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Site and Sound: musical composition and site-specific performance – developing a creative practice through practical methodologies

Thesis presented by

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for the degree of

Doctor of Philosophy

University College Cork

School of Music and Theatre

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(map 5.23)
(image 6.8)

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Declaration:

I declare that this is my own original work and that it has not been previously submitted for any other degree, either to University College Cork or elsewhere.



Tom Lane

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ABSTRACT

This practice-based Ph.D. investigates ways of developing site-specific performances through a variety of methodologies in order to sonically address the relationships between space, mobility and sound, focussing on mobile communication technologies as well as objects and locations such as bridges and rivers. The central creative research questions developed from this experimental practice and process are as follows: how does one create site-specific performances using mobile technologies in urban spaces? How can sound and music be used to create performances in locations associated with movement such as trains, bridges and rivers? How can musical composition integrate spaces, locations and physical objects to create unique site-specific performances?

The documented work in this thesis offers a wide range of pieces addressing these questions across different media, scales and locations. The various practical approaches to creating performances documents and reflects the development of a practice based on creating performances in specific locations. Through continuous experimentation with forms and methodologies, the challenges and opportunities of site-specific performances are approached through practical and creative solutions. Alongside the portfolio, a written thesis gives a detailed account of each step of the creative process. This includes personal diary entries describing specific sites and experiences as well as analysis and explanations of every level of creative decision making.

In addition to this analysis of a creative practice, through the discussion and analysis of related literatures of site-specific performance, sound studies, and concepts of place-making, this Ph.D. establishes a theoretical framework to further explore issues raised by site-specific performance, foregrounding the aspects of sound and acoustic awareness in these contexts. Through continuous creative experimentation in the context of theoretical and practice-based research, this work extends and develops the legacies of sonic site-specific performance and composition while generating detailed approaches to offer further methods of creating future output.

CHAPTER 1
INTRODUCTION

Introduction

This practice-based Ph.D. consists of a portfolio of eight pieces and this written text. Throughout this thesis I will refer to my individual works as "pieces" because I find this to be the most comprehensively descriptive overall term which takes into account the interdisciplinary nature of my work[1]. The pieces were created between 2013 and 2016. I was the principal creative force behind all of the music and sound contained in these pieces. In my role as composer, I created the musical material and in many cases I was also the musical director for the live performances. Through the use of diary extracts, score extracts and sound examples, this accompanying written document gives full and detailed accounts of how each piece was created. I describe the process of creating the pieces in a sequential style, influenced by David Toop's personal sound observations in his book *Sinister Resonance* (2010) and Justin Bennett's chapter *Shotgun Diary* from *Site of Sound #2* edited by Brandon LaBelle and Cláudia Martinho (2011). These works demonstrate an effective way of writing about creative processes rooted in sound and composition.

In addition, this thesis constructs a theoretical framework to analyse the portfolio pieces. This framework is built around four strands of research which correspond to key themes in my work. The first strand is an exploration of research into site-specific performances. This strand encompasses definitions and categorisation of site-specific performance and allows me to situate my own work within this context. The second is a deeper investigation into theoretical concepts of space and place and what implications these have on contemporary performance practice, in particular focussing on the effect of movement and walking on definitions of place and on site-specific performance. The third strand explores concepts of sound and listening in the context of Sound Studies. In particular, this will focus on the effects of headphone and personal stereo use in urban spaces. The fourth strand explores the theory behind the potential transformation of objects or places into musical instruments. By combining these four strands of research, this theoretical framework will allow unique insights into my creative process. For example, the fourth strand of research relating to "instrumentalizing" can be combined with the second strand. The second strand of research relates to ways in which site-specific performances define the locations and spaces in which they take place. If a performance transforms a location or an object into an instrument or source of sound then this can have key implications for how the space is defined and experienced.

[1] Pieces such as *The Shakey Bridge Listening Project* and *Hidden Currents* are audio pieces which are experienced by individuals in specific locations, whereas pieces such as *Underground Gothic for Viola* and *Beats, Bells and Bridges* are scored for instrumentalists for live performances. Other pieces such as *Underground Gothic* and *Harp | A River Cantata* contain a substantial live theatrical and visual element. Within these three types of work several different terms could be used. These range from soundwalk, audio walk, performance, event and piece. I choose piece because it can be used to describe all of the work in my portfolio.

The construction of this framework is necessary because of the diverse nature of my portfolio pieces. The interdisciplinary nature of my practice means that these pieces combine musical composition, sound design, movement, visual elements and text. Simply analysing the pieces on a musical level would not fully explore the contribution of these components. Throughout this thesis I will refer to related works which influenced me and which establish a context for my work and its contribution to knowledge. I undertook much of the theoretical research alongside the practical element of this Ph.D. As such, much of the practice and theory I present in this thesis are closely intertwined.

This introductory chapter gives a conceptual overview of theoretical positions related to site-specific performance. This chapter also outlines the research questions raised in my thesis, as well as providing a review of existing literature on this subject area. The subsequent chapters describe my portfolio pieces in greater detail and situate my work in relation to the theoretical positions outlined in the introduction. For the purposes of these chapters I have divided my eight pieces into three groups based on their key themes, the types of performance sites, and their performance media. A conclusion following these chapters will discuss all of the pieces included in the portfolio. This will show how my portfolio represents a coherent body of work which establishes my work as a substantial contribution to contemporary site-specific performance practice and composition. In particular, I will demonstrate how my background as a composer has influenced my approaches to the creation of site-specific performances. A methodology which will emerge as a central part of my practice is the way in which I use musical composition to interpret places and objects as instruments. This will primarily be addressed in Chapter 4 of this thesis. Another key theme is a key focus on experimentation and a continuously developing practice.

I originally trained as a composer of instrumental and vocal concert music. During my studies in Berlin at the University of the Arts I became increasingly influenced by music theatre and opera composition. Encounters with site-specific music theatre as both performer and audience member led me to become more and more driven towards creating new pieces for unusual situations and locations. In contrast to the concert-based conservatoire training I had received in the United Kingdom, site-specific performances suggested to me a way of creating a deeper connection with a broader audience. Formal, indoor concert settings can appear exclusionary and difficult to access. From my perspective it seemed to follow that by taking performances outdoors and into the open, site-specific performances can provide access to a different demographic[2].

[2] Performance spaces are enclosed for a variety of practical reasons, important ones being acoustics and the need to create a warm and dry environment. Enclosing spaces also allows events to be ticketed and marketed. It is notable that the majority of my pieces in this portfolio were free for audiences to access. This may not be economically sustainable

In addition to being influenced by the performance location and style of these events, I also sought to incorporate non-musical elements into my pieces to achieve a more complete form of performance. This led me to create my first site-specific music theatre piece *Abenteuer Im Einrichtungshaus* [Adventures in a Furniture Store] in Berlin in 2009. This was later revived as *Flåtpäck* in Dublin in 2012. In this thesis I will demonstrate how in the following years from 2013-2016 I continued to develop this site-specific practice. This practice incorporates visual, spatial and movement elements as well as text, sound and musical content. This thesis will show how my compositional work presents and combines these diverse elements in coherent and structured ways. Despite incorporating many non-musical elements, my practice is rooted in musical composition. This combination of non-musical elements with the structural and organisational principals of musical composition is what underpins my approach to creating site-specific performances.

This written document is intended to be read alongside the documentation of my portfolio pieces. Printed copies of the thesis text and scores are provided as hard copies. The complete audio-visual documentation of the portfolio is accessible online at www.tomlaneportfolio.weebly.com. Please note, it is important to use good quality headphones when listening to the pieces. Many of the recordings feature particular stereo and binaural effects which can only be experienced through headphones.

but it is in keeping with the motivation to allow contemporary music to reach a less exclusive audience.

Overview of Portfolio Pieces

This overview gives a broad outline of the eight pieces contained in my portfolio. I also describe what documentation is included for each piece and begin to outline the research questions which the pieces relate to. In the cases of pieces which were created as pre-recorded audio tracks, the score is derived from the Digital Audio Workspace[3] or DAW in which the sounds were sequenced. Throughout this thesis, I refer to my own work using the word 'piece' to give an accurate description of my site-specific work. My pieces are not simply musical compositions or outdoor spectacles. The word 'piece' allows me to refer to the interdisciplinary aspects of my work which incorporate elements of theatre, music, sound design, choreography and visual design.

The Shakey Bridge Performance Experiment (25th of February 2013)
This piece featured live choral performance on the Shakey Bridge in Cork City. A group of twenty performers were synchronised using pre-recorded audio tracks. Each individual listened to these tracks using headphones and personal MP3 players. This piece was an early exploration into site-specific performance using pre-recorded tracks to direct groups of individuals. This performance began my series of pieces on and about bridges, and by extension, rivers. This was the first time I had created a performance which explored the impact of bringing specifically composed music to an existing outdoor site. This piece began to investigate ways of creating site-specific performances which are controlled by pre-recorded tracks.

Documentation: musical score, written score, video, pre-recorded headphone tracks, performance location map.

BridgeSong (27th of April 2013)
This piece created a “flashmob” style event on the Opera House bridge in Cork City. A group of eight performers were synchronised using pre-recorded audio tracks and MP3 players. This piece further developed the techniques I explored in *The Shakey Bridge Performance Experiment* to create a more coherent and focussed performance. The piece again brought newly composed live music to a specific outdoor site. I used presentation techniques appropriate to the location and strengths of the performers to create a short performance intervention in the heart of Cork city. This piece presented a more confident methodology of creating a site-specific choral performance using pre-recorded tracks in outdoor environments. The research question related most closely to *The Shakey Bridge Performance Experiment* and *BridgeSong* is: how does one create a site-specific

[3] The DAW is the software used to sequence and layer a collection of pre-recorded audio material. In these pieces I have used the open source programme *Audacity.*

choral performance using pre-recorded audio tracks?

Documentation: musical score, video, pre-recorded headphone track, performance location map.

The Shakey Bridge Listening Project (21st - 30th of June 2013)
This piece featured two downloadable audio tracks which audiences listened to on the Shakey Bridge in Cork City. The tracks featured a narrator and sound recorded from the bridge itself. This piece continued my series of pieces performed on bridges. This was an important piece since it presented pre-recorded tracks directly to audiences through headphones. This piece also developed my ability to manipulate and combine recorded sound material in a composed way. The sound material was recorded directly from the performance site itself using contact microphones. This technique allowed me to derive sound directly from the site in which the piece was performed. Compared to the two earlier pieces in my portfolio, this piece also allowed me to create sound which was directly and intrinsically related to the place in which the performance would be experienced. This piece explored ways of deriving music and sound from specific places for the purposes of creating performances in those locations.

Documentation: DAW-derived score, written text, video, audio extracts, pre-recorded headphone tracks, event information from Cork Midsummer Festival website (2013 and 2020), performance location map.

Harp | A River Cantata (6th of September 2014)
This was an outdoor site-specific performance on the Samuel Beckett Bridge in Dublin. The performance featured live and recorded music and over 120 performers. The fourth in my series of bridge pieces, this combined sound material recorded directly from the bridge itself with a large-scale score for live performance. The event was created as an outdoor spectacle and incorporated a narrative based on the mythical harp of the *Dagda*. Although I created and co-ordinated the musical and sound elements of the piece, the scale of the event necessitated the collaboration of many different individuals including director Conor Hanratty and producer Matthew Smyth. This performance radically extended the scale and scope techniques I first used in *The Shakey Bridge Listening Project*. The piece combined material recorded directly from the performance location with live musical performance. The stated aim for this piece was to transform the bridge into an instrument. This led me to foreground the concept of instrumentalizing objects and places, a technique which I later applied in a very direct way to *Beats, Bells and Bridges* in 2016. This piece extended my methodologies surrounding the ways in which I derive sound from specific places.

Documentation: musical score, video, audio extracts, images, performance location map, site-diagram.

Underground Gothic (26th of October 2014)

This was a performance on a special train journey which travelled through a tunnel connecting Connolly and Heuston stations in Dublin. The performance featured dialogue and sound recorded from trains which was played through radio headphones. In addition, the piece featured a live drummer who performed in combination with sound played through the train's PA system. Sound material was derived from the interior of moving trains. This piece used pre-recorded tracks in combination with live performance elements and the complete event was created in collaboration with director Maeve Stone. The performance extended the range of performance sites included in my portfolio to include moving trains. This piece was the first in this site-specific portfolio to take place in an enclosed space rather than outdoors in the open air. This feature of the performance location was amplified by the sound design and subject matter of the piece. This piece began to ask questions about how site-specific performances are experienced in places of movement. How can sound and music be used to create a performance in a moving train?

Documentation: DAW-derived score, images, audio extracts, complete audio track, performance route map.

Underground Gothic for Viola and Recorded Sound (First performed 12th of June 2015)

This piece was created as an instrumental version of the site-specific train version of Underground Gothic. It is scored for recorded sound and live amplified viola. This piece was an exploration of the effect of transferring an originally site-specific piece to the more conventional and generic environment of a concert hall. As with the original *Underground Gothic*, this piece was performed in an indoor location. In contrast with *Underground Gothic*, this location was in a static building as opposed to a moving train carriage. Through its use of a more conventional performance location, this piece presented an originally site-specific composition in a completely different light.

Documentation: musical score, audio recording, performance images, performance location map, video of additional site-specific performance in July 2020.

Hidden Currents (6th - 8th of February 2015 and 12th - 20th of June 2015)

This piece was presented as a continuous audio track which was played through MP3 players and

headphones. The piece featured a narrator and sound recorded from the River Lee in Cork City. The piece guided audiences on a route which traced the visible and invisible path of the river through the city. The piece continued my work with headphones and pre-recorded tracks for audience members. Since the audience walked for most of the duration of piece, the performance site was continually moving. Movement became central to the audience's experience of the piece. This piece developed my practice of creating site-specific performances using pre-recorded for audience members. This continued a process which began with *The Shakey Bridge Listening Project* in 2013. How can one create site-specific performances using pre-recorded tracks for audiences in urban spaces?

Documentation: DAW-derived score, video, two route maps, audio extracts, images, event information from Cork Midsummer Festival website (2015 and 2020).

Beats, Bells and Bridges (25th and 26th of June 2016)
A sequence of three percussion pieces written for three locations in Cork City. Percussionists Alex Petcu and Brian O'Regan performed these pieces at the Mardyke Bridge, the University College Cork quadrangle, and the Shandon Bell Tower. In contrast to all of the other parts of my portfolio, these works were performed entirely acoustically without any pre-recorded sound material. As well as containing musical material, the compositions also treated space and location as composed elements. For example, in *Bridges* the sound of playing the bridge structure was incorporated into the music through a composed pattern. In *Beats*, the acoustic properties of the UCC quadrangle had a direct influence on the presentation of the musical material. In *Bells* two separate and distinct spaces (the Shandon bell tower and the Shandon craft centre) were unified and integrated through a composed musical structure. This piece focussed on questions related to the ways in which objects and places can be treated as musical instruments. How does one create a musical composition which integrates spaces, locations and specific physical objects?

Documentation: musical score, video, performance location map.

The above overview has presented short descriptions of the contents of my Ph.D portfolio. The following section of this introductory chapter will introduce the theoretical concepts which I will use to analyse these portfolio pieces.

