

# Electroacoustic Composition Indicative of Human Agency

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City University  
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#### **DECLARATION**

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# Electroacoustic Composition Indicative of Human Agency

## Abstract

The aim of this PhD is to present works which examine the expression of human agency within electroacoustic music. ‘The Voice’, Noise and Metaphor have been used as chapter headings within which kinetic gesture, phonemic association; identity and gendered space are examined.

Seven original works are presented: *Wolfie*, *Unconditional is the Dawn*, *Dark Noise*, *Angel*, *Night Music for Radio*, *Glitch* and the mixed electroacoustic and instrumental works *Red Games* and *Less*. *Angel* was written as a work for film and electroacoustic sound and also as a work for pure electroacoustic sound. Both versions are included within this portfolio.

Chapter 1 (Voice) explores issues of ‘voice’ and ‘the voice’ within the works *Wolfie*, *Dark Noise* and *Angel*. In this chapter is an exploration of *Wolfie* and its relationship to the narrative of Red Riding Hood. The role of imaginary space, phonetic content and physical behaviour of an electroacoustic soundworld are issues which are discussed in relation to *Dark Noise*.

Chapter 2 (Noise) is a detailed examination of the methodology of my compositional approach towards the use of micro-sounds, and the poetic implication of the *glitch* and the *digital click*. In this chapter there is also a poetic examination of the approach towards the use of noise as a ‘skin of sound’ where musical expression is captured within ‘fissures of glitch’ which perforate the surface.

Chapter 3 (Metaphor) presents an examination of how metaphor is used throughout my music. The works *Wolfie*, *Dark Noise* and *Angel* are examined. A poetic exploration of Michel Chion’s theory of ‘synchresis’ is presented in relation to the work *Angel*.

## Summary

In this thesis I have been discussing the development of a compositional language based around music that is strongly focused around suggestions of Human Agency.

Awareness of space, metaphor, voice and gender has been important in the compositions of all the works. I chose to explore these areas by using highly transformed sound material and material that has almost exclusively been from the female voice. (*Less* and *Red Games* are the only works that I have omitted the female vocal material from the start.)

Throughout this thesis examination of gendered space and co-current existence of gender is a subtle focus. *Wolfie*, *Dark Noise* and *Angel* especially examine different approaches towards gender within literal narratives and more open approaches towards gendered narratives. Within the film *Angel* a duality and equality between both genders is deliberately sought. Within *Wolfie* the expression of a more female-centred role is emphasised. *Dark Noise* is wholly an expression of the female body and female psyche within sound, drawing on text from Simone de Beauvoir and pointing to the detailed use of repetition and colour within the works of Samuel Becket (*Endgames*).

*Wolfie*, *Red Games*, *Dark Noise*, *Night Music for Radio* and *Angel* all explore different relationships between machines' power and the body. This avenue is developed through the music in different ways. The empowering of the female voice through technology was a focus in *Wolfie* and *Night Music for Radio*. Within *Wolfie*

the narrator (Red Riding Hood) goes on a journey of transformation, from voice to digital forests and sexual discovery. She is enabled by the use of machines and technology to make these bodily transformations. In *Night Music for Radio* the main vocal source is the woman Doreen Barns. She is a practising radio ham who is house bound and disabled. Transmission offers her instant movement from space to space, communication to the outside world and freedom of expression. Her power is in the use of the radio, the machine; she is the matriarch of the air space and holds court within her community of radio hams.

*Red Games* is a work, which explores metaphors of war and the body. The score has graphics, which suggests a relationship between the flow of blood cells and the transformation of noise. The sound of medical machinery has been explored within this work through the use of sine waves.

The reference to machinery within this thesis is specific to the relationship of medical machinery and women's bodies. Linda Birke (1994)<sup>1</sup> makes reference to the history of medical machinery, women bodies and the lack of control which women have had in the past, over their own bodies as a result of the use of medical machinery.

Most of the music within this thesis draws a relationship between my own imaginary perception of my internal body and trying to recreate my perception with technological artefacts. This relationship is drawn because I use the computer to compose imaginary sounding internal forms.

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<sup>1</sup> Birke, 1994 '*Feminism and the Biological Body*'

As a woman and as a female composer I want to assert creative control over the technology and how I perceive my own internal body structures, *Dark Noise* in which is explored the internal imaginary area of a sounding female body; *Less* which explores the body placed in voids of sound. In the work the performer is covered by streams of technological artefacts, these artefacts are representational of the performer's blood. Thus the relationship of the performer to electroacoustic part is a body within a body of sound.

With regard to the use of metaphor and machinery within *Angel*, connections were deliberately made between the levels of perfection within the bodies of athletes working as flawless machines.

Glitch and the use of noise have been explored in a metaphorical context and as material for composition. Within this thesis I developed written material around vocal attributes and the behaviour and characteristics of glitch material. To draw everything together as being suggestive of human agency I write about how I hear sound as having a *skin*, which can be broken by glitch to release a deeper sense of musical communication. I have consistently worked with this metaphor for the development of all my compositions within this thesis.

# Chapter 1      Voice

## 1.1 Introduction

The use of the voice and nuances which vocal material carries have been paramount throughout my musical development. Working within electroacoustic music I have tried to develop ways of expressing ‘voice’<sup>2</sup> without hearing the voice as the original source.

The translation of noise and vocal sources into micro sound through tactile, fricative, noise burst and continuant sound behaviours tries to approach this, also the use of pause, silence. Most of the work that has been written for this thesis approaches musical ideas of communicating sound relating specifically to the human body using transformed vocal sources<sup>3</sup>.

## 1.2 Voice mind, space

There is also the noise which is captured in the space of our bodies and the inner voice of our own mind spaces. This noise<sup>4</sup> may not just be a sound but a feeling of noise. When places of silence are found within music, on reflection we may allow ourselves to hear and feel the sound of noise within these spaces. Noise<sup>5</sup> is not just environmental or even externally audible but something deeply attached to our own experience of being. Thus the actual act of hearing noise within music and language can become an affirmation of our own existence. *Dark Noise* and *Angel* both acknowledge such mind space within the musical composition.

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<sup>2</sup> The expression of ‘voice’ - I have tried to express the human agent through transforming vocal sources.

<sup>3</sup> Recordings of the voice.

<sup>4</sup> Noise as purely sonic/acoustic

<sup>5</sup> Noise as social/political

The following is a description of how I approached the use of the voice<sup>6</sup> within the works *Angel*, *Dark Noise* and *Wolfie*. In the following chapter, I will examine the use of noise.

### 1.3 *Wolfie*: the voice

The voice can deliver an immediate sense of gender, time, place, age and distance awareness within a piece of acousmatic music. In addition, language in all its causal content can be a powerful signifier of a narrative, story or metaphors.

When a composer chooses not to communicate a precise spoken narrative with the voice in electroacoustic music, and abstracts the voice to be used as a purely musical sound, the composer will engage in a complex web of musical argument which may refer back to elements of spoken syntax. The listening imagination is significantly challenged. When composing *Wolfie* combining the manipulation of text and vocal fragments was paramount to produce a musical work, which transformed on impulse into highly coloured imaginary spaces.

Theodor Adorno explains and describes the relationship between the speaking voice and music very poetically, highlighting the complexities of the interweaving of syntaxes between music and the spoken work:

The traditional doctrine of musical forms has its sentence, phrase, period and punctuation. Questions, exclamations, subordinate clauses are everywhere, voices rise and fall and in all this the gesture of music is borrowed from the speaking voice.

(quoted in Wilkin 1998, p50)

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<sup>6</sup> When using the term voice I refer to human voice

In *Wolfie*, I attempt to mediate between the two worlds of speech and music perception: the spoken, the comprehensible and the imaginary. By doing this I try to develop a musical world which is both challenging and exciting to the listener.

The technology used to compose offered a large amount of malleability and control in processing the voice. Precision was a priority with regard to the placing of the vocal material to determine the overall narrative.

## 1.4 Vocal material

At the start of *Wolfie* there are highly transformed microscopic vocal events which combine to form an intense trajectory of granular behaviour. The intention within these minute vocal sounds was to convey the immediate physical force of human energy which might be similar to the action of running. The voice in this section is very mechanistic. However the phonetic content of the material is relatively strong and the vowel shapes associated with the word '*Wolfie*' come through the material especially at 0.04. The inherent transformational qualities of computer processing allowed me to evolve small compositional methods for moving from one musical imaginary space to another. *Severed glitch*<sup>7</sup>, (0.23 first reference '*Wolfie*') pauses, detailed exploration of foreground and background within a very small timeframe were just a few of the strategies employed for moving swiftly through the imaginary spaces of digital forests, gender transformation (not necessarily androgyny) and delicate yet speed-driven vocal spaces.

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<sup>7</sup>A *severed glitch* is the abrupt cutting of a block or band of sound to a microsecond's duration. The behavioural impact of this glitch impacts on the mix because there is no detailed editing after the cut (no fade out or decay).

## 1.5 Meaning: *Wolfie*

In discussion of ‘meaning’ and the spoken language as regards the narrative of *Wolfie*, I feel it is important to give a contemporary interpretation of the story of *Little Red Riding Hood*. Through metaphor<sup>8</sup> these fragments of the story explore gender, gendered space<sup>9</sup>, embodiment and transformation. Olga Gmelin (1989) refers to Red Riding Hood as ‘Little Red Cap’.

### Little Red Cap

Once upon a time there was a fearless little girl, who was loved by all who laid eyes upon her, but most of all by her grandmother, who could never give enough things to the girl. One time she bought the girl a cap made out of red velvet. And since the girl found it very becoming, she wore nothing else and was soon called Little Red Cap.

(Gmelin 1989, p274)

Further on in the story Little Red Cap meets the wolf in the wood. She tells the wolf she is going to the grandmother’s house and the wolf asks where the house is. When Little Red Cap enters her grandmother’s house after exploring the woods she is surprised to find that her grandmother has changed. She says:

“Grandmother, what large ears you have!”  
“The better to hear you with” replies the wolf.

“Grandmother, what large eyes you have”  
“The better to see you with” replies the wolf.

“But Grandmother, what a large mouth you have!”  
“The better to eat you with” says the wolf who sprang out of the bed and swallowed the girl.

(Gmelin 1989, p274)

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<sup>8</sup>Metaphors are words or phrases, which carry meaning stemming from the Greek language, ‘Meta’ and ‘phora’ an object (amphora) to carry precious liquids.

<sup>9</sup>I define gendered space in electroacoustic music as an association with a specific gender or gender/s through physiological sociological physiological or biological attributes of that gender.

The author then goes on to describe how Little Red Cap waits in the wolf's stomach until he is asleep and then cuts open his belly. She jumps out alive and well and the grandmother jumps out too. The author then goes on to explain that when Little Red Cap is out of the wolf's belly she quickly fills up his belly up with stones so he cannot move. The wolf wakes up and the sight of Little Red Cap with a knife in her hands terrifies him. The narrative ends with the Little Red Cap skinning all the fur from the wolf and discovering a little boy underneath.

Olga Gmelin writes:

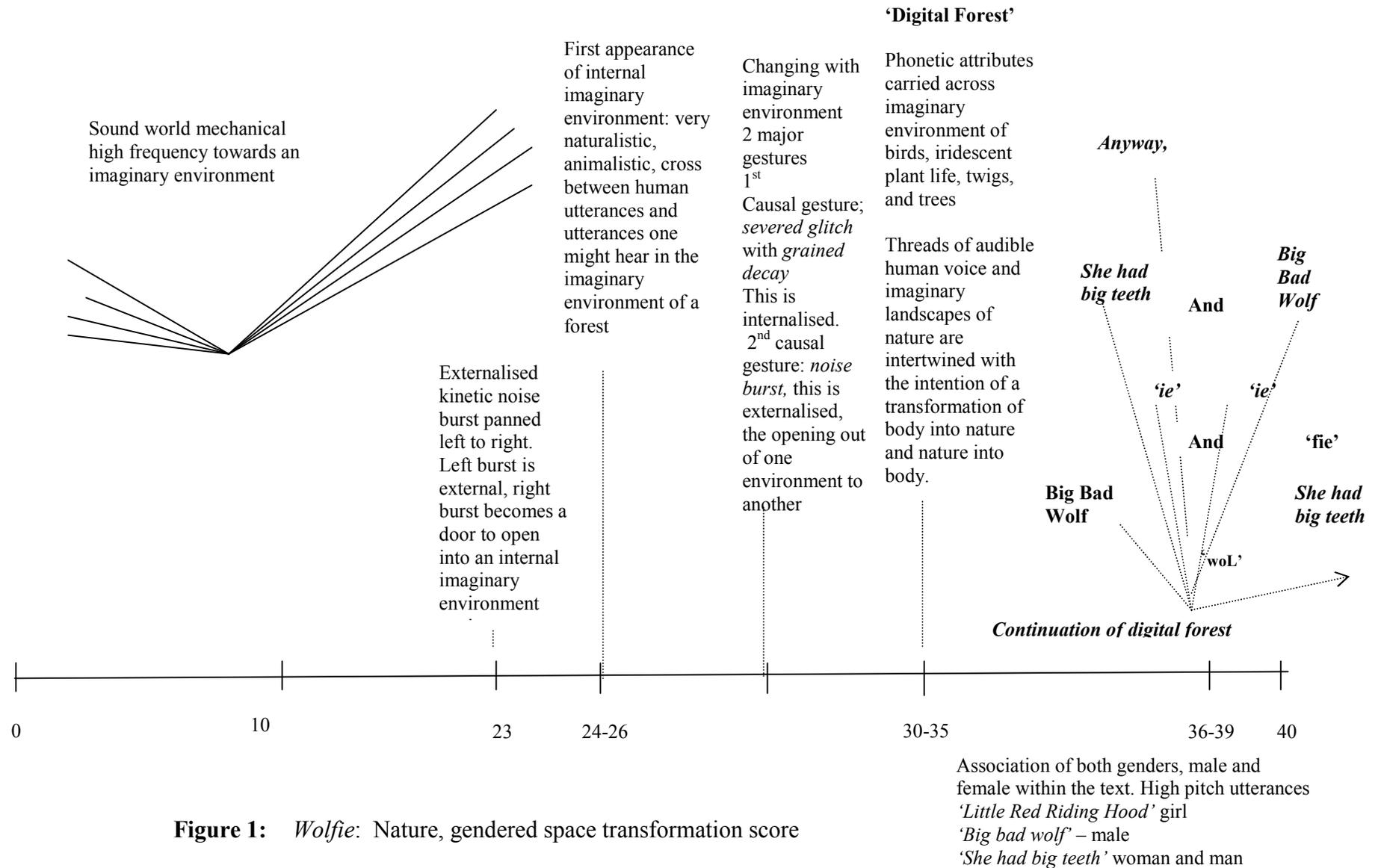
And underneath the fur was a little boy with black eyebrows and blond hair. The Little Red Cap went over to him and embraced him tenderly. He smiled and stood there motionless.

(Gmelin 1989, p274)

At this point in the text there is resolution. The balance and power of gender roles has been transformed. The Little Red Cap has tamed the wolf. The wolf turns into a boy. Within this text there are powerful metaphors for the body, altering gendered space, nature and transformation. The boy and the girl are also both strong metaphors for reflection on the essence of human imagination. Within the music for *Wolfie* I wanted to work with transformation references to nature, to the body and gendered space as well as using the semantic meaning that the text captured. In the section 0.30-0.38, is the first real reference of this semantic behaviour where text is developed into a transformational gendered environment. This is done by intertwining a counterpoint of gendered references held within the text. The words 'she had big teeth' and 'big bad wolf', suggest opposite genders, i.e. woman and man.

The digital forest is a metaphorical reference of gender associated directly to woman. Both the wolf and girl enter transformational states while in the forest, girl transforms into woman and the wolf has transformed both into the grandmother. See Figure 1.1 for a clear explanation of text and sound transformation.

**Sound example 1: Wolfie (0.00-1.36)**



**Figure 1:** *Wolfie*: Nature, gendered space transformation score

## 1.6 Material: mechanistic nature of the sound world

The mechanistic nature of the sound world is a reference to the automatic responses, which can guide primal emotions of fear, chase and escape. The material of the first section of *Wolfie* focuses on ring modulated fragments of the voice. Repetition, noise and the mechanistic nature of the sound world are developed to weave an auditory a web of sound integrating the human voice, the body and the machine.

*Wolfie* was the first composition<sup>10</sup> to explore the relationship between human agency, technology and mechanistic behaviours. This particular fairy tale is especially powerful in respects to its sexual narratives. Was Red Riding Hood raped, was she a victim or was she empowered by the discovery of the transformation of her body to womanhood? By using technology to transform the female voice my intension was to empower her through sound transformation, making deliberate reference to mechanistic sound behaviours.

## 1.7 Gender identity: co-currant existence

In *Wolfie* the narrator is female. From the narrator she transforms into the grandmother, and the grandmother transforms into the wolf. Then the wolf embodies the identity of *Little Red Riding Hood* as she screams, “the wolf is going to eat me!!” The listener’s knowledge of the fairy tale will influence the interpretation as to whether Red Riding Hood escapes by cutting herself out of the wolf’s belly. This all happens very quickly and it would not be viable to expect a listener to interpret one

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<sup>10</sup> *Dark Noise*, *Red Games* and *Angel* are works particularly concerned with imaginary internal sound forms made out of highly technological artefacts. The repeated use of sine waves within the works *Red Games* is a reference to the external technological sounds of medical machinery.

defined fairy tale narrative in such a small amount of time. My intention is to reflect on the co-currant existence of both gender identities within one narrator.

The mechanical and system-like nature of the sound world is constructed from a very heavily ring modulated vocal material. Digital glitches indicate quick and prompt switches into and out of alternative narrative and imaginary spaces.

## **1.8 Utterance**

I define utterance as the communication of a sound from deep within the body, which may not directly carry vocal traits but can communicate attributes of sonic utterances through intuitive and unconscious gesture movement. The work *Dark Noise* approaches this on a very literal level. The work *Wolfie* also approaches the use of utterance.

In his paper ‘the Listening Imagination’ Denis Smalley writes about the communication of utterance and its relationship to the body.

The sounds of utterance are generated from within the body, and that they are an essential vehicle of personal expression and communication makes utterance intimate and emotionally charged.

(Smalley 1992, p524)

The role of utterance was very important in *Wolfie* in developing communication to the audience with regard to body and speech and the narrative of the fairy tale Red Riding Hood. It was important that there was a manifestation of vocal fragments within the work for the audience/listener to be able to connect strongly with the narrative of Red Riding Hood and the physical presence of her body.

In the process of composition the vocal fragments I was working with developed into gestures of utterance from deep within my own body. This was not a conscious development of utterance, it was compositionally intuitive. My own utterances are found throughout the work but very specifically at the points of 24-26 seconds and repeated morphological behaviour.

The text below describes a form of utterance known as *glossolalia*, as a manifestation of language at the level of its pure materiality - the realm of sound:

Glossolalia is a type of speech or babble characteristic of certain discourse of infants, poets, schizophrenics, mediums and charismatics. It is the manifestation of language at the level of its pure materiality. The realm of sound, where there obtains a total disjunction of signifier and the signified. As such, the relation between sound and meaning breaks down through the glossic utterance; it is the image of language inscribed in its excess at the threshold of nonsense. Thus a pure manifestation of expression, the meaning of glossolia depends upon the performative, dramatic, contextual aspects of such utterances within discourse and action: meaning becomes a function of enthusiastic expression of the body, and of kinetic behaviour.

