Headphone hits and corrupting bits: two conceptual approaches to reanimating records

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> "I've always had this theory that recorded sound is dead sound, in the sense that it's not 'live' anymore. [...] The music is embalmed. I'm trying to bring it back to life through my art." *Christian Marclay*[1]

Fixity can be seen as one of the most striking traits of record media, one which has had a profound influence on the way we create, disseminate and experience music. Through the recording process, music gains the ability to be captured and stored, and then replayed by any person at any time; simultaneously its ability to represent a wider range of potential realisations is sacrificed, as the process also freezes the music into a single rendition.

The record needn't be the end however. Through creative appropriation and recontextualisation, a record, whether existing as a physical token or virtual entity, may be brought back to life through processes of 'reanimation' that operate upon its finished form. These processes may lead to a further re-freezing or be experienced as a live performative act, and have been explored through a number of existing artistic practices spanning conceptual art to pop music.

This paper considers the first of three creative strategies around which my PhD studies are based.[2] In the paper, I will consider the definition of the term 'reanimation' and discuss some pertinent examples of those practices alluded to above, before presenting two specific approaches to reanimation taken to create three works: those of the first approach, *One man band x n* and *Human jukebox x n*, place the record back into the heart of music performance, wiring headphone-toting performers to MP3 players and jukeboxes respectively, allowing those performers to run riot publicly in private auditory worlds; the second approach seeks

1 Marclay, Christian, quoted in Cox, Christoph, and Warner, Daniel (eds.), *Audio Culture: Readings in Modern Music* (New York and London, 2006) 327.

2 This PhD research, which regards the freeing of the record from fixity, is being undertaken at the University of Huddersfield, and is due for completion in late 2011.

to bring a life to the mass-cloned formats of digital audio through the music player *dieTunes*, which destructively alters the bits of any audio file it plays. The significance of what these media bring to the works will be integrated into the ensuing discussion.

The 'reanimation' of the record

Christian Marclay's theory, summarised above, sees the sound contained on a record effectively as dead matter, with the traditional reproduction of such matter – for example, playing an LP record, cassette, CD or MP3 to listen to the contained songs – being unable to overcome this stasis. To transcend this condition, Marclay has built up an artistic practice in which he invokes particular re-presentation processes upon records, thereby breathing new life into their sounds.[3] These processes make up a usage category beyond pure *reproduction*: they instead constitute *reanimation*, and are used widely in sonic creative practices.

Popular music styles, particularly from the last thirty years, are laden with such reanimative processes; the bases of dub, hip-hop and mash-up are predicated almost entirely on the use of the commercial record as material through techniques of sampling, deejaying, turntablism and the remix. Taken to the extreme are the 'plunderphonic' works of John Oswald, constructed entirely of material appropriated from records[4] – whilst ontologically creating a brand new work, a plunderphonic work explicitly references its original material thereby setting up a multifaceted self-reflexivity, starting and ending with the record.[5]

Plunderphonic practices have been traced back to James Tenney's 1961 piece *Collage #1 ("Blue Suede")*,[6] with other reanimative practices going back even further. John Cage featured commercial record playback in his works,[7] and Milan Knizak's *Destroyed Music* turned towards the physicality of the disc LP itself, producing composite discs from fragments of others.[8] More recently, Marclay put a cultural twist on Knizak's ideas with his own *Recycled Records*.[9]

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3 For an excellent overview on Marclay's artistic practice see González, Jennifer S., Gordon, Kim, and Higgs, Matthew, *Christian Marclay* (London and New York, 2005).

4 For more on John Oswald and plunderphonics see Oswald, John, *Plunderphonics 69/96* (n.p., n.d.).

5 Cutler, Chris, 'Plunderphonics', in Emmerson, Simon (ed.), *Music, Electronic Media and Culture* (Aldershot and Burlington, 2000) 90.

6 Cutler, 'Plunderphonics', 96.

7 Cage's include *Credo in us* (1942) and *Imaginary Landscape no. 5* (1952).

8 Stuart, Caleb, 'Damaged Sound: Glitching and Skipping Compact Discs in the Audio of Yasunao Tone, Nicolas Collins and Oval', *Leonardo Music Journal*, Vol. 13, Groove, Pit and Wave: Recording, Transmission and Music (2003) 47.