Composition as Research

This is a practice-based Ph.D. The creative composition work featured in my portfolio is intended to be recognised as a key research element as well as this thesis. Through practical application, each piece answers specific research questions. These questions are further answered and clarified in this written document. Ian Pace argues for the acknowledgement of composition and performance as research. In his article *Composition and performance can be, and often have been, research* (Pace 2015) Pace responds to John Croft's article *Composition is not research* (Croft 2015). This ongoing discussion centres around the place of composition and performance research in the academic life of English speaking teaching institutions. Pace defends the position of composition and performance in research contexts by demonstrating how research questions can be successfully applied to even the most unlikely of subjects. For example, Pace asks how Brian Ferneyhough's Sonatas for String Quartet could be framed in terms of the question 'is it possible to sustain a large-scale composition with extensive use of a post-Webernian vocabulary, and if so, how?' (Pace 2015, 65). The application of research questions such as these allow compositional practices to be evaluated and discussed in a way which qualifies the work as research. My portfolio and my thesis both seek to find answers to specific research questions relevant to my own practice. Key research questions in my own work are concerned with methodologies of creating site-specific performances, the ways in which is it is possible to derive sound from specific places for use in these performances, and the ways in which places and objects can be treated as instruments and compositional elements. These research questions are significant because they reflect the decisions which I am confronted with while creating site-specific performances. In this way, both the pieces presented as part of my portfolio and this written document should be considered as research.

A feature of creative work is that although a project might start out with specific research questions, more questions will be raised throughout a creative process. For example, an idea to create a piece of performance on a bridge could be initiated by a specific research question: how do I create a site-specific performance on this bridge using readily accessible mobile technologies? Throughout every step of the process there will be many more questions relating to ever more detailed choices. It is up to the creator to make decisions to answer these questions in order to achieve a finished piece. These answers may be one of many possible outcomes but each must be addressed before progress can be made.

Site-specific Performance Theory

This section begins to establish a theoretical frame-work to analyse the key elements of my Ph.D research. The concept of site-specific performance is a key part of this. Site-specific performance has its origins in the "happenings" and environmental performances of the 1960s (Kwon 2002, McKinnie 2012)[4]. Contemporary site-specific performance practices began to appear internationally from the 1990s onwards (Tompkins 2012, 6). Site-specific performances can represent an attempt to break out of established value systems. Baz Kershaw states that 'performances in theatre buildings are deeply embedded in theatre as a *disciplinary system*' (Kershaw 1999, 31, emphasis in original). The hierarchy and administrative structures which exist in theatres inevitably have a profound influence on the performances created within them. Ngũgĩ wa Thiong'o asserts that 'the struggle for performance space is integral to the struggle for democratic space and social justice' (Thiong'o 1997, 28). Situating performances away from theatre buildings can free them from the conventions and systems associated with traditional spaces. My ongoing commitment to site-specific performance is related to these anti-establishment motivations. As a young composer seeking new performance opportunities and new contexts for my work, site-specific work allows me to create a entirely environments and settings for my work. In contrast to Thiong'o's position, my work does not directly deal with a struggle for democratic and social justice. Although contemporary music composition occupies a relatively central and well funded position in my cultural milieu, situating music performances in non-concert based settings is a much more marginal field of speciality.

For me, taking contemporary music out of the concert hall opens up a new landscape of collaborative and creative opportunities. Working from the assumption that any location is a potential performance site, the possibilities for creating new work are endless. In addition, site-specific performances allow me to bring contemporary music closer to the lives of audiences by bringing the music to the people it is aimed at. My personal interest in site-specific performance began in Berlin in 2008-2009 where I was part of several site-specific opera and theatre projects as part of my studies at the Berlin University of the Arts[5]. These experiences made a lasting impact on

[4] McKinnie cites the example of Richard Schechner's '6 Axioms for Environmental Theatre' from 1968, an analysis of contemporaneous trends in theatrical events (McKinnie 2012, 22). Kwon describes site-specific art as 'a return of sorts: an attempt to rehabilitate the criticality associated with the anti-idealist, anti-commercial site-specific practices of the late 1960s and early 1970s' (Kwon 2002, 1).

[5] *Südliche Autobahn* (Berlin, 2007-8) was a music theatre performance based on the works of Julio Cortázar which took place on buses and service stations around Berlin. *Paulinenbrücke* (Stuttgart 2009) was a site-specific opera performed under a busy road flyover. In 2010 I participated as a performer in the large-scale site-specific performance *MittenDrin* (Eisenach 2010). For more information about the works of composer Daniel Ott see www.danielott.com

me and had a discernible influence on my work over the following years. Situating new music in real, authentic locations can allow compositions to connect more directly with tangible human experiences. This desire to connect with audiences on a more direct level is also what motivates me in my frequent collaborations with dance and theatre practitioners. In my opinion, contemporary music can at times tend towards an isolated and elitist position which has a marked restriction on its social impact and audience base.

Based on my own experiences, I began my Ph.D. studies with a literal definition of site-specific performance: “a performance specific to a particular site”. However, a deeper understanding of site-specific performance practices demands a more precise definition since this description could include performances in specific theatres and auditoriums. Every performance space is unique and any given performance in a unique space could be argued to be specifically created for that space. In recent performance practice, *site-specific* implies a performance in unusual and unexpected settings. In practical terms, *site-specific performance* is a term which is generally used to describe performances outside of purpose-built performance spaces. For example, the majority of theatre performances take place within theatre buildings. Similarly, western classical music has its traditional place in a concert hall or opera house. Site-specific performances take place in settings which are often chosen for their inherently unique qualities. Locating performances outside of conventional theatre spaces inevitably draws attention to the space in which the event is taking place. The choice of an unusual performance location raises questions about the relationship of a given performance to the space in which it is experienced. In contrast, traditional performance spaces are generally assumed to function neutrally in relationship to the performances they host. This is because a space which has been built to accommodate many different types of performances must be adaptable to the needs of any given production or event. An unusual location which is not purpose-built as a flexible performance space may have many inherent qualities and features which must be negotiated with and accounted for. In chapters 2, 3 and 4 of this thesis I will demonstrate how I have created performances for many different types of spaces which are not traditional performance locations. These spaces present many challenges and unique opportunities which must be considered when creating site-specific performances. In much of my site-specific work the performances take place outside, outside of spaces which were specifically created to contain music and theatre such as concert halls and stages. These traditional spaces are build to contain and enhance performance by allowing control over parameters such as sound, lighting and perspective. As well as this they enable a marketable monetization of a performed product in the way that they limit audience numbers to those who have acquired tickets. Locating performances in outdoor settings can present specific challenges around the control of the acoustics and lighting, but it also

changes who is able to see and hear an event due to the difficulties of containing something in the same way as an indoor space can.

The atmosphere of a non-traditional performance location can add a new dimension to existing theatrical texts and performances. Patrice Pavis gives a definition of site-specific performance which relates primarily to the practice of locating theatrical performances outside of established theatre spaces[6] (Pavis 1998). Written for a *Dictionary of the Theatre*, Pavis's observations relate specifically to practices originating in theatre and to existing texts. This type of site-specific performance relates to using the inherent qualities of a found space to colour the reception of a text which was created for an entirely different context. Although this theatrical practice informs and influences my own work, my practice is more frequently concerned with performances which use content created specifically for and from the locations in which they are performed. This highlights a key distinction in site-specific practice, between work which brings existing performance material to a location and work which is created specifically for a place. Much of my site-specific practice is concerned with creating performances from material derived from specific places. This creates a very specific type of relationship between a site and a performance. In pieces such as *The Shakey Bridge Listening Project*, *Hidden Currents* and *Harp \ A River Cantata*, I used sound sourced from the performance sites themselves as part of their musical and sound material. These pieces were created specifically for the places in which they take place, and their subject matter is also directly related to their performance location. I began using contact microphones to extract sound information from specific places in 2013 with *The Shakey Bridge Listening Project.* Since this piece, my practice has been more concerned with creating work for and about specific locations than with bringing existing work to new locations. This motivation is derived from my desire to connect contemporary music more directly to a broader audience demographic. By using material directly extracted from a location, I seek to anchor performances to more everyday experiences and to intersect with the experiences of existing locations. I will explore the ways I moved towards a more directly derived site-specific sound material in chapters 2 and 3 of this thesis.

More precise categorisation of site-specific performances leads to greater emphasis being placed on the relationship of a performance to a site. For example, Fiona Wilkie identifies three categories:

[6] 'A staging and performance conceived on the basis of a place in the real world (ergo outside the established theatre). A large part of the work has to do with researching a place, often an unusual one that is imbued with history or permeated with atmosphere [....] The insertion of a classical or modern text in this 'found space' throws new light on it, gives it an unsuspected power, and places the audience at an entirely different relationship to the text, the place and the purpose for being there. This new context provides a new situation or enunciation […] and gives the performance an unusual setting of great charm and power." (Pavis 1998, 337-8).

'Site-sympathetic (an existing performance text physicalized in a selected site), *site-generic* (a performance generated for a series of related sites), and *site-specific* (a performance specifically generated from/for one selected site)' (Wilkie 2002, 150). These three definitions focus on the ways in which the properties of a performance relate to the site in which it is performed. Despite these exact delineations, few instances of site-specific performance fit precisely into just one of these categories. This fluidity of form is also reflected in contemporary academic writing about site-specific performance. Mike Pearson notes a recent shift in site-specific scholarship away from general categorization and towards a 'closer scrutiny of the specificity of each instance of performance' (Pearson 2010, 8). The relationship between site and performance in my own work varies substantially across the pieces included in my portfolio. Each instance of performance demands a re-examination of this relationship. I regard my experience as a composer of music to be invaluable in my work creating site-specific performances. In my practice as a composer, I re-examine the relationships between each instrument and voice in each new musical work. In a similar way, in my site-specific performance practice, I interpret any given performance location using methodologies which are appropriate and related to each situation. Since this piece of writing is a very personal one which focusses closely on my own work I write mainly about my own specific compositional practice. However, I contend that the same flexibility of approach and methodology which I apply to musical parameters in my compositional practice extends to my handling of spatial elements in my site-specific performances. For example, *Underground Gothic* (explored in greater detail in Chapter 3 of this thesis) demanded a very specific approach to performance creation because of the limitations inherent in performing on a moving train. The type of musical material and the way it was presented to audiences was a specific response to this performance situation and performance location. This is, for me, the most coherent way of approaching site-specific performance. By adapting to each new performance location, my practice allows for a dialogue between the inherent properties of a site rather than a silencing. I will be exploring these issues further in subsequent chapters. For example, Chapter 3 shows how my understanding of the questions raised by site-specific performance was shaped by the development of my practice. In particular this will relate to how, thanks to the expansion of my technical knowledge, I was able to derive sound material from objects and places. This sound material was then deployed in performances which took place in these same places. In my work, this is a way for me to create deeper connections between performances and the places in which they take place. The subject of many of my pieces is the very site in which the performances are located. The compositional techniques which I have developed (explored in greater detail in subsequent chapters) allow me to extend and enrich the experiences of audiences through the use of sound and listening. In Chapter 4 of this thesis I will demonstrate how I developed this technique to integrate

score-based musical composition with sound material derived from specific performance locations.

Relationship of Performance to Site

Nick Kaye states that site-specific performances 'articulate exchanges between the work of art and places in which its meanings are defined' (Kaye 2000, 1). Kaye also writes that 'site-specific art frequently works to *trouble* the oppositions between the site and the work' (Kaye 2000, 11, emphasis in original). This description focusses on the relationship between a piece and its performance location. This relates to Patrice Pavis's definition which describes the audience's relationship to a text in the context of a performance site (Pavis 1998, 337-8). However, whereas Pavis refers to 'the text' as the content of the performance, Kaye extends this term to mean the performance site itself when he states that 'the site functions as a text perpetually in the process of being written and being read' (Kaye 2000, 183). This perpetual re-appraisal of site emerges out of a continually changing relationship between site and performance.

The complexities of the relationship between site and performance described by Kaye are also recognised by Pearson and Shanks in their description of a holistic approach to site-specific performance[7]. This practice incorporates the particular properties of a site into the creation of a performance where 'the multiple meanings and readings of performance and site intermingle, amending and compromising one another' (Pearson and Shanks 2001, 23). This constant re-negotiation between site and performance stems from the fact that site-specific performance is 'the latest occupation of a location at which other occupations – their material traces and histories – are still apparent: site is not just an interesting, and disinterested, backdrop' (Pearson and Shanks 2001, 23). Pearson and Shanks' definition examines the relationship between 'that which is of the site' and 'that which is brought to the site' (Pearson and Shanks 2001, 23). My own work also brings external content to a site. In several of my pieces (*The Shakey Bridge Performance Experiment, BridgeSong, Beats, Bells and Bridges*) I composed new music which operated in a specific relationship to the performance location, but was not derived from it. In other pieces I used sound material which was extracted directly from the performance locations themselves. In both scenarios, something extra is brought to a site. New music which is created in a specific relationship to a location is external material which is added to a site. Recorded sound which is recorded from specific locations is inherently present at the site, but by using this material as part of a composition, something additional is also brought to a location. In the practical reality of creating site-specific performance

[7] 'Site-specific performances are conceived for, mounted within and conditioned by the particulars of found spaces, existing social situations or locations, both used and disused.' (Pearson and Shanks 2001, 23)

practice, the relationship between the site and that which is brought to the site remains fluid and active. In each instance of performance, a new conception of this relationship is required because each site is by definition a *specific* case.

Performance gives new contexts to existing relationships as well as creating new ones. Furthermore, site-specific performances are 'inseparable from their sites, the only contexts within which they are intelligible' (Pearson and Shanks 2001, 23). Pearson and Shanks describe the relationship between site and performance as complex, and deeply rooted in the qualities of specific places. This deep connection is also recognised by Fiona Wilkie who writes that 'site-specific performance engages with site as symbol, site as story-teller, site as structure' (Wilkie 2002, 158). Wilkie's position places site on an equal position with performance. My work frequently uses a specific site as the subject of a performance. As previously stated, this interest in site developed from a desire to present contemporary music in places outside of traditional performance locations. As I began to develop my practice, the content, structure and material of my pieces became more and more derived from their performance location.

This mining of sites for their sound can create a new understanding of place. By recording sound from the material of a site, I engage directly with the inherent properties of the performance location. By presenting this sound in the context of a site-specific performance the internal resonances and qualities of a place can be heard. This activation of the dormant sound of a location is central to my understanding of site-specific performance. As described above, in some of my portfolio pieces the performance material is more derived from a specific site than in others. This key part of my practice evolved throughout the development of the pieces in my portfolio.

Based on my practical experience, I agree with Pearson & Shanks's and Wilkie's positions on the constantly changing nature of the relationship between performance and site. In Chapter 2 of this thesis I will be analysing the process described above in further detail. As previously stated, the development of my site-specific performance practice is closely linked to my increased use of contact microphones to derive sound from places and objects. This increased use developed through experimentation with these technologies in specific locations.

Recent Developments in Site-Specific Performance

My own work can be situated within recent developments in site-specific performance practice. Mike Pearson notes a recent shift in site-specific performance practices from fixed to mobile forms

and from '*expositional* to *relational* modes' (Pearson 2010, 8, emphasis in original). The shift towards mobile forms is especially relevant to those pieces in my portfolio which feature transport or walking as part of the performance presentation. Those of my pieces which take place in fixed locations often feature spaces associated with movement or transit. The shift towards relational modes refers to work which explores the relationships between audience, site and performance.

