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## **Silent chill: A spectral analysis of Akira Yamaoka's Silent Hill 2 original soundtrack**

Casey Nicole Atkinson  
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**Silent Chill: A Spectral Analysis of Akira Yamaoka's  
Silent Hill 2 Original Soundtrack**

**Casey Nicole Atkinson**

Submitted in partial fulfilment of the degree of

**Bachelor of Music Honours**

Edith Cowan University

Western Australian Academy of Performing Arts

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2020

## Abstract

*Silent Hill 2* (2001) is a psychological-survival horror game for the Sony Playstation 2 console, described as one of the greatest video games of all time. The game, as well as the original soundtrack by Akira Yamaoka, continue to have an active and dedicated cult following, with the soundtrack garnering millions of plays across streaming platforms. In particular, the ambient pieces in the soundtrack are very popular, colloquially described altogether as *Silent Chill*. Despite its popularity, few have systematically described the soundtrack's unique characteristics or its ongoing influence and relevance to soundtrack composition today. It is suggested that timbral analysis can clarify some aspects of its mysterious appeal. A timbral-analytical framework adapting Lavengood's (2017) spectrogram-based method and Blake's (2012) culturally informed method is proposed and undertaken. The analyses find that the *Silent Chill* pieces are characterised by predominantly 'dark' timbres, inharmonicity, beating harmonics, and a spectral and auditory fullness due to overlapping and clashing frequencies between instruments. This framework, despite some limitations which are discussed, is found to be comprehensive and adequate for the timbral analysis of pieces in the style of *Silent Chill*, and can be adapted for other styles of soundtrack and ambient composition.

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## Introduction

*Silent Hill 2* is a psychological-survival horror game developed by Japanese video game publisher, *Konami*, and released for the *Sony PlayStation 2* console in September of 2001. It is widely regarded as one of the greatest games of all time, with praise for its complex themes, ambiguous interpretation, and vivid atmosphere (Aberdeen, 2020; Hartup, 2017; IGN Staff, 2020; Rad & IGN Staff, 2019). *Silent Hill 2* continues to attract a cult following almost two decades since its release.

The original soundtrack, by Japanese composer Akira Yamaoka,<sup>1</sup> is highly praised and considered a milestone of the video game music canon. Several analyses by popular (primarily video game related) *YouTube* creators and personalities have emerged in recent years (8-bit Music Theory, 2019; Christensen, 2017; Mikasacus, 2019; Ortega, 2019; ThorHighHeels, 2018; Walsh, 2016). One review on user-oriented review site *sputnikmusic.com* gives the soundtrack five stars, calling it “a brutally beautiful piece of art in every lasting moment” (Aeri, 2019). The soundtrack was also reissued as a limited-edition 2LP set in 2019. As of writing, second-hand copies of this edition sell on the music marketplace *Discogs* for at least A\$189 (“Konami Digital Entertainment - Silent Hill 2 - Original Video Game Soundtrack”, n.d.).

The soundtrack is stylistically diverse, with pieces shifting between hard rock, trip hop, ambient, acoustic, and industrial music. It is these ‘ambient’ pieces featured on the *Silent Hill 2* soundtrack that are the subject of this study, in part to the popularity of the *Silent*

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<sup>1</sup> The soundtrack is widely available on streaming platforms and YouTube.

*Chill* playlists that feature a large number of the ‘ambient’ tracks from *Silent Hill 2* and currently has over two million collective views on YouTube (Wigger, 2017, 2018).

Despite the critical success and resurgence in popularity and interest in these pieces, most analyses of these pieces have been informal and made for a mass market of YouTube viewers, thus often exaggerated and limited in their scope. They also rely heavily on the context of the game itself. Due to the increasing rarity of Playstation 2 consoles, listeners usually hear the soundtrack on its own, without playing the game, or even without ever having played the game. I believe that the merits of the *Silent Chill* pieces are more complex than popular analyses have claimed, and that useful observations can be made regarding what Akira Yamaoka considers the most important, yet overlooked, feature of these works being timbre (Fungo, 2011). The aim of this study is to provide systematic insight into why the soundtrack has such enduring appeal, and to argue that timbral analysis can reveal some of its most unique characteristics. In a traditional sense, the structure and harmonies of these pieces are quite simplistic, but their timbral attributes are complex and compelling. Through employing spectral analysis techniques and terminology generated by Megan Lavengood (2017), in addition to more culturally orientated aural descriptors of timbre by David K. Blake (2012), each ambient *Silent Hill 2* track has been observed and the findings detailed in a written exposition, as well as the results summarised into a concise table. The ambient tracks from *Silent Hill 2* were sorted into one of three categories based on initially perceived timbral attributes in order to condense this study, however, following the completion of the analyses the three categories appear to share extreme commonalities on a spectral level as well as an auditory one. While Lavengood’s methods and terminology were fundamentally useful for the analyses, they did often have to be deconstructed and moulded to best serve this study due to her practices original intention appearing to be within the context of isolated sounds and not completed musical works. As for Blake’s terminology, the results were

extremely consistent within each sub-category but the timbral categories and their description may be considered too shallow for larger, more in depth studies, although they were adequate enough to support the findings of this particular study.

### Thesis overview

The literature review provides the analytical context of this thesis, including the discourse surrounding ambient music, the role of music in game immersion and an historical overview of *Silent Hill 2*, in addition to its ongoing cultural impact.

The methodology chapter discusses the cultural and historical importance of timbre, in addition to various approaches to timbral analysis, before describing the hybrid methodology employed in this thesis and why it was chosen.

The analyses themselves are presented through three sub-categories of ambience in a written exposition that focuses the discussion on the most consistently appearing characteristics found within each sub-category, followed by a synopsis on the less potent aspects discovered and a series of tables that visually present the findings.

The conclusion summarises the main findings of the research conducted.

## Literature Review

This chapter provides a historical overview of *Silent Hill 2* and its ongoing impact. It provides the analytical context of this thesis, including the discourse surrounding ambient music and the role of music in game immersion, also known as ludomusicology.

### The *Silent Hill* franchise and development

The *Silent Hill* franchise began with the release of the first *Silent Hill* game in 1999. *Silent Hill* was initially intended to be a game similar to *Resident Evil* (1996), an action-horror game that was popular in the United States. The developmental team behind the creation of *Silent Hill* (which is widely referred to by fans as “Team Silent”) was composed of the most unruly and underperforming staff members at *Konami*, most likely due to management attempting to keep them preoccupied with what could be considered to be producing a modified replica of an existing game (Christensen, 2017; “Team Silent”, n.d.). Team Silent later became authorised to complete *Silent Hill* without further input and instruction from management at *Konami* after the latter became exhausted with Team Silent’s unwillingness to meet deadlines and follow orders from management (Christensen, 2017). With themes such as occultism and emotional trauma, played out through the perspective of its ‘everyman’ protagonist (a video game character depicted as an average, ordinary person), as opposed to a larger-than-life caricature that is commonly representative of protagonists during games of this period, this contrasted with the other popular gaming trends at the time (Christensen, 2017).

These factors resulted in the final product of *Silent Hill* not resembling *Resident Evil* at all, instead establishing itself as an antithesis of the entire action-horror genre. It founded a new genre of horror game known as psychological-survival horror, due to *Silent Hill* not relying on jump scares to instigate emotion from the player, instead penetrating the player’s

psyche through its story and gameplay which is set against an austere and melancholic atmosphere. In addition to the originality of the story, gameplay and the technical innovation by Team Silent, *Silent Hill* received surprise critical praise after its release (Fielder, 1999; Martin., & Tom, 1999; Reyes, 1999).

Akira Yamaoka had composed for several video games developed and released by Konami prior to *Silent Hill*. His soundtrack for the game comprises forty-two tracks that possess daunting, raw and oppressive atmospheres; the majority of which have a rock or industrial influence and forfeit any use of melody, harmony or traditional structure (Yamaoka, 1999a). He also produced the sound design for the game.

Coming off the commercial success of the first game, production on *Silent Hill 2* began immediately after release. Rather than conforming to the cliché of becoming a more ambitious and ostentatious sequel than its predecessor, the melancholic, paranormal and metaphysical aspects of the first game became augmented in its sequel. *Silent Hill 2* was even more highly praised, frequenting ‘Game of the Year’ lists for 2001 (gameranx, 2020; IGN Staff, 2001) and, more recently, suggestions that it could be one of the greatest video games of all time. In recent years, there appears to have been a resurgence of interest in *Silent Hill 2*. Although the specific reasoning behind this is a mystery, it is most likely due to numerous cultural factors. While it is more than fair to consider that the popularity of the soundtrack (more specifically the *Silent Hill* playlists available on YouTube) contributed to this new generation of people discovering and becoming interested in the gameplay of *Silent Hill 2*, the game itself has always been praised for its high quality of environmental atmosphere, storytelling and character design - especially within the context of the in-game cut scenes, which are still considered better than many games’ released in the 2010’s. There also appears to be a cultural phenomenon surrounding the more incidental personality traits of the game, such as the exaggerated voice acting, the poor quality of the remastered version and the

dramatic professional fallout between widely adored game developer Hideo Kojima and Konami after the latter terminated production on a highly anticipated *Silent Hill* instalment to focus their business model on the more lucrative market of mobile gaming and pachinko machines (Sarkar, S. 2015).

The franchise continued with *Silent Hill 3* released in 2003, and *Silent Hill 4: The Room* in 2004. Several more sequels were made as well as spin-offs, including two films and a comic book series. Yamaoka composed the music for the franchise until 2010's *Silent Hill: Shattered Memories*, before parting ways with Konami to pursue other projects. Since *Silent Hill 2*, the franchise and its music never reached similar levels of critical and commercial success.

#### Ambient music and its analysis

The *Silent Hill 2* soundtrack is partly characterised by its use of techniques and structures associated with ambient music. Definitions of ambient music are contested and varied. Bates suggests that it is “a genre which defies conventional analysis” (Bates, 1997, p. 181), and Adkins writes that “in a wider musical context, ambient has been used as a prefix to describe a raft of other genres including techno, rock and house” (Adkins, 2019, p. 120). This elusiveness seems naturally instilled within ‘ambient music’ on account of its namesake as the Latin prefix ‘*ambi*’ means “to surround on both sides (left and right) and the word ‘ambient’ shares relations to words like ambivalent, ambiguous and ambidextrous, which Roquet (2016, p. 4) summarises as “words that want to have it both ways, to go in two directions at once.”