These are some of the more explicit record reanimation practices. What I present below can be seen to contribute to this already vibrant culture, with a particular focus on the role of a record's technological mediator – the hardware that allows us access to the record.

Reanimation through (re)performance

The first approach considers the use of headphones as a barrier between performer and audience, using as focus the now ubiquitous MP3 player and the traditional concept of the jukebox, through the pieces *One man band x n* and *Human jukebox x n* respectively. This approach sees a 'band' of performers driven by commercial records through headphones, thus turning the performer/record process back on itself.

Headphone connection, social disconnection

Both pieces under discussion utilise the same basic technological implementation, based around a single performer unit, constituted of a performer (with instrument), a record source, headphones and an amplifier. These are configured so that the performer can hear both the record source and themselves in their own headphones, but with the audience only hearing the performer's instrumental output (see fig 1.1). This unit is then multiplied by the number of performers involved in a given performance, that number replacing the *n* in the piece title.[10]

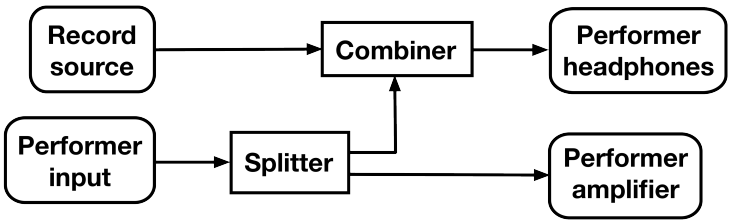

Figure 1.1: Graphical representation of the performer unit

While such a configuration of a performance group allows for some fascinating possibilities for the co-ordination of performers, the works presented here utilise no global interrelation between the record sources, the performers effectively being isolated from one another.

9 González, Gordon, and Higgs, *Christian Marclay*, 34–35.

10 So, for example, with a four-piece band *One man band x n* would become *One man band x 4*.

That headphones feature as the primary driver of the performer is of fundamental importance here, bringing into play strategies, explicit or implicit, employed by headphone-wearers in wider society. Several socio-cultural studies have focussed upon these strategies, and their effects, tracing them from the rise of Sony's Walkman in the 1980s, continuing with Apple's ubiquitous iPod.[11]

The most obvious effect of headphone listening discussed in this literature regards the instantiation of a space within a space, made more prominent when the activity takes place in public. Using headphones, the listener creates a bubble in which they can regain a certain amount of control over their surroundings through an attempt to "domesticat[e] the external world";[12] in the process their immediate space is made private. This automatically sets up a distance between the headphone listener and everybody else, the headphones themselves becoming a badge of the secret world that the wearer has under their control but no-one else may be part of.[13] Whilst in this space a headphone listener might use the music at their disposal to create a personal soundtrack to accompany their travels or "'aestheticise' their urban experience".[14] Just these few effects give a good basis to understand the implications of using headphones as an explicit element of a creative work.

Headphones in live performance

The function of headphones in modern studio and pop performance practices needs no introduction; of more relevance here are experimental works exploring headphone use in performative contexts: Alvin Lucier's *Carbon Copies*,[15] John Lely's *Second Symphony*[16] and

11 See du Gay, Paul et al., *Doing Cultural Studies: The Story of the Sony Walkman* (London, Thousand Oaks and New Delhi, 1997); Hosogawa, Shuhei, 'The Walkman Effect', *Popular Music*, Vol. 4, Performers and Audiences (1984) 165–180; Chambers, Iain, 'The Aural Walk', in Cox, Christoph, and Warner, Daniel (eds.), *Audio Culture: Readings in Modern Music* (New York and London, 2006); and Bull, Michael, *Sound Moves: iPod culture and urban experience* (Abingdon and New York, 2007; repr. 2009). A number of these studies underplay the role of headphones in these strategies, misleadingly attributing more emphasis on the qualities of the media player.

12 Chambers, 'The Aural Walk', 100.

13 Hosogawa, 'The Walkman Effect', 177–178.

14 Bull, Michael, 'Investigating the Culture of Mobile Listening: From Walkman to iPod',in O'Hara, Kenton, and Brown, Barry, *Consuming Music Together: Social and Collaborative Aspects of Music Consumption Technologies* (Dordrecht, 2006) 134.

