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ISSUES OF NOISE IN MY RECENT COMPOSITIONS

EDWARD WHELAN

A thesis submitted to the University of Huddersfield in partial fulfilment of the requirements for the degree of Master of Arts by Research in Composition.

The University of Huddersfield

August 2013

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Abstract

Trevor Wishart (1996, p.58) refers to noise as “the inharmonic and non-periodic”. Much of this thesis can be seen as a response to this idea from the perspective of an acoustic composer. Noise has been a preoccupation of mine throughout my recent work. In this thesis, I shall present the results of my investigations regarding issues of noise. Working with noise as an important component of my music has led me to question what noise means to me. Although I do not attempt to find or create an objective definition of noise, concepts regarding the perception of noise have informed my compositional practice which I shall explicate in this thesis. Exploring the issues of noise has also provoked a re-examination of my notational practice. This has compelled me to address the limitations of staff notation and move towards a notational system that is more suitable to accommodate a “noisy” aesthetic. This thesis is organised into two main sections. The first is a more general discussion about issues of noise and the second is a more detailed examination of how noise has influenced my compositional thought and notational practice.

Introduction

Noise in the context of music is, for me, a sound or an amalgamation of sounds that has no definite pitch. In other words, it is a classification of sound that is determined by its predominance of inharmonicity. What is most important in my work is the degree to which inharmonicity is present in a sound. Pitched tones that are produced by playing acoustic instruments contain significant amounts of inharmonicity that contribute in part to the timbre of the various instruments. The sounds of acoustic instruments do not appear at either end of a spectrum between harmonicity and inharmonicity, but instead find themselves somewhere in-between these two extremes. The concept of a spectrum between noise and pitch is a perspective of sound which interests me and informs my work. Although I recognise that working with electronic music would have its advantages in this area of study, I have chosen to explore the sounds within the constraints imposed by the physical limitations of the particular instruments that I have written for. My interest in these sounds originates from the visceral impact that noise in music has had upon me. The motivation to compose using noise can be explained in the writings of Dror Feiler (1998) who states, “The music does something palpable to its listeners, or at least incites them to a form of action, of awakening”. However, the perception of noise is very subjective and contingent upon many factors that may include the experiences and expectations of a potential listener of noise. A full enquiry into all the possible ways in which noise may be perceived and all the possible contexts in which noise may be found is beyond the scope of this thesis. Instead, I only consider particular ways in which noise may be perceived and implemented within the context of music. This has compelled me to explore issues of improvisation, silence and unconventional performance techniques. I have made various attempts to increase the noise content of material in my work which has led to an investigation of the relationship between noise and notational practice. The results of this investigation can be seen in my scores through the subversion of existing

notational practices, the utilisation of separate performance strands and the adoption of a more graphic-based notation.

Part 1

Chapter 1: Noise and Earlier Precedents

The Oxford English Dictionary (2009, p.970) defines noise as “a sound, especially one that is loud, unpleasant or disturbing,” or as “continuous or repeated loud, confused sounds”. This definition is useful as a point of departure as it gives us an idea with regards to the commonly accepted attributes of noise. However, many questions arise from this definition. What are the potential sources of these noisy sounds? Where is the distinction or the line between that which is noise and that which is not noise? How is noise in any way different (if indeed it is different) to music? Is noise something that exists independently from human perception? Throughout my investigation into noise, the sources of sounds have been the musicians who perform the acoustic instruments that I have written for. Utilising the potential sounds that can be achieved with these instruments, I attempted, at first, to make a distinction between “noisy” sounds and sounds that were predominantly pitch. My motivation was to bring attention to this distinction and also to follow on from my earliest interests in the music of Ligeti and Penderecki. Noise has been, and continues to be, an important part of music. This has been especially true of much of the music that was written throughout the twentieth century. Douglas Kahn (2001) does not underestimate the importance of the preoccupation that the composers of the avant-garde had with regards to “non-musical sound”.

“The line between sound and musical sound stood at the centre of the existence of avant-garde music, supplying a heraldic moment of transgression and its artistic raw material, a boarder that had to be crossed to bring back unexploited resources, restock the coffers of musical materiality, and rejuvenate Western art music” Kahn, D. (2001, p.69).

In other words, that which had previously been considered merely sound was now being brought into the realm of “musical sound”. John Cage spoke of the distinction between “noise” and music. “Whereas in the past, the point of disagreement has been between

dissonance and consonance, it will be, in the immediate future, between noise and so-called musical sounds” Cage, J. (1961, p.4). He considered noise to be the majority of sounds that we hear, and perhaps his composition 4’33” (1952) was an attempt to bring this “background” noise to our attention. Noise in music became a much larger issue during the early twentieth century than it had been before. Luigi Russolo became preoccupied with noise, writing a manifesto on the subject, ‘The Art of Noises’, in 1913. He explained that this preoccupation had arisen from the sounds of the industrial revolution that he and his contemporaries were exposed to.

“Nowadays, musical art aims at the shrillest, strangest and most dissonant amalgams of sound. Thus we are approaching noise-sound. This revolution is paralleled by the increasing proliferation of machinery sharing in human Labour” Russolo, L. (1913, p.5).

Russolo points out that the increasing prevalence of shrillness, strangeness and dissonances in music of the early twentieth century is only a step towards noise and not noise itself. For Russolo, the “dissonant amalgams of sound” are set on a trajectory that may approach “noise-sound”. To call dissonance “noise”, especially in the context of Western art music, would be very problematic. As Paul Hegarty (2007, p.12) explains, “Noise cannot be imagined as a synonym for dissonance... Dissonance works through its rethinking of consonance.” Also, dissonance and “noise” throughout the history of Western art music have had very different functions. The latter has mostly been used to provide punctuation at particular events throughout the narrative of a piece or to simply provide sound effects. Examples of this can be heard in the second movement of Haydn’s *Symphony No.100 “Military”* (1793/94) or the last movement of Beethoven’s *Symphony No.9* (1824). Russolo did not explore noise by working with instruments that were commonly used in Western art music at that time in history, but instead made his own *intonarumori* or noise instruments that would produce a variety of noises. Russolo organised these noises into six categories as shown below.

1	2	3	4	5	6
roars	whistles	whispers	shrill sounds	percussive noises using	animal and human voices:
claps	snores	mutterings	cracks	metal, wood, skin,	shouts, moans, screams,
noises of falling water	snorts	rustlings	buzzings	stone, baked earth, etc.	laughter, rattlings, sobs
driving noises		grumbles	jingles		
bellows		grunts	shuffles		
		gurgles			

Six categories of noises from page 6 of 'The Art of Noise' by Russolo, L. (1913).

The notation he designed for these instruments reveals a preoccupation with the specific pitches of these noises. From the perspective of perceiving noise as a sound that is different to pitch or devoid of pitch, this notation, for me, raises questions about the relationship between noise and pitch.

