

## Emergent Material: Reinventing the Compositional Process

**Abstract.** This paper addresses various aspects of my recent compositional practice, which focuses on an interchangeability between pre-planned and spontaneous processes. For sometime my work has explored the relationships obtaining between complex compositional processes, and a more intuitive, even improvised, gestural scanning of the material. Notation and aspects of instrumental techniques further form an important part of this discourse as a means of articulating more complex relationships, where emergent properties form a fundamental aspect of the material. The resultant material therefore, is generated through a symbiotic relationship between various interactive layers of complex compositional processes, which are then mediated by more *informal*, intuitive interpretations, with a specific gestural surface in mind. This process inevitably problematizes the traditional view of the creative discourse as a kind of transcriptive process, where subjective material is often defined by certain inherited habits of thought. The work of the painter Francis Bacon or the shorter prose works by Samuel Beckett exhibit a similar relationship to the creative process in relation to the role of structure and the imagination, with a view to unlocking deeper areas of meaning beyond simple narrative or representation. I will examine the nature of such structures in relation to my own compositional processes with a view to exploring the interchange between process and imagination.

**Keywords:** notation, structure, improvisation, complexity, representation, intuition.

This paper seeks to examine the ontology of a work in relation to all aspects of the creative discourse and at the same time to problematize or question the nature of this discourse in terms of inherited ideas. What is the locus of a composition in terms of its inception as a possibility in the mind of a composer, through to performance as a realisation of the work in notated form, whatever kind of notation that may be? I would also include various structures/scores for improvisers in this context in terms of a specific approach to the nature and functionality of material.

More specifically, in relation to the subject of this volume, I will be referring to my own practice as a composer/improviser with a view to examining the relationships obtaining between complex compositional processes and a more informal or intuitive, even improvised, gestural scanning of the material. Since notation and instrumental technique form an important part of this discourse as a means of articulating more complex relationships where 'emergent properties' form a fundamental aspect of the material, I would like to begin with a brief discussion of this functionality to illustrate aspects of my approach.

To further contextualise this research I would also like to draw upon examples of parallel investigation in the work of artists and writers, whose work shares a certain resonance with my own ideas and seeks to question the more common views surrounding the ontology of a work of art, both in relation to its creation and reception; artists whose work is as much about the process of creation, as what it might be construed to mean.

The work of the painter Francis Bacon, for example, which is often associated with brutal images, is more about the brutality of the painting process in a search to capture the reality of an image – the brutality of fact, as the artist himself would say (Sylvester 1980). There is here an intimate relationship between the violence of throwing paint or using random brush strokes and the subtle painterly reworking of the result, which opens up new forms of meaning and representation on many different levels. Bacon's work transcends the 'precise' representation of an image, as found in photography, for example, to access "a deeper sense of the reality of the image", beyond direct representation (Sylvester 1980: 66). John Russell has identified a further feature of this process as "unconscious scanning" in relation to Bacon's work; a term introduced by Anton Ehrenzweig as a form of active but unfocussed attention, which often informs the decision making process in a work of art, in contrast, or perhaps complimentary, to the more structural aspects of the work (Russell 1971: 22).<sup>1</sup>

In the field of literature, the writer and playwright Samuel Beckett's later prose works abandon any form of traditional narrative, through a complex reworking of words, sentences and paragraphs, which redefine their potential meaning and test the limits of syntax and representation through language (Beckett 1995). In the case of both artists there is a complex interplay between chance, structure and intuition.

Such borderlines of representation and meaning inevitably invoke the name of Jacques Derrida, whose examination of the written text through Deconstruction and Grammatology excavates potential meanings beyond simple signification in writing, revealing a structure inherent in writing itself over and above the representation of speech (Derrida 1976). It is precisely such borderlines in structure and meaning through notation

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<sup>1</sup> See also Ehrenzweig, Anton, *The Hidden Order of Art*, University of California Press, Berkeley, Los Angeles and London, 1967.

that I would like to consider in a musical context as a compositional tool, as a means of accessing material, which is a product – or by product – of the interplay between structure, notation and performance.

In terms of music of course, the listening process in time is fundamental to the assimilation of material in relation to form, and an understanding (or perhaps re-inventing) of the intentions of the composer. Which aspects of a work are to be immediately assimilated, which are aspects of musical structure and which function on a deeper subcutaneous level in the generation of material? What might be the relationship between these various levels in the assimilation of the final work? This raises further questions relating to the nature and ontology of musical material itself.