It is widely agreed that the term ‘ambient music’ was coined in 1978 by Brian Eno (Eno, 1978), and that it has possible antecedents in Erik Satie’s “*musique d’ameublement*” (furniture music) (Trigg, 2006), “background music” (Till, 2017) and even “Muzak” (Lanza,



2004). The first formal definition of ambient music was stated by Eno in 1978 as “needing to accommodate many levels of listening attention without enforcing one in particular; it must be as ignorable as it is interesting” (Eno, 1978). Several definitions have emerged since, with varying levels of divergence from Eno’s initial definition. Siepmann defines ambient music as “a genre of music that focuses on coloring the listener’s sonic environment while largely disregarding other functional musical traits such as melodicism, harmonic progression, or rhythmic variation.” (2010; cited in Adkins, 2019, p. 120). Bates writes that on the basis of “the most ambient western art pieces, ” such as Satie’s *Vexations*, Debussy’s *Nuages* and Ives’ *The Unanswered Question*, he determined his own conclusion of ambient music’s definition as “having an absence of melody, harmony, rhythm and goal-direction” and that “none of these pieces go anywhere [in a harmonic sense.] They have drone like components, too” (Bates, 1997, p. 152). These definitions could appear to be combined by Adkins when he writes that “whilst ambient music may not rely on traditional functional musical syntax (melody, harmony, and rhythm) it can engender a deep listening experience through slow-moving immersive textures and drones” (Adkins, 2019, p. 125).

Multiple authors have presented customary sonic signifiers of ambient music through detailing the common stylistic qualities, such as: a pervading, generally slow pacing, a tonal or modal framework, the use of drones as well as a sense of continuity, fragmented melodic lines or shorter melodic ‘cells’ that imply a sense of non-closure (Adkins, 2019, p. 121) or as Berndt states “a continuity of energy that enables a suspension of tension” in addition to amelodic lines which often overlap (Berndt, 2019, p. 202). This creates a sense of unfamiliarity, thus avoiding recognition of “landmarks,” which is defined by Phillips as “attention-grabbing musical themes” and heightening the sense of “immersion” (Phillips, 2014, p. 159).

### Game music and the concept of “immersion”

The listeners’ immersion is an important goal for both ambient music and video game music, and Yamaoka’s soundtrack is highly regarded for the way it immerses the player in the game’s darkly atmospheric setting. In many respects, defining contemporary video game music is just as allusive as ambient music. Munday classifies contemporary video games as ones that are “playable on platforms that have the capacity to reproduce CD-quality audio” (Munday, 2007, p. 52). Munday goes so far as to claim that there is “no longer any such thing as video game music” due to video game soundtracks often being so stylistically varied from one another that they cannot be categorised within the same genre. “Today’s video-game music,” Munday writes, “is more accurately described as music that has been written for, or adapted to, video games” (p. 51).

While contemporary video game music may be stylistically varied and non-differentiable to “traditional” or non-game music, the compositional processes one must undertake appears to be anything but traditional, as observed through Phillips’ comprehensive writing on methods of composition for video game composers. Phillips draws a distinct line between western compositional practices and compositional practices for video games, saying “the integral philosophy of traditional music composition is in direct opposition to the demands of linear composition for games” (Phillips, 2014, p. 159). Phillips later classifies the player or listener’s acknowledgement of these starting and ending points as “landmarks,” alerting the player that they are walking in circles, taunting and frustrating them, thus lowering immersion (Phillips, 2014). She asserts that composing game music (that has no beginning, no middle, and no end) is a daunting challenge and compares it to “writing a sentence without punctuation or capitalization.” This is elaborated by her stating “We may be afraid that our music, bereft of structure, will seem to aimlessly meander in a bewildered state of amnesia, having neither an origin nor a destination” (Phillips, 2014, p. 159).

Much of the relevant literature on game music centres around the concept of “immersion,” which Munday (2017, p. 60) briefly discusses immersion through the omission of the “Wagnerian model of mythic music”.

The aforementioned concept is applicable to this research due to the avoidance of orchestral, cinematic or “epic” music and aesthetic choices within the *Silent Hill 2* soundtrack.

Munday (2007) claims that “*cinematic music can be criticised when it is used in video games because it acts merely as a kind of quotation of the epic music found in cinema*” (p. 60).

He explains how cinematic music often conflicts video game media as it overcompensates in regard to creating “a sense of realism... In examining the concept of mythic immersion, it is clear that music in video games cannot function in exactly the same way as it functions in cinema, because there are not the same tensions between myth and reality.”

It can be said that one of the most effective ways to create a sense of immersion is through the implementation of the *looping* method, which is also commonly found within autonomous ambient music works. Adkins (2019) argues that this looping method is most effective when it creates a perception of *temporal fragility*, which can be achieved through the use of repetitive, asynchronous looping techniques which will result in the destabilisation and suspension of the listener’s consciousness of time passing.

This concept is epitomised by Taylor Deupree when he states that this tension “keeps you engaged, in a way fearful that at any minute it’s going to fall apart, while the gentle qualities can relax you and ease that tension” (as cited in Adkins, 2019, p. 128).

The looping techniques are explored and articulated more within the context of video games by Phillips when she outlines the methods and concepts a composer should retain when constructing an infinite musical loop as to “make a loop point both musically satisfying and smoothly functional” and are listed as such: perpetual development, compositional dynamics, succession of variations, repeating figures and slow textures (Phillips, 2014).

While the specifics of these methods are certainly useful from a compositional perspective, they can be summarised quickly by Phillips as stating “*A looping composition must end the same way it began*” (Phillips, 2014).

I have outlined the literature that discusses themes relevant to video game music, ambient music, and the historical context of Yamaoka’s soundtrack. I will now describe in more detail the forms of timbral analysis that I use to articulate the soundtrack’s unusual characteristics.

## Methodology

This chapter describes approaches to timbral analysis relevant to the *Silent Chill* pieces, before describing the hybrid methodology employed in this thesis and why it was chosen. Historically, timbre is given different definitions and analysed in many different ways, as are the use of spectrograms and spectral content, thus these will be discussed.

Akira Yamaoka has stated in an interview that he “*doesn’t believe that the melody is the most important thing in a piece of music*” (Fungo, 2011). This statement appears to resonate with the philosophy and methods concerning the creation and listening experience of ambient music as well as the academic literature regarding the methodology of analysing such music, which is why a timbral analysis (as opposed to a harmonic analysis) has been undertaken for this study.

### Defining timbre and its analysis

Lavengood (2017) writes that two distinct approaches to timbre analysis exist. She describes that the first involves quantifying timbral phenomena through the use of spectrograms and spectral descriptors, including the avoidance of any cultural dimensions. The second approach is an aural one, focusing on the cultural context of timbre and omitting the use of spectrograms. This is epitomised by Emily Dolan who writes that timbre “cannot be easily analyzed as a parameter because ultimately timbre is not a parameter at all: it is aesthetic attention itself” (cited in Lavengood, 2017, p. 14). Lavengood has detailed her own personal definition of timbre as “an analytical domain that is shaped by spectral, temporal, and spectrotemporal elements of a sound signal (i.e., frequency, amplitude, and how those change over time) and also by culture and history” (2017, p. 5).

The approach of not analysing timbre exclusively via the use of spectrograms is also supported by Blake (2012) as he argues that the concept of timbre being a cultural phenomenon is equally as relevant as is a scientific one. Although Blake believes spectrograms serve a useful scientific purpose for translating timbre into observable data, he refers to them as “clunky middlemen” in regard to observing timbre’s cultural context and phenomenal characteristics. Historically, Blake writes, timbre is recognised and acknowledged for producing musical meaning, however, due to it being extremely difficult for analytic description, discussions “often transition towards more approachable parameters.” (Blake, 2012).

Lavengood’s methodology has been prioritised and implemented in this study due to the systematic and legible establishment of possible spectral parameters, specifically the ‘oppositional pairs’ concept featured in her writing.

Blake’s aural methodology was applied to this study as all literature indicates that timbre merits a visual and audible analysis, in addition to it proving advantageous to observe any sonic commonalities and differentiation within the pieces being analysed for this study, especially in conjunction with the spectral results discovered through Lavengood’s method of analysis. Blake’s terminology was specifically selected for this study as it is compatible with Lavengood’s oppositions and the timbral qualities heard in the ambient tracks from *Silent Hill 2*, furthermore, it is succinct enough to slip comfortably within the scope of this study.

A spectrogram is a crucial tool for timbral representation and analysis because it embodies the sound waves present in an audio signal with a visual representation of frequency and overtones as well as amplitude changes in an intuitive way for the human brain to process and understand without any aural representation. Lavengood writes that they

“visually represent timbre in a way that is akin to how the notated musical score represents other domains of music analysis” (2017, p. 14).

Analysing spectrograms is also the primary way to visually detect the use of digital processing (such reverb length, EQ, delay etc.) and will aid in determining if there are any overarching compositional approaches particular to these ambient works.

The assistance of *Audacity*'s Plot Spectrum Analyser has been employed during the analytical process in order to aid the accuracy of determining each piece's fundamental note (which for this study has been recognised as *the lowest and loudest frequency*, although this often proved futile as there are multiple fundamental frequencies that appear in each track) in addition to assist verification of the highest observable partial's frequency (relating to the selected fundamental) in each spectrogram, as well as evaluating the ratio of partials in each track's harmonic series.

As there is an aural analysis taking place within this study to support and contrast the spectral analysis, as opposed to independent cultural purposes, the perspective of a 'sound object'<sup>2</sup> analysis has also been applied to this study.

Schaeffer (1966) observed that listeners inherently aim to locate meaning in sound and that by successfully discovering meaning or source, this then diverts their awareness of a sound's intrinsic qualities. He opposed this method of listening with the active notion of 'reduced listening' which can be practised by the listener as decontextualizing a sound's existence. Wong (2013) details how melodies, harmonies, basslines and rhythmic patterns can result in an applied meaning, and that by analysing music 'vertically' as opposed to 'linearly' will develop more impartial results of the analysis. It is important to take this perspective into

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<sup>2</sup> A term coined by Schaeffer (1966).

account as the previously mentioned musical attributes appear sparsely in the pieces analysed for this study, thus prompting listener interest when they appear, and that this ‘sound object’ perspective appears to be an effective method to avoid inaccurate results due to other parameters (such as pitch) often affecting timbre perception (Lavengood, 2017, p. 21).

