

Making Music Matter

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A concert is being performed tonight. It is the event. (Deleuze, 1993: 80)

I

BRUCE GILCHRIST'S artEMERGENT project exploits 'raw neuro-physiological material' (www.artemergent.org.uk) for a variety of art processes and performances, among them (and perhaps best exemplified by) the *Thought Conductor* pieces. In the second of these, *Thought Conductor # 2 (TC2)* from hereon, the signals generated by an individual hooked up to an electroencephalogram are converted, via a relational-database devised by Johnny Bradley, into 'musical score'. This score appears on computer monitors, ready to be played by a string quartet. During the performance, things-to-see and things-to-hear manifest themselves discontinuously in space, as well as in a counter-intuitive temporal order: the graphic line of the EEG for instance, projected on a wall behind the stage, continues to move when the sound has stopped, while the score disrupts the chronological order of composition by unfolding *during* the performance – it is not completed until after the playing is over. Unable to locate the exact 'origins' of what there is to see and hear, or to anticipate where or how seeing and hearing will end, the observer experiences an enjoyable sense of perceptual disorientation.¹

With passages of musical notation called up in the real time of the performance, score and sound acquire an immediacy which is characteristic of neuroscientific imaging technology in general, but which in this specific context lends new meaning to the notion of a 'live' performance. But let me be clear from the outset: *TC2* is not, in my view, a techno-scientific portrait that seeks to capture the 'inner kinetic melody' of the individual who sits at the centre of the stage. Of course, it is tempting to view it in these terms. The 'compère' who introduces the pieces, for example, describes them, rather reductively, in terms of the causal relations between the entities on the stage (and note that he begins with the brain):

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Here's how it works: the brain waves are picked up by this encephalograph machine, which is transmitted along this wire along here, along to a computer over here at the side of the stage which will translate it into music information which goes back along this wire onto the screen here, these notes are then picked up by the eye of the pianist, it goes along his optical nerve, down his spinal cord, along his arm and eventually press [*sic*] the notes here. (*Thought Conductor # 1*)

This emphasis on how the entities on the stage are physically connected to each other (by cables and wires and nerves) displaces the more significant questions, I think, which concern the connections between the 'author'/composer (if there is one), the scores,² and the sound. Importantly, the sound of *TC2*, like all 'non-measured rhythm', Jean-François Lyotard suggests, 'demands that one wait: what is happening?' (1991: 169). What is happening, or rather what *kind* of happening this is, will be the focus of this article. Throughout, I will be exploring the relations between the author, the score, and the sound in *TC2* as well in John Cage's *4'33"* (1952), the landmark work that inspired the *Thought Conductor* pieces, and which has been described as one of the first happenings in America. These key elements offer clues, as I will illustrate, to the different kinds of 'presences' that these performances embody, and the different notions of 'life' to which they refer.

II

4'33" was inspired by John Cage's visit to an anechoic chamber at Harvard University in 1951. Although he anticipated total silence, Cage instead heard two sounds: his own nervous system and his blood circulating. The visit marked a turning point in Cage's conception of sound and music, because it illustrated to him that 'pure silence is physically impossible' (Kostelanetz, 1991: 108). On this basis, he redefined silence as the absence of intended sounds, and music as 'an attentiveness to the sheer immediacy of an absolutely contingent conjunction of incidental sounds' (Pepper, 1997: 33). *4'33"* embodies these novel understandings. Composed according to chance principles, the three movements of silence – 'or in any event musically empty time' (Pepper, 1997: 33) – leave plenty of space for indeterminacy during the performance. Heinz-Klaus Metzger expands on the implications:

It is a slap in the face of every traditional European aesthetic concept that the performance of Cage's work is a procedure largely constituted by accidents that are, strictly speaking, accidents of performance that cannot be related conclusively to notation. It is a further slap that during the performance the notations themselves refuse to generate a correlative sensuous appearance that would communicate meaning, since these notations are the results of mere chance operations in the technique of writing and in no way the formulations of a speaking subject. (1997: 5)

In this way, *4'33"* marks a break with what N. Katherine Hayles, drawing on Mark Poster, calls ‘analogue subjectivity’, subjectivity based on relations of resemblance. Analogue subjectivity, Hayles writes, is closely associated with print culture, and with the connection forged by alphabetic writing between a sound and a trace: ‘to the extent that print can be considered an analogue medium, it connects voice to mark and thus author as speaker to the page’ (1999: 14). This is not a spontaneous connection, as Michel Foucault shows in his analysis of the author-function. Instead, it is a consequence of the many operations (legal, psychological, aesthetic, etc.) ‘that we force the texts to undergo, the connections that we make, the traits that we establish as pertinent, the continuities that we recognize, or the exclusions that we practice’ (Foucault, 1991: 110).³ These operations are no less relevant to the printed alphabet of music (notation) and to what I will call the author-composer. As Susan McClary notes, the word composition ‘summons up the figure of a semidivine being, struck by holy inspiration, and delivering forth ineffable delphic utterances’ (1999: 156). This is what *4'33"* challenges. In privileging chance and indeterminacy, composition is cast in terms of a kind of ‘putting together’ of materials that are decoupled from the laws of causality – from the laws that govern the relation between author and text, as well as the conventional structure of melodic plot ‘in which the sound-matter is subordinated to a sentimental narration, an odyssey’ (Lyotard, 1991: 173).

