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Original Citation

Harrison, Bryn (2012) Scanning the Temporal Surface. CeReNem journal (3).

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SCANNING THE TEMPORAL SURFACE: ASPECTS OF TIME, MEMORY AND REPETITION IN MY RECENT MUSIC

BRYN HARRISON

This paper considers the role of musical temporality and memory in the recent works of composer Bryn Harrison. In contrast to earlier pieces, the essay outlines the ways in which these pieces adopt a singular approach to musical structure which utilises high levels of repetition. It is argued that, through this approach, the listener is able to build up a composite understanding of the surface of the music over time. Comparisons are made to the scanning of a picture plane, and the work of Bridget Riley, James Hugonin and François Morellet are given as examples. The paper ends with a description of a new collaborative project with digital artist Tim Head which seeks to develop on this same phenomenological approach.

Keywords: memory, repetition, temporality, non-directed linearity, self-similarity

Many of the pieces I have written over the last decade have resulted from a preoccupation with notions of musical temporality. Works written between 2001 and 2008 fall into two categories: there are those such as *Low Time Patterns* (2002), *Six Symmetries* (2004) and *Five Miniatures in Three Parts* (2008) which divide the pieces up into closely related panels and re-examine the same object from different angles and perspectives over a period of time, whilst others, such as *Rise* (2003) and *Shifting Light* (2006), are presented as one continual, durational span that takes the material through a gradual process of metamorphosis. My use of such devices has been documented elsewhere but - put briefly - it relies on a reflective kind of listening in which each musical moment is subjected to an almost subconscious kind of scrutiny. My intention has been to raise, for the listener, perceptual questions as to whether successive events are presented as exact repetitions or whether some kind of transformation has taken place. The more traditional, teleological constructs of musical syntax and the proviso for a projected musical narrative are replaced by cyclical structures which seem only to lead to their own end or to what Jonathan Kramer might have described as “a non-directed linearity” (Kramer, 1988, p.61-2).

A more extensive and detailed survey of these working procedures has been documented in my PhD thesis ‘Cyclical Structures and the Organisation of Time’ (Harrison, 2007a). I do not wish to cover too much of the same ground here but rather to consider how I have attempted to push forward these ideas in more recent works. Over the last few years, I have worked towards the production of fluttering, ephemeral surfaces that quietly but actively engage the listener in the passing of fleeting events. Successions of notes that often operate at a speed and density beyond that which can be immediately apprehended are repeated again and again, allowing the listener to

gradually build up an understanding of the composite elements of the textural surface over an extended period of time. Here, near and exact repetition operates in close proximity, providing points of orientation and disorientation for the listener. This paper will consider how these parameters function in two significant recent works of mine; *Repetitions in Extended Time* (2008) and *Surface Forms (repeating)* (2009) (audio excerpts from these pieces can be found on the [composer's website](#)). I will illustrate how these ideas manifest themselves in other more recent works such as *M.C.E.* (2009) and *Receiving the Approaching Memory* (2010). I will also make reference to examples from the visual arts by Tim Head, James Hugonin, Bridget Riley and Françoise Morollet where, it could be said, the meaning of the work comes, in part, from the constant cross examination of repeated elements whilst scanning the peripheral surface of the picture plane.

An immediate predecessor to the musical works given above was a piece I wrote in 2007 entitled *A Leaf Falls On Loneliness*. The title is taken from a poem by E.E. Cummings but I took the liberty of working away from the text, choosing instead to draw more directly on the notion of brevity inherent within the haiku-like form of the verse. The resultant piece is highly economical in its use of musical material and is presented as a single page that is repeated 27 times.

