Composing Millennial Nostalgia: Microtonal Techniques as Tools to Express a Twenty-first Century Malady in Tonal Music

Robin Mark Haigh (MMus, BMus)

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Abstract

This portfolio consists of seven musical works ranging in scope from solo to orchestral, with a commentary examining how the pieces express the concept of millennial nostalgia. The commentary details specific microtonal techniques used in a tonal context—microtonal voice-leading, aleatoric microtonality, microtonal bending, and harmonic-series microtonality. As a whole, the portfolio demonstrates that millennial nostalgia is a significant and complex phenomenon, and that this can be sensitively reflected in musical composition.

List of Contents

List of Figures

List of Accompanying Files

Haigh_204057345_Kalimotxo.mp3
Haigh_204057345_Kalimotxo.pdf
Haigh_204057345_Aesop.mp3
Haigh_204057345_Aesop.pdf
Haigh_204057345_Grin.mp3
Haigh_204057345_Grin.pdf
Haigh_204057345_Nasubi.mp3
Haigh_204057345_Nasubi.pdf
Haigh_204057345_NoOne.mp3
Haigh_204057345_NoOne.pdf
Haigh_204057345_THREELITTLEMAMMOTHS.mp3
Haigh_204057345_THREELITTLEMAMMOTHS.pdf
Haigh_204057345_SLEEPTALKER.mp3
Haigh_204057345_SLEEPTALKER.pdf

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Declaration

I declare that this thesis is a presentation of original work and I am the sole author. This work has not previously been presented for an award at this, or any other, University. All sources are acknowledged in the references.

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CHAPTER ONE—Introduction

Art reflects its time; all works in all artforms are somehow influenced by the personal situations of those that make them. Artists' personal situations are influenced by the times they live in—the technology they have access to, their exposure to other art of other times, the artistic values held in high esteem, and countless other factors.

What is millennial nostalgia? And might a musical language forged from aspects of common practice tonal harmony combined with microtonality successfully evoke it? My portfolio of works and commentary explores these questions both musically and intellectually. In this introductory chapter, to create a framework for the music in the portfolio, I will discuss the following topics:

1. The evolution and meanings of the term *nostalgia*
2. Nostalgia after the millennium
3. My objectives and motivations
4. Microtonal notation
5. Context and comparisons

Once this framework is set, the commentary will continue with specific reference to the seven pieces of music, with special attention being paid to the microtonal techniques used and combined with a tonal compositional language.

1.1 The Evolution and Meaning of Nostalgia

The Oxford English Dictionary defines nostalgia as an “acute longing for familiar surroundings” and as a “sentimental longing for or regretful memory of a period of the past, esp. one in an individual's own lifetime:” that Is, A “sentimental imagining or evocation of a period of the past” but also, in rarer cases, “a medical condition; homesickness.”[1] I could say that I felt some nostalgia in beginning an academic piece of writing with a dictionary definition, something often regarded as childish, cliched, or in poor taste.[2] My decision to begin this way is nostalgic because it evokes a

[1] "nostalgia, n.", OED Online, Oxford University Press, https://www.oed.com/view/Entry/128472?redirectedFrom=nostalgia.

[2] Chris Drew, "Should You Use Dictionary Definitions in Essays? (Answered)," Helpful Professor, last modified July 6, 2022, https://helpfulprofessor.com/dictionary-definitions/; Susan M. Inez, "How to Start an Essay with a Bang," Kibin Blog, last modified March 16, 2016, https://www.kibin.com/essay-writing-blog/how-to-start-an-essay/; Brian Wasko, "Please Quit Starting Papers with Dictionary Definitions!" The WriteAtHome Blog, last modified June 22, 2012, https://blog.writeathome.com/index.php/2012/06/please-quit-starting-papers-with-dictionary-definitions/.

sentimental memory for a period of the past in my own lifetime, a time when I was first learning to write essays, unburdened by the concerns of tasteful academic style.

Clearly there is much to unpack in a word that evokes sentimentality, memories, the past, and sickness: this is a term that has meant many things across its history and continues to mean many things today. One of the most comprehensive contemporary musings on the topic, Svetlana Boym's 2001 book *The Future of Nostalgia,* offers helpful insights. In the book, Boym charts the progression of nostalgia's seventeenth century origins to its then-present-day status as an ominous cultural force. It began, coined by Johannes Hofer, as a term to describe a certain malady (said to cause nausea, fever, and brain inflammation among other things) experienced by Swiss soldiers travelling abroad in 1688.[3] The word, which Hofer invented from a combination of the Greek nóstos (homecoming) and álgos (pain), was coined to describe an intense homesickness, believed to be powerful enough to reduce sturdy soldiers to invalids.

Later came the nostalgia associated with romantic art; Boym goes as far as to suggest "I long therefore I am" as the romantic motto.[4] As she puts it, "nostalgia became erotic," with the longing felt by male romantic heroes for their homeland intertwined with their longing for the "young and beautiful girl buried somewhere in the native soil," the "personification of nature."[5] Nostalgia was no longer something to diagnose and eradicate, but a more universal emotion, something becoming understood as a "driving force of the human condition."[6]

The faster-changing world of the twentieth century brought new nostalgias for homelands changed by war, political unrest, and urban development. Boym exemplifies this with a true account: a Königsberg man returns to the city of his childhood, nostalgically washes his face in the river, and finds his skin burned by the toxic waste and pollution.[7] In this kind of nostalgia, homelands are not simply changed by the nostalgic's adult perception of them: they are truly changed, creating a potent dissonance between the new reality and one's old memories.

With some of this in mind, Boym points us towards a clearer understanding of the many-faceted definition laid out in the Oxford English Dictionary. The "sickness" is an archaic holdover from the centuries-old origin of the word; though perhaps, as in the case of the man washing his face in toxic water, nostalgia is still something of a sickness, something that can compel rational people to behave dangerously. Memories and the past were also present in the initial understanding of

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[3] Svetlana Boym, *The Future of Nostalgia* (New York: Basic Books, 2002), 3-4.
[4] Ibid., 13.
[5] Ibid.
[6] Ibid.
[7] Boym, Introduction to *The Future of Nostalgia*, i.

nostalgia: in order to be dangerously homesick, one requires memories of one's home, and those memories inevitably will have been created in the past. However, as time went on, the romantic concept of an idealised past became a key element of nostalgia. Today, an element of our understanding of nostalgia is that, in the present, these idealised memories are disconnected from reality, like the toxic Königsberg river. This is also linked to the sentimentality that the OED suggests is a component of nostalgia. Sentimentality itself is a word with two sides: "sentimental" once referred to a "refined and elevated feeling" but later came to mean "addicted to indulgence in superficial emotion."[8] This duality seems apt for a condition/mood/affliction that can strike down soldiers, stir the hearts of romantic heroes, and drive people to wash their faces in polluted water.

1.2 Nostalgia After the Millennium

Boym's *The Future of Nostalgia*, released in March of 2001, barely predates what is arguably the defining event of the twenty-first century, the 2001 September 11th attacks on the World Trade Center (commonly abbreviated "9/11"). Given the degree of political and social change that results from an unprecedented event of this sort, Boym's insights must be filtered through more recent sources. 9/11 radically affected our understanding of nostalgia, as Grafton Tanner explains:

> In the West, the time for which we pine is one before the twenty-first century, which arrived violently on September 11, 2001, and before the rise of the Internet. Capitalism knows this and exploits our collective nostalgia for economic gain, commodifying the very ghosts we clutch earnestly. All of this we do because the world we have found ourselves in runs on the motor of chaotic, neurotic capital that wipes away any meaning other than profit.[9]

Here Tanner links post-millennial nostalgia with commodification: in the wake of extreme global change, nostalgia's appeal broadens and intensifies, so that it becomes a more prominent cultural force than ever and therefore inevitably harnessed for profit.

The implication here is radical changes wrought by the shock of 9/11 were heightened by the ubiquity of the internet; together, they left most people worse off than they were before, in a world both unstable and overstimulating. Being able to access so much information at a moment's notice led not to a world of cultural enlightenment and unity but to a society addicted to the internet,

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[8] "sentimental, adj.", OED Online, Oxford University Press. https://www.oed.com/view/Entry/176057?redirectedFrom=sentimental.

[9] Grafton Tanner, *Babbling Corpse: Vaporwave And The Commodification Of Ghosts* (London: Zero Books, 2016), 13.

permanently wired into what Mark Fisher calls “the entertainment-control circuits of hypermediated consumer culture.”[10] The capitalist internet is not the helpful friend it first appears to be; rather, it is a hungry beast demanding more and more of our time and mental capacity in exchange for less and less meaningful information. It is no wonder, then, that we live in “a culture that is excessively nostalgic, given over to retrospection.”[11] For many, life in the twenty-first century is exhausting and depressing. Tanner paraphrases his friends, who have simply given up: “Why try to fight or hope for a better future when this one arrived as an utter failure?” Nostalgia provides a soothing balm for this pessimism, an escape into a comfortable world of the past, of childhood, whether real or imagined.

It is important to clarify what I mean by the phrase *millennial nostalgia*, which I will go on to use to describe certain aesthetic inclinations. *Millennial* is a term often used to describe a certain demographic cohort of people (those born between 1981 and 1996);[12] but for my purposes the phrase *millennial nostalgia* refers to nostalgia felt for a time before the millennium by those, of any age, living after it. This framing allows me to use the term with greater critical distance, especially given my own identity as a millennial. Additionally, this helps to avoid the influence of the broad stereotypes that are sometimes used to characterise millennials and other demographic cohorts, with the focus instead being placed upon the time period itself and how this has affected nostalgia and music.

Understanding the ways in which millennial nostalgia informs my work will require an understanding of the role it has played in art and culture in the last two decades. Consider, for example, the highest grossing films of the 80s and 90s:

Star Wars: Episode I: The Phantom Menace (1999)
Independence Day (1996)
E.T. the Extra-Terrestrial (1982)
The Sixth Sense (1999)
The Lost World: Jurassic Park (1997)
Men in Black (1997)
Armageddon (1998)[13]

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[10] Mark Fisher, *Capitalist Realism: Is There No Alternative?* (Winchester: Zero Books 2009), 25.
[11] Ibid., 59
[12] Michael Dimock, “Defining generations: Where Millennials end and Generation Z Begins”, Pew Research Center, last modified January 17, 2019, https://www.pewresearch.org/fact-tank/2019/01/17/where-millennials-end-and-generation-z-begins/.
[13] “Top Lifetime Grosses Worldwide”, Box Office Mojo, https://www.boxofficemojo.com/chart/top_lifetime_gross/?area=XWW.

Of these seven films, five were “new”, in that they were either standalone films or the first in a series. Only two break this trend: *The Lost World*, which is the sequel to *Jurassic Park*, and 1999’s *The Phantom Menace*, a continuation of the Star Wars saga.

The highest grossing films released after 2000, (as of the thirteenth of August 2022), paint a very different picture:

> *Avatar* (2009)
> *Avengers: Endgame* (2019)
> *Star Wars: Episode VII: The Force Awakens* (2015)
> *Avengers: Infinity War* (2018)
> *Spider-Man: No Way Home* (2021)
> *Jurassic World* (2015)
> *The Lion King* (2019)[14]

By contrast only one of these films is entirely new: *Avatar*. Every other film is a part of a wider franchise. Indeed, *The Force Awakens*, *Jurassic World*, and *The Lion King* have all been criticised for their unabashed reliance on nostalgia for successful pre-millennial films that have been rebooted, reimagined, or given sequels.[15] The remaining three films belong to the Marvel Cinematic Universe, an interconnected series of superhero films that have seen equally harsh criticism, as Alan Moore exemplifies:

> I don’t think the superhero stands for anything good. I think it’s a rather alarming sign if we’ve got audiences of adults going to see the Avengers movie and delighting in concepts and characters meant to entertain the 12-year-old boys of the 1950s.[16]

All of this paints a picture of the years following 2000 as hyper-nostalgic, preoccupied with what Tanner calls “Regressive Culture in the Twenty-First Century.”[17] Widespread nostalgia is amplified and monetised by media corporations, with familiar and comforting characters and stories served up to audiences living in a time of confusion and pessimism. However, nostalgia-based culture is

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[14] Box Office Mojo, “Top Lifetime Grosses Worldwide.”
[15] Alex Low, “On the Big Screen: Is Nostalgia Ruining Popular Culture?,” Augustman, last modified August 1, 2019, https://www.augustman.com/my/culture/film-tv/on-the-big-screen-is-nostalgia-ruining-pop-culture/; Bettina Makalintal, “People Don't Actually Like Remakes, but Studios Keep Making Them,” Vice, last modified July 11, 2019, https://www.vice.com/en/article/9kx4yz/people-dont-actually-like-remakes-but-studios-keep-making-them.
[16] Stuart Kelly, “Alan Moore: 'Why shouldn't you have a bit of fun while dealing with the deepest issues of the mind?',” *The Guardian*, November 22, 2013, https://www.theguardian.com/books/2013/nov/22/alan-moore-comic-books-interview.
[17] Tanner, *Babbling Corpse*, 79.

not necessarily exclusively “regressive”: living in a hyper-nostalgic time has led less-mainstream artists in directions that oppose or comment upon this millennial confluence of nostalgia and capitalism.

A celebrated example of this is Vaporwave: an internet-native genre of electronic music that began in 2011 and was already declared dead in 2012.[18] Adam Trainer writes:

> While hypnagogic pop and chillwave fetishize past eras; vaporwave offers nostalgia for a dream that will always remain out of reach—the mythology of perfection and satisfaction through the pursuit of capitalist aesthetics.[19]

Similarly, Tanner describes “strange and exciting sounds that grapple with nostalgia, consumerism, and the uncanny in a digital age.”[20] He writes of a “Vaporwave sensibility”, a “desire to turn our fascinations and fantasies into more disquieting forms,” artists who “seek to critique modern culture and its sickness.”[21] This is music completely separate from commerce, with pseudonymous artists releasing their work online for free, yet it deals with capitalism, specifically that of the pre-millennial era, as a primary aesthetic concern. Simon Reynolds writes of Vaporwave artist Daniel Lopatin’s “buried utopianism within capitalist commodities, especially those related to consumer technology in the computing and audio/video entertainment era.”[22] In commenting critically on nostalgia and capitalism, this music is far removed from the mass media that use nostalgia for their own commercial purposes.

Vaporwave is a genre built from repetitive sampling of pre-existing popular music. As Tanner puts it, this repetition “draws attention to the uncanniness of audio looping.”[23] Pointing to specific examples, he posits that “The repetition in songs by MACINTOSH PLUS, INTERNET CLUB, and Local News are meant to be exhaustive and to walk that fine line between funny and uncanny, and listening to an entire track can waver between transcendental elation and disengaged ennui.”[24]

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[18] Adam Harper, "Personal Take: Vaporwave Is Dead, Long Live Vaporwave!" in *The Cambridge Companion to Music in Digital Culture*, ed. Nicholas Cook, Monique M. Ingalls, David Trippett (Cambdridge: Cambridge University Press, 2017), 121.
[19] Adam Trainer, "From Hypnagogia to Distroid: Postironic Musical Renderings of Personal Memory," in *The Oxford Handbook of Music and Virtuality*, ed. Sheila Whiteley, Shara Rambarran (Oxford: Oxford University Press, 2016), 421.
[20] Tanner, *Babbling Corpse*, 12.
[21] Ibid.
[22] Simon Reynolds, *Retromania: Pop Culture's Addiction to Its Own Past* (London: Faber and Faber, 2012), 81.
[23] Tanner, *Babbling Corpse*, 23.
[24] Ibid., 23-24

This is music reflecting upon music, with sampled material processed “in a manner similar to hypnagogic pop’s reimagining of the chopped and screwed aesthetic.”[25]

Vaporwave is therefore a clear example of art that deals critically with millennial nostalgia, and it positions itself as separate from the clean popular music of the twenty-first century; it is a music that nostalgically remembers pre-millennial times through the warped and uncanny processing of familiar sounds of the past. This is music that self-consciously dramatises the distance from its source materials by viewing it through a distorted lens. It is performatively nostalgic; it uses older materials not simply for their musical qualities but in order to deliberately render them uncanny.

In doing this, it deals directly with the perceptual chasm between the twentieth and twenty-first centuries, a chasm whose depth is magnified by the coinciding of 9/11 with the rise of the internet. Vaporwave presents a particularly illuminating picture of the state of post-millennium nostalgia and, when compared to the bland exploitation of Hollywood cinema, shows a nuanced and aesthetically compelling set of artistic concerns ripe for examination in other contexts.

Millennial nostalgia constitutes a new kind of nostalgia, distinct from the categories enumerated by Boym. It is both a significant phenomenon, widespread enough to drive trends in global popular cinema (among many other areas), and also a specific set of aesthetic concerns that might be typified by Vaporwave but can be extended to include other closely related internet-native art genres. These include Simpsonwave (videos which use footage of The Simpsons, warped with filters and VHS distortion “to represent the adult longing for a childhood they thought they had”)[26] and Liminal Spaces (images of dated middle-class architecture that “depict spaces that are devoid of humans and thus unsettling.”)[27] All of these typify an aesthetic of millennial nostalgia, one that is essentially concerned with injecting otherwise familiar or unassuming things with uncanny or strange properties.

1.3 My objectives and motivations

My research practice explores the effectiveness of millennial nostalgia as a poetic idea in acoustic contemporary classical music. Vaporwave, a music genre produced entirely electronically and divorced from live performance, is able to deal with the poetic concept of millennial nostalgia

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[25] Trainer, “From Hypnagogia to Distroid,” 420.
[26] FrankJavCee, "HOW TO SIMPSONWAVE," YouTube, April 11, 2016, https://www.youtube.com/watch?v=BfVWjxQCfEA, timecode: 1.06-1.14.
[27] J. J. McCullough, "Middle Class Millennial Nostalgia Art," YouTube, May 29, 2021, https://www.youtube.com/watch?v=LcCTnCP91bo, timecode: 5.40-6.30.

effectively and thoroughly. Attempting to write similar music for acoustic instruments, in traditional spaces and in classical institutions, requires different strategies and, as such, represents a fruitful avenue of artistic exploration.

One might well ask why I am attempting this undertaking in the first place; is this sort of artistic expression not simply better suited to electronic music, given the importance of the internet and other modern technologies to our understanding of millennial nostalgia? After all, millennial nostalgia is intertwined with late twentieth- and early twenty-first-century technologies, whereas Western classical music is primarily associated with notated music of the seventeenth to the twentieth centuries. Moreover, classical music often deliberately distances itself from popular media and technology—consider, for example, the uproar that can result from the use of amplification in opera performances.[28] Classical music is also socially distanced, with a reputation as an elite art form made by and for a small group of people; as Anna Bull writes, "classical music reinforces patterns of inequality [...] through being valued, in various ways, over other genres."[29] Millennial nostalgia, on the other hand, is communal and inclusive; Vaporwave is significant partly because anyone can make it and listen to it, in a free and anonymous virtual space. As Tanner says, "anyone with a computer [can] produce amateur or perhaps professional-grade sampled music."[30]

Despite all this, the application of millennial nostalgia to present-day classical ensembles and venues has promise—for me, especially, because of my training and career in acoustic composition and my identity as a twenty-first-century artist. Both my previous education and my opportunities for creating artistic work are situated within the frame of contemporary classical music. This is the type of music I am in the best position to create and to have heard by audiences. At the same time, as a person born in 1993 with hazy, nostalgic memories of a pre-millennial world, I consider millennial nostalgia to be an important part of how I understand myself and the world around me.

I see this work as an opportunity for a rich collision of concepts and ideas. Perhaps, for example, the act of live performance can bring a human element to millennial nostalgia that is not attainable in purely computer-generated music. Moreover, by bringing aesthetic ideas of the twenty-first century into contact with the institutional forces of classical music, perhaps there is the possibility of injecting a greater cultural relevance into those institutions. My practice-based research, then,

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[28] Anthony Tommasini, "Wearing a Wire at the Opera, Secretly, of Course," *The New York Times*, June 28, 2013, https://www.nytimes.com/2013/06/30/arts/music/wearing-a-wire-at-the-opera-secretly-of-course.html.
[29] Anna Bull, Introduction to *Class, Control, And Classical Music* (Kettering: Oxford University Press, 2019), xviii.
[30] Tanner, *Babbling Corpse*, 22.

seeks to discover what artistic insights result from examining millennial nostalgia through the less expected medium of acoustic instrumental composition.

How then to incorporate the ideas of millennial nostalgia into works of contemporary classical music? An analysis of the stylistic traits of Vaporwave provides some pointers. One could, of course, simply create acoustic transcriptions of Vaporwave pastiches. Perhaps this would yield interesting results, but it does not strike me as an artistically rich activity and, given the importance of the physicality of recordings to Vaporwave, quite possibly an approach like this would wholly miss the point.

Instead, I propose that a deeper aesthetic connection be found by creating an analogue between the highly differing contexts within which Vaporwave and contemporary classical music exist. As a start, we need a list of the purely musical attributes of Vaporwave that distinguish it as a genre. I would posit these to be the following:

1. The music is built from pre-existing recordings;
2. The recordings come from pre-millennium popular music and should be stylistically familiar;
3. The recordings should be treated in a way that gives an impression of strangeness, or uncanniness, while not rendering them unidentifiable.

The evocations of past and present, memory and reality, pre- and post-millennium emerge from these, borne out in the relationship between pre-millennium recording and post-millennium, digitally processed treatment.

Given this, what changes need to be made to allow these properties to be transferred to the realm of acoustic instrumental notated music? Firstly, a replacement needs to be found for “recordings,” which cannot be applied to acoustic compositions in the same way they can be applied to electronic ones. Secondly, the stylistic genre “pre-millennium popular music” will need to be re-examined. Popular music and Vaporwave share a close connection. Vaporwave may not itself *be* popular, given its mainstream obscurity, but it nonetheless is received through the same medium (recordings) as popular music, as well as literally using popular music as its material. Popular music and classical music, on the other hand, imply wholly different domains of music making, experienced by different listeners in different ways and in different contexts.

Vaporwave samples music which is identifiably of the past. The genre’s association with nostalgia, particularly millennial nostalgia, can be said to arise from a distinction between what this music “is” (broken, uncanny) and what the sampled pop “was” (sturdy, unassuming). This parallels the

distinction between present-day life and the nostalgic memories of pre-millennial life upon which millennial nostalgia relies. We need, then, to find a style or feature of classical music that both clearly evokes the past and is similarly sturdy and unassuming.