To make metaphysics out of spoken language is to make language express what it does not usually express: this is to make it a new, exceptional and unaccustomed fashion; to reveal its possibilities of physical shock, to actively divide and distribute it in space, to handle intonation in an absolutely concrete manner, restoring their power to tear asunder and to manifest something, to turn against language and its basely unitarian, one could even say alimentary, sources, against its hunted beast origins; this is finally to consider language in its form as **Incantation**

(Kahn 1994, p281-2)

The text above is particularly relevant to the discussion on *Wolfie*, as within the work I was drawing on the role of spatial behaviour, kinaesthetic behaviour and gesture behaviour of both voice and the body.

## 1.9 Spatial awareness

*Wolfie* was composed for stereo CD listening. Its spatial sound world was constructed around goals of intimacy and expansiveness. The sound world occupies a very intimate space to allow for the comprehension of the words within the narrative of the fairy tale. The frequency range and positioning of the material within the composed space is concisely constructed; each fragment of a sound within this piece has a specific gesture that allowed me to have a large degree of control over the spatial properties of the work.

Foreground and background perception are extremely important to give the perspective of switching into alternative musical spaces. Noise-based glitches are used rhythmically to propel the work forward, for example, at 00.27 there is a small glitch which repeats again at 00.28 in a slightly changed form, and then repeats again at 00.30 in the same form but with the addition of a higher harmonic spectrum with the focus on the voice signifying an important musical transition in the form of the piece. We are taken to a digital forest. The same original glitch repeats again at 00.35 and we are taken back with the narrator of the story. Foreground material is used to signify change or bring awareness to certain vowels and phonetic material within the music.

From 00.40 to 00.43 the word '*Wolfie*' is heard in the phonetic content of three separate glitch based structures. The 'i' is heard at 00.40 with an upwards-turned comb filter sweep. The energy of the sweep resolves at 00.41 where there is a grain-based gesture. At 00.43 the gesture is audible as a vowel with the implication of the sound shape 'woo'.

The silences between these specific gestures allow for the implication of precision, clarity, expectation and a change of the spatial properties of the sounds within the architectural space of the loudspeakers.

### **1.10 Spatial awareness: embodiment**

The narrative of Little Red Riding Hood assumes that each character embodies the other. The role of eating flesh is prominent in this fairy tale. The wolf consumes the grandmother and assumes her identity; Red Riding Hood embodies and consumes the grandmother by assuming her worldly knowledge which is given to her as a gift in the 'Red Cap'. The wolf then eats Red Riding Hood and swallows her whole. Red Riding Hood is then inside the body of the wolf.

The sound world of *Wolfie* towards the end of the work indicates a change in dynamic space. As Red Riding Hood screams 'the wolf is going to eat me!!!' (01.07) a high volume flanged pitch sweep with a large degree of bass comes into the foreground, this is a short but effective attempt to suggest the embodiment of Red Riding Hood by the wolf. Within the musical spaces of this work the spoken text has been used to reference a time, the magical place of the fairy tale, the transformation of gender, the age of the characters and the changing of alternative musical spaces.

### **1.11 Behaviour of noise in *Wolfie***

The use of noise in *Wolfie* was adopted as a means of pursuing very tactile and to my ear, very visually stimulating material.

The main sound source for *Wolfie* is speech. Therefore I chose to use noise in this sound world as a means of drawing a relationship with the fricative noise within the spoken word. I chose to maintain the connections of consonants as onsets and vowels as continuants, decays and offsets.

I did this by using the offsets and decays to cut in and out of the mix. This in turn built up a sense of space and was used as a means of maintaining an interest throughout the macrostructure of the work. However within micro-sections of the work these relationships are extended towards spatial definition, visual perspective<sup>11</sup>, granular behaviour, motion qualities and the metaphorical suggestions of noise resulting from the transformation of the voice.

In the section 00.07-00.12 I worked with the alternation of noise types to define space, motion and phonemic definition. I have attempted this by:

1. Filtering the onsets of individual micro-sounds with a high pass filter;
2. Developing the mid-range noise glitches;
3. Placing layers of filtered bass as continuum in the background;
4. Placing midrange decays in the centre of the space so a tactile noise-based space can be achieved in the foreground.

The sound example shows this in more detail. It is from 0.07-0.14 in the work. The example is played 6 times - please note the above details of mid range material, filtered bass material, mid range noise glitches and individual micro sounds with high pass filtering.

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<sup>11</sup> Definition of visual perspective is psychologically imagining the sounds as an organic object which have colours, and contours. Then placing the sounds in an environment where they can interact. The digital forest was created in this way by sculpting sound and colours of leaves and digital twigs.

## Sound example 2: *Wolfie* (0.07-0.14) – 6 times

### 1.12 Sound image proximity/distance/depth

During the composition of *Wolfie* I discovered filtering to be useful in appropriating micro-sounds of the voice into very specific spatial sequences, which worked with notions of proximity and distance. This created vast and intimate spaces. These spaces could reflect both a sense of the microscopic and the distant imaginary environments and sounding spaces of quickly changing depths. For example repeatedly using low pass filters and then focusing detailed mixing with the extremes a the high pass filter moves sounds back and forth very quickly, distance, depth and movement are manipulated simultaneously.

At the start of *Wolfie* on first appearance the sound world is multi layered and granular, it has strong mechanical technological resonances. Vocal material has been repeatedly looped and mixed 24 tracks. The material has all been filtered at different frequencies and pitch changes have been made in octaves fourths and fifths. At 1.71 seconds the high frequency material is taken out of the mix so that the lowest bass frequencies can be heard as proximate material. This results in the sound image having more depth and thus has a greater potential for a trajectory in the sound world. This process of omitting frequencies to allow other frequencies to be heard was repeated again and again to construct the underlying trajectory through the work. Refer to sound example 3.

### **1.13 Metaphor**

The ‘digital forest’ was a clear imaginary visual aspect of the composition for me. I wanted the resonance of the voice to be carried through the forest but also to transform into the sound of twigs, trees and birds (see Fig 1). I chose to distort the voice so it had a very immediate presence and such that the transformation could be carried through the fragments and the grains of distortion.

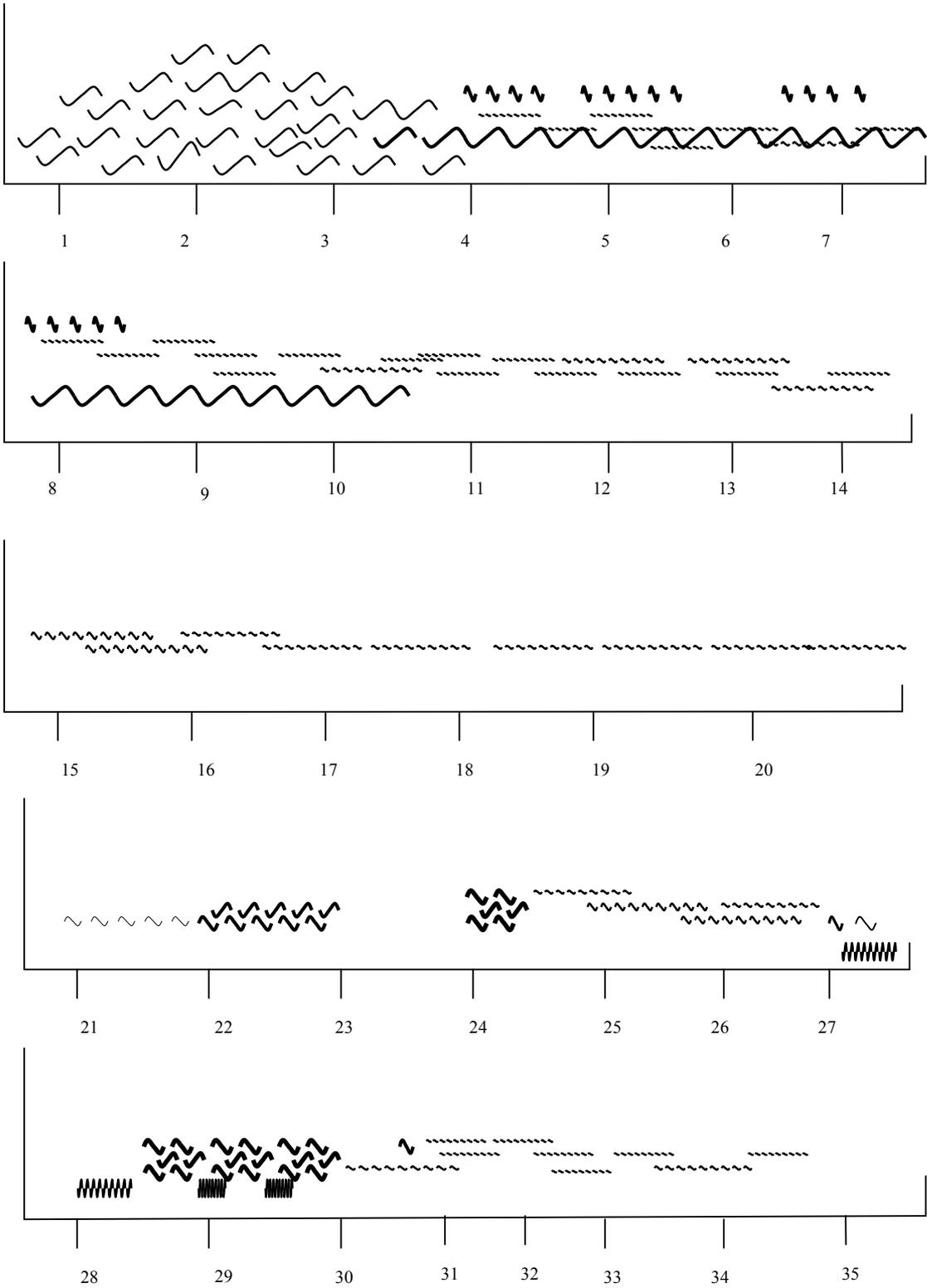
Distorting the voice within *Wolfie* indicated a certain independence from traditional techniques of transformation which were in essence to keep the voice clean and free of any grain particles.

### **1.14 Repeating patterns of behaviour**

*Wolfie* is a work which is entirely based on the human voice. I allude to short fragmentary gestures which would be reflective of a physical act of speech. My intention was to create a discourse between five subjects, the wolf, Red Riding Hood, the grandmother, the narrator and the imaginary landscape, the musical space that they all occupied. As the work was very short, working with patterns of behaviour that could either be captured or repeated in another timbre or another section of text, seemed the clearest approach to use. Repetition of tiny patterns of behaviour and bursts within those patterns of behaviour hold the work together. When there is a cut or a stop in the patterns the flow is changed for a moment. There is also a sense that the music is indicative of an internalised pulse of its own. The repetitive patterns and bursts add to a sense of internalised pulse within the work.

If we take the example of the start of the work and listen to the behaviour of the micro- sounds interacting with each other the sense of internalised pulse is very strong. In Figure 1.1 the repeated patterns, cuts and changes of flow are noted. One can see patterns of sound repeating to form a trajectory 0.1-0.19. At 0.21 to 0.30 seconds can also be seen rapid changes in the patterns, bursts of sound come in and go out momentarily. Also noted in this figure is a 0.1 second pause at 0.23-0.24 seconds. All these behaviours together combine to make a sense of internalised pulse.

**Sound example 3: *Wolfie* (00.00-00.36)**



**Figure 1.1:** Patterns of behaviour *Wolfie* 0.00-0.35secs

## 1.15 Changes of architectural space

One reason I attempted to change the frequency definition of the glitch-based sounds was to indicate a change in the temporality of the constructions of the work spatially and architecturally<sup>12</sup>. Noise-based sounds were engaging to work with because they seemed to allow for the articulation of the alternating spaces quite easily. *Wolfie* had a fixed time constraint of 1.30, thus I had to think of how to work with this in the most imaginative way possible. Moving against expectation I defined different spaces and was forced to move quickly between them.

## 1.16 Noise: the voice

Making reference to the noise content in human speech was important in my intentions. As I have noted some speech has very fricative and alliterated qualities.

The articulation of speech-like qualities was dealt with in two main ways:

1. Quickly changing the frequency definition of glitch-based sounds;
2. Indicating a relationship to noise and pause in the music (drawing on speech patterns).

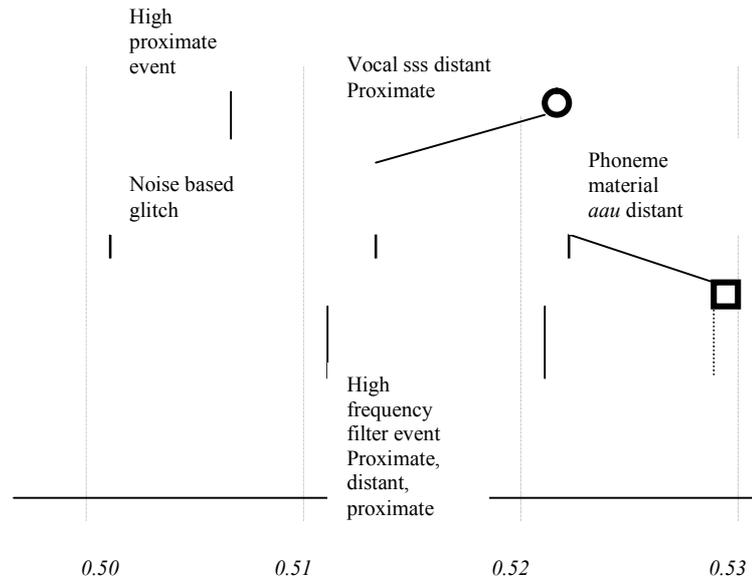
One result of using additional noise in the studio is that it intrudes into the original vocal signal, drawing one's ears to a heightened sense of awareness. Using microsounds of vocal origin engulfed in noise created an intriguing perspective on the composition of the work. Thus I felt much freedom to work rhythmically and spatially. At 00.50-00.53 (Figure 1.2) we hear microsounds which move back and forth within the spectrum. There is a rhythmic focus on noise-based events which

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<sup>12</sup> The conscious design of sound in between the space of the loud speakers

change placement within the spectrum from second to second. Sound example 4 is played 6 times.

**Sound example 4: *Wolfie* (00.50-00.53) – 6 times**



**Figure 1.2:** Phoneme qualities  
*Wolfie*

**1.17 Pause**

Pauses rather than complete silences are used within *Wolfie*, not unlike in later works such as *Dark Noise* and *Angel*. Pause is used as a direct link to the nuances of speech. Thus the story is being told not only through the use of the voice but also through the very architectural construction of the music. The pauses within the work may also indicate anticipation, expectation, change and a very immediate sense of alertness.

### **1.18 Transformation: *Dark Noise***

The transformation of voice within *Dark Noise* was intended to portray a sense of morphological space rather than an audible transformed voice. This was done for two reasons, the first being the aim of transforming the voice into having a sense of sculptural sounding body; the second was to encourage the listeners to enter their own imaginary spaces and not a dictated transformational space.

### **1.19 Spoken Language: phonetic content**

In *Dark Noise* there is no suggestion of the sound of the actual word 'dark' or the sound of the word 'noise' unlike *Wolfie* where phonetic strands imply vowel sounds which develop a stronger structure with which to carry the music forward. The implication of the word 'dark' works on a much more subtle level asking the listener to engage strongly with metaphor, depth and subterranean spaces. The spoken language in this work is used in the title and briefly towards the end of the work where the word 'air' is heard among shafts of high frequency material.

### **1.20 Imaginary space**

The imaginary space within the creation of *Dark Noise* included a trajectory of sound through my own body from the abdomen, through the lungs and towards the trachea. At the end of the work the journey has finished and the word 'air' is released into the music.

## 1.21 Structure

The transformation of the voice within *Dark Noise* also articulates an important musical structural role. This role was to develop energy motion trajectories<sup>13</sup> within the extension and prolongation of the transformed voice. In doing so I attempted to develop a sense of suspended transition<sup>14</sup> and heightened expectation for change. This is relevant from 0.00 to 3.00. The music starts as if one is entering a hollow space full of air. The air is established as the natural environment for any other movement that may happen within the work. Within this environment at 0.05 there are three main gestures that propel the sound world forward. This is the beginning of a musical phrase which lasts until 1.29.

**Sound example 5: *Dark Noise* (0.00-3.07)**

## 1.22 Sound indicative of physical behaviour

The development of the sounds as a representation of physical and environmental behaviours was an interesting and challenging one to take on. I was working with the parameters of the kinetic behaviour of speech, the imaginary mimetic suggestion of biological forms within my own body and the experience of climbing through landscape. Denis Smalley points out:

The gesture-field operates in the psychological domain, and in remote surrogacy the indicative link can be forged through the energy- motion trajectory alone, without reference to real or surmised physical gesture or identifiable source. The listener is thus called upon to exercise and enjoy maximum gesture imagination.

(Smalley 1992, p525)

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<sup>13</sup> Smalley (1992).

<sup>14</sup> Suspended transition refers to an elongated transition from one section to another, giving the impression that the transition is actually slowing to a halt, thus heightening expectation for change.

### 1.23 Kinetic behaviour

The references to speech patterns and the body are very closely connected within this work. At 3.05 we have reached the end of three long musical phrases of interweaved spatial material. It is here that I wanted to guide the listener into the deeper world of communication. The first three minutes is a world of musical suggestion. At 3.05 we begin to enter into a more intimate world of discourse and rhetoric where the physicality of the sounds comes into the foreground. However the amplitude is very low, one might have to strain to hear these delicate gestures but one can feel their physical presence. It is here that I begin to use utterance within the work. Small high frequency glitches with a large degree of sub-bass enter the foreground. Each tiny gesture leads to the implication of another, the energy field<sup>15</sup> within this section moves steadily forward linearly until 3.42 (0.37 audio CD1) where bass-defined gesture carried by a billowing shaft of a vocal drone opens up chasms of dark grains which project into the music scattered rather than fixed. This sequence is a combination of intense physical gesture with the characteristics of consonant and vowel speech patterns.

#### Sound Example 6: *Dark Noise* (3.05-5.30)

### 1.24 *Angel*: song

*Angel* is a work using largely vocal material; but there is little or no recognisable vocal sound. Instead the sounds are developed with no real-world reference. Even more so than *Dark Noise* I wanted to create an imaginary mindscape through sound.

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<sup>15</sup> Smalley (1992)

## 1.25 Role of utterance

Within *Angel* the compositional role of utterance took on a different meaning to the utterance associated with *Dark Noise*. The utterances used in *Angel* were used in a specific way to project the ideals of song. Human transformation into landscape and the coded semantic content captured within the actual utterances were suggestive of sung text. While the utterances in *Dark Noise* were essentially constructed from abstract sources they were used in a very different way to the ones used in *Angel*.

*Angel* deals with ideals of an existence outside the human body. Thus it deals with transformation from the human voice to another space outside the reality of human existence. The human voice transforms into air, landscape, and plants, then back into human body, emotion and voice. I do not expect the listener to hear these issues of transformation; the following text is an explanation of my intentions surrounding the work as regards utterance.

In *Angel* I needed to be able to communicate the musical sign in a way which would offer a musical directness, impulsiveness and a means of creating continuum and line. Utterance offered me the perfect solution, as it was a basic level of communication which integrated intrinsic physicality with energy motion trajectories and a close relationship to the physical articulator characteristics of speech patterns.

Traditionally, types of stylised singing have only been accepted in the musical voice. Now all aspects of human utterance are available to be used directly, as uttered, or models for sound and sound structures...