### Lavengood’s method

Lavengood (2017) defines numerous acoustic timbral attributes to which she has organised into oppositional pairs that one may attune when analysing timbre.

She clarifies that the identification of these attributes alone “does not produce a satisfactory analysis” and that it instead “lays the groundwork for the true goal of timbre analysis,” which she defines as “interpretation.”

These definitions by Lavengood build upon Robert Cogan’s methodology from 1984, to which Lavengood states she values, but suggests improvement through addressing holes in his theory by means of the addition of her oppositions, repurposing his system of binaries to address the concept of musical markedness, rather than Cogan’s notion of “spectral energy” and avoiding overly technical vocabulary by rephrasing Cogan’s terms in common language that reflect listener experience (2017, pp. 16-17).

These opposing pairs have been grouped into three categories by Lavengood: spectral components of the sustain portion of the sound, spectral components of the attack portion of the sound (an original idea by Lavengood,) and pitch components. Whilst there are ten components listed in her thesis, only nine will be implemented in this study as one (the bright/dark component of the attack) does not provide a sufficient description or example in her writing, nor does it appear detectable regarding the spectrograms used for this study.

Lavengood’s components are as follows:

Spectral components of the sustain:

**Bright /Dark:** can be calculated by following the equation of:



$$index = \log_2(f_{max}) - \log_2(f_0)$$

where  $f_{max}$  is the highest determined partial in a sound and  $f_0$  is the fundamental frequency, often the lowest bass note, of a sound. In Lavengood's analysis, if the index is above 4.0, the sound can be determined as 'bright,' otherwise it can be determined as 'dark.' Lavengood also states that this component is also a contextual choice (Lavengood, 2017, p.18), and thus this can be changed for the requirements of this study. The analysis found a suitable index value to be 5.5.

**Pure / Noisy:** is determined by the thickness of the frequency bands of each spectral element with 'pure' sounds being represented by thin bands and 'noisy' ones by thick bands.

**Full / Hollow:** is to be observed via the spectrogram or with assistance from a spectrum plot.

'Full' sounds feature a true harmonic series whereas 'hollow' sounds are not sounding all partials or 'hollow' sounds do articulate all partials but the amplitude of them doesn't decrease as the frequency increases.

**Rich / Sparse:** is to be determined via the spectrogram and the partials present in a given sonority.

A sound with many partials is 'rich' and sound with few is 'sparse.'

**Beatless / Beating:** can be viewed through observation of the amplitude within a frequency band.

If regular fluctuations of amplitude are present, this would determine a 'beating' sustain, if no fluctuations are present, it will result in a 'beatless' sustain.

**Harmonic / Inharmonic:** a 'harmonic' sound only contains partials in whole-number ratios to the fundamental (sometimes referred to as 'true harmonics') whereas an 'inharmonic' sound will feature partials that are not in whole-number ratios to the harmonic.

Spectral components of the attack:

**Percussive / Soft:** can be determined via analysis of the attack portion of frequency bands present in a spectrogram.

A ‘percussive’ attack will feature a wide band of amplitude at the attack point whereas a ‘soft’ attack will be represented by a fade-in of amplitude at the attack point.

Pitch components:

**Low / High:** can be observed through viewing the register of the most prominent frequencies in any given spectrogram.

For example, if a spectrogram projects loud frequencies in the high register, this will result in a ‘high’ position in pitch space of the sound signal.

Although this is not specifically a timbral attribute, Lavengood states that the frequency of the fundamental impacts timbre perception.

**Steady / Wavering:** if a sound is considered ‘wavering’ there will be micro-fluctuations visible in the sound’s amplitude signifier, whereas a signal that is ‘steady’ will simply feature a straight line of amplitude.

#### Blake’s method

Blake’s methodology stems from analysing indie-rock music within the context of completed albums, so it has had to be slightly altered to fit this study.

Blake proposes four perspectives in his paper, however the fourth one, ‘homogony,’ has been omitted as it pertains to the variety of instrumentation featured in each track following the intended flow of an album, and as this study has omitted works from the full track listing of the soundtrack, it has been concluded that this component is not applicable within this context:

**Full:** implies both high volume and timbral complexity regarding the overtones.

**Distorted:** the signal is primarily distorted as opposed to “clean.”

**Digestible:** distortion does not overtake the ability for one to hear pitch and rhythm.

The results following the analyses are compiled into a table where the data will be observable in a visual manner (see Table 1), in addition to written descriptions regarding Lavengood’s and Blake’s methodology and how it was perceived within the context of the tracks analysed for this study. Following the completion of the analyses, patterns will be addressed and an attempt to describe the soundtrack’s unique characteristics will be performed.

- / + Opposition	Track title	Track title	Track title	Track title	Track title
<b>Spectral components- sustain</b>					
Bright / Dark					
Pure / Noisy					
Full / Hollow					
Rich / Sparse					
Beatless / Beating					
Harmonic / Inharmonic					
<b>Spectral components- attack</b>					
Percussive / Soft					
<b>Pitch components</b>					
Low / High					
Steady / Wavering					
<b>Blake (2012)</b>					
Full					
Distorted					
Digestible					

*Table 1: Example table of timbral analysis*

Two methods of analysis will be applied to each track for this study. The first method is an analysis of each track’s spectrogram where observations will be made relating to Lavengood’s concept of spectral oppositions. The second method is an aural analysis, which will determine if each track sounds ‘full,’ ‘distorted’ and ‘digestible.’ The results of both analyses will be notated within a table (see Table 1) and the findings, in addition to any patterns will be discussed in greater detail through a written exposition.

## Analysis

This chapter implements the previously discussed approaches to timbral analysis and documents the findings through written description and visual representation. In order to condense the analysis, the *Silent Hill 2* tracks were intuitively classified into one of three groups (Abstract, Semi-Acoustic and Industrial,) based on similar timbral and aesthetic characteristics. The analyses were performed independently for each track, in isolation from their dedicated sub-categorisation, however, following the completion of the analyses, each sub-category appeared to depict relatively consistent results amongst tracks.

### Sub-classifications

**Abstract** The tracks identified as belonging to the Abstract classification are:

*A World Of Madness, Noone Love You, Ordinary Vanity, Prisonic Fairytale, and White Noiz.* These tracks share aesthetic commonalities as they are predominantly unconstructed (tempo rubato), feature glimmering electronica instrumentation which results in a smothering or claustrophobic aural soundscape possibly due to a lack of high frequencies, and they also feature loops or fragments of sound that tumble over each other due to a varied duration which results in a sense of uncertainty and non-resolution (Adkins, 2019; Berndt, 2019; Phillips, 2014).

**Semi-Acoustic** The tracks identified as belonging to the Semi-Acoustic classification are: *Fermata in Mystic Air, Forest, Laura Plays The Piano, Magdalene, and The Day Of Night.* These tracks have been compartmentalised into the Semi-Acoustic category because they share comparable attributes such as unbound (likely improvised) melodic lines and contours, detectable key and metre, along with the performance of what could be considered as acoustic (sounding) instruments.

It should be clarified that *Laura Plays The Piano* is a “boundary case,” as it also

indicates aesthetic commonalities with pieces sorted into the Abstract subcategory. The ultimate reasoning behind this particular track being sorted into the Semi-Acoustic category and not the Abstract category is due to the track featuring an acoustic (sounding) instrument at the forefront of the mix.

**Industrial** The tracks that constitute the Industrial classification are: *Ashes And Ghosts*, *Black Fairy*, *Block Mind*, *Silent Heaven* and *The Darkness That Lurks In Our Mind*.

The aforementioned tracks are classed under the title of Industrial because they present an oppressive aural atmosphere through the utilization of raw and harsh timbres, distortion, in addition to employing the use of *sound objects* as percussion.

*Alone In The Town*, *Angel's Thanatos*, *Betrayal*, *Heaven's Night*, *Love Psalm*, *Null Moon*, *Overdose Delusion*, *Pianissimo Epilogue*, *Promise*, *Promise (Reprise)*, *Terror In The Depths Of The Fog*, *The Reverse Will*, *Theme of Laura*, *Theme of Laura (Reprise)* and *True* have been ruled out of this analysis due to these tracks not meeting the established criteria to be determined as *ambient*.

## Abstract

Tracks belonging to the Abstract category appear to have three spectral components in common: 'dark' sustain, 'beating,' and 'inharmonicities.'

## Dark sustain

Lavengood (2017) expresses that by following the equation:

$$\log_2(\text{highest partial Hz}) - \log_2(\text{fundamental frequency Hz})$$

will create an 'index' value where higher values indicate a 'brighter' timbre.

Regarding her study, she states that the boundary line between a ‘dark’ and ‘bright’ sustain is often 4.0 decimals but that the outcome is often contextual to whomever performs the analysis (Lavengood, 2017, p. 18). In addition, Lavengood’s study was performed on the spectrograms of isolated sounds and not the spectrograms of complete pieces that feature digital processing and multiple sources of sound, as is the case for this study.

Following the completion of this study’s analyses it occurred that there needed to be a larger discrepancy between ‘dark’ and ‘bright’ sustains as so many cases appeared on the boundary line, thus prompting indeterminate results. In addition, there were stark aural and visual differences between Industrial tracks that were determined to possess a ‘bright’ sustain and the Abstract and Semi-Acoustic tracks that were also determined to have ‘bright’ sustains. To avoid inaccurate or undetermined results, the boundary decimal for this study has been augmented to be 5.5 which proceeded to establish all of the Abstract and Semi-Acoustic tracks as possessing a ‘dark’ sustain.

This is typified by the track *Prisonic Fairytale* (Figure 1)<sup>3</sup>, in which the higher partials barely exceed 2kHz. This section has a brightness index of *1.69628*, indicating a dark sustain. An example of a ‘bright’ sustain (Figure 2) has also been provided for comparison.

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<sup>3</sup> All spectrograms have a frequency domain of ~20Hz to ~4800Hz with a dBV<sup>2</sup> scale, 16384 window setting with ‘peak bins’ on and a ‘Semi-Log’ weighting.