I would propose that tonality represents the strongest candidate for the classical equivalent for the pop recordings from which Vaporwave is built. Sufficiently ornate cadential gestures will, to many ears, suggest a musical past, built from the knowledge that these gestures are associated with the work of composers from centuries ago. To be sure, we cannot expect all people to be privy to the same musical associations; but we can assume that a certain cadential gesture will evoke a musical "past" for certain listeners in the same way that other listeners will associate the "past" with a grainy 80s pop recording. Furthermore, we can have some confidence that tonality will serve as sturdy and unassuming; it has functioned, after all, as the foundation of several centuries of music making (including much popular music), and it is not unfamiliar to most Western listeners. Thus, by rendering seventeen-to-twentieth-century tonal harmony strange, a nostalgic effect can be created, one that rests on a distinction between past and present and one that is similar to the millennial nostalgic associations created by Vaporwave.

With this in mind, let us construct a set of musical attributes that might lead to a type of contemporary classical music that has a "Vaporwave sensibility:"

1. The music is built from tonality;
2. The tonality comes from seventeenth-to-twentieth-century classical music and should be stylistically familiar;
3. The tonality should be treated in a way that gives an impression of strangeness, or uncanniness, while not rendering it unidentifiable.

This brings us a lot closer to understanding how a millennial nostalgic contemporary classical music might be created, but it still leaves a lot unanswered. Crucially, we don't yet know *how* the source material might be rendered strange or uncanny. This is of considerable importance; rendering the familiar strange is a key component in Vaporwave's ability to evoke the experience of millennial nostalgia. Vaporwave achieves this effect by drawing special attention to the artifice of recording;[31] In classical music, it seems apt to draw attention to what could be considered an artifice of tonality: the artifice of twelve-tone equal temperament. This tuning system is inseparable from a modern understanding of tonality, informed by a piano-centred pedagogy,[32] although in

[31] Tanner, *Babbling Corpse*, 27.
[32] Kyle Gann, Introduction to *The Arithmetic of Listening: Tuning Theory and History for the Impractical Musician* (Champaign: University of Illinois Press, 2019), i.

practice it is often abandoned by performers in favour of a more flexible approach to intonation.[33] To draw attention to this artifice, as Vaporwave does with recording, I propose that utilising microtonality presents an exceptionally rich set of possibilities.

By incorporating microtones into a tonal musical language, I propose to create strange transformations of familiar sounds that are similar to those that typify Vaporwave. By writing compositions which use this approach, I hope, as Vaporwave does, to signify a gulf between the idealised pre-millennium past and the pessimistic post-millennium present, with the familiar sounds of tonality evoking wholesome memories of a more optimistic time. By utilising microtonal techniques, these tonal sounds, associated with the past, can be rendered strange, creating an acoustic instrumental music of millennial nostalgia.

1.4 Microtonal notation

Achieving this requires the development of a set of techniques that are both compatible with a tonal musical language and appropriate for classical performers and instruments. Microtonality offers practicality limitless possibilities of different tuning systems; the term, after all, encompasses everything that does not adhere to 12-tone equal temperament (12-TET). Therefore, in deciding which techniques to use, special efforts must be made to prioritise both the comprehensibility of reading for musicians and the comprehensibility of hearing for listeners. Thus, my compositional apparatus will not include techniques that require entirely new notation systems featuring multiple special accidentals unfamiliar to the majority of classical performers. For my purposes, providing performers with this degree of new information would impede the successful realisation of the pieces I write. Similarly, techniques which do not produce a clear sensation of musical difference from 12-TET will be considered too subtle to be of use within the remit of my research.

My choice of microtonal techniques thus entails, in part, choosing a system of notation that is easily grasped by performers of music that might be somewhat unfamiliar in its sound. Quarter tones are “what used to be [...] the best-known type of microtonality of all.”[34] This remains the case in my experience; quarter-tones are easily comprehended by performers because they are clearly related to 12-TET, although exact intonation in performing quarter tones can remain elusive for orchestral musicians, who may lack the training needed to clearly audiate the tuning precisely. Allowing for this, however, quarter tones provide one of the most effective ways to convey

[33] Ben Johnston, “On Music Theory” in *"Maximum Clarity" and Other Writings on Music,* ed. Bob Gilmore (Champaign: University of Illinois Press, 2010), 34.
[34] Gann, *The Arithmetic of Listening,* 205.

microtonal pitch information to classical performers with the least amount of additional explanation. Stein-Zimmerman quarter-tone accidentals are well established and commonly used, though it has become my practice to include reminders of their meaning in orchestral contexts.

Given the relative ubiquity of quarter tones, I have chosen to write all smaller scale degrees by notating them in relation to quarter tones. As such, much of my work includes a deliberately malleable accidental: a small upwards or downwards pointing arrow that can precede any 12-TET or 24-TET accidental. This is described to the performer as signifying any interval smaller than a quarter tone, which has several benefits. Firstly, the appearance of this notation is intuitive, providing a comprehensible and manageable route past 24-TET. Secondly, it allows just one symbol to indicate a variety of microtonal possibilities. Figure 1 shows how a single accidental can represent both an eighth tone and a seventh harmonic, two pitches that, strictly speaking, are six cents apart. It is clear to a skilled musician that the same notation represents slightly different things in different contexts; but, since the notation is flexible by definition, neither interpretation is incorrect or a compromise.

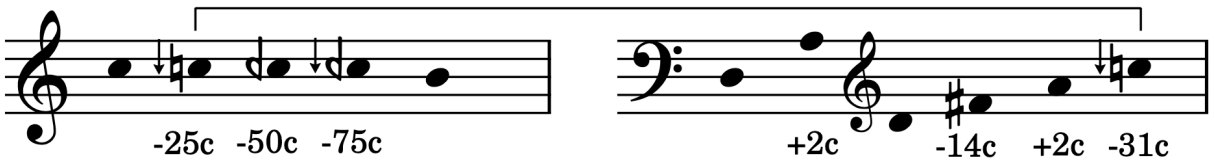

Figure 1: a demonstration of a pitch with the same notation sharing two logical intonations, in this case both -25c and -31c.

Quarter-tones and “sub-quarter-tones” are most effective when a specific microtone is desired for musical reasons. They are therefore the most useful form of notation when using techniques in which a clear audible microtonal logic is desired—for example, sequential microtonal voice-leading or techniques relating to the harmonic series.

In other cases, all that is necessary is to notate music in a way that ensures that microtonality of some kind will be achieved, with specific microtonal pitches being less important. A good example of this is what Georg Friedrich Haas has termed “aleatoric microtonality”; Robert Hasegawa explains that this includes “techniques like multiphonics, the prepared piano, or indeterminate notation that does not precisely specify pitch.”[35] Techniques of this sort allow another direct route

[35] Robert Hasegawa, "Clashing Harmonic Systems in Haas's Blumenstück and in vain," *Music Theory Spectrum* 37, no. 2 (2015): 205.

to communicate microtonal ideas to performers without the need for new, dedicated notations. By using tablature-like instructions, aleatoric microtonality can facilitate the realisation of what would otherwise require highly complex and detailed symbols.

A third possibility arises from microtones that occur as a result of glissandi. In the context of 12-TET, a glissando from C to B represents a simple expressive articulation between two of music's twelve pitch classes. Seen microtonally, the same gesture could be imagined as an infinite number of microtonal pitches that are heard in succession—indeed, many more microtonal pitches than 12-TET ones. Like aleatoric microtonality, this sort of notation is useful for its efficiency, giving rise to potent microtonal possibilities while disavowing the need for precise results.

Given the indefinitely large compositional implications of microtonality, to me this small selection of notations is sufficient to explore my own ideas in depth. Through the course of my compositional work, I have used these notational resources to develop a set of four microtonal techniques, each of similar importance and prominence: microtonal voice-leading, aleatoric microtonality, microtonal bending, and harmonic-series Microtonality. These were chosen primarily for their effectiveness in a tonal context and efficiency of notation, and their specific uses and associations will be discussed in chapter two.

1.5 Contexts and comparisons

My work does not exist in a vacuum, and to understand the context for my pieces and approaches requires a brief survey of composers writing music in a similar idiom and with similar aims whose practices I have drawn on. These are all composers working in contemporary classical music during the last decade; their music intersects with my own exploration of millennial nostalgia, tonality, and microtones. Comparing their approaches to my own will help to make clear the individual position of my practice-based research.

William Marsey's 2019 piece for string quartet and recorded sound, *Be nice to see you*, is described by the composer as "a portrait of nostalgia and family, playing out through the voices of my parents."[36] The work combines the sounds of Marsey's mother and father in candid phone conversations with the sound of an incessantly ringing phone and tonal music for string quartet. *Sexton Blakes*, a 2017 piece by Oliver Leith, is similarly unambiguous in its reference to nostalgia, with performance instructions that include "full of glimmering hopeless nostalgia"[37] and "more

[36] William Marsey, "Be nice to see you," https://www.wmarsey.com/music/be-nice-see-you.
[37] Oliver Leith, *Sexton Blakes* (London: Faber Music, 2017), 3.

nostalgia, think terrible tinny gramophone."[38] The work (an octet with video and tape track) is, like Marsey's quartet, tonal, but it also features an abundance of microtones that colour and distort the familiar timbres of the instruments. Both of these works show a clear connection to elements of millennial nostalgia that relate to technology—Marsey's through its incessant phone ringing and Leith's through his distorted, warped video. Where my own approach diverges from these is in my desire to write without pre-recorded electronic elements, be they video or audio; my aim is to explore, without electronic means, the possibilities of music written to evoke millennial nostalgia through the uncanny warping of familiar materials.

Cassandra Miller is another composer of relevance. In reviewing *Bel Canto*, Miller's 2010 piece for ensemble and voice, Heather Frasch writes:

> The compositional writing combines diverse speeds and layers of vibrato, portamenti and glissandi motion among the voice and ensemble, resulting in a sound akin to a slowed down record player. This technique evokes a nostalgic feel of the past, while also giving us something refreshingly new—a new singing style. My own personal first impression was that if sound itself could melt, it would sound like these wobbly techniques. The seemingly static looping motion puts the listener in a trance one only begrudgingly leaves.[39]

This description, with its references to nostalgia, the past, and "wobbly techniques," suggests an affinity with my own aims: this is music making strange the familiar, creating what James Weeks calls an "uncanny effect."[40] Miller's work creates a clear precedent for my own, with one notable difference: while it is certainly triadic, the "static looping motion" Frasch describes reveals that Miller's music is engaged with different formal principles to my own. *Bel Canto*'s aim is to bring listeners into a trance; in that, it differs significantly from my own work, in which the music exhibits a more discursive character.

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[38] Ibid., 7.
[39] Heather Frasch, "Cassandra Miller: Songs About Singing. Fraser, Plus-Minus Ensemble. All That Dust, atd7," *Tempo* 74, no. 293 (2020): 100.
[40] James Weeks, "Along the Grain: The Music of Cassandra Miller," *Tempo* 68, no. 269 (2014): 51.

CHAPTER TWO—Commentary

2.1 List of Works

This portfolio contains seven pieces written between 2018 and 2021, totalling around 78 minutes. They are:

Kalimotxo

Completed—03.11.18
Commissioned by The Hermes Experiment
Premiere—The Hermes Experiment, 07.03.19, Royal Concert Hall (Nottingham)
Instrumentation—clarinet in Bb, harp (doubling on soprano recorder), double bass
Duration—6 minutes

A short, virtuosic trio piece making use of Catalan Sardana music for its material and inspiration.

Aesop

Completed—10.01.19
Commissioned by the London Symphony Orchestra
Premiere—LSO, Tabea Debus, Darren Bloom, 09.02.19, LSO St Lukes
Instrumentation—eight orchestral players (doubling recorders) and solo soprano recorder
Duration—9 minutes

A concertino for recorder soloist and ensemble using the familiar sound of school recorder lessons as its starting point, gradually adding more instrumental sounds, and featuring a prominent cadenza in which the soloist simultaneously plays two recorders at once and sings.

Grin

Completed—04.09.19
Commissioned by the Britten Sinfonia
Winner of the 2020 Ivor Novello Award for chamber orchestra work
Premiere—Britten Sinfonia, Thomas Gould, 12.11.19, St Andrew's Hall (Norwich)
Instrumentation—two oboes, two horns, string orchestra
Duration—10 minutes

A chamber orchestra piece in three sections that starts very slow and ends very fast, including a great deal of microtonal bending.

Nasubi

Completed—23.04.20
Written for Red Note Ensemble's Noisy Nights Online series
Winner of the 2022 William Mathias Composition Prize
Premiere—Darragh Morgan, 17.07.21, LSO St Lukes (concert premiere)
Instrumentation—violin (with versions for viola and cello)
Duration—5 minutes

A quasi-etude for solo string instrument, with a microtonal twist on a familiar arpeggiated figuration.

No One

Completed—26.05.20

Premiere—Oliver Wass, 28.08.20, Presteigne Festival Broadcast
Commissioned by Presteigne Festival and the Royal Philharmonic Society
Nominated for a 2021 Ivor Novello Award for solo work, finalist for the 2020 Tippett Medal
Instrumentation—solo harp (with slide)
Duration—10 minutes

A solo harp piece using a slide on one string throughout in constant conjunction with the un-slid strings.

THREE LITTLE MAMMOTHS[41]

Completed—10.02.21
Awaiting Premiere—commissioned and recorded by the Marsyas Trio and Janey Godley
Instrumentation—flute, cello, piano, narrator
Duration—30 minutes

A dramatic piece with a text by children's author Eoin McLaughlin. This modern/prehistoric adaptation of The Three Little Pigs is lighthearted in tone and features a great deal of microtonality.

SLEEPTALKER

Completed—29.04.21
Written for the London Philharmonic Orchestra's Young Composers scheme
Premiere—London Philharmonic Orchestra, Jack Sheen, 30.06.21, Royal Festival Hall
Instrumentation—orchestra (2.2.2.2—2.2.2.1—2perc—harp—pno/cel—strings)
Duration—8 minutes

An orchestral piece evoking orchestral light music, national anthems, and modern film trailer music, and dealing with concepts of dreams and the future.

Each of the pieces listed above partakes in one way or another with one or more of the techniques that have been outlined. In the discussion that follows, the musical contexts of each of these techniques will be probed in turn, highlighting their individual qualities and expressive possibilities. Through doing so, I will show how the aesthetic concepts found in chapter one can be used to inform practical compositional choices.

[41] In 2021, I made the aesthetic decision to write all of my titles in capital letters—a decision which does not apply retroactively to pieces written before.

2.2 Microtonal Voice-leading

When microtones are used within a broadly 12-TET context, one way to feature them is to use them melodically in ascending or descending order, as in a “chromatic” quarter-tone scale (figure 2).

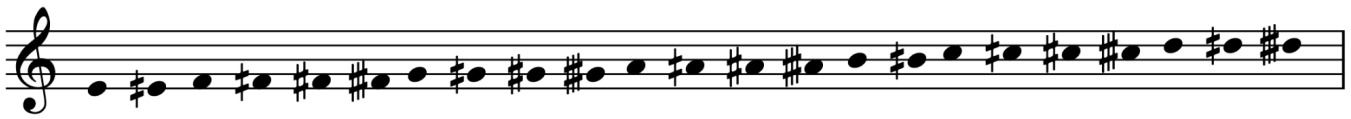

Figure 2: a “chromatic” quarter-tone scale.

A melodic context is particularly effective because it precludes one common misunderstanding that is ascribed to instrumental music—that microtonal pitches may be heard as “mistakes.”[42] (To be sure, this misunderstanding can be deliberately exploited, as I will show in relation to the microtonal unisons in *SLEEPTALKER*.) Microtonal gestures that involve wide leaps risk may give the impression of a poor performance in 12-TET, but a sequence of ascending or descending quarter-tones leaves little doubt about the composer’s intention. Even in contexts when there is little chance of such misunderstanding—for example, in microtonal piano music—pitch sequences of this sort provide perhaps the most logical use of quarter tones for a 12-TET-trained ear, since the quarter tones function clearly as intermediaries between the familiar pitches of 12-TET.

Quarter tones have been frequently used in this way: examples across history include Charles Delusse’s experimental *Air a la Grecque* (1760),[43] Charles Ives’ *Three Quarter-Tone Pieces* (1925),[44] and Brett Dean’s recent *Cello Concerto* (2018).[45] However, the source that made me particularly interested in applying this technique to my own work came from outside Western classical music: the popular musician Jacob Collier, who described it with the phrase “microtonal voice-leading.”[46] His use of the technique occurs primarily in fully produced, multi-tracked vocal recordings, such as his versions of *Fascinating Rhythm* and *Have Yourself a Merry Little Christmas* (figure 3).

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[42] I recall a moment following a 2017 premiere of a new work of mine when, at the post-concert celebrations, another composer with whom I had just spoken about the piece exclaimed “the microtones were intentional?!”

[43] Charles Delusse, *Air à la Grecque* (1760; reis. The Diapason Press, 1984).

[44] Charles Ives, “I. Largo” in *Three Quarter-Tone Pieces* (Leipzig: Edition Peters, 1925), 26-28.

[45] Brett Dean, *Cello Concerto* (London: Boosey and Hawkes, 2018), 85.

[46] June Lee, "Interview: Jacob Collier (Part 1)," YouTube, April 14, 2017, https://www.youtube.com/watch?v=DnBr070vcNE, timecode: 10.15-12.41.

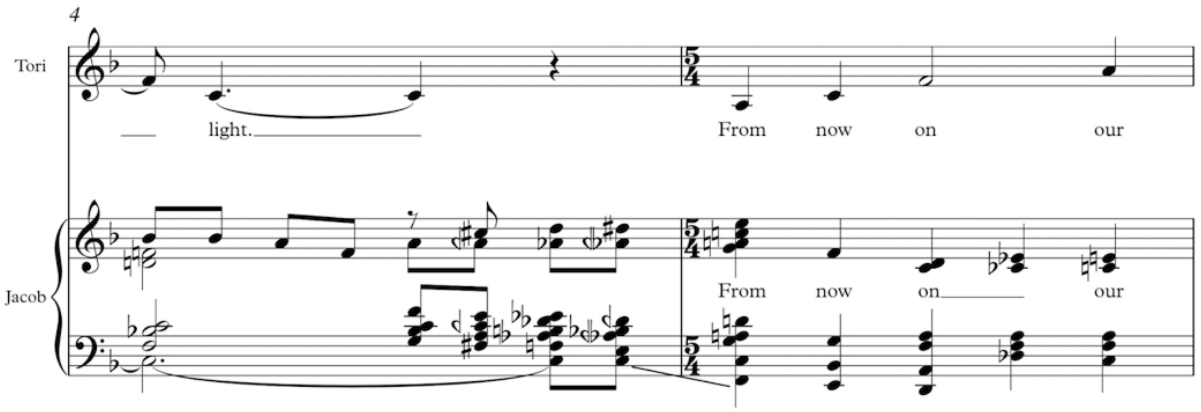

Figure 3: bars 4-5 of Jacob Collier's arrangement of *Have Yourself a Merry Little Christmas*, transcribed by June Lee.[47]

Describing his use of microtonal voice-leading, Collier explains that it is a method for allowing smooth, sequential, chromatic-style voice-leading when two notes that he wishes to move between are too close to allow chromatic movement:

> The human ear just hears things moving and things arriving. … All that matters is that you're arriving at a place, it doesn't matter how you get there. That's actually how harmony works, i'm here (*makes a fluid gesture*) and then somehow I arrive at the place, and all you need is for someone to do something satisfying that's not like, (*sings a disjointed atonal set of pitches*), that's not an arrival, you know. But anything chromatic, as I'm sure you know, is very important, chromatic voicing is the best ... It's about thinking about voice-leading more gesturally ... The idea is that you start somewhere and then you end somewhere.[48]

Collier's use of microtones—in a directional way and in a context that is logical and accessible—is what first suggested the idea of using microtones in my own music, even before beginning this PhD research. Since I had previously viewed microtonality as something both beyond my own artistic comprehension and incompatible with tonality, it was invigorating to discover that someone was using highly sophisticated microtonal techniques in an extremely accessible musical setting.

I was particularly interested by what Collier says about the ear: it hears only movement and arrival and is not necessarily concerned with the details or the discrete steps involved. The technique in certain ways sounds "right"—that is, in line with our perceptions of how one chord should progress

[47] June Lee, "Jacob Collier & Tori Kelly—Have Yourself a Merry Little Christmas (Transcription)," YouTube, December 21, 2017, https://www.youtube.com/watch?v=oGFGTrbemAs, timecode: 0.13-0.20.
[48] Lee, "Interview: Jacob Collier (Part 1)," 10.22-12.38.

to another. But there is a sense of “wrong” buried within—that is, in the use of pitches outside of 12-TET on the way from the starting pitch to the arrival pitch. By stretching out, exaggerating, and drawing attention to the microtonal steps used, I have tried in my own works to create a continuum between right and wrong, comfortable and uncanny.

An example of microtonal voice-leading comes early in my portfolio in *Kalimotxo*, played by the clarinet as a briefly unaccompanied melodic gesture transitioning from a written F# to E in bars 32-33 (figure 4).

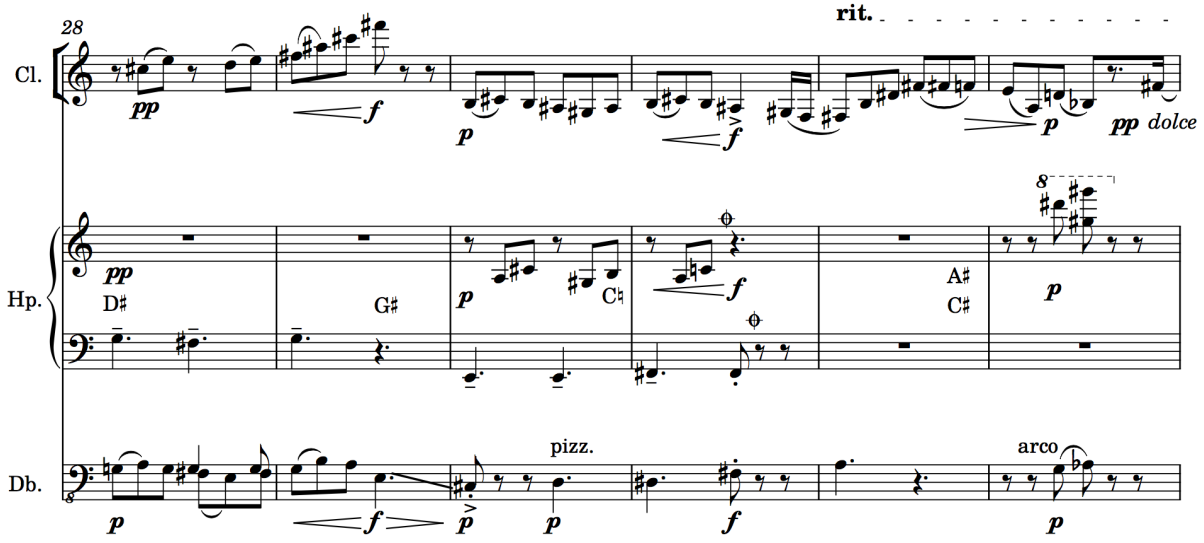

Figure 4: bars 28 to 33 of *Kalimotxo*. The Clarinet sounds a tone lower than written.