Further developments in site-specific performance practice relate to the scale and to the presentation mode of the work. Claire Doherty writes that recent site-specific performance practices have included a shift from 'the spectacular re-enactment to the quiet intervention, from remedial collaboration to dialogic, open-ended process' (Doherty 2004, 11). This position highlights contemporary performance practices which specialise in a particularly intimate presentation style. This may include one-on-one encounters with performers or events with very small audience capacity. In my opinion, in Ireland this performance style has been most prominently and consistently created by ANU Productions[8]. ANU's site-specific work directly engages with the social and historical issues of particular sites. These issues are inseparable from the choices of performance location. For example, *Laundry* (2011) was performed in the very building which imprisoned the thousands of women in the Magdalene laundries in the 20th century. *Sunder* (2016) took place in the exact location of the Moore Street massacre, 100 years after the events occurred. The intimacy of scale found in ANU's work is partly a result of these small, enclosed environments. Equally, this intimacy demands a close and direct engagement on the part of each audience member.

Although I have long been an admirer of their work, my own work contrasts with the work of ANU in subject matter, and in my shifting use of scale. My work rarely engages with the social issues of a particular place. My work engages with sound on a phenomenological level, that is, it attempts to present sound as an object in itself rather than imbuing it with deeper meaning. In some of my pieces such as *Harp*, I present mythical and imaginary versions of the history of a place. Rather than dealing with real social issues and historical authenticity, in *Harp* I cast the Samuel Beckett Bridge as a legendary weapon and instrument of an ancient warrior race. My position as an artist is clearly different from ANU's in this regard. We both operate in a contemporary Irish theatre context, although my background is not a specifically Irish one. My work engages with the sound and direct experience of place in a playful, imaginative way. One of the key types of playfulness is the way in which my work treats places and objects as instruments. For example, in *Harp | A River Cantata* I imaginatively re-interpreted a bridge as a harp, with the cables of the suspension bridge acting as strings. A piece of this scale seems at odds with Doherty's description of recent site-specific

[8] See *World's End Lane*, *The Boys of Foley Street*, *Laundry*, *Pals*, *Sunder* and *These Rooms* (ANU, 2017)

performance trends which have exhibited a move towards intimacy. In contrast to this, pieces such as *Hidden Currents* and *The Shakey Bridge Listening Project* use headphones to create extremely personal performance experiences. In Chapter 4 of this thesis I will further explore the large-scale pieces in my portfolio. I will demonstrate how the often monumental scale is the result of seeking to transform objects into instruments rather than creating spectacle for its own sake.

Referring back to current trends in site-specific performance practice, Fiona Wilkie identifies 'a shift in form (from *inhabiting* to *journeying*), and a shift in the nature of inquiry (from *this place* to broader questions of *site*)' (Wilkie 2008, 100-1, emphasis in original). Focusing specifically on the journeying aspect of this development, Wilkie goes on to propose that 'a shift in form can be noted from performance that *inhabits* a place to performance that *moves through* spaces' (Wilkie 2008, 100-1, emphasis in original). This shift in focus towards performances based on the movement through spaces is particularly relevant to my own work. Many of the performances in my portfolio take place in moving and shifting locations. These pieces seek to create a sense of place in unfixed and potentially unstable locations. Many of the fixed sites which feature in my performances are places associated with transit and movement, for example bridges, rivers and roads. Through an exploration of the sound contained within these spaces, new ideas of place are created. One of these ideas is the transformation of places into instruments. This has the potential to activate inanimate objects, and to create new types of relationships between audience, place and performance. This animation of objects ultimately relates to my practice of treating places like instruments and incorporating spatial elements into musical compositions. The use of spaces associated with movement is a subject which I will discuss more fully in Chapter 3 of this thesis.

Space and Place

Much of my site-specific performance practice is concerned with creating a sense of place in unexpected and unfixed spaces. I use the term unfixed to refer to places which are inherently associated with movement. Rivers and trains are defined by their motion. A river constantly flows downhill, and a train is designed to move along predefined pathways. Despite this movement, rivers and trains are still distinctly recognisable types of places. Bridges are physically static, but I would argue that their function and use as transit nodes means that they tend towards unfixed spaces. The concept of “non-place” will be explored further in the next section of this thesis; this is a concept which is closely related to the idea of unfixed spaces. My site-specific performances often take place in these unfixed spaces and, by doing so, create new experiences of place in these locations.

In the context of my own site-specific performance practice, my use of sound recording technologies allows hidden or inaudible sound to be exposed. By presenting this sound in specific places I draw attention to certain aspects of that place. This process gives new meanings and values to places which can often be overlooked. What is a place? What is a space? What makes a space into a place or a place into a space and how are these processes realised through site-specific performance practices? Joanne Tompkins identifies three definitions of place: a geographical site, a place which situates social or historical position, or the place or location of a performance (Tompkins 2012, 4). Yi-Fu Tuan gives a basic definition of place as 'space becomes place as we get to know it better and endow it with value' (Tuan 1977, 6)[9]. Site-specific performances can generate a sense of place by drawing attention to certain features of the performance location. Many of my pieces use sound material derived from their performance locations. These performances endow spaces with value by exposing hidden layers of meaning through sound. This is one of the ways through which my practice uses sound to create place out of space. This key idea underpins my approach to site-specific performance. Through extended recording technologies, composition and sound design, I create new meanings and relationships in specific places.

Another approach to space is based on the concept that it can be articulated (and transformed into place) by human relationships and interactions[10]. Spatial theorists such as Harvey, Lefebvre and de Certeau describe 'multifaceted, mutable interpretations of space and place which are predicated on – and contribute to – an understanding of social, political, gender, and economic factors that in turn determine form and function' (Tompkins 2012, 4-5). Site-specific performances negotiate the relationship between audiences and spaces. The place-making practices described by spatial philosophers can be directly related to the processes involved in performances which create a sense of place in specific spaces.

[9] Tuan extends this definition to include an animal's sense of territory in that 'places are centers of felt value where biological needs, such as those for food, water, rest and procreation, are satisfied' (Tuan 1977, 4). Relating place back to space, Tuan states that 'place is a type of object. Places and objects define space, giving it a geometric personality' (Tuan 1977, 17). Furthermore, Tuan recognises the cultural multiplicity of spatial concepts in that 'people of different cultures differ in how they divide up their world, assign values to its parts, and measure them' (Tuan 1977, 34). These definitions rely on the idea of place-making as a human process whereby space is given meaning.

[10] David Harvey argues for the primacy for geography in social interaction: 'spatial form controls temporality, [such that] an imagined geography controls the possibility of social change and history' (Harvey 2000, 160). Writing from a similar perspective, Henri Lefebvre states that culture emerges from, and is determined by, a 'hypercomplexity of social space' (Lefebvre 1991, 88). Lefebvre argues that the underpinning of social relations is spatial in that they 'have no real existence save in and through space' (Lefebvre 1991, 404). Michel de Certeau also argues for the centrality of space in human interactions: 'spatial practices, secretly structure the determining conditions of social life' (de Certeau 1984, 96).

The Pearson and Shanks definition of site-specific performance which recognises the fluid nature of a performance's relationship to place (Pearson and Shanks 2001, 23) relates closely to the work of geographer Doreen Massey. Massey's work seeks to shift geographical debate towards a fundamentally mobile understanding of place. Massey describes place as 'an ever-shifting constellation of trajectories' (Massey 2005, 151). This fluid mobility of space challenges received concepts of what space is. Conventional ideas such as space as surface, the connection of space and time, and the separation of local place from distant space are all 'ways of taming the challenge that the inherent spatiality of the world presents' (Massey 2005, 7). The idea of space as a surface refers to visual representations of the geography of the world as two-dimensional maps upon which humans operate. Instead of this, Massey proposes to 'recognise space as the product of interrelations; as constituted through interactions, from the immensity of the global to the intimately tiny' (Massey 2005, 9). Massey understands space as the product of the interactions of multiple trajectories which exist in all spatial circumstances[11].

Tuan, Harvey, Lefebvre, de Certeau and Massey all identify human interaction as a key aspect of place. Places become part of a cultural landscape, a combination of human interaction and geographical space. It is the intersection of human culture and space which creates identifiable places and which gives them meaning. Site-specific performances create new associations and relationships between people and spaces and in doing so contribute to the creation of place. My work also creates new relationships between audiences and places by interpreting locations and objects as instruments and performance sites. Massey's description of space as a product of interrelations is especially relevant to those of my pieces which create a sense of place through sound. For example, *The Shakey Bridge Listening Project* created a new sense of place on a suspension bridge in Cork by being primarily concerned with the sounds produced by the bridge itself. In doing so, the bridge became re-imagined as a source of sounds, a process which I will later refer to as *instrumentalizing.* This piece will be discussed further in Chapter 2 of this thesis.

Movement, Walking and Place-Making

The work of Michel de Certeau is particularly relevant to contemporary site-specific performance

[11] This plurality of trajectories is so fundamental to the production of space that 'multiplicity and space as co-constitutive' (Massey 2005, 9). Since space is produced by the interactions of multiple trajectories, this reading demands that 'we recognise space as always under construction' (Massey 2005, 9). Space is 'always in the process of being made. It is never finished; never closed' (Massey 2005, 9). This concept of the continuous production of space challenges the conventional idea of the association between the spatial and the fixation of meaning which states that 'representation – indeed conceptualisation – has been conceived of as spatialisation' (Massey 2005, 20).

practices since his writings often deal with the issue of mobility and movement in relation to space and place. Many of my portfolio pieces take place in sites associated with movement, and several of my pieces require the audience to walk through urban space. De Certeau states that space is defined and composed of the intersections of mobile elements 'actuated by the ensemble of movements deployed within it' (de Certeau 1984, 115). Space is produced by 'the operations that orient it, situate it, temporalize it, and make it function in a polyvalent unity of conflictual programs or contractual proximities' (de Certeau 1984, 117). De Certeau argues that spatial practices themselves create and produce spaces. It is the pedestrians of a city which define limits and relationships within spaces[12]. Movement, in particular movement expressed through walking, defines urban spaces[13].

De Certeau's spatial philosophies are highly relevant to contemporary site-specific performance practices. His descriptions of the relationships between movement and place have direct analogies to performance and place. In site-specific performance practice, texts are often articulated in unusual spaces. These spaces are themselves re-defined by performance. De Certeau describes this relationship when he states that stories 'carry out a labor that constantly transforms places into spaces or spaces into places. They also organize the play of changing relationships between places and spaces' (de Certeau 1984, 118). By substituting 'stories' for 'text' or 'performance' this becomes a useful description of the relationships involved in site-specific performances[14].

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[12] '*Space is a practiced place.* Thus the street geometrically defined by urban planning is transformed into a space by walkers' (de Certeau 1984, 117, emphasis in original)

[13] The central position of walking in the articulation of space is analogised as language when de Certeau states that 'space is like the word when it is spoken' (de Certeau 1984, 117). Just as words gain meaning when placed in a grammatical relationship to other words, spatial processes and activities give meaning to places by contextualising them in relation to other places. Movement and activity define spaces and places.

[14] De Certeau identifies a particular type of story when he describes the relationship between tours and maps. A tour, he asserts, is a form of spatial definition which gives a linear description of a journey (de Certeau 1984, 119). Maps have replaced linear descriptions of journeys in that tours 'have been interlaced and then slowly dissociated in literary and scientific representations of space'. Although they are now absent from our current understanding of what maps are, de Certeau describes itineraries as the 'condition of [a map's] possibility' (de Certeau 1984, 120). He gives the example of medieval maps which prescribed actions as 'a sort of dance through the city: “20 paces straight ahead, then turn to the left, then another 40 paces...”' (de Certeau 1984, 120). These spatial practices have been replaced by the flat visual representations found in maps. A map 'colonizes space; it eliminates little by little the pictural figurations of the practices that produce it, [...] it is a “theater” (as one used to call atlases)' (de Certeau 1984, 121). Describing space with stories and routes is a form of 'performed' space (or as de Certeau calls it 'practiced space'), a practice which has been replaced with the static map. However, the analogy of theatre and performance is also extended to include the map as: “a totalizing stage on which elements of diverse origin are brought together to form the tableau of a “state” of geographical knowledge, pushes away into its prehistory or into its posterity, as if into the wings, the operations of which it is the result or the necessary condition. It remains alone on the stage. The tour describers have disappeared.”

De Certeau's spatial theories can be applied to contemporary site-specific performance practice in spaces of transit and movement: 'performance as a set of mostly live practices has a vested interest in meaningful encounters, and it is therefore not surprising that there are many examples of performance that seek to mark the significance of transit spaces' (Wilkie 2015, 17). When situated in sites associated with movement, performances 'work against the logic of uninterrupted flow at sites of transport, encouraging spectators to register their passage as a complex activity, simultaneously public and private, and culturally, socially and even morally loaded' (Wilkie 2015, 17).

Marc Augé describes the traveller's space as 'the archetype of *non-place*' (Augé 1995, 86, emphasis in original). Non-places are designed to be passed through rather than experienced as places. Since site-specific performances draw attention to the relationships within places, performances in non-places operate counter to the intended function of transit spaces. In conventional circumstances, the invisibility of non-places allows a smooth movement of individuals through transport nodes. Performances situated in these spaces challenge this invisibility by creating a sense of place within these non-places. My portfolio features several performances on bridges and trains, sites which could be described as non-places in Augé's terms. These performances create a new sense of place in transit places by drawing attention to the relationships between audiences, performers and site.

De Certeau describes the contrasting strategies of the urban planner with the tactics of the pedestrian. Fiona Wilkie also identifies walking as a potentially subversive act which has the ability to create or highlight conflicts in urban spaces. Walking may be used as a form of resistance, of subversion, demonstrations, or as a universal form of expression. For example, Ohad Fishof's *Slow Walk* series consists of walking through urban spaces at the rate of one-metre per minute[15](Fischof 2017). Simply by changing the speed of a simple action like walking, the slow walk pieces ask people to consider what it means to slow down and walk in this way. This is very closely related to de Certeau's assertion that walking is a means of enacting and enunciating urban space. The walk as protest draws attention to elements of place which are not visible on maps or at a surface level. This

(de Certeau 1984, 121)

[15] This impossibly slow speed draws attention to normally invisible relationships and contexts. As well as simply moving slowly it could also be seen as 'a feat of endurance, a comment on social norms, a mode of commemoration, and a protest' (Wilkie 2015, 38). When a slow walk in Tel Aviv in 2011 came to be seen as part of the social justice protests in Israel, the act of slow walking became synonymous with 'taking a stand through your body' (Wilkie 2015, 38). Throughout the performance of the piece, more and more people joined Fishof and matched his pace and the slow walk became a collective action.

performance in an urban space presents the relationships between walkers and place in a new way. In performances such as this, walking becomes a way of re-defining a sense of space and place[16]. In my own work, walking combined with sound is used to activate places and to make them speak to people in new ways. Issues related to sound and walking will be further addressed in Chapter 3 of this thesis. This chapter deals predominantly with those of my pieces which use walking as a constituent part of the audience experience.