The success, or not, of Cage’s desubjectivization strategies and his repudiation of organization have been discussed by critics and commentators at length. Some have suggested that Cage was far from abandoning the compositional subject, especially in his later pieces. Freed from ‘the law of coerced labor as specified in the musical text and the conductor’s baton’, many of these scores confer on the musicians ‘the dignity of autonomous musical subjects’ (Metzger, 1997: 54). But even in *4'33"*, Liz Kotz argues, listening is an active invitation, ‘inadvertently demonstrating the conservatism of this perceptual model, grounded in the express intentions of a centered subjectivity’ (2001: 86). ‘Cage’, George Brecht said in an interview, ‘was the great liberator for me . . . But at the same time, he remained a musician, a composer . . . I wanted to make music that wouldn’t only be for the ears’ (Brecht, in Kotz, 2001: 72). Although I will not be pursuing these particular critiques in any depth here, I do want to suggest – not entirely dissimilarly – that the displacement of the author-composer in *4'33"* is replaced by another kind of presence, that of ‘life itself’.

As the title (a period of time on the clock) indicates, *4'33"* provides a temporal frame for non-intentional sounds. David Tudor, its first performer (at Maverick Concert Hall in Woodstock, New York in 1952), underlined the significance of the temporal structure of the piece when he commented that: ‘the time was there, notated . . . except that the tempo never changed, and there were no occurrences – just blank measures, no rests – and the time was easy to compute. The tempo was 60’ (Tudor, in Solomon, 1998). The time of the piece, in other words, parallels the ordered, systematic, and ostensibly unchanging temporal backdrop against which, since the late 19th

century (Stengers with Gille, 1997), all other rhythms have been set and, by their deviance from this ‘universal’ tempo, quantified: clock time. Cage, Kotz writes, not only unhinged the score from ‘*sound* as a system of discrete notes but also from *time* as a graphically plotted system of rhythmic measure’ (2001: 70). ‘It is very important to read the notation,’ Tudor said, ‘[i]t presents the impression that time is passing’ (Tudor, in Solomon, 1998). Notably, this temporal frame has been likened to a space, a space-to-be-filled (in somewhat analogical fashion, one might say that time resembles space). It has been described, for example, as an ‘airport for sounds’, the musical companion to Rauschenberg’s ‘airports for shadows’, the all-white paintings which greatly influenced Cage (Solomon, 1998). Homogenous space and time are set off from one another here then, but are nevertheless assumed to exist coincidentally. Let me spell out the implications.

As I have noted, Cage’s redefinition of music, and *4’33”* in particular, served to ‘[erect] an absolute barrier’ between writing, on the one hand, and sound, on the other (Pepper, 1997: 34). In an illuminating analysis of the implications of this distinction, Kotz explores how the model of the score as an independent graphic/textual object facilitates its ‘rapid circulation between performance, publication, and exhibit formats: small, strange, and belonging to no definable genre, [it] could go anywhere’ (2001: 60). However, if the score (the writing dimension of music) becomes newly mobile, the performance itself (the sound dimension) is all the more firmly rooted to a particular spatio-temporal context. The sounds of a particular performance of *4’33”* are usually (although not always) described in terms of its environment (perhaps the emphasis on the wind and the rain – ‘environmental instruments’ – during the first performance set the tone here). *At the time*, this is where its identity is located. The performance is a happening, because what happens, happens right here and right now. Cage’s are the ‘readymade sounds’ to Duchamp’s readymade objects (Maciunas, in Kotz, 2001: 80). ‘What really pleases me in that silent piece’, Cage said, ‘is that it can be played any time, but only comes alive when you play it’ (Cage, in Solomon, 1998).

The piece comes ‘alive’ when it is played because, as Cage understands it, the listener is alerted to the sound of the ‘alive-ness’ of a specific place at a specific time. In this respect *4’33”* seems to exemplify ‘Cage’s fascination’, as one of his students described it, ‘with the various theories of impersonality, anonymity and *the life of processes outside of their perceivers, makers or anyone else*’ (Higgins, in Kotz, 2001: 64, original emphasis omitted, my emphasis added). It also indicates, however, that the distinction between writing and sound that Cage erects in *4’33”* is subtended by ‘a poetics of presence, a mysticism of immediacy’ (Pepper, 1997: 38). Now, it is the presence of presence itself, a particular kind of presence – in which time, space, and happenings all correspond with each other in a kind of self-identical one-ness/immediacy – that replaces the author-composer,⁴ and from which the piece derives its *authority*.⁵

I want to suggest that the sound of *TC2*, by contrast, is the sound of

an event. In the following two sections I will be using the terms pattern and event, which I have borrowed (rather loosely) from Alfred North Whitehead's theory of the organism,⁶ to argue that the identity of *TC2* depends not on spatial relations of correspondence, resemblance, and/or distinction in time but, rather, on the organization of patterns *out of which* the regularities of space, time, and indeed analogue, emerge. *TC2*, in short, refers to a different kind of presence – although it is no less a 'happening' for that.

III

A musical score, even if it is not understood in terms of a blueprint for a performance, is usually assumed to be a relatively stable point of reference within it. This is certainly the case with *4'33"* which, although only minimally notated (to allow for a maximum of contingency of sound), does nevertheless *have* a score and can be rehearsed. It includes, for example, annotated recommendations for the performance, one of which advises the musician to use a stopwatch to time the movements. The completed score of *TC2*, by contrast, can only be read *after* the performance is over – necessarily so, because it is (or at least at first glance appears to be) the consequence *of* it.

