and common attachments. Such processes are fostered by a crucial property of music: its capacity to create 'affective alliances' (Straw 1991: 374), engendering collectivities – musically imagined communities (Born 1993: 283) - that are irreducible to, even if they are traversed by, prior forms of social identity. This bears out a co-constitutive mediation theory: music producing its own aggregative and affective identity effects, its own modes of possession (Candea 2010: 9); and yet music also mediating pre-existing social formations. As is apparent today in music's prominent role in social media and

[40] See the chapter by DeNora.
[41] See the chapter by Ouzounian.
[42] Of course, the third and fourth planes are also immanently spatial and demand their own musical geography.
[43] Barber is commenting here on James 1997.

online networking, music seems to be ever more powerful in its generation of musically imagined community.

What is curious, then, is that the socialities immanent in musical publics can take diverse and even opposed forms. In Marilyn Strathern's terms, while they are constituted by the making of relations, this process can be oriented either towards 'de-pluralization', the elimination of difference and creation of social unities, or, on the contrary, towards the establishment or maintenance of social differences or heterogeneity (Strathern 1988: 13, and ch. 1). Barber demonstrates this point, emphasizing with reference to research on African publics that the nature of the social fabric constituted by both co-present and mediated publics cannot be known in advance. If, in Europe and the West, the modes of address that imagined audiences as 'publics' rested on principles of homogeneity and of the equivalence of human beings, she proposes, in Africa the same disciplines were imported by the colonial state but were 'overlaid upon a deeply heterogeneous mass, united and divided by religion, occupation, language, family, place of origin and degree of education, and often by philosophies of irreducible human difference' (ibid: 350). To understand the nature both of co-present and of mediated African publics is therefore to analyse how the socialities of performance and the virtual socialities of musically imagined community, both animated by musical attachments, refract such a nexus of prior social relations. If musical publics engender collectivities, they are 'variably construed, emergent and continually undergoing redefinition' (ibid: 355).

Previous research on musical publics suggests a further distinction. On the one hand, music can be drawn in to buttress the constitution of national, regional, ethnic, religious or other cultural or political publics or public spheres. In these circumstances music amounts to just one medium of articulation of such publics, albeit one that has enormously powerful expressive reach and affective resonance; music performs this work, again, both in performance and in mediated form. Philip Bohlman exemplifies these processes when he examines the transformation of public space in American cities (in this case Chicago) by rap musicians in the early 1990s at the time of the LA riots: 'The city's el-trains became stages for rappers, who jumped on trains and performed for the riders…, then disembarked before taking the next el. In this way, rappers reconfigured the public spaces of the entire city… with the politically charged news' (Bohlman 1993: 413). The cultural geography of modernity can be written, he suggests, by making music a metaphor for an increasingly multicultural public sphere of political speech. On the other hand, music and sound can themselves form the bases for public spheres. Ana Maria Ochoa Gautier, in a piercing analysis, argues that the constitution of Latin America's 'highly unequal modernity' has centred on the elaboration of an aural public sphere through a series of socio-spatial operations, notably the escalating national and transnational circulation, recontextualisation and relocalisation of 'traditional' musics over the course of the 20th century, a 'sonic transculturation' accelerated by electronic and digital media. Such processes were accompanied by an epistemological 'purification' of these musics by folklorists, composers, anthropologists and other intellectuals based in folklore institutes, radio stations and state cultural organisations (Ochoa Gautier 2006: 814). Thus, music mediates politics; but politics – in Ochoa's case, nationalist politics and the politics of knowledge – also mediate music.

Of particular interest for this book are the co-present musical and sonic publics set in motion by the socio-spatialities of performance, participatory audio event or sound installation site – a process described in several chapters. In them we encounter three types of co-present musical or sonic publics, which extend the analysis of the mutual mediation of music and politics. The first is that agentive, solidary and politicised musical public

forged in part with the aim of effecting through musical participation, or through changes to the boundaries of the performance space, a larger, non-musical political transformation.[44] A second type is that intimate musical public, sometimes involving a collective withdrawal or separation from the world, that constitutes a zone of musical or sonic consociation that is intended to engender either an integration or a transformation of participants' social identities.[45] The transformative potential of this kind of co-present musical public is confirmed by ethnomusicological studies. It is found in Jocelyne Guilbault's (2010) analysis of live soca performance in Trinidad as it creates socialities - 'public intimacies' - among performers and audience that both 'reiterate identities' and allow 'new points of connection [to be] developed (for example among artists and audience members of different ethnicities, nationalities and generations, and across musical genres)' (ibid.: 17). It is evident in Marina Roseman's account of how the musical performances and attendant cosmologies of the aboriginal Temiar people of peninsular Malaysia enact alternatives to, and invert, the hierarchical gender relations that characterise the society at large (Roseman 1984). Here, the autonomy of the first plane makes possible transformations in the third plane: a co-present musical public prefigures or protends potential wider social change. A last, minimal type of musical public is that fragmentary group constituted by synchronous participation in performance or sounding space, an aggregation that is, however, traversed by resilient social differences or by the individuation favoured by auditory self-enclosure in headphones: a participation, we might say, that does not amount to affiliation.[46]

What is remarkable about the first and second types is that, even when they are not ontologised, these forms of co-present musical or sonic public are held to *matter*: they are credited with powers either to reaffirm existing boundaries of political affiliation or social identity, or to initiate or catalyse their reconfiguration – although no such change can be assured. Particularly audible today are those sonic publics enlivened by the prominent use of sound in the performance of political protest - when sound, noise and/or music are employed to enhance the efficacy and presence of a political public. Such tactics are apparent in actions such as the Cambridge 'defend education' occupation described at the start of this introduction and the Montreal-based 'casserole' movement of May 2012, which involves protestors banging on pots and pans in the street as they march, and which grew in reaction to the introduction by the Quebec provincial government of a controversial law aimed at curtailing student protests over tuition fee increases.[47] Similar tactics are apparent on a wider scale in the 'sonic amplification of dissent'[48] that characterizes the transnational 'Occupy' movement in its diverse local manifestations. From drumming circles to the 'people's microphone', a practice of call and response that developed in response to a 'prohibition against using electric sound amplifiers in public without a permit', both of them prominent in Occupy actions, sound tactics have become a means both of occupying, politicizing and re-sounding urban space and of reshaping these movements' microsocialities. As an 'Occupy' activist explains, a key feature of the 'people's mic' is reciprocity: 'it not only attenuates the hierarchy usually exerted by one amplified person over the soundscape, but it also fosters the pursuit of accord within the group…, because

[44] See the chapters by Ouzounian, Bohlman and Cook (in regard to the West-Eastern Divan Orchestra).
[45] See the chapters by Dueck, DeNora and Cook (in regard to the Society for Private Musical Performance).
[46] See the chapters by Stanyek and Gopinath, and Eisenberg.
[47] On the Montreal 'casserole' protests see http://www.guardian.co.uk/world/2012/may/26/montreal-casseroles-student-protests; and on the putative roots of the movement's use of pots and pans in Chile's 'cacerolazos' protests of the 1970s and 1980s, http://www.globalmontreal.com/quebecs+cacerolazo+protests+stir+memories+in+chilean-montrealers/6442649486/story.html (accessed May 2012).
[48] Quotation from the discussion of 'sound publics' on http://kaleidophonic.wordpress.com/2011/12/11/occupy-sound-studies/ (accessed May 2012).

the methods' very functioning relies so heavily on the crowd's ongoing willingness to participate'.[49]

It is notable that the inventive political and social potential of such modes of participatory and agonistic performance has been recognised by writers concerned with the cultivation of democratic publics from the social sciences (Amin and Thrift 2002: ch. 6) and political theatre (Boal 2000). These perspectives resonate with Hannah Arendt's use of performance as a model for the pluralistic, participatory and agonistic qualities that she takes to be fundamental to political action in the public realm. In the words of Dana Villa, Arendt's performance model 'emphasizes the embeddedness of action in the "already existing web of human relationships" while stressing its phenomenality, its need for an audience…. [Indeed] Arendt directly links the meaning-creative capacity of initiatory action to its "futility, boundlessness, and uncertainty of outcome"', where 'boundless' implies the creation of 'myriad new relationships [and] unforeseen constellations' (Villa 1996: 84-85 citing Arendt 1989 (1958): 190-192, 184). For Arendt, it is the autonomy and the anti-teleological premise of political action, its 'essential initiatory power' (ibid: 47), that fuels emergence - and her insights can be returned by analogy to the emergent political properties of musical or sonic performance.[50]

Music, sound and the socio-technical mediation of subjectivity

The changing constitution of subjectivity, as we have seen, is a central element in the history and anthropology of musical privacy and publicness, and it is also a theme of this book. In his account of the development of the literary public sphere, Habermas emphasises its origins in 'experiments with subjectivity' in the intimate form of letter exchange, diary writing or communion with the domestic novel, a privacy nested within the encompassing privacy of the conjugal family. These practices, he says, involved the individual communicating with her- or himself about the nature of humanity, the soul, self-knowledge or empathy: 'the psychological interest increased in the dual relation to both one's self and the other' (Habermas 1989 (1962): 49). More recently, Ulrich Beck's theory of institutionalised individualism, addressing the 'second modernity' (Lash 2002: vii) ushered in from the second half of the 20th century, identifies a simultaneous individualization and standardization of lifeways. The individual, Beck contends, is confronted by the paradox of increasingly reflexive, enforced and precarious 'choice' associated with liberation from and the de-normalization of traditional roles: 'the individual must become the agent of his or her own identity-making and livelihood' (Beck and Beck-Gernsheim 2002: 203). While such normative accounts of the formation of the modern individual are illuminating, they lack consideration both of the encultured nature of subjectivity and of its mediation by 'socio-technical systems' (Lash 2002: xiii) – foremost among them music and audio media – that, as we have seen, have been employed for centuries, and with intensifying sway since the phonographic revolution, in 'identity-making' through the cultivation and care of the self (DeNora 2000: 46).