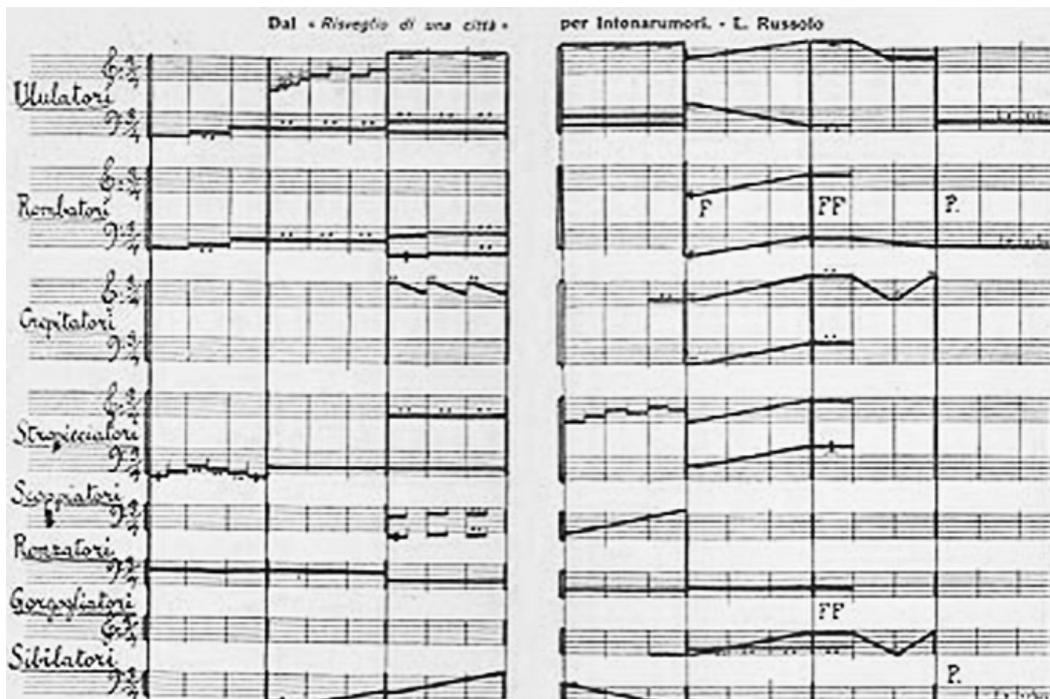


Fig 1: What remains of the score of Luigi Russolo's *Risveglio di una città* (1913).

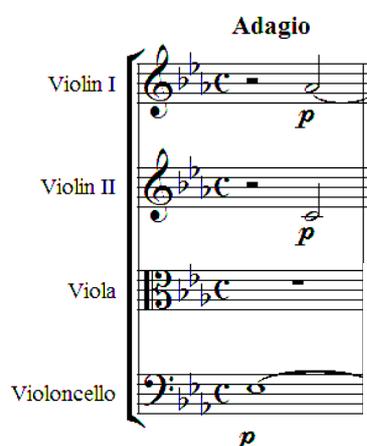
Chapter 2: A Noise-Pitch Duality

As mentioned earlier, Wishart, T. (1996, p.58) refers to noise as “the inharmonic and non-periodic”. Wishart goes on to explicate the relationship between the inharmonic and the harmonic and between the non-periodic and the periodic, while suggesting potentiality for intermediary sounds.

“Sounds, usually referred to as ‘noise’, are often treated as entirely separate entities from materials with clearly defined spectra usually generated from simple oscillators. In fact, there is no simple dividing line between periodic and non-periodic signals, but in fact a multidimensional array of complex possibilities between the two extremes” Wishart, T. (1996, p.58).

The software program, SPEAR, is useful for illustrating this point. The first figure of the two shown below is a score example of the opening of a string quartet. The second figure is the spectral analysis of a recording of this example. The predominant components of the sound appear darker in the analysis. The frequencies of the particular notes appear in the analysis as black, horizontal lines. The periodicity of the particular pitches is highlighted by the way in which frequencies appear in a regular pattern. There are, however, features of the analysis that are different in appearance from the periodic frequencies. Faint as they are, the presence of non-periodic sounds can be seen in the analysis as irregular and messy lines.

Adagio



Violin I

Violin II

Viola

Violoncello

p

Fig 2: Bar 1 of the third movement of Haydn's *Quartet in Bb major "La Chasse", Op. 1, No. 1* (1762/64).

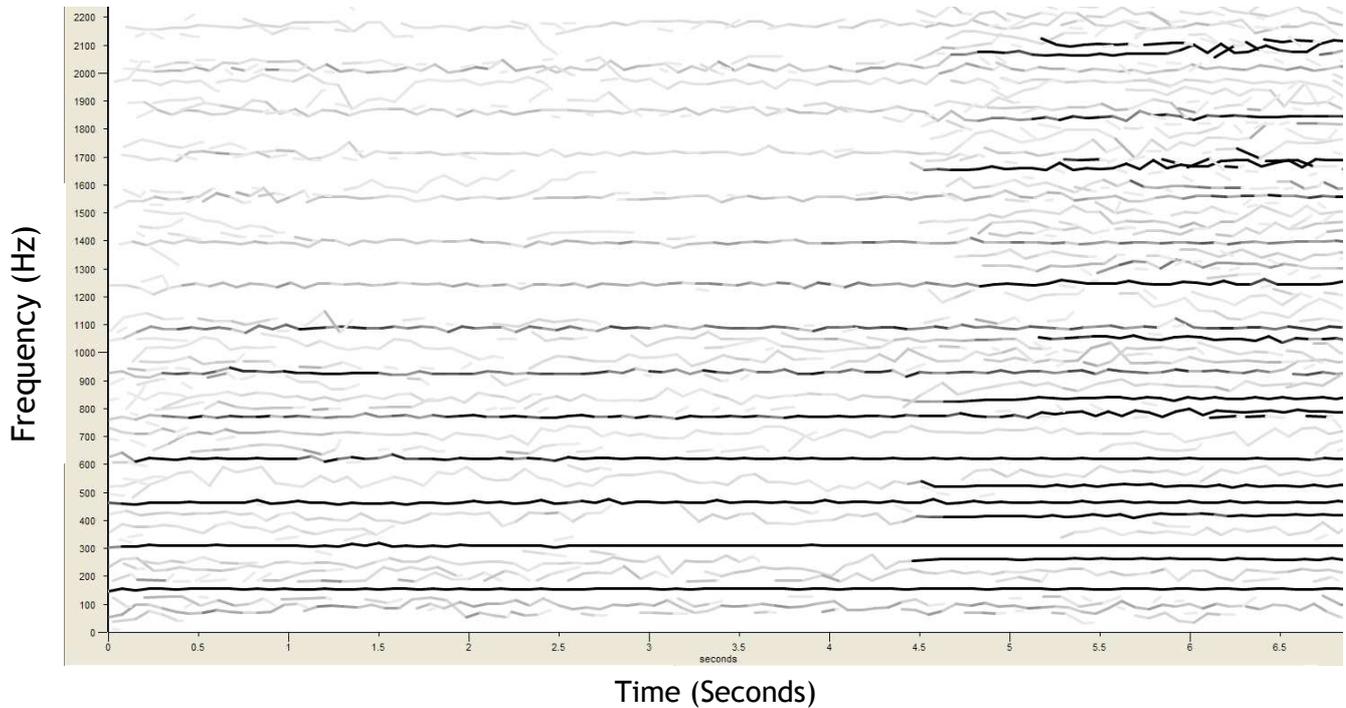


Fig 3: A SPEAR analysis of bar 1 of the third movement of Haydn's *Quartet in Bb major, Op. 1, No. 1* (1762/64).

The example shows that even with a very high predominance of harmonic material, in an acoustic composition this cannot be completely separated from noise. I am not suggesting Haydn intended noise to be a feature of his work. Noise is simply inevitable because of the nature of the instruments that are used to perform his music. The next analysis shows a predominance of non-periodic sound that was achieved by Varèse in his composition, *Ionisation* (1929/31). This was done by exploring the sounds of percussion instruments. The visible features in this analysis appear resistant to any pattern that one would expect to see from an analysis of periodic material.



Fig 4: Bars 38-39 of Varese's *Ionisation* (1929/31).