Extended vocal techniques also run the gamut between language –utterance and environment. If we then add in the potential of the electroacoustic medium for revealing vocal- micro sounds, for creating new voices, and surpassing natural limits, then the vocal repertory can merge into the indicative networks more idiomatically than was previously possible.

(Smalley 1992, p524)

## 1.26 Encoding of spoken language

Within *Angel* the role of the spoken language is slightly different to *Wolfie* or *Dark Noise*. References to certain words are placed into the music by carving micro-sound structures that have a relationship to phonetic and consonant qualities. These words are not meant to be obviously heard rather they are designed to be found. The words are 'I love you'. Developing the sound world in this way was extremely challenging and very exciting. I had imagined how I might say and sing these words. This resulted in constructing tiny fragments of (very spatialised) phonetic shapes using clicks and glitches as material for articulating each phrase.

The 'song' is sung in its entirety from 13.38-14.29<sup>16</sup> (0.00-0.6 audio CD1). I wanted to portray a tender space which was warm, comforting and tactile. I attempted this by filtering the sound so it was in the background and carefully articulating the sound of each phrase so it became akin to a spoken phrase which was being sung very softly.

However this section changes for a momentary pause at 14.29-14.47 (0.6-0.26 audio CD1) where the angels are flying in cylindrical motion above, and expectations for change are altered. After 14.47 the song returns but the mood has changed from one of intimacy to one of open celebration.

At 14.50 (0.30 audio CD1) the sound world is constructed by building up grain and node material mixed in typically about 25 layers. With each layer a pitch shift of 1-2 cents is added while the original pitched material still remains audible. I

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<sup>16</sup> In music not DVD

placed *glitch fissures* into the mix so that the grain and nodes would have a tumbling effect in the space (14.51), a little like the ringing of bells. The aim of this process is that *glitch fissures* would slightly break up the very condensed space. The new pitched material is at the core of the material of this section (first heard in 13.20). The original material has been used as a basis for pitch-based extensions.

**Sound Example 7: *Angel* celebratory song (14.29-15.32)**

## Chapter 2      Noise

I BELIEVE THAT THE USE OF NOISE

Wherever we are, whatever we hear is mostly noise. When we ignore it, it disturbs us. When we listen to it, we find it fascinating. The sound of a truck at fifty miles per hour. Static between the stations. Rain. We want to capture these sounds, to use them not as sound effects but as musical instruments. Every film studio has a library of 'sound effects' recorded on film. With a film phonograph it is now possible to control the amplitude and frequency of any one of these sounds and to give to it rhythms within or beyond the reach of the imagination. Given four film phonographs, we can compose and perform a quartet for explosive motor, wind, heartbeat, and landslide.

TO MAKE MUSIC

If this word "music" is sacred and reserved for eighteenth- and nineteenth-century instruments, we can substitute a more meaningful term: organization of sound.

WILL CONTINUE AND INCREASE UNTIL WE REACH A MUSIC PRODUCED THROUGH THE AID OF ELECTRICAL INSTRUMENTS.

(Cage 1958, p1)

### 2.1 Introduction

The use of noise has always been a significant tool for expression within my music. Working with noise is continually fascinating and challenging. When composing I strive to capture in music the intrinsic beauty heard in such noise: environmental noise, digital noise, noise which is created with intention from movement, noise which is created unintentionally from movement. The friction and noise captured in the movement of a violin bow when it hits the string is as important as the pitch which resonates from the string when the bow is in motion.

The use of digital noise represents the barest essence of what we work with as composers within the studio, everything else is in addition, a fashion, a coloration and an effect. I like to discover the particles of noise within a recorded sound and work with the shape, pitch shape, and space as well as metaphorical interpretation.

Working in detail with pitch-to-noise ratio within noise structures is challenging. I have chosen to work very specifically with burst, continuant and decay behaviours to create refined types of noise-pitch sound matter poetically and practically explore imagination, line and structure. Noise can be created in pitch-based sounds unintentionally and intentionally from the behaviour of bursts or other discontinuities in a sound.

Sometimes-clear pitch definition can be heard within noise; either pitch can rise or fall slightly at the point of contact. This point of contact could be between one sound and another, or the point of contact between musical silence and sound, or pause and sound. In the case of live instruments there is also the kinetic point of contact between the body and the instrument. My interpretation of these points of contact are as fissures, breaks in a line, indents in a skin of luminous sound. They also have the capacity to capture moments of extreme musical, physical and psychological awareness.

The work *Less* specifically worked very directly with the pitch-to-noise relationship created with the onsets and offsets of notes. Line and structure were developed from the manipulation of pitched information held in the noise generated from the attacks and microtonal material (of which there was also noise generated because of pitch centres of particular notes on the baroque flute). Phonemic attributes which also carried noise were scored, these were ‘drrr’ and ‘pa’<sup>17</sup>. ‘Drrr’ and ‘pa’ are used as bursts of energy which propel the work forward. When dealing with the noise-pitch relationship on this level, the controlled placement/articulation of noise

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<sup>17</sup> ‘Drr’ and ‘pa’ vocalisation indications for the performer.

within spectral space is extremely important as noise has the capacity to overwhelm other frequencies. Handel states that:

The burst consists of a duration of broadband noise energy. The perceived duration, intensity and frequency of burst provide phonemic contrasts. On this basis, energy integration, temporal resolution and the critical bands surrounding the frequencies of the noise energy limit and determine the perceived contrasts.

(Handel 1993, p346)

In my music noise is a material of choice as it has the potential to communicate human energy. Within electroacoustic music where there is no performer, this can become especially important. For me one of the metaphors which noise represents is the energy and motion of blood flow. The diagram in Figure 2.3 'Skin of Sound' is representative of the poetic process.

A focus of the use of noise within my compositions is to represent an expression of freedom. The choice of noise is to express the musical imagination using all the sounds of the spectrum available. The use of radio has also filtered into my work; the actual sound of the radio and its capacity for transmission from space to space, a space within a space, community to community or the transmission of music, sound, voice or just data to the absolute unknown, to space itself. Personally this represents the strongest metaphor and reason for referencing the radio within my works as it is the 'unknown', which carries and communicates the most powerful fears, joys and reasons for life. *Night Music for Radio, Angel and Less* are especially representative of this. Throughout the music the radio is referenced in both pieces by the placement of sound structures within composed space. For instance, within these works radio space becomes a detailed background which moves into the foreground. Within these sections of composition my focus is to create a screen of musical line

where there is detailed foreground activity, however focused channels provided by grain decay, intricate noise sweeps and noise bursts allow one perhaps to begin to listen in detail to the background material. Although the background material does not seem to be the focus the foreground activity is actually a smoke screen. This is to allow for a sense of greater depth and intimacy when the foreground is taken away and one has full reception of the radio space. Also references to the radio within *Angel* can be seen within the energy of the noise bursts, and the timbre of the material in those sections<sup>18</sup>.

## **2.2 *Dark Noise*: use of noise**

Within *Dark Noise* the use of noise as a sound matter and a behavioural expression was paramount to the development of the work. As *Dark Noise* is a work about the communication of ideals and the expression of body in space, I very much wanted to work in a concentrated manner with noise.

As Smalley points out in his article *The Listening Imagination*:

The placing of sounds in a context automatically ensures that some kind of relationship must exist between them. The term ‘behaviour’ has been chosen to represent these relationships.

(Smalley 1992, p424)

The context for *Dark Noise* was to use noise in a way which would express my perception of the ‘darkness of woman’ in contemporary society. This darkness is a complex mind-space full of dramatic dichotomies. It is one of both mystery and security, beauty and ugliness, justice and injustice, the familiar and yet the unknown. It holds the symbol of the matriarch, the seductress, the lover and the companion.

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<sup>18</sup> This is discussed in more detail in the section on the *Noise burst* Chapter 2.

She is an idol, a servant, the source of life, a power of darkness, she is the elemental silence of truth, she is artifice, gossip, and false hood: she is a healing presence and a sorceress: she is man's prey, his downfall, she is everything that he is not and that he longs for, his negation and his *raison d'être*.

(de Beauvoir 1952, p130)

The concept of noise captured a vast creative space and seemed to be the perfect material to work with in regards to the concept of this work. To attempt the expression of a soundworld based on the complex structures of the human psyche, noise and the metaphorical concepts which noise itself can hold, I had to think about how to organise a framework around my sound material. The framework would enable me to follow both an intuitive path and a path of developed consciousness thus thinking and perceiving relationships within the sounds. The following section is an indication of the way I went about doing this, thus categorizing the material into kinetic, tactile, spatial and physiological behaviours.

### **2.3 Behaviour: constructed space**

I developed what I call the spatial material out of a fine strand of the voice, concentrating on creating expansive spectral morphologies, sound shapes and forms of continuum were of primary importance. These were purposefully constructed from detailed streams of noise based vocal material. The pitch content of the streams was masked. This transformed material was interwoven repeatedly creating a sense of developing complexity. The intention of this compositional process was to develop a “desire to listen inwards” to the imagery sound forms, in doing so, exploring subtle areas of pitch through the strands of noise. I was also working with ideals of

embodiment , the focus being that one's body could potentially be engulfed by the spatiality of the vocal noise based sound shapes. [00.00-03.22].

**Sound example 8: *Dark Noise* (00.00-03.22)**

These streams were constructed in spectral space to project their forms and individual identities, creating varying degrees of circular, descending and ascending activity. This spatial material is a landscape or a base for the kinetic and tactile material to interact with. For example, at 05.56 (0.2 audio CD1) we enter an expansive discourse with several streams of noise ascending, descending and circling round each kinetic gesture. This section of the music is the centre of the work. At this moment we are deep within the structure of the body of sound. At 06.01 (0.4 audio CD1) and 06.02 (0.5 audio CD1) there are breath-like gestures which suggest the notion of human agency; these are followed by suggestions of deep bass drone and at 06.04 (0.9 audio CD1) we have detailed references to phonemes in the glitch material in the shape of the phonetic clip. This material is followed by a suggestion of open vowel material. The spatial construction at this point is very much an evolutionary part of the kinetic material. The spatial material in the form of low and high frequency drones lives in a behavioural state of both conflict and co-existence between background and foreground.

**Sound example 9: *Dark Noise* (05.54-07.00)**

## **2.4 Kinetic movement and material**

Within this work the relationship between the kinetic material and noise was very strong. There are two main types of kinetic material. The first is intentional and the second is unconscious physical/human gesture.

Within *Dark Noise* I was attempting to make direct links to the deep causes of vocal activity and I was also making suggestions of unconscious gesture movement (i.e. without intent) so that the sound's energy and motion exist in space and feel extremely natural. The movement of an unconscious physical gesture is the movement equivalent of a sonic utterance. These two types of kinetic material were used in entirely different ways depending on their noise content, although the means of creating them were very similar.

## **2.5 Vocal discourse**

I have pointed out previously aspects of speech which involve fricative behaviour from within the mouth. Within *Dark Noise* there is no audible speech apart from one word, which is 'air'. However there are audible phonemes. Audible phonetic behaviour includes the development of phonetic clips, onsets with high pitch content and no continuant, also offsets with vowel behaviour intertwined, noise bursts, strikes, damped strikes and continuants. The reason being that I wanted to work with phonetic behaviour kinetically which would imply movement of the voice through the body. Therefore I chose to develop a sound world in which the onsets and offsets of glitches, along with small vocal continuums, were used to suggest kinetic behaviour.

At exactly 7.12 (0.0 audio CD1) a dark, strongly low-pass filtered glitch, which for the purpose of explanation I call a swathed clip. This swathed clip is a signal for a musical phrase which finishes at 7.24 (0.13 audio CD1); within this phrase there are onsets, offsets and continuants which articulate a strong foreground. The onset is intended to heighten awareness of a change in the energy fields. At this

point there are two basic continuums which change. This change is seen in a deep bass drone which accelerates its motion, 7.14 (0.02 audio CD1) and is also in the appearance of a high frequency noise-based drone which ends as a noise burst at 7.20 (0.8 audio CD1)

The acceleration of these two elements within this small section lasts until 7.15 (0.03 audio CE1) where the intention is to hear the sound of the female voice. This specific entry has both sharp onset, abrupt offset and continuant. It is swiftly followed by the slight resonance of a bass drone, which has the same harmonic resonance, and then at 7.18-7.20 (0.6-0.8 audio CD1) there is another small onset continuant offset sequence which follows the same pattern as before but with slightly different material. These are intended to heighten expectation, accelerate motion, perceived energy fields and glitch behaviour within the music. The same phrase is developed once again 7.59 (0.47 audio CD1) with yet another change to the motion and behaviour of the composed space. Towards the end of this phrase once again the abrupt onsets, offsets, phonemic clips and glitches punctuate a bass drone ending with the sounding of the word 'air' at 08.18.

**Sound example 10: *Dark Noise* (7.12-08.18)**

## **2.6 Gesture, motion, energy fields**

Gesture, motion and energy attributes can be heard clearly for the first time near the beginning of the work when there is an awakening of the subdued bass drone that is heard for the first three minutes. The behaviour of the gesture, motion and energy of the material within the first three minutes encompasses 'dynamic shaping' (Smalley 1992).

I wanted to evoke a changing world within which freedom and light are paramount. Therefore I developed sound material which I felt was reflective of the properties of light, and had free and energising flow. Placing this material against the bass drone, which is intended to be reflective of solid ground, leads us to the behavioural and energy fields of dominance and subordination. The high frequency clouds are very dominant within the sound image and the bass drones become subordinate. Because of the nature of the sound material, which includes high frequency digital clicks, I was able to work towards producing sound structures which capture ideas of dominance and subordination (Smalley 1992).

Because of their frequency range the digital clicks were present very naturally in the foreground of the sound space (they were high frequency material). These were reinforced through close, centre foreground mixing.

## **2.7 Tactile material**

For this material I extracted tiny sections of vocal matter, repeatedly mixing with digital noise and equalizing the vocal matter, I then placed these elements individually within the constructed and evocative spaces of the transformed vocal material. The placement was very important in creating a sense of directness in sonic space while at the same time not distracting from the sense of a slow, steady continuation of the sounding flow.

Dealing with placement of tactile material was extremely challenging. A high degree of foreground, background and near ground mixing was used to bring attention

to the small transformed objects while not disturbing the flow of the music. Through highlighting the tactile material within the mix a focus on an internalized sense of space was offered to the audience. Thus, through the listening experience I wished to place the listener inside the body of the work and journey through it until the end. The actual physical process of dealing with tactile material required a high level of fine editing, high pass and low pass filtering (0.1-0.2 seconds per sound ) and repeated distance/proximate mixing.

At 7.49 (0.5 audio CD1) we have nearly finished our journey through the body and are entering the field of the larynx. At 7.50 (0.6 audio CD1) I gently place a high frequency glitch after a phonetic clip. This glitch indicates the start of the final part of the work. It also signifies the start of a very detailed musical phrase which involved dealing with issues of distance and proximity within the tactile nature of the sound world. After this glitch there is a burst of noise energy which ends at 07.52 (0.9 audio CD1). This energy burst is drawn spatially into the background to allow the hearing of the smallest sounds used in this work, which are what I would describe as ‘sub-tactile’ sounds. At this point these are heard five times in different spaces within the sound image.

**Sound example 11: *Dark Noise* (7.43-8.10)**

## **2.8 Physiology**

Speech is a very physical auditory signal; as humans our bodies respond to our need to speak loudly or softly. To speak softly requires a huge degree of control over the vibrations that we are expelling from our vocal tract, starting from the internal structures of our lungs. *Dark Noise* is a very soft piece of music but at the same time

works with high degrees of fricative behaviour within the sound world, of movement and continuity and of sub-bass frequencies.

All the points are used to maximize auditory ‘presence’ within the work. Working with the energy which noise had to offer allowed me to explore interesting parallels while challenging the dynamics of energy fields, without increasing the volume significantly.

## **2.9 *Angel*: noise-based material**

*Angel* is mostly constructed from the voice, sine waves and recordings of Zen bells. In *Angel* there is a very high level of transformation from the recordings of the original sources.

Through many process of sound transformation the material used within the work intentionally had a high pitch to noise ratio. This was mostly done through a process of filtering and using repeated process of equalising. Through equalising most of the source material the high frequencies were enhanced, the mid range was omitted and the base frequencies were enhanced slightly. Enhancing the high frequency within voice and bells lead to the creation of a large quantity of noise-based material within the compositional material. After creating a large amount of this noise based material the process of creating delicate noise based structures took place through repeated fine editing. The intention of these noise-based structures was to convey interference on a subtle kinaesthetic and physiological level.

Conveying vitality was also of primary importance and was attempted by sculpting large noise-based sounds and interweaving them with each other. This process of interweaving, released delicate pitch/noise relationships within the work and determined the progression of the work.

The noise-based material within *Angel* has several behavioural qualities, which musically highlight pitch/noise relationships, energy motion trajectories, spatial behaviour, distance and proximity and tactile behaviour of the sound world.

## **2.10 Construction of meaning: *glitch* and *click***

With the objects developed within my works there is an actual morphological difference between a *glitch* and a *click*<sup>19</sup>. Most glitches are constructed in a very different way to clicks, through a process of detailed sub-mixing to establish a defined morphology which has both an accentuation into the sound, a peak and a decay, as for example with the *phonetic clip*<sup>20</sup>, the *swathed clip* and the *noise shaft*<sup>21</sup>. A *click* is a more immediate material which is usually established through editing techniques and spatial definition, mostly carried out within a later mix so as not to lose the detail through bouncing and re-bouncing. The definition of both *glitch* and *click* come from a combination of their behaviour with the other sounds surrounding them and the behaviour of the material at the point of distortion. I imply that there are also ‘social’ meaning differences between a *glitch* and a *click*. *Glitch* broadly implies malfunction, or a mistake that is temporary and has the potential to evolve into something else which is positive. A *click* generally implies spontaneity and also technology. It is

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<sup>19</sup> With regard to the click implying technology, I referenced the gestural and causal action of the sound of interfaces and haptics eg, the computer mouse and other technological interfaces

<sup>20</sup> See page 61 for explanation of phonetic clip

<sup>21</sup> See page 69 for explanation on Noise Shaft

also temporary and has a strong idea of an ‘instant’ associated with it. These structures apply to my music, as my main concern is always in some way to reflect everyday life. Glitches, malfunctions, clicks, spontaneous moments and rapidly evolving situations are all very relevant to our fast modern day life. A more detailed explanation of the method and process of creating glitch is presented further along in this chapter.

## 2.11 Node/pitch definitions

At 4.12 we hear the beginning of closure for a section of the work which began at 3.35. The material at 4.12 onwards signals the end of a phrase. The detail used for defining the pitch changes within this composition come from a combination of noise clusters, nodes, grain decay, phonemic clips, noise shafts<sup>22</sup> and association with human agency through deliberate mimetic construction of breath-like sound structures. This section metaphorically represents the voices of the dead. Within this section of *Angel* extremely high activity and motion-based material has been developed.