Three seminal empirical studies of the use of music and audio media contribute greatly to our understanding of these processes. Each casts light on the mutual mediation between listening subject, on the one hand, and music or audio media, on the other. Tia DeNora, in her compelling sociological study of music consumption in everyday life, argues that music is a

[49] See the blog written by Ted Sammons, http://soundstudiesblog.com/?s=people's+microphone, a contribution to the site 'Sounding Out!': http://soundstudiesblog.com/ (accessed May 2012).
[50] For a fuller version of this Arendtian analysis, applied to an art-science public art work, see Born and Barry 2010: 112-116.

'technology of self' in that individuals 'engage in musical practices that regulate, elaborate and substantiate themselves as social agents' (DeNora 2000: 47). Music, woven into the rhythms of life, becomes 'an ordering device…, a means for creating, enhancing, sustaining and changing subjective, cognitive, bodily and self-conceptual states' (ibid: 49); it serves as 'a resource for modulating and structuring the parameters of aesthetic agency – feeling, motivation, desire' (ibid: 53). She demonstrates how music is mobilized in the choreography of both memory and identity, not only consciously but in non-conscious, corporeal and micro-behavioural ways (ibid: 74). Where DeNora focuses on individuals' self-creation through musical resources, Michael Bull in his research on personal stereo users in London in the 1990s probes 'the nature of a technologized form of… experience' (Bull 2000: 157). Personal stereos, he argues, favour the privatization and 'monumentalization' of experience (ibid: 181) along with a withdrawal from urban public life. He charts the aestheticization of everyday life effected by the solipsistic zoning of listening through the erection of a technological 'barrier between the subject and the exterior world' (ibid: 156-157). Bull notes users' paradoxical desire for greater experiential control and a denial of contingency along with intensified dependence on audio media. He observes their 'minimalization of the social through [an] "imaginary" social inhabited within personal stereo space', their production of 'non-places' (Augé 1995) from public space, and their 'narcissistically orientated' disposition towards the 'other'. In this way he etches the limits or 'outside' of the 'atomistic subjective expressiveness and instrumentalism' (Bull 2000: 194) of users. Considered together, and despite their quite different orientations, twin tendencies stand out from the analyses given by Bull and DeNora: an intensified affective semanticization of music, along with an intensified narcissistic individualism.

The work of DeNora and Bull inaugurated research on musical experience in the present. Following on, there is a pressing need for further research both on the encultured nature of acoustic experience and acoustic environments and on institutionalised soundworlds. Such studies should encompass not only evolving music and media, but the varied and changing forms of subjectivity brought to these processes (Born 2009b: 80-81). They should analyse the materiality and thus the subjective affordances of particular musico- and sonic-social-technological assemblages; they should examine how subjectivity responds to the recursive interplay between private and public; and they should attend to the affective constitution of forms of subjectivity by music and sound without assuming that it promotes the self-communion of the liberal subject. Resisting the universalization of notions of the sovereign individual in the way advocated by postcolonial and anthropological critiques,[51] future research should interrogate the mutating character of the ensounded liberal subject in the manner of DeNora and Bull, but set this alongside analyses of the alternative forms taken by the imbrication of music or sound, subjectivities and socialities.

Exemplifying these ambitions is Charles Hirschkind's (2006) study of ethical self-formation through cassette listening in Cairo, which, by bringing culture into the analysis and elucidating alternative modes of subjectivity, portrays a quite different articulation of selfhood and mediated soundscape. Hirschkind's focus is the popular practice of listening to cassette sermons - devotional and contestatory vocal performances – by adherents of *da'wa*, an Islamic movement that claims moral leadership while decrying the state's failure in this role. Hirschkind stresses how these practices and the subjectivities they engender exist in tension with secular-liberal values, notably any presupposition of individual autonomy or of

[51] For critiques of the universalization of the liberal individual see Strathern 1988, Chakrabarty 1992: 9, and Barber 2006 and 2007. Barber's research on the constitution of the self through the proliferating forms of writing in colonial Africa pointedly counters a series of Habermasian assumptions (eg Barber 2006: 6-12).

the normative separation of public and private life. Played in the street and buses, shops and cafes, the Quran cassettes reshape the 'moral architecture' of the city (ibid: 124) such that ethical interiority and discipline are resoundingly made public. 'As opposed to the private reader, whose stillness and solitude became privileged icons' for the bourgeois imaginary, he says, 'it is the figure of the ethical listener – with all of its dense sensory involvements – that... inhabits the [Islamic] counterpublic I describe here' (ibid: 107). Hirschkind depicts an alternative sonic-social ontology to that portrayed by Bull and DeNora, one that productively defamiliarises the late liberal subjectivities - replete with 'agency', 'self-identity' and 'choice' - that they describe. Through the distinctive articulation of private and public embodied in Cairene cassette listening, he reminds us that technology is not ontology and that subjectification is not reducible to the affective interiority of the liberal individual. Without this corrective it might be tempting to naturalise the twin tendencies identified above – tendencies that are the more significant for not being naturalised.

Several chapters in this collection respond to the challenges set out in the paragraph before last. They offer a nuanced vista for music and sound studies when addressing the constitution of subjectivity, one that augments the sonic-social phenomenology advocated in this introduction. Some chapters show how music, sound and audio media can be mobilised to humanising, creative or ludic ends in shaping subjectivity and engendering affect,[52] as well as identifying multiple dimensions of the expansion of aesthetic experience galvanised both by audio media and by performance, installation and sound works.[53] Other chapters testify, in contrast, to the ways in which sound, music and audio media can be deployed to problematic or malign subjective or psychological ends, whether by systematising the individuation attested to by earlier research[54] or in being oriented to the very obliteration of subjectivity.[55] In either direction - humanising or malign - music, sound and audio media are credited precisely with being mediators: agents of the voluntary or involuntary transformation of subjectivity. Moreover, whether in the extremes of 'sheer acoustical energy' meted out in the sonic bombardment of prisoners in interrogation centres of the 'war on terror',[56] or in the sounding room that figures not as 'object' or 'context' but as an evolving, 'breathing' subject in a Yoko Ono composition,[57] or in the sense of proximity conjured up by recorded music's spatialisation in a Goldfrapp track as it evokes intersubjective and psychic states:[58] it is the affective, post-representational *materiality* (Bennett and Joyce 2010: 5) of musico- or sonic-social-technological assemblages and their subjective affordances that are at issue in these chapters.

Two further points arise. Repeatedly, the authors show how the musical or sonic orchestration of boundary transformations occurs through the mobilisation of affect and its subjective traces. This can take a number of forms. It is evident in the way that the boundaries between religious communities - Islam, Judaism, and Christian Europe – were reconfigured in the late eighteenth century through the opening of 'internal sacred space to public performance through music'.[59] It can take the form of changes to the boundary between the privacy of the self and public space, music's powers to effect 'an intense exteriorisation of intimacy' (Connor 1999: 22), as when the ballad singer, apparently engulfed by personal emotions,

[52] See the chapters by Dibben, Dueck, Cook and DeNora.
[53] See the chapters by Ouzounian, Clarke, Sterne and Middleton.
[54] See the chapters by Sterne, and Stanyek and Gopinath.
[55] See the chapter by Cusick.
[56] Cusick p. 18 [ms.].
[57] Ouzounian p. 9 [ms.].
[58] Clarke pp. 20-26 [ms.].
[59] Bohlman p. 10 [ms.].

projects and universalizes them in public performance.[60] It is apparent in the intensification of sonic individuation and denial of auditory coevalness fostered both by headphone-enabled mobile music players and, more acutely, in the severe psychic isolation effected by acoustic harassment – when sound itself becomes 'a force field of power'.[61] But such an infolding of self is matched by music's capacity to forge connections across the permeable membrane between self and collectivity, in this way auguring the reconstruction or redemption of damaged subjectivities or flawed biographies, or the overcoming of emotion-laden subjective and social divisions.[62] As we will see, for aboriginal Manitobans country music jam sessions express a common social peripherality while setting in dialogue 'a range of ethical and affective perspectives regarding the stigmatised social practice of drinking' which so afflicts aboriginal subjectivities.[63] More routinely, as certain chapters attest, music and sound are employed to negotiate the borders between subjectivity and social relations, as well as to create zones of interference between the distinctive planes of sociality, with concomitant subjective entailments.[64] Thus, aboriginal Manitoban country sessions amount also to 'interstitial zones, sites of intimate [social] interaction that are articulated to dual social imaginaries': the national public sphere and the rueful, ambivalent collectivity that is aboriginal public culture.[65]