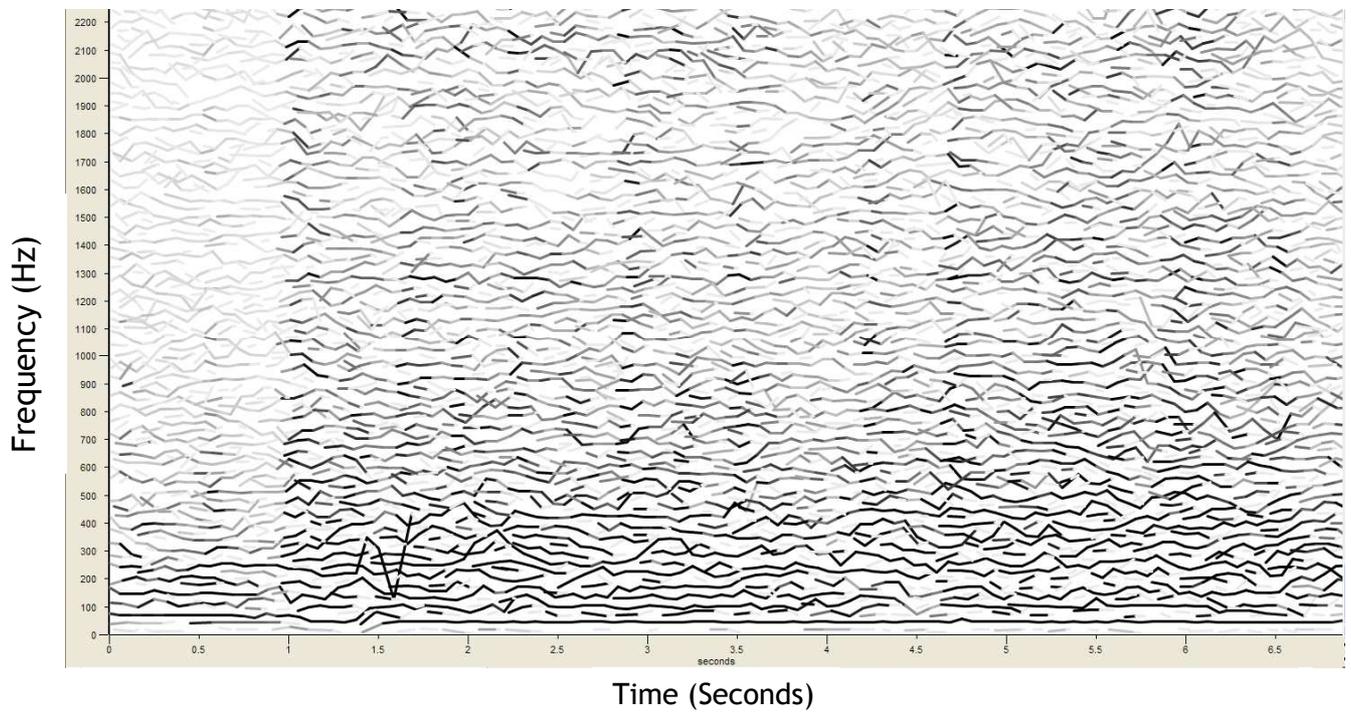


Fig 5: A SPEAR analysis of bars 38-39 of Varese's *Ionisation* (1929/31).

There is a significant implication of the assertion that that which is inharmonic and non-periodic can be described as noise. This is the consideration that a cluster chord which gives inharmonic, non-periodic spectral analysis results may also be described as noise. The last chord of Penderecki's *Threnody for the Victims of Hiroshima* (1960) is a collection of discrete pitches, mostly a semitone apart. It is this proximity that the pitches share as well as the performance direction of *sul ponticello* which will invariably give this sound object its “noisy” quality.

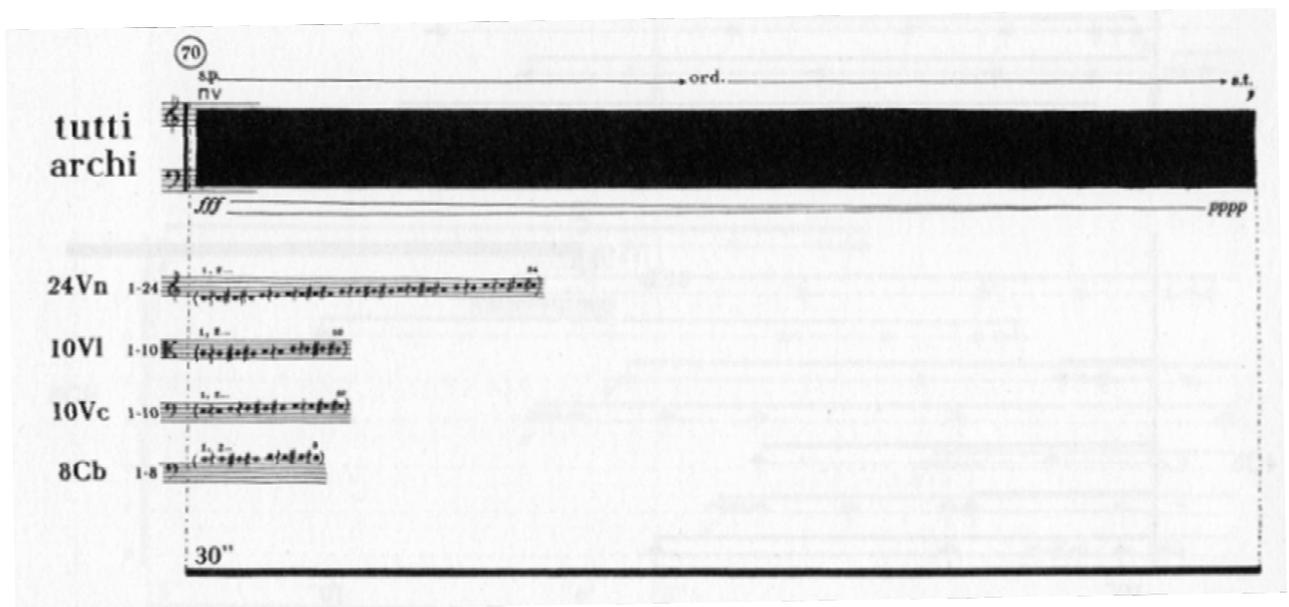


Fig 6: The last chord of Penderecki's *Threnody for the Victims of Hiroshima* (1960).