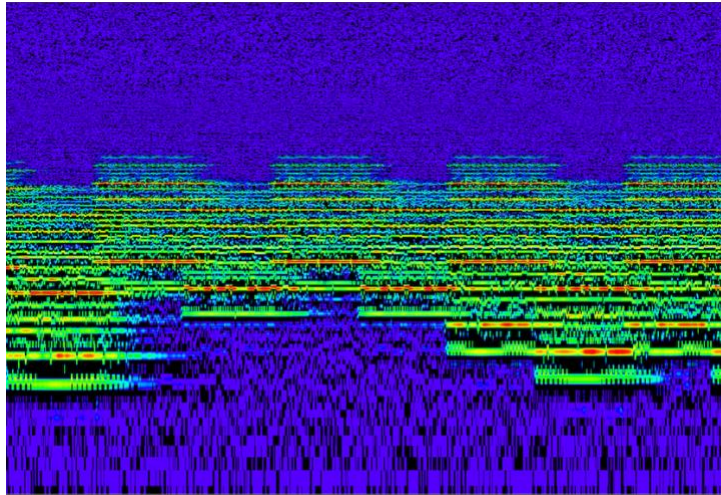


Figure 1. Example of a 'dark' sustain from *Prisonic Fairytale* (Abstract)

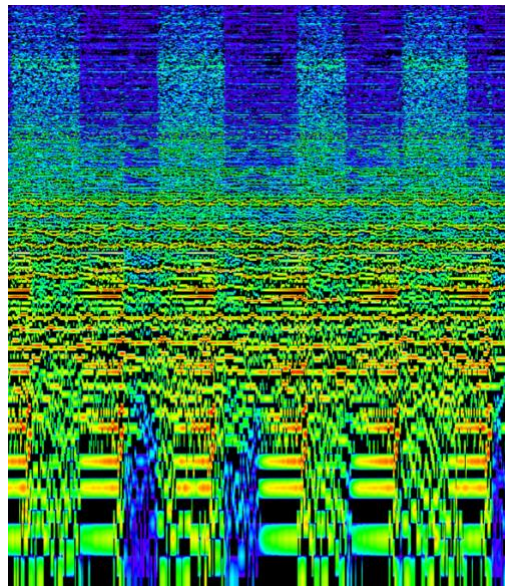


Figure 2. Example of a 'bright' sustain from *Black Fairy* (Industrial)

## Beating

Beating is defined by Lavengood as “beats [that] occur between two frequencies that are only slightly different, in which case interference is created between the two sound waves... on the spectrogram, this will appear as a periodic brightening and darkening of the shade used to render the partial” (2017, p. 20). It is difficult to determine ‘beating’ with *Sonic Visualiser* (a lower-resolution software to the one Lavengood’s examples are rendered in), in addition to these analyses being performed on full works that feature many frequencies and

their partials. Through trial and error along with deeper inspection into other components, it is determined that these ‘beats’ seem to commonly appear in *Sonic Visualiser* as ‘slices’ of amplitude that linger around the fundamental notes, however, in *Sonic Visualiser* this can often be confused with a different component of pitch described by Lavengood as ‘wavering,’ which will be discussed later.

The tracks featured within the Abstract category appear to exclusively feature these fluctuations in amplitude and pitch, apart from *Ordinary Vanity*, which displays moments of a ‘beatless’ sustain (Figure 3) as well as a ‘beating’ sustain (Figure 4). The Abstract spectrogram that most clearly represents an example of the ‘beating’ sustain in regard to this study and *Sonic Visualiser* can be observed in Figure 5, due to these ‘slices’ of amplitude being more discernible than they appear in Figure 4.

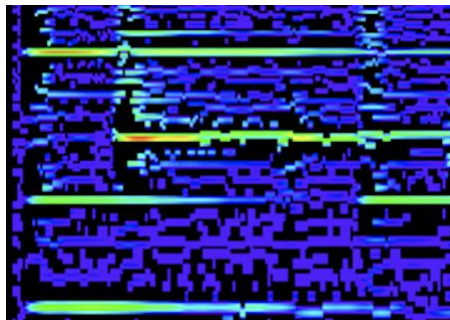


Figure 3. Example of a 'beatless' sustain from *Ordinary Vanity* (Abstract)

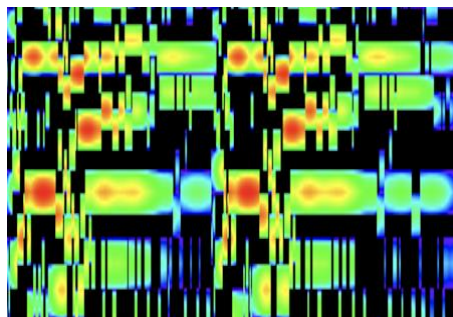


Figure 4. Example of a 'beating' sustain from *Ordinary Vanity* (Abstract)



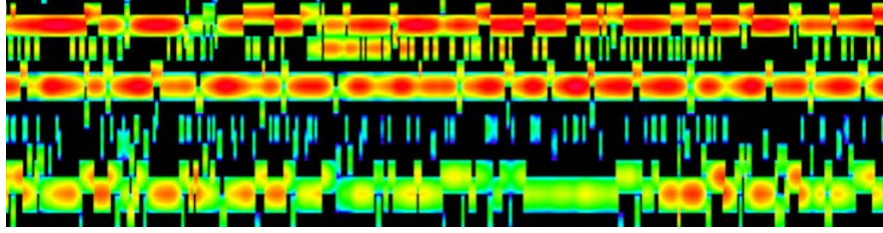


Figure 5. Example of a 'beating' sustain from *White Noiz (Abstract)*

## Inharmonicity

It has been stated by Lavengood (2017) that a 'harmonic' *sound* contains only partials in whole-number ratios to the fundamental and that an 'inharmonic' sound contains *some* partials not in whole-number ratios to the fundamental. Due to Lavengood defining these terms somewhat loosely, this component requires aural interpretation in addition to a spectral one.

It is difficult to determine if the tracks from *Silent Hill 2* are 'harmonious' or 'inharmonious' due to multiple frequencies and their partials often clashing with each other and creating what could appear to be 'inharmonicities.' The criteria pertaining to a 'inharmonic' result outlined by Lavengood details that "*'inharmonic' partials are most easily identified when they appear in particularly tight clusters*" (2017, p. 20). This definition isn't sufficient enough to immediately warrant the 'inharmonic' label, considering that these analyses are being performed on completed works where an occurrence such as this would be common, and so an analysis of each track's frequency plot spectrum was performed. It was consistently observed that all Abstract tracks featured a *near* true-harmonic series, however, the frequencies could often be found to be inaccurate by varying amounts of Hertz which would constitute them as being 'inharmonious' as they feature partials not in whole-number ratios to the fundamental. For example, the series of harmonics featured in *White Noiz*

appears to be A-A-D-F+G (simultaneously)-A#, when the ‘true-harmonics’ would be represented as A-A-E-A-C#-F, and this appears to be the case for all tracks analysed for this study apart from *Magdalene* (Semi-Acoustic) and a segment of *Silent Heaven* (Industrial), both of which appear to feature true-harmonics.

The beginning and end of *Ordinary Vanity* (featured above in Figure 3) is ‘harmonic’ but as the track climaxes through the addition of frequencies at the centre of the spectrogram (Figure 4), the piece becomes ‘inharmonic’ and so it was determined that *Ordinary Vanity* features both ‘harmonious’ and ‘inharmonious’ aspects of the sustain. Although neither of the following figures (Figure 6 and Figure 7) are representative of an Abstract track, they provide a general example of the most extreme visual discrepancies between a ‘harmonious’ sustain and an ‘inharmonious’ sustain.

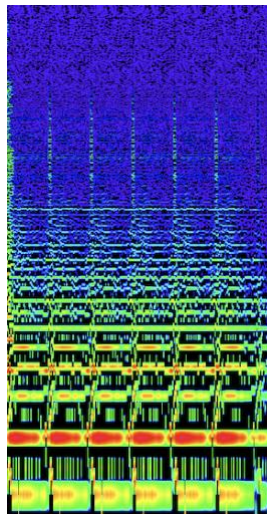


Figure 6. Example of a 'harmonic' sustain from *Silent Heaven* (Industrial)

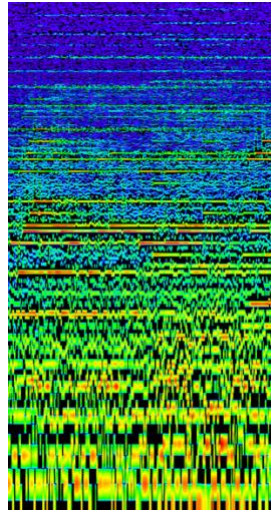


Figure 7. Example of 'inharmonic' sustain from *Forest (Semi-Acoustic)*

The most consistent observation of these Abstract tracks is that they all feature a dark and (apart from Figure 3 of *Ordinary Vanity*) a beating, inharmonic sustain in addition to them being audibly 'full' and 'softly distorted,' which could be considered an appropriate term as these Abstract tracks feature distortion, while remaining digestible, which Blake (2012) defines as 'distortion does not over take one's ability to hear pitch and rhythm.' Lavengood's other oppositions do not appear to be equally represented within the Abstract tracks, as there is often at least one component result that only appears within one or two tracks, for example, *A World Of Madness* is the only Abstract track to exclusively showcase a 'noisy' sustain in addition to being the only Abstract work to feature a 'percussive' attack to which both characteristics can be viewed in Figure 8.

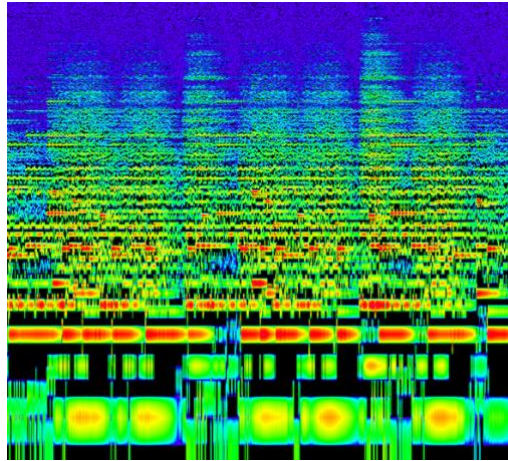


Figure 8. Example of a 'noisy' sustain and 'percussive' attack from *A World Of Madness (Abstract)*

Furthermore, *Ordinary Vanity* can be considered more of a timbral outlier to the Abstract category than *A World Of Madness* as the former primarily displays examples of both sides to each opposition and this results in a pattern that does not seem to resonate with the other Abstract tracks due to its lack of timbral consistency.

The tracks belonging to the Abstract category showcase consistent results regarding a 'dark' and 'beating' sustain, in addition to 'inharmonicities.'