Of course, no musical performance can be reduced to the score that it is (usually, conventionally) supposed to represent. On one level, this is a rather banal observation, since 'every piece of music we hear contains sound both intentional and non-intentional . . . no musical piece can twice give us exactly the same aural experience' (Kostelanetz, 1991: 108). *4'33"* and *TC2* are both distinguished in this regard, however, insofar as they are designed to draw attention to contingency and indeterminacy. In the case of *4'33"*, as noted above, the author-composer of contingency is the (life of the) space and time of the performance. In *TC2* it seems to depend (initially anyway) upon the inner bodily movements of the individual who takes centre stage/who is hooked up to the electroencephalogram. Indeed, part of the impact of *TC2* derives from the dramatic immediacy that is and has been associated (not necessarily correctly, as I will show below) with imaging technologies from Etienne-Jules Marey's early efforts to capture 'movement's signature, its rhythms and variations, in the form of graphic lines' (Lury, 1999: 505) to the PET scans of the present day. The graphic lines of *TC2*, if it was understood in these terms, would be the EEG reading (which is projected on a screen at the back of the stage), and the musical notation (the score, to which the EEG readings ostensibly give rise). By playing these lines, *TC2* could be said to be adding 'direct sound' to Marey's attempt to force 'direct writing' (Lury, 1999: 505, references omitted) from movement.

This is an 'intuitive' reading of *TC2*.⁷ It is also, I would argue, a gravely mistaken one. It is mistaken because it assumes that, as in *4'33"*, the performance is designed to capture something that exists independently of it: the 'life of processes' in *4'33"*, and the 'life' of the individual in *TC2* (or more accurately and more modestly, neural activity). While there is reason to believe that this is the case in *4'33"* – on account of the score, which

provides a frame that can be laid over a slice of life precisely *because* life is assumed not only to exist within the performance, but to proceed regardless of it – the *absence* of a score in *TC2*, at least until the end of the performance, signals that something different is at stake. Unlike the score of 4'33", which directs the musician as to how to capture sounds that exist *in* time during the performance, the score of *TC2* is the product *of* the time of the performance during which sounds are created. This is not simply a reversal of the temporal order, with notation now corresponding to sound. Instead, this temporal leap-frogging is an indication that, even though there *is* a score, the relation between notation and sound cannot and should not be cast straightforwardly in terms of analogical correspondences or resemblances at all. The reason is simple: the writing and sound dimensions of the 'music', as I will illustrate momentarily, are inextricably enfolded in each other. As such, they can neither be said to correspond to, nor resemble each other (for these notions assume a relation between two *separate* entities), nor could they be distinguished (a barrier could not be erected between them). One might say that they are as inextricable from each other as are elements in a pattern, where to remove an element would be to change the pattern. I want to suggest that it is not the performance as temporal frame – it is not *time* – that 'contains' the pattern; rather, it is the performance of *TC2* as event. I am redefining 'presence', in other words, in terms of 'some particular pattern as grasped in the unity of a real event' (Whitehead, 1985a: 130).

The term 'pattern' is helpful here, for it is a reminder that there are no things *qua* things that are grasped in an event, only *aspects* of things:

The things which are grasped into a realised unity, here and now, are not the castle, the cloud, and the planet simply in themselves; but they are the castle, the cloud and the planet from the standpoint, in space and time, of the prehensive unification.⁸ In other words, it is the perspective of the castle over there from the standpoint of the unification here. It is, therefore, aspects of the castle, the cloud, and the planet which are grasped into a unity here. (Whitehead, 1985a: 87)

A pattern cannot be captured or 'framed' therefore, either in its entirety or in isolation, since the very perception⁹ of a pattern implicates the perceiver within it.¹⁰ In this 'doctrine of mutual immanence . . . each happening is a factor in the nature of every other happening' (Whitehead, 1977: 41). Consider this, at a gross level, in relation to the performance of *TC2*. Here, the 'happening brain' (for example) which is ostensibly the original 'source' of the sound on stage also hears sound, and in hearing it is partially constituted by it, and by the other patterns in which the sound is implicated. Among those other patterns are the musicians who play what the machines read from the perpetual flux of sensory information in the brain and the machines which 'hear' the intelligence, fluency and emotionality of the playing which modifies that flux (and these are only the crudest of

examples). This is no ‘determinist sequence’ in other words, but a ‘relay of activities reacting the one upon the other, such that the actual occasion [the grasped pattern] itself in turn “conditions” the convergent series, and the convergent series the divergent ones, etc.’ (Toscano, 2002). Rather than understand the score to be a *consequence* of the performance therefore (as I did above), or as the *product* of the (causal) relations between the staged entities (as an intuitive but, I have suggested, ultimately misguided interpretation implies), it can instead itself be considered to be a pattern that is set within, presupposes, and affirms other patterns.

Three fundamental implications follow from this conception of *TC2*. First, given the radical relationality that constitutes an event, it would be impossible to conceive of any aspect of the performance existing independently of it. It would be impossible, in other words, for a temporal frame to simply harness an autonomous and pre-existing readymade sound. To be in or of the event is to be defined by it. From this follows a second implication, which is that there can be no single author of contingency (no matter how impersonal), and no single subject-listener. The audience, for example, is not listening to sounds that are ‘composed’ by ‘life’ as it exists *in* or passes *through* a particular space and time. Instead, they are themselves *part of* the patterns that constitute the sound. In this respect one might say that the entire event ‘listens’ to itself. Conversely, even though the audience sit on the other side – both spatially and temporally – of the score on the screen, they too, along with every other pattern in the event, must be credited as its ‘composers’. The identity of the event, in short, is defined not by any one of its (individual) components (such as the author-composer), or even by the sum of its components (all that a musical performance involves). It lies, rather, in the singular *becoming-together* of reciprocal prehensions. This becoming is, according to Whitehead, creativity itself: ‘that ultimate principle by which the many, which are the universe disjunctively, become the one actual occasion, which is the universe conjunctively’ (1985b: 21).