In this context, there is relatively little in the sound of the single quarter-tone that will disorient the listener; the microtonal gesture is logical, brief, and can be interpreted like an articulated glissando.

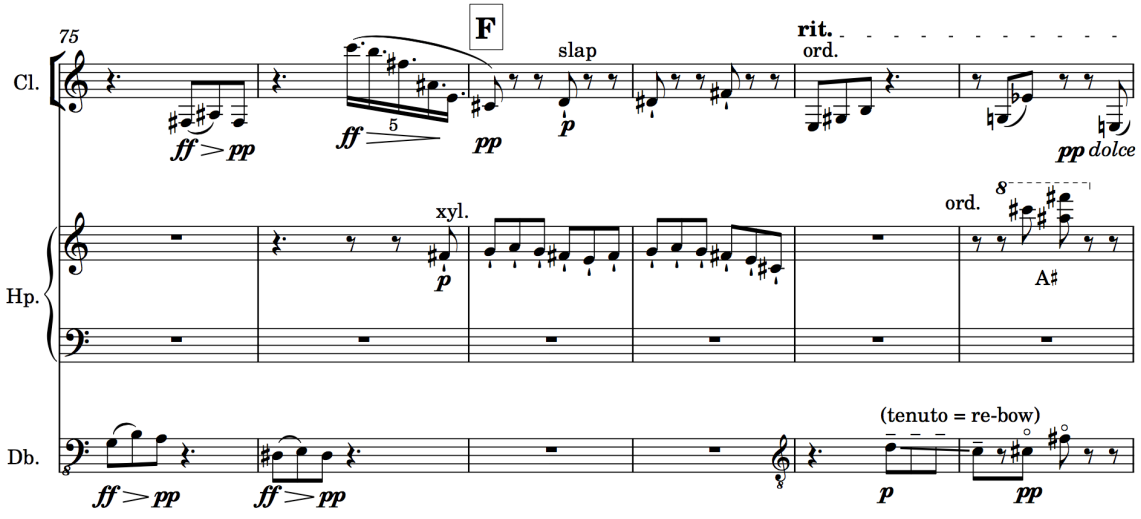

Figure 5: bars 75 to 80 of *Kalimotxo*.

The glissando-like quality is further reinforced when the double bass plays the same gesture as an articulated glissando in bars 79—80 (figure 5). The effect is one that is primarily gestural, appearing at the ends of phrases and used cadentially.

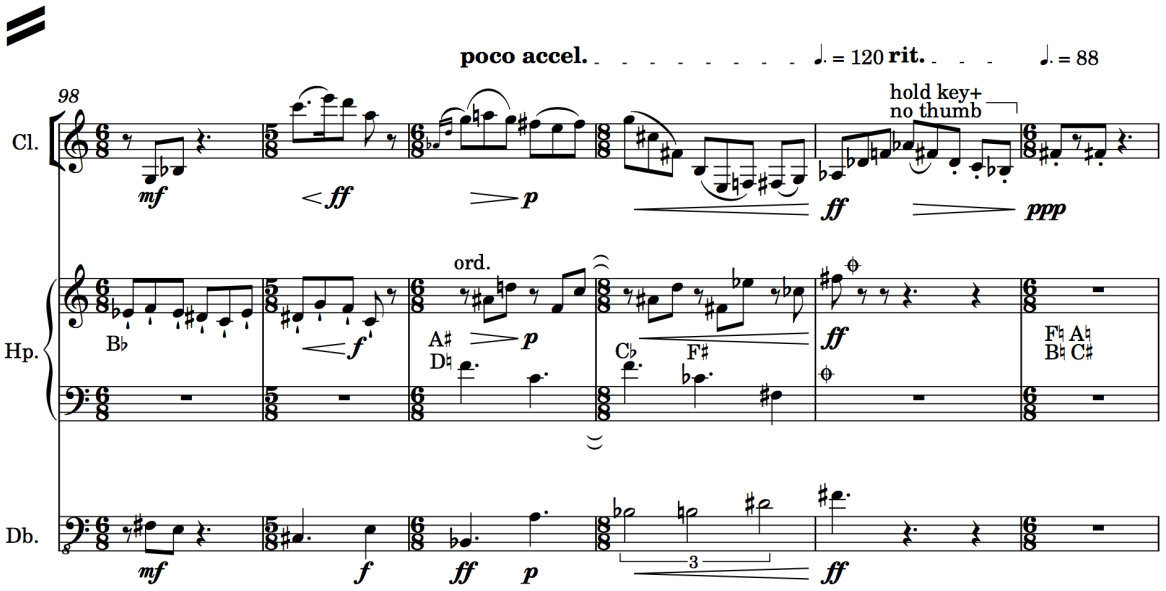

Figure 6: bars 98 to 103 of *Kalimotxo*.

The effect suddenly becomes more pronounced when the clarinet first uses its “no thumb” technique (in which removing the thumb while playing regular fingerings causes a sounding result of a scale of very close microtones) in bar 102 (figure 6). Because this is heard in isolation, without a clear musical destination, the strangeness of the microtonality becomes far more clearly pronounced, leading the listener to reconsider the simple decorative “articulated glissando” interpretation likely to have been favoured earlier in the piece. Microtonality is now marked as a feature for particular expressive attention.

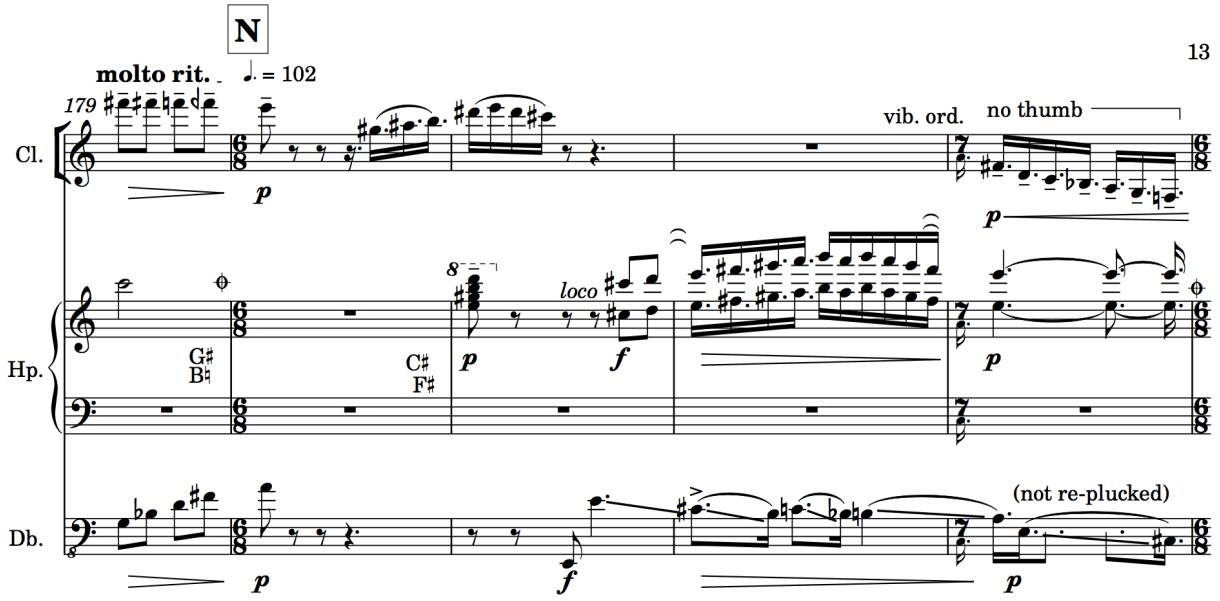

Figure 7: bars 179 to 183 of *Kalimotxo*.

Later, the clarinet plays microtonal figures far more prominently, for example in the high-register sequence at bar 179 that moves slightly too slowly to allow an “unproblematic” glissando interpretation (figure 7).

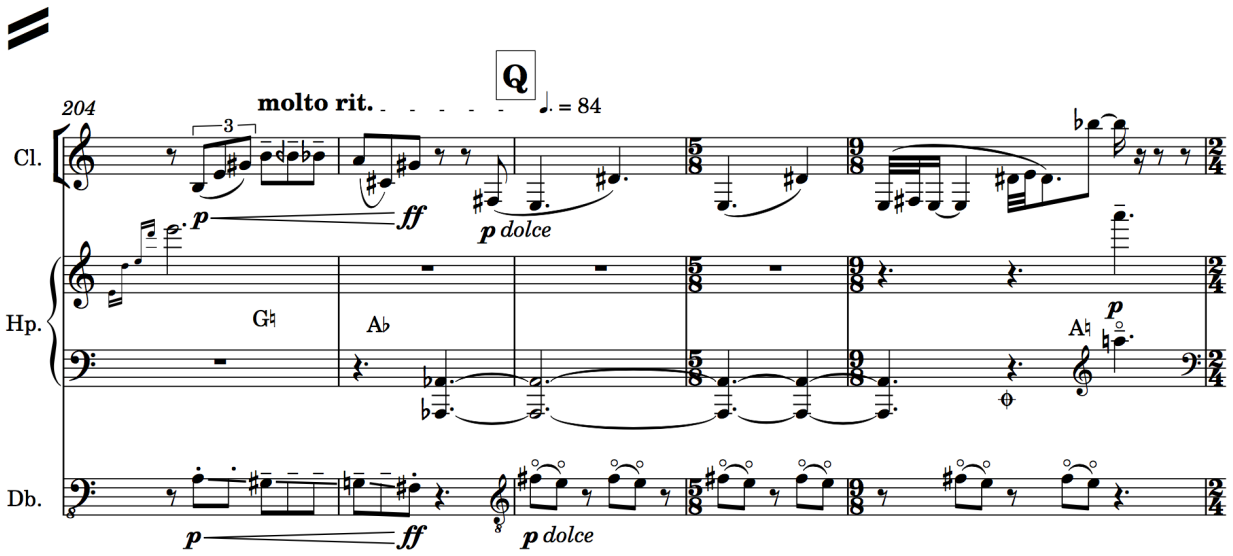

Figure 8: bars 204 to 208 of *Kalimotxo*.

Later still the effect is heard simultaneously in the clarinet and double bass for the first time in bars 204-5, further exaggerating and highlighting the technique and defying any tendency to be heard as a glissando gesture rather than as a specifically pitched microtonal one (figure 8).

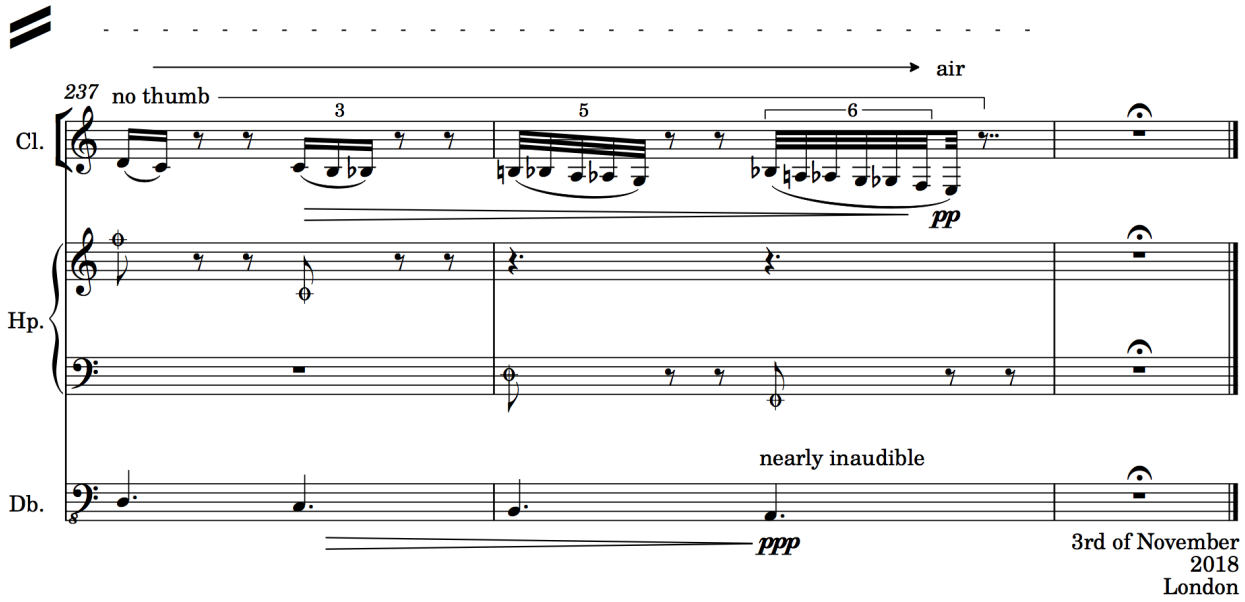

Figure 9: bars 237 to 239 of *Kalimotxo*.

In the final moments of the piece, bar 237 to the end, the clarinet uses the most minute micro-intervals yet, by fingering a chromatic scale in combination with the no-thumb technique (figure 9). This results in the once recognisable and familiar clarinet gesture being reduced to a textural and timbral one, almost sounding like a fully continuous glissando.

In *Aesop*, the piece that followed, I wanted to develop the technique considerably. This was aided by the inclusion of many instruments that are well suited to microtonality, including trombone and recorder. Rather than simply using the technique melodically, I wanted to integrate it much more prominently into the harmony. By doing so, my intention was to further foreground the "right/wrong", "comfortable/uncanny" continuum by applying more complex approaches to the technique. Where *Kalimotxo* primarily used microtonal voice-leading as a characteristic gesture, in *Aesop* I wanted to experiment with making it an integral part of the musical material. Near the beginning of the piece, in bars 38 and 39, the solo recorder introduces melodic ideas that point towards a later, more developed use of microtonal voice-leading (figure 10).

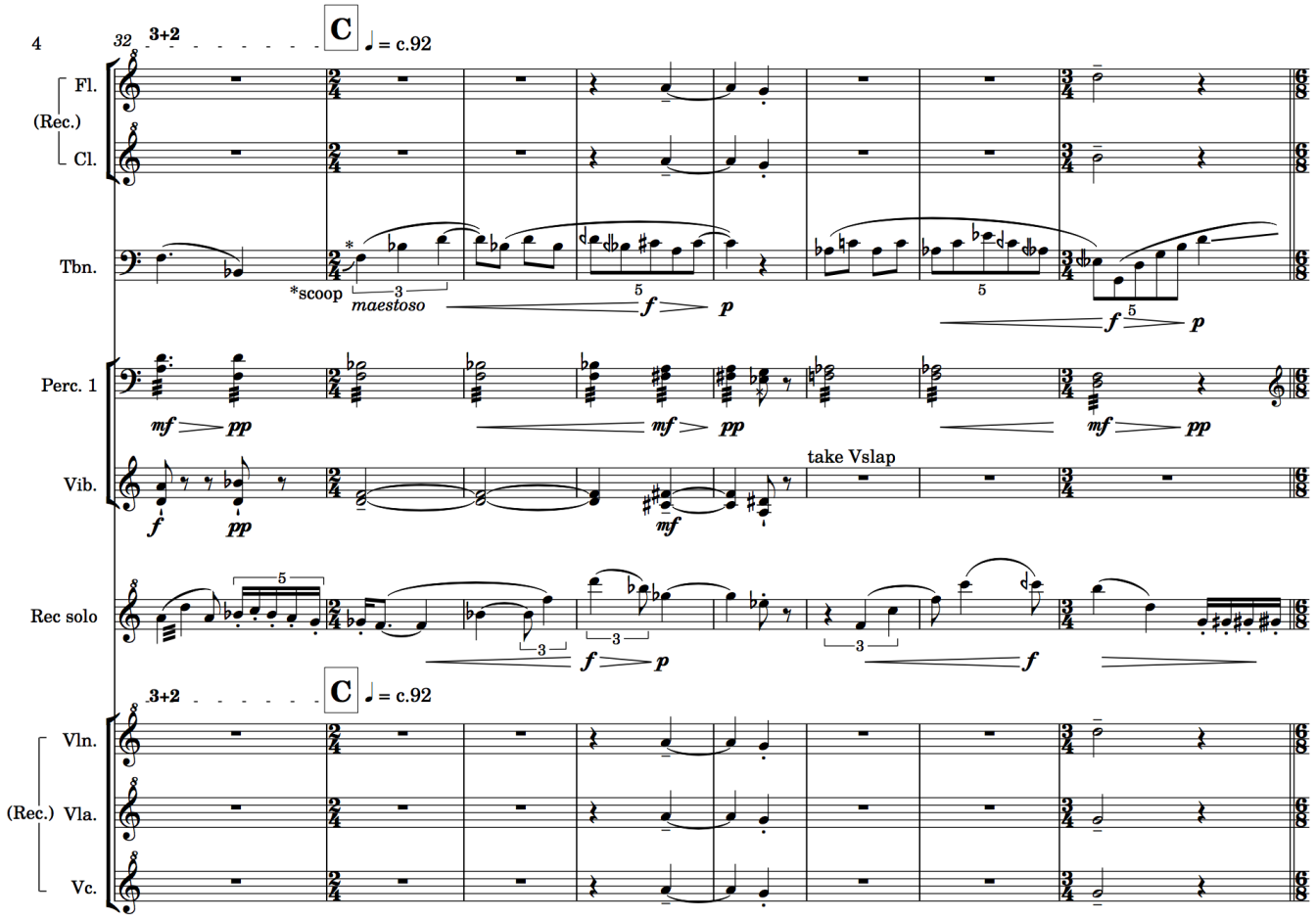

Figure 10: bars 32 to 39 of *Aesop*.

The recorder is particularly well suited to microtonal figures, since its open holes allow practically any microtone imaginable (within its range) to be performed without significant timbral deficiencies.

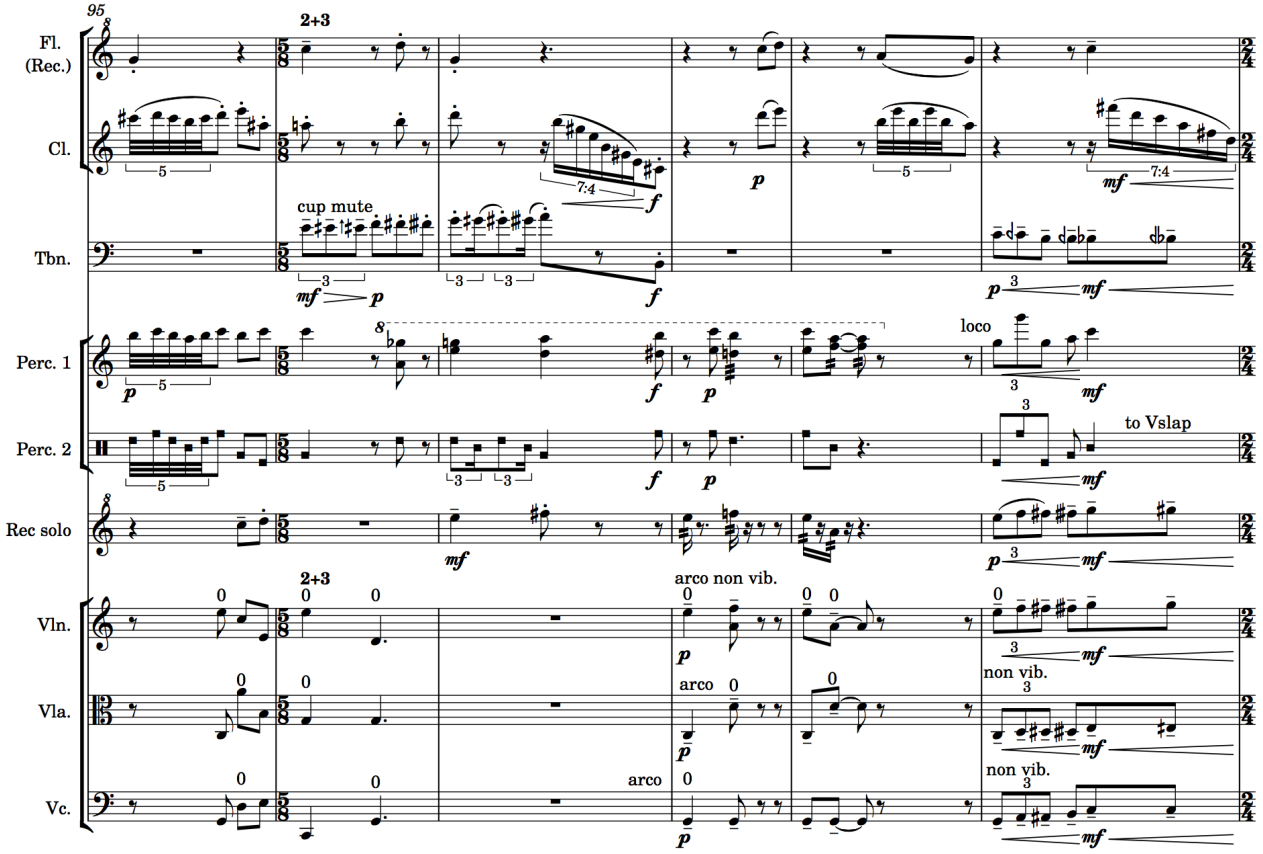

Figure 11: bars 95 to 100 of *Aesop*. The clarinet sounds a tone lower than written.

In the especially pronounced moment of five-part microtonal voice-leading at bar 100, the trombone stands out as the most prominent voice (figure 11). This moment, which has grown out of increasingly prominent microtonal figures in the trombone at bars 96 and 97, makes a particular effort to negotiate the space between the comfortable jollity of the musical gestures and instrumentation and the high number of microtones being presented to the listener.