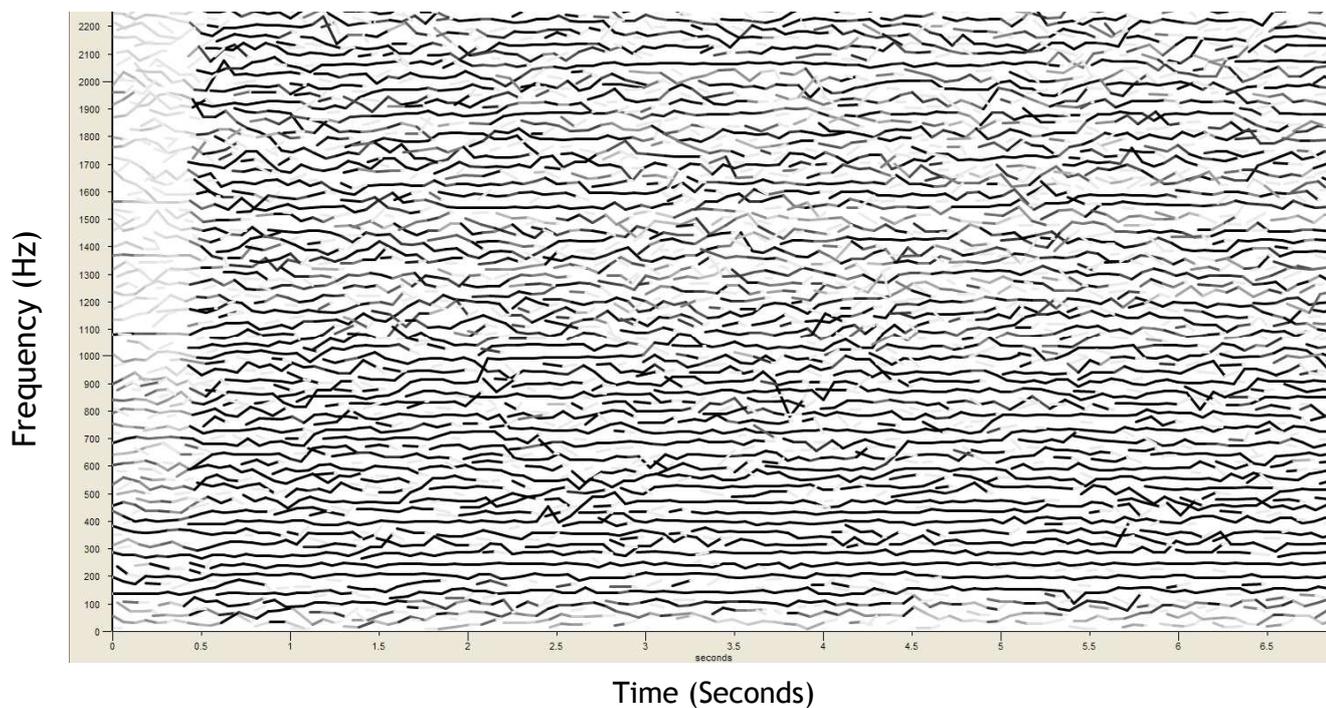


Fig 7: A SPEAR analysis of the last chord of Penderecki’s *Threnody for the Victims of Hiroshima* (1960).

This collection of tones, when analysed, is visually similar to the analysis of *Ionisation*.

This is a sound that uses amalgamations of pitch to achieve its “noisiness”. A dense cluster chord such as that which begins Ligeti’s *Atmosphères* (1961) gives a result that suggests some stability in the sound. Some of the horizontal lines are straight, which give the impression, visually at least, that the sound object that begins *Atmosphères* is less “noisy” than that which ends *Threnody*.

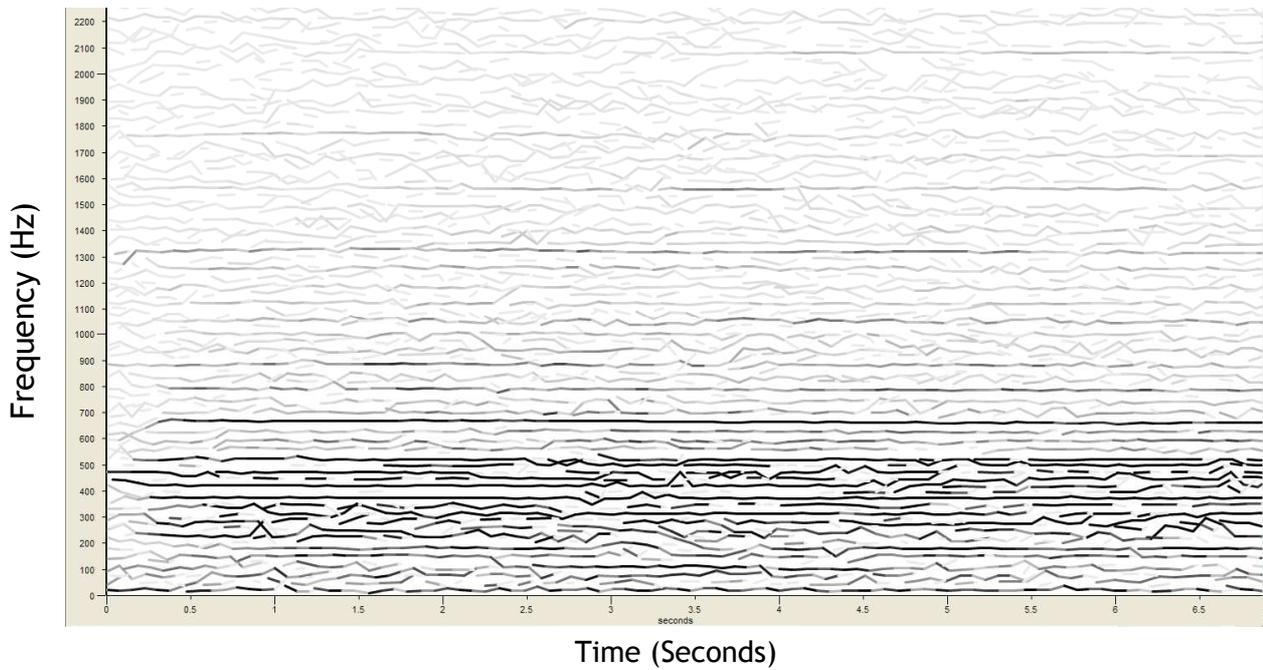


Fig 8: A SPEAR analysis of the first chord of Ligeti's *Atmosphères* (1961).

The conclusions I take from these results are that sound objects contain both pitch content (even if this is merely a registral space) and noise content. My interest lies in the degree to which one of these is the predominant feature of the sound. My earlier compositions can be seen as an application of this approach to noise. My intention was to manipulate the amount of noise-content or to control the predominance of pitch in a series of sounds. Also, I utilised cluster chords in order to attempt to bring attention to the fact that noise in this context cannot be completely separated from pitch.

Chapter 3: Applications of the Noise-Pitch Spectrum

Despite limiting my compositional practice by working only with acoustic instruments, talking about the parallel issues in electronic music with regards to noise in this instance is useful. The “multidimensional array” that Wishart, T. (1996, p58) speaks of has been exploited by composers in the late 20th century. In Rainer Wehinger’s Aural Score of Ligeti’s composition *Artikulation* (1958) it is revealed that Ligeti used a spectrum of electronically generated noise ranging from noise having recognisable pitch to noise having no recognisable pitch. He also differentiated between harmonic spectra having greater and lesser proportions of noise as is shown in the systems of symbols below.

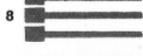
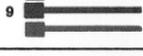
Zeichensystem		Systems of symbols					
A Rauschen noise		B harmonische und subharmonische Spektren harmonic and subharmonic spectra		C ungefilterter Impuls unfiltered impulse		D gefilterter Impuls filtered impulse	
erkennbare Tonhöhe recognizable pitch		weniger geräuschhaft lesser proportion of noise				Tonhöhe pitch	
6  Sinuston sinus tone		7 				hoch high	
5  20 Hz-gesfiltert 20 Hz-filtered		8 				16 	
4  terzgefiltert third-filtered		9 				15 	
3  oktavgfiltert octave-filtered		10 				tief low	
2  grob gefiltert rough-filtered		11 				14 	
keine erkennbare Tonhöhe no recognizable pitch		mehr geräuschhaft greater proportion of noise		13 			
1  weißes Rauschen white noise							

Fig 9: The system of symbols from the aural score of Ligeti’s *Artikulation* (1958).

Mathias Spahlinger, in his composition, '*128 erfüllte Augenblicke*' (1975), applies noise in a similar way to Ligeti. By assigning a number to each musical fragment, he can indicate the degree to which a performer should increase the noise content of the notated pitches. It is then the role of the performer to locate and communicate these points along the noise-pitch spectrum. I find figure 10 below interesting as it shows that Spahlinger sees noise as having equal importance to pitch and duration. These compositions provide some insight into the way in which these two composers in particular think about and utilise noise.