The second point follows on: it concerns the role of affect and entrainment in these and other 'experiments with subjectivity' afforded by music, sound and audio media. It is perhaps unsurprising, given music's hyper-affective propensities, that it engenders the formation of social bonds or what I have called aggregations of the affected (Born 2012: 262), a potential manifest in both the first and second planes of music's social mediation: the intimate socialities of performance and musically imagined community. Recent social theory offers new understandings of these processes since rhythm, dance, bodily proximity and corporeal experience, all associated with music and performance, are thought to promote the intensification of affect and the creation of affective alliances (Brennan 2004; Thrift 2008: ch. 6). One source for these ideas is the rediscovered work of Gabriel Tarde, in which the fabric of the social is portrayed as resulting from collective flows of affect, a logic of semi-conscious imitation and suggestion (Barry and Thrift 2007; Borch 2007). Tarde's thought is predicated on a rejection of two foundational dualisms: the distinction between psychology and sociology, as well as that between individual and social (cf. Ingold 2000b: 171). In their place he advocates an inter-psychology attuned to how 'subjects [are] open to affecting and being affected' (Blackman 2007: 576). A similar perspective comes from the neo-Spinozist philosophy of Moira Gatens and Genevieve Lloyd in their concern with how 'the awareness of human collectivities – … of bodies in relation - is not a merely cognitive awareness… [but] shot through with emotion…. Sociability is [therefore] inherently affective [and] the incorporation into collectivities which determines our individuality involves affective imitation – dynamic movements of emotional identification and appropriation' (Gatens and Lloyd 1999: 77). A third influence is Teresa Brennan's (ibid: ch. 3) development via entrainment of the work of crowd theorists and group psychoanalysts on the transmission of affect. Brennan aims to transcend another dualism, that of the social and biological, by pointing to physiological mechanisms that underlie affective contagion (ibid: 49), and she locates them in transmissible hormonal changes triggered by particular 'atmospheres' and social environments. In Brennan's compelling, anti-neo-Darwinian account, 'certain

[60] See the chapter by Middleton.
[61] See the chapters by Stanyek and Gopinath, and Cusick p. 2 [ms.].
[62] See the chapters by DeNora and Dueck.
[63] Dueck p. 17 [ms.].
[64] See the chapters by Dibben, Rice, Dueck, Cook and Eisenberg.
[65] Dueck p. 23 [ms.].

biological and physical phenomena themselves require a social explanation. While its wellsprings are social, the transmission of affect is deeply physical in its effects' (ibid: 23).[66] Entrainment, in turn, is increasingly invoked in research pursuing connections between music, affect and social processes (DeNora 2000: ch. 4; Borgo 2005: ch. 6), including ethnomusicological studies of links between physiology and sociality in musical performance (Clayton, Sager, and Will 2004).[67] Here synchronization as well as rhythm, movement and embodied experience come to the fore when addressing such questions as: 'Since certain degrees of entrainment between individuals seem to be associated with positive affect, is it the case that particular patterns, periodicities, hierarchies or intensities of entrainment afford particular affects? Could positive affect be associated with a greater degree of self-synchrony as well as closer synchrony with a social group?' (ibid: 21).

Extending the discussion of entrainment in music, however, some of the chapters that follow are concerned with its mundane or negative modalities. On the one hand, we encounter its healing potential in the capacity of clients of music therapy to discover, through pleasurable entrainment to song and to the microsocialities of performance, a path between subjective states of illness and well-being.[68] We learn of office workers' use of the entrainment afforded by headphone listening to reduce distraction and aid concentration.[69] On the other hand, we confront runners' instrumental entrainment by music and thence their enrolment in 'experiential marketing' through the use of the Nike+ Sport Kit apparatus to optimise their running performance;[70] and, with reference to the somatic experience of sympathetic vibration, we witness the violent sonic attacks on prisoners in the military camps of the 'war on terror' effected by their subjection to involuntary bodily vibration when forcibly entrained to the overwhelming sounds played by their captors. Unequivocally, the contributors to this book demonstrate that entrainment is a mechanism the social, political and ethical telos of which cannot be ajudged in advance: it is at work in techniques and disciplines of subjective and social regulation or domination through music and sound[71] as much as in practices of self-regulation.

It follows, as I have argued throughout this introduction, that music, sound and audio media are not invariably employed to generate positive affect or create social unities. They also animate and configure practices and spaces in which are played out social and cultural differences and divisions (Born 2009a), and they refract an array of modes of power. Entrainment must therefore be reconceptualised in this light: it can form part of an apparatus of subjection; and even entrainment – like the flow of affect, or the network (Strathern 1996) – has boundaries or limits that become apparent when music fails to attach potential entrainees, boundaries that are definitively socio-cultural in derivation. This is where Brennan's resistance to biological determinism is salutary: rather than entrainment stemming from physiology, which stimulates affect, with social results, her arguments suggest that these processes are bidirectional. That is to say, social and cultural experience, which may include entrenched or emergent differences and antagonisms, can orient the transmission of affect,

[66] For an overview of recent developments in theorizing affective transmission, including Brennan's work and a variety of alternative contemporary readings of Spinoza, William James and Gabriel Tarde, see Blackman 2008.
[67] The ethnomusicological discourse on entrainment builds on earlier models of the connection between rhythm, movement and musical socialities in the work of John Blacking, Alan Lomax, Charles Keil and Steven Feld (Clayton et al 2004: 19-20).
[68] See the chapter by DeNora.
[69] Dibben and Beronius Haake p. 10 [ms.].
[70] Stanyek and Gopinath p. 19 [ms.].
[71] Although he does not make use of the concept of entrainment, this is also a message of Goodman's (2009) study of the 'vibrational force' of sonic experiences as they are mediated by wider fields of power (ibid: 189-190).

which need not be unifying but may be heterogeneous in its distribution and will have physiological entailments. Together these findings recall Feld's portrait of the fluid, ambiguous boundaries between individual and collective experience and between emotional, aesthetic and symbolic modalities in Kaluli sonic and musical life. They vindicate a sonic-social phenomenology attuned to the relational nature of ensounded subjectivity and sociality, individual and collectivity (cf. Gatens and Lloyd 1999: 78-79).

Sound, music and the private and public modalities of power

A final perspective arising from this volume responds to the Lefebvreian challenge to rejoin the enlarged sonic-social phenomenology elaborated up to this point with a critical analysis of modern forms of power. A number of chapters indicate how the spatialised modes of sonic and musical experience being depicted do not appear ex nihilo or exist in isolation, but derive from specific social and historical conditions. This opens a rich seam of scholarship and represents a rejoinder to those writers – whether from sound studies, anthropology or music studies – whose ontology of sound and music stops at the phenomenal. For the bidirectional mediation at work in the musico- and sonic-social-technological assemblages presented in this collection calls for an analysis of how power is operative in a variety of ways - more and less decentred or 'microphysical' – in reconfiguring the nature of public and private experience. The historical and social conditions addressed in the chapters that follow range from dimensions of the capitalist cultural economy to forms of state, military and other governmental and disciplinary formations; they straddle, in other words, the private and public writ large.

The chapters address these issues with reference to diverse institutional sites. One perspective comes from the micropolitics of sound and the ensounding of social relations in British public hospitals. They are evident in the exteriorisation of interior bodily sounds, experienced by patients as a disturbing confusion of the boundaries of inner and outer self as well as a potentially devastating loss of privacy and autonomy; and in the dominion of a medical regime of truth in which the circulation of knowledge is hierarchized and privatised, excluding patients from discussion of their own conditions.[72] More violently, power is operative in the extremes of acoustical and bodily suffering at the heart of the biopolitical, carceral regime of US military interrogation camps, emblematic of the complex sonic and political zoning of territory under the 'state of exception' (Elden 2009: 55-61; Agamben 2005).[73] For in an obscene, parodic inversion of the affective interiority of iPod listening, the camp oversees domination through sonically-enforced individuation: an 'ultimate violence that batters prisoners' bodies, [shattering]… the capacity to control the acoustical relationality that is the foundation of subjectivity'.[74] The micropolitical role of musical and sonic practices of worship in reconfiguring the contours of 'public religion' are apparent in the evolving historical articulation between the sacred spaces of religious community and urban public life, producing in different eras more or less cosmopolitanised or culturally and religiously zoned modes of urban sonic experience.[75] Further perspectives come from chapters touching on relations between aboriginal groups and the state, in particular their deployment of sound and music to orchestrate either cohabitation or confrontation with the state. Thus aboriginal Manitobans, as we have seen, create through country music sessions spaces of affective and entrained consociation that renew collective feeling against the opprobrium of a racist state;

[72] See the chapter by Rice.
[73] On the etymological links between 'terror' and 'territory', sovereign spaces and violence, and thus the inherent 'violence of [state] borders', see Elden 2009: xxviii-xxx.
[74] Cusick p. 3 [ms.]. On the connections between music and violence, see Johnson and Cloonan 2008.
[75] See the chapter by Bohlman.

musical performance and its circulation on national radio engender musically-imagined community and thence a subaltern counterpublic. While the overtly politicised subaltern counterpublic produced by Rebecca Belmore's 1991 site-specific sound installation, which responded to a land dispute between a Mohawk community and the Canadian government, fuelled 'alternative modes of [public] social and political exchange' both within the Mohawk community, whose participation it solicited, and between the community and the state.[76]

Two chapters address, finally, the evolving, synergistic relations between music's deepening commodification and related branches of knowledge: science and engineering, marketing and 'biocapitalism'. Together these chapters give insight into the proliferating and expansive forms of commodification and reification of listening in the present day. One focuses on the design and development of the most ubiquitous digital audio format, the MP3; the other on a consumer audio accessory, the Nike+ Sport Kit, developed through inter-corporate links between Nike and Apple: a running-attuned, sensor-enabled iPod that generates realtime biofeedback, drawing users to a website on which they post personal data that may then be sold.[77] If the MP3 format affords digital music's accelerating spatial and intersubjective mobility and portability, the Sport Kit embodies the continued inter-corporate mining of profitable elaborations of the mobile music player. Both amount to contemporary emanations of the genealogy of a desire, encountered earlier in Leppert's account of aristocratic listening in early modern Europe, for a type of musical sovereignty: the desire to command music into existence by cultivating a zone of privatised consumption, thereby intensifying the pleasurable affectivity of being subjectified by music. In part these software and hardware innovations respond to dynamic conflicts between sectors of the capitalist music and music technology industries thrown up by the dual processes of digitisation and convergence (Hesmondhalgh 2009: 58); but they also partake in wider tendencies in the marketisation of consumption.