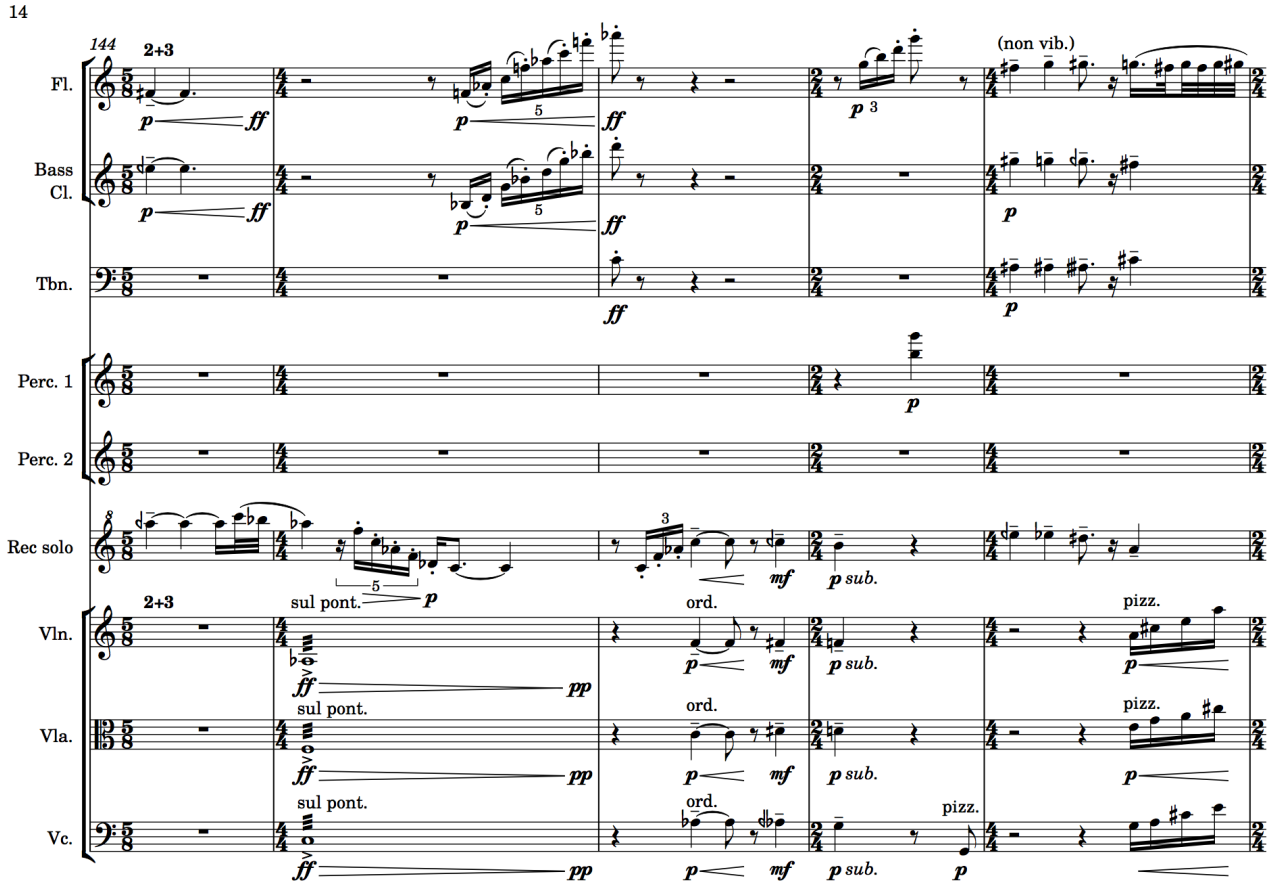

Figure 12: bars 144 to 148 of *Aesop*.

Later sections go even further. In bar 144, entire chords are now a quarter-tone flatter than standard tuning, played in alternation with “normal” chords (figure 12). This functions as a kind of extreme slowing down of the process of microtonal voice leading, removing the element of speedy resolution that, for Collier, prevents the ear noticing any strangeness.

In these moments in which the process is slowed down, it was especially important to me that the microtonally modified chords be consonant and recognisable to listeners, with all the pitches simply dislocated from the usual 12-TET grid. Therefore, the chords in these sections are all simple diatonic ones. This is used with the intention of creating a considerable sense of the uncanny; all of the chords are major, minor etc, with no harsh dissonance, and yet the pitches heard are ones that “don’t exist” in typical 12-TET tonal music. Furthermore, in typical microtonal practices, it is relatively unusual to find common harmonies like equally tempered major and minor chords—and, thus, the effect may be doubly uncanny for those familiar with microtonality.

Microtonal voice leading has now been changed from something rapid and functional that provides no considerable challenges to the listener into a rather disorienting microtonal effect. The gradual

change from the less jarring to this more aurally uncanny is intended to gradually ease the listener into an unexpected musical and expressive space that contrasts considerably with the jovial opening.

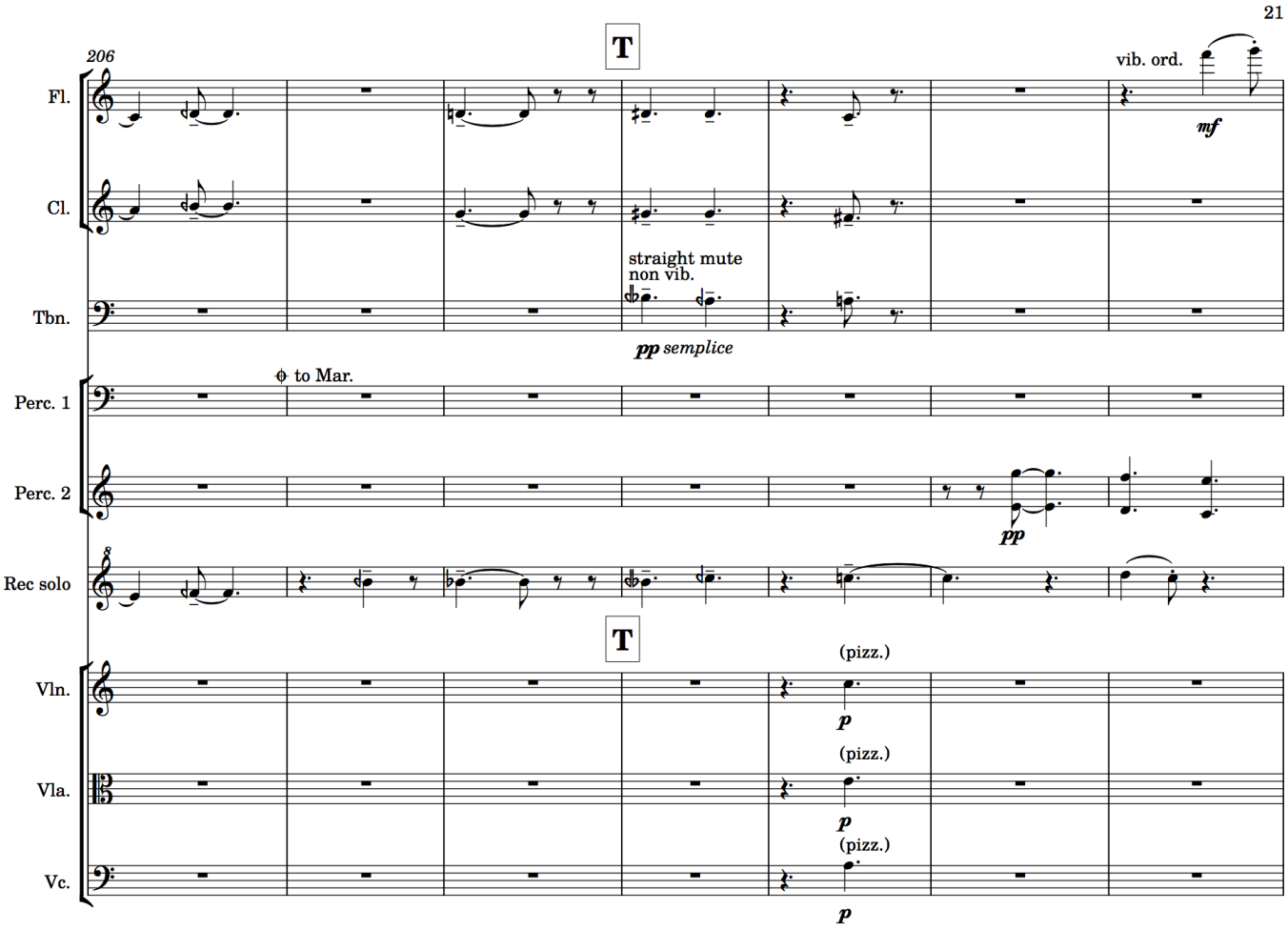

Figure 13: bars 206 to 212 of *Aesop*.

This is revisited near the end of the piece, in the passage from bar 206 to 210, where there are moments when the chords remain microtonally detuned in a way that blurs the line between what is the “normal” tuning and what is “strange” (figure 13).

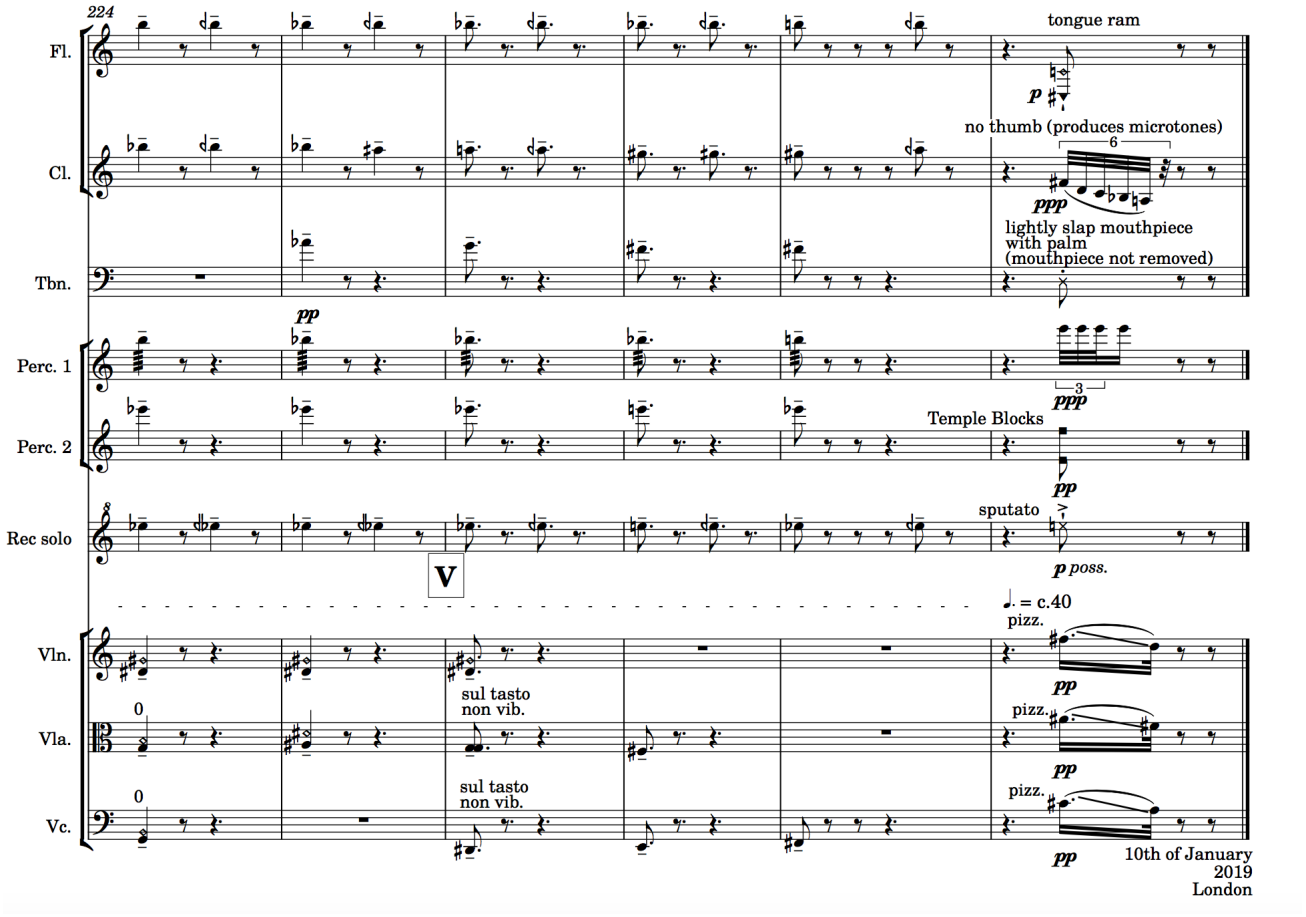

Figure 14: bars 224 to 229 of *Aesop*.

The piece concludes (bars 224 to the end) with an obsessive alternation between “normal” and “strange” chords, a quasi-mechanical series of diatonic triads now divorced from the romantic gestures of earlier moments in the piece (figure 14). The chords on the first beats of each bar are normally tuned, and those on the fourth beats are microtonally altered, never moving by more than a quarter tone to create a very logical voice-leading pattern with a very uncanny sound.

SLEEPTALKER takes the further steps of transferring microtonal voice-leading to a fully orchestral context (figures 15 and 16).

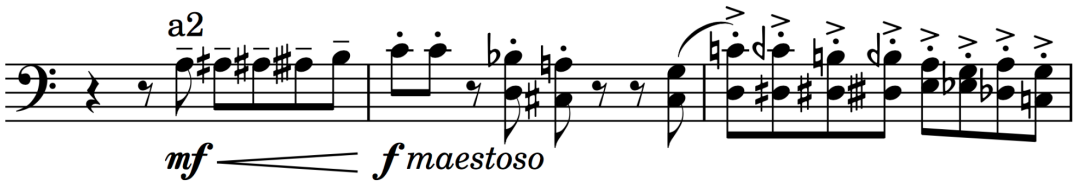

Figure 15: bars 18-20 of *SLEEPTALKER*, trombones.

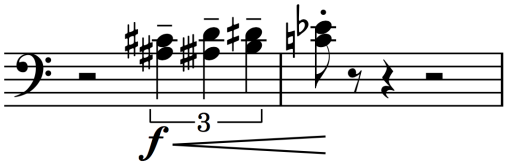

Figure 16: bars 26-27 of *SLEEPTALKER*, trombones.

The trombones are at the forefront of these transformations. In the piece's first movement, they function much like the voice-leading initially explored by Jacob Collier, with clear, tonal start and end points, stylistically appropriate gestures, and, as if coincidentally, microtones along the way. They add a flavour of something somehow unfamiliar but not quite pronounced enough to stand out as being musically "wrong."

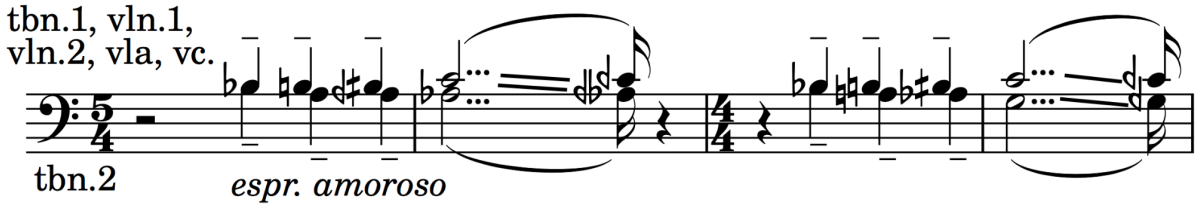

Figure 17: bars 31-34 of *SLEEPTALKER*, trombones, strings (reduction).

The "espressivo amoroso" melody that follows at bar 31 is considerably more blatant, with larger note values, a slower tempo, and more prominent orchestration (doubled in the trombones and strings) (figure 17). This is an elaboration of the earlier material played by the trombones, writ large and prominent. While the microtonality is blatant—sequential, melodic, repetitive, in the foreground—the "blow" is softened by the fact that the musical gesture is so recognisably commonplace in the style being evoked. Simply imagine a version of the melody which has a simple chromatic ascent—A, B ♭ , B, C—rather than the microtonal one—B ♭ **,** B, B quarter-sharp, C—and it is clear how close the microtonal melody is from being something very familiar indeed (figure 18).

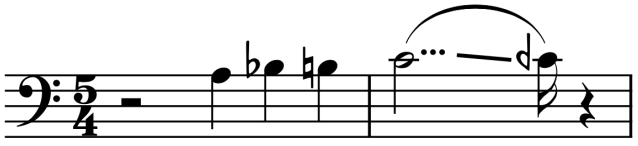

Figure 18: bars 31-32 of *SLEEPTALKER*, melody reimagined without microtonal voice-leading.

The trombones continue their microtonal activity in the second movement of the piece. By this point, a hazier, less melodic, more pointillistic type of microtonal voice-leading has become

established in the woodwinds. The trombones play prominent microtonal countermelodies beneath the repeating melodic material around which this movement is structured. As in the first movement, this relies upon the propensity of the genre being evoked—in this case, national anthems—to use sequential chromatic lines. As these abound in arrangements of national anthems, there is a degree of “rightness” to the brazen quarter tones played by the trombones, as they are always used in contexts that make it clear they are standing in for traditional chromatic movement (figures 19, 20, 21, and 22).

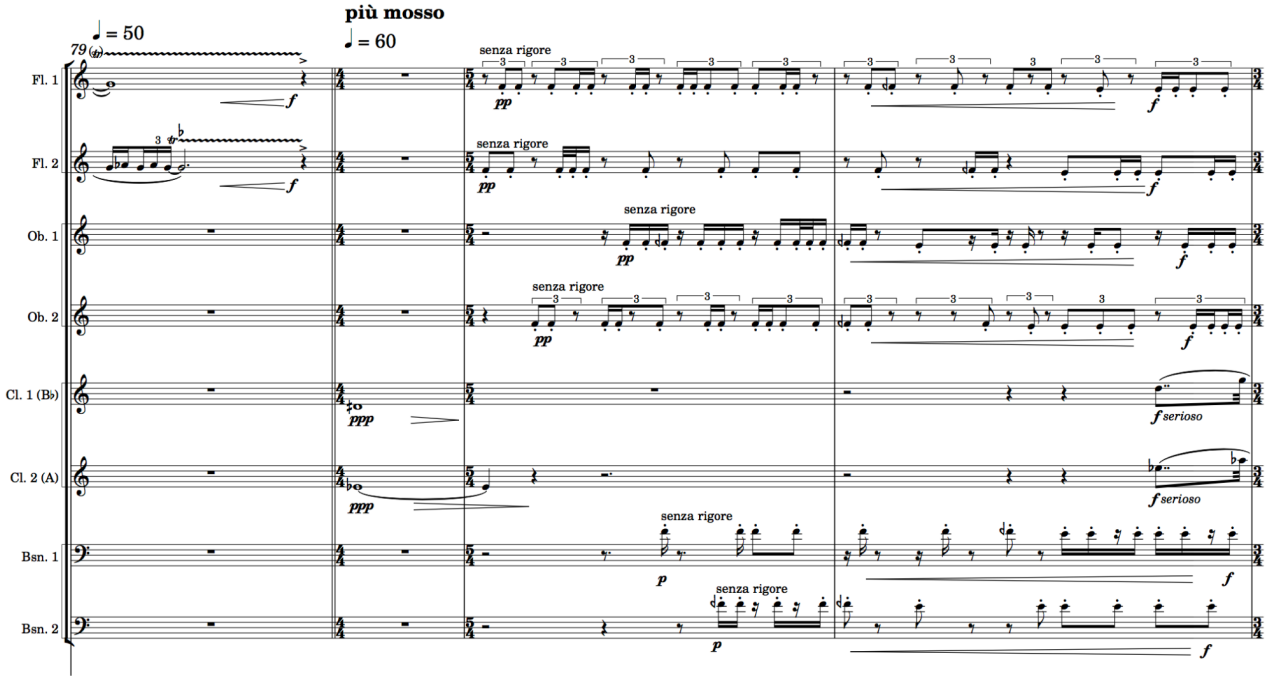

Figure 19: bars 79-82 of *SLEEPTALKER*, woodwinds. Clarinets 1 and 2 sound a tone and a minor third lower than written respectively.

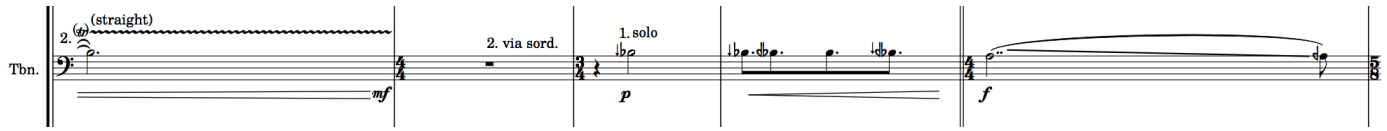

Figure 20: bars 88-92 of *SLEEPTALKER*, trombones.

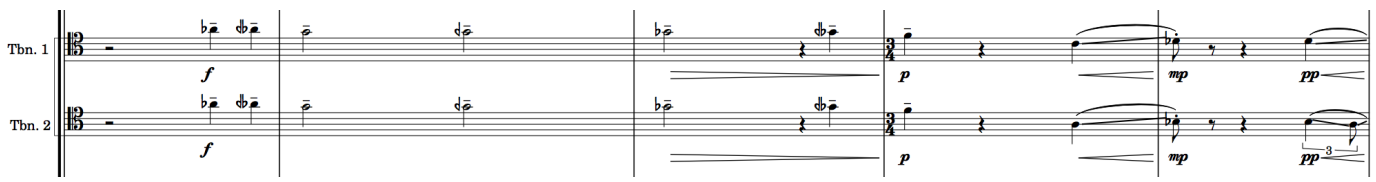

Figure 21: bars 98-102 of *SLEEPTALKER*, trombones.

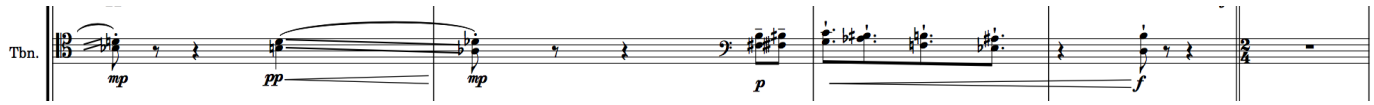

Figure 22: bars 103-107 of *SLEEPTALKER*, trombones.