15 Lucier, Alvin, *Carbon Copies* (Kiel, n.d.).

16 Score obtained directly from the composer.

Joshua Fried's 'Headphone-driven performance' pieces[17] all feature live performance headphone transmission of sonic materials: Lucier's score guides the performers to record their own sounds, whilst Lely and Fried provide original sound material.

A piece that both utilises headphone transmission and appropriates from records is Gavin Bryars' *1, 2, 1-2-3-4*.[18] It features multiple separated performer units driven by tape media, with the parts created before the performance from performer-chosen tunes following a (rather cryptic) set of rules, with the tunes sequenced in decelerating order before ending with a held organ chord. The intention here is a "1 to 1 relationship between what [the performer] hears himself play and what he hears pre-recorded".[19]

Bryars' piece covers similar ground to those that I will be detailing in this section, though there is a fundamental distinction between our approaches: in *1, 2, 1-2-3-4*, the focus is placed on the relationship between the performer and the record; my pieces regard the interplay between people and the chosen record source, which is foregrounded through overt and direct reference in order to highlight the source's socially significant attributes.[20]

Doing the MP3 shuffle: *One man band x n*

Taking a simple structural approach to the performer unit group is *One man band x n*, which uses portable MP3 players as the record source. Each performer is asked to compile a personal playlist of favourite songs to perform along with, which should be sourced from officially released records and suitable for their instrument. Based on a monolithic structure a performance is timed using a shared countdown clock, set to run for five minutes, with the performers playing their compiled lists in shuffle mode, starting their MP3 players together and all stopping dead when the clock hits zero.

The ability of MP3 players to present any specified set of songs in a random order is the key component in *One man band x n*, this functionality illustrating how recent technological advances have impacted how people interact with media, as Steven Levy elaborates:

17 Fried, Joshua, *Headphone-driven performance* [online](n.d.) http://www.echonyc.com/~joshua/pages/headphones.html [accessed 28 February 2011 - dead link as of 7 May 2011].

18 n.a., *Verbal Anthology* (London, 1972; re-issued London, 2000) 20–21.

19 n.a., *Verbal Anthology*, 20.

20 It should be noted that as *1, 2, 1-2-3-4* was written in 1971, a decade before the rise of the Sony Walkman, the social implications of public headphone use would not have been known at the time.

> […] shuffle turns out to be the *techna franca* of the digital era — not just a feature on a gadget but an entire way of viewing the world, representing the power that comes from aggregating content from a variety of sources and playing it back in an order that renders irrelevant the intended ordering by those who produced or first distributed the content.[21]

Other instructions to the performers include that they should use the performative act to make the songs they play their own, through musical deviation or embellishment and their gestural attitude on stage: this compliments the personalised song choices, whilst at the same time replacing the visual aspect lost in the recording process; also performers should use discrete amplifiers to reinforce their separation from each other as well as wider society.

Experiencing *One man band x n* is a strange affair for both performer and audience: the former is seemingly cast as listener, the latter as those outside the bubble who are forced to endure a maelstrom of others' musical tastes, passengers on a train exposed to the tinny audio shriekings of some adolescent's MP3 player. This, at least, shows that the space-in-a-space effect of headphone listening can be effectively instantiated within a performative context. But what about the aspects of control available to the headphone listener? Can these somehow be brought into play to give the audience more power over their artistic experience?

The social musician machine: *Human jukebox x n*

My answer comes through *Human jukebox x n*, a reconfiguration of the record source and presentation elements of *One man band x n*, made in order to open up the sound world to the whims of the audience. Somewhat ironically this is achieved by replacing as record source the contemporary MP3 player with the venerable jukebox. This choice is connected to the jukebox's previous role as a major disseminator of records in the post-prohibition taverns and war-time youth clubs of North America, before being supplanted by home listening in the 1960s.[22]

A custom-designed software jukebox has been created to use as record source in *Human jukebox x n*, built using HTML5 and Javascript for running via a web browser. Common with its societal brethren, this jukebox displays for the audience a list of available songs from

21 Levy, Steven, *The Perfect Thing: How the iPod became the defining object of the 21st century* (n.p., 2006) 194 (emphasis in original).