Research on the media industries reveals clear parallels in the responses by the music, film and television industries to the threats to profitability posed by digitization and downloading. To understand them it is necessary to be alert to two complementary properties of contemporary capitalism identified by economic anthropology: the performativity of economics, market analysis and forecasting, their capacity to bring about the very futures they imagine and project (Born 2007; MacKenzie, Muniesa, and Siu 2007; Muniesa and Callon 2007);[78] and the dynamic framing of markets. Together they highlight a last way in which music is deployed to reconfigure the boundaries between private and public in the guise of the rationalities of powerful economic actors as they experiment with reshaping everyday experience. As Timothy Mitchell argues, property arrangements are never static; forms of property proliferate. One of the main ways that commercial actors ensure expanded profitability is by extrapolating new kinds of consumption via the commodification of that which previously lay outside or resisted commodification; this entails continuous efforts to reorganise the boundaries between market and non-market, private and public, boundary transformations that are the 'scene of political battles' (Mitchell 2007: 247-248). 'The starting point of [these transformations]... is to render [former] ways of life defective, almost dead…. Since their defectiveness is what makes accumulation possible, it is an outside on which the… inside [of capitalist markets] depends' (ibid: 268). Under this dynamic, in the present we see the extrapolation of long-standing commercial strategies, their roots in the nineteenth century,

[76] Ouzounian p. 23 [ms.]
[77] See the chapters by Sterne, and Stanyek and Gopinath.
[78] Mackenzie et al 2007, Muniesa and Callon 2007 and Callon 2007 show that experimentation is a permanent and dynamic feature of institutionalized economic life, characterized by the performativity of the diverse modes of research and forecasting or 'future-making' (Born 2007) involved.

as Sterne (2003) shows in his archaeology of auditory media: new property relations attached to new physical and immaterial commodities, new distribution platforms, and new modes of musical experience segmented in terms of time, space, place and sociality. Commercial strategies attempt to incorporate both non-commoditised musical experience and non-musicalised spatial, temporal and embodied experience, coining novel kinds of aesthetic experience: both a temporal aesthetic of digital music's mobility and fluidity, its openness to remediation and circulation (as in the MP3 file), and a spatial aesthetic of the simultaneous, multiple or montage: music *and* movement *and* place *and* sound (as in the Sport Kit). The drive to proliferate music's mediatised consumption multiplies both the spaces and activities colonised by consumption (the bedroom, car, bar, mall, bank queue, subway…; walking, jogging, travelling, eating, waiting…) and the aesthetic modalities proffered by these media (cf. Hosokawa 1984), yielding new articulations of privatising and public-izing music. With regard to time, the industries' strategy is to carve out and exploit more and more temporal 'windows' of consumption of the same musical object, tiered into a hierarchy of more and less exclusive, premiere or archival releases.

In short, what we encounter is a doubled privatisation: a segmentary calculus engaged in dividing up and individualising the spatial, temporal and social experience of music to be sold. However the effect is to intensify *both* the individualising *and* the distributed and aggregative modes of musical experience: both iPod listening or Sport Kit jogging and musico-social networking via SoundCloud or Bandcamp as they feed practices of sharing and diversifying sites of performance. Indeed as relentlessly as the individual is instated and reinstated, so the individualising imperative is deflected as the iPod and laptop become means of crafting novel musical socialities.[79] We see how ceaselessly inventive has been the experimentation undertaken by engineering and capital with the privatisation and public-ization of music: with hailing us both as interiorising 'self-identity' projects and as nodes in a dispersed sociality. It is these inventive propensities of musical capitalism – by which I refer to the particular sectoral and intersectoral qualities and dynamics of late capitalism as it is mediated by music (Hesmondhalgh 2009; Toynbee 2000: 19-25)[80] - in its expansive re-design of the infrastructures of musical experience that are touched on in the two chapters mentioned.

[79] Boudreault-Fournier, for example, in fieldwork on post-hip hop subcultures in Montreal, identifies a number of socialities cultivated by practices of music 'sharing' through iPod, laptop and other digital devices. One is 'cypher', when a laptop is used sequentially among a group of friends at a party to play song after song: as one informant put it, 'My laptop just passes hands like that in the cypher all night' (Boudreault-Fournier 2011: 8).

[80] By coining the term 'musical capitalism' I highlight that capitalism is not a monolithic but a protean entity, and that late capitalism as it is mediated by music - hence musical capitalism – has specific properties and potentialities due to music's socio-material qualities, some of which are identified in this section. The term responds to ongoing ambivalence in the political economy of music and culture as to whether music's imbrication with capitalism can be reduced to prior terms - concentration, cultural imperialism and so on - or whether it exhibits particular trajectories and even innovations that in some ways depart from these general processes. For an example of such ambivalence see the discussions in Hesmondhalgh's (2002) study of the cultural industries of individualization (pp. 101-2), attributed (as in this Introduction) to innovation in music technologies, of resistance to concentration via independent production (pp. 149-151), attributed also to innovations in music, and of cultural imperialism (pp. 195-6), portrayed as a general process exemplified by world music. For a parallel argument in favour of anti-essentialist accounts of capitalism that attend to the specificity of the material, see Mitchell 2002.

Outline of Chapters

Part 1: The design of mediated music and sound

The focus of the first section of the volume is on the production or design and the materiality of mediated music and sound, and through this the nature of the experiences that they afford. Rather than the nature of musical capitalism, the opening chapters by Gascia Ouzounian and Eric Clarke address aesthetic and perceptual issues, exploring the spatialised nature of, respectively, the sonic-social and musical assemblages of sound installation art and of popular music recordings. Ouzounian traces a genealogy of the field of sound installation art through its evolving problematisation of a series of oppositions: sound and music, space and time, and aesthetics and ethics. She charts the field's emergence in the 1960s and 70s in the interplay between a series of art movements: new sculptural and architectural practices, conceptual art, performance art and public art. Drawing out its changing conceptions of space, as well as its experimentation with novel audience relations, she analyses the changing material, aesthetic and ethico-political bases of sound installation art. Ouzounian's genealogy finds a point of departure in Varèse's *Poème électronique* (1958) which, although influenced by the emerging practices of *musique concrète* and *Elektronische Musik*, surpassed them in the scale of realisation of spatial music composition. *Poème électronique*, Ouzounian suggests, offered an immersive listening experience more ambitious than its precursors as well as the experimental electronic music of Cage, Tudor, Brown, Feldman and Wolff. The reigning model of space for the Western musical avant-garde in this period was Euclidean: the concert hall was conceived as an 'empty container', and sound's movement through it could be determined and controlled through its segmentation and serialisation. Yet a radical departure was marked by the introduction of space as a compositional parameter, for certain composers were compelled to supersede the Euclidean model by a burgeoning commitment to the perspectival nature of sound in space and thus to the irreducible difference of each listener's experience. Ouzounian argues that this led to a counter-practice, indeed a counter-ontology, of spatial sound, one that valorised the multiplicity of audience experience and the ineluctable participation of audiences in the event, as well as the non-inert, temporal and material contribution of the site or space itself. This departure was evident in such works as Fluxus event scores, which promoted an 'everyday aesthetic', in works by Yoko Ono and LaMonte Young, and in the extended ritual performances of Joseph Beuys and Terry Fox, in which sound became a tool 'with which to connect objects and transform spaces' (14).

But it is Max Neuhaus who coined the term 'sound installation' to describe sound works that were situated in space rather than organised in time. In the mid-1960s, Neuhaus began to facilitate listening walks with audiences in order to refocus 'attention on sounds that we live with everyday'. Neuhaus was insistent on transforming the public for contemporary music: henceforth it was to be 'anyone who listens', and he demanded of this broader public that they must become attuned to their aural environments. The chapter culminates in a discussion of the work of two contemporary sound installation artists, the Finn Heidi Fast and the Anishnabe Canadian Rebecca Belmore, both of whom create site-specific sound works attuned to the participation of particular, localised publics. Belmore's 1991 installation *Ayumee-aawach Oomama-mowan: Speaking to Their Mother*, for example, set out to intervene in a major land dispute between First Nations communities and government by mobilising a group of Native Canadians to speak through a giant megaphone to the disputed land, which, by virtue of this address, Ouzounian argues, was constituted as a living entity rather than merely an object to be owned. The installation not only effaced the line between aesthetics and ethics, but reconfigured the space of politics, asserting the sound of political

speech and its ability to 'bypass dominant modes of political containment', while reclaiming 'the political worth of marginal (and marginalised) places' (25). Ouzounian contends that by drawing attention to space as social production, sound installation art of this kind constitutes '"spatial sound" practice not only as a poetics but a politics. Such a critical practice does not merely "happen in" space, but is poised radically to transform the very terms of its constitution' (3).