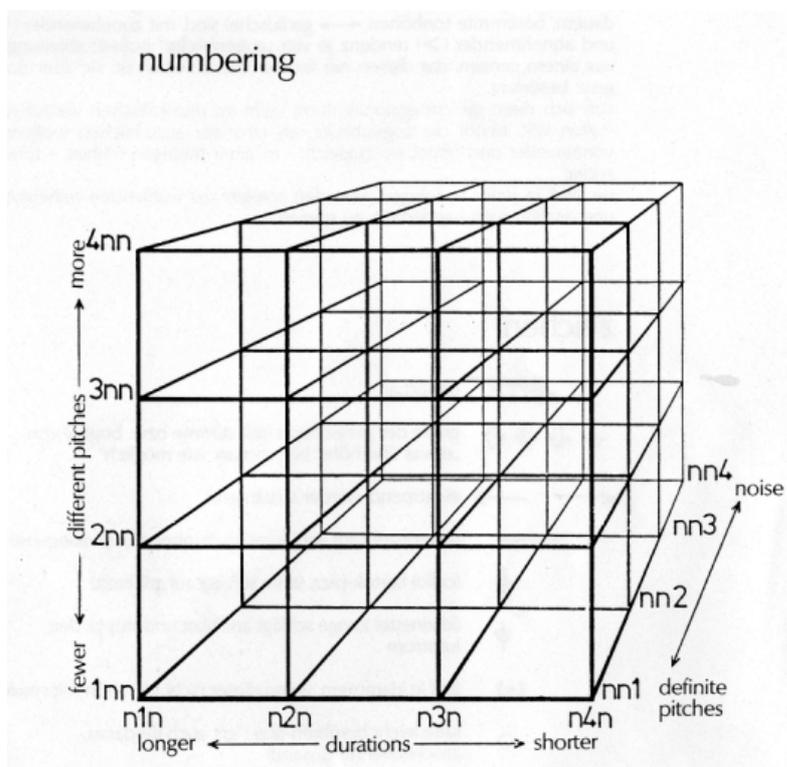


Fig 10: The cube designed by Mathias Spahlinger to indicate to performers how they should manipulate the musical fragments, in his composition, '*128 erfüllte Augenblicke*' (1975).

Helmut Lachenmann is a composer who has made “noise” a major component of his compositions. His music contains some parallels to mine in this respect. For example, there are instances of both “noisy” material and pitched material. Looking at the first page of *Mouvement (- vor der Erstarrung)* (1983/84), we can see pitched material in the first and third percussion parts. The percussionists are required to play the interval of a perfect fifth upon the two xylorimbas *mit Reibestöcken*, with rubbing sticks. This is juxtaposed against the inharmonic, *tonlos* or toneless sounds of the string instruments as they are bowed directly on the bridge. Lachenmann changes the pitch, or rather the general register of the frequencies, through a gradual changing of instrumentation from the viola to the double bass.

Fig 11: Bars 1-5 of Lachenmann’s *Mouvement (- vor der Erstarrung)* (1983/84).

Lachenmann's intentions differ from mine in that he has a greater preoccupation with the perception of the identification of the sources of sounds. He is also interested in the energy that is involved in producing them.

"In the last 40 years I have tried to develop a special sound concept, which I call 'musique concrète instrumentale', and which has to do with the energy of where a sound is coming from. In that context, I had to study and include what people might call 'noises'. A Bartók *pizzicato*, for instance is not just a short, loud pitch, but a sort of 'bang' it also could be understood as a message signalling physical energy - in this case even a special sort of violence - and so a legno battuto or pitchless breathing through a tuba could be listened to in those energetic terms" Lachenmann, H. (2010) cited in Paddison and Deliège (2010, p.334).

Noise is also of concern to the composer Peter Ablinger. In his composition, *Der Regen, das Glas, das Lachen* (1992), Ablinger writes music that contains both noise and pitch.

"...this [piece] marks the juncture of a one tone piece and white noise. The constituent polymeric one tone piece takes 20 minutes to "glissando" once through the octave and in the process turns into an all tone piece, while the total sound passes in stages through 6 further layers of simultaneous sound until it arrives at a single level of white noise. The simultaneity of the graduation from coarsegraininess (tone) to fine-graininess (= more compactness, more noise) right down to the surface (white noise) is maintained - potentially - from start to finish" Ablinger, P. (n.d.).

This reveals an application of noise that is similar to my own. Ablinger uses the differences between noise and pitch to form the basis of this composition. The pitch material is ascending throughout the piece and noisy material occurs simultaneously. Many composers have utilised noise and pitch to form the basis of their compositions. Spahlinger gives performers permission to increase the noise content of pitch, Lachenmann is interested in the energy and the sources of noises and Ablinger uses noise to allow a listener to "listen in to the various levels of the piece, to find his way IN THE SOUND" Ablinger, P. (n.d.).

Chapter 4: A More Subjective Approach to Noise

Paul Hegarty (2007) in his book, 'Noise/Music: A History', argues throughout that "noise is not an objective fact" (2007, p.3). Applied to all noise (not just noise within the context of my own compositions) this assertion cannot be refuted considering the variety of potential definitions of noise. In addition, the perception of noise in this wider context is dependent upon contingencies such as the expectations and experiences of a listener, and it is inevitable that these contingencies are subject to change. It is perceived by one particular individual at one particular moment and then is almost immediately liable to fail as something which is perceived as noise. However, potential definitions that could have some application in composition cannot be ignored. Hegarty, P. (2007 pp4-5) suggests some potential definitions which include instances of sound being 'beyond my control' or sound that 'exceeds my level of comfort', or sound that results in a 'loss of controlled listening'. This is suggestive of a sound that is in some way extreme or excessive; that noise could be something that one is subjected to. Hegarty argues that noise "does not exist independently, as it exists only in relation to what it is not. In turn, it helps structure and define its opposite (the world of meaning, law, regulation, goodness, beauty and so on)" Hegarty, P. (2007 p5). Seen in this light, noise could mean the absence of its opposites. A potential application of this idea in music, therefore, could manifest itself in the absence of a particular musical parameter such as pitch, rhythm, harmony or something less immediately apparent such as narrative or structure. Noise in the arts according to Kahn, D. (2001, p.20) can be "loud, disruptive, confusing, inconsistent, turbulent, chaotic, unwanted, nauseous and injurious". These potential definitions are again suggestive of the idea that noise is a judgement of sound rather than a well-defined classification of sound. It has interested me that noise could mean the distortion or disturbance of a signal or a message. Nicholas Slonimsky (1989, p.320) brings attention to this aspect of noise by stating that, "in radio transmission, noise is called static, and similar electromagnetic disturbance in television is called "snow" ". Too much

static, therefore, could render a message received by an analogue radio unintelligible or “meaningless”. My application of this concept, which is best demonstrated in my piece for solo saxophone, *Monologue* (2013), is to compose the “message” or the main body of the material and then to disrupt, distort or corrupt it with an additional performance strand. Noise could relate to the level of “roughness” in a particular sound. The University of Salford (n.d.) explain that roughness can be quantified by investigating the amplitude modulation of a particular sound and has been used to partially quantify the noises of car engines and the noises of domestic appliances. Useful as this application may be, the University of Salford (n.d.) acknowledge that the perception of roughness is a subjective one. As mentioned in the introduction, these areas of enquiry are simply too vast to fully explore in this theses. However, considering the ways in which noise could be perceived can provoke ideas regarding the development of a “noisy” aesthetic in composition. My later pieces reveal my own developing aesthetic regarding noise whereby I have been compelled to consider how I can communicate disruption and ineptitude in my compositional practice.