22 The rise and fall of the jukebox in American culture is covered in Segrave, Kerry, *Jukeboxes: an American social history* (Jefferson, 2002).

which they can program their own queue, which plays back in selection order until the queue is empty. The user interface also displays the song currently playing and those in the queue (see fig. 1.2).

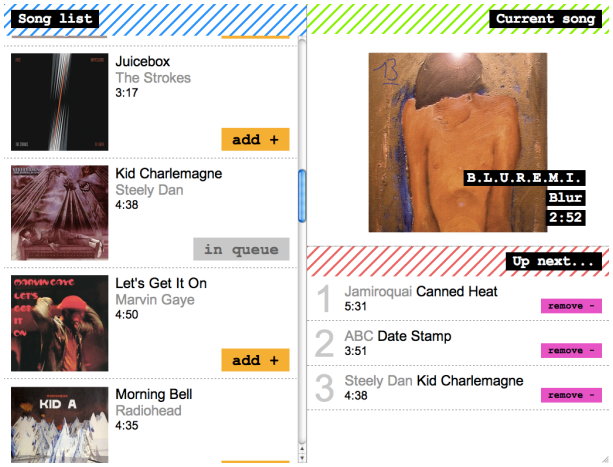

Figure 1.2: Jukebox user interface

Several additional functions have been designed into the jukebox for presentational purposes, which can be configured before the song loading stage. The overall structure of *Human jukebox x n* as a work is governed through a time-based system which deactivates the user interface outside a chosen time range, meaning the piece effectively runs whilst the jukebox is active. Further automatic functionality is built in: during activation 'break mode' periodically pauses the jukebox queue for five minutes to allow the performer to rest, and 'random play mode' selects a lesser-played song from the list if none have been selected for a given period of time. Away from the jukebox, the performers are spread around the space, putting further emphasis on their separation.

The premiere of *Human jukebox x n* was held in the University of Huddersfield's Phipps Hall, running for 90 minutes with a four-piece pop band configuration (vocals, electric guitar, bass guitar and keyboards). The performers were kept engaged with playing for nearly the whole duration, taking into account automatic breaks, and found that the audience tended to keep to the most well-known tunes. The comments from the audience after the performance highlighted how *Human jukebox x n* struck different chords with different people, a fact likely due in part to the piece's unorthodox presentation of familiar media.

Indeed, it has become apparent to me since the premiere that an emblematic characteristic of headphone listening, the sense of the listener being projected within the sound, is instantiated on another level in *Human jukebox x n*: when within the circle of the performers an audience member is projected within the sound, thus nicely re-presenting this headphone listening concept.

The record's influence over the performer

Since the record's inception its influence in the realm of music has been marked.[23] One specific influence relates to the normalisation of aspects of musical performance and listening, particularly in pop and rock music, where the record leads as the object of critical attention. Taken to an extreme, this influence has seen bands attempt to slavishly recreate their records in live performance, Def Leppard noted as one example.[24] The reanimative processes employed for *One man band x n* and *Human jukebox x n* offer an alternative to this, making use of the human agency of performance to turn the record/performer relationship back on itself and thereby extend records past their fixity.

This approach, however, incurs the same restrictions of dissemination that apply to every other musical performance, with the added disadvantage of not being especially approachable as music. Thus, for my second approach to record reanimation I stayed within the realm of records, and considered the interface between contemporary digital records and the listener: the media player.

Reanimation through corruption

The rise of the media player as method of domestic music reproduction is largely linked with the development of digital audio technologies that have allowed one's entire music library to be accessed centrally, organised flexibly and, now, extended seamlessly through methods of in-application music purchase. The digital audio file has been instrumental in this change in reproduction technology. Key advantages over the previous analogue formats see digital audio files maintain their quality through multiple generations of duplication and a near infinite number of playbacks; furthermore complete uniformity across the tokens of

23 Mark Katz provides a broad account of this influence in *Capturing Sound: How Technology Has Changed Music* (rev. ed.; Berkeley, Los Angeles and London, 2010).