A quite different analysis of the materiality of spatialised music and its subjective affordances is given by Eric Clarke. Clarke traces the development of research on the capacity of musical sound to specify motion and space, both the physical spaces in which it is performed and the virtual spaces that it can seem to occupy. Rather than adopt a cognitive framework concerned with the musical representation of space, he builds on principles to do with how listeners perceive auditory cues about space and movement from their environment. Focusing on recorded sound and its capacity to specify spatial forms, movements and transformations, Clarke's approach integrates ecological perceptual theory, Lakoff and Johnson's conceptual metaphor theory and the theory of proxemics. With these resources he addresses how spatial-musical effects seem to proffer modes of subjectivity and intersubjectivity, indeed can evoke or partake in psychic dramas or narratives. Recording and its techniques have historically been a central dimension of the aesthetics of popular and electroacoustic musics, and the use of spatialisation in recording has been particularly important in both spheres. Yet by contrasting two recordings of Berlioz's *Symphonie Fantastique*, Clarke shows how spatialisation has also been prominent in classical music recording and points to the tensions in these recordings with either upholding or departing from a sonic-spatial realism.

Clarke's main focus, however, is on two examples of spatialisation in British popular music. On the one hand, he charts the virtual spaces figured sonically in Pink Floyd's track 'Echoes' (1971), in which a central episode portrays what Clarke interprets as the vast, inhuman and empty physical spaces of an imaginary landscape. On the other hand, he analyses a track by Goldfrapp, 'Deer Stop' (2000), to illustrate the dramatic spatialisation and movement conjured up by its treatment of the singing voice, through which means are conveyed a tantalising and sensuous intimacy and emotional instability. Clarke argues that despite or perhaps precisely because of the 'barely decipherable, and semantically opaque' nature of the lyrics, the human voice's capacity to conjure up intersubjectivity and empathy becomes more pronounced. The track swoops between intensely corporeal effects – a sense of engorgement, of having 'been taken apparently almost inside the body [or throat] of the singer' (17) – and episodes in which the singer's voice is felt to traverse space, rushing from an immense distance towards the listener. Clarke proposes that through such spectral transformations of the voice, a definitively non-realist, almost uncanny sense of spatial relations is evoked, relations that are at once intersubjective relations and that 'seem to demand interpretation in a different kind of domain – a metaphorically related psychic space'. Noting that such interpretations rest on a reading of the material properties of recorded sound, Clarke points to the methodological correlate: that the semantic affordances he has highlighted, and their implications for listeners' experiences of subjectivity and intersubjectivity in recorded music, must be rooted in turn in an analysis of wider cultural historical developments with which audiences are familiar – notably the semantic and aesthetic intertextualities stemming from the interrelations between twentieth-century Hollywood film sound, video games and recorded music (19).

The next chapters zoom in on two prominent components of the re-design of the infrastructures of musical experience by musical capitalism, two pervasive digital audio technologies: the MP3 format (Sterne) and the Nike+ Sport Kit (Gopinath and Stanyek). In

both cases the conditions for the emergence of the technologies take centre stage, and it is in these conditions that answers are sought for the distinctive form taken by the complex and recursive articulation of privacy and publicness. Taking the design of a ubiquitous audio technology as its theme, Jonathan Sterne's chapter asks how it is that the MP3 digital file format has become the most commercially successful such technology in global history. Sterne notes that the development of the MP3 was an episode in the ongoing clash between rival sound reproduction formats, driven by competing corporate economic interests as well as by the commercial need to identify common standards that would enable a new phase of convergence and consolidation between emerging digital audio and computing technologies. What these interests necessitated in turn was close attention, through systematic research, to the optimal representation of acoustic music in the form of digital code, and its optimal reduction so as to achieve the immense benefits of small size. Sterne's particular interest is in the nature and role of the industry technique know as the 'listening test' in the design of the MP3 format. Effectively, the practice of listening tests entailed an instrumentalisation of psychoacoustical research; the result was to reify and standardise musical subjectivity in the form of a specific digital codec (or coder-decoder): the MP3 format. It is the 'radical reduction' in size of the MP3 format compared, say, to the .wav format used by the CD that enables its extreme portability and intensive digital circulation, which in turn fosters affective contagion and ensures the format's omnipresence. As Sterne observes, the MP3 points to the ways in which 'contemporary media forms strive at once for some form of universality,… even as they allow for the irreducibility of private, subjective experience' (4).

Four intriguing paradoxes run through Sterne's account. First, between the universalising scientific claims of the listening test and the highly particular demographic profile of its experimental subjects, such that, as he contends, any potential challenges posed to the format's model of listening by cultural and social difference were simply unaddressed. Second, between the anaesthetic perceptual models that originally prevailed and the burgeoning recognition of a timbrally-inflected, aesthetically-imbued mediation by the format. Third, between the tendency for the format to become inaudible and to disappear in listening and the historical process whereby listeners become increasingly attuned to the format precisely as a mediation which is itself the bearer of an aesthetic: an aesthetic of the format. And fourth, between the normative perceptual model of listening immanent in the format and the actual multiplicity and individuation of listening. Hence the reification of subjectivity immanent in the digitally-encoded model of listening in the MP3 format, while it is envisaged as universalistic and as subsuming difference, encounters the heterogeneity of living individuals and particular subjectivities embedded in an assemblage. Each – normative model, particular ears – mediates the other. But a further paradox is also worth noting: how the material properties of the MP3 format have enabled convergence and corporate expansion while also affording the busting of commercial controls through 'piracy' – indicating that the technical architecture of the MP3, as with that of earlier analog and digital music formats, escapes its embedding in corporate economic interests. It is because of its immaterial materiality as code and thus its ultra-portability, suitability for instantaneous replication and circulation, and flexibility as an element in multiple musical assemblages – its qualities as 'a format designed for casual users, to be heard in earphones on trains or on the tiny speakers of a computer desktop, to be sent in emails, IMs and through file sharing programs' – that the MP3 is generative and proffers a host of non-corporate, public and creative possibilities.

The last chapter in this opening section addresses another contemporary emanation of the corporate commercial mining of auditory practices: the Nike+ Sport Kit, an apparatus resulting from an alliance between Nike and Apple which enables runners to 'tune their run' to the iPod- or iPhone-relayed sounds of voiced biofeedback, as well as playlists and mixes of

well-known bands. Sumanth Gopinath and Jason Stanyek begin their anatomy of the Sport Kit by describing its critical location at the centre of the 'Human Race': a spectacular, participatory global marketing event staged by the Nike Corporation in the late 2000s in twenty-five 'global cities'. The 'Human Race' itself magnifies, almost parodies, this book's themes: in it a million runners were propelled synchronously through urban space by their entrainment to the Sport Kit vocal feedback and audio track, in this way propagating a transnational spatial constellation of dispersed yet unified corporate-athletic publics; while runners who were not present in any of the partner cities could participate in real time as members of the virtual public hailed by the event and the technology. At the same time, the Sport Kit engendered collectively in the 'Human Race' runners a voluntary auditory self-enclosure via the multiple soundtracks and individuated biofeedback narratives fed to each participant. As Gopinath and Stanyek show, the mass entrainment afforded by the Sport Kit – the individual athletic body tuning in to music's motions, and through this individual tuning in the formation of an aggregate – indicates a doubled hailing of the musico-athletic subject: what might be called the 'aggregate-individual'.

Gopinath and Stanyek locate the Nike+ Sport Kit within a series of developments, foremost among them the Nike Corporation's adoption in the wake of its well-known branding operations of 'experiential marketing'. This is a strategy that utilises consumers' willingness to submit themselves to a participatory consumerism through modes of affective and sensory labour, which the authors link in turn to the exponential growth in athletic capitalism. This is evident in the co-introduction of real time biofeedback to the runner, voiced through the earphones, along with the extension of the runner's temporal connection to the apparatus through a website which encourages her to engage both in personalised preparations and in post-run, cumulative archiving of personal biofeedback data. The runner is thus hailed both as a satellite moving through urban public space and as a node in an online network, while the website enables personal data to be mined for market analysis and sold on by Nike. The authors contend that the biofeedback data thus permit Nike to traffic 'in the production and commodification of extensive data sets that define human beings'. Together these processes fuel 'a practice of capital accumulation built upon the extraction of value from the *bios* itself' (all 6). For Gopinath and Stanyek, the integration in the Sport Kit of, on the one hand, consumer surveillance via the sensor-enabled mining of intimate data and, on the other hand, the athletic goods and music industries 'brings together two crucial tendencies marked by the decline of state and individual autonomy from capital during the neoliberal era' (5). The Sport Kit therefore positions itself at the intersection of four vectors of privatisation: that of Nike's proliferating inter-corporate synergies; that of intensifying market analysis through commercial data mining; that of the body under athletic capitalism and an encompassing biocapitalism; and that of the experience of urban public space via auditory consumer-individuation and sonic self-enclosure. As Stanyek and Gopinath convey, the 'publics' generated by the apparatus are dwarfed by these privatizing vectors.