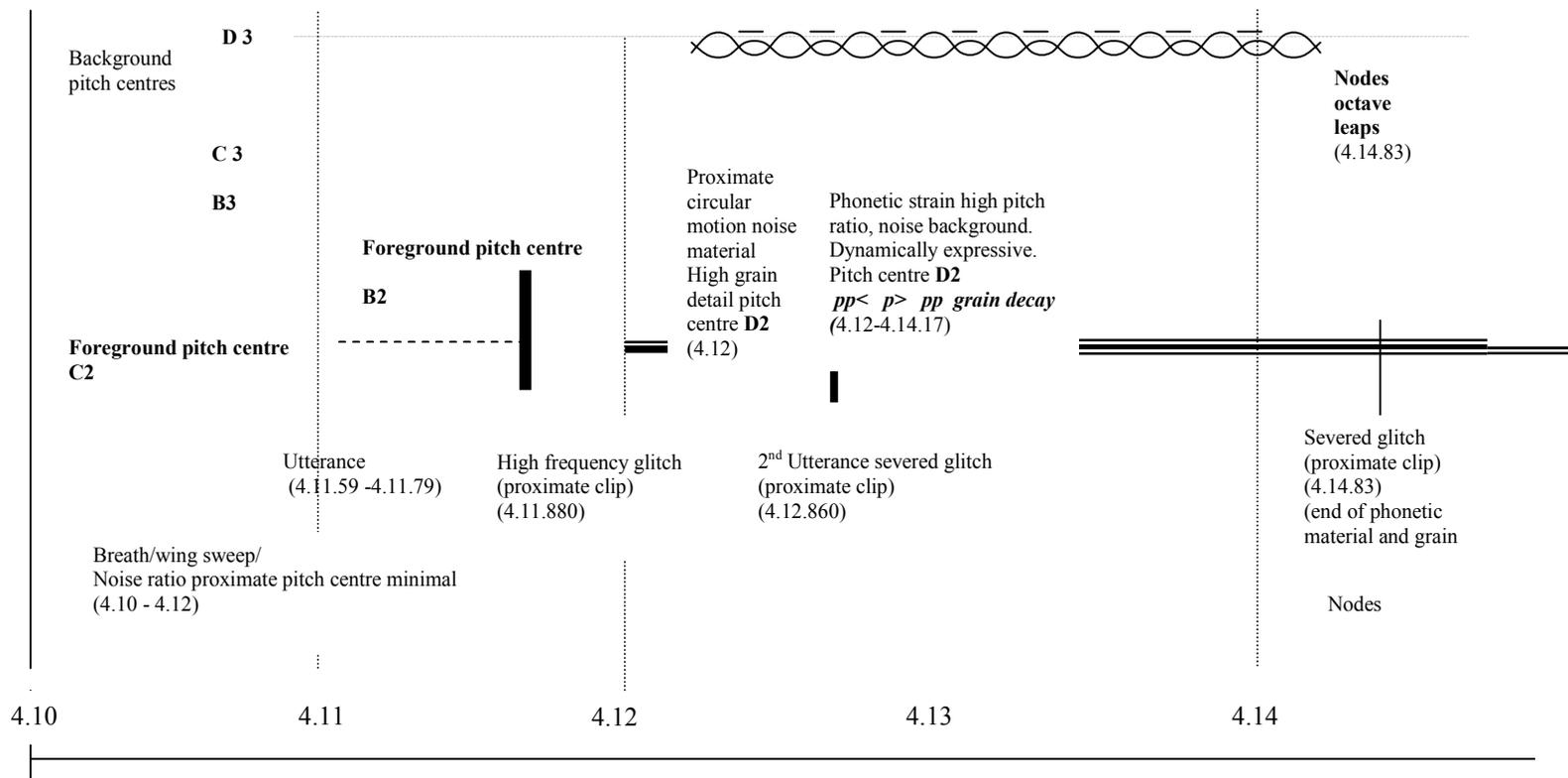
### Sound example 12: *Angel* (4.12-4.30)

Figure 2.1 below shows a detailed description of the cause and effect of the gestures from nodes, noise shafts, phonemic clips and associations with human agency (breath sweeps). The diagram particularly focuses on the phonemic clip being a main but very subtle trigger for pitch changes. The pitch content in most of the phonemic clips used in *Angel* is very small as they have been swathed in noise, but most of the phonemic clips originate from the voice so there is some pitch content

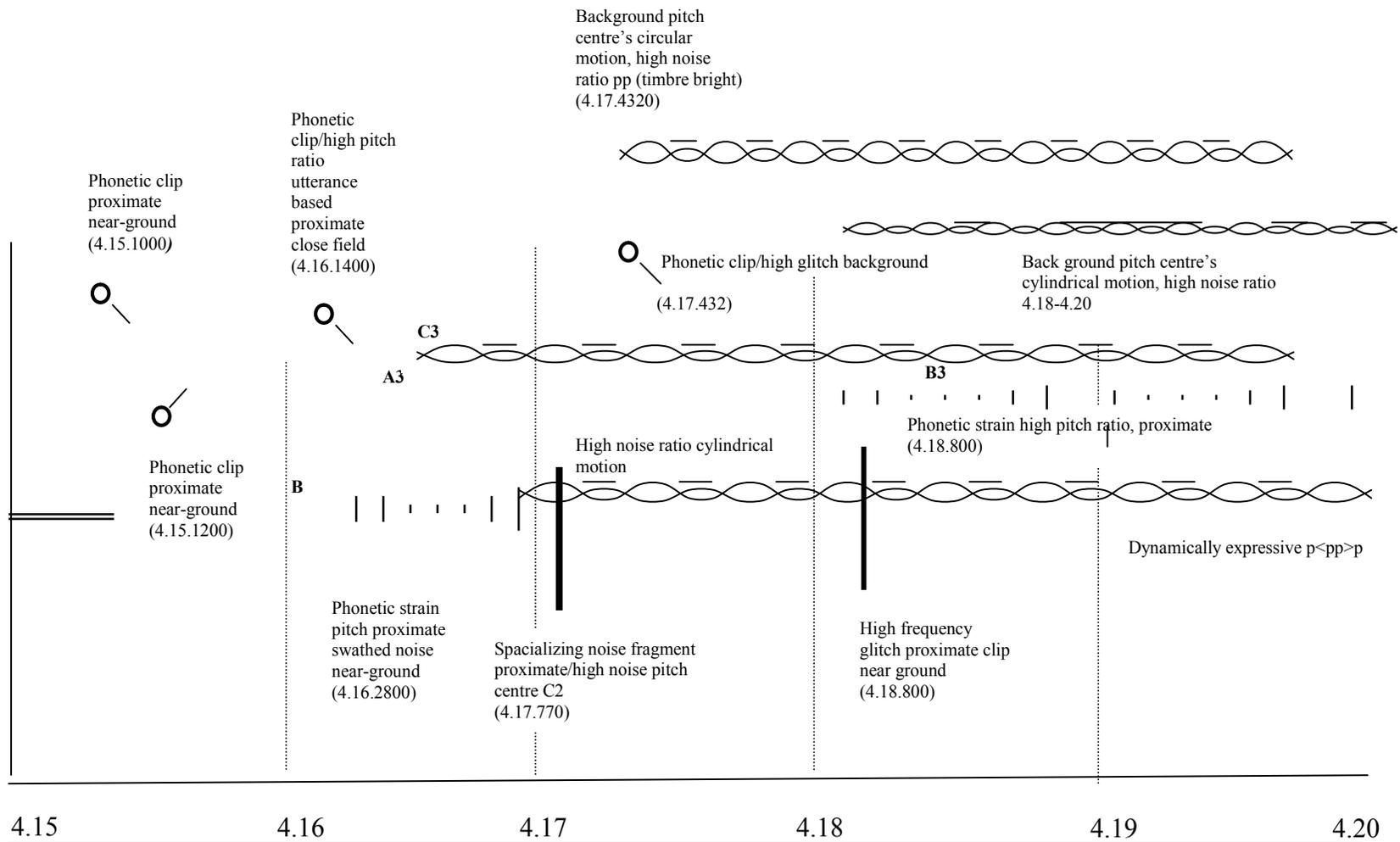
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<sup>22</sup>refer forward to p80 (noise shaft)

even if it is difficult to perceive. Also note in this diagram the spatialising noise fragment is shown to have pitch content and a significant pitch relationship with the sounds around it. It is used here to step from B $\square$  to C. at 4.17.



**Figure 2.1:** Scored representation of pitch/noise proximity/activity *Angel*



**Figure 2.1:** Scored representation of pitch/noise proximity/activity *Angel*

## 2.12 Pitch/noise development in *Angel*

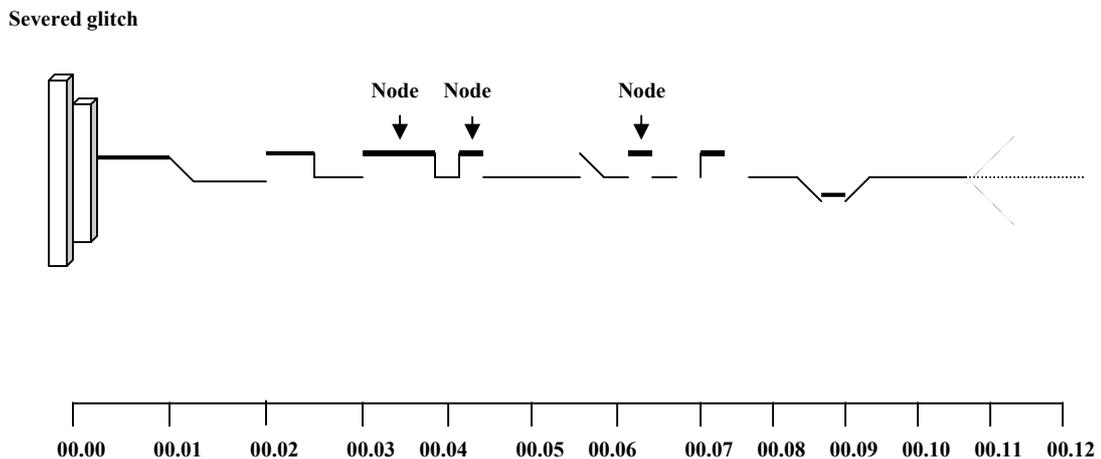
At the very start of the work, the pitch noise relationship is extremely important to the flow of the music (refer to audio example 13). We hear an abrasive bass attack that has no continuation. I call this gesture a *severed glitch*<sup>23</sup> with bass content. The attack of this first opening gesture is sustained by high pitch-to-noise ratio and the pitched material is broadly sustained for 11 seconds. However, there are changes in its behaviour and activity. These changes are presented through detailed rhythmic articulation and subtle filtering of pitch. Rhythmic articulation is achieved by changes in the spatial disposition of the pitched material. For example at 00.02 a node with increased spectral immediacy is used, the onset remains there but the sound has no decay. The cut-off from the nodes to the continuant (with no sharp attack) drives the energy motion trajectory forward (see Figure 2.2). Continuant and decay is only completed fully at 00.10 where there is a transition. From 00.09 the music articulates stasis within very close nodal pitch attacks. This transition allows the pitch/noise structures to extend their behaviour through the development of altered relationships with new sound material.

Because the material is spectrally limited at the beginning of the work I feel this allows a great deal of freedom to explore the fine detail and relationships of every sound. The use of noise and pitch is important, as I wanted to create a sense of suspension and height.

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<sup>23</sup> A severed glitch is the abrupt cutting of a block or band of sound to a microsecond's duration. The behavioural impact of this glitch works because there is no detailed editing after the cut no fade out or decay). This leads to a distinct near-ground behaviour.

By creating thin strands of noise and thin strands of pitch I had the capacity to interweave them and create suspension in the process. The construction of the musical perception of height was created by both pitch (frequency) and placement within the architectural space. The movement of pitch also reinforced the ideal of height within the spectral space. This section (00.00-00.11) is based around one pitch dyad and at 00.11 the pitch drops down a microtone, this is reinforced by very noise-based tactile material. This drop is an architectural transition<sup>24</sup> to the opening of both a wider and increasingly active musical space. The material used at this moment still remains in the background; and is achieved through the use of compression and low pass filters. This was intentional, as I wanted to elongate the audience's expectations by swathing the sound world in noise. Working with the pitch/noise relationship was actually very important as references to the rustling of wings and the energy of air turbulence are present in this section.



**Figure 2.2:** *Angel*: Node structures (0.00-0.12)

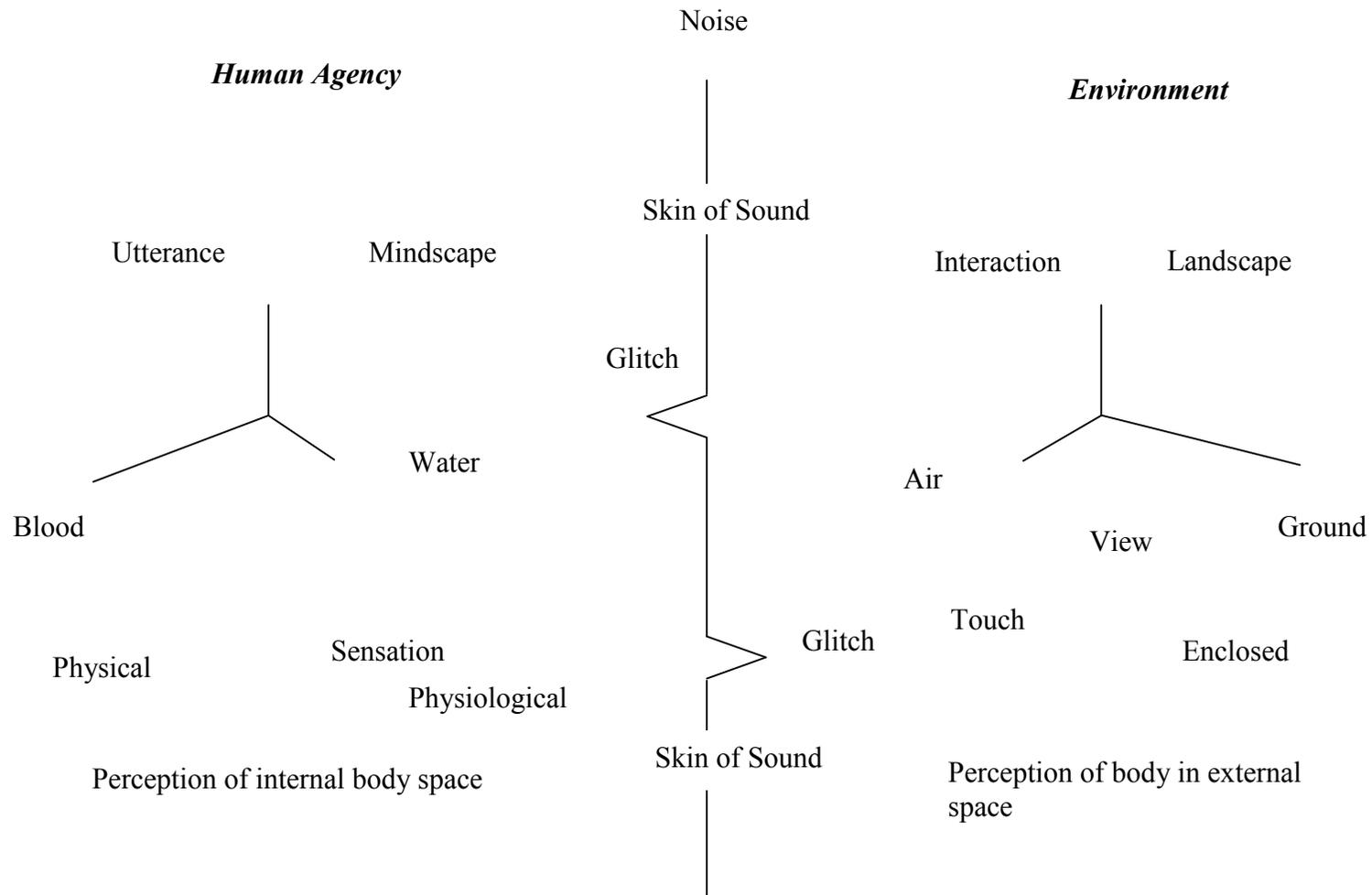
<sup>24</sup> Architectural transition, a movement in the design of space in the soundworld

### **2.13 Metaphor - ‘Skin of Sounds’**

When in the process of composition I view the sound-world as having an imaginary skin. This skin holds a luminous sonic quality. Within all of my musical works the ultimate goal is to gently break through this imaginary skin pursuing a level of musical communication and expression, which exists deep below the surface. Imaginary space, mind, environment, landscape, utterance, metaphor and association with cultural narratives (musical and extra-musical), all combine to attempt to perforate this imaginary skin through fissures of glitch.

The metaphor of skin is drawn from a physical experience of listening and composing within an electroacoustic studio context. When listening within a confined space like a studio, the frequency domain is heightened and concentrated. Working to develop an intense spectrum with material such as micro sound, continuum, attacks, decays, bands of noise, and glitch detail, one can create areas of impromptu change when they are either taken out of the mix or added to the mix. The jolt of breaking the natural wave of the sound-world through fissures of glitch reflects on a personal need to open imaginary spaces up for individual reflection, on one’s own space within the context of music. The breaking of the natural wave of the sound also reflects the perforation of the skin, the metaphor intended is that the sound is “more than skin deep”.

Figure 2.3 attempts to describe this poetic process.



**Figure 2.3:** Poetic process 'Skin of Sound'. *Glitch* as process

The line in the centre of the diagram 2.3 represents sound, sound as a skin, a luminous sonic entity. The word *noise* is used to reflect all the sounds in the spectrum. The *glitch* is the intention to perforate the skin into another space.

***Human agency*** (the title to the left on the diagram) is an internal perception of body space within the process of composition. The diagram shows how the process of sound manipulation and composition is linked very closely to the perception of my own imaginary body space. Sound has a very physical presence on my body while working in the studio and the diagram aims to reflect this through highlighting an imaginary perception of internal body and mind space. Sensation, water, blood, utterance (voice) and mind space are all factors, which are repeatedly used within my compositional work.

***Environment*** (the title to the right in the diagram) represents the perception of body in the relation to the external spaces that one's body might occupy while listening and working with sound. The fissures of glitch, which cause impromptu slash into formations of sound, can jolt memories and views of external landscape. The incise into the sound can capture senses of physical touch. With a direct incise into another sonic space a sense of vast to enclosed space can be created in a micro second and visa versa. A mimesis of physical kinetic interaction with an environmental space can also be reflected on and mimetically created through the detailed manipulation of sound. The physical feeling of currents of air on one's skin while listening to sound can also be created, magnified and manipulated.

The right side of the diagram (environment) aims to show a poetic linking between one's own body in an external space and internal body space via a process of glitch.

## **2.14 Glitch as process**

I have found through the compositional process that I have repeatedly chosen to develop a language of glitch-based material. This glitch material has been developed through a number of compositional avenues both pragmatic and poetic. Figure 2.3 goes some way towards describing an approach towards the use of glitch within my music. In the following paragraphs I will explain through the use of diagram and text, the nature of my approach towards both the construction and composition of individual glitch structures and phrases of glitch structures.

## **2.15 Glitch as voice**

One of the ways which I have chosen to develop individual glitch structures, is associating them with vocal attributes and narrative speech patterning. Sounds of vowels, constants, grains, peaks phonemes, fricatives, different timbres, types of offsets and onsets have all been used to create functional ways of approaching the construction and composition of individual glitch structures. I have also chosen to use a method of distorting individual peaks of sound to build layers of harmonics and grain decays to gain a detailed sense of space. The composition and construction of individual glitch structures in association to the voice is approached by keeping an awareness of vocal attributes<sup>25</sup> in mind.