24 Gracyk, Theodore, *Rhythm and Noise: An Aesthetics of Rock* (London, 1996) 90.

the commercial product is ensured, as the imperfections attributable to the physicality of a medium are side-stepped. Such abstraction allows focus to be placed on the influence of these imperfections on our experience of analogue media.

Decay through listening

There is an inbuilt irony in listening to records from analogue sources: the act of releasing the sonic content held on the medium is also the agent of that medium's decay. This decay is caused by the physical stress imparted on the medium during the playback process. Being digital and reading data optically allows the compact disc to alleviate this issue somewhat, though CDs are still vulnerable to handling damage, with much more spectacular consequences when things go wrong; the classic example of the CD skipping in a café illustrates this nicely.[25]

Being abstracted from any specific physical medium, digital audio files themselves are not directly impacted by these forms of damage, though they are not impervious: errors in data writing during copying and the instability of physical storage media can permanently distort any digital file; lossy compression algorithms, such as that of MP3, also introduce permanent distortion to digital audio – this is explored artistically by Jesse Gilbert in *Conformed_Bits*, where a feedback loop of sonic material is run through a lossy audio codec, accumulating the 'sound' of the codec in the process.[26]

What is important to emphasise here is that the act of playing a digital file does not permanently corrupt it. But what if such a process did, and what significance could be gleaned from such a process?

25 Sangild, Torben, 'Glitch – The Beauty of Malfunction', in Washburne, Christopher and Derno, Maiken (eds.), *Bad Music: The music we love to hate* (New York and Abingdon, 2004) 257.

26 Traub, Peter, 'Sounding the Net: Recent Sonic Works for the Internet and Computer Networks', *Contemporary Music Review*, 24/6 (December 2005) 474–477.

The destructive audio player: *dieTunes*

To investigate this, I created *dieTunes*, an audio player that subtly corrupts audio files as it plays them, doing so at byte-level and thereby irreparably committing the corruptions to the original file. This relinking of playback and usage degradation can be seen as the analogue of that which happens to the vinyl LP.

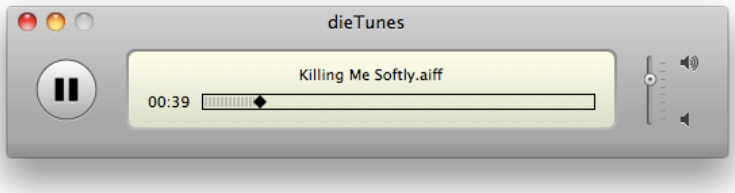

Figure 1.3: *dieTunes* user interface

Elements of *dieTunes* have been influenced by Apple's iTunes media player: the pun in the name is obvious, and originally there was the intention to mimic the iTunes user experience, offering both audio playback and music library functionality; for the first version however focus was placed on the playback corruption engine, with a simpler user interface based on the iTunes control bar (see fig. 1.3). As of the first release *dieTunes* can play the same file formats as iTunes: however corruption is only applied when playing uncompressed 16-bit PCM audio formats, such as AIFF and WAV, a restriction existing largely due to the extra complexity involved dealing with lossy format files at byte level.

The corruption process is relatively simple: during playback single audio samples are selected at random from a short block around the playhead; these samples undergo a corruption process and are then written back to the original location in the file at run time, meaning that only the sections of the file played are affected. Once a digital file has been through several playback/corruption cycles a crackle becomes perceivable when played back, which sounds uncannily like that of a worn vinyl.

Digital life, digital death

This parallel with the vinyl LP continues when delving into the theoretical aspects. One of the most compelling of these is the idea that through prolonged use, the variance inherent in the physical medium's material comes to separate individual instances from one another, each accumulating its own unique and personal set of flaws. Evan Eisenberg hinted at this idea whilst discussing the compact disc: "[f]or the most part, any copy of a given CD is

interchangeable with any other. Ideally, it is nothing more than the information it holds".[27] Christian Marclay took this to extremes with *Record without a cover*, an LP release containing explicit instructions to leave the disc out of its sleeve to be exposed to the elements. In doing so, the LP "would become uniquely marked by its own historical trajectory, the defacement produced by its immediate environment thus exploiting its failure to be a stable medium."[28]

Playback through *dieTunes* opens up digital audio files to the same ravages of imperfection and individuality that afflict the LP, albeit applied artificially: by sacrificing the possibility of a far longer useable existence, such audio in return gains a life, and in the process an inevitable death. However, making such simplistic comparisons between two distinct media are problematic, especially given the history of the LP, a medium now over 60 years old with many lives behind it already. It is fair to say that the corruption model of *dieTunes* is too rudimentary, too concerned with emulating the LP; conceptually, it does not extend what is fundamental about the digital, and has thus become an anachronism already.