### Semi-Acoustic

Similarly to the Abstract tracks, the pieces in the Semi-Acoustic category also exclusively feature examples of a 'dark' sustain. What defined the separation of these tracks from other categories is that these tracks appear to feature acoustic-sounding instrumentation which is performed in an improvisational manner.

What most unites these tracks are their spectral 'fullness' of the sustain, 'high' position in pitch space of the sound signal, 'digestibility,' 'percussive' and 'soft' attack sounds, in addition to the omission of distortion.

### Fullness of the sustain

Lavengood opposes the concept of a 'full' sustain with a 'narrow' sustain and

differentiates between the two by writing “any sound that does not sound all the overtones would be an example of a hollow sound; a full sound uses all overtones. On the spectrogram, a hollow sound will appear to have more space between each of its partials” (2017, p. 19). Due to all of the tracks featured within the Semi-Acoustic category aurally showcasing what appears to be an unprocessed acoustic sounding instrument, it can be suggested that the tracks representing this category feature examples of the true-harmonic series. Following the analysis, this was confirmed as the partials in each Semi-Acoustic track’s spectrogram (apart from various segments of *Laura Plays The Piano*) were easy to detect and were in whole number ratios to the fundamental, thus resulting in a ‘full’ component of the sustain. *Laura Plays The Piano* appears to feature instrumentation or digital processing that is omitting partials from the fundamental (best observed on the left side of Figure 9) and because of this, it was determined that *Laura Plays The Piano* features contrast between both ‘full’ and ‘hollow’ sustains.

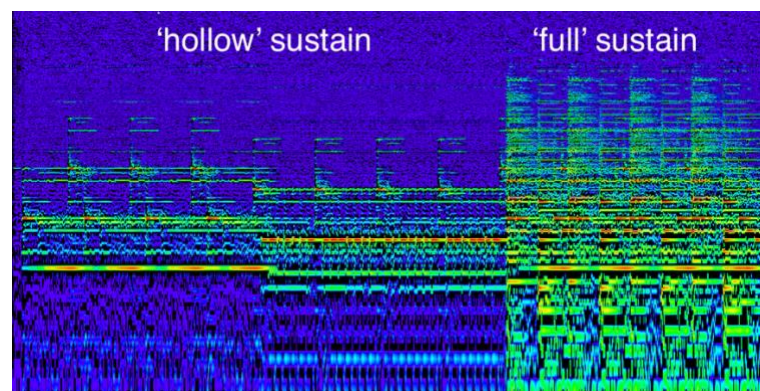


Figure 9. Example of a 'hollow' and 'full' sustain from *Laura Plays The Piano* (Semi-Acoustic)

### High position in pitch space

Another defining characteristic of the Semi-Acoustic tracks is that they feature prominent instrumentation in the mid to high frequency register which Lavengood states can result in the illusion of a ‘brighter’ sound, even when the sustain is ‘dark’ (2017, p. 22). In the case of *Forest*, *The Day Of Night* and *Fermata In Mystic Air*, the most prominent pitches

span all frequency zones but the acoustic-sounding lead instrument at the forefront of the mix is relatively high in frequency, so it was determined that these three tracks feature ‘high’ position in pitch space, especially in comparison to the position in pitch space of the Abstract and Industrial pieces. This description can be summarised by comparing the prominent ‘low’ frequencies of Figure 10 to the dense lines of colour in the high register of Figure 11.

*Laura Plays The Piano* begins with a ‘high’ position in pitch space, however, during what can be deemed the ‘chorus’ sections of the piece, alternates between ‘low’ and ‘high’ positions in pitch space, which is observable as the lower frequencies visible on the right side of Figure 9.

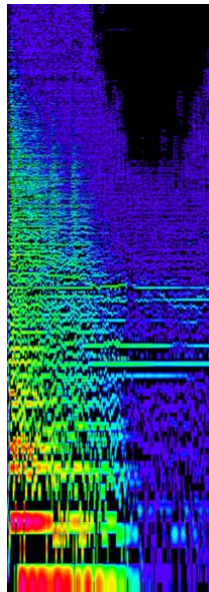


Figure 10. Example of a 'low' pitch space from *The Darkness That Lurks In Our Minds*

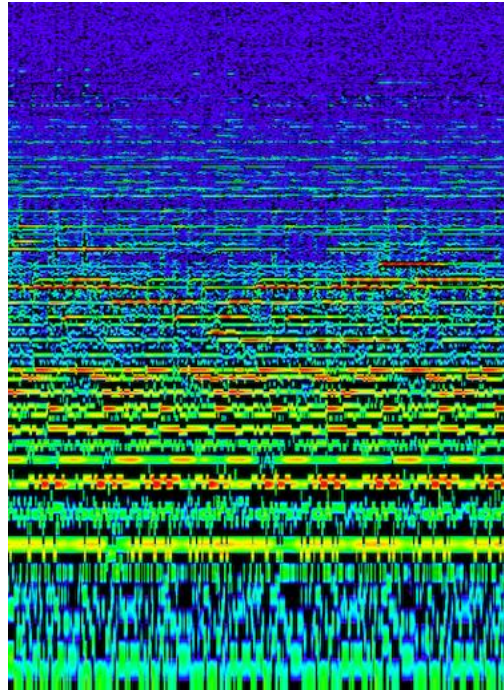


Figure 11. Example of a 'high' pitch space from Fermata in Mystic Air

While the majority of Semi-Acoustic tracks feature some low frequency representation, the track *Magdalene* presents no low frequencies at all and Figure 12 could possibly act as being the clearest visual example of a 'high' position in pitch space.

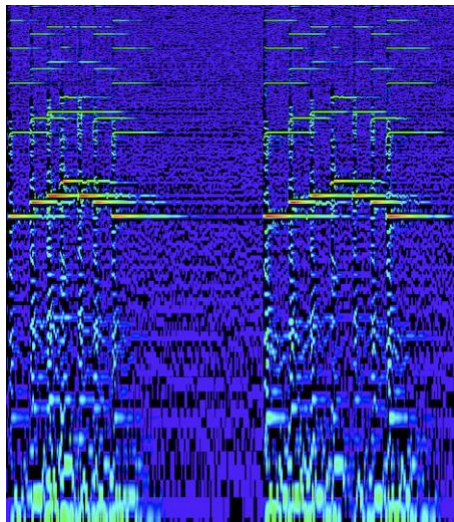


Figure 12. Example of an exclusively 'high' pitch space of the sound signal from Magdalene (Semi-Acoustic)

### **'Percussive' and 'soft' attacks**

Another spectral characteristic these Semi-Acoustic tracks appear to share is a combination

of ‘percussive’ and ‘soft’ attack sounds which can be determined by observing the point of attack for any given frequency. Lavengood states that “a ‘percussive’ attack has a wide band of sound at the attack point; a ‘soft’ has a thin strand of sound at the attack point” (2017, p. 21).

Apart from *Magdalene* which features a solo piano with a ‘percussive’ attack, the remaining Semi-Acoustic tracks aurally feature electronic soundscapes with an improvisational acoustic lead instrument, and so there is an apparent contrast between the swelling, ‘soft’ attack sound of the electronically sourced instrumentation, and the instantly diminishing ‘percussive’ attack of the acoustic instruments. Figure 13 displays ‘soft’ and ‘percussive’ attack sounds performed in tandem whereas Figure 14 displays a magnified example of a ‘percussive’ attack with Figure 15 presenting an exclusively ‘soft’ attack.

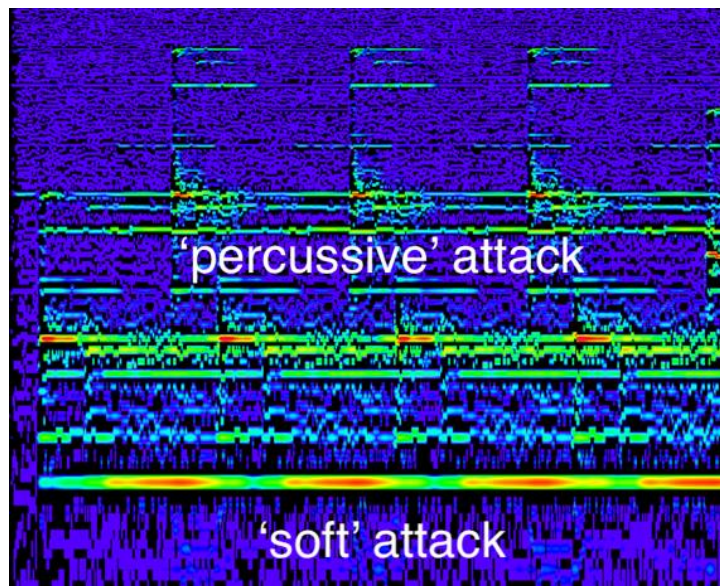


Figure 13. Example of a 'percussive' and 'soft' attack from *Laura Plays The Piano (Semi-Acoustic)*



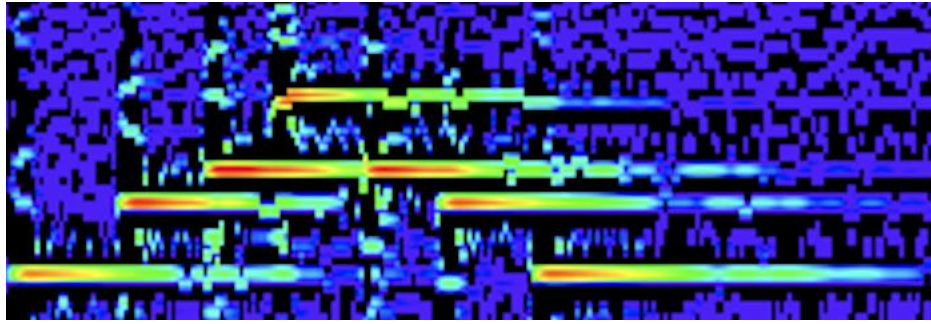


Figure 14. Example of a 'percussive' attack from *Magdalene (Semi-Acoustic)*

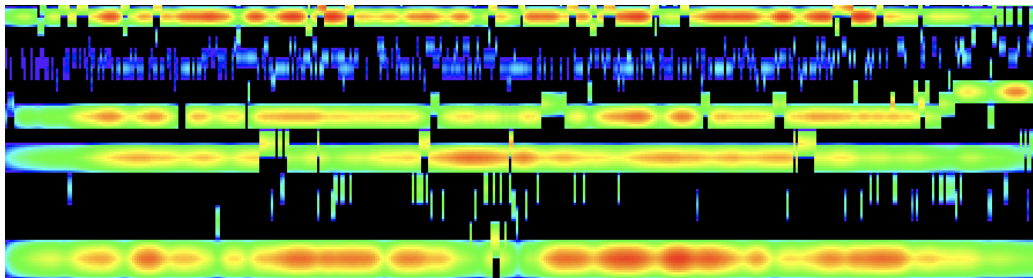


Figure 15. Example of a 'soft' attack from *Noone Love You (Abstract)*

In addition to these spectral commonalities, aurally these tracks (apart from the 'boundary case' of *Laura Plays The Piano*) do not appear to feature much distortion, especially regarding the acoustic lead instrumentation, however, the electronic soundscapes do appear to feature 'soft distortion' which will result in the Semi-Acoustic tracks being branded as 'digestible.'