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<sup>25</sup>Vocal attributes – sounds that capture the attributes of vocal behaviour

An awareness of peripheral<sup>26</sup> noise behaviour is important to intertwine and make pitch relationships with other artefacts. The accumulation of onset and offsets with a micro second between them in the edit can create creates forms of swathed noise which carry interesting phonemic qualities. These phonemic qualities can be heard within my works on a regular basis<sup>27</sup>, working with the grain within sounds to combine glitch structures together into a flowing pattern or phrase, helping to assert intentional musical discourse. The grained noise thread<sup>28</sup> was developed as a structure for this reason. The spatialising noise fragment is a prime example of glitch material, which has been developed with awareness of vocal attributes. This material is pure noise artefact but is used within the work *Angel* as a suggestive noise utterance.<sup>29</sup>

## 2.16 The construction of space

Working with parameters of space in the composition and construction of glitch has had a profound effect on the way I have dealt with the materials. Within the parameter of space I have always chosen to focus on composed space, behaviour within space and dynamic space.

With regard to composed space, overall space of the music, I imagine, hear and manipulate the music as a ‘membrane of skin’. The composer Frank Ekeberg has written about the perception of composed space:

Listeners bring with them spatial knowledge acquired from real-life experiences. This knowledge becomes the basis for the way in which they perceive and interpret spatial information in electroacoustic works. At the

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<sup>26</sup> Peripheral noise behaviour – noise which is created from the over lapping of sounds.

<sup>27</sup> Phonemic qualities refer to Figure 1.12 and 1.19

<sup>28</sup> Grained noise thread defined (2.23)

<sup>29</sup> Spatialising noise fragment defined (2.19)

most fundamental level, perceptual mechanisms are all the same for listening. However, during music listening one tends to be more attentive to sonic information than in casual situations, and is more likely to employ listening strategies to detect relationships and connections between sound materials over a longer time span and within defined spatial boundaries. Cognitive processes based on listeners' background and musical training comes into play, and is essential for the listener's experience.

The spatial possibilities open to electroacoustic composers are significant: one can transport the listener to a great variety of virtual sound environments, expand the listening space beyond its physical boundaries, play with intimacy and remoteness, and utilise movement and direction. All of these factors can be integrated into a compositional structure. Composed space refers to the composer's organisation of the sound material into a musical context.

(Ekeberg 2002, p51)

I have chosen to make strong causal connections between human agencies, using the imaginary concept of creating a 'skin of sound'. The behaviour of the glitch in composed space has very physical attributes. It has the potential to create a fissure within the skin of sound. However the glitch structures I work with are not all the same. Some are highly manipulated sounds and some stem from already existing sound forms, unchanged or un-manipulated: e.g. natural distortions, tape hiss and radio static. The mimetic behaviour of speech patterns has had an influence on my use of glitch and in some works I have concisely adopted a mimetic approach to working with glitch which is dependent on the behaviour of audible speech patterns - heard directly in *Wolfie* and *Night Music for Radio*, and indirectly in *Glitch*. There is one common factor to all the glitch structures that I use and, when they are clearly heard, their behaviour is essentially to dominate the composed space of the work. They are designed to be heard close to the listener in the foreground of the loudspeakers. Even when they are not in the foreground, their existence does not disappear totally, as I generally work with pitch artefacts from the original sounds in order to construct a sense of temporal evolution. *Angel* is an example of this.

Through practice in the studio it has become apparent the more speed adopted the more interesting the glitch material. The dynamic space of some of the glitch sounds and their placement is greatly influenced by my kinetic response.

## 2.17 Severed glitch

*Unconditional is the Dawn* was my first attempt at the construction and use of *severed glitch*. I feel that this glitch is very ‘technologically’ based, in that its form and construction is highly influenced by the technological process used. A *severed glitch* is the cutting of a block or band of sound (with generally high noise content) at moderate volume, with no fade, to create a glitch structure the majority of which lasts from 50-80 milliseconds. Most of the severed glitches used within *Unconditional is the Dawn* had a substantial bass and high frequency content. This allowed the glitch to be audible within a mid-frequency sub-mix of real world sounds. These glitch structures were used as transitional material, their dynamic space or energy propelling the music forward, allowing a change of composed space.

In the following example from *Unconditional is the Dawn* we hear a *severed glitch* at 0.2. This event is integrated into the mix so that it propels the music forward. Again at 0.10 we hear a *severed glitch*, here the *severed glitch* is used to define a change of phrase, 5.5 seconds later (0.15 in the sound example, audio CD1) a *severed glitch* event happens again to defining the start of closer in the musical phrase.

**Sound example 14: *Unconditional is the Dawn* (0.00 – 0.28)**

## 2.18 Construction and transformation of glitch/technological artefacts

Within the construction of a sound I will often undertake a large degree of sub-mixing. The mixes will generally involve the highlighting of, or detracting from a frequency band, and will often concentrate on expanding the spectral space through a process of multiplying harmonics to forcibly detract from the original pitch centre sound source. A process of quite harsh high and low pass filtering and graphic equalising does this. The end result is a trace of the original sound placed in a new, alternative space. Finding connections and pitch relationships in extracted or rejected information always fuels interest and challenges me compositionally.

I have chosen to categorize some of the glitch sounds within broad parameters of composed space, dynamic space and behaviour. The ones I have chosen to categorize are the sounds, which are used repeatedly within my work.

Figure 2.4 sets out the parameters, which one may choose to work with in composition while working with glitch and noise structures. It is a reference to Spider's web<sup>30</sup> exploring the multi dimensional aspects of composition and creativity.

Mimetic space is used in reference to the reproducing of a space, whether it is an imaginary internal space or a real world environmental space. The behavioural terms of Dominance/Subordination and Conflict/Co-existence are in reference to

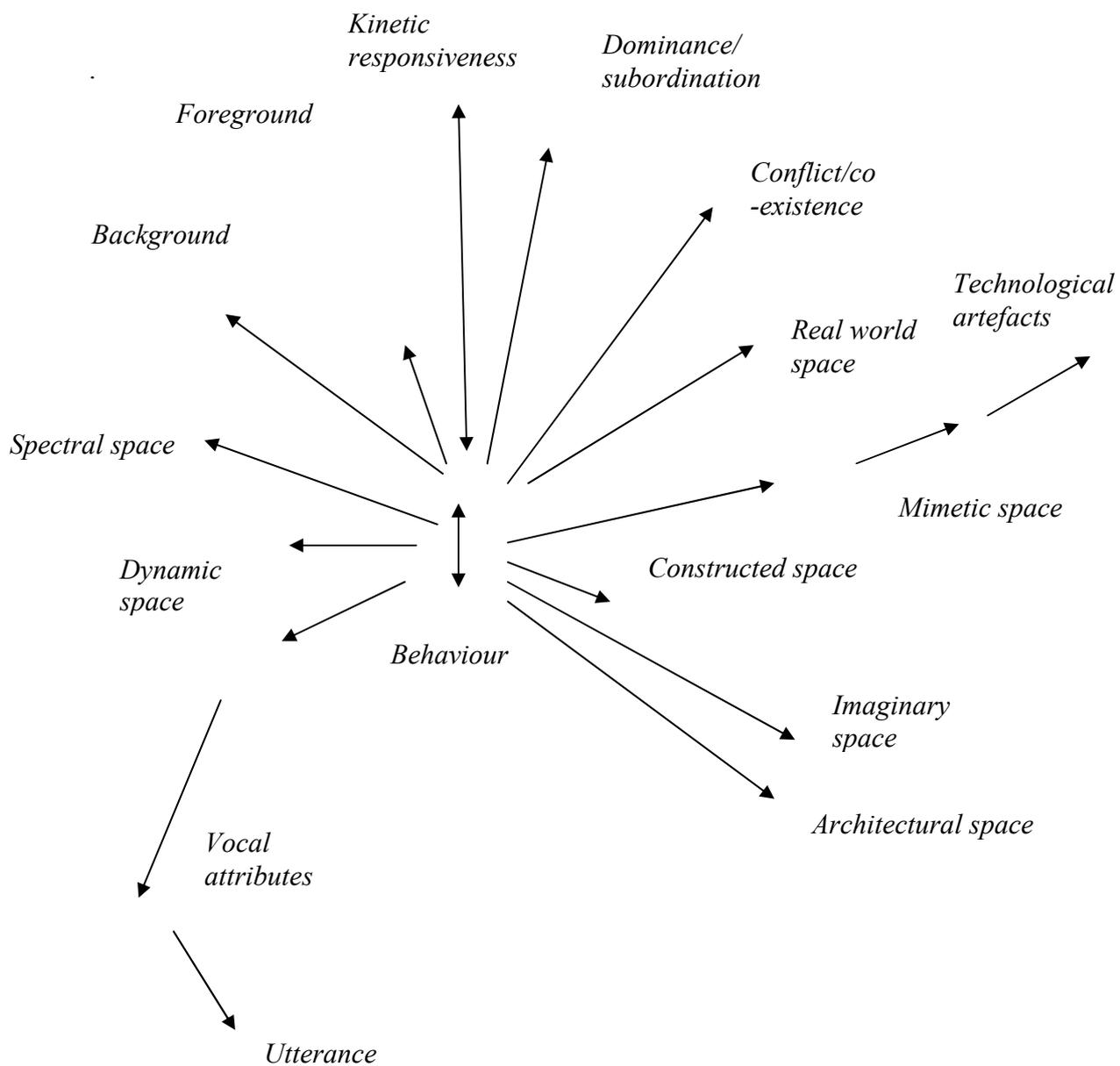
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<sup>30</sup> The Spider's Web is making reference to the '*The Mother*' – Sculpture by Louise Bourgeois, commissioned by the Tate Modern 1999

Smalley's<sup>31</sup> spectro morphology and structuring processes. Vocal attributes and utterance have been placed on a tangent on their own because of their significance in the development of glitch to speech patterns and utterance in the compositional process of my works.

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<sup>31</sup> Smalley, 1992



**Figure 2.4:** Parameters which one may choose to work with in the composition of glitch pieces.

## 2.19 Spatialised noise fragment

While refining these artefacts being aware of noise behaviour, onset, offset, grain and decay is very important when working in this detail. The *spatialised noise fragment* is a prime example of glitch material and has been developed with awareness of vocal attributes. This is also shown in the suggestion of utterance throughout my work through noise artefacts. In *Angel* this material has been used to articulate textural behaviour, to portray a sense of sound just existing very naturally rather than enforcing forward trajectory. The *spatialised noise fragment* material within the following example is always on the periphery of pitch definition and exists simply as suggestive noise utterance. The next two examples concern the *spatialised noise fragment*. The first example shows its morphology is made out of high frequency material. I regard this material as being quite harsh with respect to the other material. This example is played six times with pauses of one second between.

### **Sound example 15: Spatialised noise fragment *Angel* (3.13) - 6 times**

Sound example 16 is a two-minute extract from *Angel*. This example has been chosen because of the behaviour of the noise fragment. It has been composed to resemble freely a degree of utterance, but not of controlled speech.

At the beginning of sound example 16 there is a three second distortion trigger which attempts to resolve this section of the music, implying a traditional cadence (V-I). However the *spatialised* noise fragments do not allow resolution, as they continually lead us forward without having a very prominent dynamic energy.

### **Sound example 16: Spatialised noise fragment *Angel* (4.23-6.53)**

## 2.20 Phonetic clip

The *phonetic clip* does not have a separately identifiable attack; it has a swift ascent, a peak and decay within a very small time scale. It is within the peak and the definition of the decay that phonetic information can be held, depending on its association with other sounds. Within *Wolfie* the *phonetic clip* was used extensively to shape certain noise-based sounds into establishing a mimetic relationship with vocal-like structures or enhancing the vocal detail within the work as regards to the audible narrative.

However the *phonetic clip* is not always to be used in this way. Within *Glitch* this material is developed to establish patterns of speech behaviour, within *Dark Noise* it is used to establish a sense of utterance rather than direct speech and within *Less* properties of this sound behaviour are developed in the context of establishing a relationship that is indicative of human agency, the electronic sound world and the sound of the baroque flute.

The following two examples are taken from 8.15 into *Less*. It is here that the phonetic clip is used very specifically to sculpt a point of contact between the instrumentalist's part and the electro-acoustic sound. To do this I have very specifically directed the flautist to work with material to create a refined ascent, peak and decay.

Sound Example 17 shows specific phonetic clips played by the baroque flute, with a discrete sine tone played in the electroacoustic part. The first example is played 4 times with a one second pause between each hearing.

**Sound example 17: *Less* phonetic clip a, movement 2 (8.10) - 4 times**

Sound example 18 shows phonetic clips integrated into a larger section of the work from 8.07 onwards (0.7 audio CD1).

**Sound example 18: *Less* phonetic clip b movement 2 (8.07-8.53)**

Within *Wolfie* I am working with the sound of the word 'wolf'. This moment is at 00.43. The *phonetic* clip is developed from a mixture of sounds of human agency (the voice) and the sound of distortion from bells. It has also been developed on the basis that left and right can be completely separate in the stereo image. When listening to the right we just hear *w-w-oo*, which is essentially noise based. There has been a small amount of high frequency grain mixed into the left to define the sound – *ooo*- the grain cuts off at the end of the decay; it also clips at the peak of the sound. This is played six times with one second pause in between each hearing.

**Sound Example 19: Phonetic clip *Wolfie* (0.43) – 6 times**

This next sound example is an example of a phonetic clip from *Glitch*. This extract has a more defined pitch centre than the other material but the material still carries high noise content. Left and right channels again have different properties, the left carrying more bass information than the right. The pitch information carried in the left channel is slightly different from the right. The left is played first followed by the right then followed by the left again. Each event carries different qualities of noise and pitch content. The pauses within the morphology of the sound as a whole propel the dynamic motion of the glitch event. In the case of *Glitch* there were never

any words involved but there were patterns of speech behaviour integrated into the work. It is repeated six times with a one second silence in between.

**Sound example 20: Phonetic clip a *Glitch* (3.28) - 6 times**

A second example is a *phonetic clip* with high fricative qualities. This sound has a sweep and then it peaks with a high degree of grain. The contour of the sound is sweep, peak and decay. There is slight grain decay within this sound (rattling sound) and this enhances the interest within the spectrum. The sound itself lasts for 0.1seconds. In this example it is played four times with one second of silence in between.

**Sound example 21: Phonetic clip b *Glitch* (3.21) - 4 times**

Sound example 22 from *Glitch*, shows mimetic speech patterns within the work, used extensively in a very detailed way.

**Sound example 22: *Glitch* (1.52-2.17)**

Sound example 23 is a phonetic clip from *Less* developed from the flute, having a strong association with human agency through vocal association. There is one strongly defined pitch centre. However, there is also a pitch movement: a sweep, attack, decay and click definition right at the end. The pitch contours towards the end of the sound are very subtle. The dynamic energy from the peak leads to a pitch descent and then a slight ascent. This sound does not fade out but ends with a slight click. The dynamic energy projected from the peak of the phonetic clip requires two precise glitches to finalize the phrase. The sound is 0.3 seconds long and is played six times with a pause between each hearing.

**Sound example 23: *Less* (1.07-1.09 ) - 6 times**

Within the following example the *phonetic clip* is heard in the context of the work, towards the end of the example.

**Sound example 24: *Less movement 3* (0.38-1.08)**

## **2.21 Noise Burst**

Within these works the *noise burst* is used extensively. The term is taken from linguistics, and represents unexpected, undefined and unrefined energy. I generally use them with only slight preparation. The pitch centre of the noise burst may be prepared for seconds beforehand, but on a very subtle level.

Sound example 25 is played six times with one-second pause in between each example. The *noise burst* is brought in after a slight pause within the extract. It is developed by intentionally distorting a fragment of speech which focuses on the vowels *a-e*. Then the material is panned left to right and right to left, treating it through a high pass filter to bring out the vocal attributes and then enhancing the burst with a small pulse of bass material (also developed from the original voice, comb filtered so that there is a slight resonance in the bass) which is placed under the offset of the burst at 0.66 seconds. The panning of the material leads to a certain unevenness. However, the detail within the mixing after the panning and filtering refines the decay, ready for the pulse and grained phonemic material that follows.

**Sound example 25: Noise burst *Wolfie* (0.23) - 6 times**

The next example is the noise burst in the context of the work. This shows the behaviour of a burst of energy in a very linear sound world. At the start of this example we hear grained threads of noise which build up to a gestural pause.

**Sound example 26: Noise burst *Wolfie* (0.23-26) - 6 times**

The *noise burst* can also be found in *Angel*. In sound example 27 the material is used to increase momentum and energy in a very low energy section of the music. The noise burst is also used here in a referential context, to make links to the medium of short-wave radio noise, an environmental reference, a real world reference, and a material reality. The material has been very transformed and ‘of another world’ i.e. the angel and transcendence, and is developed straight from white noise generated from within the computer, the burst is heard at the end of the example. The example is 11 seconds long and is repeated six times with a pause of one second between.

**Sound example 27: Noise burst *Angel* (10.29-10.40) - 6 times**

Sound example 28 is from *Night Music for Radio*. This *noise burst* is not so much a burst but it sounds like an abrasion of energy in the sound world. I have tried to work with the sound so that it seems as if it is bursting out of the surface skin to release a voice utterance. The onset attack and the grain within the decay of sounds are very important for defining the ‘tears’ (0.2 audio CD1) within this example. However I have also tried to keep the dynamic energy and mood of the music very still as I wanted to portray a feeling of nighttime and contemplation.

Sound example 28 is simply the *noise burst*. The example is played six times with a pause of one second between.

**Sound Example 28: Noise burst a *Night Music for Radio* (1.50-1.57)**

Sound example 29 is the noise burst within the context of the work; the example is from 1.50 in *Night Music for Radio*.

**Sound Example 29: Noise burst b *Night Music for Radio* (1.50-3.10)**

## **2.22 Precision glitch**

*Precision glitch* is glitch which has the potential to have maximum impact within the minimum amount of time. It is designed to be morphologically intricate, small and detailed. It is also designed in its use to be constructive in adding fine detail to a musical phrase or a sounding structure. In these works the timbre of most precision glitches is bright, high pitched, very dry and with no reverberation.

*Precision glitch* works best in open spaces, being the only material heard at one particular time. *Glitch* and *Less* use this material towards the end. I have also found an important factor in composing with precision glitch is the audibility of the pitch movement of this type of glitch. This material tends to work best with little pitch movement but with a strong pitch centre.

Sound example 30 is a single precision glitch morphology. It is designed to have maximum impact and clarity within the compositional space of the music. This example is heard 6 times with a second pause in between.

**Sound example 30: Precision glitch *Less* movement 3 (1.14) - 6 times**

Sound example 31 is the *precision glitch* in the context of the electroacoustic sound. Within this context the *precision glitch* is used to give a sense of stillness, timelessness and a sense of focus. The intention is thus to draw a precise line into the music and capture a sense of suspense by listening to one object at a time. The *precision glitch* is repeated on the same pitch centre in a poetic attempt to capture time. The example is repeated twice with a small pause in between listening.

**Sound example 31: Precision glitch in context *Less* movement 3 (0.40 – 2.09)**

Sound example 32 is an example from the live performance of *Less*. Here the limited movement and material in the compositional space of the electroacoustic part allows for a subtle focus of interplay between the live instrumentalist and the electroacoustic sound. This example is from 0.40 movement 3 to the end. Note how the architectural space opens towards the end of the example. The behaviour of the material becomes more organic.

**Sound Example 32: Precision glitch *Less* movement 3 (0.40-end)**

## **2.23 Grained noise threads**

I find the *grained noise* thread very useful for continuing a pitch centre which is resonant in the glitch artefact a moment before. It is also useful material for developing a sense of line and phrase structure. This material is also used extensively within my work to establish a sense of discourse within the line between different glitch structures, almost like a micro-bridge structure. This material also has a

tendency to sound ‘technological’ because of the processes of transformation involved.<sup>32</sup>

Sound example 33 is of a grained noise thread from *Glitch*, is 0.1 seconds long and is played 6 times. It is quite a linear sound which has actually been developed from corrupted digital audio material found on an old digital audiotape. The gain was increased and a little low pass filtering was used to remove unnecessary noise content, with slight comb filtering to increase the pitch content within the wanted noise.