In sum, using microtonal voice leading throughout my PhD research has revealed that it is a highly effective way to incorporate microtonality in tonal situations. It is an especially useful tool that contributes substantially to realising my aesthetic aim to render tonality strange yet recognisable, a key part of my overall goal: to achieve a "Vaporwave sensibility" in classical music.

2.3 Aleatoric Microtonality

In chapter 1, I suggested that aleatoric microtonality can offer an efficient means to create highly complex microtonal results while using relatively simple notation. However, aleatoric microtonality also provides for additional aesthetic resources in its implications for our perceptions of how instruments "should" or "shouldn't" sound. When playing microtones linearly, as part of "chromatic" melodies, most performers will endeavour to achieve a single, consistent timbre across all pitches, whether microtonal or 12-TET; they will do their best to make up for any deficiencies their instruments might have in this regard. However, this is often not the case when microtones are achieved through aleatoric means: if a player is asked to perform in an "unusual" way to produce an "unusual" sound, typically the expectation for all involved is that there will be some timbral difference from ordinary playing. Coupled with the pitch content itself, this timbral contrast creates a kind of double strangeness.

Andreas Huyssen's writing on the nostalgia of ruins can offer some interesting connections:

> The architectural ruin is an example of the indissoluble combination of spatial and temporal desires that trigger nostalgia. In the body of the ruin the past is both present in its residues and yet no longer accessible, making the ruin an especially powerful trigger for nostalgia.[49]

My aesthetic position is that, through aleatoric microtonality, we are led to perceive sounds as ruins. Consider, for example, the sound of a clarinet playing a complex, microtonal multiphonic.

[49] Huyssen, "Nostalgia for Ruins," *Grey Room* 23 (Spring 2006): 7.

The “past” of the instrument, the clarity of tone, the virtuosic scales and arpeggios associated with it, are present in the sound and the image of the instrument, in our memories. Yet, in being used to play a microtonal multiphonic, the clarity and virtuosity are being transformed, redistributed—the player’s skills are no longer being channelled into the creation of a conventionally beautiful tone, perfectly attuned within the confines of 12-TET.

If an architectural ruin generates nostalgia because we can see that the structure that once served a clear purpose is now in an unusable state of decay, a musical ruin might be found in hearing an instrument that once served a clear purpose—for example, a clarinet created to produce single pitches, clearly intoned in 12-TET with a clear timbre—being rendered by a multiphonic to become no longer fit for this purpose. Other similar techniques might include prepared piano, woodwind timbral trills, and Blu Tack preparation on harp or pitched percussion—each altering the timbre of the instrument significantly from its intended purpose, rendering the instruments’ sounds a ruin of their “ideal” or “intended” forms.

Context is important; in order for the ruinous nature of these techniques to be made clear and expressive, they need to take up a significant proportion of the instrument’s playing within a piece, movement, or section. If these techniques are regularly heard in alternation with normal playing, they are likely to come across as just that—techniques, additional colours in a composer’s palette. I propose that in order to fully express ruination through these techniques, the work must limit the instrument’s opportunities to play “normally” or remove such opportunities altogether.

I first used aleatoric microtonality in *Kalimotxo* in the form of clarinet multiphonics, harp pedal buzzes, and brief uses of slide harp and recorder doubling. These uses of aleatoric microtonality are fairly limited and are used more as effects than as integrated elements of a musical aesthetic, and so the character of ruination is difficult to perceive. However, many of the elements tried in *Kalimotxo* became considerably more prominent in its immediate successor, *Aesop*.

Aesop begins with the sound of an ensemble of orchestral musicians playing recorders, in musical dialogue with a professional recorder soloist. The desired effect is aleatoric microtonality—unpredictable and evocative alterations to the written pitches—achieved by asking performers to play instruments on which they have not been trained (figure 23).

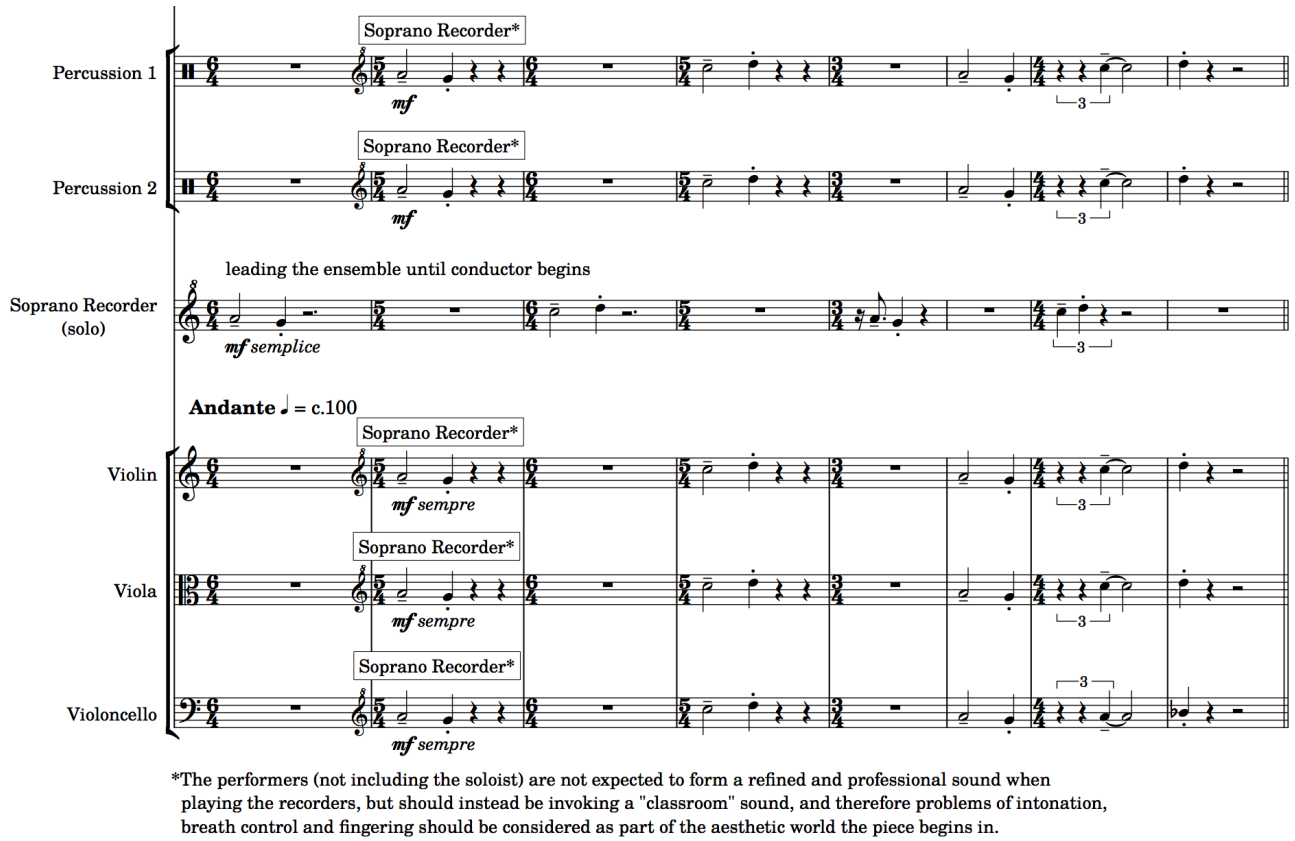

Figure 23: bars 1 to 8 of *Aesop*, percussion, strings, and soloist.

Without training in recorder-specific intonation and breath control, performers reading ordinary 12-TET pitches create microtonality automatically. The recorder is unusual in that it is an instrument that allows practically any classical musician to read music and perform simple melodies (if fingerings are provided), with the caveat that the pitches are unlikely to be well-tuned. In this piece, I aimed to use that caveat as a strength. The recorders, when used in this way, serve the following purposes:

1. They have specific nostalgic implications related to the sound of school recorder lessons.
2. They create a dramatic shape in the piece when the performers change from recorder to their own instruments.
3. They generate microtonality, which is linked to the other non-aleatoric microtonal techniques in the piece, particularly microtonal voice leading.

This type of aleatoric microtonality, generated through a performer's lack of training in a specific unusual area, is expanded in the piece *No One* for solo harp. This piece is based entirely around the use of a specific extended technique: slide harp. This technique was very briefly used in *Kalimotxo*, and it was hearing the technique in performance that gave me the immediate

inspiration for a future work. In *No One*, one hand operates a slide (the performer Oliver Wass chose to use a screwdriver) on the string, and the other hand plucks both the slide string and the unaffected strings (figure 24). The entire piece is performed in this manner, creating the effect of a timbrally distinct melodic line with an accompanying voice.

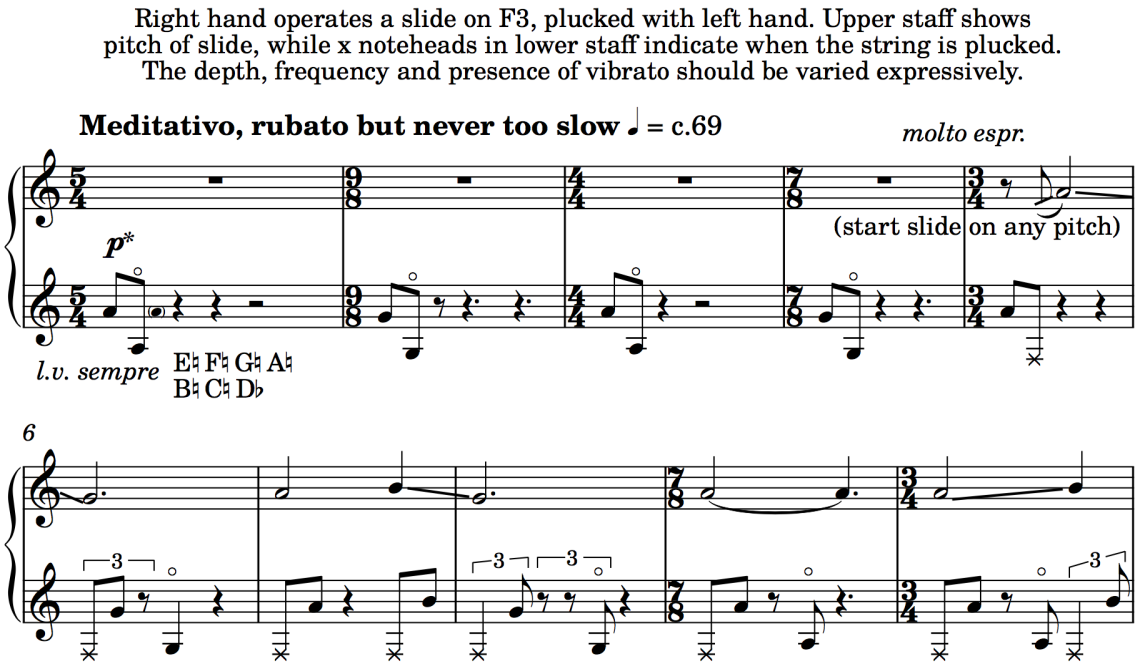

Figure 24: bars 1 to 10 of *No One*.

The fact that harp players are not trained to tune pitches in performance in this way means that, even with a great deal of practice, there is an inherent aleatoric, microtonal, inexpert quality to the sound of the slide harp. To choose to make the entire piece using the technique was to take a considerable creative and logistical risk. Working closely with Oliver Wass in a workshop before beginning the work allowed me to feel confident that writing this sort of piece would be appropriate.

Another option for including microtonality in a work for harp is to detune one or more of the strings microtonally. This would have allowed an accurate and repeatable method of producing microtones. A third possibility would have been to prepare the strings with, for example, Blu Tack, which creates completely unpredictable sounds that cannot (without extreme precision) be accurately repeated. These two options, precipitating aleatoric and repeatable outcomes, represented approaches that did not feel appropriate for my aesthetic aims in this piece; I wanted a technique that would show a fragility, a weakening of the instrument, while still allowing for controllable melodies that could have clear interactions and relationships with normally played notes.

Thus, the slide harp creates a technique in a “goldilocks” zone; it is both not too similar and not too different from the default timbre of the harp. In the sound of the slide harp, a combination of elements—differences in timbre, aleatoric microtonality, vibrato, visual theatricality—come together to create a situation well suited to my aesthetic goal of making something fragile, weakened, and pathetic. This goes beyond the approach in *Aesop,* where the sound of the untrained recorder playing did not evoke a sense of ruination. There, the interactions between the aleatorically microtonal recorders and the well-trained soloist came across as more like a happy dialogue, with a clear protagonist and chorus, each with defined roles. In *No One,* however, these roles are enacted by the same person, on the same instrument. “In the body of the ruin the past is both present in its residues and yet no longer accessible;”[50] similarly, in the body of the harp, the past is present in the form of its ordinarily played notes, while the slide notes are “no longer accessible.” The whole is strangely intoned, unable to speak clearly—a representation of a degraded, weakened present.

In composing *No One*, I discovered that this technique was especially effective when used on overtly tonal and diatonic material. Of all the pieces in my portfolio, *No One* has some of the most overtly traditional harmony, as well as being unusually slowly paced. This allows for the clearest possible contrast between the microtonally aleatoric and more traditional material, since the framework upon which both operate is clearly recognisable to a listener. The kinds of variations in harmony, rhythm, and pacing that are typical of much contemporary classical music would risk making this duality seem like just one of many varied turgid and contrasting elements. Edmund Finnis writes this on the topic of musical distortion:

> ... There is generally a need to use relatively simple musical material as initial sources to be distorted. The reasons for this are twofold. Firstly, in order that the listener can identify that a distortion has taken place there must be a perceivable contrast between initial source and distorted outcome. For the perception of this duality to be brought about the materials of the original source must themselves be perceivable as in some way unified or grouped together. This principle holds true even if the perception of a source’s unity or togetherness occurs only after the fact of its distortion, the former being recognised in contradistinction to the latter.[51]

[50] Huyssen, “Nostalgia for Ruins”, 7.
[51] Edmund Finnis, "Illuminating Distortion: Using Distortive Methods as Generative Agents in the Compositional Process" (PhD diss., Guildhall School of Music and Drama, 2013), 31.

This idea is as important for my ruination as it is for Finnis' distortion; the tonality and diatonic writing of *No One* give space for the work to make clear the dichotomy of past and present that creates the sense of a nostalgic ruin I hope to evoke.

Aleatoric microtonality, in sum, has proved useful to my composition, though it is considerably less flexible than microtonal voice-leading. It is far more situational, in that the available microtonal pitches often depend on the instruments used. Nonetheless, I have found this technique to be especially valuable because of its strongly ruinous associations, and it has therefore become an important part of my wider arsenal of techniques employed in a tonal setting.

2.4 Microtonal Bending

"Microtonal bending" is a term I use to describe pitches that are gradually bent up or down by less than a semitone. The term can also be used to refer to extremely slow glissandi of a semitone or more—passages when a pitch moves so slowly that a sense of chromatic movement is obscured. I first used microtonal bending purposefully in the chamber orchestra piece *Grin*, written for a small orchestra of strings, two oboes and two horns. While trying to work out how to best integrate this ensemble and considering the various techniques able to be played by oboes and horns, I happened upon embouchure bends—the idea being somewhat inspired by the opening of Michael Finnissy's *Red Earth* (a piece of rather different aesthetic character to my own).[52] The material I had already begun writing for the strings in *Grin*, which occurs at the beginning of the piece, contained many glissandi, and it was compelling to realise that such sounds were possible on the other instruments (albeit with far more limited levels of control and sizes of bends) (figure 25).

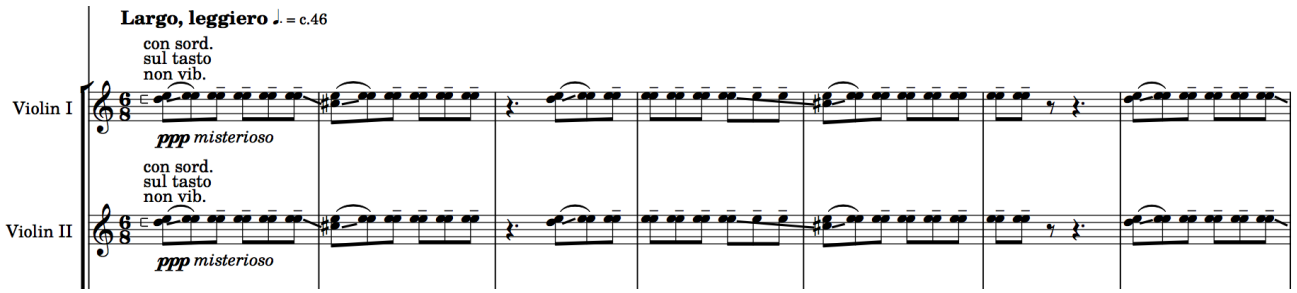

Figure 25: bars 1 to 7 of *Grin,* violins.

[52] Michael Finnissy, *Red earth* (New York: Oxford University Press, 2001): 1.

It was fortuitous that the winds and brasses were limited in their ability to bend pitches; this encouraged me to explore the sound of wind/brass chords that bend down by approximately a quarter tone (figure 26).

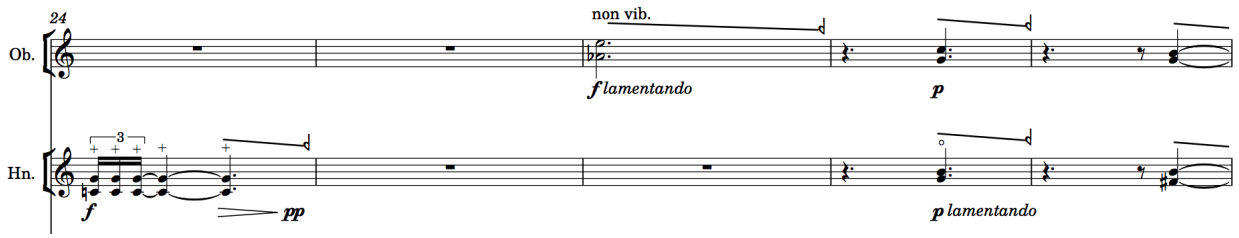

Figure 26: bars 24 to 28 of *Grin,* oboes and horns. Horns sound a fifth lower than written.

Experiments with this technique led me to conclude that the sound of a woodwind chord bending microtonally downwards was potent indeed. Microtonal bending presents a distinct expressive quality that is not present to the same extent in microtonal voice-leading or aleatoric microtonality. Although these techniques are closely related and can manifest in similar ways, they have clearly distinct characters and expressive tendencies:

- Microtonal voice-leading hides something strange inside something satisfying and familiar.
- Aleatoric microtonality asks the listener to reconsider their perception of the instrument being used.
- Microtonal bending makes no attempt at disguising the microtonality, nor does it alter the timbre of the instrument significantly. It shows, with some clarity, a change that occurs to a familiar sound—a warping of its character.

In *Grin*, later, this approach is transformed, with sustained bent pitches giving way to pointillistic pizzicato strings and staccato winds. The bending ceases to be an effect in the music and becomes the music itself. Existing somewhere between microtonal bending and microtonal voice-leading, this harmony-driven middle section of *Grin* recontextualises the bending (which earlier in the piece served to render familiar music strange) as the very fabric of the music (figure 27).

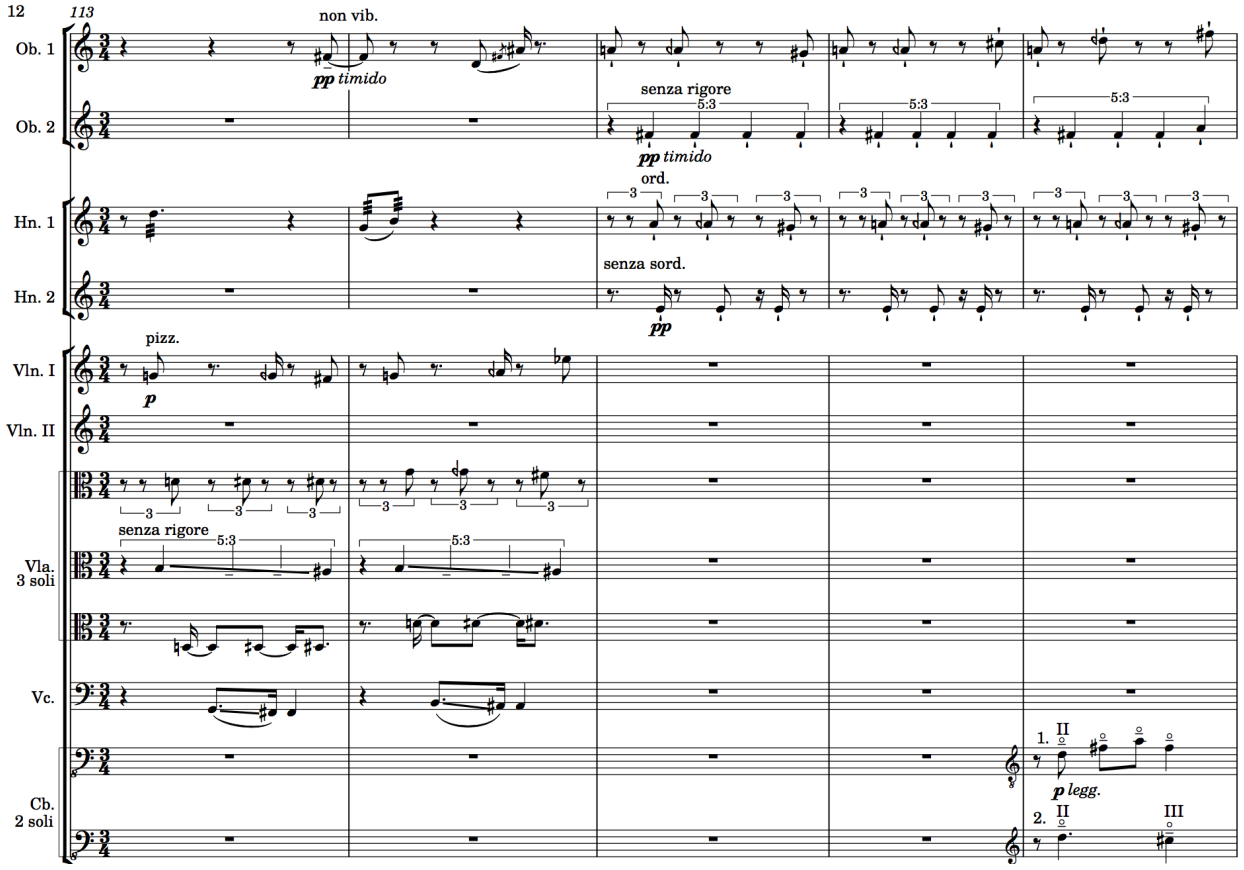

Figure 27: bars 113 to 117 of *Grin*.