Sound Studies

The main creative component of my portfolio pieces are music and sound. In addition, many of my pieces focus on the act of listening as part of the performance. Traditional musical analysis tools do not incorporate these fields of study. Traditional analysis is focussed on the interplay of musical parameters such as pitch, rhythm, orchestration and tonality. Sound studies developed as a method of expanding aural perception to include all sound and sonic material. Although it is possible to analyse much of my work along the lines of traditional musical analysis, where recorded sound and focussed listening practices are employed, these tools fall short. For example, in *Hidden Currents*, I make extensive use of the recorded sounds of rivers in combination with a narration which directs the audience's listening patterns. This piece also features a more recognisably musical section, but for the majority of its duration there are no recognisable pitches, rhythms or keys. It is not possible to satisfactorily engage with this material using conventional musical analysis in this case and in further pieces which employ organised recorded sound.

Concepts relating to sound and listening as well as the interaction between aural and visual culture are explored in the field of Sound Studies. Headphone and personal stereos, a key feature of much of my work, are also explored in this field. Jonathan Sterne states that sound studies 're-describes what sound does in the human world, and what humans do in the sonic world' (Sterne 2012, 2). Part of the impetus of this field is to redress a perceived imbalance in favour of visual experience in Western culture. For example, Joachim-Ernst Berendt argues for a 'democracy of the senses' (Berendt 1992, 32) to overcome the dominance of the eye and visual perception. As a composer who often works in the highly visual world of theatre, I can relate to this redressing of the balance between aural and visual perception. When creating sound for a theatrical production, my role is commonly secondary to that of the visual activity on stage. In my site-specific performance work I

[16] In other fields, walking is also made performative in order to redefine space and place. Heritage interpreters use performances in their work through the creation of audio-trails (Ham, 1992). These trails reveal information about urban and rural locations. This is another method of place-making; by giving tourists access to further knowledge about the locations they are visiting, new and meaningful relationships to place may be formed.

seek to re-negotiate the interaction between sound and vision. For example, my piece *Hidden Currents* provides a soundtrack for a visual experience of a walk through a city. Through the use of headphones, what the audience sees is extended and enhanced by the layering of acoustic information on top of what is visible during the walk. This piece and many of the other pieces in my portfolio are presented for the purposes of this thesis as videos. Because of the site-specific and mobile nature of these performances, the reality of the experience includes many more senses than just sound and vision. Due to the pervasive dominance of visual media however, sound studies is a useful field for examine the interaction between acoustic and visual information in my pieces.

The dominance of visual information has resulted in a marginalisation of sound in Western culture. Through reference to Odysseus' interaction with the Sirens in Homer's Odyssey, Michael Bull and Les Back show how Western narratives of sound are 'associated with dominance, exoticism and Orientalism' (Bull and Back 2003, 8)[17]. Horkheimer and Adorno use this passage to illustrate a dialectic in which myth, domination and work are intertwined (Horkheimer and Adorno 1972). Bull and Back show how this story 'becomes the first description of the privatization of experience through sound' (Bull and Back 2003, 8). This privatisation resonates with contemporary personal stereo use. In this way, the positions of some of the most ancient Western descriptions of sound can be seen to still play a part in the experience of sound today. The Odysseus example is complex because it contains a number of different positions relating to the experience of sound. It portrays sound as a dangerous “other” which has the ability to invade and corrupt individuals without their consent. As a form of resistance against this, Odysseus blocks the ears of his rowers and in so doing protects them from the uncontrolled experience of sound.

Odysseus controls the invasive properties of sound by blocking out the possibility of hearing altogether. Another way of controlling sound is by doing the opposite, by listening to it more intensely. By understanding sound, we can control it and gain knowledge about it. This relationship with knowledge represents a reversal of the position of the Sirens in the Odysseus story. As part of sound-studies, the act of listening is analysed more closely than in most traditional forms of musical analysis. Michel Chion identifies three listening modes in order to better understand our experience of listening. *Causal Listening* is defined as 'listening to a sound in order to gather information about

[17] The reference comes from Horkheimer and Adorno's *Dialectic of Enlightenment* which describes the Sirens' song as evoking 'the recent past, with the irresistible promise of pleasure as which their song is heard' (Horkheimer and Adorno 1972). The Sirens know all that has happened in the past but they demand the future as the price of that knowledge. Odysseus blocks the ears of his oarsmen with wax and has himself tied to the mast of his ship with his ears open. The oarsmen are unable to hear 'both the Sirens' song and Odysseus' increasingly desperate orders to steer the ship onto the rocks' (Bull and Back 2003, 7).

its cause (or source)' (Chion 2012, 48). *Semantic Listening* is that which refers to 'a code or a language to interpret a message' (Chion 2012, 50). This could include spoken language as well as audible codes such as Morse. *Reduced Listening*, which Chion attributes to Pierre Schaeffer, is the listening mode that 'focuses on the traits of the sound itself, independent of its cause and of its meaning' (Chion 2012, 50). Chion describes reduced listening as 'new, fruitful, and hardly natural. It disrupts established lazy habits' (Chion 2012, 51). Identifying the pitch of a musical note is an example of reduced listening. It should be noted that Pierre Schaeffer was the creator of *Musique Concrète*, a type of music which is comprised of sound recordings. An appreciation of this type of music requires a disassociation of sound from its source and thus demands the use of 'reduced listening'. Much of my work makes use of the layered combinations of sound recordings. This relates to *Musique Concrète*, although my practice developed out of a training in conventional score-based composition. In my pieces *The Shakey Bridge Listening Project*, *Underground Gothic* and *Hidden Currents*, the recorded sounds of bridges, rivers and trains are combined to create sound scores. The sound in these pieces can be listened to using a combination of causal listening and reduced listening. In each case, the source of the recorded sounds is acknowledged and referred to. However, through their combination and layering, the sounds are presented as rich sonic material, akin to instrumental and composed musical sound. The presentation of these sounds encourages an engagement with the specific traits of the recorded sounds, in other words, reduced listening. Concepts relating to sound studies will play a prominent role in all of the chapters in this thesis since all of my pieces rely on close listening. In particular, chapters 2 and 3 cover those of my pieces which use headphones as part of the audience experience.

Soundscape and Soundwalk

Sound, listening and landscape are linked through references to the 'soundscape'. R. Murray Schafer defines soundscape as 'any acoustic field of study' (Schafer 2012, 99). Schafer's use of the term is closely linked to an ecological understanding of landscape, exemplified by his assertion that it is possible to 'isolate an acoustic environment as a field of study just as we can study the characteristics of a given landscape.'[18]

A field closely related to soundscape is 'soundwalking', defined by Andra McCartney as 'a creative and research practice that involves listening and sometimes recording while moving through a place

[18] The term was created in 1977 to call attention concerns that natural sonic environments were being polluted by industrial noise (Helmreich 2012, 171).

at a walking pace' (McCartney 2014, 212)[19]. An incarnation of soundwalks with relevance to my own work are the Audio Walks by Janet Cardiff and George Bures Miller. As in a film soundtrack, 'the focus of audio walks is not acoustic ecology but rather the creation of a directed narrative using environmental sounds as a base or ambient track' (McCartney 2014, 229). These walks differ from the 'acoustic ecologists' desire for listeners to pay attention to the sounds of the environment for their own intrinsic qualities and social meanings' (McCartney 2014, 229). This is achieved through the layering of sound recorded on site with a dramatic monologue which is heard prominently in the audio mix. According to McCartney, the walks 'encourage slippage between the real environment that the listener walks through and the imaginary environment created and directed by Cardiff and Miller' (McCartney 2014, 229). This type of soundwalk is particularly relevant to my own creative work. McCartney describes the relationship with the listener as one of 'intimacy and direct authority' since the monologue features exact instructions for the listener and 'suggests lines of thought or inquiry' (McCartney 2014, 229). Although not exactly the same as my own work, this type of soundwalk is very similar to some of the pieces in my portfolio, in particular those pieces which feature a narration to guide audiences on a particular route while emphasising the act of listening. As recognised by McCartney, this type of narration as part of a mobile sound walk allows an intimate and direct relationship between listener and narrator. Because of the use of headphones, the recorded voice has the potential to become an internal voice for the audience. This extreme closeness allows my work to directly guide and direct ways of listening to extremely specific things. This appeals to me as a contrast to traditional audience performer relationships. Using a narrator allows me to point out specific sounds and refer to exact methods of listening. Combining this with exact instructions on where to stand and when to walk (as for example in *The Shakey Bridge Listening Project* and *Hidden Currents*), it becomes possible to closely design and control the

[19] McCartney attributes the term to Schafer and members of the World Soundscape Project in Vancouver in the 1970s. These soundwalks can have political, social and ecological consequences by directing the attention of the audience to often ignored events, practices and processes (McCartney 2014, 212-214). McCartney goes on to describe the distinctions between several different categories of soundwalk. During Listening Walks participants are asked to stay silent to avoid distraction from environmental sounds (McCartney 2014, 221). Helen Wilson also draws a distinction between a 'listening walk' as a walk where there is a concentration on listening and a soundwalk, where there is some form of score (Wilson 2016, 165). For example, Wilson describes an urban 'Treasure Hunt' in London, whereby an an artist painted 'musical notes on sites across Kings Cross that were considered rich in musical attributes' (Wilson 2016, 165). In contrast, she gives the example of Toby Butler's 2006 three-mile soundwalk along the River Thames which incorporated a map and an MP3 download. Participants were 'navigated by Butler's narration to sound points where oral histories and binaural recordings of the riverbank have been layered' (Wilson 2016, 167). Blind Walks, as organised by sound artist Francisco Lopez, feature blindfolded people led through cities by blind people (McCartney 2014, 222). Electrical Walks, as created by Christina Kubisch, use headphones which are sensitive to electrical interference and allow walkers to hear an otherwise inaudible urban layer (McCartney 2014, 226).

experience of specific places.

Frauke Behrendt describes sound art pieces which are experienced through headphones while walking but do not feature recordings of a site-specific environment. For example *Aura*, a 2007 sound art piece which maps pathways in sound (Behrendt 2014, 189-193). Behrendt describes walking as intrinsic to the experience of many mobile or locative art pieces, which attributes to the fact that 'walking is intrinsically temporal – and the same is true for sound' (Behrendt 2014, 198). Furthermore, she states that 'the embodied mobility of walking, especially as articulated in public space, is a key aspect of mobile sound art ' (Behrendt 2014, 199).

The plethora of varieties of soundwalks shows the close relationship of walking, space and sound. Soundwalks represent a form of direct engagement with the soundscape through movement. This can contribute to the understanding of a place through sound. Helen Wilson states that the emergence of soundwalks highlight a growing sense of 'the importance of attending to the spatiality of listening as a key geographical skill' (Wilson 2016, 170). Sound studies and geographical research are linked through the various versions of creative soundwalk practice. Although my own pieces are related to these practices and I was of course influenced by my knowledge of this existing work, my creative choices were a response to the demands and conditions of each site (I will give exact details of this in the subsequent chapters of this thesis). I did not set out to create soundwalks which relate to concepts of acoustic ecology. However, an understanding of these practices can contribute to the analysis and explanation of my own work. For example, the spatiality of listening which Wilson refers to is a key part of my understanding of the composition of space. In pieces such as *Harp*, and *Beats, Bells and Bridges*, I treat space as a composed element alongside musical parameters such as tonality, rhythm, and pitch. In my sound walk pieces such as *The Shakey Bridge Listening Project* and *Hidden Currents*, I use the movement and journey of the audience as a way of structuring linear passages of sound and music. In this way, space and listening are closely related, in a similar way to the soundwalks described by McCartney and Behrendt.

Music and Mobility

As examined by de Certeau and others, movement is one of the key factors in defining space. This section examines how the use of personal stereos can influence the perception and experience of space. De Certeau describes how walking through a city defines and creates urban space, and the growth of personal stereo use has changed this experience and helped to create new spaces. Several

of my portfolio pieces use headphones as a means of delivering site-specific sound pieces for audiences while they walk. The experience of using headphones as part of a site-specific performance in an urban space has many parallels with personal stereo use. Using an iPod in public transport 'carves out a space for personal enjoyment and reflection, for being oneself: private space is 'nested' within public space' (Cook 2013, 230). The ability of personal stereos to reshape space 'creates a phenomenological space that is dissociated from physical space' (Cook 2013, 230). The experienced space within the auditory bubble of the personal stereo listener is separate and distinct from the outside world. Private, personal space is 'nested' within public space[20]. Many of my portfolio pieces use headphones and mobile music technologies to deliver audio content in urban spaces. These experiences can shape urban space in a variety of ways, for example by providing a secret layer of information which is only audible to the listener. Headphone experience can influence also the movements and spatial experience of listeners, and this in turn can have a real and tangible effect on the urban environment.

Jean-Paul Thibaud describes using a Walkman as 'an urban tactic that consists of decomposing the territorial structure of the city and recomposing it through spatio-phonic behaviours.' (Thibaud 2003, 329)[21]. In my piece *BridgeSong*, the headphones worn by the performers allowed them to be cut off from the noisy and distracting urban space around them. The 'involvement shield' of the headphones enabled a controlled and concentrated performance in a difficult environment. This technique was extended to include the experience of the audience in my pieces *The Shakey Bridge Listening Project* and *Hidden Currents*. This involvement shield creates a nested private space in a public environment, and this can create a new experience of place in a controlled and measured way.

My pieces use MP3 recordings which are downloaded to personal music players. At the time when I was creating these pieces, this was the most recent manifestation of a continually evolving and changing mobile music technology. The Walkmans of the 1980s referred to by Thibaud and Bull have long since become obsolete but the basic concerns with mobile music technology remain the same. Michael Bull's research into personal stereo use provides useful insights into its effects. From

[20] Despite its close association with the experience of personal stereo use in public spaces, this spatial nesting is not necessarily a recent development. Cook describes an 1840 watercolour by Eugene Lami which shows seven men each listening to a Beethoven symphony. Each believes himself to be 'in private communion with the spirit of Beethoven', the music facilitating a detachment from their listening context (Cook 2013, 231).

[21] Walkman users use music to gain control over their experience of the urban environment. The Walkman becomes an 'involvement shield' which allows the user to position themselves outside of the social theatre of urban life (Thibaud 2003, 330).

the 1990s to the 2010s, Michael Bull interviewed numerous Walkman and iPod users about their listening habits[22]. Thibaud and Bull both describe tactics and behaviours which give personal stereo users a degree of control over the experience of moving through cities. Thibaud describes how a Walkman allows the experience of music to move '*from private listening to public secret'* (Thibaud 2003, 331, emphasis in original). This is a key point since a Walkman user shows that they are listening to *something,* but keeps secret what they are listening to specifically[23]. This plays an important part in many of my pieces. Although the audiences are situated in public spaces, their participation and experience of my pieces is often a secretive process since only they (the listeners) can hear the content of the work. In several instances I play with this secretive involvement by asking the audience to carry out certain actions. This provides the opportunity to reveal secret information contained within the recording. The use of headphones prevents this information being heard by others.