Part 2: Space, sound and affect in everyday lifeworlds

The next three chapters examine how sound and music are employed in everyday situations in the creation of spatiality, and in particular to mark, construct, contest or transform the boundaries between what is deemed to be private or public experience. Nicola Dibben and Anneli Beronius Haake outline the results of research on music listening in contemporary workplaces. They chart the changing nature of music's role in regulating work and negotiating its demands, as well as the individuation of mediated musical experience in the workplace, in contrast to the prevalence in earlier decades of broadcast music in work settings. Their findings point to music listening as a practice that commonly results in a nesting of the

private auditory space of individual earphone use within the public soundscape of the office. However, by comparing two office settings with quite different architectural and spatial characteristics, and with reference to earlier research by Michael Bull and others, the authors argue that individuated listening is not used simply to create 'aural cocoons' or 'auditory bubbles' in the workplace, but engaged more subtly and variably to respond to situational contingencies in their subjects' working lives. They highlight the contradictory affordances of music in the workplace, used both as a pleasurable distraction and yet also as a means of blocking out other distractions, particularly in open-plan offices. The use of music, the authors find, is significantly correlated with the particular physical features of the workplace.

Dibben and Haake propose that 'It is the very capacity of music to make attentional demands that workers turned to their advantage when the music lay within their control' (3). On the one hand, music listening enables employees to aid their own concentration by avoiding interruptions and managing interactions with colleagues, dissuading people from making contact when desired and affording temporary zones of psychological privacy. On the other hand, music use is informed by a sense of professional responsibility as well as by ethical concern for the welfare of co-workers and an awareness of the negative effects of imposing one's music habits on others. Managers, in particular, may engage in 'one-eared' listening in order to monitor and be responsive to the wider office environment; while the playing of music or radio through loudspeakers may be calibrated temporally and spatially so as not to disturb others, with radio being seen as a relatively 'neutral', more socialised medium than the personalised iPod because it is one in which no single individual's tastes predominate. The authors point out that in the post-Fordist, 'funky offices' of today's knowledge economy, the presence of music blurs the boundaries between work and leisure, symbolising the 'responsible autonomy' of the contemporary office worker. Yet the exercise of this autonomy, epitomised for many respondents by music listening, is felt by others to threaten professionalism and to risk a deterioration in the quality of work. The result of these countervailing forces is a complex and shifting soundscape in which music is employed to achieve a sonic-spatial nesting and zoning, listeners carving out their sonic territory within the office, while also remaining aware of and acknowledging the territories of others.

Drawing on ethnographic research in two British hospitals, Tom Rice portrays the potentially acute emotional effects of everyday soundscapes in his account of patients' experience of the sounds of hospital life. A feature of hospital soundscapes, particularly of public wards, is how the sounds of intimate and involuntary bodily processes - associated with pain, birth and death, diagnosis and treatment - are broadcast ignominiously to the world. Sounds transgress the attempts to create zones of privacy manifest in the 'swish' of the drawing of the 'privacy curtain' around patients' beds, a screen that affords no sonic segregation. Aware not only that they are overhearing their neighbours' sufferings, but that their own indignities are being overhead by others, patients are subject to a 'sonic incontinence' in which bodily sounds leak uncontainably into public awareness. Moreover, Rice suggests, sound complicates the boundaries of the body, transmitting even its interior spaces - those physiological processes and functioning organs magnified by diagnostic or monitoring technologies - into public acoustic and discursive space. He describes how heart monitors produce a constant beeping on the cardiothoracic ward, a background noise that magnifies the rhythm of patients' hearts, and thus an 'auditory reminder of [patients'] vulnerability' (12). Privacy is undermined through these sounding technologies. Independently, patients in both hospitals employed the same aphorism about hospital life: 'the first thing you lose is your privacy, the second is your dignity, the third is your sanity'. Sound was heavily implicated in these potentially devastating losses, and tactics were developed to mitigate them; the hospital radio station was widely listened to, for instance, because of its capacity to occlude the ward soundscape.

Rice argues that the hospital soundscape also makes audible a distinct field of power relations manifest in the professional control of knowledge about and discourse on a patient's condition to the exclusion of the patient, as well as the public disclosure of intensely private information. Details about patients' illnesses and treatment processes were transacted by medical professionals such that intimate matters were experienced as uncontrollably the substance of medical discourse, subject to the preoccupations of the experts. The information generated by the investigation of a patient's illness 'circulated through the "network" of the care system', objectifying that individual. Medical discourse was sometimes revealed in ward rounds; yet in the main it was confined to 'backspace' areas. In this way a strict zoning of discourse prevailed. Occasionally, acute anxiety could be caused when medical discourse was overheard, allowing a patient or relative to hear a truth – the failure of a procedure, the deterioration of a condition - that had carefully been withheld. What is at stake in Rice's material, then, is not only how sound is employed to mark the boundaries of private and public, but sound's agency in disturbing and confusing these boundaries. Sound is experienced as exteriorising or broadcasting the inner recesses of the body, crossing the boundaries between inner and outer, autonomic and conscious aspects of self, as well as self and other. But upsetting sound, in the guise of the uncontrollable circulation of objectifying discourses or sonic diagnostics, also produces an interiorisation, stimulating anxieties and psychic fantasies. The result is repeated incursions into patients' psychic and corporeal integrity, even if such incursions can be mitigated by the professional ethic of care. Rice argues compellingly, with reference to Anne-Marie Mol (2002), that sound and listening - given their perspectival and sensory nature, and their multiplicity – are centrally involved in producing what she calls the 'body multiple'.

The following chapter, by Andrew Eisenberg, pursues the ethnographic revelation of the multiplicity of sonic-spatial dynamics and their potentially disjunctive and conflictual nature; importantly, it foregrounds culture in this analysis. Eisenberg brings together a focus on the affective and embodied nature of experience with the notion, adapted from Vološinov, of the multiaccentuality of space. He is concerned with two aspects of quotidian urban existence in the predominantly Muslim Old Town of the coastal Kenyan city, Mombasa. He addresses first how public space in Old Town is engendered in and through sound, particularly through the 'polyphony of cantillated (Arabic) calls to prayer [emanating] from the rooftop loudspeakers', along with weekly broadcasts of Arabic and Swahili sermons, which together produce an 'Islamic soundscape'. This sonic constitution of urban space is matched by a host of other multisensory practices – sights, aromas, Arabic and Indian-inflected *taarab* music. But Eisenberg suggests that it is the repeated sounding of the call to prayer, the *adhan*, and the habitual, affect-laden vocal and gestural responses that it evokes from listeners that interpellate a community of believers through a form of Muslim-Swahili subjectification. Indeed the embodied responses index 'a lifetime of ethical practice', while sacred sounds and embodied responses together orchestrate a sanctification of public space. This participatory sanctification of the space-time of Mombasa Old Town, Eisenberg suggests, produces 'communitarian privacy': a term previously applied to the physical and architectural features of Islamic cities, but which he argues is also applicable to their acoustical forms.

Eisenberg contends, however, that the ensounded communitarian privacy of Old Town cannot be understood simply in these terms. Rather, it has to interpreted in light of the normative liberal-democratic conception of the public/private distinction and of the role of religion in public life espoused by the Kenyan polity. According to these liberal norms, urban public space is a neutral arena 'in which even sacred sound may be marked as noise and any subject may address any other without regard to minority norms of social intercourse' (X). Against

this backdrop Eisenberg's second theme comes to the fore, through the question: what does it mean 'for a resonant Muslim sanctuary - Mombasa Old Town - to be constantly superposed on the public spaces of Kenya's heterogeneous "second city"' (X)? With reference to ethnographic material - such as an incendiary and well-publicised dispute that arose outside a mosque when a non-Muslim female resident angrily complained about the pre-dawn *adhan*, which led to her being physically assaulted by the imam – Eisenberg charts a clash of logics, a 'constant struggle between Islamic-Swahili and broadly liberal-democratic understandings of publicity and privacy' threaded through daily life. Emphasising the 'acoustemological multiplicity' (1) of urban space on the Kenyan coast, he proposes that the dynamics of sonic-spatial competition and disjuncture fuel nothing less than 'an "ontological politics", "a politics over what there is and who/what can know it" (Verran 1998: 238)' (X) that simmers mostly unignited beneath the surface of cosmopolitan cohabitation. Ultimately, Eisenberg proposes, what is revealed by a focus on the potentially conflictual multiplicity of sounded space in Old Town is not a politics of publicity and privacy sited *in* urban space, but an ontological politics about the very nature *of* urban space.