This conception of an indivisible multiplicity is significant (and this is the third point), because it dislodges from *TC2* the kind of presence which ‘4’33” implicitly assumes (that is, presence understood in terms of corresponding self-identical unities: one time, one space, one happening). For instance, although the immediate source of the sound is clear in *TC2* (instruments are being played by musicians), the sound of the author-composer, the ‘source’ of the score, as I have suggested, is not. ‘[A]ll unlocated sounds are enigmatic,’ Steven Connor writes, but ‘unlocated voices are particularly so’ (1997: 213) on account of the (analogical) relation between speech and the subject. However, while ‘unattributed sound’ might, in cinema, be ‘marked by doubt and menace’ (Connor, 1997: 213), in the context of *TC2*, it serves, I think, as an invitation to *look to* and *listen out for* events which are not directly present. By drawing the listener away from the immediacy of the performance as it is being performed, *TC2* seems to be signalling that its sound pertains not solely to the individual who sits at the centre of the stage, but to a pattern that cannot be contained by the stage. Indeed, this

is the point of a pattern/event, as Whitehead says: ‘This unity of a prehension defines itself as a *here* and a *now*, and the things so gathered into the grasped unity have essential reference to other places and other times’ (1985a: 87). Or to put it differently: the notion of a pattern enables a certain ‘listening away’ which does not at the same time jeopardize the integrity of the event. The performance of *TC2*, in short, is no less ‘present’ for not being rooted entirely in the one space and time. I will illustrate this point now.

IV

A substantial part of the creation of *TC2* took place in Norway, where Gilchrist invited composers to score for a string quartet ‘live’ in his studio, while at the same time recording them both on video and on an encephalogram. This is how the ‘mechanics’ of the piece works. Time codes on the EEG and video were synchronized, enabling Gilchrist to correlate passages of the composers’ musical notation with stretches of their EEG recordings (see www.artemergent.org.uk for details of these recordings).¹¹ These interactions – ‘a wealth of musical output possibility’ – were compiled within a database (‘a creative engine’) (www.artemergent.org.uk). During the live performances, Johnny Bradley’s computer software program, called ‘the DreamEngine’, analyses the real-time EEG output from the individual on the stage, making matches (as closely as possible) with the contents of the database, and sending out musical notation to the members of a string quartet.¹² Insofar as the compositions that were scored in advance of the live performance bear an analogical resemblance to those produced during it, the process might be characterized in terms of what N. Katherine Hayles calls ‘the Oreo’ (after the black-and-white biscuit), an analogue–digital–analogue structure which she suggests often connects different embodied materialities.

In position emission tomography (PET), for example, a patient ingests radioactive substances whose decay is sensed by an instrument using analogue proportionality. These results are then inscribed as numerical data, digitally analysed, and manipulated ‘to create lifelike analogical resemblances’ (Hayles, 1999: 19). This resemblance ensures that the final images ‘are often read as showing thinking in action’ even though, as Hayles notes, ‘they may more accurately be described as showing the Oreo effect in action’ (1999: 19).¹³ Similarly, while Gilchrist’s correlation of the composers’ passages of composition with their EEG readings looks like a celebration of analogue subjectivity in action – wherein, as Hayles describes it, ‘what is at the forefront of the mind is also imagined to be deep inside’ (1999: 13) – in fact the scores that are produced during the performance are not the same as those written by these composers. The ‘detour’ through the digital ensures that the break between the interiority of the composer and the score – one of the most challenging aspects of *4’33’’* – is maintained in *TC2*. It also arguably illustrates what Hayles identifies as one of the ‘distinctive advantages’ of the digital aspect of the Oreo structure. As she puts it:

Moving from analogue resemblance to coding arrangements opens possibilities for leveraging unthinkable with analogue resemblance, which by virtue of *being* a resemblance must preserve proportional similarity . . . Coding arrangements have powerful transformative properties precisely because they have been freed from the morphological resemblances of analogue technologies. (1999: 19)

And, indeed, by passing the ‘original’ composers’ scores through the database, *TC2* exemplifies not only the transformative, but what Lyotard calls the ‘liberatory’, potential of technology. Like Cage, Gilchrist and Bradley abandon rhythmic measure for mechanical clock time: although the composers scored in various tempos, once transcribed into the database ‘everything becomes events along a timeline (milliseconds)’ (Gilchrist, personal correspondence). The ‘metronomy of sound-time,’ as Lyotard describes it, ‘the discrimination of duration in classical notation by breve, semibreve, crochet, quaver, semiquaver, etc.’ is replaced here by ‘the continuous race of the chronometer’ (1991: 168–9). This shift to chronometric time enables Gilchrist to start and stop the ‘music’ several times during a live performance, as different individuals take the stage. Such seemingly ‘arbitrary’ starting and stopping breaks with the model of cause and effect implied by ‘the dialectic of epic which encloses the time of the work in a beginning, a development and an end – with its harmonic counterpart, resolution’ (Lyotard, 1991: 173). In other words, like Cage, Gilchrist seems to want to ‘free’ ‘the material – sound – from [at least some of] the various constraints that it had to respect . . . in order to make itself musically “presentable”’ (Lyotard, 1991: 168).