Figure 1 *a leaf falls on loneliness* (Harrison, 2007)

a leaf falls on loneliness Bryn Harrison

♩ = c. 108

x27

Bb Clarinet
(sounds 1 tone lower)

Mezzo-soprano
Sing on a single syllable

Piano

Violin

Cello

All instruments sempre legato
All repeats should be identical

Bryn Harrison
Feb. 2007

What will be immediately evident from the visual presentation of the score is the way in which the layout of the page acts as a structural aspect in its own right; the rhythmic groupings and canonic entries are carefully placed to create wave-like

oscillations that ebb and flow. What is perhaps less apparent (given that the notation offers us only a frozen and seemingly exact representation of what is actually a fluid and ongoing process) is the degree of implicit variation inherent within the score. For instance, the mezzo-soprano part is relatively exposed, requiring the first sung note to replicate the pitch of the opening note in the clarinet part. Similarly, the artificial harmonics in the violin and cello parts are difficult to match in terms of pitch and dynamics. What results, even in the hands of a highly proficient ensemble and an experienced singer, are extremely subtle, but nonetheless perceptible, variations in the execution of the phrases or individual notes. Slight alterations in pitch, amplitude and timbre may be further heightened by difficulties in replicating the rhythmic structures to the exactitude with which they are notated (having to count a rhythm of seven notes in the space of six against the same displaced rhythm in another part for instance). What this amounts to is that, whilst the piece becomes more *known* on one level as time goes on (due to the highly repetitive nature of the music), it also becomes subjected to more scrutiny by the listener as more and more of the details become audibly noticeable. I would like to think that, by offering various points of focus upon the same event over a prolonged period of time, the piece allows for the possibility of *opening up* a variety of implicit interpretations and, as a result, offers a degree of multi-dimensionality and a reflective space for the listener.

Reflecting upon the premiere performance, given by the Ossian ensemble with Lore Lixenberg during the 2007 Austrian Cultural Forum, I was subsequently reminded of a statement by the British artist Bridget Riley in which she stated that repetition in art (and we might add music) can act as an amplifier by bringing to our attention elements or details that might otherwise go by unnoticed (*Bridget Riley*, 1979). Indeed, following a recent performance in 2011 at the Royal Academy of Music, several people commented to me upon the ways in which their focus had shifted between the various composite elements during performance and that, had it not been for the absence of page turns, they would have been surprised to find that the score consisted of only a single, repeated unit.

This premise has come to represent my main outlook over the past few years. Indeed, with the odd exception (such as a commission for a shorter piece for a specific programme such as *Five Distances* (2011)) my tendency has been towards composing works that exhibit greater singularity than those described previously. One might say that the oscillating, repeating panels of *Low Time Patterns* or *Six Symmetries* are still present in a more recent piece like *Surface Forms (repeating)* but subjected to less immediate transformation. In the latter piece in particular, my inclination has been towards an imagined sound object which is prolonged over a given period of time. Change is not absent from the work but is conditioned by our experience of listening. As Hume has stated, “[r]epetition changes nothing in the object repeated, but does change something in the mind which contemplates it” (cited in Deleuze (2004, p.90)). The premise of time therefore becomes even more explicit in providing meaning to the work: Instead of attempting to construct time on a moment to moment basis, the music strives towards the creation of a singular time event. Rather like in the long, late works by Morton Feldman, such as *For Samuel Beckett* (1987) and *Coptic Light* (1985), time

operates less on a moment to moment basis but takes on the conditions of an objectified presence through which musical form becomes more ambiguous.

Having the privilege of a longer commission from the Huddersfield Contemporary Music Festival in 2008, and being able to put my faith in an ensemble that I knew and trusted (the highly talented Anglo-Belgian collective Plus Minus), I was given the opportunity to explore these ideas more fully. The challenge, as I saw it, was to create a piece that was almost monolithic in its outlook whilst still maintaining musical interest over an extended period of time (in this case approximately 45 minutes). I chose to structure the piece as a single movement, but with three very short pauses which offer slight moments of repose that serve to break the piece into five discrete sections of closely related materials (indicated from A to E in the score). As will be apparent from the table in figure 2, these materials become progressively slower and more repetitive as time goes on, generating greater and greater degrees of magnification. For the same reasons, the number of pages in each discrete section is reduced to just eight $\frac{3}{8}$ bars of music at the end of the piece (E2 in the table), repeated to a total of 98 bars.