The move from extrinsic to intrinsic processes

The works documented in this paper showcase two specific approaches to extending records past their inherent fixity: one feeds records back directly through performers, turning the usual record production chain back on itself; the other reminds us that while the musical data encoded on the record may be fixed, the medium still has agency to free the record from certain aspects of this fixity.

The extrinsic nature of these reanimative processes makes obvious a fracture between the works discussed and the records they operate on. Development past this approach, for me, involves making such processes intrinsic to the work, thus enabling it to reanimate itself upon playback. This idea is encapsulated within what I call the 'open outcome record', which will be the subject of my future research.

27 Eisenberg, Evan, *The Recording Angel: Music, Records, and Culture from Aristotle to Zappa*, 2nd edn. (New Haven and London, 2005) 212.

28 González, Gordon, and Higgs, *Christian Marclay*, 33.

Bibliography

Bull, Michael, 'Investigating the Culture of Mobile Listening: From Walkman to iPod', in O'Hara, Kenton, and Brown, Barry, *Consuming Music Together: Social and Collaborative Aspects of Music Consumption Technologies* (Dordrecht, 2006) 131–150.

Bull, Michael, *Sound Moves: iPod culture and urban experience* (Abingdon and New York, 2007; repr. 2009).

Chambers, Iain, 'The Aural Walk', in Cox, Christoph, and Warner, Daniel (eds.), *Audio Culture: Readings in Modern Music* (New York and London, 2006) 98–101.

Cox, Christoph, and Warner, Daniel (eds.), *Audio Culture: Readings in Modern Music* (New York and London, 2006).

Cutler, Chris, 'Plunderphonics', in Emmerson, Simon (ed.), *Music, Electronic Media and Culture* (Aldershot and Burlington, 2000) 87–114.

du Gay, Paul et al., *Doing Cultural Studies: The Story of the Sony Walkman* (London, Thousand Oaks and New Delhi, 1997).

Eisenberg, Evan, *The Recording Angel: Music, Records, and Culture from Aristotle to Zappa*, 2nd edn. (New Haven and London, 2005).

Fried, Joshua, *Headphone-driven performance* [online](n.d.) http://www.echonyc.com/~joshua/pages/headphones.html [accessed 28 February 2011 - dead link as of 7 May 2011].

González, Jennifer S., Gordon, Kim, and Higgs, Matthew, *Christian Marclay* (London and New York, 2005).

Gracyk, Theodore, *Rhythm and Noise: An Aesthetics of Rock* (London, 1996).

Hosogawa, Shuhei, 'The Walkman Effect', *Popular Music*, Vol. 4, Performers and Audiences (1984) 165–180.

Katz, Mark, *Capturing Sound: How Technology Has Changed Music* (rev. ed.; Berkeley, Los Angeles and London, 2010).

Levy, Steven, *The Perfect Thing: How the iPod became the defining object of the 21st century* (n.p., 2006).

Lucier, Alvin, *Carbon Copies* (Kiel, n.d.).

Oswald, John, *Plunderphonics 69/96* (n.p., n.d.).

Sangild, Torben, 'Glitch – The Beauty of Malfunction', in Washburne, Christopher and Derno, Maiken (eds.), *Bad Music: The music we love to hate* (New York and Abingdon, 2004) 257–274.

Segrave, Kerry, *Jukeboxes: an American social history* (Jefferson, 2002)

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Traub, Peter, 'Sounding the Net: Recent Sonic Works for the Internet and Computer Networks', *Contemporary Music Review*, 24/6 (December 2005) 459–481.

n.a., *Verbal Anthology* (London, 1972; re-issued London, 2000).