Although the digital phase offers many possibilities for fragmentation and recombination, for Hayles, the return to analogue resemblance is important. First, she claims, because it is ‘the mode best suited to our sophisticated visual-cognitive perceptual skills’ – and here she compares the instantly intuitive accessibility of the PET image to an array of numerical data which may take hours or even days to unravel – and, second, because it is ‘the dynamic that mediates between the noise of embodiment and clarity of form’ (1999: 19). Hayles makes this latter point in the context of what she calls ‘the material/discursive divide’ that informs the work of, in her words, ‘scientific realists’:

For the realist, the flow of structuring information about physical reality moves from the material (say, a field of morning glories . . .) through the operational (experiments in breeding that operate upon the plant . . .) to the symbolic (graphs and charts . . .). The closer the researcher is to the embodied reality of the plants, the fuzzier the picture is likely to be as various sources of ‘noise’ and ‘contamination’ complicate the regularities presumed to be revealed by such inscriptions and charts. (1999: 17)

4’33” is arguably ‘experimental’ in a ‘realist’ sense: it uses the score to ‘operate’ on ‘the material’, that is, to isolate material sounds in time.¹⁴ This

is why, as I argued earlier, the performance is immobile: in this conception of the world, '[m]aterial embodiments do not circulate effortlessly' (Hayles, 1999: 17) – indeed a performance of 4'33" cannot, by definition, circulate at all. The score, however, as I also noted, can and does circulate (see Kotz, 2001, on the implications of this mobility). Again, this is enabled by a particular conception of the world in which 'cultural conventions privilege the forms expressed by the inscriptions over their instantiations in particular media . . . which are regarded as passive vehicles for the transmission of the forms' (Hayles, 1999: 17. See Lury [2004], who challenges this notion in the context of brands).

My understanding of the score of *TC2* in terms of a *pattern* complicates these distinctions.¹⁵ As a pattern – which contains within it, and is contained by, other patterns – the score too must be understood to be a 'concrete' entity which is specifically instantiated in specific contexts. "Actuality" means nothing else than this ultimate entry into the concrete," Whitehead writes, 'in abstraction from which there is mere nonentity' (1985b: 211). *TC2* is compelling because it seems to purposely draw our attention to this point. The audience understands the score to be immanent to the performance – immersed in all the occurrences that take place during it – because we literally see it appear *during* the performance. The score embodies the performance, and is embodied by it. In this respect it is clearly *not* a passive vehicle for the transmission of symbolic marks or forms, or a transparent conduit for the author-composer's intentions. It is no less 'noisy' than the material sounds themselves; indeed, as a pattern contained within and containing other patterns, it can be understood to embody those sounds within it.

This is not to suggest, however, that the score is solely the product of the performance. For although aspects of *TC2* might be *understood* in terms of analogical resemblance, in fact the audience does not see – and may not even imagine that there were – 'original' compositions, written in Norway, which the 'final' scores resemble (as we have become used to imagining a brain which a PET image is assumed to resemble). The audience does not, in other words, see the top part of the Ore structure during the live performance. However, even if one *were* aware of the 'original' compositions, the *sonic* dimension of *TC2* cannot be said to bear any resemblance to anything at all.¹⁶ Unlike the 'original' scores, which bear an analogical relation to the ones that are created during the performance, the *sound* of the composers' 'original' compositions remain unactualized prior to the performance. There simply is no sonic 'bottom' part of the Ore. It is for this reason – because the challenge of *TC2* is lodged through sound as well as through a (visual) score – that the analogical relations between the author-composer, the score, and the sound (whereby the performance is the 'author' of the score, which corresponds to the sounds created during it) cannot be reinstalled. There is no author-composer, as I have argued, but nor do the sounds correspond to the performance/the performance-score.

Does this mean that the composition that is created during the

performance is *absolutely* original, an ostensibly ‘unauthored’ creation, a creation *ex nihilo*? The model of creativity that I have drawn on for the most part in this article would certainly imply as much, for it seems that there must always be an author of some kind, no matter how ‘impersonal’. However, I have also noted that there are other ways of conceiving of creativity, and that Whitehead’s conception of creative activity, as ‘the process of eliciting into actual being factors in the universe which antecedently to that process exist only in the mode of unrealized potentialities’ (1977: 26–7), is best suited to *TC2*. In fact, this is a particularly fitting understanding insofar as the ‘pure’ sonic object, like potentiality (or even: the pure sonic object *as* potentiality), has no physical or spatio-temporal existence outside of its specific actualization. It has no presence, in the ‘4’33” sense. This is why it cannot be contained within the Oreo structure that Hayles describes. Thus, I will define creative activity, in the context of *TC2*, as the process by which the potential sonic object is actualized, in different ways and at various different points, during the live performance. This is how the (unactualized) sounds of the scores that were written (and EEG readings that were taken) in Norway are best understood: in terms of a reservoir of potentiality, rather than as a template or a meta-composition. Nevertheless, while the elicitation of potentiality always amounts to something new insofar as it is a novel concrescence of disjunctive diversity (see my earlier discussion of Whitehead’s notion of creative activity), for this very same reason it cannot be said to be ‘new in the sense of being completely different elements from that of the past’ (Halewood, 2003: 127).