At this stage in the 21st century, we seem to be living at a time when the ‘intuitive’ aspects of the compositional process outweigh the rational, or structural, i.e. aspects which relate more specifically to technique. This is perhaps a product of the revised relationship between high art and the more vernacular elements of influence, which have had a significant impact on both the creative and listening processes.<sup>2</sup> This further opens up more complex discussions relating to aesthetics, modernism/post-modernism, popularism, autonomy and so on – debates which are beyond the current scope of this volume, although essential to the overall theme. It is perhaps surprising to consider that such aspects of the compositional discourse might now have a socio-political resonance. However, to my mind, this reconfiguration of meaning, which is essentially what we are dealing with here, inhibits creativity and any real sense of compositional research into possible forms of meaning and expression beyond inherited notions. Even if attempts to find new forms are at times undertaken in the name of ‘crossover’, it isn’t enough to write, say, a concerto for beat-boxer or turntables, if the implications of the grammar itself aren’t sufficiently scrutinised. What we often experience is more of a regression in terms of form, structure and musical grammar, rather than a radical exploration of new potential.

As musicians, we are rarely taught to question the standard system of notation, which has been more or less solidified for around 300 years, but which is equally informed by such a historical sedimentation, despite the need by various composers since the 1950s to reinvent it. This also frequently resulted in more personal languages. What we can conceive as composers is often strictly limited and determined by the restrictions of the notational system, which defines music in terms of very specific parameters and a very specific functionality. It is often accepted that there is a one to one correlation between a musical idea and its manifestation in notation, suggesting a kind of transcriptive process through the act of composition. Any composer would tell you, it’s a lot more complicated than that! As Busoni pointed out “the instant the pen seizes it, the idea loses its original form” (Busoni 1911: 84). This also further identifies questions relating to latitude in performance and the margins of acceptable ‘impurity’ in the realisation of a score. What kind of liberties might a performer understand as interpretation or stylistic authenticity, or further, what the composer Brian Ferneyhough might call “meaningful inexactitude”? (Ferneyhough 1995)<sup>3</sup>

There are also works which specifically seek to exploit an open ended-ness through notational freedoms and live performance input; the use of various notational strategies such as time-space or graphic notation and open forms, for example, where the composer renounces responsibility for certain aspects of material and form. However, as Derrida illustrated, there exists a lacuna, a gap, between what can be said and what can be shown in writing, raising questions concerning the nature of knowledge and how knowledge relates to writing. Musical notation could be seen to operate in a similar way, when we start to consider the nature of representation and what significant potential notation might inhabit.

This brings me to the notion of emergent material in the title of this paper.

The term is appropriated from the study of complex systems, which has specific resonance here in terms of what Paul Cilliers calls “emergent properties”, where the “interaction among constituents of the system... are of such a nature that the system as a whole cannot be fully understood simply by analysing its components” (Cilliers 1998: 2). Cilliers further states “complexity entails that, in a system there are more possibilities than can be actualised” (Cilliers 1998: 2). In terms of musical notation there are two aspects to this: on the one hand, material that is generated through the complex interaction of various generative processes; on the other, material that is a by-product of music’s realisation in performance, as something inherent in the notation, but not explicit. ‘Impurities’ in performance or degrees of latitude in realisation, can nevertheless be seen to function as material, as the intentions of the composer. So how does this relate to the compositional process

<sup>2</sup> It is perhaps interesting to note that many such vernacular idioms sidestep the use of notation through recording, improvising and more devised processes.

<sup>3</sup> Brian Ferneyhough has referred to the ‘establishment of audible criteria of meaningful inexactitude’, as one indication of the way in which a work ‘means’. Interview with Richard Toop in Ferneyhough, Brian, *Collected Writings*, Harwood Academic Publishers, 1995.

and the role of the imagination, concepts and expression in this discourse? Emergent materials might seem not to exist at all, since they are not ‘represented’ in the sense of a one to one mapping of an idea. My own research has focused specifically on this aspect of notational potential seen as a fundamental component of the material.