Expanding on these ideas of public and private, secret and open, Bull states that the aestheticising practices of iPod users can 'contribute to our understanding of what it means to 'share' urban space with others from within an auditory bubble, immune to the sounds of others.' (Bull 2012, 208). Bull is clear in his opinion that this auditory bubble has moral implications for the experience of city life since it enables individuals to distance themselves from other inhabitants of urban space. On the same side of this argument, Fran Tonkiss also describes this distancing when he writes that mobile sound technology realises the 'logic of separation and of indifference perfectly' (Tonkiss 2003, 304). Whether 'immersed in a private soundscape, engaged in another interactive scene, you do not have to be in the city as a shared perceptual or social space' (Tonkiss 2003, 305). Privatised sound isolates and removes personal stereo users from the social interaction of urban space. My pieces may be seen to be reinforcing the isolating and fracturing consequences of personal stereo use. In contrast to an open public performance which can create a community of spectators, those of my pieces which feature headphones could be described as creating a collection of isolated individuals.

In contrast to these negative descriptions, Shuhei Hosokawa writes that the Walkman 'enables us to move towards an autonomous pluralistically structured awareness of reality, but not towards a self-enclosed refuge or into narcissistic regression.' (Hosokawa 2012, 112). In this interpretation, the

[22] In his subsequent analyses, Bull refers to iPods in a similar way to Thibaud's description of Walkmans, reflecting that 'the use of an iPod enables users to create a satisfying aestheticised reality for themselves as they move through daily life' (Bull 2012, 198).

[23] This 'Secret Theatre' is also to referred to by Shuhei Hosokawa when he states that as observers we are aware that the Walkman user is 'listening not only to something secret but also the the secret itself, a secret in the form of mobile sound: an open, public secret' (Hosokawa 2012, 114).

walkman allows a plurality of aestheticised and theatricalised experiences of urban spaces which according to Hosokawa should be seen as a positive development (Hosokawa 2012, 114). In those of my pieces which use headphones I have tended to try to create specific experiences for individuals. Through the combination of place and sound I compose sound pieces which relate closely to the environments in which they are intended to be consumed. In pieces such as *The Shakey Bridge Listening Project* and *Hidden Currents*, the pieces were available to be experienced for long periods of time. That is to say, it was possible to experience the pieces on a number of different days and at different times. The ever changing nature of a city and the natural environment meant that the pieces were experienced differently for every individual who heard them. Major variables in the visual experience of the piece included the weather, the tide level of the river, and the activity level of the city at the time of listening. Although the recorded sound aspect of the piece remained fixed, the variability of all of these factors (and many others) meant that every individual received a different aestheticised experience of urban space in much the same way as Hosokawa describes.

Caroline Bassett also refers to this pluralisation of experience when referring to a similar mobile sound object, the mobile phone. Mobile phone users continuously construct and de-construct 'countless ways through, ways out, and ways in to the city space' (Bassett 2003, 345). Bassett notes that 'this change in space means that today I can walk here in the streets and simultaneously connect with other people in far away spaces.' (Bassett 2003, 345). This process relates to de Certeau's concept of walking as a 'spatializing, *narrativizing* practice' (Bassett 2003, 344, emphasis in original). Mobile phones create many mutating spatializations of urban spaces which are constantly connected and reconnected to other places.

This connectivity also has applications for transport. De Certeau described train travel as 'a space in which passengers submit to the discipline of the rails but where they paradoxically find some freedom from other responsibilities; where they are *made* unaccountable' (Bassett 2003, 345). The constant connection to other places enabled by the mobile phone changes this dynamic however. With a mobile-phone 'travel no longer presumes a broken connection. There is no dislocation between the world of the train and the world beyond: not even the temporary dislocation the journey used to produce. Each world is shot through with the other' (Bassett 2003, 345). These differing descriptions of the effects of mobile music technology have many consequences for my own work, in particular those pieces which use headphones as part of the performance and those which take place on places related to transport. *Underground Gothic* was a performance which took place on a moving train and which featured headphones for the audience for part of the piece. In this instance,

the plurality of individual experience usually associated with headphone use in public transport was subverted. All of the headphones heard the same soundtrack via a radio transmitter and receivers. In this piece, the train became a space removed from the outside world. As described by Bassett, the modern ubiquity of mobile communication technologies conventionally enables the train to become connected to the surrounding world despite its physical separation. In *Underground Gothic*, this space once again became cut off. The subject matter played on the claustrophobia and fear at being trapped on a train, and this was heightened when the train came to a planned halt in the middle of a tunnel beneath Dublin's Phoenix Park.

In this section I have explored the interaction between music and movement with specific reference to my portfolio work. A key feature of my work is the movement of the audience in relation to the performance locations of the pieces. Technologically, this is often realised through the use of headphones which allow the sound to stay close to the audience while simultaneously guiding individuals on specific routes. This movement is most commonly expressed through walking, and the final audience experience is comprised of the relationship between what is heard, what is seen and this pedestrian movement. Bull, Tonkiss, Thibaud, Hosokawa and Bassett all describe useful facets of predominantly urban personal stereo use. I have found these descriptions are useful when applied to the analysis and understanding of my work in this field. In chapters 2 and 3 of this thesis I further develop the analysis of my pieces in relation to concepts of headphone use.

Objects and Places as Instruments

Several of my portfolio pieces consciously seek to transform places and objects into instruments (most notably *Harp | A River Cantata* and *Beats, Bells and Bridges*). What defines an object as a musical instrument? In what circumstances can non-musical objects be considered musical instruments? Henry M. Johnson discusses the differences between musical instruments and what he calls 'sound-producing objects'. His position is situated in the context of an 'ethnomusicological discourse concerning sound environments' (Johnson 1995, 260). Johnson states that 'all sound-producing objects are surely capable of being objects which produce sound during a form of human behaviour that may generally be labelled music-making' (Johnson 1995, 260). Johnson defines the difference between a musical instruments and sound-making objects by discussing their function. In everyday situations, a sound-making object is different to a musical instrument because the sound it produces is not part of a conceptual idea of music. This context can be changed however. Johnson states that 'only when the conceptual frame functions to negate the mundane does the object become a musical instrument' (Johnson 1995, 260). This distinction is primarily intended to show that 'a

musical instrument is a sound-producing object of material culture used to make humanly organized sound during a context which is aesthetically removed from everyday behaviour' (Johnson 1995, 260). In this way, Johnson demonstrates how objects regarded as musical instruments achieve this special status because of the aesthetic contexts in which they are used. Johnson's position provides the conclusion that any sound-producing object can be thought of as a musical instrument if it is used in the context of the production of music. Johnson argues that if an object is used to create music, it becomes an instrument. This argument relates to Michel Chion's description of *Reduced Listening* as the listening mode that 'focuses on the traits of the sound itself, independent of its cause and of its meaning' (Chion 2012, 50). In instances of reduced listening, audiences are encouraged to appreciate the inherent qualities of sound independently of its source and origin. This promotes the idea that any type of sound can be considered as aesthetically valid. This is related to Johnson's idea that any object which is capable of producing sound may be considered as an instrument if that sound is considered music. Chion's description of reduced listening is derived from concerns about *Musique Concrète*, a type of composition which uses recorded sound in place of live instrumental performance. Johnson is writing specifically about live instrumental sound, but both are arguing for an expansion of the range of sounds which are considered valuable and worth listening to. As a composer who works across all of these forms of expression, I agree with Chion's and Johnson's positions. I create compositions using recorded sounds which would not be considered as musical material (in a traditional concert environment). For example, in *Hidden Currents* I used layered underwater river recordings to create what I consider to be a musically satisfying score. In other instances, such as in *Beats, Bells and Bridges* I have written pieces which use objects such as bridges as instruments. I consider both of these forms of expression as music.

As described by Johnson, the relationship between non-musical objects and instruments is constantly changing depending on how those objects are used. In Western music (the musical context in which I exist), the most recent history of creating new instruments and the appropriation of objects as musical instruments can be found in the development of experimental music. Andy Keep describes the use of objects as musical instruments in the context of improvised experimental music. Keep refers to this process as *'instrumentalizing*' (Keep 2009, 113, emphasis in original). This process 'seeks to discover the performability, intrinsic sonic palette and possibilities for sonic manipulation of objects' (Keep 2009, 113). Keep states that the instrumentalizing 'can be exercised on any object that has the potential to sound or manipulate sound in real time... Sticks, combs, tables, cases, shoes and vegetables are a few of the objects that have been successfully explored as sound-making devices for improvised performance' (Keep 2009, 113). My work sits in the context of this experimental attitude to instrumental definitions. If a vegetable can be used as a musical

instrument, why not a bridge? In Chapter 4 of this thesis I will focus specifically on those of my pieces which “play” objects like instruments. In *Beats, Bells and Bridges* and *Harp* I both use bridges as direct sources of instrumental material and as instruments.

Keep identifies this process of instrumentalizing as the result of the introduction of new sound producing objects into the palette of Western music. He states that 'through the twentieth century a combination of aesthetic, cultural and technological advances investigated the notion that *any* sound could contribute to the musical palette' (Keep 2009, 113). This could be seen as having its earliest origins in the development of the instrumentation of the symphony orchestra[24]. Andy Keep traces the continuation of these developments to the works of early 20th century composers such as Varèse and Russolo who 'began to shift music-making away from the dominance of equal temperament and the organization of pitch' (Keep 2009, 114). Keep describes this process as a move away from established musical parameters towards 'the organization of sound' (Keep 2009, 114). Keep identifies John Cage's position in particular. Cage recognised percussion music as the place where this radical organization of sound and noise would take place. He stated that 'any sound is acceptable to the composer of percussion music; he explores the academically forbidden “non-musical” field of sound insofar as is manually possible' (Cage 1980, 5). My own piece *Beats, Bells and Bridges* continues this tradition of percussion music. In particular, *Bridges* was scored for a percussionist who played floor toms in combination with the various surfaces of a steel bridge. In *Harp | A River Cantata* I extracted percussive sound from a bridge using contact microphones. Striking an object continues to represent one of the most direct ways of producing sound from objects.

Michael Nyman describes the role of experimental music in expanding the concept of what an instrument might be. For Nyman, this begins with the re-conceptualisation of traditional instruments. For example, 'once you move to the exterior of the piano you find a number of wooden and metal surfaces which can be 'played' ' (Nyman 1999, 20). Nyman describes Cage's accompaniment to *The Wonderful Widow of Eighteen Springs* (1942) which is 'performed by the percussive action of the fingertips and knuckles on the closed keyboard lid' (Nyman 1999, 20). This

[24] In the 18th century composers began to write orchestral music for instruments such as trumpets and snare drums which were at that time more commonly used for signaling and warfare. Over time, these instruments began to be incorporated into the standard make-up of the orchestra. In the 19th and early 20th centuries, the emergence of forms such as tone-poems and ever more descriptive music called for the inclusion of more extra-musical sound-making objects within orchestral instrumentation. An example of this is Gustav Mahler's use of cowbells and hammers as part of the percussion instrumentation of his symphonies, in particular his 6th Symphony (first performed in 1906). Mahler incorporated these objects into his musical compositions to provide concrete references to extra-musical sounds.

kind of action is made possible by regarding the piano as an object rather than a musical instrument. Nyman describes this as the process of realising that 'the instrument can be seen as just a large brown, mainly wooden object, on legs with wheels, of a particular shape, having curious mechanical innards and serving as a musical instrument.' (Nyman 1999, 20). My own works often do the opposite thing to what Nyman describes. Rather than re-purposing conventional instruments, my practice re-imagines places and spaces as if they were musical instruments. I view this process as being closely linked to Nyman and Cage's attitudes towards conventional musical instruments. In the same way as Chion advocates "reduced listening" in the appreciation of *Musique Concrète* and Johnson recognises that any sound producing object can be considered as an instrument, Cage and Nyman are expanding the range of what can be considered worthy of listening to. My practice fits within the context of this experimental tradition, building on the mainstream acceptance of extended instrumental techniques and musical sounds as being part of a spectrum of usable textures and colours.

Keep describes Cage's work as ranging between the 'referential, the conceptual or […] purely sonic experience, as many newly discovered or 'found' musical instruments had resonances with the *objet trouvé* of the visual arts' (Keep 2009, 113). He gives the example of Cage's *Water Music* (1952) which incorporated the use of kitchen and domestic appliances. Similarly, Nyman also cites Cage's *Living Room Music* from 1940 which describes the percussion instruments it uses as 'those to be found in a living room – furniture, books, papers, windows, walls, doors'. (Nyman 1999, 48). Keep concludes that 'as *any* sound had come to meaningfully contribute to musical experience, then any sounding object could be considered a potential music-making instrument' (Keep 2009, 116). He suggests that the 'line between what is and what is not a musical instrument was firmly broken at the same time as the traditional polarities of noise and music became an artistic continuum' (Keep 2009, 116). Quoting Paul Théberge, Keep states that 'an instrument is never really completed at the stage of design and manufacture at all; it is only made "complete" through its use' (Keep 2009, 116 quoting Théberge 1997, 9). This could be extended to conclude that any object is only made complete once it has been instrumentalized and turned into a musical instrument. A bridge only fully realizes its musical potential once it has been played. A space becomes realized as a place through the process of playing that space like a musical instrument.

Conclusions

These disparate areas of research ranging from performance studies, sound studies, spatial theories, mobile-music and experimental music will all contribute to the analysis and understanding of my

portfolio pieces. In addition, these research strands have directly influenced the development of these pieces. Over the following three chapters I will describe my creative process and situate my site-specific pieces within the context outlined in this introduction. The accompanying portfolio documents my practical work. This constitutes around two and a half hours of performance material in various forms. Since the work is site-specific, the documentation cannot hope to give an entirely accurate picture of the pieces themselves. I acknowledge and address the problems surrounding performance documentation in my conclusion.

CHAPTER 2
BRIDGES AS PERFORMANCE SITES

This chapter will focus on three pieces which I completed in 2013 during the first year of my Ph.D. research: *The Shakey Bridge Performance Experiment, BridgeSong,* and *The Shakey Bridge Listening Project*. Throughout 2013 I explored various ways of composing music for specific places. The pieces I have included in my portfolio from this period show the development of a continuously evolving practice. This chapter will demonstrate how I began to create musical performances for specific places in 2013, and how this process developed to influence the creation of subsequent pieces.

I describe the process of creating the pieces in a sequential style, attempting to recreate the experience as it happened. This includes close observations of my personal experience of the pre-existing soundscapes of the places in which the pieces took place. For this I take inspiration from David Toop's personal sound observations in his book *Sinister Resonance* (2010) and Justin Bennett's chapter *Shotgun Diary* from *Site of Sound #2* edited by Brandon LaBelle and Cláudia Martinho (2011). The ways that these texts describe the individual experience of the soundscapes and acoustics of specific places impact significantly on my writing. Bennett uses individually dated diary entries to build up a detailed documentation of his working process over a period of several months in 2008. Toop uses his detailed observations of the sounds of specific places to analyse the experience and history of listening. These texts have provided me with a way of linking my personal experience of the sound of specific places with more abstract theoretical approaches to listening.

In my accounts of my creative process I describe events in the present tense, drawing on my diary entries and memories of the period of time in which the pieces were created. I do this to offer a reflection of how I experienced the continuous process of development in my work. Where possible I give an exact date when these events took place. Direct quotations from my diary entries in this period are presented in italics and indented.