So what are the implications of this revised understanding of creativity, in relation to *TC2*? In the first instance it is worth noting that although a particular performance of *TC2* can never be repeated (it is always a novel becoming), this is not because it is bound down by, or solely referenced to, the happenings that happen in *that* particular space and time. On the contrary: ‘There is time because there are happenings, and apart from happenings, there is nothing’ (Whitehead, 1920: 66). Space and time are not autonomous entities *in which* (patterns of) sounds are situated in other words, but are rather abstractions generated *by* overlapping, interactive, patterns.¹⁷ Thus, it is that the potentiality that is actualized during a performance of *TC2* cannot be said to *precede* the performance in any linear temporal sense. The sounds of *TC2* are not the realization of some kind of nascent form, for example. Instead, space and time are the forms, or regularities as I would rather put it, that emerge out of patterns. They are not universal laws that can help us to understand them.

This same might be said of the analogue and the digital – that is, that they emerge out of particular events, rather than describe them (as Hayles herself agrees, in somewhat different terms [1999: 23–4]). It does not make sense therefore, to privilege digitization as *the* site of transformation.¹⁸ Creative, differentiating, activity is everywhere on-going. It is on-going, and also limiting. Necessarily so, for it would clearly be impossible for the entirety of potentiality to be actualized during a performance.¹⁹ Creative

activity must thus be understood to refer not only to what is *included* in a pattern, but also to ‘the exclusion of the boundless wealth of alternative potentiality’ (Whitehead, 1977: 27). Finally, then, it is this emphasis on what is *not* ‘there’, as well as on what ‘is’, which indicates that presence and im/mobility are not really the best terms in which to conceive of an event. Instead, a pattern endures to the extent that it prehends and is prehended by other patterns, ‘to the extent that the environment is a relevant aspect for it and vice versa’ (Toscano, 2002). *TC2*, as an event, ‘has relevance’ (it endures) whenever and wherever its pattern is instantiated – during a performance for example, but also here and now, as I am writing this article and as you are reading it.²⁰

V

To sum up. I mentioned Brecht’s critique of Cage in passing earlier. I want to cite it again here, more fully:

Cage . . . was the great liberator for me . . . But at the same time, he remained a musician, a composer . . . I wanted to make music that wouldn’t only be for the ears. Music isn’t just what you hear or what you listen to, but everything that happens. (Brecht, in Kotz, 2001: 72)

The reason that *4’33”* only ‘comes alive’ when it is performed is because it requires a listener to attend to the sound of ‘life’. ‘Art’, Cage said in interview, ‘is not an escape from life. It is an introduction to it’ (Cage, in Solomon, 1998). This must be a life that sings in solo however, for its sound continues whether the subject is listening or not (hence Cage’s fascination with theories of ‘impersonality’ and ‘anonymity’). In *TC2*, by contrast, the distinction between the author-composer (life, in *4’33”*) and the listener, between the individual and the ‘external’ environment – between any discrete entities in fact – cannot be clearly maintained. Music and ears and listening and . . . (everything) *require* each other as patterns within patterns overlapping patterns require each other. In this sense music is indeed, as Brecht says, ‘everything that happens’.²¹

There is indeterminacy and contingency in *TC2*, but it is not the indeterminacy and contingency of sounds that are accidentally/unintentionally captured *in* time, but of the actualization *of* sound *and* time out of potentiality. And there is originality, but not the originality of original scores being played for the first time, but of novel patterns becoming-together for the only time. This, for Whitehead, is life: ‘a single occasion is alive when . . . its process of concrescence has introduced a novelty of definiteness not to be found in the inherited data . . . [Life] is the name for originality, and not for tradition’ (1985b: 104). I will conclude this article with a rather dramatic flourish therefore, and suggest that *TC2* does not introduce the listener *to* life, but that it is *itself* alive, and that the life of the listener is a part/pattern of that.

Coda

The pattern of *TC2* is both in and out of ‘science’, in and out of ‘critique’, and in and out, I would argue, of ‘art’. Indeed, its pattern undoubtedly contributes to the emergence of these spheres, for which it shows no respect. But this is precisely the point, as Deleuze (Deleuze and Parnet, 1987) long maintained – to be *and* rather than either/or. And it is perhaps particularly important to be *and* in a context where, as Stengers wryly puts it, the very distinction between ‘*either* objective, neutral, having the power to disconnect itself *or* mere construction . . . is a way for scientists to obtain limitless patience [relevance, in the terms of this article] from their environment, where some “impatience” should well prevail’ (2002: 250). I too will be impatient and claim that the evaluation of *TC2* depends not on its *location* (a problematic term, which this article has grappled with at length), but on what its pattern continues to make relevant (or not), and what new relevances it establishes. This is how its value is to be defined, for like all of Whitehead’s entities, it has no higher value than itself.

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Notes

1. Of course the experience of *TC2* necessarily involves far more than seeing and hearing. However, I will be confining my comments in this article to the relation between the visual and the aural – which I have further confined to the relations between the score (that can be seen) and the sounds (that can be heard).
2. Several scores are produced during the course of the performance, as several individuals are hooked up to the EEG machine. From now on, though, for the sake of clarity, I will be referring to just the one score/individual. It is also worth noting at the outset that although Gilchrist and Bradley could have printed out copies of the score during or after the performance, they did not choose to do so. Scores from the performance are archived as MIDI files.
3. See Lury, this volume, pp. 93–110 for an analysis of how the relationship between author and text has changed, and continues to change, particularly as the practices of art and science (which have, historically, differently mediated the author-function) begin to converge.
4. So what role does Cage play here, then? He could be described as a conductor, but I would prefer to identify him as an ‘operator’ (see below, where I compare *4’33”* to an experiment, and note 14).
5. And confers it: one of the anonymous reviewers of this article for instance emphasized that, to quote, ‘I was present when Cage played his *4’33”* silence piece at Princeton in 1953.’
6. In this theory, Whitehead outlines his conception of ‘concrete’ things or, in his terms, actual entities or occasions. He also, sometimes, describes a nexus of actual

occasions in terms of an event. Understood thus, events can be identified at every level and in every register of life (cf. Stengers, 2000, who mostly confines her understanding of events to the macro-level).