At the very end of *Grin,* this hybrid of microtonal bending and voice leading is pushed to an extreme, as the solo violins bend by just a semitone over thirteen bars, articulated through pizzicato (figure 28).

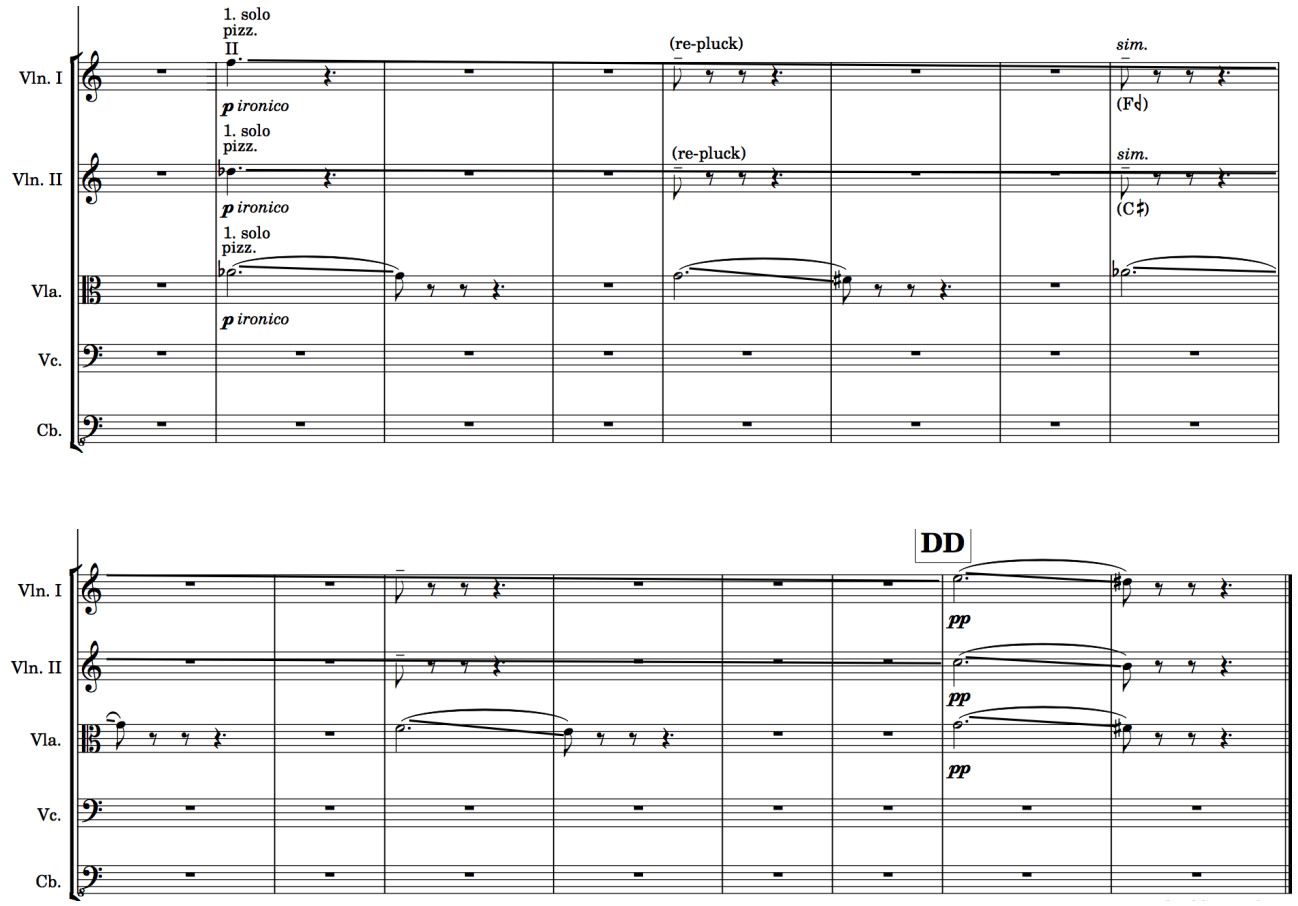

Figure 28: bars 321 to 336 of *Grin*, strings.

When a wind instrument bends down by a quarter tone, the distance travelled is not sufficient for the chord to enter the realm of what "correct" 12-TET intonation would call a change of pitch, and yet, a change occurs. The chord does not change from one chord to another; it changes from "right" to "wrong." As such, the chord does not lose its identity—as Eric F. Clarke writes, musical material retains its identity under transformations such as pitch transposition.[53] An F major chord bent down by a semitone becomes an E major chord; to the 12-TET trained ear, a change in tonality has occurred. An F major chord bent down by a quarter tone does not travel far enough to gain an E major identity; thus, tonally, it retains its initial identity while clearly being somehow changed. On the one hand the chord becomes something else; on the other it remains familiar but distorted.

In his analysis of Jimi Hendrix's 1969 Woodstock performance of "The Star-Spangled Banner," Clarke associates pitch bending with musical instability.[54] He describes a passage "in a state of constant pitch bend," which, he observes, "specifies the dissolution, engulfment, or destruction of

[53] Eric F. Clarke, *Ways Of Listening: An Ecological Approach To The Perception Of Musical Meaning* (New York: Oxford University Press, 2012), 135.
[54] Ibid., 60.

all that has been established previously."[55] The downward direction of microtonal bending is also important. Musical "movement" has been proposed by some to be a concrete perceptual phenomenon; for others, it is more like a metaphor.[56] Either way, downward musical figures hold strong associations—for example, the "lament bass", a chromatic downward figure found in many compositions, is described as invoking "sombre affection, gravity, and oppressiveness."[57] Downward microtonal bending compresses these associations into a more compact space, giving the opportunity to apply the gravity and oppressiveness of the lament bass to individual chords.

Because, as has been shown already, pessimism is a common element in the millennial experience, it has been natural for me to frequently use downward microtonal bending in my attempts to build a musical language centred around millennial nostalgia. Since using it first in *Grin*, I have found it to be an extremely flexible technique, more so than any other microtonal techniques I have used. It is readily achievable on all commonly used classical instruments other than keyboards and percussion, and its effectiveness is not diminished if the microtonal intonation is inaccurate. For all of these reasons, microtonal bending became an invaluable resource in my creative research.

2.5 Harmonic-series Microtonality

The harmonic series is a particularly appealing concept for composers since it combines theoretical validity with an audible presence in reality: not only does this succession of tones represent an elegant mathematical sequence but it is also clearly observable in the sound of individual musical tones. As Kyle Gann says, "a harmonic is a physical phenomenon as well as a theoretical construct."[58]

Much of my own interest in the harmonic series stems from the resemblance of the first eleven partials to chords used within certain 12-TET tonal harmonies. The first five partials produce a major chord that differs only slightly from its 12-TET counterpart, with a 14-cent difference in the major third and with the fifth a negligible 2 cents away). The first seven partials, heard together, produce a dominant seventh chord, but with a much more considerable 31-cent difference in the flattened seventh. The first nine partials heard together produce a dominant ninth chord, with the variances already described and a ninth with a fairly negligible 4-cent difference. Finally, the first eleven partials heard together produce a sonority situated nearly exactly between a dominant

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[55] Ibid., 55.
[56] Clarke, *Ways Of Listening,* 67.
[57] Bella Brover-Lubovsky, *Tonal Space in the Music of Antonio Vivaldi* (Indiana University Press, 2008), 153.
[58] Gann, *The Arithmetic of Listening,* 20.

eleventh chord and a dominant sharp-eleventh, a sonority created by the quarter-tone flat eleventh partial—a sonority I will henceforth refer to as a harmonic eleventh chord.

Thus, the series results in a set of highly versatile chords:

1. a major triad, ubiquitous within most western music;
2. a slightly deviated dominant seventh, a chord with strong associations to tonality and Western classical music;
3. a slightly deviated dominant ninth, a chord which holds strong associations in jazz and early twentieth-century classical music;
4. a harmonic eleventh chord, the furthest from 12-TET and lacking common associations.

While it is true that further exploration of the harmonic series would provide further instances of more or less recognisable harmonies, the infinite nature of the series means that an arbitrary limit has to be set at some point. As Harry Partch said, speaking of the eleventh-harmonic limit he himself set:

> When a hungry man has a large table of aromatic and unusual viands spread before him he is unlikely to go tramping along the seashore and in the woods for still other exotic fare. And however skeptical he is of the many warnings regarding the unwholesomeness of his fare—like the “poison” of the “love-apple” tomato of a comparatively few generations ago—he has no desire to provoke further alarums.[59]

Similarly, in my own music it is necessary to set a limit to my explorations in order to have a greater sense of focus. Stopping with the eleventh harmonic means that my use of the harmonic series places a strong emphasis on the triad-like lower partials, while still including the less familiar, more clearly microtonal intonation of the seventh and eleventh partials.

Just intonation (J.I.)—what Kyle Gann calls “the practice of tuning pitches to pure whole-number ratios”[60]—is a system of tuning that has been researched and artistically explored in great depth. J.I. is essentially a highly advanced system of microtonal harmonic-series pitch organisation; and to contextualise my own uses of harmonic-series microtonality, it is useful to explore the reasons composers have given for choosing it.

J.I. is, for many of its proponents, a substantial musical philosophy which influences every element of their work. One major figure in J.I., Ben Johnston, writes:

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[59] Harry Partch, *Genesis of a Music* (New York: Da Capo Press, 1974), 123.
[60] Gann, *The Arithmetic of Listening,* 56.

> The differences in structure due to composing with an open, infinite field of pitches rather than a closed, finite system, such as twelve-tone equal temperament, guaranteed new shapes and even a new ambience of sound. The constant heightening of contrast between the simple and the complex by the use of simple arithmetic ratios, the intensification of emotional affective reaction, the inevitable inclusion of microtonally small pitch distinctions, all contributed to protecting my music from a too-familiar impression.[61]

Johnston's mentor Harry Partch likened his own use of a 43-tone J.I. scale to a painter finding new colours, or a writer finding richer words, lamenting that in 12-TET:

> Before he ever writes a note the most brilliant composer is doomed to a system that is not capable of growth at his hands.[62]

For Partch, J.I. represented a lifetime's work, what he described as "the long, painful process of making less poor the pathetically impoverished language of tone."[63]

My own use of harmonic-series microtonality is more limited in scope, and it would be an exaggeration to refer to it as J.I. Similarly, it would be inaccurate to closely link my use of harmonic-series microtonality with spectralism, a compositional approach in which composers use "acoustic properties of sound itself (or sound spectra) as the basis of its compositional material."[64] However, it is true that, like the spectralists, my interest in harmonic-series microtonality is derived not from the idea of a numerical system but rather from the physicality of sound, in that the pitches of the harmonic series constitute an audible sonic phenomenon. My work also shares with the spectralists the property that "the general practice has been to base the music on 12-TET and to inflect certain pitches with quarter tones ... to approximate harmonics."[65]

For my pieces, harmonic-series microtonality represents one of many diverse microtonal options that I employ within a framework that is ultimately 12-TET and tonal. It is thus misleading to compare my practice with that of composers for whom microtonal techniques associated with the harmonic series constitute important musical philosophies. It is more productive to examine the

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[61] Ben Johnston, "On Musical Aesthetics and Culture" in *"Maximum Clarity" and Other Writings on Music*, 154.
[62] Harry Partch, *Bitter Music: Collected Journals, Essays, Introductions, And Librettos*, ed. Thomas McGeary (Urbana: University of Illinois Press, 2000), 159-160.
[63] Ibid., 161.
[64] Julian Anderson, "Spectral music," *Grove Music Online,* 2001, https://www.oxfordmusiconline.com/grovemusic/view/10.1093/gmo/9781561592630.001.0001/omo-9781561592630-e-0000050982.
[65] Gann, *The Arithmetic of Listening,* 214.

friction between the simultaneous use of sonorities which mirror complex sonic phenomena and those which arise from 12-TET. The juxtaposition of 12-TET triads with harmonic-series chords reveals similarities and differences that can be used compositionally.

An examination of harmonic-series microtonality through the lens of topic theory will help provide further clarification about its usefulness in my work. The Prelude to Richard Wagner's *Das Rheingold* is a prominent example of harmonic-series composition: the first melodic material consists of a horn playing five ascending sequential pitches from the harmonic series. Thomas Grey calls this a suggestion of "a condition of nature before or outside of the dramatic time of the story."[66] Another instance is found in Benjamin Britten's 1943 *Serenade*, in which "a horn solo played on natural harmonics to evoke an atmosphere of far-off, primeval innocence"[67] is similarly described by Alex Ross as evoking "a primordial realm untainted by human complexity."[68] These earlier composers evidently equated the harmonic series with a sort of idealised prehistoric sound, a pastoral past; this is not at all unlike what Thomas McGeary writes of Partch's music: it is, he says, an effort to return music to a long abandoned "primal, ritualistic, corporeal state."[69]

This understanding of the harmonic series aligns well with its use in my own work, which in this context serves as a sort of personal compositional topic. In earlier music the harmonic series evokes pastoral associations that reflect the pastoral nostalgia of Romantic art; in my own work it similarly serves to explore the aesthetic possibilities of millennial nostalgia.

Harmonic-series material is utilised to a certain degree in *Kalimotxo*, *Aesop,* and *Grin*, but it was explored most deeply in *THREE LITTLE MAMMOTHS*. This is a unique piece in the portfolio in that it is the only one intended for a more inclusive audience, specifically one including children. The words were written by children's author Eoin McLaughlin, who created the text following extensive conversations and collaborations with myself and members of The Marsyas Trio, who commissioned the piece. This piece includes a developed and extensive use of harmonic-series techniques. In movement V, for example, there occurs the following prominent transformation of 12-TET material (figure 29) into harmonic-series microtonality (figure 30):

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[66] Thomas Grey, "The Idea of Nature," in *The Cambridge Companion to Wagner's Der Ring Des Nibelungen*, ed. by Mark Berry and Nicholas Vazsonyi (Cambridge: Cambridge University Press, 2020), 212.
[67] "Britten, Benjamin - Serenade op. 31 (1943)", Boosey and Hawkes, https://www.boosey.com/cr/music/Benjamin-Britten-Serenade/3880.
[68] Alex Ross, *The Rest Is Noise: Listening to the Twentieth Century*, (New York: Farrar, Straus and Giroux, 2007), 779.
[69] Thomas McGeary, Introduction to *Bitter Music*, xvi.

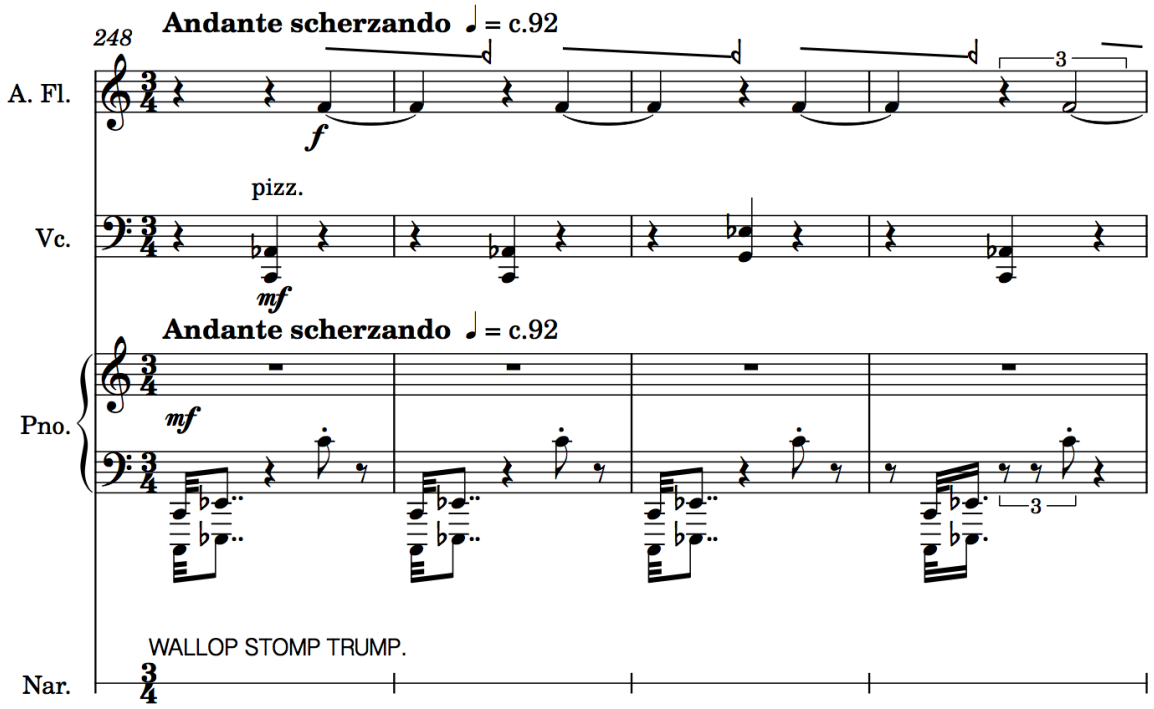

Figure 29: bars 248 to 251 of *THREE LITTLE MAMMOTHS*. Alto flute sounds a fourth lower than written. 12-TET material at the beginning of the movement.

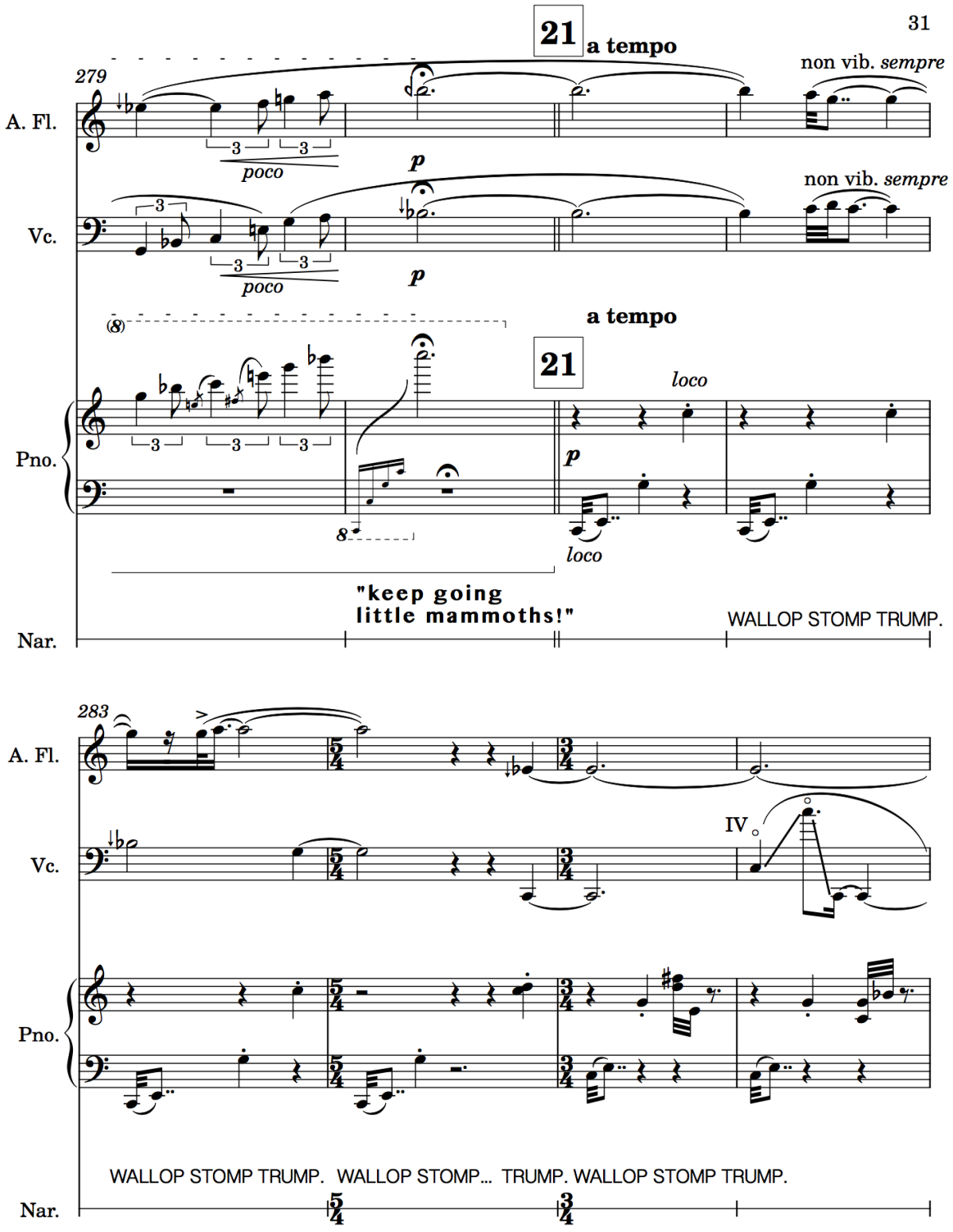

Figure 30: bars 279 to 296 of *THREE LITTLE MAMMOTHS*. The same material evolves into a C harmonic series.

In this instance, the microtonal deviations taken from the harmonic series are intended to provide a sense of serenity. At the beginning of the movement, the characters of the mammoths are unsure

of themselves, nervous—in a minor key, 12-TET area. By the end of the movement, having been spurred on by the encouraging words of the moon, the material gains a more rustic yet assured quality rooted in a C harmonic series, evoking the pastoral associations already discussed.

A more assertive use of the harmonic series occurs later in the piece at the mention of crocodiles, whose prehistoric forms are evoked with more clangourous, piano and flute chords, accompanied by a cello subharmonic imitating crocodilian sounds (figure 31).