Following this documentation of my process, I present an analysis of *The Shakey Bridge Performance Experiment, BridgeSong,* and *The Shakey Bridge Listening Project* using the theoretical concepts explored in my introduction. In particular, these concepts relate to the categorisation of different types of site-specific performances, the ways in which performances operate within transit locations, Marc Augé's theory of *non-place,* and the idea of treating space as a compositional element.

This group of pieces shows a progression from a more general concept of site-specific performance to a highly specialised one. The experimental work (experimental in terms of my own practice at

the time) I engaged in as part of the earliest of the three piece, *The Shakey Bridge Performance Experiment,* influenced the subsequent pieces in my Ph.D. portfolio. The piece marks the beginning of my site-specific work for bridges. This strand of my practice continued to evolve over the following three years. For this reason the piece is included alongside more finished pieces in the portfolio. The way in which I subsequently worked relied heavily on the approach I began to develop in the *The Shakey Bridge Performance Experiment*. With each piece I have created, I learnt new skills and developed new approaches and methodologies. Throughout this thesis I will show how my practice has developed and *The Shakey Bridge Performance Experiment* marks a starting point for this process of change. *BridgeSong* was an important piece because it used the same techniques that I used in *The Shakey Bridge Performance Experiment* and developed them to create a more finished piece. It also used elements of flash-mob performance and began to develop my interest in creating site-specific audio pieces through the use of pre-recorded tracks. *The Shakey Bridge Listening Project* used contact microphones to use sound recorded from a performance site as part of a musical composition. I will show how my increasing use of contact microphone technology allowed me to develop a practice through which I am able to incorporate sounds directly derived from specific locations into live and recorded performances. This in turn changed the way in which my performances relate to the spaces in which they are performed. My pieces became more specific to their performance locations, and my practice started to focus more on close listening. This was subsequently developed in other pieces in this portfolio. The significance of this development became clearer as I created those pieces which feature in later chapters. I created more complex and larger scale pieces, something which was only possible because of the creative experimentation I undertook in these Chapter 2 pieces.

The Shakey Bridge Performance Experiment



Fig. 1: Performers on the Shakey Bridge, Cork (photograph: Ed Cashman)

It is October 2012, the beginning of the first six months of my Ph.D. studies and I am actively looking for subjects around which to focus my practical work. I want to create site-specific performances in Cork. This motivation comes from my positive experiences of being part of several site-specific performances between 2007 and 2012. At this time, in 2012, site-specific performances represent a way for me to connect contemporary music practices with real places, thereby increasing the social relevance and impact of my work as a composer. I become aware of Daly's bridge in Cork, also known as the “Shakey” or “Shaky” Bridge (map 1.3) as a result of its proximity to the UCC Music Department and because I frequently use the bridge when moving around the city. Over the following months I repeatedly use the bridge to cross the river. This footbridge, which crosses the river Lee between Sunday’s Well Road and the Mardyke, is Cork's only suspension bridge. The bridge's design and its situation on a quiet stretch of the River Lee appeals to me. When crossing the bridge, it is impossible not to notice that at this time the bridge itself creates sound whenever it moves. Its metal supports clang against the railings of the bridge as it shakes. The bridge isn't close to any major roads and so the sounds of traffic are minimal. The bridge makes an impression on me and I am attracted to its peaceful location and elegant design.

As well as the sounds created by the bridge itself, I become aware of the peaceful soundscape of the bridge's surroundings. When in December 2012 I stand on the bridge in a cold wind, I hear the

sounds of the bridge itself, close-by and present. Ever present, too, is the sound of the wind, pressing into my ears with varying intensity as the gusts shift around me. While I can barely hear the water below me, the sound of wind in the trees on the riverbanks is very present. The sensation is one of being suspended, between the air and water, both elements making themselves apparent through sound. Suddenly, the rare sound of birdsong in this wintery environment makes itself heard, but only for an instant. There is a distant hum of traffic which comes and goes. What strikes me above all is that this is a pleasant and pleasing soundscape to be in. It is calm despite the wind. People pass behind me on the bridge. The bridge amplifies the sound and movement of their steps. Someone passing by is singing to themselves quietly, humming along to the music in their headphones. The combination of the tranquility of the bridge's surroundings and the quiet individual singing appeals to me. This moment of human voice in the bridge's soundscape leads me to imagine what it would be like to experience sung music in these surroundings.

Following the experience of hearing a passer-by singing to himself while walking across the bridge I become interested in the idea of deliberately creating moments of sung music in and around the bridge. This desire comes from the aural pleasure I experienced when I heard a human voice singing in this environment. I use my sonic imagination to project what it could be like to harness this sound in a composed way. At this time my practice is very much based on live performance, and my own performance experience is closely linked with choral music. Because in 2012 my practice in the field of site-specific performance is still developing, I do not feel ready to create a fully formed performance piece. I want to explore ideas of creating live vocal performances in specific places. This is based on my experience of the sound environment unique to the performance site in combination with my experience of live performance techniques. An invitation to lead a practical performance session with members of Dr. Róisín O'Gorman's undergraduate Drama Theatre Studies class provides me with an opportunity to experiment with site-specific vocal performance techniques on the Shakey Bridge.

My interest in hearing human voices in the sonic landscape of the bridge leads me to decide that in the workshop performance opportunity I want to experiment using the Shakey bridge as a location for sung performance. At this time I am familiar with the technique of guiding groups of singers through the use of pre-recorded tracks[25]. I decide that in the workshop opportunity I will use pre-

[25] I first used pre-recorded MP3 tracks to give instructions to singers in September 2011 in *Corokinesis, the 2nd Experimental Evensong*. This was a site-specific dance and choral performance by Christ Church Cathedral choir as part of the Dublin Fringe Festival. The choir was comprised of 16 parts and was spaced around the four corners of Christ Church Cathedral Dublin. Each singer performed with a pre-recorded track which contained the pitches and tempo clicks needed to perform each part. Through rehearsing and performing the piece I gained valuable experience of using

recorded MP3 tracks which will be listened to by performers on the bridge through headphones. As I will demonstrate throughout this thesis, my creative decisions are always strongly influenced by a balance of practicalities and outcome. I balance the practicalities of realising a project with how to create the most effective and successful result. I already know something of the techniques surrounding this type of performance but I am curious to experiment further in this specific location.

I plan to create tracks that will contain instructions for the performers about when and what pitches to sing. The performers will start the tracks at the same time and sing particular notes when instructed. Another factor in my decisions to use this technique stems from the nature of the performance environment and my concept for the visual and spatial aspects of the piece. If all of the information needed for the performance is included as part of the pre-recorded track the singers will not need to hold sheet music or even posses the ability to read music. They are also free to move around and each performer has the potential to sing exactly the same thing (unison) or completely different melodies (polyphony). The performers will appear to be synchronised and unified by an invisible force and I hope that this will create an interesting effect when this is observed from the outside.

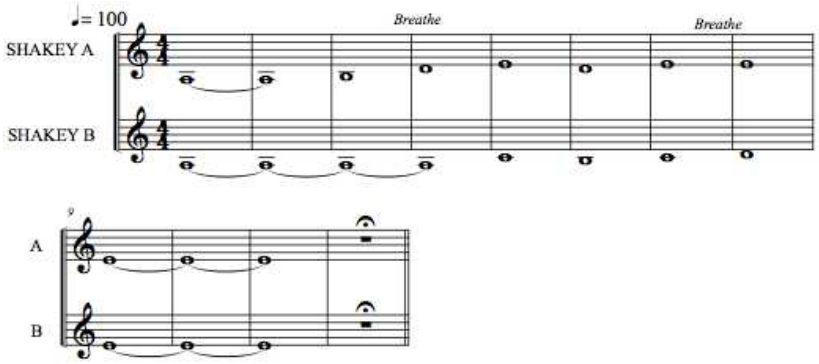
At this time I am mainly concerned with bringing new performance material to a site rather than amplifying or developing existing site-specific elements. For this piece I do not create musical material I created was not specific to this site. The choice of musical notes and the use of headphones to control the singing are both the results of a consideration of the practical issues related to performing in this location. Since this piece is an experiment at an early stage of the development of my artistic practice, I am at this time very much concerned with observing what this kind of singing will be like in the specific location of the Shakey Bridge. The use of headphones and the ways in which musical and sound material can be derived from specific locations is something which developed later in my site-specific practice.

To create the piece I make two pre-recorded tracks which I call “SHAKEY A” and “SHAKEY B”, corresponding to high and low musical parts (audio extracts 1.1 and 1.2). I choose to use two parts because I want to experiment with writing choral harmonies and two parts is the minimum amount of parts necessary to achieve this. I decide to compose four short musical phrases to be sung to a combination of loud and soft humming and “ah”s. I compose the music so as to not rely on exact

this technique. I discovered that it is almost impossible to use this technique to achieve perfect time synchronisation of multiple performers. I learned, however, that the MP3 player co-ordination technique is very effective when the individual singers do not need to be precisely synchronised.

synchronisation of singers since I know that it is extremely difficult to start the tracks at exactly the same time. The melody notes are therefore selected so that they can overlap and produce harmony from a single or double line. For example the hummed section from bar 24 to 40 was designed so that a "cluster" effect would be created from the overlapping of the melodic line. At other points, the two parts are mainly in thirds. I also choose a relatively low register since the singers will be a mixture of male and female and high and low voices. This range is from the A below middle C to the A above it, with the majority of notes being not higher than the E above middle C.

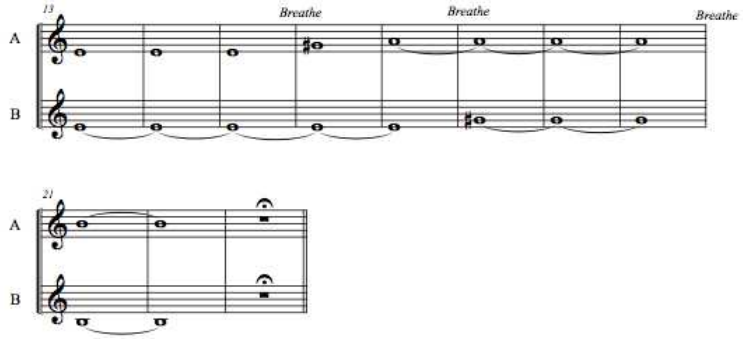
On the 16th of February 2013 I compose the music for bars 1 to 11 by starting with a unison low A in both parts:



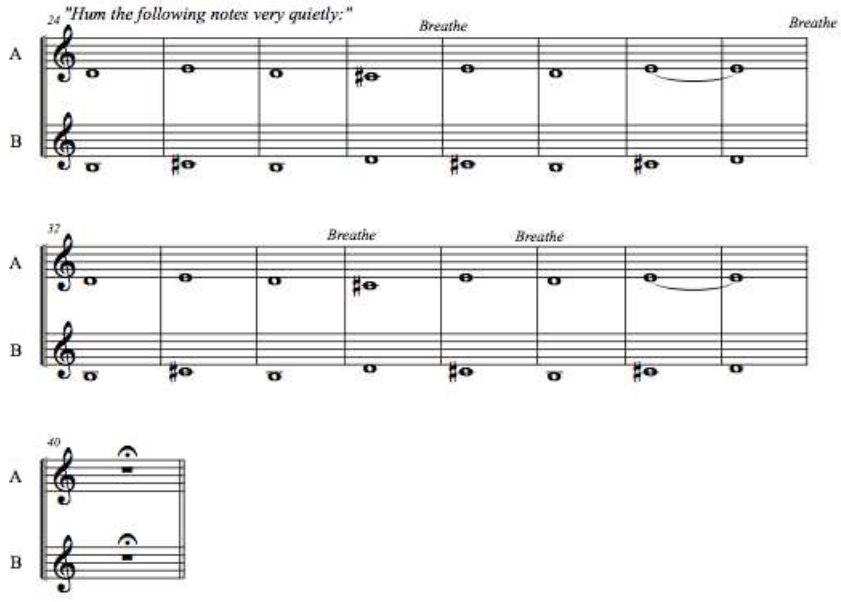
The top part moves up first by step and then by a minor third, finally settling on an E a fifth higher than the first note. I deliberately use an open harmony based on the aeolian mode beginning on A. The lower part moves up by a minor third in bar 5 so that it moves in parallel with the top part until bar 7. At bar 8 the lower part moves closer to the top part and then settles on a unison with the top part at bar 9. When composing the music in these bars I followed the process described above. My choice of notes is defined by several requirements. The notes need to fall within a narrow range so they will be easily singable by the available performers. The intervals between the notes need to lie within easily singable ranges, and so I avoid anything larger than a third. I want the melody to be simple and straight forward so that it can easily be followed. I begin with a low A in the top part and then decide to follow this with a simple rising melody following the requirements described above. At every step of the compositional process, even at the smallest level I am constantly faced with multiple decisions. The first decision is the starting note. I chose a low A because it will lie well in the singing range of the performers. After choosing to write a low A the next decision is concerning which note will come next. Writing a lower note would be too low to be comfortable. Since this was the first interval in the piece I decide to start with a small but easily singable interval. I therefore move the melody up by step to a B natural. Following this I choose to move up by a minor third as this is the next largest interval after a whole tone. This decision results in a D above the low A. The next note needs to continue the development of the melody without rising too high in the singing range. I make a decision to continue the rising pattern of the melody and so the only logical note to

choose was an E above the low A. The next note will be the penultimate part of the phrase. I want the phrase to end on an E and so I chose to return to the D below this E. By moving down one step the melody creates a sense of departing from the final note before returning to it. I want to begin the performance with a quiet exposition of sound and so I choose that the singers will hum this first phrase quietly. This very detailed description of my compositional process when writing a very simple passage of music shows how many very small decisions are made in even the most basic of musical tasks.