7. One that would arguably situate it alongside other pieces which seek to externalize the ‘interior’ of the body for public scrutiny. Gunther von Hagens’s ‘spreads’ immediately come to mind – although where von Hagens looks back to pathological anatomy (what Foucault calls ‘the technique of the corpse’), Gilchrist might be more closely aligned with the vivifying gaze of physiology.

8. ‘Every prehension,’ Whitehead writes, ‘consists of three factors: (a) the “subject” which is prehending, namely, the actual entity in which that prehension is a concrete element; (b) the “datum” which is prehended; (c) the “subjective form” which is *how* that subject prehends that datum’ (1985b: 23).

9. Stengers writes: ‘Mark well, not what we perceive and can identify, but the whole indefinite complexity of what we are aware of, even if we have no words to name it’ (1999: 197).

10. Indeed, perception ‘itself’ will be a part of a pattern (as Cage’s experience in the anechoic chamber illustrates). This is what Whitehead calls ‘presentational immediacy’, which is basically, as Judith Jones explains, ‘an experienced display, by and for the percipient subject, of the present environment’ (1998: 150). This does not mean that the percipient experiences ‘bare sensations’ which are ‘then “projected” into [her] feet as their feelings, or onto the opposite wall as its color’ (Whitehead, in Jones, 1998: 151). Instead, ‘[t]he projection is an integral part of the situation, quite as original as the sense-data’ (Whitehead, in Jones, 1998: 151).

11. Correlating this material was necessarily dependent upon the working process of the composer. Often, Gilchrist notes,

the composer would work on a bar, then skip back to a previous bar to add a little bit more . . . If a bar was revisited, I had the choice of lifting it out in an incomplete state, a kind of ‘bar in progress’. (personal correspondence)

12. It would be possible to argue that the performance is limited by the size and complexity of the material in the database. At the time of writing, Gilchrist and Bradley conjecture that each ‘individual piece’ (of which there are usually about four or five during a performance) could last around 10 minutes before this material would begin to repeat itself. On the other hand, the notion that the performance is limited (and conversely, that with more material it could be really extensive) is something of a red herring, since nearly all databases are plagued by problems concerning size and complexity, to the extent that these problems could almost be said to be *definitive* of a database (see for example, on the archive, Alan Sekula, 1986, and George Myerson, 1998).

13. Note, as Hayles does, that although computers are often considered to be the digital dimension of the Oreo structure, these too have an analogue top and bottom that enables the human user to interact with its processes (1999: 19).

14. Perhaps the answer to the question of Cage’s role, if ‘life’ is the author-composer, lies here: although not quite a scientist in the sense that Lury suggests Hirst might aspire to be (see Lury, this volume, pp. 93–110), Cage could certainly be described as an ‘operator’.

15. See also Barry, this volume, pp. 51–69, for a related critique of the distinction

between information and materiality in the context of the pharmaceutical industry.

16. Of course it is possible to conceive of the analogue in precisely this way. Brian Massumi, for example, understands the virtual to be

more analogical than descriptive. It is not, however, an analog *of* anything in particular. It is not an analog in the everyday sense of a variation on a model. Here, there is no model . . . The analog is *process*, self-referenced to its own variations. (2002: 135)

Although my own argument, particularly regarding potentiality (see below), overlaps with Massumi's in parts, it does not map directly on to it as his different understanding of analogue indicates.

17. In this respect I would argue that, where rhythmic measure is replaced by clock-time in *4'33"*, clock-time is replaced by event-time in *TC2* – or rather with duration, as Whitehead understands it. Duration, Whitehead writes, 'is the field for the realised pattern constituting the character of the event' (1985a: 157). A pattern is realized through the becoming temporal of a duration – '[t]emporalisation is realisation' (Whitehead, 1985a: 159) – and, in order to endure, requires a succession of durations (each one exhibiting the pattern), rather than a succession of durationless instants. It is not autonomous time which is divisible (into instants) therefore; instead, 'divisibility . . . is within the given duration' (Whitehead, 1985a: 158). In short, the divisibility and extensiveness of the pattern are derived from its own duration, and not from spatio-temporal relations that are perceived to be external to it. Note, for interest, that in *0'00"* (1962) (or *4'33" No. 2* as it is sometimes called) Cage drops measured time altogether.

18. Indeed, Massumi argues that digitization offers only limited opportunities for transformation insofar as it refers mainly to the sphere of the possible:

Digitization is a numeric way of arraying alternative states so that they can be sequenced into a set of alternative routines . . . 'To array alternative states for sequencing into alternative routines.' What better definition of the combinatoric of the possible? . . . It doesn't bother approximating potential, as does probability. Digital coding is possibilistic to the limit. (2002: 137)

19. This would be like understanding memory in terms of something (like a score, for example) which is 'stored' and which can be called up and replayed absolutely. Consider, by contrast, Henri Bergson's conception of memory as a virtual presence of the past in the present, only a fraction of which is actualized at any particular moment. In a description of 'change' in memory which bears a striking resemblance to Whitehead's notion of creative advance, Bergson notes that although 'the continuous life of a memory . . . prolongs the past into the present' (1912: 44), it is also the case that 'the second moment always contains, over and above the first, the memory that the first has bequeathed to it' (1912: 12).