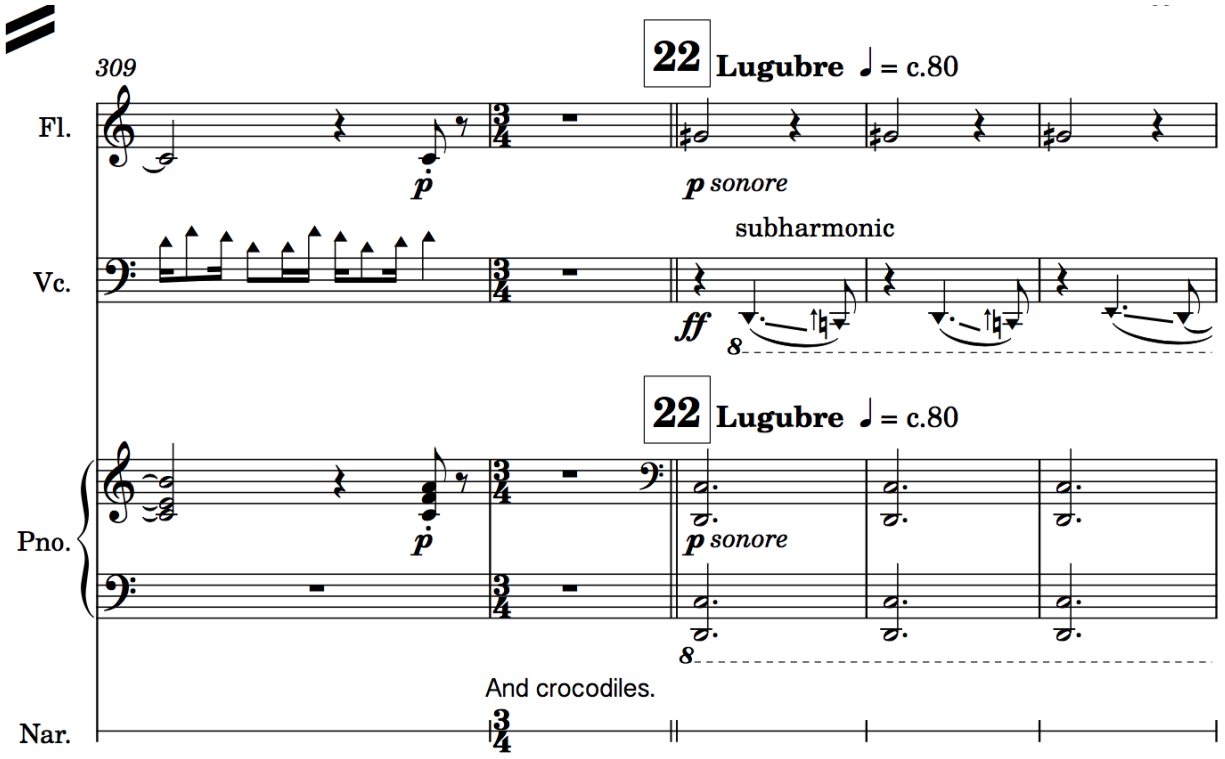

Figure 31: bars 309 to 313 of *THREE LITTLE MAMMOTHS*.

Later in the same movement, the trio plays entire quasi-tonal chord progressions with sevenths microtonally altered to conform to the harmonic series (figure 32).

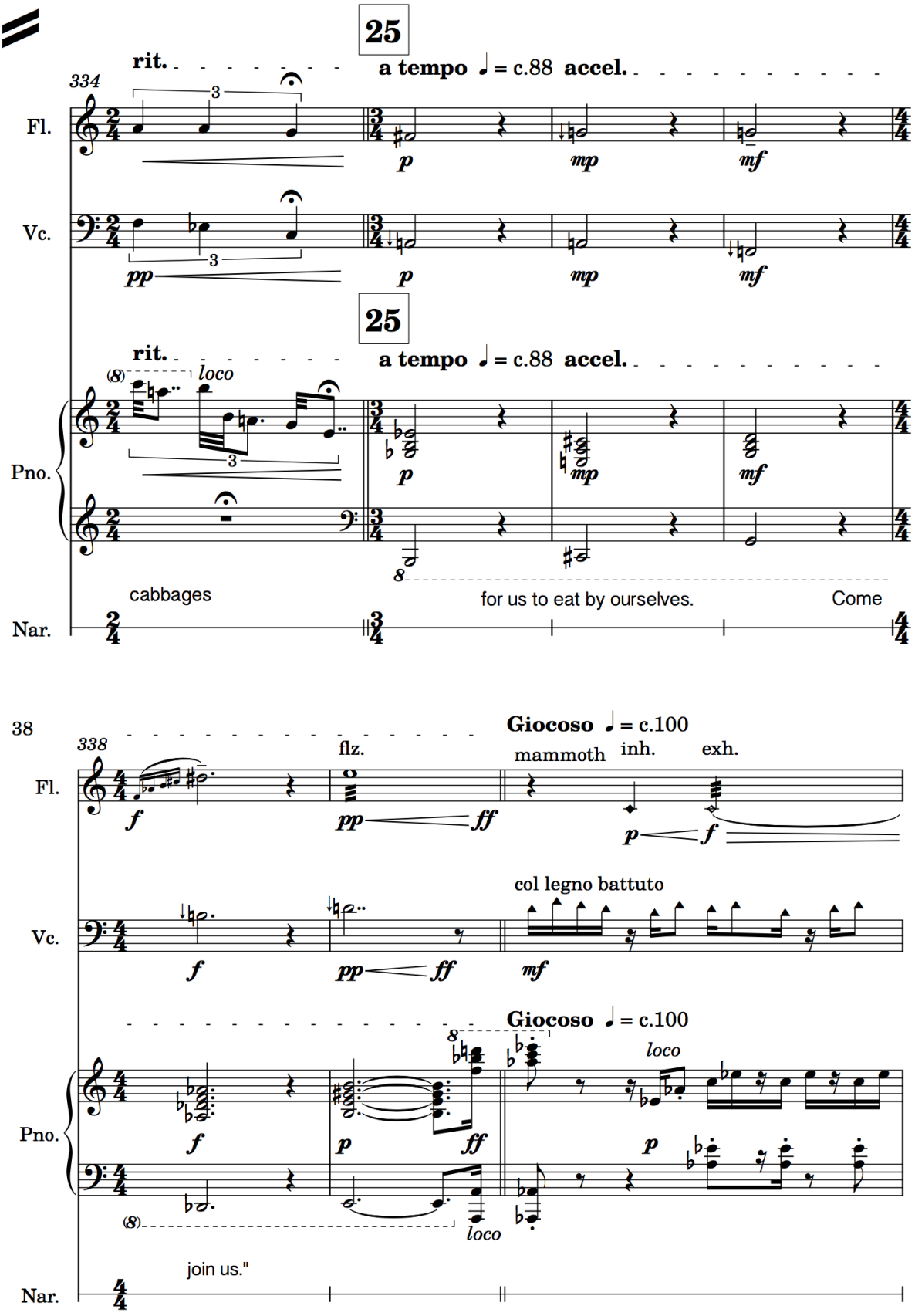

Figure 32: bars 334 to 340 of *THREE LITTLE MAMMOTHS*.

The frequency of harmonic-series chords begins to increase in the finale of the piece, with another quasi-tonal sequence of microtonally altered dominant chords (figure 33).

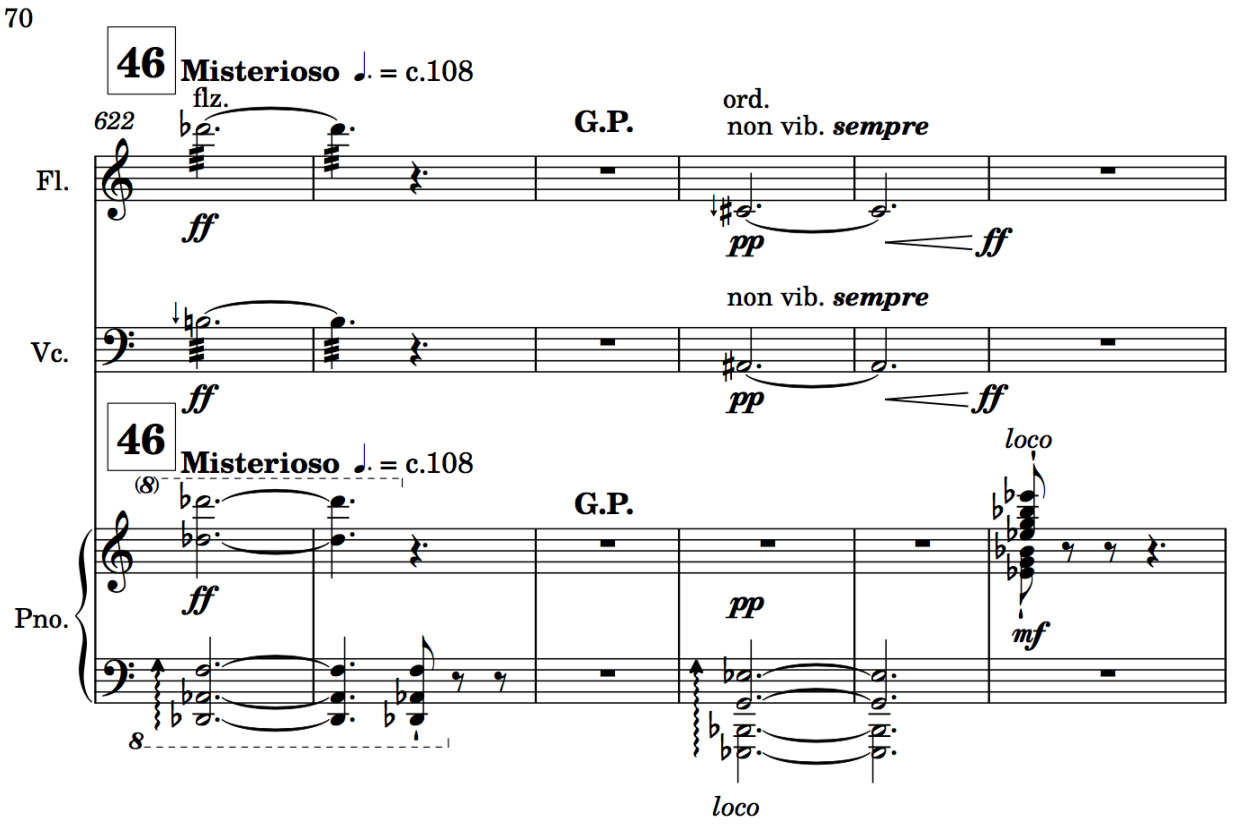

Figure 33: bars 622 to 627 of *THREE LITTLE MAMMOTHS*.

The piece eventually concludes with a harmonic-series coda. This supports the final resolution of the narrative: the mammoths are comfortable, the sabre-toothed cat is reconciled. Prehistoric nature is in balance, and the chord that ends the piece representing this natural consonance is a very clearly developed harmonic-series chord built over an E (figure 34).

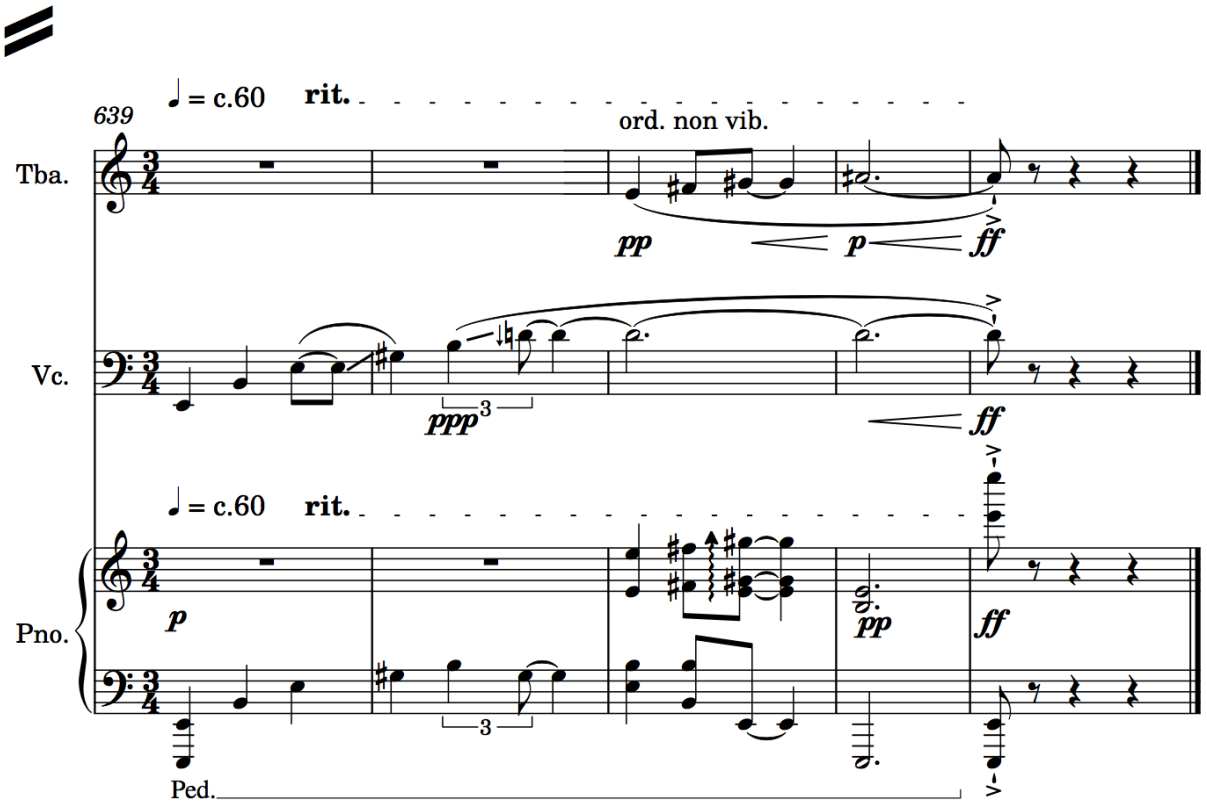

Figure 34: bars 639 to 643 of *THREE LITTLE MAMMOTHS*.

Harmonic-series microtonality contributes a unique and evocative final technique in my portfolio, bringing with it strong topical associations with pastoral nostalgia. To be sure, this older nostalgia is not exactly what I seek to express, but it can be framed in such a way that it furthers my own aesthetic purpose. Indeed, by combining this technique with several other types of microtonality, the whole becomes a rich and diverse microtonal language. The harmonic series is strongly linked with tonality, making it highly applicable in “making strange” older, familiar sonorities, though harmonic-series microtonality is admittedly more situational than some techniques, requiring specific instrumental combinations and harmonic situations in order to be combined viably with 12-TET tonal music.

2.6 Combinations of Techniques

Crucial to this research is the combination of these techniques. *SLEEPTALKER* is built out of a dramatic interplay between all of them, presented in conjunction with familiar orchestral aesthetics of harmony and style; and as the chronologically final work in the portfolio, it represents the most refined combination of the techniques. The work thereby balances various different aspects of millennial nostalgia, intended to create an identifiable narrative.

What follows is a detailed description of the interactions of the techniques used in the piece:

Bars 1 to 5 (please refer to the full score): *SLEEPTALKER* begins with a combination of harmonic-series microtonality (played chordally in the solo strings, contrabassoon, and muted trumpets) and aleatoric microtonality (played by clarinets using the no thumb technique). The overlaying of these two techniques creates a meta-texture that could be interpreted topically as a reference to both pastoral nostalgia and ruin. This makes a particularly strong contrast for the overtly tonal orchestral light-music material that immediately follows.

Bars 18-22: Later, the trombones introduce microtonal voice-leading material, immediately juxtaposed with more aleatoric-microtonal-no-thumb-playing in the clarinets. This juxtaposition allies the trombones and their microtonal voice-leading material with the overtly tonal music to which the aleatoric-microtonal sounds have already been opposed.

By **bar 32**, when downward microtonal bending is introduced in the horns and trombones, the music has incorporated all four microtonal techniques. The bending is immediately allied with the tonal material, appearing in tandem with microtonal voice-leading, and immediately following another contrasting section of aleatoric-microtonal clarinets.

This relationship continues prominently until **bar 50,** when the no-thumb clarinets are overlaid onto the tonal materials for the first time. The relationships between the microtonal techniques have now changed, and the evocation of ruination is now combined with the tonal pessimism of microtonal bends.

Bar 73: The first and second movements of *SLEEPTALKER* are conjoined by a quiet string chord using harmonic-series microtonality, the first time this has been heard since the beginning of the piece. Used in this way, the chord serves to separate the movements further, cementing its identity as an outsider that exists only in contrast to the other musics in the piece. The music that follows, intended to evoke national anthems, returns closer to the world of 12-TET and traditional tonality.

The first prominently used microtonal technique in this second movement is heard at **bars 81-84** in the flutes, oboes, and bassoons in a pointillistic texture combining the ideas of microtonal voice-leading and microtonal bending. The identity of the technique is less clear—it exists over a tonally secure 12-TET framework, blurring but ultimately not subverting the comfortable chords and melodies.

This movement introduces an additional microtonal technique: microtonal unisons. This technique is specific to this piece, made more practical by the larger forces that an orchestral work provides, and refers to a pitch played in unison with another pitched above or below it by a quarter tone or less. This creates an effect that essentially replicates an out-of-tune orchestra. In a tonal context, it is clear to the listener that the 12-TET note is the focal point of the sound, with the other pitch adding a quasi-untrained colour. In this way, the technique. like aleatoric microtonality, evokes ruination. The sound of the instrument is rendered broken yet still identifiable. This is first heard in the clarinets as a background texture at **bar 77**, a shadow occasionally trailing pitches from the main melodic line.

The first major change occurs at **bar 90,** when the trombone, horn, and tubular bells interject with a combination of microtonal voice-leading and harmonic-series microtonality. The trombone begins on a slightly flattened B ♭ , approximating the 7th partial of the C in the horn and bells. This is then microtonally voice led down to an A in approximately eighth-tone steps. Here, the uncanny and deep nostalgia emerge in the pause between more conventional musics, intoned by a lone trombone. This continues to separate harmonic-series microtonality from the main musical dialogue, but it also hints at a more prominent role, appearing in the midst of a movement, albeit in an exposed and distinct context. The combination with microtonal voice leading, which at this point is strongly associated with tonal and traditional materials, contributes to the continued evolution of the harmonic-series microtonality, which immediately transitions, at **bar 92**, into a traditionally tonal section utilising microtonal bending once again.

Bar 98-101: The trombones return with microtonal voice-leading, still highly prominent in the texture yet fully integrated into the tonal framework, alongside microtonal bending. The pointillistic woodwind texture returns at **bar 101**, now recontextualised by the surrounding microtonality to become a more integrated part of the music, rather than a colourful addition.

Bars 110-116: The melodic line from the first movement of the piece recurs, with the woodwinds now adding microtonal unisons in a way that destabilises the traditional tonality and romantic orchestral gestures (figure 35). Simultaneously, the trombones begin to use harmonic-series microtonality, integrating microtonally flattened sevenths into the music, albeit briefly and subtly. This pastoral nostalgia is very lightly scattered onto a ruined-tonal texture.

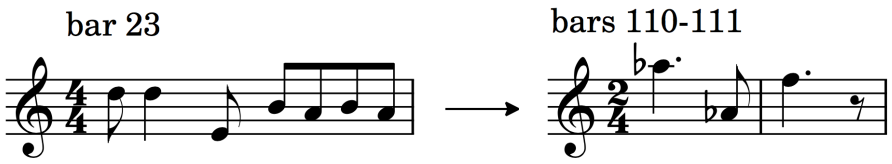

Figure 35: Motivic repetition in *SLEEPTALKER*.

Bar 127-135: Movement two ends with substantial microtonal voice-leading and upward microtonal bending, a warped tonality leading directly into another two transitional string chords of harmonic-series microtonality that lead directly into the third movement.

From **bar 136 to 158**, the main microtonal elements are found in gradually rising glissandi in the trombones and in the strings. Movement three features very little of the downward microtonal bending prominent in movement one. Rather, upward microtonal bending contributes to the overall tendency of the music to rise in pitch and intensity. Similarly, microtonal voice-leading is nearly entirely absent, although the characteristic tendency of this technique—to take things from a start point to an end point—is transferred to the glissando material.

At the entry of the oboes and bassoons at **bar 159**, a combination of aleatoric microtonality and microtonal unison is introduced in the use of alternate fingerings, which allow the performers to produce microtonal pitches at will in a way that colours the main 12-TET pitch. These interactions continue until **bar 198**, where the high clarinets begin introducing prominent microtonal unisons into the melody (the same motivic cell heard in movements one and two) (figure 36).

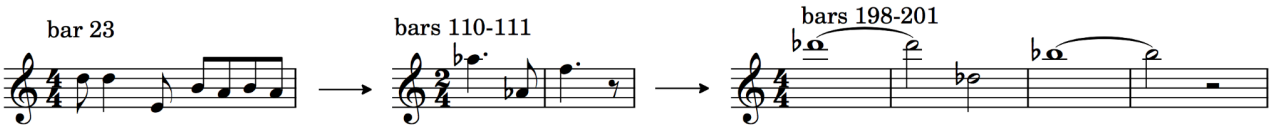

Figure 36: Further motivic repetition in *SLEEPTALKER*.

Bar 201: Oboe and bassoon multiphonics add to the chaotic quality, introducing aleatoric microtones and, with the microtonal unisons, helping to contribute to the ruination of tonality.

At **bar 221**, the harmonic-series microtonal material is for the first time strong enough to be heard in the foreground of the music, completely integrated and affirmed. The brass play microtonal pitches on the E♭ harmonic-series, melodically spelling out an ascent to the eleventh partial in two unison trumpets, before reverting to standard 12-TET tonality at **bar 256**.

Bar 237-250: The piece concludes with another triumphant, harmonic-series tutti chord—a hopeful affirmation of pastoral nostalgia—before presenting a quieter chord overlaid with aleatoric microtonal flutes, evoking the clarinets of the beginning. The “better past” of pastoral nostalgia seemed to have been fleetingly reached, before the vision crumbled before the ruins of reality.

2.7 Nasubi

Inevitably, certain works that were composed in the three-year period of the degree do not fit neatly into the overall research narrative. One such work, which nonetheless still offers interesting insights into my research, is *Nasubi*, a piece originally for solo cello, though in this portfolio it is presented in its version for violin, first recorded by Martin Suckling on 12 January 2020 and first played live by Darragh Morgan at LSO St Lukes on 17 July 2021. An important contextual note is that this piece was conceived, composed, and premiered in the very first of the UK’s Covid19 lockdowns. The five-minute piece had to be written in one week, one of many such quick-turnover projects that became popular as arts organisations hurried to create online content to replace their live programming that was no longer viable. As such, the piece was composed much more instinctively than the others were, without a preconceived relationship to the other portfolio works. It has its own microtonal logic, which I believe is somewhat independent from the techniques and associations that I have already outlined. It is for this reason that I will discuss the piece: its differences help to show the singularity of the main body of work already discussed.