Figure 2 Outline of page arrangement in *Repetitions in Extended Time*

Divisions of sections (A1, etc.):	1	2	3	4	5	6	7	8	9	10
A quaver = 96 bpm	16 bars	12 bars	8 bars	22 bars	14 bars	6 bars	24 bars	20 bars	18 bars	10 bars
B quaver = 84	18 bars	28 bars	20 bars	28 bars	20 bars	16 bars	26 bars	20 bars		
C quaver = 72	28 bars	36 bars	40 bars	19 bars	28 bars	48 bars				
D quaver = 60	52 bars	52 bars	50 bars	60 bars						
E quaver = 48	96 bars	98 bars								

The effect, on one level, could be said to be somewhat like the visual magnification of placing an object under a microscope. At first the repetitions appear indistinct, fleeting and constantly changing, but, as time progresses, figurations become more prominent and obvious and the details themselves begin to take on their own identity. The opening page of the score is shown in figure 3.

As will be evident from this extract, the page acts as an organisational frame and provides structural unity to short chains of events. However, unlike in *A Leaf Falls On Loneliness*, the repeating two bar harmonic structure is used to set up loops within loops, whereby each instrument or group of instruments might have their own set of repeats independent to that of the others, but which add up to the same total number of bars per page (sixteen in the case of figure 3). This provided longer sections of constant variation from limited means, and was furthered by two additional compositional instructions. The first of these is the introduction of quasi-improvisation, such as in the

Figure 3 Opening page of *Repetitions in Extended Time* (2008)

The image shows a handwritten musical score for the opening page of *Repetitions in Extended Time* (2008). The score is for a 16-bar section, marked 'A1' and 'f=96 fleeting/ephemeral'. It features six staves: bass clarinet, electric guitar, two keyboards (K1 and K2), piano, violin, and cello. The music is characterized by repetitive rhythmic patterns with various multi-measure rests (x3, x4, x5, x7) and dynamic markings like 'sim.' and 'p'. The cello part at the bottom is particularly complex, with many multi-measure rests and a network of trajectories.

opening cello part which allows the player to navigate their way through a network of available trajectories (performed as artificial harmonics from an available fundamental). Also, the score allows for slight - but still perceptible - changes to be made by individual performers when repeating modules (variables may include small alterations in timbre, dynamics, or the omission/addition of trills, tremolandi, etc. where appropriate). These two added aspects to the piece provide a textural surface that is constantly in flux.

This fleeting and ephemeral aspect of the opening section creates, for me, a fascinating perceptual aspect to the piece: the music always seems to be outside of my grasp, beyond what I find to be immediately perceptible. I considered taking this aspect one stage further, by asking what would happen if the listener were to be continually returning to the same point in the music but discovering new aspects within the texture each time? I began to write a piece in which depth would be intentionally reduced and detail emphasised to draw the listener towards the textural surface on a moment to moment basis. One way to ensure this was to create a piece in which all instrumentalists played similar harmonic and rhythmic material within a confined dynamic and pitch range, rather like in the ensemble music of the late Aldo Clementi. The effect I had in mind was latterly described by an ex-student of mine as being somewhat like skip-reading through a book. If the book, hypothetically, contained identical extracts of the

same text on each page we might not necessarily identify the same information since it seems likely that we would be encountering a different location point in the text from one page to the next.¹

The resultant piece, *Surface Forms (repeating)* was written for the highly virtuosic musicians of ELISION following another commission from the Huddersfield Contemporary Music Festival for 2010. The work operates on cycles of approximately 43” – far longer than the short cycles of just a few seconds utilised in the aforementioned works. Whilst the repetitions in these earlier pieces set up conditions through which, it could be argued, the psychological present may be perceived as a measurable entity, in *Surface Forms* the cycles are too long and the materials too dense for the music to be perceived in this way. Therefore, any sense of meaning constructed by the listener, must - over this extended cycle length - be constructed cognitively. What I had not anticipated was just how difficult it would be to actually discern the literal repetitions, i.e. the ‘joins’ between the end of the cycle and the start of a new one.

Figure 4 illustrates the organisation of pages in *Surface Forms (repeating)*. Every eighth page, there is a repetition of both the sequence of time signatures and the underlying harmonic structure (see figure 5) given by the harp, vibraphone and a tape part of the same material in sine tones. This provides a template onto which various musical figures can be overlaid.