The tracks belonging to the Semi-Acoustic category showcase consistent results regarding a 'dark' and 'full' sustain, in addition to a 'high' position in pitch space of the sound signal due to melodic contours occurring within the high frequency range and a contrast between 'soft' and 'percussive' attacks.

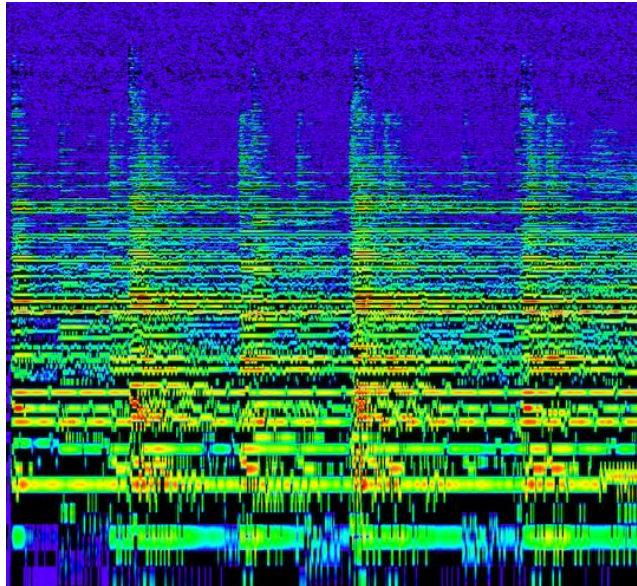
### Industrial

Tracks belonging to the Industrial category appear to feature primarily 'bright,' 'noisy' and 'steady' sustains, in addition to audible distortion. This is also the only category to feature spectral components that could not be determined due to loud, unpitched

percussion being implemented within tracks, in addition to copious amounts of distortion, resulting in indecipherable clusters of microscopic partials.

### **Brightness of the sustain**

In contrast to the tracks featured in the Abstract and Semi-Acoustic categories, these Industrial works feature exclusively ‘bright’ spectral sustains, apart from the first segment of *Silent Heaven* which was determined to feature a ‘dark’ sustain. This contrast is observable in Figures 16 and 17, while an example of a the ‘brightest’ sustain from the analyses can be viewed in Figure 2.



*Figure 16. Example of the 'dark' sustain featured in Silent Heaven (Industrial)*

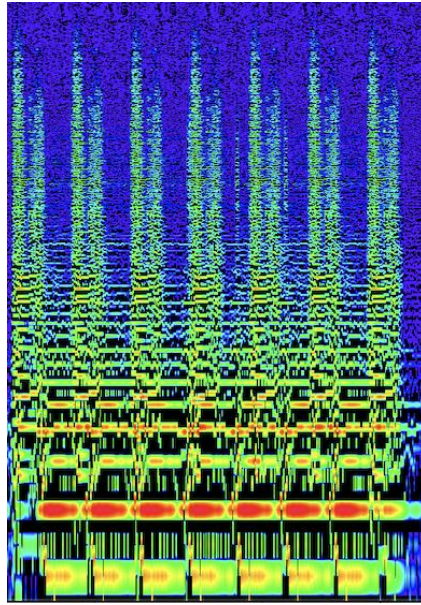


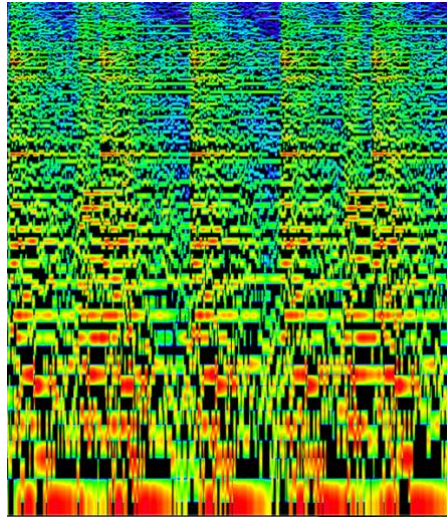
Figure 17. Example of the 'bright' sustain featured in *Silent Heaven (Industrial)*

### Noisiness of the sustain

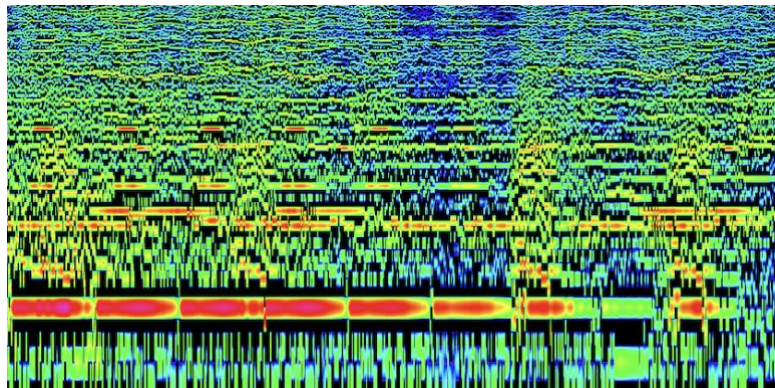
Lavengood opposes thick bands of each spectral element to thin strands of each spectral element, which results in a sustain being deemed either 'noisy' or 'pure,' respectively. While the Abstract and Semi-Acoustic categories featured either 'pure' or 'noisy' sustains (apart from *Ordinary Vanity* and *The Day Of Night* which feature a combination of 'pure' and 'noisy' sustains,) the Industrial tracks appear to feature moments of exclusively 'noisy' sustains (Figure 18) or juxtapose segments of 'noisiness' and 'purity,' within one track (Figure 19), but never exclusively showcase the latter, which can be observed in Figure 20.

All Industrial tracks feature thick bands (a signifier of 'noisiness' of the sustain) within the lower register, in addition to finer bands in the higher register. Although this appears to be a naturally occurring phenomenon due to the physics of sound, Lavengood does not address the outcome when both sides of the opposition appear in one spectrogram as her study focuses on isolated sounds. It could be considered somewhat biased to recognise the Industrial tracks' sustains as 'noisy' just to remain loyal to sub-categories' namesake, so a

combination of 'noisy' and 'pure' sustains has been notated within the visual chart of the analysis as there is sufficient evidence to not simply garner the 'undetermined' result for this component.



*Figure 18. Example of a 'noisy' sustain from Block Mind (Industrial)*



*Figure 19. Example of a 'pure' and 'noisy' sustain from Ashes And Ghosts (Industrial)*

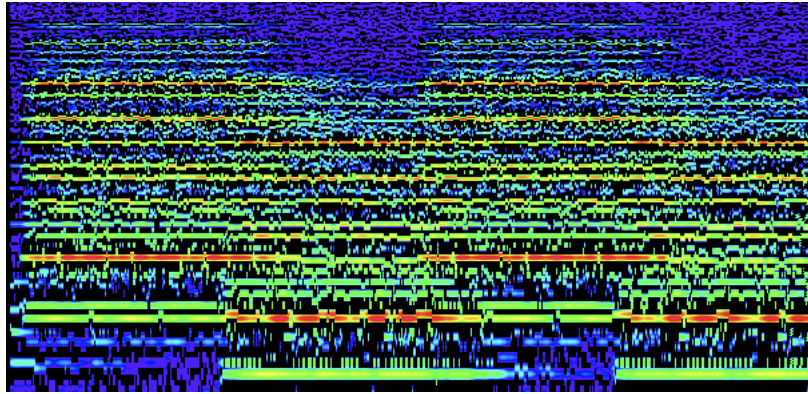


Figure 20. Example of a 'pure' sustain from *Prisonic Fairytale (Abstract)*

### Steadiness of the sustain

These Industrial tracks are also the only category to feature examples of a 'steady' sustain. Lavengood differentiates between a 'steady' sustain and a 'wavering' sustain by describing that if micro-fluctuations are visible in the sound's amplitude signifier, this would constitute a 'wavering' sustain, whereas a signal that features a straight line of amplitude would be considered 'steady' (2017, p. 22). Briefly mentioned in the Abstract chapter was the expression that I found it difficult to determine what would be considered a 'beating' sustain and what would be considered a 'wavering' sustain. Differentiating between these components became more confusing as I noticed that Lavengood describes 'beating' from the perspective of pitch when she says "beats occur between two frequencies that are only slightly different, in which case interference is created between the two sound waves" (2017, p. 20.) despite 'beating' being a 'sustain' component and not a 'pitch' component. Unfortunately, *Sonic Visualiser* does not appear to be the most appropriate software to use when trying to detect a 'beating' or 'wavering' sustain, however, regarding this study, the determining factor for a 'steady' signal has been the potency of a singular, or multiple 'straight' signal(s) which are commonly found throughout the Industrial tracks. Although there are micro-fluctuations of pitch visible in Figure 21, due to the richness and

‘steadiness’ in amplitude of the second signal from the bottom, this has been determined as a ‘steady’ signal represented by *Sonic Visualiser*, which can be supported by comparing Figure 21 to Figure 22, which appears to feature how multiple ‘wavering’ signals appear in *Sonic Visualiser*.