**Sound Example 33: Grained noise thread *Glitch* (2.37)**

Example 34 is of grained noise threads used in the context of *Glitch*.

**Sound example 34: Grained noise thread: context 2.34-3.34**

The next example of *grained noise threads* is from *Wolfie*. The grained noise threads are used to create a ‘digital forest’, which was discussed in detail in Chapter 1. These grained noise threads are used in order to establish a sense of deep forest environment. Musically the pitch to noise content is developed to establish a sense of synergy between the voices and the mimetic environment. The example is 0.8 seconds long and is played 6 times with a slight pause in between each hearing.

**Sound Example 35: Grained noise thread *Wolfie* (0.30) – 6 times**

Example 36 shows the behaviour of grained noise threads in the context of *Wolfie*. This example is 14 seconds long and starts from 0.27 in the work. At the

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<sup>32</sup> The process of construction when making grained noise threads involves much detailed pitch shifting of individual strands of noise. When the individual threads are combined they can make a substantial substance of granular noise morphology.

start a distortion trigger<sup>33</sup> with noise bursts introduces the phrase and signifies a change of environment. It is here that the grained material is introduced and this is also where the pitched behaviour of the noise is adapted to be mimetic of the vocal behaviour that follows.

**Sound example 36: Grained noise threads in context *Wolfie* (0.27-0.41)**

Sound example 37 is an example of a grained noise thread from *Less*. This material has been swathed in noise (noise filtered through a graphic equaliser). Its presence serves to define architectural space within the phrasing structure of the music. In this section pitch centres of the electroacoustic part are defined and quickly removed. The grained material is placed at the end of a strongly pitched centred phrase. The grain is an octave lower than the pitched fragment before; this is done in an attempt to lift the dynamic energy of the phrase and construct what may seem like ‘blocks’ of pitch.

**Sound example 37: Grained noise thread *Less* movement 3 (0.09) – 6 times**

Sound example 38 is of grained noise thread in the context of *Less* (electroacoustic sound only).

**Sound example 38: Grained noise thread *Less* movement 3 (0.00-1.06)**

Sound example 39 is an example of the noise threads in the context of live performance.

**Sound example 39: Grained noise thread *Less* electroacoustic part and baroque flute (0.00-0.43)**

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<sup>33</sup> This distortion trigger is a micro phrase of music which lasts 2-3 seconds. The material used within these phrases is highly distorted. This phrase acts as an anacrusis to anticipate the start of the next phrase, or cadence structure.

## 2.24 Glitch fissure

*Glitch fissure* is the effect of a break in a line of sound, created by the sudden extraction or addition of sound material. It can also be created by a sudden depletion in amplitude.

Sound example 40 is an example of a break in a line of sound. At the start of this example we are drawn into a full broad sound world. However this world suddenly decays into a pause which lasts for 9-10 seconds. After this pause a glitch fissure emerges on the hearing of a single sine tone. This glitch is a *glitch fissure* because it cuts into the silence (pause) before hand. The presence of the tone is magnified by the hearing of the fissure (a single digital clip at the start of the tone).

### **Sound example 40: Glitch fissure *Angel* (12.36-14.38)**

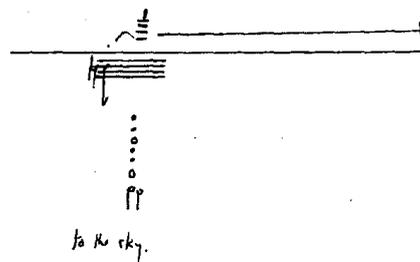
Sound example 41 shows glitch fissure from *Less*. The example begins with a simple melody (Figure 2.5) the intention of which is to capture a moment in time. Before and after the melody there are precision glitches in the electroacoustic part. Then after the calling of the melody the music is taken 'up to the sky' (Figure 2.6) to release the captured moment back into the landscape of the musical imagination. Here the *glitch fissure* is heard 1.19 minutes into this example . This is placed to release a sense of suspension within the musical line. I also hear this as a moment of pressure release. The morphology and timbre of the glitch structure is deliberately opposed to the sonic world which the baroque flute inhabits. Thus the ideal of a cut, break or fissure in the line of sound is enhanced. The break in the line is also enhanced by an audible change in the sonic world surrounding the baroque flute, a change from being a very intimate, close introspective compositional view on the relationship between the baroque flute and the electroacoustic sound to a much more

free exploration of the embodiment of the baroque flute with respect to electroacoustic sound. This change is both reflected in the compositional space of the sound world and in the score. The sound world is one of sweeping noise-based morphologies which are intended to be representative of air-based sounds. The score is notated in such a way, as to give the flautist choice over the pitch, which ends the work. However the timbre is directed by instructions in the score. (Figure 2.7).

**Sound example 41: Glitch fissure *Less* (electroacoustic part and baroque flute)  
(2.13-end movement 3)**



**Figure 2.5:** *Less* Melody



**Figure 2.6:** *Less* to the sky

**Figure 2.7:** *Less* Improvisation

## 2.25 Noise shafts

A *noise shaft* is a description of a type of behavioural motion and sound quality. It can be created with fine editing and sub mixing. A sudden change in the spectral behaviour of the composed space will actually create noise. When constructing these types of sounds, I am working and imagining the sounds moving temporally in a vertical rather than horizontal manner. This is because it is the ‘vertical’ into which one can drop in and drop out of composed space, which creates the shaft. I have used noise shafts repeatedly in *Less* and in *Angel*.

A noise shaft requires a certain type of behaviour. This is essentially based on the containment of friction within a shaft or duct. To gain this particular behaviour of friction a sheer descent and continuum and then a clear ascent is needed. These motions are very short. It is on the sheer descent into the shaft that the fricative noise is created. The pitch may drop or rise slightly with the increased noise content. The intention of these motions is to create a sonic ‘shaft’ within which noise can be captured and then released when the shaft ascends to the surface.

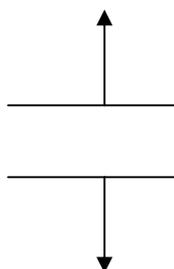
Sound example 42 is an example of a *noise shaft* from *Angel*. In this example a *severed glitch* with harsh onset has been developed to propel the dynamic energy of the sound forward. I have then suddenly extracted part of the noise continuum and replaced it with the continuum of the pitch-based bell sound. Then I have replaced the noise back into the mix and extracted it suddenly to develop a harsh offset to end the phrase of the shaft. Thus the *noise shaft* is opened (0.00.42 audio CD1) and closed (00.0155.330 audio CD1) by a severed glitch.

**Sound example 42: Noise shaft *Angel* (1.14) - 6 times**

Sound example 43 shows the noise shaft in the context of the work. This example shows how *noise shafts* develop the material within the work. The *noise shafts* are employed within this section to both bring a sense of syncopation to the work by the used of severed glitch and to alternate and develop timbre. The rhythmic qualities of this section of the work have been developed to reflect the rhythmic qualities of the Tango.

**Sound example 43: Noise shaft in context *Angel* (1.30-4.02)**

Within *Less* the baroque flute also creates noise shafts instrumentally. This is indicated in the score as follows:



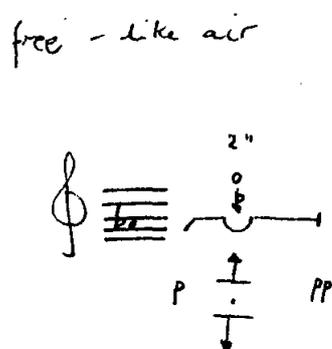
**Figure 2.8:** *Less Noise shaft* instrumental notation

The intention was to create microtonal changes in the pitch-to-noise ratio, by changing the embouchure of the flute very slightly and quickly. Sharp descents and increased friction were achieved. However the shafts worked in a slightly different way as there was a sudden attack at the start of sound. This was essential for maximum impact, as the baroque flute is such a quiet instrument. To carry the friction on into a continuum a tongue roll was needed. The pitch could be raised or lowered. The following examples show a mixture of morphologies of *noise shafts* on the baroque flute.

Sound example 44 is from the start of the work, the noise shaft draws its pitch centre from A flat. The morphological structure is *pianissimo* ascent, continuum, noise shaft (raised multiphonic split noise content, quarter tone down,) continuum and finishing with a subtle *pp* offset.

**Sound example 44: Noise shaft *Less* (0.00 0.03) 6 times**

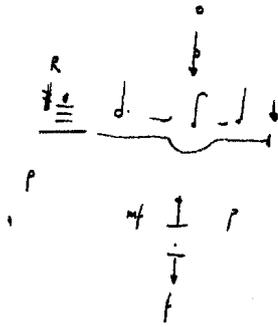
Figure 2.9 is a notated transcription of sound example 44.



**Figure 2.9:** *Less*: Noise shaft 'Free like air'

Sound example 45 is also from the beginning of *Less*. Here an F sharp (two octaves above middle C) is played. This note on the baroque flute actually has a particularly high noise content. The note starts with a very subtle ascent into the shaft at *piano*. It then descends into the shaft by falling down a quartertone and rising to its natural multiphonic. The dynamic of this shaft is *forte*. The note then raises itself out of the shaft and leads itself to a very slight continuum to then finish with an accented *piano* offset.

**Sound example 45: Noise shafts *Less* (0.40-0.43) 6 times**



**Figure 2.10:** *Less noise shaft*

Sound example 46 deliberately encompasses vocal attributes. This is done to enhance the dynamic energy of both individual sound and the sound world. The vocal attributes are captured with utterances of ‘drrr’ and ‘pa’. This is repeated 4 times. Note the onset and offsets. These are notated in such a way to deliberately capture very slight pitch movement while repeating a single note.

**Sound example 46: noise shaft *Less* (0.25-0.30) 4 times**

Figure 2.11 is a transcription of sound example 46.

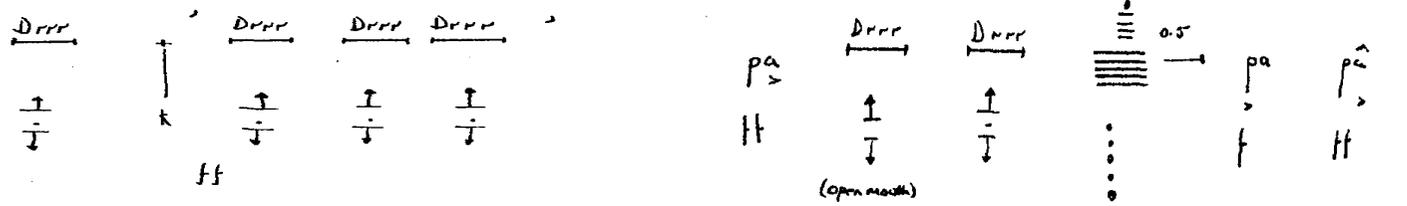


Figure 2.11: 'Drr' noise shaft .

Sound example 47 is an example of noise shafts in the context of the work. This audio example is played twice with a slight pause in between each hearing. Figure 2.12 is an example of the score from this section of *Less*.

**Sound example 47: *Less* noise shaft (electroacoustic part and baroque flute)**  
**(4.03-4.37)**



## Chapter 3      Metaphor

The integration and associative qualities of metaphor have become an essential part of my compositional process. The word metaphor is taken from the Greek language, ‘meta’ meaning journey and ‘phora’ being an object (originally associated with ‘amphora’, an ancient Greek vessel for carrying precious liquids).

Much has been written about metaphor and its ability in language to represent meaning within human life and existence. Metaphors can be associated with general ‘turns of phrase’ but also with how individuals perceive a situation which is very personal to them. The decoding of meaning within a sound or phrase can be specific to the individual listener or the composer and can never be prescribed, as each individual’s life experience of sound is different and unique. The role of this chapter is not to analyse semantic theory within sound in general but it is rather to discuss the active use of metaphorical relationships within the music presented here.

John Blacking remarks:

Music is not so much an immediately understood language, which can be expected to produce specific responses, as it is a metaphorical expression of feeling. It is primarily sensuous.

(Blacking 1969, p49)

Within my music I have chosen to develop a landscape from sounds which either have specific metaphorical meaning to myself or an interrelated meaning for the community I am either writing for or about.

I have concentrated on developing ‘palettes of sounds which have particular kinaesthetic and spatial attributes and also have particular references to specific mind states, colours and imaginary worlds.

It was never my intention that an audience should acknowledge or understand many of the metaphorical references on a direct level. However, I like to develop metaphorical relationships and landscapes with the aim of offering the audience the chance to listen and quietly discover my intentions and their own imaginary relationships to the music.

The relationship between the title and the sound world of the music is intended to be strong. Visual, auditory and kinaesthetic constructs are repeatedly used as tools within the construction of a metaphorical image as regards the title of the music. The works which I shall discuss in this chapter work with metaphor in relationship to image and space. *Dark Noise, Glitch, Less, Unconditional is the Dawn, Angel* and *Night Music for Radio* are examples of works which have incorporated these attributes. However within this chapter I shall discuss mostly the metaphorical concerns of *Angel* and *Dark Noise*.

Visual and kinaesthetic constructs are also involved in the very first roots of creating the sound landscape within the work. I physically paint and draw the structures of the whole works and also the imaginary landscapes which the sounds inhabit, trying to create the texture, shape and colour of individual sounds through use of sand, salt crystals and water. Thus the process of establishing and developing metaphorical relationships through very physical patterns of working behaviour is

prevalent throughout my working practice. Figure 3.1 is a line drawing made before composing the work *Angel*, and is a visualisation of the sound world which I wanted to achieve.

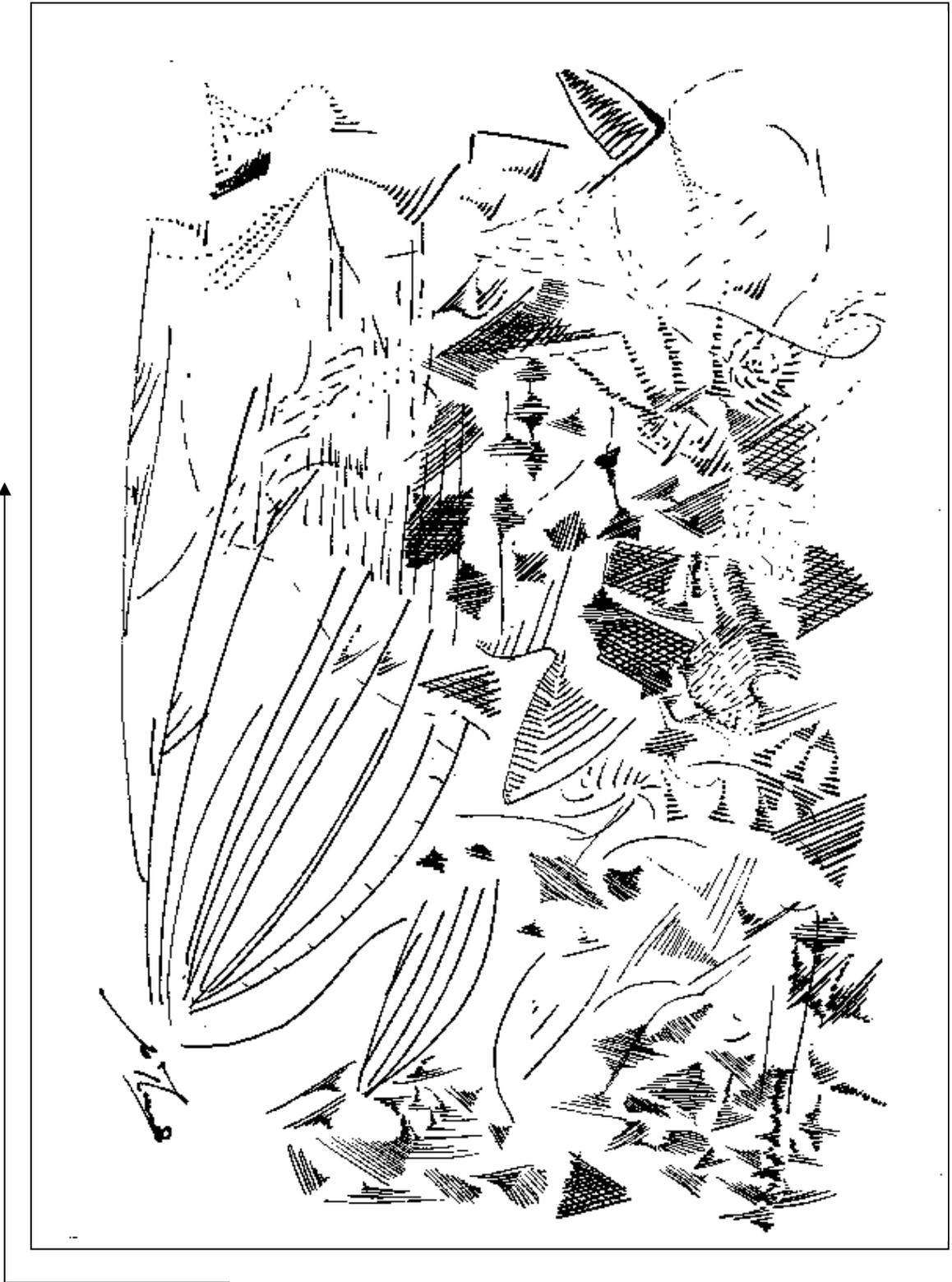


Figure 3.1: Line Drawing *Angel*

### 3.1 Sound transformation metaphor

The works I have written in this portfolio have concentrated on the re-building and formation of sound material, working mostly with the original sound source of the human voice. Working with sound material that is mostly totally transformed has allowed me the freedom to work with metaphorical relationships.

I choose to explore metaphor as a way of re-structuring the identity of the source material. In some cases this involves exploring several different identities in relationship to one main metaphor within a small section of a work, or in others just focusing on one main metaphor, one association. The voice can be a metaphor for the self but can also be a metaphor for a group or community. *Wolfie* and *Night Music for Radio* use the voice and voices to communicate particular groups in society. In *Wolfie* the metaphors are communicated very subtly, enclosed in the unassuming capsule of a fairy tale. *Wolfie* uses the narrative of Red Riding Hood, which captures an empowerment and awaking of female sexuality as well as other social metaphors. Within *Night Music for Radio* the voice of the radio ham Doreen Barns is a metaphor for the continuation of community, communication and the passing on of stories.

Most of the metaphorical relationships have one central focus which is driven towards establishing a connection and representation of basic human nature. Through the composition of music I have chosen openly to explore and question society's and my own relationship with the human body, notions of regeneration, life, death, survival and time.

### 3.2 Metaphor: noise

Noise can suggest expression, belief, will, choice, community and hope. In his book *Noise: A Political Economy of Music*, Attali suggests that noise can be both a provoker of freedom and choice within society and thus be deeply attached to the sources of basic human expression.

More than colours and forms, it is sounds and their arrangements that fashion societies. With noise is born disorder and the opposite: the world. With music is born power and its opposite: subversion. In noise can be read the codes of life, the relations of men. Clamour, Melody, Dissonance, Harmony; when it is fashioned by man with specific tools, when it invades man's time, when it becomes sound, noise is the source of purpose and power, of the dream – Music. It is at the heart of the progressive rationalization of aesthetics, and it is a refuge for residual irrationality; it is a means of power and a form of entertainment.