Given the unusually fast turnaround required (I would usually allow a month—four times as much time to write five minutes of music), I quickly settled on a strategy that relied on repetition. In addition to featuring many repeat marks, the fabric of the material itself is highly repetitious. The problem of writing a solo string piece at such speed reminded me of Baroque composers who produced voluminous catalogues of works and who were inclined to use repetitive figuration. *Nasubi* therefore utilises a repetitive arpeggiated figure throughout, though with occasional alterations. The piece’s identity clearly rests on the figuration, much like two pieces that have a prominent place in the public imagination: the first of J. S. Bach’s preludes for keyboard, and the first of his preludes for cello.

Like Bach’s two preludes, the figuration in *Nasubi* outlines a diatonic chord, which is subjected to a harmonic progression as the piece unfolds (figure 37). The familiarity is subverted with a microtone, a C-three-quarter-sharp that adds a microtonal instability to the D minor arpeggio. In the opening bars, the quarter tone acts as an integrated part of the figuration, a quasi-timbral

ornamentation of the D which, given the tonal implications, stands out as the more “correct” of the two pitches.

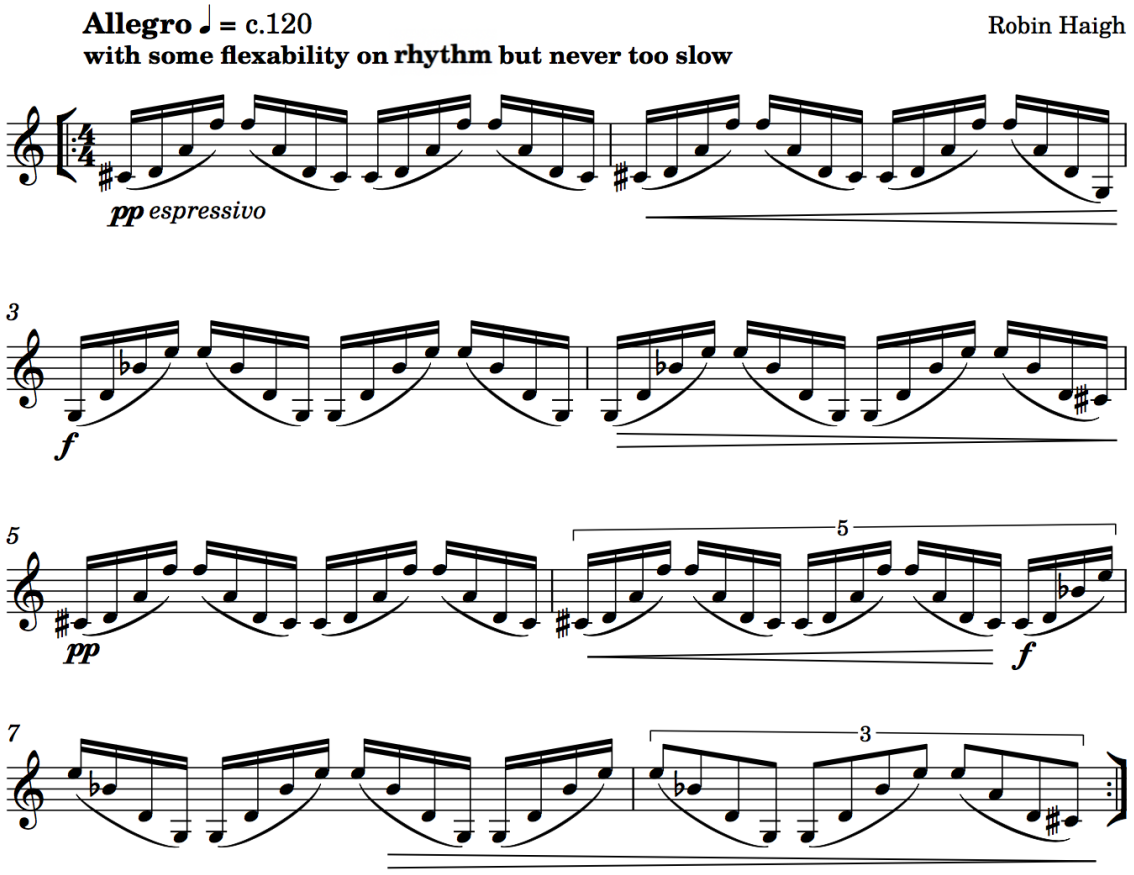

Figure 37: bars 1 to 8 of *Nasubi*.

The piece continues in this vein, with microtones continuing to act as timbral ornamentations of pitches from the “real”—tonal—harmony (figure 38).

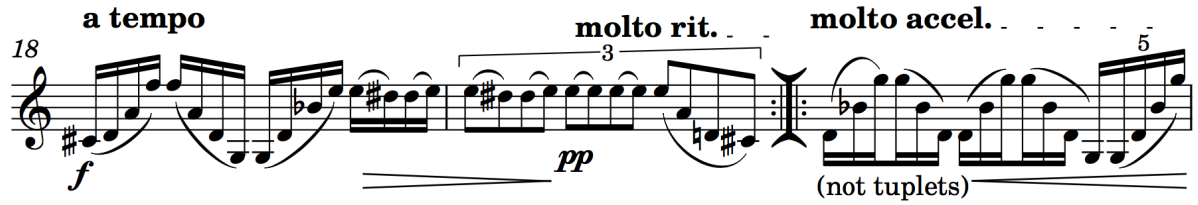

Figure 38: bars 18 to 20 of *Nasubi*.

At bar 21, however, something akin to microtonal voice-leading takes over (figure 39):

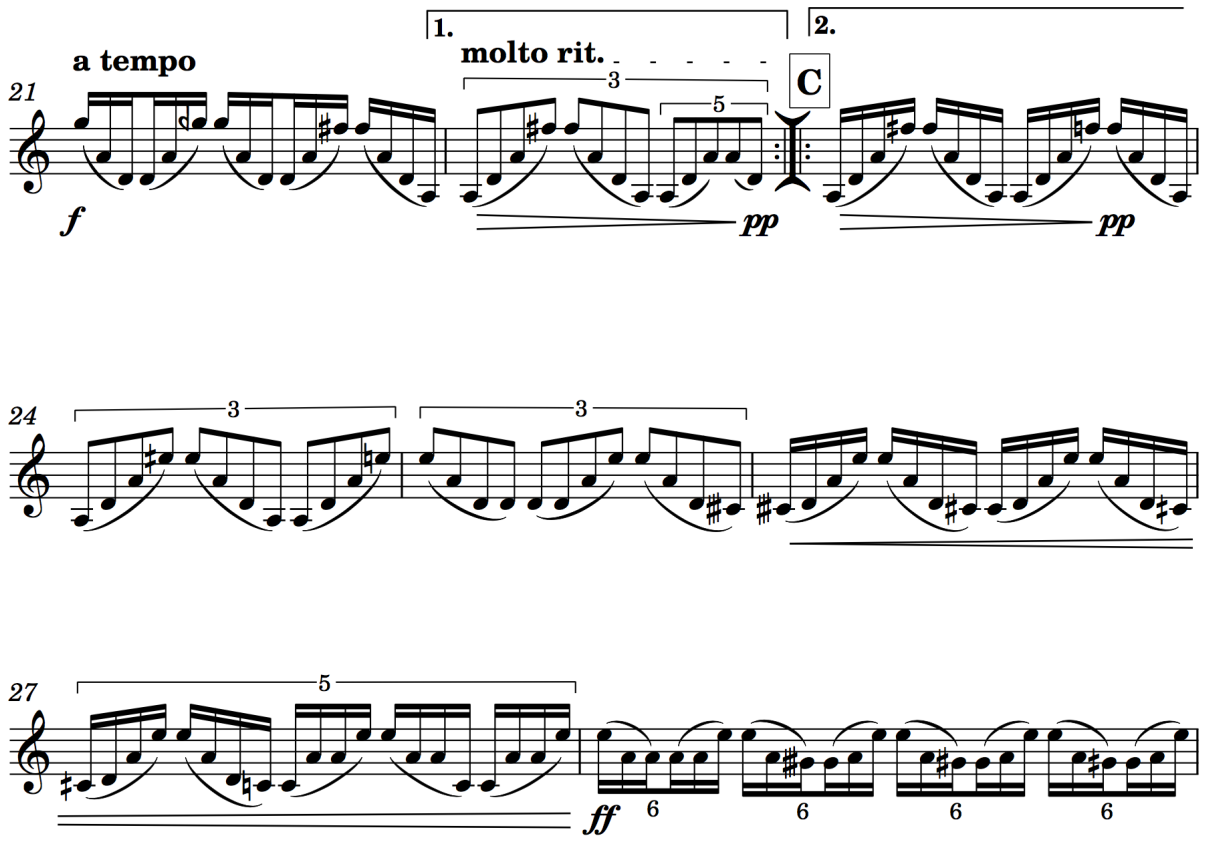

Figure 39: bars 21 to 28 of *Nasubi*.

The quarter-tone descent on the E string from G to E (bars 21, 23 and 24) and the similar descents on the G (25-27) and D string (28-29) that follow, establish a new identity for the microtones in the piece. Somewhere between an expressive articulation and a glissando, these microtones represent a deviation from the recognisable tonal identity of the rest of the music. The remainder of the piece uses microtones similarly, as interactions of articulations and glissandi. The finale, however, presents new but related material (figure 40):

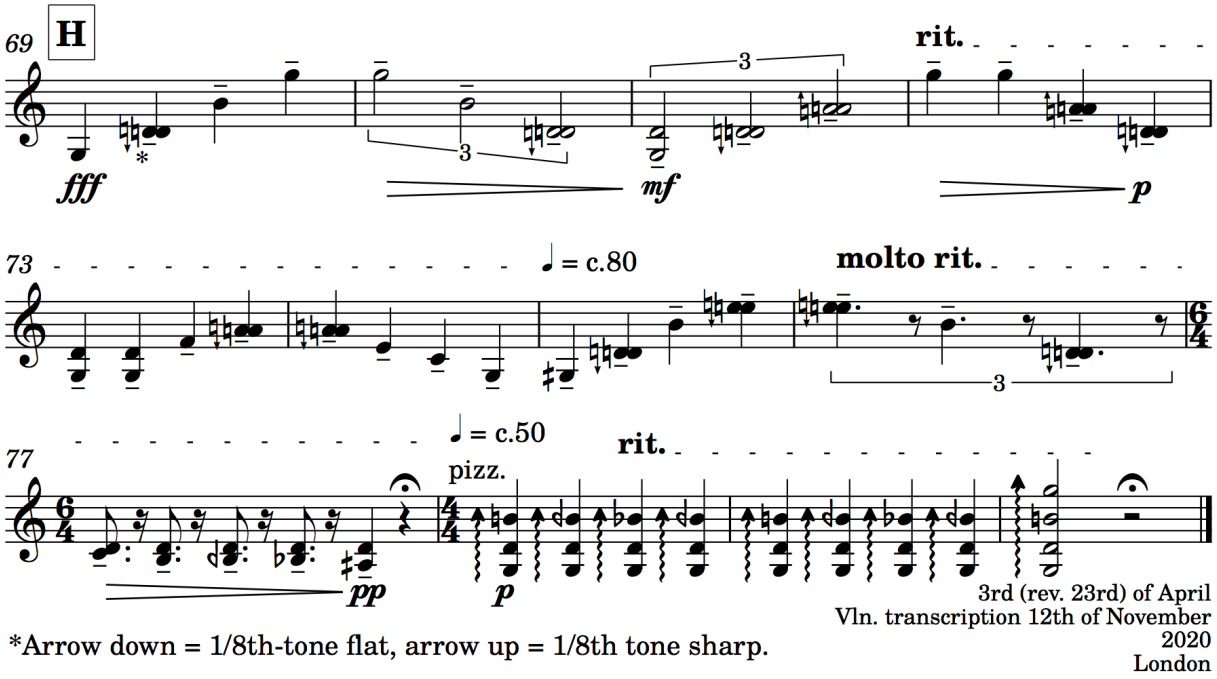

Figure 40: bars 69 to 80 of *Nasubi*.

The crotchets at bar 69 are essentially a much slower version of the main figuration, with eighth tones being used as double stops to colour pitches that can be played on open strings. This section was originally written with quarter tones; however, after the first performance I deemed these to be too “dissonant sounding” for my taste, too much like an interval rather than a colour. The final four bars allow the quarter tones some identity and freedom from the figuration: they create a microtonally voice-led melody, rather than being beholden to the figure.

This piece differs from the others for two reasons: the speed at which it had to be written, and the limited instrumentation. However, I do not consider the result to be deficient; it is merely different. *No One,* by comparison, was written about the same time and is also for a solo instrument. However, because there was ample time to compose *No One*, I was able to find a way to work within the limitations but also within my millennial-nostalgic aesthetic framework. Additionally, in *No One* I knew the performer would have sufficient time to deal with the unconventional playing, whereas *Nasubi* was written for a fairly hurried performance situation in which I wanted to avoid encumbering the performer with such concerns.

Through its status as an outlier, *Nasubi* serves to show the integrity of the rest of the portfolio. While the work is tonal and uses microtones, the latter function primarily as colouristic effects or as quasi-glissandi and never attain the same level of prominence as in other works. To me, *Nasubi* evokes a quality of sadness, of being stuck in one place and one routine, but not of millennial nostalgia. Nasubi’s primary expressive qualities come from the harmony and figuration, not the

microtonal elements that decorate these. In my main body of work, conversely, microtonality is intended to be the source of the expressivity. A nostalgic reading of the piece—perhaps interpreted through the Bach-like figuration, and memories associated with that repertoire—is not out of the question. However, the piece lacks the complex combination of microtonal and tonal elements that, to me, can make music particularly evocative of millennial nostalgia.

2.8 Form

While musical form is not the overall focus of this research, it is an important musical element nonetheless, and its relationship to my millennial-nostalgic aesthetic is important to a full understanding of these works. Overall, there is a fairly clear evolution in my approach to form over the course of these pieces, with earlier ones, like *Kalimotxo* and *Aesop,* favouring through-composed, quasi-dramatic forms, while later pieces—*No One*, *THREE LITTLE MAMMOTHS*, and *SLEEPTALKER*–favour collections of shorter individual sections. This change is linked to a growing interest in formal simplicity over the course of my research. I gradually came to the opinion that rather than artificially imposing form onto a composition (both *Kalimotxo* and *Aesop* used pre-determined formal structures), form should instead be used to give the listener the clearest possible mental picture of a piece.

SLEEPTALKER is a good example. In this piece, I wanted each of the three movements to be highly distinct from each other, and to contain music with a clear direction. In each movement, therefore, I tried to make clear reference to a specific and distinct musical style, while giving each a clear movement towards a particular goal. Thus, the first movement has a tendency to become degraded and distorted; the second, a tendency to become ever faster: and the third, a tendency to rise ever higher and louder. The material in each movement is fairly simple and understandable, and it is prone to repetition—that is, I tried to value comprehensibility. These formal tendencies were intended to be representative of specific millennial fears and anxieties: the distorting, degrading first movement directly addressing sentimentality around outdated media, and the ever-quickening, ever rising-second and third movements representing the feeling of uncomfortable acceleration on a global scale, of the world spiralling out of control and the sense of helplessness this creates.

Grin, SLEEPTALKER's predecessor, uses similar formal tactics, with the first and third sections built around a continuous acceleration in tempo. The piece still bears some of the narrative inclinations of my earlier work, though the three sections are much more clearly distinct than the more convoluted structures used in *Kalimotxo* and *Aesop*. *No One, THREE LITTLE MAMMOTHS,*

and *Nasubi* are less concerned with such large-scale thinking, instead focussing on short movements occupied with one or two ideas that do not drastically change.

Many of the pieces I have written end with a sort of frivolous dying away; *Kalimotxo, Aesop, Grin, No One,* and *SLEEPTALKER* all do so, and this is something I consider important in linking their forms to millennial nostalgia. The only works that don't—*THREE LITTLE MAMMOTHS* and *Nasubi*—are works which, as I have already described, fall outside the millennial-nostalgic model in some way. The frivolous dissolutions are, in four out of five cases, preceded by loud outbursts: only *No One* differs in this regard. To me, these sorts of endings represent the same sort of pessimism as microtonal bending. Particularly in *Grin* and *SLEEPTALKER*, the loud tutti outbursts that precede the dissolution seem to herald a more conclusive ending, but these expectations are subverted and abandoned. To quote Tom Whyman, these endings are, like the people of the 21st century, "unable to aspire to any of the things that we have been brought up to think would make us 'real' people"—"disappointed," "disinvested."[70] The tonal musical gestures give the listener a sense of the music's "aspirations," while the microtones and frivolous endings reveal its inability to live up to them.

Conclusions

My aim in this PhD was to develop a musical language that would be aesthetically informed by the concept of millennial nostalgia. Through a methodology inspired by Vaporwave, I intended to find an approach to contemporary classical music that could aesthetically respond to millennial nostalgia in a distinct way: by "making strange" recognisable tonal materials through a variety of microtonal techniques.

Each of the techniques that I absorbed into my practice over the course of this project can be linked to specific aesthetic and expressive purposes. Used in isolation, of course, these techniques are not guaranteed to express or evoke anything; context is important, and building that context was equally crucial to the development of my musical language through the works in this portfolio.

Kalimotxo is unsuccessful to me in expressing millennial nostalgia. The uncanny nature of the microtonal voice-leading serves to offset the excessive cheeriness of the material, but the whole shows the lack in my ability to fully control and understand the technique and its possibilities when

[70] Tom Whyman, "Oh, They Have the Internet on Computers Now? The Online Art of The Simpsons," *Post Memes* (2019): 199.

used in conjunction with tonality. Nevertheless, it was important to write this piece; it began to unravel some of the important strands that would continue to grow in prominence in later works.

Aesop represents a significant step towards my objectives, utilising a more considered approach to microtonal voice-leading, while also allowing me to gain more confidence with harmonic-series microtonality and aleatoric microtonality. As a chamber piece for diverse instruments, it was an important opportunity for me to test out ideas applicable to larger and still more diverse ensembles, and as such laid important groundwork for *Grin* and *SLEEPTALKER*. *Aesop* was the only work where I had any real flexibility in choosing the instrumentation, and the ensemble consequently is clearly “custom-built” to be nostalgic. The choice to use a recorder soloist, and especially the classroom sound evoked by the doubling musicians, is specifically intended to evoke nostalgic memories. Certain matters still needed improvement, however; the sound of the recorders may have been nostalgic, but their context and use ultimately came across as more wholesome than pessimistic. To me, this didn’t further the ultimate aim of depicting millennial nostalgia.

Grin addressed this deficiency by introducing downward microtonal bending. In this simple gesture, I sensed an expression of the pessimism of the millennial condition. As soon as I discovered the sound, it became a staple part of my musical language, and features very heavily in all works since. Having discovered microtonal bending, I felt confident that now I had a full roster of techniques at my disposal, to be further honed in order to distil a sense of millennial nostalgia as sensitively as possible. I am more satisfied with *Grin* as a piece of music than *Aesop* and *Kalimotxo*, but I could see there were still improvements to be made in the expression of millennial nostalgia, particularly in the further development of harmonic-series microtonality in my musical language.

Nasubi was notable in that it provided an alternate look at tonal and microtonal materials: its contrasts with the other works made for useful reflections on the strength of the techniques being developed. Meanwhile, *No One* was something of a side-step in the portfolio, but it is an important piece nonetheless. Precisely because it was small in scale, and limited in instrumentation, this piece showed me that large, varied forces were not crucial in the depiction of millennial nostalgia. The constrained instrumentation of solo harp prevented a full exploration of all four microtonal techniques, but the intimacy of the performing situation provided a unique opportunity to deeply explore a sound-world built from a combination of supportive techniques. The piece’s slide technique unites aleatoric microtonality, microtonal bending, and even, at times, microtonal voice-leading in a completely integrated way, with all overlaid onto a traditionally tonal framework. To me, this piece is highly successful in evoking the most hopeless version of millennial nostalgia imaginable; in this sense, it perhaps *too* bleak—the faded memories of a brighter past are

completely abandoned, unquestionably ruined. The final two works in the portfolio use a more balanced combination of techniques to create more varied expressive outlooks.

In *THREE LITTLE MAMMOTHS*, a quite different atmosphere was required, and for this reason I took the opportunity to explore the least utilised of my techniques, harmonic-series microtonality. As the child-friendly topic of the piece limited the scope for expressing millennial nostalgia, this was a useful opportunity to explore the ways the pastoral nostalgia of harmonic-series microtonality could be combined with the other techniques in accessible tonal contexts.

With all four techniques developed to a point at which they were flexible, combinable, and easy to integrate into tonal contexts, *SLEEPTALKER* provided the opportunity to put them all to use in a way that was well informed by my previous works. I believe that the use of techniques was well considered, matched thoughtfully with tonal materials that would best express millennial nostalgia, and formed in such a way as to create a traceable microtonal dramaturgy throughout the work.

I do not believe that I am destined to use these techniques forever, nor that millennial nostalgia will be a primary aesthetic concern for the entirety of my artistic career. Millennial nostalgia, as I describe it in this commentary, is of a time and place, and I see it as likely that my aesthetic interests will evolve as I, my time, and my place, evolve similarly. However, having this closely considered period of aesthetic research, with particular attention paid to the musical techniques employed and the ideas behind them, creates a very strong base of sounds and ideas to build from, even if the focus may change.

In the future, I plan for my work to draw less on the gestural language of western classical music and instead to be influenced by a broader palette of genres, while still exploring the intersection of tonality and microtonality. By moving in this direction, I will test the effectiveness of the techniques I have developed outside of the specific contexts for which they were created, and I hope to find new and richer expressive opportunities through the continued evolution, development, and application of these techniques in new areas. The works I have written following the initial submission of this portfolio and commentary, *AESOP 2* and *THE DREAMERS* (both works for large ensemble and soloists) show the beginnings of this evolution, with freer approaches to microtonality coupled with a greater interest in harmonic cycles. These initial developments are likely to lead to further developments in my musical practice in years to come.

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