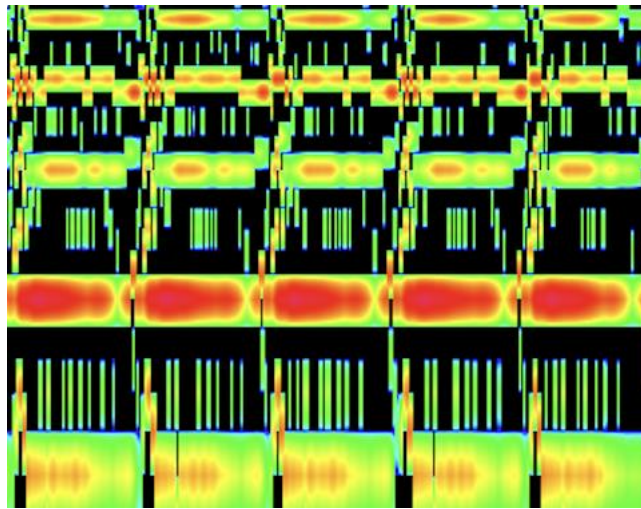


Figure 21. Example of a 'steady' signal from *Silent Heaven* (Industrial)

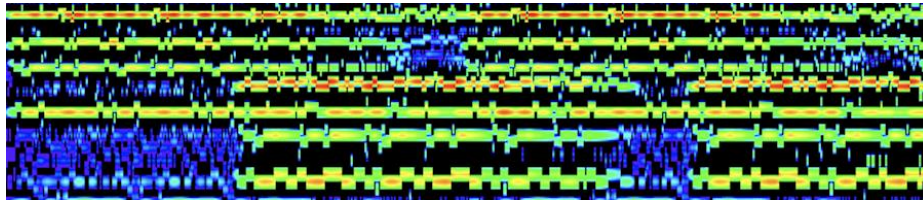


Figure 22. Example of 'wavering' pitches from *The Day Of Night* (Semi-Acoustic)

### **The case of tracks with indeterminate pitch**

While *Silent Heaven* and *Black Fairy* do appear to feature swelling and contracting of amplitude of the fundamental (a signifier of ‘beating,’) *Ashes And Ghosts*, *The Darkness That Lurks In Our Mind* and *Block Mind* are too aurally percussive and visually cluttered with microscopic partials to confidently determine if they are ‘beating’ or ‘beatless,’ in addition, it is too difficult to determine if these latter tracks feature a ‘full’ or ‘hollow’ sustain, for the

same reason, and so these components have been notated within the visual tables as ‘undetermined’ for the three previously mentioned tracks.

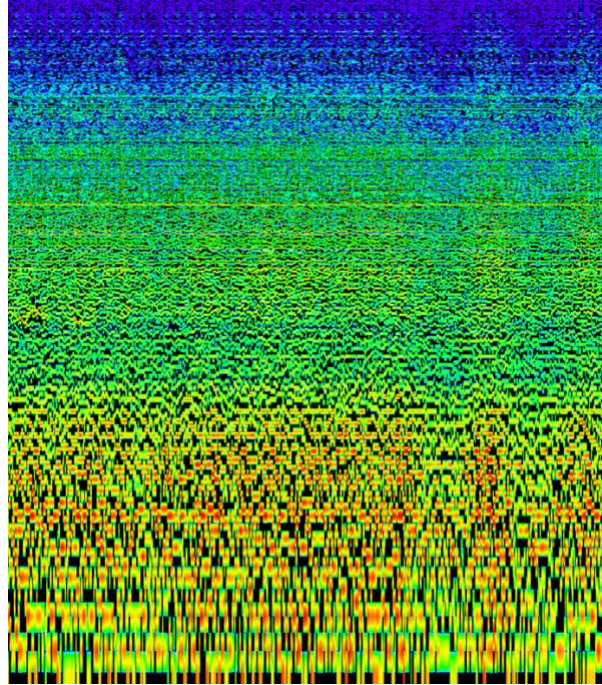


Figure 23. Example of an 'undetermined' result regarding 'beating/beatless' and 'full/hollow' sustains from *The Darkness That Lurks In Our Mind* (Industrial)

## Distortion

Aurally, all of these Industrial tracks feature heavy distortion to the extent that they can all be considered ‘indigestible,’ apart from the latter half of *Silent Heaven* (Figure 17) which remains heavily distorted but features a ‘harmonic’ sustain and ‘steady’ pitch component, which results in this specific segment being ‘digestible.’

The tracks belonging to the Industrial category showcase consistent results regarding a ‘bright’ and ‘noisy’ sustain, in addition to prominent ‘steady’ sound signals.

## Other observations

The most varying component across all categories appears to be ‘richness’ or ‘sparseness’ of the sustain. This is determined via observation of the spectrogram and the partials present in a given sonority. Lavengood summarises this component by stating that “a sound with many partials is ‘rich’ and sound with few is ‘sparse’” (Lavengood, 2017, p. 19). From the analysis performed, the Abstract tracks appear to be primarily ‘rich’ with *Ordinary Vanity* featuring some elements of ‘sparseness’ (Figure 3) in addition to ‘richness’ (Figure 4). The Semi-Acoustic tracks’ sustains are also primarily ‘rich’ however, *Magdalene* (Figure 12) is the only track analysed that exclusively showcases a ‘sparse’ sustain and *Laura Plays The Piano* features moments of both ‘richness’ and ‘sparseness’ (Figure 9). The Industrial tracks are equally similar to the Semi-Acoustic works as they appear to be primarily ‘rich,’ however *The Darkness That Lurks In Our Mind* (Figure 24) and a portion of *Silent Heaven* (which can be observed in the centre of Figure 25,) both feature moments of ‘sparseness.’

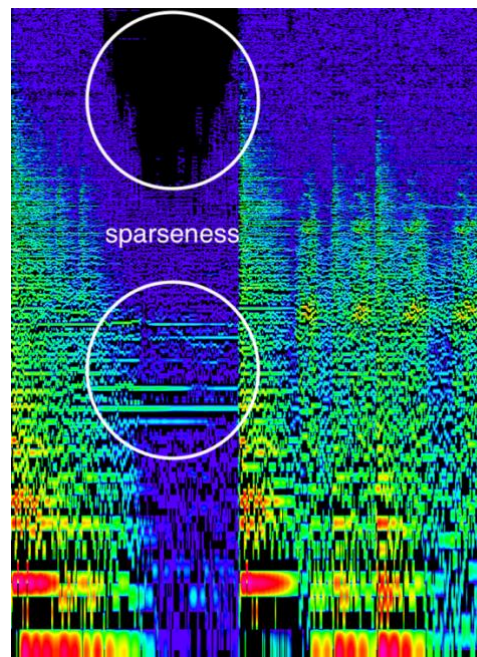


Figure 24. Example of a 'sparse' sustain from *The Darkness That Lurks In Our Mind*



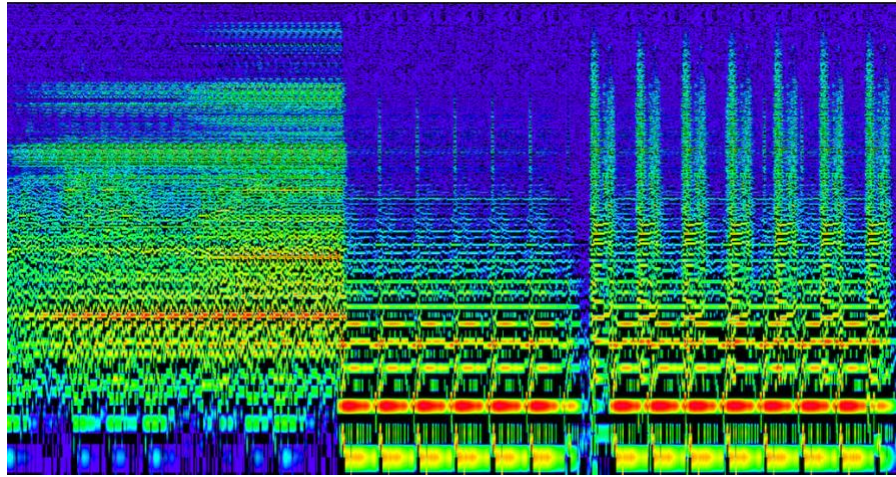


Figure 25. Example of a 'sparse' sustain between two 'richer' sustains from *Silent Heaven*

### Summary and discussion

Below are the condensed findings for each category. The ‘-’ symbol refers to the opposition on the left side of the slash and the ‘+’ refers to the opposition on the right of the slash. When a component has been determined to display both of the oppositions (either simultaneously or linearly) it has been represented by the ‘±’ symbol and if something was not possible to determine, it has been signified with the ‘Ø’ symbol. As for Blake’s (2012) descriptors, they are primarily represented as ‘Y’ for ‘yes’ or ‘N’ for ‘no’ in addition to the ‘±’ symbol which retains its meaning as previously stated. Some track names have also been altered to fit neatly within the chart.

## Abstract

- / + Opposition	White Noiz	A World Of Madness	Ordinary Vanity	Prisonic Fairytale	Noone Love You
<b>Spectral components- sustain</b>					
Bright / Dark	+	+	+	+	+
Pure / Noisy	-	+	±	-	-
Full / Hollow	-	-	+	+	-
Rich / Sparse	-	-	±	-	-
Beatless / Beating	+	+	±	+	+
Harmonic / Inharmonic	+	+	±	+	+
<b>Spectral components- attack</b>					
Percussive / Soft	+	-	+	+	+
<b>Pitch components</b>					
Low / High	±	-	+	+	±
Steady / Wavering	±	+	±	±	±
<b>Blake (2012)</b>					
Full	Y	Y	±	Y	Y
Distorted	Y	Y	±	±	±
Digestable	±	±	Y	Y	Y

Table 2: Timbral characteristics of the 'Abstract' pieces

## Semi-Acoustic

- / + Opposition	Forest	The Day Of Night	Magdalene	Fermata	Laura Plays The Piano
<b>Spectral components- sustain</b>					
Bright / Dark	+	+	+	+	+
Pure / Noisy	±	±	-	-	-
Full / Hollow	-	-	-	-	±
Rich / Sparse	-	-	+	-	±
Beatless / Beating	+	+	-	+	+
Harmonic / Inharmonic	+	+	-	+	+
<b>Spectral components- attack</b>					
Percussive / Soft	±	±	-	±	±
<b>Pitch components</b>					
Low / High	±	±	+	+	±
Steady / Wavering	+	+	-	+	±
<b>Blake (2012)</b>					
Full	Y	Y	N	Y	±
(Lead instrument) distorted	N	±	N	±	±
Digestable	Y	Y	Y	±	Y

Table 3: Timbral characteristics of the 'SemiAcoustic' pieces

## Industrial

- / + Opposition	Ashes and Ghosts	Darkness That Lurks	Block Mind	Silent Heaven	Black Fairy
<b>Spectral components- sustain</b>					
Bright / Dark	-	-	-	±	-
Pure / Noisy	±	±	±	±	±
Full / Hollow	∅	∅	∅	-	-
Rich / Sparse	-	±	-	±	-
Beatless / Beating	∅	∅	∅	+	+
Harmonic / Inharmonic	+	+	+	±	+
<b>Spectral components- attack</b>					
Percussive / Soft	±	-	-	±	+
<b>Pitch components</b>					
Low / High	-	-	±	-	+
Steady / Wavering	-	-	-	-	-
<b>Blake (2012)</b>					
Full	Y	Y	Y	Y	Y
Distorted	Y	Y	Y	Y	Y
Digestable	N	N	N	±	N

Table 4: Timbral characteristics of the 'Industrial' pieces

The largest discrepancy between sub-categories appears to be that of ‘darkness’ and ‘brightness’ of the sustain as the majority of tracks analysed for this study feature only ‘dark’ sustains, meanwhile the only tracks to feature ‘bright’ sustains are all within the Industrial category. This component could relate directly to a given track’s desired meditative extent, considering the Industrial tracks appear less often within *Silent Chill*-like playlists, which are often used as background music for concentration. From a compositional perspective, it appears that the implementation of a ‘bright’ sustain within a track may be most effective when intended for more emotionally intense moments, and less effective when focus is required.