Everywhere codes analyse, mark, restrain, train, repress, and channel the primitive sounds of language, of the body, of tools, of objects, of the relations to self and others.

All music, any organisation of sounds is then a tool for the creation or consolidation of a community, of a totality. It is what links a power centre to its subjects, and thus more generally, it is an attribute of power in all of its forms.

(Attali 1985, p6)

Noise is part of our everyday lives and it is possibly the truest reflection of human agency. It was for this reason my intention to use noise as a metaphor to depict the blood of human agency within my music. *Red Games*, *Angel*, and *Unconditional the Dawn* and *Dark Noise*<sup>34</sup> all make reference to the construction of the sounds in relation to internal imaginary body space. However the work *Red Games* has been written in such a way to indicate a more transparent relationship to noise and the metaphor of human blood. The graphics within the score of *Red Games* are drawn in such a way that they have a semblance to blood cells. My intention

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<sup>34</sup> Refer forward to 3.5

within the score was to make a relationship between the behaviour of noise and the flow of blood.

### **3.3 *Dark Noise*: metaphorical interpretation**

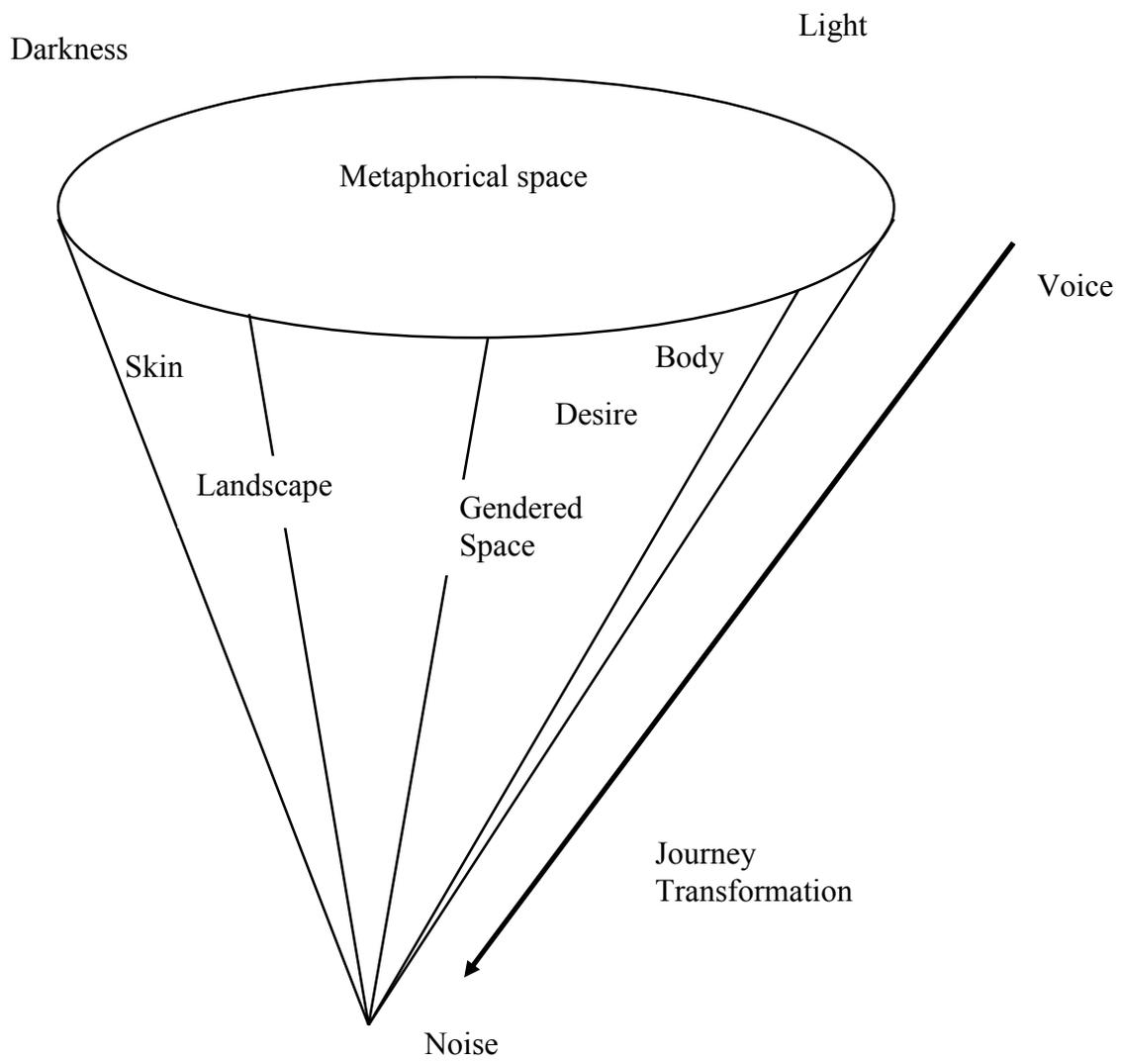
*Dark Noise* was written with a large degree of metaphorical intention. I was highly influenced by Samuel Beckett, namely by his work *Endgames* (1957) and the use of repetition, imaginary space and the poetic interpretation of darkness and voids. The extreme detail, complexity of colour, shadows and shade were phenomenally powerful. The seemingly effortless use of space as concerns human agency, the imagination, and a basic human instinct with regard to the parallels of survival and death inspired me a great deal. Beckett's writing is absorbed in metaphorical association, but with *Endgames* it was mostly his use of space, repetition and physical and physiological behaviour that influenced me.

I was also influenced by the writings of Simone de Beauvoir, specifically her work *The Second Sex* (1945). Her interpretation of the *mind of woman* and the contradictory aspects of the myths generated in history concerning woman spoke to me with great fluidity. As I have described in Chapter 2, my use of noise is in direct response to this as metaphorical intention.

Noise within this work is used as a way of communicating the veiled voice of woman and the endemic suppression of womankind in sociological, educational, political and environmental structures. Noise represents the *difference* of woman. *Dark Noise* is ultimately an exploration of a sounding body in which the voice is suppressed underneath a luminescent skin.

**Sound Example 48: *Dark Noise* (0.00-3.20)**

The metaphorical landscape used within the work is represented in Figure 3.2. This diagram explores the metaphorical associations within *Dark Noise* and is intended specifically to reflect my own relationship with the metaphors within the work and not in anyway to presuppose the audience's responses. Figure 3.2 explores an overall metaphorical association within *Dark Noise*, it works in relation to each sound being constructed to communicate metaphor. The metaphor of desire is written into the diagram. It is written in reference to sexual desire of woman. Noise is at the bottom of the diagram in reference to a state of transformation from voice to noise.



**Figure 3.2:** Graphical representation of metaphorical space within *Dark Noise*

### **3.4 Metaphorical suggestion**

Within *Angel* I established the use of metaphorical suggestions to highlight certain relationships between music, image and title. Images of the following are shown: *buildings, plants, human bodies, machines, sport, light and darkness, and movement.*

I wanted *Angel* to be a suggestive and not prescriptive piece of work which would communicate one ideal of ‘angels’. I chose to use a large range of non-linguistic symbols to represent the ethereal, external and internal space suggestions of astronomy, transformation, and the qualities of love, stability, vitality and chaos. When writing *Angel* I wanted to make image and sound work together, the music was written first but with very firm ideals of what would happen in the film. I chose to have images portraying a great deal of metaphorical reference which could be interpreted in many ways. In the following text I am going to explain my own perception of the metaphorical content within the images and the sound.

### **3.5 Image: aim**

The aim of the image component is to define and enrich the metaphorical content within the music. I wanted to deal with issues of reality, transformation and the imaginary.

The diagrams on the following page (Figure 3.3 (a-f)) represent a macro-structure of the work highlighting the target domains, source domains and personal metaphorical meaning associated with the music at particular points.

Within the work music and image do not always have a direct gestural and causal relationship. The music was composed first and was not changed for the image. There are fleeting moments of contact which I feel are important to the communication of metaphor within the work. Michael Chion describes these types of points of contact as *synchresis*:

Synchresis is the spontaneous and irresistible weld produced between a particular auditory phenomenon and visual phenomenon at the same time.  
(Chion 1994, p63)

The following pages of text are a poetic exploration of synchresis, and explain the images within the film *Angel* in relation to the sound world.

**Image**

Victorian Gas towers

**Metaphorical  
suggestion**

Time

Reflection on Time past, present and future

Time and the human body

The transformation of time

The magical / ethereal nature of time

**Moments of synchresis between sound and image**

Sound world at the start, persistent, high-pitched, technological, futuristic.

The height of the sky within the image and the historical images reference past.

Old man walking past image of angel.

Music warms to a tactile, kinetic utterance. At this point 'angel calls'. Mimetic structure of voice.

**Figure 3.3(a): *Angel***  
Victorian gas towers 0.00-2.00

**Images**  
Athletes

**Metaphorical  
suggestion**

Archangels

Changing  
Perspectives on height

Sound  
as  
skin

Mind space

**Moments of synchresis  
between sound and image**

Sound world:  
internalised towards the visual  
images

kinetic gestures: running  
arms  
moving hands breathing  
walking  
corresponding with gestures within  
the music.

Sound world:

bass gestures

delicate grain decay

noise utterances

**Figure 3.3(b):** *Angel*  
Athletes 3.21- 8.00

**Image**

Guard on station

**Metaphorical suggestion**

Journey  
Transformation

Guardian angel  
St Christopher patron saint of  
travellers

Landscape of a human body  
Visceral

**Moments of synchresis  
between sound and image**

Guard shuts door and looks  
through the window

Severed glitch gesture alongside  
this action of looking through the  
door.

Following:

Noise landscape of highly  
transformed grain in reference to  
the landscape of the internal  
human body. This is in association  
to the image, which is a red  
mountain scape.

Noise blood energy

**Figure 3.3(c): *Angel***  
Guard at station 2.28-3.30 minutes

**Image**  
Footbridge

**Metaphorical  
suggestion**

Passage of  
remembrance

Footbridge  
At  
Station.

Bird flying.

People  
Walking  
Away  
From  
Camera.

Still  
Image  
On  
Station  
Clock

**Moments of synchresis  
between  
Sound and image**

Intention-  
a reflection of  
stillness...

Intention-  
A reflection of  
Progression,

One  
Place  
To  
Another

Single  
Sine  
Tone

Utterances.

Use  
Of  
Phonetic  
Based  
Micro-sounds.

**Figure 3.3(d): *Angel***  
Passage of remembrance 12.25-15.24

**Image**  
The Rainbow

**Metaphorical  
suggestion**

Hope

**Moments of synchresis between sound and image**

Pitch to noise ratio was very intense. Use of water corresponds with the use of noise. Material at the end work: single sine tone. Image, cascading waterfall; rainbow emerges perfectly out of the mist of noise, pitch and water.

**Figure 3.3(e): *Angel***  
The rainbow 16.10-17.50

**Image**

The Child

**Metaphorical suggestion**

Future

**Moments of synchresis between sound and image**

Sound-world

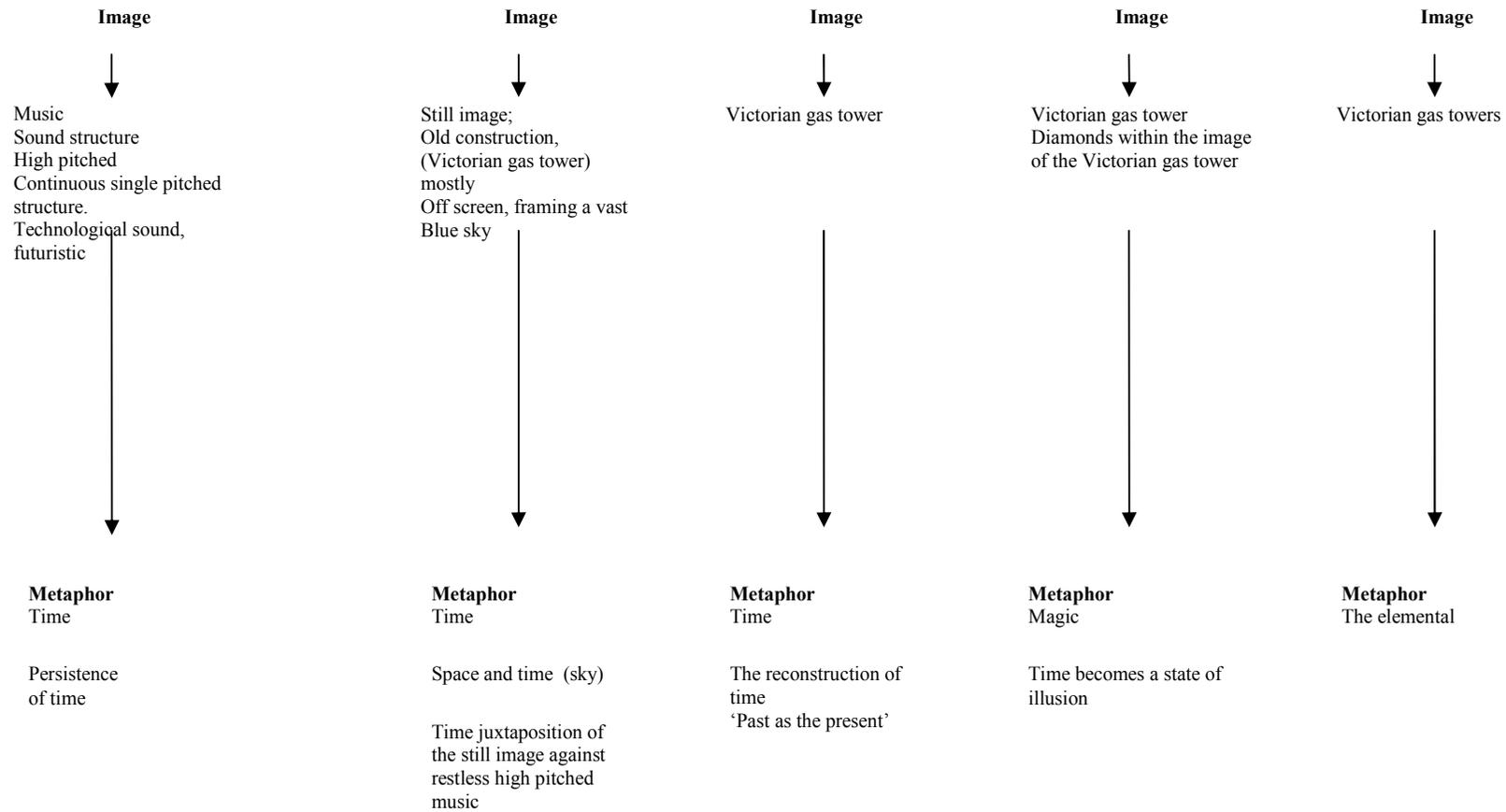
Silence

Intention- The future is yet to be heard

**Figure 3.3(f): *Angel***  
The child 18.20 minutes- end

### **3.6 Reflection of space**

The constructions and buildings at the beginning of the work, also the building work in the very centre of the piece, were for me very suggestive of human agency and relationship with time and space. The edits were directed in a way that the gestures and actions of the machines were suggestive of human kinetic gesture. The still images of constructions at the start of the work were chosen in such a way to frame the sky in association to space and time. They were also a reflection on spirituality, magic and illusion. Figure 3.4 explains this.



**Figure 3.4:** *Angel*: Metaphorical association of first frame

### 3.7 *Angel: machine/body/metaphor*

The human body and kinetic gesture were substantial considerations during the composition of the music. This is reflected both in the imagery and in the music. Moments of synergies between both are frequently intended.

The metaphorical relationship of machine and body is present and is used repeatedly and extensively throughout contemporary culture<sup>35</sup>. It is strong in association with genders, advertisements<sup>36</sup>, popular music<sup>37</sup>, cinema and medical language<sup>38</sup> all work to re-enforce this metaphor of the body as machine<sup>39</sup>.

Within the images the use of metaphor is developed in such a way both to complement and contradict the metaphor of body and machine. For example, the train line shown at the start of the work is a familiar yet seemingly barren, alien and sparse landscape. The music played with this image I perceive as expressive, warm, tactile and intimate. Thus I try to make expressive musical human connections to a mechanical landscape. Mechanical landscapes are shown throughout *Angel*, mostly with regard to cars, buses and building works.

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<sup>35</sup> Marx K (1844) *Economic and philosophical manuscripts* 'He becomes an appendage of the machine, and it is the most simple, most monotonous and most easily acquired knack, that is required of him'

<sup>36</sup> The disabled scientist Stephen Hawkins took part in an advertising campaign for British Telecom in 2002 and he was filmed in a motorised wheelchair using a computerised speech synthesiser. The advert focussed on communication through technology and machine.

<sup>37</sup> The pop band Miami Sound machine make close connections between the Latin American rhythms in their dance music, and the metaphor of body and sound working together as a machine

<sup>38</sup> Fritz Kahn (1888-1968). *Man as an industrial palace, as a city of sound*. Kahn drew visualizations of the digestive system and the respiratory system as 'industrial palaces'. Kept in the United States National Library of Medicine, Bethesda, Maryland.

<sup>39</sup> Systems associated to the smooth running of the body i.e. digestive system, reflex system. Terminology is similar to how one would describe the internal systems and processes of a machine.

### 3.8 Filmic images: perception of human agency

The movement involved within the filmic work is intended to be very subtle<sup>40</sup>. From the start it is used to work ideals of rhetoric and discourse between the music and audiences. When the first images of the station buildings come into view the image has a tendency to jitter or bump, these seem like accidents. They are carefully constructed to coincide with the behaviour, dynamic and phrasing of the music. These bumps and glitches within the image offer the audience a reflection on a hand held camera, a human behind the camera. Here I felt the need to challenge the perception of the audience and to change the sense of visual space as concerns human agency.

The freezing of the curtain within the frame of the image is a reference to the altering perception of time within reality. While the curtain freezes the music continues with the descent of micro-sounds in pitch and noise leading to a metaphorical vocal 'Angel calling' and thus continuing to change to another visual image. There are sequences of images within *Angel* which are suggestive reflections on human agency, its relationship to the passing of time and age. The visual image after the freezing of the curtain leads to a reflection on age, time and death. The image is of an old man walking side to side, he passes a lamppost on his right hand side, and on the side of the lamppost are the remnants of a poster which has been ripped off, leaving traces of paper which resemble an angel's wings. At this point within the music there is a mimetic reference to formant behaviour. The vocal reference is intended to be very subtle.

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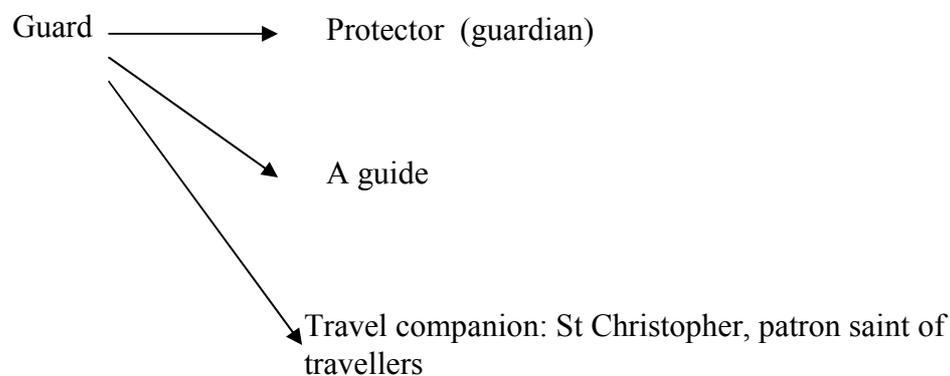
<sup>40</sup> During the filming of the work Stewart Collinson shot most of the footage with a hand held digital camera. In the studio while editing, the decision to synchronise composed visual glitches with moments of music was made.