In the same way there is a dialogue between concept and notation, there is equally a dialogue between structure and intuition. There has been much written about composition as a form of improvisation, and improvisation certainly plays a big part in the creative process. However, the complexities of this process extend to many levels of the discourse (Benson 2003). I would like to examine this interplay in my own work in terms of the relationships obtaining between structural processes and more intuitive manipulation and generation of the material.

To illustrate this, I would first like to focus on an earlier work, *+R*, for solo clarinet, commissioned by Roger Heaton in 1990.<sup>4</sup> The work was subsequently revised and extended in 1994 at the request of the clarinetist Andrew Sparling who gave the first complete performance and subsequently recorded it.<sup>5</sup>

For me this is a formative work, perhaps more than any other of my pieces, as it represents a significant distillation of my compositional processes. The pre-compositional working was here more clearly defined with a view to generating specific surface structures. In some respects the working processes of my earlier works were here combined with a view to exploring the relationships between two very contrasting materials, both of which establish quite different properties from the outset, which further define their roles within the overall formal structure.

The opening thirty-two bars form the first section of the work, as a kind of exposition, with a very clear interlocking of two initial types of material.<sup>6</sup> Perhaps uncharacteristically at this stage in my work, the time signatures were fully integrated into the pre-compositional process. Example 1 illustrates the interaction between the two levels of temporal information. The first is based on the permutation of seven time signatures of 16th note values, which gradually decrease from seven to two bars, losing the longest value in each reoccurrence. The second articulates the opposite process, using 8th notes, with an increase in length by adding one unit each time (2/8 – 3/8 – 4/8 etc.). This effective cross over of material then further forms a template for the larger scale formal structure of the work, to be discussed later.

It might be worth pointing out at this stage that this process, far from being randomly organised, was informed by the needs of a specific apprehension of sound, an envisaged musical situation (material), which required some form of articulation to bring it into being; in other words, an intuitive scanning of compositional possibilities with a specific (heard) result in mind. The initial pitches and rhythms in bars 1–7 therefore, were intuitively conceived in response to the required character of the material and the implications of the temporal aspects.

Tempo ♩ = 120							Tempo ♩ = 120	
A material (7 bars)							B material	
7	5	3	2	4	6	8	2	
16	16	16	16	16	16	16	8	
Odd numbers/even numbers								

Tempo ♩ = 120						Tempo ♩ = 80	
A material (6 bars)						B material	
7	2	5	4	3	6	3	
16	16	16	16	16	16	8	
Permutation of 1 (142536)							

Tempo ♩ = 120					Tempo ♩ = 60		
A material (5 bars)					B material		
6	3	4	5	2	4		
16	16	16	16	16	8		
Retrograde of 2							

Tempo ♩ = 120				♩ = Tempo 48	
A material (4 bars)				B material	
2	5	4	3	5	
16	16	16	16	8	
Middle of 2					

Tempo ♩ = 120			♩ = Tempo 40	
A material (3 bars)			B material	
4	3	2	6	
16	16	16	8	
Middle of 1 (permutated)				

Tempo ♩ = 120		
A material (2 bars)		
2	3	Next cycle
16	16	
R of 5		

Example 1. *+R* section 1 bar cycles

<sup>4</sup> The work was first performed by Roger Heaton in the *Es Festival*, Milan, in a provisional shorter version.

<sup>5</sup> Redgate, Roger, *+R*, for solo clarinet, Editions Henry Lemoine, Paris, 1990. Recorded by Andrew Sparling on *Andrew Sparling*, NMC Recordings, NMC D092 and Rolf Borch on *Step Inside*, Aurora ACD 5046, 2007. Comparisons of these two recordings illustrate the interpretative potential of the notational strategies.

<sup>6</sup> The term ‘material’ here relates to the defining parameters of each.

**+R**

for solo clarinet

**Roger REDGATE  
(1990-91)**

♩=120 *sempre ben artic*

7

12

16

21

24

27

31

ff

fp

f

ff

pp

mp

ff

mf

p

sub p

fff

ord.

flz

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Example 2. Cycle one of +R – score

These materials then formed the basis of the ‘A’ material, which is subsequently developed by a permutating, rotational harmonic scheme, gradually sliding over itself and projected onto interlocking rhythmic lines, covering more or less the full (and in this context ‘performable’) range of the instrument. This is always at a fixed tempo ( $\downarrow = 120$ ) and a more or less constant dynamic profile (*ff*). As discussed, this unfolds according to a decreasing permutational/cyclic process of time signatures from 7 to 2 bars within this section. The process aims to emphasise the material’s transformational tendency (development and/or disintegration) over time. The lack of more localised information therefore, such as dynamics, articulations etc., is intentionally minimised in favour of a process which could be more easily assimilated. Although on the surface the material appears in some respects to be rather static, the interaction of the various strata allows an expansion and rarefaction of information informed by the harmonic rhythm.

