Between Body and Sound: listening to the digitized body

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A growing number of musical works sample the sounds of the human body. From early works such as the Pierre Schaeffer and Pierre Henry collaboration *Symphonie pour un Homme Seul* (1950), which used the cut and splice of tape, to *A Chance to Cut is a Chance to Cure* (2001) by Matmos, which uses digital technology to sample the sounds of cosmetic surgery and juxtapose them with the sounds of surgical instruments and 'conventional' musical instruments. Such works frequently fall across the boundaries of electroacoustic and popular music, live performance, and installation art.

To date much theoretical writing on music involving a juxtaposition of music, body and technology has located it as an attempt to re-embody a disembodied medium (see, for example, Garcia 2000 and Weiss 2002), or to claim it as an example of the musical cyborg (for example Bosma 2003, Iddon 2006, McCartney 2000). Drawing on recent work in music psychology (particularly Cox 2001) and new media theory (Hansen 2004, Wegenstein 2006) I will discuss how these positions may be extended to encompass a more active role for the listening body.

In this paper I explore how this might be achieved by looking at a short extract from the Matmos album *A Chance to Cut is a Chance to Cure* (2001). The experimental electronic duo, known for their idiosyncratic use of samples, has been described as 'digital-age surrealists' (Alternative Press, quoted www.matadorrecords.com/matmos/biography.html, accessed 25th August 2010). I focus on (approximately) the first sixty seconds of track one, 'lipostudio (and so on ...)'. The track features the sampled sounds of liposuction and water being sucked through a straw along with more conventional musical instruments (including electric guitar, bowed acoustic guitar, clarinet and drums). From the graphic images of disembodied organs on the CD cover and the extensive listing of the origins of the sounds in the liner notes, it would seem that Matmos wishes to communicate the bodily origins of these sounds – perhaps as a commentary on the debates of disembodiment that surround electronic sound – rather than as sound qualities alone as in musique concrete[1]. Théberge considers this ironic use of collage of sound samples to be characteristic of much pop music (Théberge, 1997: 204).

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[1] At least for the opening seconds of the track. As I listen further it becomes obvious that the surgery sounds have been 'musicalised' and arranged so that they imitate, or occupy the positions of, a drum track. Nevertheless, despite this, it seems likely that the listener is meant to know where the sounds originated.

I would like to consider first an embodied approach to understanding this music, and offer some tentative suggestions as to how some, predominantly approaches from new media theory may be applied to sound. In *New Philosophy For New Media*, Mark Hansen argues for a new conceptualisation of quite what constitutes the digital image itself, and how it is perceived. This is based on an understanding of digital information being fragmented, and theoretically accessible through a range of interfaces or media (Hansen, 2004: 9). Hansen argues that, due to this fragmentation, the body plays a vital role in selecting what is to become the image. He widens his concept of the digital image to include not just the material 'facts', but also this process of selection: 'the image can no longer be restricted to the level of surface appearance, but must be extended to encompass the entire process by which information is made perceivable through embodied experience' (Hansen, 2004: 10). For Hansen the experience of the image is caused because the framing function of the body 'gives rise to an affective "supplement" to the act of perceiving the image, that is, a properly haptic domain of sensation and, specifically, the sensory experience of the "warped space" of the body itself' (Hansen, 2004: 12). Thus the experiencing of the image becomes an embodied process.