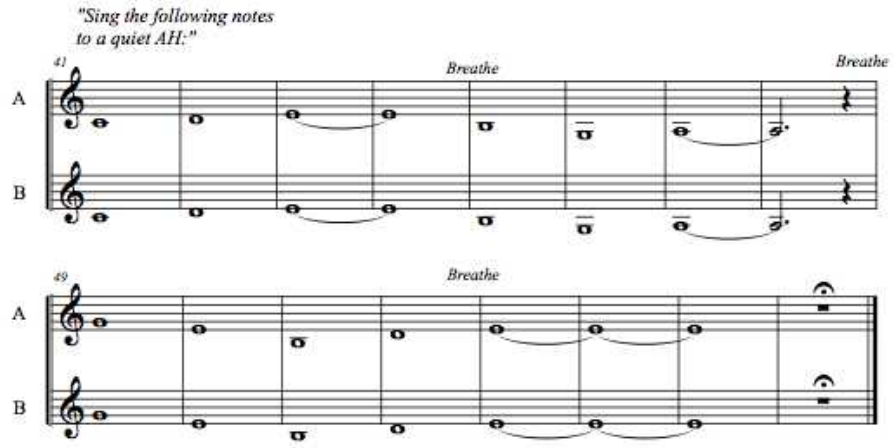
In bars 13 to 22 of the score of this piece I want to create a contrasting section to the first passage of music:



To create this contrast, I first choose to use a loud, open “Ah” sound and a higher singing register in comparison to the opening section. The top part again outlines the range of a fifth but uses a major third followed by a semi tone and then a tone. The choice of these intervals is based on my wish to vary the sequence of intervals in comparison to the first phrase. The lower part rises to produce a semi tone clash with the top part. This, combined with the loud singing of the performers will create an interesting dissonance in the music. The lower part finishes an octave below the top part. I choose to do this to create a feeling of resolution at the end of the phrase. Bars 24 to 39 return to the quiet humming:



I want to contrast with the loud section and to create an alternative to the melodic definition of the first two phrases. Both parts in this section move by small intervals so that the overall effect is of a close cluster of notes. The singers use a humming sound. The final section from bar 41 to bar 59 is a concluding phrase with the top and lower parts in unison. I choose to end with a quiet "Ah" using a modal melody influenced by the very first melody:



Diary entry documenting the process of recording the tracks for the workshop:

> *17th of February 2013*
>
> *I create recorded tracks of the notes of the two parts played by an electronic sound. I combine this with a narration using my own voice with simple instructions which specify what vowel and what volume to sing. I ask a friend to listen to the tracks and to follow the instructions and as a result of this I include suggested breathing points. For the workshop I ask the students to bring with them a track which they associated with being "in-between" places, for example waiting for a bus or being in transit. I include this because of the experience of hearing the passerby singing as they walk across the bridge, and I want to test what it is like if many people do the same thing in the same place. This is in effect creating polyphony using the MP3 player technique. In combination with the recorded tracks I create a simple movement score that incorporates various combinations of stationary and moving singing. The two groups singing tracks A and B stand and regard each other, pass each other on the bridge, face away from each other and walk as one line. I use a systematic approach to try out the different permutations of this because I am not sure which one will be most effective.*

Diary entry documenting the day of the performance experiment:

> *25th of February 2013*
> *On the day of the performance experiment I meet the students in the UCC Drama Theatre Studies department. We test the tracks in the rehearsal studio and then go straight to the bridge to try the various combinations of movement and singing. At the bridge, starting the tracks at the same time is difficult, as predicted. This is exacerbated by distance when the two groups are standing at opposite sides of the bridge. The singing carries surprisingly well in the relatively still conditions. The image of groups of people staring in the same direction and doing the same thing at virtually the same time is quite mesmeric and gives the impression of ritualised chanting. The focus of the singers is maintained in between the sections of singing since they are waiting for the next instructions to start. This held stillness between sung sections is particularly interesting to me. The singing frames the silence and presents it as something to be listened to and considered. The frame of performance extends to encompass the silence because the focus of the singers is held. In this way, without making any actual alteration or addition, the ambient sound of the area becomes part of the piece as if it is answering the singing. What I had written in the score as "silence" is of course nothing of the sort since the piece is taking place in an already sound filled environment. The singers comment after performing the piece that they did not feel self-conscious or embarrassed singing outside and in public. This is because of the "cocooning" effect of being encased in sound through headphones. They also report being relatively unaware of the other singers around them since they were focussing on singing the notes they could hear. In addition to singing with the pre-recorded tracks I ask the students to play their own favourite songs and to sing along to them quietly. This creates the impression of a busy group of people in transit.*

Analysing the effects of site-specific choral singing

The creation of the performance was influenced predominantly by the research interests and compositional techniques I was familiar with at the time. Subsequent analysis allows me to investigate the performance further. I recognise that this was an early investigation into the relationship between performance and site. It examined the effect of performance on a particular site by presenting various ways of presenting choral music in an outdoor performance location. By this I mean that the experience of the site was altered by the presence of the performers at the site. The site was not changed physically, but the experience of that site by any potential viewer would

have been altered substantially. The experiment sought to investigate both the effect of site on performance and performance on site. The bridge became a stage on which was presented a particular type of choral performance, becoming more than its intended function as a bridge over water, part of a travel route. The affect on the performers of singing at the site was also part of what the experiment was designed to investigate. I found that the use of headphones allowed the performers to concentrate closely on performing without feeling self-conscious or awkward.

The focus of the singers was maintained in between the sections of singing since they were waiting for the next instructions to start. I found this held stillness between sung sections was particularly interesting. In between each section of singing, a viewer is passively invited to listen to the environmental sounds of the location. An absence of singing which would usually be considered as silence becomes a potentially fascinating source of sound. The effect of all of the students singing their own songs was a different experience again. When this was combined with walking across the bridge the effect was of a busy, bustling city street. The bridge functioned effectively as a sort of stage that could be seen by passers-by on the south side. Occasionally the performers blocked the normal foot traffic of the bridge. This simple fact relates to a key part of making work in unusual locations. The normal function of a performance site can be significantly altered by the presence of performance. In the case of this footbridge, its normal function of allowing people to cross the river was interrupted. The performance experiment created an intervention which resulted in a direct change to the performance location. This intervention relates to Fiona Wilkie's description of performances in transit spaces that mark the significance of transit spaces (2015, 17). This marking of significance changes an audience's perception of their passage across and though these sites.

For my own practice this piece represented an experimental and new approach to site-specific performance which extended and experimented with techniques I was already aware of. However, the piece is closely related to the flashmob genre of performance events that has existed since around 2003 (Tan & abu bakar 2015). In creating this piece I was very aware of this genre and so the piece should be viewed as part of this tradition of performance. A flashmob has been defined as 'a semi-spontaneous, one-off event which occurs when a group of people, known or unknown to each other, come together to collectively perform an unusual or attention arresting activity, or creative scene in a public space according to predetermined instructions, and then randomly disperse' (Tan & abu bakar 2015, 245; Duran 2007; Salmond 2010). Notable early examples of flashmob style events synchronised by pre-recorded tracks were created by the New York based collective ImprovEverywhere. Between 2004 and 2017, this group created a series of seventeen pieces called *The MP3 Experiments*. These pieces consist of an MP3 track that is downloaded and

played simultaneously through headphones by large groups of people in public spaces (ImprovEverywhere 2017). The tracks ask the participants to perform specific actions including dancing, sitting on the ground and jumping. The effect of many people performing the same action at the same time without any visible means of co-ordination is impressive and fun. For the participants the events are an inclusive experience of taking part in a special event with a large amount of strangers. For onlookers the events appear impressive and arresting. Using pre-recorded tracks to control choral singing was also explored by composer Pete M. Wyer in his piece *And Death Shall Have No Dominion* (2014). This piece featured groups of singers located in different locations in New York who sang to a pre-recorded backing track and slowly converged on a central point (Pete M. Wyer 2017). This performance used a mobile app to synchronise the starting times of the individual tracks, thus overcoming the problems with many people pressing play at the same time. *The Shakey Bridge Performance Experiment* and my subsequent piece *BridgeSong* are very much of the same lineage as these types of pieces. I had personal experience of working with pre-recorded MP3 tracks while performing as part of the *MittenDrin* series in Eisenach, German in 2010. The ubiquity of personal mobile playback devices combined with the relatively straightforward way of synchronising large groups of people appealed to me as a composer. The possibility of creating controlled sung music in unique locations using these simple and achievable means was an exciting way of creating impactful performances.

This performance experiment represents the starting point for the following pieces in my portfolio. Although I created the piece for the Shakey bridge, the music and the performance instructions could well have been reproduced on any bridge and the sound was not derived from any part of the site. Fiona Wilkie defines site-specific as a 'performance specifically generated from/for one selected site' (Wilkie 2002, 150). Wilkie describes as site-sympathetic ′an existing performance text physicalized in a selected site' (Wilkie 2002, 150). Although this piece was created for one site it could be described as site-sympathetic. It could be argued that there is little about the piece which relates it directly to the Shakey bridge. In this chapter I will show how this type of piece led to a more integrated and connected approach to site-specific performance. My practice is continually evolving in response to the needs and demands of each new piece. In site-specific performances, these parameters are defined by the unique properties of the performance location. In this piece,I addressed the consequences by working outside in a specific place by creating a specific type of musical composition which would work in the given circumstances. I used headphones and recorded instructions as a technique to transmit the content of this composition to the performers. *The Shakey Bridge Performance Experiment* was an investigation into a type of approach. I further developed this specific approach in *BridgeSong*, but the issues raised by the experiment triggered

further developments in my practice. I will describe these developments further in subsequent chapters of this thesis.

The Shakey Bridge Performance Experiment was very much an experiment into site-specific composition. At the time of its creation, my concept of site-specific performance was based around performing newly composed music in unusual locations. The piece gave me the opportunity to investigate the use of bridges as performance sites. This began an ongoing interest in bridges which I developed in many of the pieces in this portfolio. Up until this point my site-specific performances had taken place in predominantly indoor, enclosed environments. The choice of this particular bridge was partly by chance, but it triggered my interest in bridges at a crucial stage in the development of my site-specific practice. As well as investigating bridges specifically, this piece also brought into focus my aims and concerns related to for site-specific composition in general[26]. The short-term result of *The Shakey Bridge Performance Experiment* was the creation of the more extended and polished piece *BridgeSong* which was performed in April 2013.

[26] One of the ongoing concerns which I will explore later in this thesis is documentation. The documentation of this event was undertaken by film-maker Ed Cashman. As is often the case with performance in general, it is difficult to capture the experience of the piece through film. However, the documentation gives a good sense of the effects of the different positions of the singers and the notes they sang in-situ.

BridgeSong



Fig. 2: Performers on Cork Opera House bridge (photograph: Ed Cashman)

In January 2013, Mary Hickson, the then director of the Opera House, asks me to create an event which would involve members of the local community in a participatory performance project[27]. At this time my research is beginning to crystallise around creating site-specific performances and so I look for potential performance locations in the vicinity of Cork Opera House.

As documented above, in February 2013 I work on *The Shakey Bridge Performance Experiment* with students from the UCC department of Drama and Theatre Studies. This piece is performed on a bridge and I am keen to continue this theme to create a link between my portfolio works. I consider how to create an outdoor performance near the Cork Opera House. I reflect on the size of the building and its busy city centre location, and initially I my plans in response to these factors are large in scale. I imagine a performance featuring a choir of up to 100 people, local brass bands and multiple bridges. However, I quickly realise that a large scale project is not achievable given the time and funding which is available, and, as often proves the case in my work I decide to adapt my plans in order to work with the resources which are available.

At the beginning of March 2013 I begin to make concrete plans for the piece with a particular focus on making sure that the piece is realisable. I decide to work with techniques I am familiar with and so I opt to use the method of controlling live singing through the use of individual pre-recorded

[27]This opportunity came about because of Cork Opera House's involvement in funding my Ph.D. scholarship.

MP3 tracks. I'm hoping to continue to develop the techniques I used in *The Shakey Bridge Performance Experiment* in February 2013. I plan to use these techniques to create a site-specific performance in the area around the opera house. A key feature of the opera house is its riverside location in the heart of the city of Cork, directly opposite a bridge. I make a decision to continue to explore the bridges of Cork. These bridges offer me a focal point for performance and a public, outdoor stage on which performances can take place. The closest bridge to the Cork Opera House is the Opera House Bridge (map 2.2), a slightly curved, reinforced concrete construction. This contrasts with the Shakey Bridge which is a straight suspension pedestrian bridge, whereas the Opera House bridge is a road bridge with constant busy traffic. Another marked difference to the Shakey Bridge is the Opera House Bridge's location in the centre of the city, not surrounded by trees or wildlife like the Shakey Bridge. It does however connect two sides of the same city across the same river as the Shakey Bridge.

A key experience of *The Shakey Bridge Performance Experiment* was the way in which the periods of stillness in between passages of singing can highlight and accentuate the ambient sound of an existing performance location. This is a new realisation for me, and I am attracted me to the way in which this focusses attention on the act of listening to the sound of a particular location. By adding new music to the location, I am seeking to enhance the listening experience of audiences in that place.

Diary entry documenting the experience of standing on the Cork Opera House bridge:

> *4th of April 2013:*
> *I stand on the Cork Opera House bridge facing west, upstream. The overwhelming sound is of the traffic on the road across the bridge behind me. The traffic noise comes and goes according to the action of the traffic lights. Punctuating this are snatches of conversations which I overhear as people pass behind me. In contrast to the suspended Shakey Bridge, I do not feel any vibrations or movement through the bridge itself, nor does the bridge make any sounds. This solid concrete structure could not be more different to the graceful suspension bridge I worked with in February. The occasional squawk of a seagull cuts through the dense urban soundscape. Because of the high tide, I am close to the water below me, but I am unable to hear any sounds of the river. Wind rises and falls and is a constant audio presence. I imagine how choral singing will sound in this location in combination with the ambient sound.*

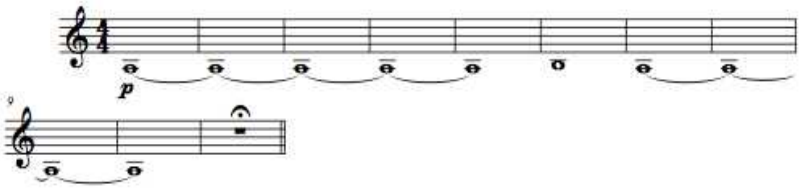
I consider how to combine my experiences of *The Shakey Bridge Performance Experiment* with my

experience of the acoustic environment of the Cork Opera House bridge. Perhaps it would be possible to use group singing to create a moment of stillness and introspection in the heart of a busy city? On the Shakey Bridge, I experienced the effect of the silence between periods of singing framing and highlighting the tranquility of the space. Here on the Opera House bridge, it would be the ambient traffic noise which would be highlighted.

At the same time as I am engaged with creating this piece, I am reading and researching concepts of "non-place" and liminality. I am drawn to Marc Augé's description of the traveller's space as 'the archetype of *non-place*' (Augé 1995, 86, emphasis in original). It strikes me that the Opera House bridge is an example of a non-place which is designed to be passed through rather than experienced as a place. In conventional circumstances, the invisibility of this non-place allows a smooth movement of individuals across the bridge. I realise that a performance in this space works counter to the bridge's purpose by creating a sense of stillness within the non-place. I also draw a link between Augé's work and the process of creating an intervention through performance and singing in a place which would not normally be the site of this type of activity. This has the potential to affect interest from passers-by which might lead them to re-consider the nature of the "in-between" place they are passing through (the bridge). I had learned from the Shakey bridge experiment that the gaps between passages of singing are just as, if not more important as the singing itself. I intend that the singing will frame and highlight the inherent ambient sound of the Opera House bridge.
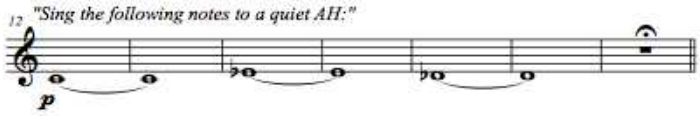
In mid April 2013, with the help of the Cork Opera House I advertise for participants to take part in the performance. The performance is marketed as a "flashmob" by the Opera House since the piece is a public, urban performance intervention. This leads me to research similar performances (this research is described later in this chapter). I set about composing the material for the piece. The musical material is not derived from any element of the performance location. This is a crucial difference between this piece and later work in my portfolio. At this time my practice is not developed enough to be able to achieve this. My main concern is how to make the piece straightforward enough to perform in the limited rehearsal time available. To simplify the execution of the piece as much as possible I opt to create a single MP3 track which will contain all of the necessary information for the participants and which will be started by all of the performers at the same time in the same place (audio extract 2.1). The track consists of instructions about where to walk and what to sing. I compose the melodies in a similar way to the Shakey bridge experiment so that if the singers are out of sync, any resulting overlaps of the lines will deliberately create intended harmonies.