Part 2

The six pieces that make up my composition portfolio show the development of my applications of “noise”. They also show changes in my notational practices my approaches to both structure and gesture. At the beginning of this project, noise was manifested, for me, through the composition of inharmonic gestures and cluster chords. Later in the portfolio, “noise” directs my compositional practice towards the absence (or certainly diminution) of musical parameters that have been regarded in the past as “the basis of a compositional dialectic” Boulez, P. (1971) cited in Wishart, T. (1996, p.6). These parameters of pitch and rhythm become demoted to secondary parameters as my notational system develops in order to accommodate “noise”.

Revival

The first composition in my portfolio reveals the influence of my earliest interests in the music of Ligeti and Penderecki. I was particularly influenced by their compositions that employ blocks of cluster chords that vary in size and duration such as *Atmosphères* (1961) and *Threnody for the Victims of Hiroshima* (1960). I was also interested in the beginning of *Threnody*, when “all the instruments are asked to take their “highest notes”; the result is a truly memorable stridency, a veritable scream...” Taruskin, R. (2005, p.218). Taruskin, R. (2005, p.217-218) also points out that “the range of a string instrument does not have a precisely determined upper limit. Therefore, to ask a group of violinists to play “the highest note on their instrument” is to guarantee a cluster”. It would be my aim to try to achieve a similar effect using woodwind instruments as Penderecki does in his composition, *De Natura Sonoris* (1966).

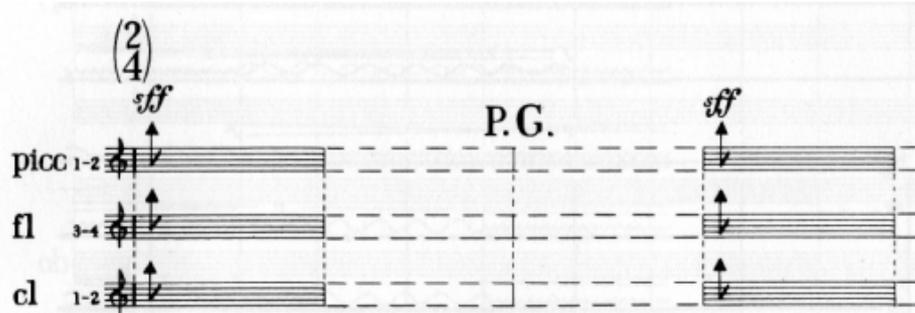


Fig 12: Opening of Penderecki's *De Natura Sonoris* (1966).

In *Revival* (2013), I wanted to construct a narrative that was based on differing sonorities, dynamics and “noises” rather than on harmonic or melodic differences. I wanted amalgamations of pitches to be played simultaneously so that they may be perceived as a single sound object. In this respect, my intention was similar to that of Henryk Górecki while he was composing *Scontri* (1960).

“Whether building clusters or twelve note chords, in *Scontri*, he bypasses the niceties of serialist counterpoint and the linear presentation of intervals to privilege the interplay of vertical blocks of pitch” Jakelski, L. (2009 p.214.).

I decided to construct a dialogue between “noisy” material and pitched material. The “noisiest” material would be achieved through the use of percussion instruments. Next would be the cluster chords played by the winds and the pianos. The least “noisy” material would be the utterances of single pitches. This was an attempt to outline a simple hierarchy of noise, whereby unpitched, percussive material would be classified as most “noisy” and single pitches as least “noisy”. The increased noise content through the inclusion of breathy tones, key clicks and multiphonics in the flute and clarinet parts meant that these events would also find themselves in-between the two extremes of the noise-pitch spectrum. Below are some examples from the score of *Revival* that I have arranged in order of “noisiness”.

66 large cymbal l.v.

Perc. 1 *ff*

Perc. 2 *ff* bass drum

Perc. 4

Pno. 1 *ff* 8[#]

Pno. 2 *ff* 8[#]

Fig 13: Bars 66-68 of *Revival*. (Most “Noisy”).

Fl. 1 *pp*

Fl. 2 *pp*

Fl. 3 *pp*

Fl. 4 *pp*

Cl. 1 *pp*

Cl. 2 *pp*

Cl. 3 *pp*

Cl. 4 *pp*

Fig 14: Bars 14-16 of *Revival*. (Flute and Clarinet parts only).

Pno. 1 *ppp*

Pno. 2 *ppp*

Fig 15: Bars 100-105 of *Revival*. Piano parts only. (Least “Noisy”).

The presentation of a hierarchy of noise is not the only reason I find this piece perceptually interesting. I also used contrasting gestures that form the narrative of the piece. Bars 1-63 make up the first of three sections. This section contains long, held notes which are interrupted by short, violent gestures. The long notes sometimes change dynamics, although very gradually and often ending *al niente*. The short gestures rarely dominate the musical landscape in this section apart from bars 17-20. Bars 64-93 make up the second section and contains similar material to the first, although it is much louder this time. The last section, bars 94-111, completes the dynamic arc that is the most significant structural aspect of the piece. This section is especially quiet and contains none of the short, violent gestures that were present at the beginning of the piece. I see this section as a kind of *Coda*.

I utilised staff notation so that I would be able to clearly specify the exact pitches that would make up each cluster chord. The influence of Penderecki is perhaps most noticeable because of the extensive use of lines of duration. I used these, partly because I wanted to give permission to the performers that they may approximate the durations of events. To further emphasise this, I omitted rests from the bars where approximation occurs.

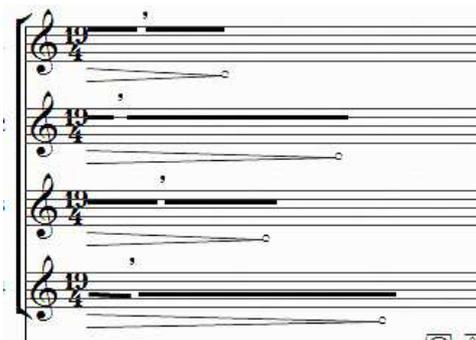


Fig 16: Bar 5 of *Revival*. Clarinet parts only.

This idea became somewhat problematic as it went against the paradigm of rhythmic precision and synchronicity as outlined by the various time signatures and the way in which gestures usually begin together. This highlighted, for me, a limitation of staff notation that rhythm and duration cannot be approximated or improvised without stringent subversion of the system. Pitches in *Revival* are assigned four different note-heads. Black note-heads indicate a pitch that is produced in the conventional way, circular note-heads indicate an unstable tone, circular note-heads with a cross indicate a multiphonic and triangular note-heads indicate either the highest or lowest notes. It therefore became necessary to include lines of duration because, in *Revival*, different note-heads imply different sounds rather than different durations as they do in staff notation. The number of instruments I had available to me restricted the maximum size of the cluster chords I could use so that they would not have the same timbral quality as, for example, the 52 strings of Penderecki's *Threnody*. However, I was able to present both "noisy" material and pitched material throughout the composition, thereby highlighting my own interpretation of the noise-pitch duality.

Paper Cut

The preoccupations I had while composing *Revival* continued throughout the composition of the second piece in my portfolio, *Paper Cut* (2012). These include the extensive use of cluster chords in the piano and bayan parts. I was also influenced by the music of Lachenmann, particularly by the way in which he maps his own distinctive set of symbols and performance directions onto staff notation. Responding to the inconsistent paradigms in the notation of *Revival* regarding synchronised and approximated gestures, I decided to commit to a notational practice that did not include any rhythmic ambiguities. I did not use lines to indicate the duration of events. Instead, I used the rhythmic values that can be identified by the stems and beams of notes. The ramification of this decision to use staff notation in a less subversive way was that rhythm became a primary musical parameter which I would have to systematise before superimposing "noisy" material.