While for Hansen the image may have 'got rid of its frame' and been instead 'redirected onto the body itself' (Wegenstein, 2006: 158), can the same be said of digital sound? In contrast to Hansen, Aden Evens considers digital data not as formless, but as nothing but form. During the digital representation of an actual object a range of conditions become discrete quantities, as a result of a process of measuring certain parameters at a predetermined level of precision (e.g. digital sound recording measures, or samples, the frequency or amplitude of a sound at set intervals). This creates a situation in which the object mediated by digital technology is reduced to pure form, a series of numbers determined by a measuring process: 'Content drops out of the picture: image, music, text, nothing but ordered bits. The digital represents everything according to this same order.' (Evens, 2005: 66). Digital data is oblivious to content at the level of its manipulation and storage. Evens considers the digital hermetic, unable to refer or 'point to', only capable of representing. It cannot reach outside of itself: 'The digital makes contact with the actual only by accident or convention and only through the mediation of the nondigital' (Evens, 2005: 76). While Evens's and Hansen's theories at first seem to clash, it can be seen that they intersect in a way that is useful for understanding the role of embodied experience of digital sound. While Evens explores possible ways that musical interfaces can offer this requisite mediation, I argue that the body itself (as described by Hansen and Wegenstein) would fit the bill. Indeed, Evens already points to the role of the body in framing aspects of musical sound: hearing contracts changes in sound to create constancy, while different autonomic systems are used to decode the different temporalities at work in music (Evens, 2005: 36).

Greg Corness has offered an embodied model of perception of digital music and instruments, using theories of embodiment from both phenomenology and cognitive science. He also draws on work from psychology, particularly research relating to mirror neurons, to explain how intention is perceived through listening. He writes: 'There is every indication that the embodied understanding that is apparent in a visual context is also apparent with a purely sonic experience such as listening to music. This is not to suggest that an audio recording is equivalent to a performance; rather, the theory suggests that there is more perceptual knowledge and embodied engagement in an auditory experience

than has previously been suggested.' (Corness, 2008: 23).

This idea has also been explored by Arnie Cox, who argues that listeners participate 'mimetically' with the music they are hearing. Broadly put, Cox's hypothesis falls in two parts: firstly that we 'understand human movement and human-made sounds in terms of our own experience of making the same or similar movements and sounds' and 'this process of comparison involves overt and covert imitation of the source and visual and auditory information.' However, Cox considers that this mimetic participation can move beyond simple imitation. He writes: 'music also seems to involve metaphoric gestures that are of a more abstract kind than the specific gestures of performers. I believe that the concept of melodic gestures reflects a non-specific exertion that is felt as a result of mimetic participation: it is not a vocal "gesture", and it is not a gesture of the limbs, but a more basic feeling of exertion that does not belong to a single mode of physical experience.' (Cox, 2001: 204).

Cox's hypothesis also offers clues about the operation of musical affect, pointing out that in order to theorise musical affect we need to know how musical sounds bring about this (affective) response (Cox, 2001: 204). He argues that this can be explained by the mimetic hypothesis insofar as emotional states are often connected to muscular states, muscular states being influenced by mimetic participation with the perceived sound: 'The hypothesis suggests that muscular-emotional response to music is not something that occurs occasionally, in certain kinds of music, but that it is instead integral to how we normally perceive and understand music, because we normally imagine (most often unconsciously) what it is like to make the sounds we are hearing.' (Cox, 2001: 205).

Anecdotal evidence from the language used by musicians working with digital sound would also seem to suggest that the body continues to act as a frame within the 'digital regime'. Théberge writes of a: 'vast array of paired terms, such as fat/thin, warm/cold, wet/dry, clean/dirty, organic/processed, that are used to describe fundamental aesthetic values through which sounds in a given context are assessed and, ultimately, judged to be acceptable or not. Significantly, the majority of these metaphors are physical in character, linking the experience of musical sound directly to bodily sensations.' (Théberge, 1997: 207). It is perhaps significant that following the introduction of the CD in the 1980s the bodily feeling metaphor of warm/cold was often used to describe digital sound (Théberge, 1997: 208).

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But how does this work in practice? Here I would like to examine in more detail how this bodily affect may be brought about, by looking at one aspect of Hansen's theory and how it might be applied to a musical work.

In *New Philosophy for New Media*, Hansen deals with a different aspect of the shift from perception to affectivity through each of the seven chapters. Here I focus on the part of the theory laid out and illustrated in chapter six, in which Hansen discusses how the 'affective experience facilitates a corporeal registering of a deformed spatial regime that comprises something like a human equivalent of the alien "space" of the digital.' (Hansen, 2004: 15).