Part 3: Music, identity, alterity and the politics of space

The third section of the book pursues the role of music, sound and space in animating the politics of identity and of musical socialities. Music's relation to urban and architectural space, as well as musical and sonic boundary crossings - movements between private and public, inside and outside - are highlighted on a vivid historical scale in the chapter by Philip V. Bohlman. In it such boundary crossings appear in the form of musico-spatial transformations that augur large-scale social transformations. Bohlman opens with the momentum evident at the outset of post-Enlightenment modernity in late 18th century Europe towards religious tolerance. Such tolerance was enacted through a reconciliation of the sacred and secular, itself manifest spatially in the entry of religion into the public spaces of the modern city, of which Berlin was paradigmatic. Music had a prominent role in this reconfiguration of urban space, as 'worship and the music of worship moved from the sanctuary to the public square, sometimes in gradual stages, but often through the dramatic modulation of public soundscapes' (2). As a result sacred and secular communities comingled. Bohlman's chapter draws an unsettling arc, arguing that 'the secular Europe formulated at the end of the eighteenth century is reformulated as a post-secular Europe at the end of the twentieth century' (X). In the early 19th century Bohlman charts simultaneous transformations in the architectural and urban-spatial characteristics of the European synagogue and mosque. Both saw changes in which the sacred interior was opened on to the outer, public spaces of urban life; both cantorial music and the *adhan* performed such transformations. Not only urban landscapes but soundscapes were altered: 'The historical evidence… argues strongly for an historical telos unleashed by the Enlightenment that leads increasingly to the opening of internal sacred space to public performance through music' (5).

Bohlman finds that the dialectic between inside and outside, private and public, that he has identified architecturally and in urban space can be traced analogously in music. Asking, 'When does the outside – the public space of European music – overwhelm the inside – the private space of difference, of appropriated otherness?', he charts these dynamics in the formal structures of Western music. Bohlman proposes that musical fragments facilitate the reconfiguration of musical insides and outsides, whether in the development section of sonata form or the bridge in many popular musical forms. Fragments enable musical border crossings and the entry of the musical periphery into the musical centre; indeed 'fragments destabilize form, enhancing mobility, the in-betweenness of genre' (8). Coming to the present, Bohlman foregrounds the tensions of cosmopolitan coexistence, showing how politics and

power mediate the zoning of urban and religious soundscapes. He observes that not only contemporary Islam, but Pentecostalism, the American 'megachurches' and German Catholicism foster a provocative spilling of the sacred spaces of religious discourse into secular public space. Bohlman traces the increasingly conflictual dynamics between religious and secular urban soundscapes in Germany and Switzerland, epitomised by the 2009 Swiss ban on the construction of minarets on mosques. But he closes with the destabilization of territorial and social borders in the aftermath of the 1985 Schengen Agreement, which created a borderless space of 'silent in-betweenness,… a space between inside and outside where the problem of religious tolerance continues to be unresolved' (12).

In a similarly wide-ranging contribution, Nicholas Cook explores the plural and overlapping ways in which music both defines and marks space and movement, while also affording changes in spatial and social boundaries. Since at least the early 19th century, and culminating in Heinrich Schenker's paradigm, Cook argues, music theorists have pointed to the 'inherently musical spaces' created by 'music as structure in motion', spaces that more accurately amount to a compound of time and space. Theories of tonality, he points out, have encompassed not only temporal models but pronounced topological and social metaphors in which the contrast between tonic and non-tonic keys is commonly interpreted in the dualistic terms of 'home' and 'foreign' or 'self' and 'other'. At the same time, through a kind of 'tonal cartography' (Taylor 2007), tonality has been employed as a musical means of effacing these very dualisms. Yet inherently musical spaces are constructed not only by musical systems like tonality; they are also realised, Cook contends, by the corporeal gestures and socialities of live performance, and by the virtual spatialities of recording. For Cook, in its capacity to reshape space, music augurs a politics of space. He charts this politics, firstly, in the way that music can generate spatialised modes of musical experience that are detached from place – from the 'private communion' proffered in the early 19th century by Beethoven's music, to today's iPod listening. It is, Cook suggests, the existence of 'inherently musical spaces' (4) that affords both this detachment and its corollary: the 'frequently contested yet undoubted historical autonomy of music' (6).

Cook proceeds to address the politics of musical space in the expanded terms of music's ability to fabricate spaces of intersubjectivity and social interaction, which he portrays as a key dimension of music's autonomy. He offers three case studies: first, *fin de siècle* Vienna, where the musical cartography developed by Schenker portrayed the 'German logic of music' as the centre of a supranational entity that was at once musical and political. It was in reaction against music's enrolment in such problematic ideological work, Cook contends, that Schoenberg founded the Society for Private Musical Performances. By staging a withdrawal from public life, the SPMP at the same time instituted an intimate, micro-musical public, one that resonates nostalgically with both earlier and later models of intimate music-making - notably chamber music - as a 'space for a lost sociability' (Adorno 2002a). Cook's second case comes to the present: the classical music concerts staged in the online world, Second Life. He suggests that these concerts have a complex, multiple socio-spatial existence, constructing for their audiences a type of community that is not only virtual or 'in-world', but entails a real and transnational sociality. Finally, Cook addresses the socio-musical interactions engendered by the 'inner space-time of performance' in the work of the West-Eastern Divan Orchestra. Cook argues that WEDO performances engender socialities that are autonomous in the sense that they are 'not… simply an epiphenomenon of the world beyond music' (9). He notes how these socialities are taken by some commentators to augur in microcosm a reconciliation that can be transposed on to the larger historical plane of the Israeli-Palestinian conflict (an

interpretation that remains controversial).[81] Music, he concludes, is Janus-like, favouring autonomy and reification and yet also - through the tuning-in afforded by its inner motion – enabling transformations in the spaces of, and boundaries between, public and private experience.

The idea expounded earlier in this introduction that the space of musical performance is one of intimate socialities, socialities that may be transformative of both subjectivity and social identity, is central not only to Cook's contribution but to the two following chapters. Drawing on ethnographic research among aboriginal people in the city of Winnipeg in Manitoba, Canada, Byron Dueck focuses on their attendance at two kinds of music venues, core elements of aboriginal public culture: 'wet' or drinking establishments, and 'dry' gatherings where alcohol is banned and which are also spaces of Christian worship. Varieties of country music prevail in both arenas, musical styles that 'allow aboriginal musicians to express their social peripherality' (2). Dueck notes that these clubs, bars and rooms exist at the intersection of two kinds of sociality: on the one hand, the intimate socialities constituted by face-to-face socio-musical interactions; on the other hand, forms of imagined community or 'stranger' publics (Warner 2002). Through music performances and their circulation as radio broadcasts, aboriginal music venues, the musicians who perform in them and their clientele build an aboriginal public culture embodied in common musical, cultural, social and moral practices and codes. But this aboriginal public culture is itself encompassed and monitored by a national public culture that has often condemned indigenous sociability – in particular, for the destructive repercussions of widespread alcohol abuse. It is against the backdrop of a moralising national public discourse that aboriginal musicking in wet venues is understood as a 'flawed form of civility', a perspective internalised by indigenous Manitobans. Citing Michael Herzfeld's (Herzfeld 1997) concept of cultural intimacy, Dueck notes that performances at wet venues become sites of 'rueful' recognition among aboriginal people that the dominant culture perceives their lifeways as problematic.

In light of the 'sharp and morally freighted divisions between wet and dry musical events' for aboriginal Manitobans (17), Dueck uncovers surprising aspects of these apparently opposed spaces of aboriginal sociality. For it proves to be difficult, in reality, to draw distinctions between dry and wet, sacred and secular musico-social occasions. Artists and repertoires, harmonic, melodic and formal languages cross easily between them, muddying the apparently inviolable social and moral boundaries. The soundscape is in fact a common one, although in performance musicians may make reference to the 'other' side of aboriginal culture through humour, parody, playful transgression and so on. The common soundscape is made possible, Dueck explains, by country music's mass mediated ubiquity and in particular by the commonplace nature of its musical tropes, which themselves afford intimate musical publics - in the sense that aboriginal strangers can and do come together and play and sing for hours on end, fluently and without preparation. But in addition, the shared musical language and the migration of musicians between genres and spaces allows artists 'to be both sinners and saints, lyrically and indeed biographically', as well as enabling 'sounds, lyrics and public personas to have multiple, mutually enriching, sacred and secular associations' (20). Country music therefore engenders spaces of conviviality in which are enacted forms of musical and cultural consociation and conciliation that traverse what is otherwise deeply and painfully polarised. In effect, the intimate, rueful socialities and soundscapes of country music sessions appear to perform the redemptive work of producing a relatively undamaged and unified aboriginal (musical) public.

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[81] See, for example, Etherington 2007 and Beckles Willson 2009.

Part 4: Music and sound: torture, healing and love

Drawing on an ethnographic study of community music therapy in a mental health centre (BRIGHT), Tia DeNora's chapter also concerns the potential identity effects of musical performance - in this case transformations in individual subjectivities. With reference to the music therapy clients' 'creation and negotiation of shared musical-aesthetic space' (1), and taking her cue from Erving Goffman's *Asylums* (1968 (1961)), DeNora examines how, through musical performance and the solidarities and socialities thereby generated, and by halting but continuous steps, a transfiguration of the clients' identities can be effected: from illness to well-being. Asylum, she suggests, should be conceptualised as those 'situations, moments or environments which, albeit fleetingly, permit individuals to flourish, to have respite from a troubling world and to have space… that can be appropriated for self-development… [in part through forging] connections to others' (6). The BRIGHT music therapy sessions, she proposes, proffer 'temporary "asylums"' of this kind. 'Musical activity, to the extent that it confronts individuals as a medium that stands outside of but as a resource for the self, offers a means for creating selves and collective identities. In this way it facilitates individuals' progression along what Goffman terms "moral careers"' (6). In the therapy sessions, 'the elements of performance style… become proxies for identity, signs of embodied and tacit dispositions that shoot through and structure social action' (8). Music-making at BRIGHT therefore amounts to the performance both of a song and of a self – a self that is the cumulative and fragile outcome of repeated alliances between particular song repertoires, performance events, and responsive reception.