20. 'The one-ness of anything that exists', Judith Jones writes, 'is nothing else but its *multiple realization* in the universe of events, and thus its oneness, or self-sameness, is not established simply by the boundaries of its own becoming' (1998: 128).

21. As Whitehead puts it: 'We are in the world, and the world is in us' (1977: 42).

It is worth considering Steven Connor's description of 'the auditory self' here, even though he is writing in a very different context:

The self defined in terms of hearing rather than sight is a self imaged not as a point, but as a membrane; not as a picture, but as a channel through which voices, noises and musics travel . . . The auditory self discovers itself in the midst of the world and the manner of its inherence in it . . . [It] is an attentive rather than an investigative self, which takes part in the world rather than taking aim at it. (1997: 207, 219)

References

- ArtEMERGENT project, www.artemergent.org.uk, accessed June 2002.
- Barry, A.W. (2005) 'Pharmaceutical Matters: The Invention of Informed Materials', *Theory, Culture & Society* 22(1): 51–69.
- Bergson, H. (1912) *An Introduction to Metaphysics*, trans. T.E. Hulme. New York: G.P. Putnam's Sons.
- Connor, S. (1997) 'The Modern Auditory I', in R. Porter (ed.) *Rewriting the Self: Histories from the Renaissance to the Present*. London: Routledge.
- Deleuze, G. (1993) *The Fold: Leibniz and the Baroque*, trans. T. Conley. London: Athlone Press.
- Deleuze, G. and C. Parnet (1987) *Dialogues*, trans. H. Tomlinson and B. Habberjam. London: Athlone.
- Foucault, M. (1991) 'What is an Author?', in P. Rabinow (ed.) *The Foucault Reader: An Introduction to Foucault's Thought*. London: Penguin.
- Halewood, M. (2003) 'Subjectivity and Matter in the Work of A.N. Whitehead and Gilles Deleuze: Developing a Non-Essentialist Ontology for Social Theory', unpublished PhD thesis, University of London.
- Hayles, N.K. (1999) 'Simulating Narratives: What Virtual Creatures Can Teach Us', *Critical Inquiry* 26: 1–26.
- Jones, J. (1998) *Intensity: An Essay in Whiteheadian Ontology*. Nashville, TN: Vanderbilt University Press.
- Kostelanetz, R. (1991) 'Inferential Art', in R. Kostelanetz (ed.) *John Cage: An Anthology*. New York: Da Capo Press.
- Kotz, L. (2001) 'Post-Cagean Aesthetics and the "Event" Score', *October* 95: 55–89.
- Lury, C. (1999) 'Marking Time with Nike: The Illusion of the Durable', *Public Culture* 11(3): 499–526.
- Lury, C. (2004) *Brands: The Logos of the Global Economy*. London: Routledge.
- Lury, C. (2005) '"Contemplating a Self-portrait as a Pharmacist": A Trade Mark Style of Doing Art and Science', *Theory, Culture & Society* 22(1): 93–110.
- Lyotard, J.-F. (1991) *The Inhuman: Reflections on Time*, trans. G. Bennington and R. Bowlby. Oxford: Polity Press.
- Massumi, B. (2002) 'On the Superiority of the Analog', in *Parables for the Virtual: Movement, Affect, Sensation*. Durham, NC: Duke University Press.
- McClary, S. (1999) 'Afterword: The Politics of Silence and Sound', in J. Attali *Noise: The Political Economy of Music*. Minneapolis: University of Minnesota Press.
- Metzger, H.-K. (1997) 'John Cage, or Liberated Music', *October* 82: 49–61.

- Myerson, G. (1998) 'The Electronic Archive', *History of Human Sciences* 11(4): 85–101.
- Pepper, I. (1997) 'From the "Aesthetics of Indifference" to "Negative Aesthetics": John Cage and Germany 1958–1972', *October* 82: 31–47.
- Sekula, A. (1986) 'The Body in the Archive', *October* 39: 3–65.
- Solomon, L.J. (1998) 'The Sounds of Silence: John Cage and 4'33"', <http://www.azstarnet.com/~solo/4min33se.htm>
- Stengers, I. (1999) 'Whitehead and the Laws of Nature', *SaThZ* 3: 193–206.
- Stengers, I. (2000) *The Invention of Modern Science*, trans. D.W. Smith. Minneapolis: University of Minnesota Press.
- Stengers, I. (2002) 'Beyond Conversation: The Risks of Peace', in C. Keller and A. Daniell (eds) *Process and Difference: Between Cosmological and Poststructuralist Postmodernisms*. Albany, NY: SUNY Press.
- Stengers, I., with D. Gille (1997) 'Time and Representation', in I. Stengers *Power and Invention: Situating Science*, trans. by P. Bains. Minneapolis: University of Minnesota Press.
- Thought Conductor # 1* (video).
- Thought Conductor # 2* (video).
- Toscano, A. (2002) 'The Theatre of Production: Philosophy and Individuation between Kant and Deleuze', unpublished PhD thesis, University of Warwick.
- Whitehead, A.N. (1920) *The Concept of Nature*. Cambridge: Cambridge University Press.
- Whitehead, A.N. (1977) *Nature and Life*. New York: Greenwood Press.
- Whitehead, A.N. (1985a) *Science and the Modern World*. London: Free Association Books.
- Whitehead, A.N. (1985b) *Process and Reality*, revised edn, ed. D.R. Griffin and D.W. Sherburne. New York: Free Press.

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