The section is illustrated through a discussion of the experience of viewing Robert Lazzarini's sculpture/installation, *skulls* (2000), which were formed from the three-dimensional imaging of real human skulls that were digitally manipulated before being recast, Hansen describes how, whichever way the viewer approaches the skulls they seem 'warped in a way that doesn't quite feel right, that just doesn't mesh with [the viewer's] ingrained perspectival self.' (Hansen, 2004: 197-8). The viewing body must contort in order to try to align itself with the points of view of the skulls. Hansen writes: 'Lazzarini's work functions by catalyzing a perspectival crisis, confronting us as it does with "the disorienting ambiguities of digital space" – with what would seem to be *indices* from a world wholly alien to our habitual perceptual expectations and capacities.' (Hansen, 2004: 200) Ultimately, the viewer is not able to resolve this and 'Our experience of these *warped indices* does not end, however, with the frustration of our visual mastery over them, but gradually and seamlessly shades over into the domain of affective bodily response.' (Hansen, 2004: 202).

Like Lazzarini's skulls, the material on *A Chance to Cut is a Chance to Cure* digitally realigns the 'real', in this case the sounds of the body, and sounds made via the actions of the bodies using musical instruments. Ironically the use of digital editing technology highlights how, despite its extensive drawing on sounds of the body, much of what we hear in these tracks is no longer tied to the physical capabilities of the human body. There is a disjunction between what the computer can do, and what the human can do and therefore perceive, which leads to the affective bodily response.

The track offers a mixture of the musically familiar and unfamiliar. It opens with a strong sense of rhythm, in which the squelching sounds of surgery are juxtaposed with an almost machine-like regularity against the sounds of the conventional instruments. It's all too easy to imagine the (embarrassing!) occasions when my own body has made similar sounds. Without thinking, I seem to identify the sound with the small, private, barely audible sound that is sometime made when rubbing my eye(lid). It's a sound I could easily imagine making with my mouth. I'm drawn into mimetic participation with the sounds I hear. At the same time another (pre-cognitive?) response to the music occurs: I feel that this is dance music and want to move, and on one or two occasions of listening to the piece have tapped my feet to its rhythm. Characteristic of many recordings made and reproduced using digital technologies (Ihde, 2007: 259), the sounds are almost clinically 'clean', stripped of any background noise, yet they are composed from both 'incidental' noise of the body as well as intentional instrumental sound.

Bernadette Wegenstein has expanded on Hansen's work in her study of the body in performance art and new media. A recurring theme in her theory is the blurring of interiority and exteriority, or the exterior as the 'transmutability of interior.' (Wegenstein 2006: 103). She discusses in detail Aziz + Cucher's *Interiors* (1999 – 2002), in which the artists use digital technologies to 'reconstruct the texture and general appearance of the skin,' using it as a 'wallpaper' to cover an internal, architectural and highly geometric surface (Wegenstein 2006: 105). For Wegenstein this fusing of interior and exterior has close links with a second dichotomy, that of natural/artificial.

In both cases it is the use of digital technologies for reconstruction that is significant. Yet the artists' choice of the body as material is also crucial. The interior/exterior divide is further

blurred by the choice of a seemingly external material – the skin – causing the exteriority to merge into interiority (Wegenstein 2006: 107).

In *A Chance to Cut …* Matmos also work with ideas of interiority and exteriority. The sampling of the sounds of surgery uses sound to bring the action of the interior of the body to the outside. The external anchor of these sounds – the action of the body, or the action of the surgeon on the body – is missing, subsumed only into the movement of the music. To an extent Matmos reverses the process at work in *Interiors*, by taking the interior of the body and revealing it as external by using it as a sound source.