Critically, the projection of self in BRIGHT musical performances - self as mediated through the adoption of the persona required by a particular repertoire - can catalyze and be harnessed to a desired shift in subjectivity and personal identity. DeNora conceives of this process as a path-making activity achieved by what she calls 'taking a stand' (11-12). BRIGHT sessions are structured on the expectation that their clients will take a stand, a requirement for action that entails the mobilisation of publicly available musical materials to illuminate subjective or inner psychic space. Moreover the sessions require clients to 'pull themselves together' (12) in public: for the duration of the session, and particularly for the duration of performance, this entails stepping outside the boundaries of the 'sick role' dictated by the standard therapeutic encounter and the culture of mental health institutions. In the space-time of the BRIGHT sessions, and in the pathways forged over time between the sessions, DeNora suggests, individuals' capacity to navigate but also to enhance and extend the socio-musical topology that they inhabit furnishes them with wider resources that can also be mobilised for health. The music therapy sessions offer a site in which clients garner musical and cultural resources, and are thereby enabled cumulatively to negotiate the passage from 'illness-identities' and social isolation to 'health identities' and social connection. Through the example of BRIGHT, DeNora shows how the space of musical performance can also be a space of psycho-social healing. Music, she contends, can be a powerful medium for psychological and social change.

If DeNora offers a revelation of music's potential to (re)construct subjectivity, the next chapter charts the obverse; indeed, the contrast between the two chapters issues a 'shock effect' to readers and a radical conceptual challenge. On the basis of dialogues with four individuals who experienced imprisonment by American authorities in recent years as a consequence of the 'global war on terror', Suzanne Cusick analyses their subjection by loud (Western) music and other highly disturbing manipulations of the sonic environment: a practice of 'harsh interrogation'. Through the experiences of the four men, Cusick draws a harrowing portrait of the variety of ways in which loud music and noise, as well as ubiquitous acoustical surveillance, were employed to effect nothing less than the destruction of the

prisoners' subjectivities. She draws on recent scholarship on Anglophone security forces which unearthed evidence that these practices form part of a larger pattern of interrogation techniques focused on sensory manipulation. Cusick's analysis of the nature of the interrogation and imprisonment techniques centres on two arguments. The first is that such extreme manipulations of the acoustic environment achieve their intended results through the disruption of 'ordinary relationality'. Cusick places this relationality at the core of an account of human subjectivity in which, through the reciprocities and dialogics of language and other human sonic and musical interactions, we 'turn space into place, and place into intelligible, navigable worlds' (3). She connects this perspective in part to the Lacanian idea of subjects' interpellation through language into the symbolic order, and thence into social relations. But she links it also to fundamental tenets of liberal humanism: the ability to engage in sounding human relations and sounding reciprocity with others, she argues, 'is the premise for liberal claims both to the privacy of our individual thoughts (our right to remain silent) and to the universal right to share those thoughts freely in a public sphere' (3).

A second argument running through Cusick's chapter is that the particular destructive power of the 'music programme' in interrogation stems from a physical property of the connection between sound/music and the body: that acoustical vibrations in the sonic environment always produce 'the somatic effect of sympathetic vibration' (2). In this light, the prisoners subjected to 'acoustic harassment' could not prevent their very bones from vibrating to the sounds; as Cusick puts it, they involuntarily 'become, themselves, the characteristic sounds of their captors' (2). This amounts to an ultimate violation since it denies the first relationality she has identified, itself dependent on the maintenance of difference, separation or spacing. Instead, subjectivity is effaced along with the victim's sense of the proper boundaries between corporeal and psychic interiority and exteriority; bombardment by loud music 'blasts away all sense of privacy, leaving in its place a feeling of paradoxically unprivate isolation' (2). In this way music 'becomes not a metaphor for power, but power itself' (12). Cusick holds this analysis up against Jean-Luc Nancy's post-liberal philosophy of human sociality, of 'being singular plural', which envisages 'an environment dense with… the "re-soundings" *by* all the vibrating entities in a space *of* all the vibrating entities in that space' (4). Given evidence of the significance attributed by US authorities to acoustical interrogation in the 'war on terror', Cusick argues that the acoustemology of detention points to the 'dystopian political possibilities' immanent in Nancy's 'vibration-centred' metaphysics. Acoustical interrogation produces 'prison populations… who do not hear, vocalize, and co-create with each other an acoustical environment characterized by relationships of reciprocity between self and other, individual and collective, private and public'. Rather, an extreme, sonically-enforced isolation denies prisoners both 'the privacy-based right to silence and the public right to free speech' (12-13).

The final chapter, by Richard Middleton, might be understood as forging a philosophical path between the contributions by DeNora and Cusick. It also returns to the territory set out by Clarke – constructing an arc across the volume, while confounding any symmetry. Like Clarke, Middleton addresses the psychic affordances of popular music recording; but rather than in recording's virtual spatialities and perceptual dimensions, he locates them in the phonographic medium and expands his analysis to the psycho-social body. In a bravura exposition, he moves between an analysis at the outset of Rufus Wainwright's 2007 cover of Judy Garland's 1961 Carnegie Hall performance of the Gershwins' ballad 'How long has this been going on?', and, at the end, a reflection on the African-American comedian, composer and singer Bert Williams's 1906 recording of the ballad-blues song 'Nobody', which Williams performed in blackface. Cutting a swath through an old debate, that of the authenticity, fidelity or truth status of phonography, Middleton interweaves two core ideas.

The first is that 'the antimony between the longing for "authenticity" and its Derridean deferral structures modern thought as a whole' (4), and he takes phonography and the repeated deferrals enacted by the 'cover' to epitomise this antimony. The second idea stems from Richard Sennett's (2002 (1977)) account of the decay of the public sphere and the elevation of psychic existence on to the public stage. The result is 'the reduction of the key lineaments of the social body… to the dynamics of a purely private sphere, which at the same time are generalised as the only available building blocks of mass society' (2). In this condition, 'private desires and traumas [are] performed out in public', while psychological qualities of personality, charisma and star quality are magnified, projected as a 'gigantic image of universal emotion' (2), filling the public sphere.

Noting that Sennett says little about phonography's place in this history, Middleton affirms Barbara Engh's (1999) thesis that phonography, in its splitting of the human voice from embodied consciousness, which 'formerly had been thought to be so coterminous as to virtually define each other', amounts to 'an anthropological revolution in human history' (3). It is the phonographic medium that favours the projection into the public sphere of the most intimate qualities of human life and love. Thus, of Wainwright's performance: 'Here is someone, shaken to the marrow by the most personal, intimate emotion, choosing to shout about it in public' (1). And yet deferral and loss are always present: 'the moment of origin is definitively lost – indeed, in the modern [recording] studio regime, it may never have existed…; despite the signs of live performance embedded within Wainwright's CD, these are symptoms of disavowal: we aren't there, we never were, and we don't even hear Wainwright; we hear the ghostly simulacrum offered by a machine… as recorded voice refuses the boundaries of any given body' (2-3). Given the potential for deconstruction immanent in the intimate vocalisations transposed by popular music recordings into the public sphere, the fidelity or truth promised by phonography is, for Middleton, indeterminate, 'a utopian "as if"'. Phonography proffers an 'ethical undecideability' (4) such that 'the question becomes: who speaks, to whom, from what bodily location, and with what authority?' (7). From a reading of 'Nobody' as part-blues - where blues offers a 'dystopian treatment of love which, however, always stands metonymically for… the trope of fraternity' (11) - Middleton concludes with an affirmative reading of Nancy. Such recordings, he argues, have the potential to invoke a 'community of those without a community' (Bataille), one that is akin to Nancy's 'being-with', in which singularity and plurality always imply each other (13).

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The contributions to this book, as the final section makes dramatically clear, cannot resolve longstanding and often polarised debates over the creative or destructive social and political entailments of the evolving transformations of musical and sonic experience. Rather, they insist on complexity by putting in dialogue new analytical perspectives on the relations between music and sound, space and time, subjectivity and sociality, opening up the terms of debate and unsettling any complacent closure. If this dynamic six-term constellation, introduced earlier, might be thought to be at risk of reifying its component dualisms, it is the mutual mediation between the six terms that is constantly at stake and interrogated in the chapters that follow. With the addition of technological mediation, it has been necessary to coin an ungainly epithet – musico- or sonic-social-technological assemblages - to indicate the multiple, non-linear vectors of mediation at work in the material presented. The chapters provide evidence as to the astonishing array of transformations of public and private experience, as well as the sonic and musical agencies animating them and the heterogeneous forms of sociality and subjectivity enlivened by them. Moreover, the volume expands the critical framework in which these changes are understood, as well as the analysis of their

social, cultural and historical conditions. If this framework and the ideas and material reported in this book can be more than an exercise in analytical encompassment by sparking recognition among practitioners of the arts of music and sound - perhaps prompting new experiments with the terms it sets in motion, stimulating inventive directions - then it will have contributed to another welcome and ongoing development: destabilising the separation of academic research from creative practice in the rich and fertile borderlands between music, sound, space and the social.

[NB: The references are at the end of the whole volume and cannot be accessed here.]