Figure 4 Outline of page arrangement in *Surface Forms (repeating)*

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	32	33	34	35
36	37	38	39	40	41	42
43	44	45	46	47	48	49
50	51	52	53	54	55	56
57	58	59	60	61	62	63
64	65	66	67	68	69	70
71	72	73	74	75	76	77
78	79	80	81	82	83	84
85	86	87	88	89	90	91
92	93	94	95	96	97	98
99	100	101	102	103	104	105

With each repeat of the seven-page cycle, materials may be re-used or a new page introduced. I settled on three different options of pages to be used for each of the first seven pages of the score, resulting in a total of 21 different pages that repeat to make up

the total 105 pages of the score. Articulations (and occasionally dynamics) are subtly altered with the re-introduction of a previously used page. Very occasionally, materials from different pages are combined, but - for ease - the three basic options of pages to be used are indicated by the three different colours in figure 4. Colours in the table are to be read vertically, meaning that, for instance, pages 15, 43, 50, 71 and 78 indicated in yellow are the same as (or are a slight variation of) page 1. Similarly pages 16, 44 and 65, indicated in yellow in the second vertical column, use the same material as page 2.

The fact that the cycles always exhibit properties of self-similarity and that new materials are often based upon, or similar to, existing materials (and sometimes transposed from a previous page) adds to this ambiguity, providing a further disorientation of memory. The pitch trajectory itself is a loose three-part canon from which lines can be derived:

Figure 5 Three-part chromatic pitch canon used in *Surface Forms (repeating)*

C	B	B ^b	A	A ^b	G	F [#]	F	E	E ^b	D	C [#]
D	C [#]	C	B	B ^b	A	A ^b	G	F [#]	F	E	E ^b
E	E ^b	D	C [#]	C	B	B ^b	A	A ^b	G	F [#]	F

Combined: C-D-E-B-C[#]-E^b-B^b-C-D-A-B-C[#]-A^b-B^b-C-G-A-B etc.

This pitch canon is then used as a guide as to the unfolding of pitch events through time from which a variety of melodic configurations could be derived. As figure 4 makes clear, the self-similarity inherent within the repeated intervallic sequences ensures a sense of linearity and perceptual continuity on a micro level, such that each pitch leads predictably to its immediate successor, albeit often ‘distorted’ through the employment of octave displacement. When combined collectively across the instrumental parts (and with the addition of the tape part), the effect is of a continually unfolding textural field without beginning or end, not dissimilar to the perception of a continually falling Shepard tone. The opening page of the score is shown in figure 6.

These aspects of self-similarity within a repetitive context can also be seen in other recent works. Whilst a detailed analysis of these other works is beyond the scope of this essay, two short examples are given here: *M.C.E.* for solo guitar utilises chromatically contingent pitch classes to create quickly oscillating arpeggios. Occasional notes ‘pop out’ of the texture registrally and become momentary features, only to become subsumed and replaced with other incidental notes which appear from the overall textural surface. Again, the emphasis is on the prolongation of small amounts of material in constant variation, allowing for a more reflective kind of listening. The whole piece is constructed from these pitch cells which are presented in various configurations, either as continuous pulses (as in figure 7) or as rhythmic variations.

Figure 6 Opening page of *Surface Forms (repeating)* (2009)

Distant, understated, opaque. Always as quiet as possible unless otherwise indicated.

Tempo: ♩ = 96

Instrumentation: a. fl., cl., bpt., trb., (R.V.), vib., (L.V.), (R.V.), trpt., (L.V.), Sop., vla., vc.

Performance instructions: ppp, fine, ped., S.T., gliss., ord.

Page number: (1)

Figure 7 *M.C.E* (2009) for solo guitar

A further example of self-similarity is *Receiving the Approaching Memory* (2011) for violin and piano, which, at 50 minutes, is my longest piece to date. As with *Repetitions in Extended Time*, the entirety of the piece is encapsulated within a limited number of pages through the superimposition of repeated materials of variable length, thus generating long durational spans from limited means. The title attempts to encapsulate time in its three tenses: present (*'receiving'*), future (*'approaching'*) and past (*'memory'*), to suggest an active engagement once again with our faculties of memory retention and protention. Through its extended duration, the piece pushes the boundary of concert programming and the expectations of the listener to a greater degree than the aforementioned works. The variations are slight throughout the work, and the material is dense, highly repetitive and offers no repose for the listener. Indeed, as the piece still awaits a first performance, it may transpire that the work is far more suited to an installation environment rather than the concert hall.