Firstly, I prepared a selection of rhythmic groupings that would become the rhythmic building blocks of the composition. These were cut into strips and arranged into the rhythmic profile of the composition. This facilitated the composition of a piece that relied less heavily on a clearly defined structure and that was simply an exposition of phrases, gestures and events. Different note-heads are used in *Paper Cut* to indicate different types of sound production. This made it necessary to avoid notating durational values greater than a dotted crotchet to prevent confusion between, for instance, a minim and the sound of air being blown through an instrument. Durations of more than a dotted crotchet were notated as tied notes. I also included an additional staff in the wind parts that indicated the position of the mouth or lips in relation to the mouthpiece. This was an attempt to add an extra layer of instability, resulting in “noisy” sound events such as the squeaks and squawks that occur when an instrument is played “badly”. After composing this piece I moved away from staff notation. The main reason for this change of notational system was that I wanted to demote the musical elements of pitch and rhythm to secondary parameters. This was something I would not be able to satisfactorily achieve through staff notation.

String Quartet

In *String Quartet* (2013), I attempted to bring attention towards the timbral and, more importantly for me, the “noisy” aspects of the composition by notating musical events differently than I had been up until this point in the portfolio. In my previous compositions, pitch and duration had been the primary carriers of content, presenting noise through sequences of accurately pitched and precisely rhythmicised gestures. In this piece, instead of using the five lines of the stave on which to place material, I outlined a space in which material could be placed. The length of the space indicates time and the height of the space indicates the total range of a particular instrument. Pitch and rhythm are still important aspects of the composition. However, without the lines of the staff or

any stringently defined rhythmic instructions, these two parameters become approximated.

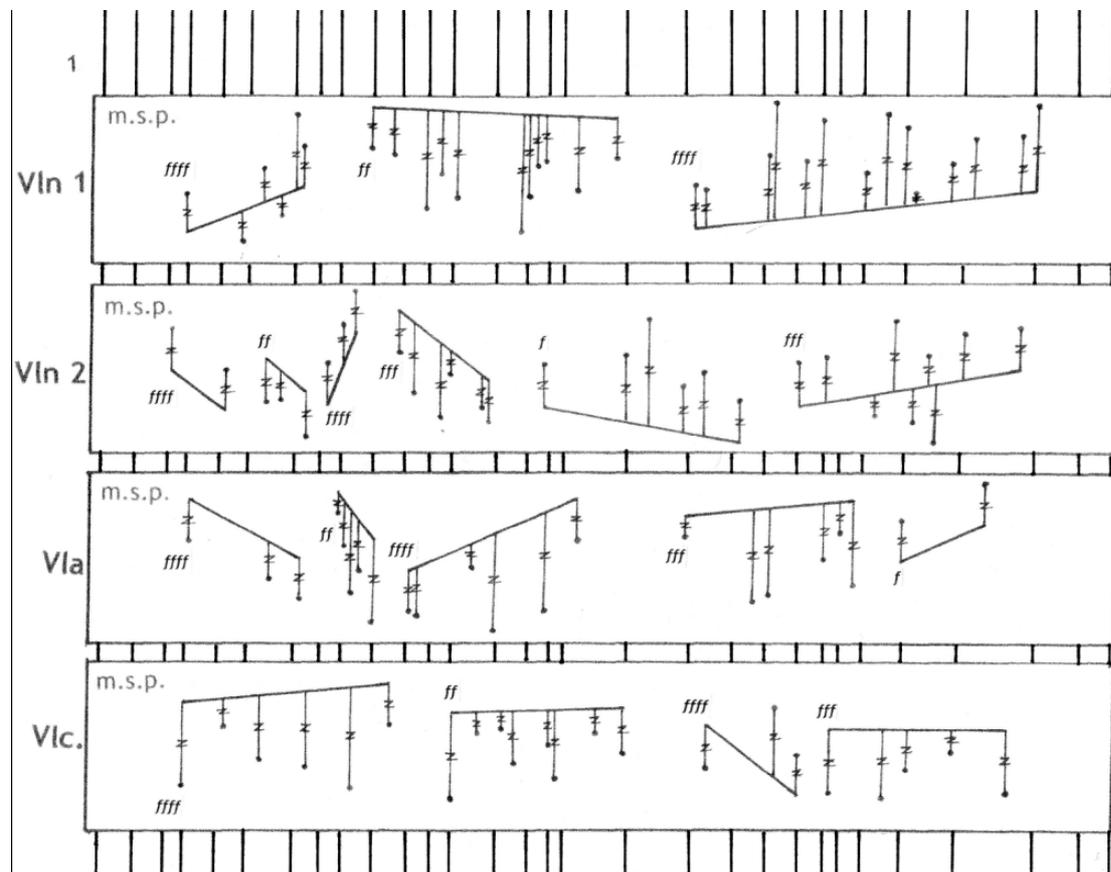


Fig 17: First page of *String Quartet* (2013).

In *String Quartet*, time is marked in seconds by long, vertical lines running down the page. These lines vary in distance from each other, adding a further level of resistance against rhythmic clarity. Notational practices can be found in *String Quartet* that can also be found in staff notation. Dynamic markings and bow position instructions are present. Stems and beams are used to make clear the order of each sound event where this may otherwise have been unclear. Lines of duration are also used in this piece, although they have an additional role of indicating the trajectories of glissandi in a similar way to Russolo's notation (see p.6). The piece is composed of ten pages of sound which are separated by ten pages of silence. The pages of sound alternate between two types of sound production. The first being short scratch tones and the second being fast, non-

rhythmic tremolo glissandi. After each of these sounding pages has been played, a silence is maintained for the same amount of time. This means there are equal amounts of sound and silence throughout the duration of the piece. Kahn, D. (2001 p.64) describes silence as “the sounds that we do not intend”. An audience member’s attention at these silent points throughout the composition could be diverted from the traditional focus of attention which has traditionally been the stage or the performance space. They could be hearing the shuffling and breathing of other audience members or the sounds from outside the performance space.

Monologue

The saxophonist Evan Parker, in his album *Conic Sections* (1993), exhibits a vast array of sounds that can be achieved with a saxophone. The album is completely improvised and Parker uses a wide variety of techniques to produce sounds that could be considered to be “noisy”. Although there is much material throughout the album that is inharmonic, part of the “noisiness” of these performances comes from the relentless continuity (facilitated by circular breathing), the consistently loud volume and the many extended techniques that are demonstrated. Noise, in this context, could be considered an amalgamation of these features. I was influenced by this recording to compose the fourth piece in my portfolio, *Monologue* (2013), written for a saxophone of any size. Visually, this piece is similar to *String Quartet* although there are some important differences. Firstly, stems and beams are omitted. Lines are used mostly to indicate only duration as they were in my first composition, *Revival*. However, there are some instances where the lines rise or fall to indicate pitch bends. I also make a much larger feature of the separate performance strand. Here, the strand is always visible and contains information throughout the entire composition. The separate performance strand is, as it was in *Paper Cut*, an indicator of the position of the mouth on the mouthpiece. However, here there are more potential positions (nine in all) with very gradual changes between them. The role of the separate performance strand is twofold. Firstly, and least importantly, it provides a visual

theatrical element to the piece as the saxophone (or saxophonists head) slowly moves from side to side. This will give some visual indication that the sound is being manipulated by the performer. Secondly, and most importantly, the separate performance strand will affect the sound of the material of the main performance strand.