After the composition of bars 1–7, processes of transformation were separately applied to both rhythm and pitch, which were then subsequently projected onto the pre-structured time signature cycles. Pitch was organised into harmonic fields defined by bars, which were transformed using a rather Boulezian chord multiplication process allowing the harmonic fields to slide over each other.

The advantage of this process was the freedom to intuitively choose the order and register of the pitches defined by the harmonic fields, rather than a specific quasi-serially defined sequence. Throughout this section therefore, there is a symbiotic relationship between generative processes and a more intuitive interpretation of the results with a specific musical surface in mind.

In contrast, the ‘B’ material is constantly changing and unfolding throughout the entire work, and is much more rich and complex. The first cycle illustrates this tendency. Each appearance introduces a new element, which ranges from pitch/rhythmic aspects to articulation, combinations of actions, dynamic profiles, repeated notes, melodic lines, more extended playing techniques, regular/irregular scale-like figures, and is increasing in duration throughout. Another significant feature of this material is the use of quartertones, absent from the A material. Within the first section it makes only five appearances in bars of increasing length, which are also becoming closer together as the A material disintegrates. The first example appears in Bar 8 (including a quarter note up beat) where there is a downward *glissando tremolo*, normal articulation moving to flutter-tonguing, and a *fp crescendo*. The next appearance is in Bar 15: here again there is flutter tonguing, the *fp crescendo* and quarter-tones. The new element here is the slurred quasi scale-like formations, with an irregular rhythmic profile. Bar 21 then introduces grace-note groups, short *glissandi* inflections and articulated scale formations and so forth (see Example 2).

In contrast to the A material which remains at a constant tempo throughout the section, the B material is incrementally slower in each appearance, starting at the same tempo of 120 and moving through 80–60–48–40, with a proportion of 2:3:4:5:6 moving from fast to slow. This effectively reflects the same proportions as the A material time signatures.

Within this given temporal framework (time signatures/tempi) the B material in this section was also intuitively composed, using more informal processes to articulate the material, whilst also adhering to the principle of a gradual accretion of new elements. ‘Informal processes’ here refer to an unfolding of information used for further evaluation as potential material, which at this stage is not structurally generated or controlled beyond the temporal aspect.

As mentioned above, this opening served as a model for the entire formal structure of the work, which is based on subsequent 32 bar cycles, exhibiting the similar processual tendencies. Example 3 shows the structure of the initial 32 bar cycle.

The successive appearances of the A materials were then permuted as shown in Example 4, with one bar interpolations of B material between each grouping.

<b>Material</b>	A	B	A	B	A	B	A	B	A	B	A	B	A
<b>No of Bars</b>	8	1	7	1	6	1	5	1	4	1	3	1	2

Example 3. Initial material distribution

	<b>A material groupings in numbers of bars</b>					
<b>Cycle 1</b>	7	6	5	4	3	2
<b>Cycle 2</b>	7	6	5	4	3	2
<b>Cycle 3</b>	7	5	3	2	4	6
<b>Cycle 4</b>	5	6	3	2	7	4
<b>Cycle 5</b>	3	7	5	4	2	6
<b>Cycle 6</b>	2	3	6	4	7	5
<b>Cycle 7</b>	4	2	7	6	3	5

Example 4



Example 8 shows a passage taken from the middle of Cycle 4 (midway through the work), which illustrates the development/disintegration of each material. Clear fragments of A material appear in bars 113, 116 and 120, whilst the new element of melodic lines starts to appear in the B material, marked with added *accelerandos* (bars 117–118, 121–122 and 124), each culminating in an articulated flurry of notes.