Following on from Hansen's argument Wegenstein emphasizes the role of interior/exterior within the digital realm. The interiority/exteriority merge is not only brought about by digital technologies, it is a quality of them:

> The body in other words, adopts the function of the mirror: since there is no exterior to the digital environment – because it is always an "inside" within a set frame – it is only through the body that the digital image can function and fully adopt its purpose of affection. (Wegenstein 2006: 107).

The breaking down of interiority and exteriority also causes the body to reach outside of itself, leading to a return to questions of posthumanism and the cyborg through 'the possibilities of the fusion of human and artificial flesh.' (Wegenstein 2006: 108) In Hansen's terms the digital artworks act as 'triggers for affect' by offering 'a suture between disjunctive formal dimensions' (Hansen, 2004: 202), a meeting point between the perceptual ratios/capacities of the human body and the space of computer-processed form. The impossibility of following into these perceptual spaces at a molecular, physical and real-time level causes us to experience them 'via an affective "analogy" produced by our bodily response to it and whose "content" is a warped space felt within the body.' (Hansen, 2004: 202-3).

The perspective offered to us by the digitally manipulated combination of instrumental and bodily sound work similarly. The track simultaneously 'places' us in different spatial relationships between composed bodies as well as an actual physical listening location. The internal bodily sounds are externalized – heard and felt mimetically rather than heard and felt due to originating in the body – but turn back towards feeling and affectivity. Corness has critiqued the idea advanced by Truax that musical experience without visual presence leads to the experience taking place in more than one sonic environment concurrently; one in the 'natural' world and one in 'the media world' with the two 'superimposed in what could be referred to as a "schizophonic split".' (Corness, 2008: 22). The listener occupies both the world created by the (audio) media, and remains physically and to some extent, sensually, located within the 'natural' world through the effects of certain stimuli (Corness, 2008: 22). Corness argues that this situation considered through the lens of embodiment allows us to 'maintain that we are still, through perception and self-awareness, part of a single sonic environment.' (Corness, 2008: 22). So the 'perceived sonic environment, constructed by the pre-cognitive interpretation of our senses, is, however, complex, including sounds and sensations from both the mediated environment and the acoustic environment.' (Corness, 2008: 22).

As I listen to the Matmos extract I hear the bodily sound (the sonic, media world) while experiencing bodily sensations in response to this (the 'natural' world, centred on my own bodily sensations). The extract and my response to it form a sonic environment that warps internal bodily space and affect with the external, the hearing of both another body and musical materials. However, just as the viewer in the *skulls* exhibit is not able to resolve their view, *A Chance to Cut* ... offers a similar experience, projecting a space that is 'non-human and necessarily uninhabitable' (Hansen, 2004: 215) and affection is introduced to it from outside, via the body. In stark contrast to the myth of disembodied presence that has surrounded the increased fidelity of digital recordings (Théberge, 1997: 214), works such as *A Chance to Cut is a Chance to Cure* reveal the impossibility of this Lacking the presence of the thing producing the sound, or a 'materially mimetic' replica (Lenoir), the listening body is called upon to fill the gap.

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Further work in this area should no doubt offer a more in-depth consideration of the applicability of Hansen's arguments to hearing, rather than vision. Taking for granted the theories that digital information makes distinctions between media (as interface) obsolete, then this would appear to be true. However, I would want to investigate further whether the theory holds for 'the more embodied registers': if the process Hansen describes as taking place through the embodied reception of a digital image is the same as that that takes place when hearing digital sound. Superficially, at least, it is not: the body is involved in a materially different manner.

While a focus on affectivity returns a power to the body that it has perhaps lost under the surgeon's knife and in much of the poststructuralist discourse surrounding cosmetic surgery, Hansen's theories have been criticized for their lack of attention to the social (Dyson, 2009: 128) and to the practices that inscribe the body. However, despite these limitations, using these aspects of new media theory to approach digitally-mediated composition can open up a more nuanced view of the idea of disembodiment in electronic music and provide a way into theorizing the listening experience.

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