There are also sequences which make suggestions of the transformative states of being within human agency. At the end of the sequence (filmed at Kings Cross) the image focuses on the physical movement of the guard shutting doors and looking through train windows. The guard looks through the door and seems to enter into a transformed state of a mountain landscape.

The kinetic movement of the guard closing the doors could be suggestive of closure of one space and motion towards another. The guard on the station also looks into a red *transformed mountain landscape* and this could imply a human landscape of the body. It could also imply the guard being engulfed by his own imaginary state of being. These metaphors of association are also reinforced by:

1. The transitory and spatial nature of the train in the station and its parallel to the temporality and space of the music. This indicates the passing of time, motion and space.
2. The symbolic nature of the guard could suggest a cultural signifier pointing towards the associative myths involved within the ideas of the piece.

This could be used in this context to signify:



Within the work I wanted to connect plants to the human body. Plants are commonly used as a metaphor in western society and have been presented as representations of love and affection for centuries within Western Art<sup>41</sup>. The plant embodies ideas of regeneration and development. Plants flourish, they bud, they bear fruits for us to eat. When using images of plants and flowers throughout *Angel I* thought of them as having human characteristics. The intended metaphors are love, affection, regeneration, vitality, chaos and transformation. The ideal of the plants defining a transformation of the body into space was an attractive one to develop through close editing techniques in the music and detailed framing. A ‘dance of the plants’ was produced for this section of the film. The frames sometimes are played at two and three times their original speed and edited in a way which reinforces perception of background and foreground. Three visual spaces were facilitated across the screen.

As previously noted there is a strong metaphorical association between plants, flowers, speech and song in western culture. I read William Blake’s *Wildflower Song* after the making of *Angel* and found that this prose seemed to describe in words an intense relationship between human agency and nature. Blake has not only heard, but also opens up a channel of communication between him and the earth.

*As I wander'd the forest*

*The green leaves among*

*I heard a wildflower*

*Singing a song*

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<sup>41</sup> Botticelli, Sandro, c1485-86 The Birth of Venus. In the painting, Venus emerges from the sea on a shell which is driven to the shore by flying Gods amidst a shower of roses. The Nymph in the painting holds out an embroidered gown with red and white daisies, yellow primroses and blue cornflowers. These flowers are all referencing the theme of birth

*I slept in the earth*

*In the Silent night*

*I murmured my fears*

*And felt delight*

(Blake (notebook poems 1808-11) (1965))

Michel Chion has written in his book *Audio-Vision* that:

The ear isolates a detail of its auditory field and follows this point or line in time. If the sound at hand is a more familiar piece of music, however, the listener's auditory attention strays more easily from the temporal thread to explore spatially. So, overall, in first contact with an audiovisual message, the eye is more spatially adept, and the ear more temporally adept.

(Chion 1994, p11)

At 8.44 in *Angel*, there is a change. Whereas in the previous three minutes metaphorically the angels have sung while the plants have danced in paradise, now there is a slight change in perspective. A red flower comes into view. This flower sweeps across the frame and is suggestive of a symbolic relationship to passion. I wanted to imply a force of nature, uncontrollable by humans. While this flower is sweeping horizontally across the frame, there are noise-based sounds which are indicative of human breath. On the subject of time, altered perception and space Peter Conrad has written:

Space became time when the static frames of film began to move, the fluid motions of time, projected onto a screen, now occupied space. Abel Gance welcomed the fusion of time and space as a sign for mental supremacy. He wished to fill 'every fraction of a second' in his films with that strange dimension of four-dimensional omnipresence cancelling time and space.

(Conrad 1999, p447)

Within the work there is footage of athletes. These have been filmed in regards to the way that they are generally perceived by society. Athletes are traditionally associated with health, fitness, power and control of the mind and body. I chose therefore to use athletes to embody the idea of archangels, invisible beings that existed on this earth but have the capacity to exist within all humans. They are shown running and walking. Within the editing of the footage, the speed was reduced to half to highlight the movement within their bodies. The light intensity and grain of the image was also heightened in this sequence to draw attention to the sweat that was on their bodies. This had a very luminescent quality while at the same time focused on the very natural and physical attributes of the behaviour of their bodies. The sound world at the point of the images of athletics is very internalised and becomes even more so because the images of athletes breathing seemed to synchronize naturally with the noise-based structures which are metaphorical references to imaginary ‘voices of the dead’.

As well as the developing noise based structures which could reference the transmission of the ‘voices of the dead’. The concepts of light and darkness were used in *Angel* to portray radio space and transmission. The metaphorical representation of radio space was an inclusive part of *Angel*. The noise-based sound world was a reflection of this metaphor<sup>42</sup>.

Associating colour to depiction of human emotion and the development of the soundworld was important within this work. There is a rainbow shown in the film at

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<sup>42</sup> (See radio p41-42).

16.38. My interpretation of the rainbow was as a signifier for hope within the human condition and it coincides with the increased spectral behaviour of the sound world, a metaphor for the total colour spectrum of the rainbow. When the rainbow appears the spectral behaviour of the sound world is extremely intense. There are noise-based utterances which are reflective of the first phrase in the work; glitches are brought to the foreground of the noise- based spectrum. In the image the rainbow seems static. However, as the drops of water cascade through the rainbow, the camera focus changes. The changes of the focus coincide almost exactly with the transformation of noise into a clear sine tone. It is from this point that the whole work is brought to resolution.

As the composer the most poignant image of the work in relation to the perception of human agency is the image of the child in the push chair. The image is shown against auditory silence. The metaphor intended to be captured within the combination of auditory silence and the imagery of a child is that the future is yet to be heard.

### **3.9 Conclusion**

In conclusion I have explored the influences of human agency within my music. Areas of human strength and fallibility have been examined by the design of glitch sounds. I have also looked at gendered space<sup>43</sup>, co-currant existence of gender<sup>44</sup>, and pursued areas of the human agent with regard to poetic bodily

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<sup>43</sup> *Dark Noise*

<sup>44</sup> *Wolfie*

embodiment and transformation<sup>45</sup> referencing artists such as William Blake and Botticelli

I have also tried to communicate my own human agency within the works and my own personal experience of how I listen to sound within a studio context. In regard to this I have defined sound as having a membrane of skin.

The relationship between machine and body is examined within my works and shows itself through the use of technological artefacts and the mechanical behaviour of the sound-worlds. I have referenced the 19<sup>th</sup> artwork of Fritz Kahn and reflected on his visions of an industrial body associated with man as a machine. I have also referenced the work of Linda Birke with respects to feminism and the biological body.

Space was particularly important as a compositional tool in regards to the composition and construction of the works. Composed space with regard to the behaviour of sounds within a space and architectural space were discussed in relation to the compositions as well as many other spatial parametres. Architectural space was especially important as a compositional practice in regards to the transformation of voice and the placement of glitch material; defining and designing the space in between the loud speakers became paramount in my practice. With regard to the design of architectural space, the composition of *Dark Noise* was especially challenging as through the placement of the sound objects I was inviting the listener to listen inwards to a body of sound.

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<sup>45</sup> *Angel*

The design of glitch in relation to vocal attributes stems from a necessity to connect the material sound material directly to the human agent. The physiology of the voice was an important attribute to the compositional material.

The transformation of voice to glitch was discussed especially in relation to the *phonetic clip* and the *noise burst*. Both these glitch behaviours are developed directly from vocal behaviour. The *noise burst* being a term from linguistics and the *phonetic clip* (phoneme) being used to establish a mimetic relationship with vocal like structures or enhancing vocal detail within the work.

The relationship with noise and human agency is discussed within this thesis, both with regard to noise being a physical feeling within the body (a state of mind space) and noise as environmental matter. Mind-space is explored within the works *Less*, *Angel*, *Dark Noise* also became a re-occurring metaphor to express freedom of expression. In *Dark Noise* the construction of large spatial sound forms was examined in relation to the body and in *Angel* the design of a Sound behaviour called the spatialised noise fragment, was also examined in relation to sonic utterance.

In conclusion these works were composed with personal experience of being a human agent. Sociological, environmental and biological issues within a contemporary society have influenced the way I have composed and I have tried to show this through the manipulation of sound and the composition of my own electroacoustic music.

## **Appendix 1**

## Appendix 1: Phonetic behaviour and metaphor

The idea of spoken words being transmitted through sounds that are not necessarily of vocal origin is extremely complicated for many reasons:

It is the immense difference between the physical acoustic signal on the one hand and the perceptual – cognitive world on the other hand that has frustrated theorists and researchers. The acoustic signal and the perceptual world seem to bear no simple one to one resemblance to each other. I believe that this is true for any ongoing behaviour in which there are parallel, overlapping actions.

(Handel 1993, p109)

In John Wall's *Hylō* there is an aspect, communicated through both extreme detail, and sensitivity towards the sound of the title, without the use of spoken language in the context of an experiential musical language which relies on a physical use of spatial behaviour. There is as well, a language of real world sounds both musical and extra-musical in origin, the musical being instrumental sounds, and extra-musical being technological artefacts, glitches and sound mimetic of crickets (animal utterances), all of which Wall balances within the work. When listening to *Hylō* I find myself interpreting the sounds in association with the meaning in the title, high and low. Michel Chion writes in his book *Audio-Vision* with reference to semantic listening.

I call semantic listening that which refers to a code or a language to interpret a message: a spoken language, of course, as well as Morse and such other codes. This mode of listening, which functions in an extremely complex way, has been the object of linguistic research and has been widely studied. One crucial finding is that it is purely differential. A phoneme is listened to not strictly for its acoustical properties but as part of an entire system of oppositions and differences.

(Chion 1994, p60)

There is no real voice used in this work. However, there is the simulation of the formant structures of speech. On one level it is a literal exercise in listening to the linguistic sign within the music; high (hy) and low (lo). If one listens carefully, associations and dynamics of paralanguage are equally evident. Within this syntax of mindspace, metaphor, physical behaviour, landscape and perhaps social referencing have been given a wide space to be explored.

The author William Calvin in the book *Lingua ex Machina* says:

The core of the syntax must contain the means for producing phrases and clauses, because these are the indispensable units intermediate between words and complete utterance.

(Calvin 1985, p124)

The phonetic content of 'hy', at the higher end of the spectrum is presented through the repeated use of onset attacks and a foreground continuum. The phonetic content of 'lo' resonates through the interweaving of sounds at the bass end of the spectrum; the vowel shapes 'u-o' are audible through the use of short continuants. The phonetic content of the 'lo' resonances is more associated with utterance as the association with words is made from a very delicate interweaving of several sounds at once, which are barely audible. Whereas the association with high is developed from more or less direct onset attacks and is very audible in the spectrum, Wall has deliberately made the title ambiguous perhaps to allow for the autonomy of the music and the sound materials. High and low are simple metaphors which carry substantial meaning and significance in our cultural use of language. However, the way in which metaphor is interpreted with these words alone is subjective and abstract.

Within this work I perceive that metaphors are used to interpret the following: motion, space, music culture, socio-environmental behaviour, environmental patterns, nature verses machine and radio verses environmental landscape. With regard to motion I refer to trajectories and behaviour of microsound. Within this work Wall develops very precise acoustic designs of architectural space. In the process of composition I perceive that these spaces are being manipulated intuitively to change with the temporality of the work. There are references to music culture within his work with regard to referencing high art and low art of music culture. Within this work he references the cicadas which are a familiar sound in the composition of acousmatic music. There are also sounds of highly experimental instrumental improvisation which could be construed as low art in music culture. I perceive the environmental patterns to be the design of composed spaces within the work. There are vast spaces where metaphorically the cicadas are able to interact. The role of the technological artefact within his work is strong. Within this piece of music, metaphors of nature being more powerful than machines, or radio having ultimate powers of transmission over a large environmental landscape might be found.

The extreme physical difference in frequency response between high and low has a comprehensible affect on the structure of the work, and the use of frequencies and dynamic space magnifies my own experience of the music. On hearing the work I find it hard to separate the connection of the linguistic sign from the metaphor of mind-space and the experiential.

**Sound example 49:** *Hyla* John Wall (0.00-0-27)

# Glitch

1999

A glitch in life generally creates two sorts of responses: one is general negativity; the other tends to be a positive interest to overcome and work with pathways. Glitches have led to some of the most innovative scientific and artistic discoveries in the last century. Glitches can show our weakness as humans. However, they also have the capacity to show our strengths.

*Glitch* is fundamentally a behavioural composition. There are a wide variety of materials: some elements always stay the same, others change in transit. The materials have alternate behavioural states which they can occupy. It is a work of continuous gesture on many different levels.

The sounds I collected for this work were sounds that in hindsight I could all too easily have thrown away. These sounds (abstract indiscretions) show themselves in the form of hiss, digital clicks and distortions. The primary source for material for this work is an old recording of a C trumpet; the flaws in the recording are manifold. The grain levels are low and in places there is an impractical amount of distortion. However, these sonic indiscretions seem positively to expose fragile, delicate and animated sonorities; all qualities that the artistic media I work with is based.

This work is an attempt to shape those delicate areas of instability into inspired moments of strength.

# Wolfie

1999

*Wolfie* draws on the fable of Little Red Riding Hood, exploring our primitive emotions of chase, fear and escape. The female voice is the sound source for the work – narrating the fable, guiding us through the dark, animate and tactile musical space.

# Dark Noise

2000

With *Dark Noise*, I wanted to create a subterranean sound world stemming from the female voice, whilst being significantly attached to the motion of human agency and occupying alternative degrees of discourse and rhetoric. Spoken utterances of air, light, and space are heard at the end of the work when the sound has resonated throughout the body.

# Red Games

2001

*Red Games* was written in response to an invitation from the trumpeter, Steve Altoft.

When writing this work, I was completely overwhelmed by the degree of global uncertainty and conflict in the year 2000. Therefore, *Red Games* explores an expressive response to intensity, individuality and the ambiguous nature of changing environments.

# Unconditional is the Dawn

2001

*Unconditional the Dawn* was commissioned by Dr Leigh Latham and Dr Peter Latham on the occasion of their wedding in September 2001.

The work is based on recordings of the dawn chorus from outside the bride's family home on Anglesey, North Wales.

The soundworld is intended to represent an extreme energy, a force of nature that disregards the old, the night and thus starts a fresh, bright, new day. The end of the work metaphorically represents a strong union of body and sound where nature, life and love carry on a process of unconditional regeneration.

# Angel

2002

Work for Digital Film and Electronic Music

Music: Jo Thomas

Images: Stuart Collinson

Direction: Jo Thomas

18.38 mins

*Angel* is an exploration of sound and visual metaphors questioning the passing of time. The human body and the imagination are referenced closely together throughout this work as a means of exploring strange imaginary landscapes, fantasies of flight, timelessness and the extreme beauty of the human condition. Notions of landscape and the human body were essential components to the creation of the sound world.

When writing the music I wanted to reflect an atmosphere which was neither the ground nor the sky, night nor day, water nor air - a strange world, which stood in between worlds, - a multitude of spaces where one, could step into and perhaps, imagine and reflect.

*Angel* is also a work full of voice. Some scream with Arch strength, some sing with the warmth of Guardians and others simply call for peace.

*Angel* exists as both an audiovisual work and a piece of electroacoustic music. The work was written in 2002 as a commission from the Huddersfield Contemporary Music Festival, INA-GRM Paris, and Sonic Arts Network. The work had its world première in the Huddersfield Festival 2002.

# Night Music for Radio

2003

*Night Music for Radio* was commissioned by the artist David Ellis.

The work was written as a result of a radio programme which David Ellis produced for BBC Radio 3 'Behind the Ears' called 'The Silent Key'.

The radio programme explored the spiritual context which the radio captures. It also looked at the political contexts within which the radio could be used. David Ellis travelled through Eastern Europe, interviewing many radio enthusiasts and experts in the field.

*Night Music for Radio* was developed to tour through the UK with the radio programme 'The Silent Key'. *Night Music for Radio* was written with audio recordings which were not used in the final version of the 'Silent Key'.

When listening to these recordings I chose to focus on the voice of the Radio ham Doreen Barns, an 82 yearold grandmother who had vivid memories of using the short-wave radio after the Second World War. I also had the privilege to work with a recording of the voice of the author Eric Davis (*Technosis*).

Doreen's voice is paramount to the language of this work. Throughout the music metaphorical resonances of time, humour, independence, empowerment,

nurturing and fallibility are suggested through the use of her voice. For me as a listener, her voice captured an age and lifetime of experience. I chose purposefully to encompass material where she talked about her travels to Poland, Auschwitz, her political views, her husband, her grand children and her deep belief in community.

*Night Music for Radio* has received three international radio broadcasts, two London based radio broadcasts, and has toured live with the support of the *Arts Council for England* in Bristol, Huddersfield and London.

Less

2004

*Less* was written in 2004. Within this work it was my aim to compose architectural voids of sound in which the performer could be totally embodied by her sound world. The energy of noise, blood, body and silence are combined to create a discourse of *Less* ness.

Within the work the Ecosonic system of improvisation (patented by the flautist Dr Stephen Preston) is facilitated.

*Less* was first performed in July 2004 at the Guildhall School of Music and Drama, London

## A Selection of Performances

*Glitch*

Sonorities Festival Belfast  
May 1999

Public Radio Performance  
New York  
2001

Ultrasound Festival, Huddersfield  
November 2003

The Cube Theatre  
Bristol  
January 2004

Cambridge Music Festival  
Cambridge University  
May 2001

*Wolfie*

State of the Nation 2001  
Queen Elizabeth Hall  
May 2001

Level B, Tokyo  
Japan  
June 2002

*Dark Noise*

*Beast*: Birmingham Electroacoustic Sound Theatre  
February 2000

Making New Waves: Budapest  
February 2001

*Beast*: Birmingham Electroacoustic Sound Theatre  
Berlin, August 2001

The 12 Bar Club  
November 2001

Royal Institution of Great Britain  
May 2004

*Red Games*

University of Manchester  
December 2000  
(Performer Steven Altoft)

City University, London  
May 2001  
(Performer Steven Altoft)

The 12 Bar Club  
November 2001  
(Performer Tom Authers)

*Unconditional the Dawn*

The wedding of Dr Leigh Thomas and Dr Peter Latham  
September 2001

Ultrasound Festival, Huddersfield  
November 2003

*Angel*

Huddersfield Contemporary Music Festival  
November 2002

Victorian Centre for the Arts  
Melbourne  
Australia  
April 2003

Salle Olivier Messinen  
Radio France  
Paris  
May 2003

The Theosophical Society,  
London  
May 2003

Resonance FM  
June 2003

Radio Performance  
Canada  
April 2004

*(electroacoustic sound only)*

Royal Institution of Great Britain  
May 2004

Sonorities Festival, Belfast  
April 2005

*Night Music for Radio (live theatre: lap top mix)*  
The Theosophical Society,  
London  
May 2003

Resonance FM  
June 2003

*(Live theatre mix)*  
Ultrasound Festival, Huddersfield  
November 2003

*(Live theatre mix and electroacoustic sound)*  
The Cube Theatre  
Bristol  
January 2004

*(Electroacoustic work)*  
Radio performance  
Canada  
May 2004

Radio performance  
Helsinki  
May 2004

*Less*  
Guildhall School of Music and Drama  
July 2004

City University  
April 2005

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