Example 8. The middle of cycle 4, midway through the work

It should be observed here that these materials are further subject to secondary transformational processes, which increasingly blur the individual identity of certain materials through subsequent layerings. One such process would be the introduction of time-lines derived from time signature cycles, used to create further interactive temporal layers. Example 9 shows an example of this. Here we have the time signatures from Cycle 6 with temporal divisions derived from Cycle 2. The dotted lines and faded out sections indicate where certain materials are being omitted – another filtering process. These time-lines then determine the distribution of rhythmic materials accrued throughout the work, as can be seen in Example 10. Here the A material is attempting a comeback, having been eaten away (bars 169, 172 and 173), while the B material is losing its identity, becoming compressed into microtonal/timbral variations of a single pitch (bars 164–166, 170–171 and 174).

Example 9. Times lines combining temporal layers of cycles 2 and 6







Example 14 illustrates the proportional distribution of the materials in Movement I, with:

- a gradual increase of material I;
- a constant, quasi-symmetrical, distribution of material II;
- and a smaller overall increment of material III.

Material	Number of bars								
	1	2	3	4	5	6	7	8	9
I	1		2		3		4		5
II		2		2	2		2		2
III		1		1		2		1	3

Example 14. Hierarchical distribution of materials I, II, and III in Movement I

It can be further seen in Example 13 similar expansions and contractions of material in movements 2 and 3. There are many more other layers of information beyond the scope of this article, such as the secondary groupings, and phrase structures determined by the interaction of these processes. This discussion has only outlined the larger scale formal structure and distribution of material. There are further local processes relating to the material itself, similar to those discussed in relation to +R – timelines, pitch/rhythmic structures, articulations, all of which have an association with specific materials.

It would be reasonable to assume from the above discussions, that this music is totally determined by such pre-compositional devices. In practice it is only when these processes have done the first part of their job that the real act of composition begins. On an intuitive level there are many decisions concerning the nature of the material itself and its gesturality and function, that are not predetermined and unfold according to more informal strategies, which could be seen to be the *real* material. The starting point for the structural processes is also often intuitively formed, with a specific musical situation in mind, as is the application of any particular process at any given juncture. The role of such processes, therefore, is to create a meaningful framework in which to work and a reservoir of possibilities to which I can spontaneously react.

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## Iškylančios materijos: permąstant kompozicinį procesą

### Santrauka

Straipsnio tikslas – ištyrinėti kai kuriuos santykius tarp generatyvių procesų ir labiau intuityvių komponavimo strategijų autoriaus kūrinuose. Tokių procesų sluoksniavimasis neretai sąlygoja sudėtingą užrašymo būdą, kuris čia traktuojamas kaip integralus kūrybinio diskurso komponentas, ypač susijęs su „iškylančių materijų“ generavimu. „Iškylančiomis materijomis“ įvardijamos savybės, gimstančios iš kompleksinių sąveikų tarp įvairių sistemos aspektų, kurių asimiliacija vyksta už individualių komponentų analizės ribų. Toks traktavimas leidžia kalbėti apie našius simbiotinius santykius tarp generatyvių procesų, padedančių sukurti terpę, kurioje gali reikštis kūrybinė vaizduotė ir dar spontaniškesni intuicijos aspektai. Čia galima išvelgti sąsajas su Gastono Bachelard'o „dialektinio siuracionalizmo“ sąvoka – būseną, kurioje sisteminis protas sapnuoja, leisdamas suformuluoti teoriškai preciziškus klausimus apie visiškai nežinomus reiškinius (Bachelard 1968: 32).

Žinoma, už straipsnio ribų lieka neaptartų detalių. Neformalizuoti, intuityvūs aspektai yra labiau spekuliatyvūs ir sunkiau apibrėžiami. Vis dėlto jie suformuoja bene svarbiausią ir labiausiai asimiliuojantį medžiagos sluoksnį. Struktūriniai veiksmai yra skirti funkcionalumui palaikyti – išgryninti tai, kas buvo sukurta muzikinės (klausos) vaizduotės. Ši struktūrinių ir intuityvių procesų vienovė bei sąveika formuoja kompleksinę sistemą. Kertine čia tampa Antono Ehrenzweigo „pasąmoninės žvalgybos“ (*unconscious scanning*) sąvoka, kai žvalgomasi potencialios medžiagos, o nesutelktas dėmesys tampa sprendimo priėmimo instrumentu.