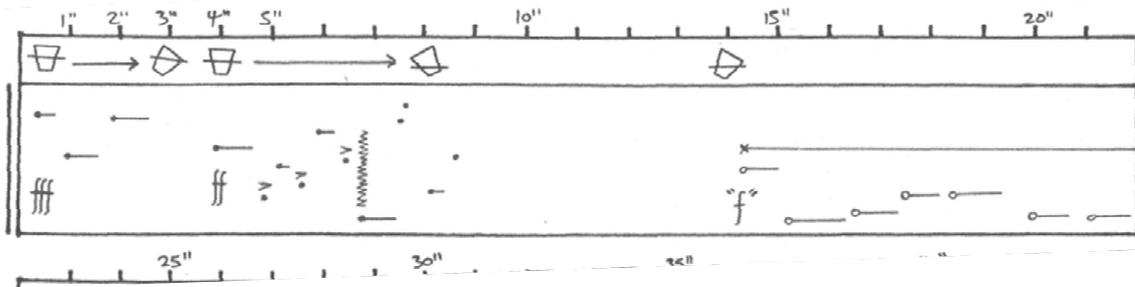


Fig 18: First line of *Monologue* (2013).

This is a realisation of noise as a disruptor of a message or signal. Much like the static that disrupts the message or signal of a broadcast on an analogue radio, the unexpected squeaks and squawks that will sound during the course of the piece will disrupt the message of the main strand. This adds an extra layer of “noisiness” to the piece, both in terms of an increase in inharmonicity and as a concept relating to the perception of noise. The main strand works in the same way as in *String Quartet*, with length signifying duration and height signifying pitch. Instead of vertical lines, however, here a more pragmatic approach for marking time is used by indicating seconds along the top of the part. There are various symbols to indicate ways of increasing the noise content of the approximated pitches. These include air being blown through the instrument, key clicks, the “slap tongue” technique, biting down on the reed and multiphonics. Silence, again, is an important part of this composition, appearing in-between sounding material.

Piano Duo

I wanted to write a piece that was composed entirely of cluster chords. I was, at first, influenced by the piano pieces of Henry Cowell, and later by Werner Heider's *Fauststück* (1970) and Rebecca Saunders' *Crimson* (2004/2005). Henry Cowell (1929), cited in Kahn, D. (2001, p.81) spoke of how it is not necessary to go "outside" the boundaries of Western art music but how it is "possible to locate and release repressed forms of noise already existing "inside" music". My intention was to take advantage of this noise inside music by simply presenting dense cluster chords and aggregates of pitches. However, these composers use staff notation to notate these chords, which imply definite pitch boundaries. I wanted to make pitch boundaries ambiguous, thereby significantly reducing the level of technical ability required to play this piece. This led me towards a system of notation whereby the clusters are notated using graphic blocks. As these blocks are located somewhere inside a space that represents the total range of the piano, the notation does not suggest a strict adherence to pitch boundaries.

The image displays two musical staves from the score for *Piano Duo*. Both staves are marked with 'M.M. = 108' at the top left. The top staff shows a large black rectangular block on the left side, with the dynamic marking 'fff' written above it. To the right of this block is a smaller black square. The bottom staff shows a large black rectangular block on the left side, also with 'fff' above it. To its right are two smaller black rectangular blocks, one above the other. At the bottom of the bottom staff, there is a 'Ped.' marking and a 'u.c.' marking.

Fig 19: Opening gestures of *Piano Duo* (2013).

The height of these blocks represents the size of the cluster and the length of the block represents the duration of the cluster. The pedals of the pianos are also used and have their own separate performance strands at the bottom of each part. Time is marked in seconds across the top of the page as it was in *Monologue*. Cluster chords are for me, as they were for Henry Cowell, examples of noise being already inherent in an instrument that was designed to produce pitches. The piece also denies the pianists a chance to use the skills they have acquired through training and practice, instead having them use their palms and forearms to produce sound. The demonstration of a lack of skill could be a component of what may be perceived as noise. Hegarty illuminates this idea while also mentioning that “wrong” or “bad” experimentation can be a source of creativity.

“To many, ineptness is very directly noise: the playing of incorrect notes, or the wrong kind of playing maybe even offending the delicate sensibilities of the elite listener/performer. The inept player will make many mistakes, or what are perceived as such. He or she will make choices and create combinations that are ‘wrong’, and this has led to the belief in the creativity that comes from a lack of preconceptions and a willingness to try out anything, even if badly” Hegarty, P. (2007 p.89).

The musical materials employed in Piano Duo do not change throughout the course of the piece. As a result, it could be argued that this piece is less perceptually interesting as a consequence. However, disengagement with the large scale structure of the piece can be a valid way of listening to Piano Duo. Important contrasts such as those between different shapes and dynamics occur at the local scale.

Thirteen

The last composition in my portfolio, *Thirteen* (2013), is one which gives more control to the performer than any of my previous pieces. This is due to the graphic nature of the score and that the role of the performer is to improvise while using the score as a guide. The only indications in the score that are strictly “non-negotiable” are those which tell

the performers which string or strings to use. Also, the black shapes imply activity or that sound should be made at these points as opposed to the white or blank areas of the score which imply silence or inactivity. The score is intentionally messy and composed entirely of scribbles and flecks. My intention by making a messy score was to give some kind of visual permission to the performer to make “noise”. I wanted any kind of precision with regards to most musical parameters to be abandoned in favour of a less restrained approach to making music. I was influenced by the messiness of the listening transcription of Francis Dhomont’s *Chiaroscuro* (1987).

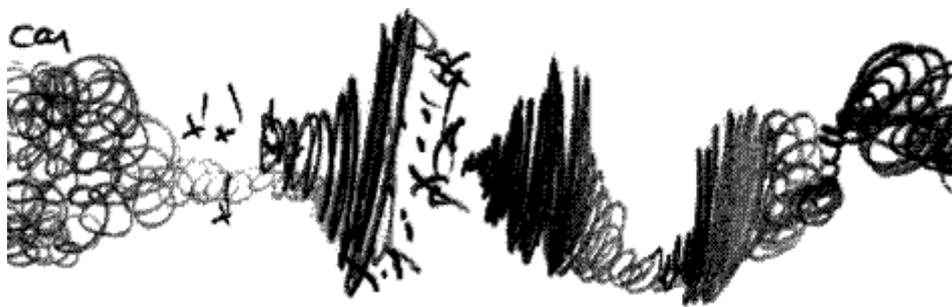


Fig 20: 10'30" - 11'30" of the listening transcription of Opening gestures of Francis Dhomont’s *Chiaroscuro* (1987).

When looking at this listening transcription, I considered what the resultant sound would be given to a performer to play. I then set out to compose a piece for thirteen string players who would all be playing from parts similar in appearance to this example. The performance directions in *Thirteen* are minimal. Essentially, the thicker the scribbles, the more pressure should be applied to the string and the closer the proximity of scribbles to each other, the faster the rate of bow change. Flecks, players are told, can be interpreted as short, scratchy sounds. With these directions and the overall look of the score, the notation has a resistance to interpretation that makes “noise” almost inevitable. In other words, I tried to make a score whereby a performer would not be able to make anything other than “noise”. Along with Piano Duo, this composition demonstrates no overall structural scheme. The aspect of this piece that interests me the most is the potentiality of each notated gesture to yield a great variety of “noisy” with each interpretation.

Conclusion

Noise, for me, can be a compositional tool and is not necessarily a negative judgement of sound. Noise could be the most important element as it is in the last two pieces presented here. Conversely noise could be one aspect of many throughout a composition. In my music I have tried to increase the noise content of the material I have used which has led to the adoption of new notational practices. These practices have made it possible to suggest “noisy” material through the use of dots, blocks and scribbles. I have moved away from staff notation and towards graphic notation. My intention in changing notational practices was to accommodate for my interpretation of noise. Although a ramification of this has been the relinquishment of a significant level of control over the parameters of pitch and rhythm, this is an acceptable compromise for me. I consider the most successful manifestations of noise to be found in the scores that relinquish such control to the performer. The next step to take towards a noisier aesthetic, I believe, lies in giving more permission to the performer to make noise which could be approached through the use of text scores.

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