Placing the emphasis on the subtly changing and surface aspects of the work has parallels in the visual arts. Abstract painting in particular is an area that I have had a keen interest on since the early 1990s, and has drawn me to collaborate with artists such as painter and printmaker Mike Walker. The influence of certain artists from the minimal, op art, and abstract expressionist traditions has had a significant influence on my own work. One might even say that the conception of my compositions is visual even though, paradoxically, they require time as a premise for the work. In 2006 I attended an exhibition at the Baltic in Newcastle entitled *'And Our Eyes Scan Time'* by the Northumbrian painter James Hugonin. I was already familiar with Hugonin's work, having been introduced to the artist through my former composition teacher Gavin Bryars during a solo exhibition of the artist's work at Kettle's Yard some ten years

previously. The reference to time in the title of the exhibition is significant. As Alan Haydon states in the forward to the exhibition catalogue, “James Hugonin allows time, structure and rhythm to determine the final composition of his unique and contemplative paintings” (2006, p.6). The paintings are all immaculately constructed on equally-sized square white boards, onto which is drawn a fine grid of rectangles with a silverpoint and ruler. Over a period of a year or longer, onto this grid, Hugonin builds up the composite elements that make up the picture plane, revealing an almost opaque configuration of interlocking rhythms and patterns. Images of Hugonin’s work can be viewed at <http://www.inglebygallery.com/artists/james-hugonin/>. As Michael Harrison, curator at Kettle’s Yard has stated:

The paintings carry with them that pace, that slowness, that sense of time. They invite us to slow down, to tune in, and look as we would settle to a piece of music, allowing time to take effect - to acknowledge that, for all their quietness and stillness, our relationship to them is one of continual change. Our eye might alight and settle on one area but not for too long, and then moves on - and, if we return to that spot, we won’t see the same thing.” (2002, p. 7)

Time is not a phenomenon that we might ordinarily associate with painting, but the parallels here to music, and the durational aspects in particular, are astonishing. The ways in which the paintings take the eye across the picture plane establishes colour sequences that appear to be constantly in a state of transition. To fully engage in this experience of scanning and recognition requires prolonged contemplation of the picture plane. The time required to understand and appreciate the work is the result of the attention to detail applied in the creation of the work over such a prolonged period. One must work with the picture plane (or allow the picture plane to work on us) in order to build up a full appreciation of the interplay of patterns created in such an intuitive yet painstaking manner. We must unravel the complex relationships between patterns and repetitions, discovering ellipses and iterations, rhythms and counter-rhythms.

The ways in which the eye is drawn across the picture plane in these works by Hugonin seems, in some ways, reminiscent to the luminescent works of Bridget Riley from the 1990s in which the diametric opposition of colour and rhythm creates an almost kinetic sense of movement. Similarly, in select works of Françoise Morollet from the 1970s, the random distribution of 40,000 squares in select colours causes the eye to move across the picture plane through time, chunking information and creating the impression of preordained patterns. In both of these artists’ outputs, the success of the work is largely dependent upon the viewer themselves: the more time we spend with the work, the more attentive we become to the process of their construction. Relevant examples of Riley’s work from the late 1980s and early 1990s such as *Fete* (1989) and *Nataraja* (1993) can be viewed at <http://www.tate.org.uk/art/artists/bridget-riley-1845>, and Françoise Morollet’s *Random Distribution of 40,00 Squares using the Odd and Even Numbers of a Telephone Directory* 1960 can be viewed at <http://blog.chriswillcox.com/2010/09/crossposted-on-myartspace-blog.html>.