The concept of a ‘pure’ or ‘noisy’ sustain may appear to be somewhat related to the ‘bright/dark’ sustain component as the Industrial tracks (featuring ‘bright’ sustains) appear to feature primarily ‘noisy’ sustains, although this idea may be incidental as *A World Of Madness* (Abstract) is the only track to have been confidently deemed as possessing a ‘noisy’ sustain due to the extreme spectral differences regarding this parameter when compared to other tracks within the same category. I believe that this component can be regarded as

‘malleable’ in a compositional context as it appears to not be a defining factor in how a piece is experienced as ‘pure’ and ‘noisy’ sustains occur in all sub-categories.

The large majority of tracks analysed feature a ‘full’ sustain as opposed to a ‘hollow’ sustain, with three tracks remaining ‘undetermined’ due to clusters of partials caused by excessive use of distortion or un-pitched percussion. The majority of tracks possessing a ‘full’ sustain is likely in part to the presence of distortion (which is an effect that adds partials to a sound) within most tracks, in addition to ‘full’ sustains appearing to be a naturally occurring phenomena regarding most instruments. The use or manipulation of a sound to create a ‘hollow’ sustain might result in a track being more aurally ‘digestible’ as it is somewhat of an oxymoron to have a ‘hollow’ sustain featuring distortion to the extent that a track becomes ‘indigestible.’

The ‘rich/sparse’ component of the sustain appears somewhat related to the ‘harmonic/inharmonic’ component in regard to this study as they both depend on the presence and density of partials in a given sonority. *Magdalene (Semi-Acoustic)* is the only track analysed to feature an exclusively ‘sparse’ sustain and is also the only track to exclusively feature ‘harmonic,’ with *Silent Heaven* (Industrial) featuring both ‘rich’ and ‘sparse’ sustains in addition to ‘inharmonic’ and ‘harmonic,’ respectively. Yamaoka’s implementation of ‘richness’ and/or ‘inharmonic’ is what I believe to be the defining characteristic of the *Silent Hill 2* ambient tracks as these factors make an appearance in each track analysed (apart from the previously mentioned cases.) This ‘inharmonic’ is most likely caused by slightly de-tuned electronic instrumentation which (in relation to other components) results in the listener experiencing a level of uncertainty yet familiarity and comfort, possibly resulting in this soundtrack’s mysterious appeal.

Regarding this study, ‘beating’ and ‘beatless’ sustains appear to primarily correlate to electronic and acoustic sounds, respectively, as the only track to exclusively feature a

‘beatless’ sustain (*Magdalene, Semi-Acoustic*) is also the only track to feature no electronic instrumentation. *Ordinary Vanity* has been notated as possessing both a ‘beating’ and ‘beatless’ sustain as some frequencies within the spectrogram are too microscopic to confidently determine if they are ‘beating,’ however, the frequency in question sounds to be like that of a pure and steady sine-wave, which would result in this being a ‘beatless’ sound against a ‘beating’ soundscape. Compositionally, implementing a ‘beating’ sustain may result in electronic sounds being perceived as more natural or sensual as opposed to synthetic or robotic.

While a ‘soft’ attack sound result appears to dominate the pieces within the Abstract category, the outcomes are relatively mixed regarding the remaining tracks, as the Semi-Acoustic pieces often feature ‘soft’ attacks within the electronic instrumentation and ‘percussive’ attacks regarding the acoustic lead instrumentation. Similarly, the Industrial tracks tend to feature ‘sound object’ loops as percussion, resulting in a ‘percussive’ attack concurrent to the ‘soft’ attack electronic instrumentation, apart from *Black Fairy* (Industrial) which is an electronic piece that only features a ‘soft’ attack. This component seems to be observed similarly to the ‘pure/noisy’ component of the sustain as it does not appear to not be a defining factor in how a piece is experienced and the extremes can function within many different contexts.

The ‘high’ and ‘low’ pitch component results appear to be mostly varied, with the Abstract and Semi-Acoustic category featuring a combination of ‘high’ and ‘low,’ although more potently the former, often occurring simultaneously. The Industrial category primarily showcases a dominant ‘low’ pitch space of the sound signal, with ‘higher’ elements still transpiring. Lavengood states that although pitch is not necessarily a timbral attribute, it can affect how timbre is perceived (2017, p. 21-22) and so a ‘high’ pitch space of the sound signal contextually appears to result in more ‘agile’ and ‘pleasant’ listener experience

whereas a 'low' pitch space of the sound signal will result in a more 'emotionally dense' or 'burdensome' experience.

What has been confidently determined about the Industrial tracks is that they are the only ones, in addition to *Magdalene (Semi-Acoustic)*, to feature 'steady' frequency amplitude, as the other two categories feature a 'wavering' frequency amplitude or a combination of both oppositions. In regard to the *Silent Hill 2* soundtrack, electronic processing is likely at work for these outcomes, with 'wavering' occurring due to effects such as vibrato, and 'steady' signals remaining 'solid' due to heavy amounts of compression. A 'steady' signal is expected to result in a more 'grounded' listener experience with a 'wavering' signal resulting in an 'otherworldly' vibe.

The only track to not be audibly 'full' is *Magdalene (Semi-Acoustic)* with *Ordinary Vanity (Abstract)* being deemed 'semi-full' as the beginning and end are aurally quite 'thin.' The concept of auditory 'fullness' regarding the ambient tracks analysed for this study appears to result in a more 'intimate' listening experience as *Magdalene* and the audibly 'sparser' moments of *Ordinary Vanity* feel 'desolate' and 'empty.'

Distortion appears to be applied to the majority of tracks, even if it is only exerted softly to the electronic soundscapes. Of the Abstract tracks, the 'distortion' observation is only applied to the lead sounds at the forefront of the mix, while it is a less appropriate observation in other sounds in the mix. Regarding these *Silent Hill* pieces, distortion appears to be an aesthetic and cultural choice made by Yamaoka to veil the pieces in some form of 'sonic grime' that compliments the game's visuals and subject matter.

Due to 'soft distortion' making an appearance in the Abstract and Semi-Acoustic tracks, these are easily deemed as aurally 'digestible,' whereas the Industrial tracks often feature copious amounts of distortion which results in them being primarily 'indigestible.'

This analysis has determined that the popularity of the *Silent Hill 2* ambient tracks may be attributed to the stylistic diversity represented, in addition to the ‘inharmonicities’ featured within many tracks. Through Lavengood’s and Blake’s methodology, this study may provide a foreground for larger studies looking to analyse spectrograms and timbre on a more comprehensive perspective as I have outlined what needs to be altered or omitted from these studies when observing dynamic spectrograms.

## Conclusion

This study was undertaken to understand the ambient music from *Silent Hill 2*'s soundtrack from a compositional and timbral perspective. The reasoning for analysing this game's soundtrack from a timbral perspective as opposed to a harmonic, melodic or structural one was due to Akira Yamaoka's opinion on music being that he "doesn't believe that the melody is the most important thing in a piece of music" (Fungo, 2011), in addition to ambient music often omitting traditional functional musical syntax. Through this, I have developed a hybrid method for timbral analysis that can be of use to musicologists analysing ambient music or soundtrack composition.

It appears that each of the three sub-categories (Abstract, Semi-Acoustic and Industrial) that came into fruition by chance during the planning stages of this study and remained after the completion of the analyses, do in fact share many spectral and timbral characteristics and often appear to be in stylistic contrast to each other. As this study was undertaken from a compositional standpoint, the popularity of the *Silent Hill 2* ambient tracks may be attributed to the stylistic diversity represented in addition to the 'inharmonic' featured within many tracks which results in an unfamiliar yet comforting listener experience.

One of the largest limitations of this study was not so much the lack of literature on the analysis of spectrograms and timbre, but the breadth of competing ideas on its appropriate analysis, especially regarding completed works and not isolated or singular material. It was observed that many academics avoid the concept of 'timbre' due to it being culturally significant as well as scientific, with terminology surrounding the topic of timbre lacking solidity and often requiring broad contextual understanding. While such literature exists, I propose that more condensed and systematic research into timbre is conducted.

This study has explored history of timbral analysis, the *Silent Hill 2* soundtrack, and its sustaining cultural significance which may be useful to those interested in composing non-



traditional music for visual media aiming to immerse an audience, in addition to a concise and sophisticated definition of what constitutes ‘ambient music.’

The application of Lavengood’s methodology to stylistically diverse and completed pieces of music may provide a foreground for larger studies looking to analyse spectrograms and timbre on a more comprehensive perspective as I have outlined what needs to be altered or omitted from her study when observing dynamic spectrograms. The results of the study appear to conclude that much of the mystique surrounding the *Silent Hill 2* ambient music may be due to its use of timbral unreliability which are most consistently implemented through Lavengood’s components of ‘beating’ sustains and ‘inharmonicities,’ in addition to the soundtrack possessing sub-categories of tracks that contrast each other quite dramatically as opposed to being parts of one homogenous work.

As the *Silent Hill 2* soundtrack will undoubtedly continue to gain popularity in the future, this study has somewhat demystified the appeal of the ambient music from *Silent Hill 2* and outlines possible methods composers can implement when attempting to evoke a particular mood without relying on traditional musical syntax.

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