Over the past two years I have had the pleasure of meeting and collaborating with visual artist Tim Head. I first encountered his work during the 2009 Huddersfield Contemporary Music Festival where the artist had a major exhibition featured in the

Huddersfield Art Gallery. I was particularly drawn to two recent works which involved the projection of thousands of quickly-moving pixels onto the entire gallery wall. The pixels enter the screen from all directions and move quickly up, down and across the frame in continually shifting configurations. As Head has described it:

“Computer programs for the digital projections are written to generate unique events in real time. The unsettled surfaces of the projections are composed of random colours, each occupying a single pixel and filling every pixel on the screen, and programmed to change or move in particular ways across the screen as fast as possible.” (2011)

Although I was unaware at the time that the generation of pixels was occurring in real time by the computer, there was nonetheless a sense of a continual presence in these works – of constant change and renewal. The works elegantly drew on aspects of motion and stasis, evoking many of the conditions of the textural surface described elsewhere in this essay. More importantly for me, these were works which engaged with aspects of time and required the active participation of the viewer. Static examples of Tim Head’s digital work can be viewed at <http://www.ucl.ac.uk/slade/timhead/art/art2000/78tea.htm>.

The commission for the collaborative project between Tim Head and myself has been provided by the London Sinfonietta with a series of performances, still under negotiation, planned for 2013. The collaboration is very much a work in progress but to date I have created various instrumental sketches, together with a Max/MSP patch designed in collaboration with my colleague Scott McLaughlin which allows for the playing of streams of notes from selected pitch cycles in real-time. The programme simulates the techniques I have employed in previous acoustic compositions and will be used in conjunction with the live parts in the final performance. With up to four pitch cycles sounding simultaneously (via sampled sound files), these will provide an additional layer to the ensemble composition. It is anticipated that the choice of pitches and tempi of the cycles in the Max patch, as well as the number of notes sounding and the rhythmic ratios of one cycle to another, will be manipulated in real-time by the programme operator. The use of contingent pitch classes will ensure a pervading sense of linearity within the work, in keeping with previous pieces. However, the randomisation of events will introduce an element of unpredictability, comparable to the real-time generation of pixilated images by Tim Head.

Playback of the computer generated sounds will be through four external speakers placed around the hall. These will work in conjunction with live instrumental parts: iterative pulses utilizing a variety of timbres, high sustained tones, trills, inflections and other levels of surface detail. This material will be presented as highly repetitive mobiles that overlap against the pitch cycles generated in real time by the computer. The form and structure will offer varying levels of densities, changes in texture and subtle transitions of harmonies from highly chromatic material to pan-diatonic clusters. These will be created through careful observation of rates of movement within the visual work as it emerges and, in turn, will inform the movement of the pixilated images in

constantly changing ways. A chamber ensemble of up to 8 players will be used, comprised of members of the London Sinfonietta.

It is anticipated that the work will be presented as an installation project and housed in an art gallery or similar venue that allows the spectator to pass freely through the exhibition space, thus being allowed to view the work on his or her own terms. The success or failure of the finished work will lie in its ability to allow the viewer to observe the work from multiple perspectives; these may be sometimes more visually-dominated, or sometimes more aurally-dominated, but they will always involve - to some degree - a multiple sensory perception. If the music or the visual component makes too many demands on the audience then either the visual or auditory sense will become subservient to the other, or a corollary between the two will simply not be observed. One of the most challenging aspects of this will be in working with the durational aspect of the work, and finding ways of maintaining a high degree of interest for the audience over a significant period of time.

It could be said that my musical output over the last ten years has evolved slowly, as each piece generates scope and possibility for future research. The evolution of contingent pitch cycles has provided a certain harmonic consistency and fluidity to these works, and has allowed many possibilities for exploring the notion of a non-directed linearity. The challenge of recent years has been to discover new contexts for the work and of pushing the boundaries of what I know. It seems that collaboration might provide scope for further discovery, and also for taking the work outside of the conventions of the concert hall. Whilst it is hoped that the musical language itself will continue to evolve into new and fruitful areas, it would appear unavoidable that notions of time will remain at the heart of this research, in terms of creating musical works that provide a reflective space in which we can listen.

NOTES

- [1] Conversation with composer Pat Allison, Huddersfield Contemporary Music Festival, 26/1109.

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