Bars 1 to 10 begin on a low hummed A for 5 bars and then briefly changes to a B before returning to a low A:

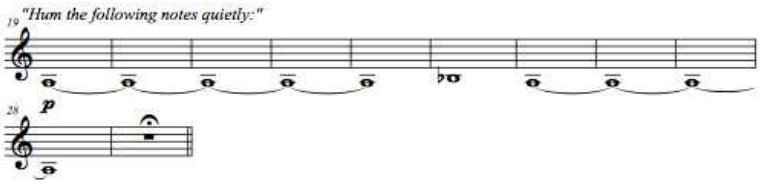


This is a deliberately very simple melody as an opening statement. The long first note also provides a chance for the singers' voices to “gather” on a unison note despite possible discrepancies in synchronisation. The move to a B and back to an A implies a whole tone harmony.
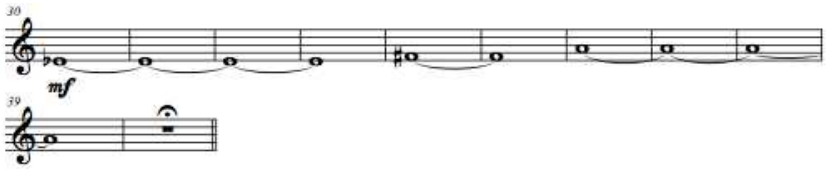
Bars 12 to 17 are sung to an “ah” rather than a hum, and outline a minor third from C to E flat and then D flat:
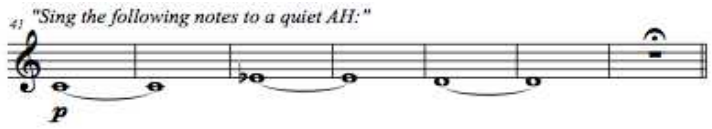


I decided to write these notes to create a contrasting harmony in comparison to the simple whole tone pattern of the first statement. Bars 19 to 29 return to the low hummed A of the opening statement but this time the melody moves to a B flat rather than an A:



I decide to use this closer semitone harmony to create a variation of the opening statement. Bars 30 to 39 are sung to a loud “ah” sound and are correspondingly higher in the vocal range to allow for greater projection:
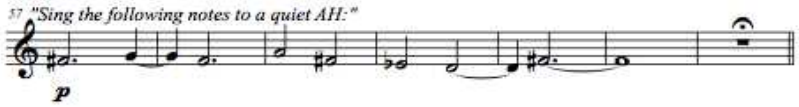


This phrase begins on an E flat and then ascends through two minor thirds to F sharp and A natural. This diminished chord harmony is again intended to work as a contrast to the previous statements of the melody. I decide to write these notes to create variety and interest in the vocal line. Bars 41 to 46 are a variation of bars 12 to 17:



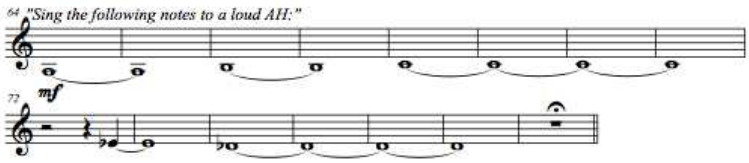
Instead of a C, E flat and D flat, the notes are C, E flat and D natural, again to a quiet “ah” sound. This is similar to the first statement of these notes but with a slightly altered harmonic and melodic pattern to create interest in the line. Bars 48 to 55 are sung to a loud “ah” sound and exploit a larger interval than previously stated:



I write these notes higher in the range to allow for greater vocal projection. I write a larger interval so that the line will develop from the previously heard statements of the melody. Bars 57 to 62 use shorter note values and closer intervals sung to a quiet “ah” sound:



I write these notes so that the discrepancies in synchronisation would create an harmonic cluster effect. Bars 64 to 77 begin as a restatement of the opening theme but this melody is extended to an E flat and a D flat:



This is intended to create a sense of return to the opening but with a feeling of change at the end of the piece. The very final section at bar 79 is one long held D natural:



This is a final single note for all of the singers to gather on and to create a feeling of finality at the end of the piece.

Once I have composed all of the melodic material I create recordings of the melodies using

computer generated midi sounds. I use a midi oboe sound for its clarity. In a DAW (Digital Audio Workspace) I combine the midi tracks with a narration using my own voice. The narration describes a simple pathway from the Opera House foyer to the centre of the bridge on the west side. After the nine sung passages and pauses, the narration then asks the participants to stop the track and to play one of their own choices of music which they associate with being in-between places and to sing along with this track. To correlate with this fracturing of the previously structured unison singing the narration asks the participants to disperse from the bridge in a disordered way. The choice to end with this polyphonic sense of dispersal stems from my experience with asking the performers on the Shakey Bridge to sing along to their own songs as if they were unrelated passers-by. The inspiration for this came from my experience of overhearing someone singing along to recorded music as they walked across the bridge.

I send the completed recording to the participants of *BridgeSong* and we meet for a rehearsal in advance of the scheduled performance date. Here is a diary entry documenting the rehearsal for the piece:

> *25th of April 2013:*
> *I meet the participants for a rehearsal of the piece. Following a vocal warm-up, we first listen to the tracks in the greenroom of the Cork Opera House and practice singing with the recordings. We then do a trial run of the performance outside on the bridge. The performers are able to follow the recording without any problems and they all have their own tracks to sing along with at the end of the piece. The experience level of the performers is very mixed, and some of them lack confidence. I try to encourage them to just listen to the recording and sing confidently while ignoring what is going on around them. I note that the rehearsal skills necessary for this type of performance are different to conventional choral situations.*

Diary entry documenting the day of the performance:

> *27th of April 2013:*
> *On the day of the performance the weather conditions are perfect and the wind is not too strong. I record the sound of the performance and Ed Cashman shoots the video. The event draws considerable attention from passers-by but there is no problematic interference. I find that the gaps in between the sung sections which I specifically added do in fact emphasise the environmental sound of the performance location. The melodic and harmonic material I chose is singable by the performers. The event finishes remarkably quickly and it feels somewhat of an anti-climax after the relatively long preparation time.*

While making the piece and afterwards, I become increasingly aware that the piece is related to similar flashmob events. I did not originally set out to create a flashmob event, but without question the piece is very much like such an event. An unannounced intervention in a public space using pre-prepared recorded materials to synchronise participants is a typical feature of these kinds of pieces. For example, in ImprovEverywhere's *The MP3 Experiments* and Pete M. Wyer's *And Death Shall Have No Dominion,* groups of people are given recorded instructions to create synchronised performances in public spaces. The impetus for me to create my piece was rooted in a desire to frame the ambient sound of the location using choral singing. I chose the flashmob format in order to create an effective and simple performance in which little experience was needed to take part. The impact of the event is deeply connected to how many people are involved in the performance. ImprovEverywhere's *MP3 Experiments* were realised by thousands of people on a huge scale. Because of the relatively small number of performers in *BridgeSong*, the event was more intimate and took place without causing a significant disturbance to the city. Without question, the piece would have been more spectacular and would have had greater impact if many more people had participated.

Developing choral site-specific performance techniques

In the context of my developing portfolio of site-specific work, this piece more precisely articulated the aims and ambitions which I had set out to test in *The Shakey Bridge Performance Experiment*. *BridgeSong* presented choral performance in a specific relationship with a specific site. Choral music was presented in alternating sections with the inherent noise and sound already present on the bridge itself. In doing so, the noise of the traffic on the bridge was re-interpreted as potentially interesting sound. In this way, the performance refocussed the sound of the bridge and created a new relationship between sound, performance and site.

The musical material sung by the choir was not directly derived from any part of the performance site. In my later site-specific pieces, the sonic and musical material is primarily derived from the location in which the performance takes place. This has come to represent an important element of my site-specific sound practice. The music of *BridgeSong* was composed in order to contrast with the noise already present on the bridge[28]. In a way which is related to the position of Pearson and Shanks, this piece examines the relationship between 'that which is of the site' and 'that which is

[28] There could potentially have been ways to extract tonal information from the sound of the traffic or from the resonant frequency of the bridge. I felt however that the music should deliberately contrast with the sound of the bridge in order to draw the audience into a questioning relationship with the site.

brought to the site' (Pearson and Shanks 2001, 23). Through the singing of lyrical music on a noisy bridge, the performance engaged in a dialogue with the fundamental qualities of the site. This dialogue treats the already present sound of the bridge as an element in a composed piece of music. In addition to this dialogue, the piece also used space as a composed element. By organising the pathways and formation of the singers in a relationship with sound, I treated space as a composed element alongside pitch, rhythm and intensity.

BridgeSong was the last time that I used the technique of controlling choral singing through individual pre-recorded tracks. The piece was important in the development of my site-specific performance practice because it continued my interest in performance interventions in urban environments. My ongoing interest in bridges and rivers as performance locations was further explored in subsequent site-specific pieces which I created from 2013 to 2016. This interest first appeared with the creation of *The Shakey Bridge Performance Experiment* and was developed in *BridgeSong*. The potential of bridges as a rich source of site-specific performance locations was due to several factors. I am based between Cork and Dublin, and these two cities are founded on substantial rivers with major bridges. I sought to create the majority of my performances in Cork and Dublin. The cities both straddle the rivers Lee and and Liffey respectively, and so their bridges are important parts of the urban environment. Searching for prominent and effect performance locations led me to focus on the bridges of these cities as performance locations. The range of types of bridges is also notable, both in terms of scale and design. I noticed a bridge's similarity to a stage early on in the development of my performance practice, and I was keen to explore this further. I first explored this feature of bridges in *The Shakey Bridge Performance Experiment* where it was clear that performers standing on a bridge had the potential to create a focussed space for viewing performances. As well as this stage potential, the possibilities of using a bridge as a sound producing object was also apparent to me since working on The Shakey Bridge in Cork. This led to my use of contact microphones in pieces such as *The Shakey Bridge Listening Project*. This process will be more fully explained in the section of this thesis relating to that piece. My interest in bridges ultimately became the cornerstone of what I have come to call my site-specific performance practice from 2013 to 2016. This practice extends from live performance pieces to pre-recorded sound based pieces and includes fixed and static modes.

The Shakey Bridge Listening Project



Fig. 3: Shakey Bridge, Cork (photograph: Ed Cashman)

In February 2013 I am in the first year of my PhD research. I have become interested in the Shakey Bridge (Daly's Bridge) due it to its proximity to the UCC Music Department. As well as using the piece in *The Shakey Bridge Performance Experiment* I also want to experiment with recording sound material directly from the bridge, and I decide to experiment with using contact microphones. The following is a diary entry documenting the process of recording sound from the Shakey Bridge:

> *28th of February 2013:*
> *I stand on Daly's bridge in Cork, colloquially known as the Shakey Bridge because of the way in which the bridge moves when people walk across it. I use my piezoelectric contact microphones which I have had since 2011[29] and I begin to record sound from the bridge by*

[29] I became aware of the field-recording potential of contact microphones during my participation in the Mamori Lake sound recording workshop in the Amazon rainforest led by sound artist Francisco Lopez in November 2011. Here, we used contact microphones in the form of "hydrophones" which are used for making underwater sound recordings. A conventional microphone picks up vibrations from the air through a diaphragm and translates these into electrical signals via a magnetic coil. A contact microphone converts vibrations into electrical signals using a piezoelectric crystal. Airborne sound is not picked up by the microphones but sound which is transmitted through solid objects is picked up

using these microphones connected to my Zoom recorder (audio extract 3.1). In Cork, the Shakey Bridge is well known for the way it moves when people walk across it. This movement produces squeaking and clanging noises through the strain in the material and the knocking of loose rods which connect the walkway to the suspending cables. I intend to derive tonal information from the recordings to create a notated piece of music.

In early March 2013, after listening more closely to the sound material I have collected from the Shakey Bridge I realise that rather than attempting to derive pitch information from the recordings, I am more interested in the quality of the sounds themselves. The tonal, rhythmic and dynamic range of the sounds is appealing and varied. This is a turning point for me. I realise that instead of bringing music to a site, I might be able harness the internal acoustic qualities of the performance location. This change in my practice would later have a profound influence on the pieces I discuss in chapters 2 and 3 of this thesis.

I decide that I want to use these recordings to create some kind of piece and I consider several methods of working with these sounds. My initial idea is to create a sound installation on the bridge using contact microphones and weatherproof speakers which would amplify sound from within the structure. Another option I think about is a sound installation which would transmit live sounds from contact microphones into radio receiving headphones to be worn by listeners on the bridge. A variation on this would be a sound installation using weatherproof speakers which would play previously recorded sound on the bridge. The final option is to create a sound walk which would be based on pre-recorded sounds from the bridge.

The first two of these options would transform the bridge into a musical instrument which could be "played" as people walked across it. The act of passing across the bridge would become performative through sound. The direct connection between footsteps and sound would quickly transform walking into playing and create a constant state of play on the bridge. This state would be a heightened version of what already exists on the bridge already. I investigate the technical costs and practical implications of making the weather-proof installation and I realise that it would be impossible to create within the time-frame and budget which I have available. It is important to me that I create a piece immediately rather than postponing the development until funding can be put in place. The more cost-effective version of the project is to create a pre-recorded soundwalk which avoid having to invest in sound equipment by using technology already owned by potential

when the microphones are in direct contact with that object. Compared to stone, plastic or wood, metal is particularly good at transmitting sound especially when it is under tension. Contact microphones placed on metal objects under tension act in a similar way to the pick-up on an electro-acoustic guitar.

listeners. Recordings could be made publicly available online and then played by audiences at the site. The ubiquity of smartphones and mobile internet would also mean that tracks could be downloaded in-situ rather than downloaded at home and transferred to mobile listening devices. By using pre-recorded tracks played through individual sets of headphones the project would also retain a link to the other two bridge pieces I created in 2013.

It is April 2013 and during this time I am working on *BridgeSong* which uses a pre-recorded narration to guide performers alongside providing pitch material for singing. In this new piece the narration would be part of the experience itself but I also want the spoken text to prescribe a route across the bridge and physical actions for the listeners. The description of the route was important to me since it would relate to the concept of bridges being embodiments of in-between places and transit. The ritualisation of movement *across* and over the bridge would be fundamental to the underlying concept of the piece. Through the spoken narration, instructions for physical actions could also be prescribed to listeners. This would mean that listeners experience the piece as passive audience members and at the same time become enactors of an actual physical process at the site.

In May 2013, following my experiences with the two other bridge pieces I decide to include some of the elements from both pieces. I compose a text which describes a journey from the bottom of the ramp on the south side across the bridge to the lane-way on the north side, instructions to complete certain actions (for example leaning close to a pylon, placing hands on railings, facing certain directions), and an instruction to sing part of a song which the listener associates with being "in-between" places. In preparation for writing the text, I time how long it will take to walk the various pathways used in the piece: from the bottom of the ramp to the first pylon, from there to the halfway point, from there to the north side lane-way. The text begins factually, welcoming listeners and describing the bridge and the sounds we hear. Towards the middle of the experience and the centre of the bridge bridge the text becomes more poetic and imagined spaces are evoked in the mind of the listener.

I decide to include a break between the two halves of the piece so that there is a chance to experience the ambient sound of the bridge in an undisturbed way. This is something I gleaned from my work on the previous two bridge pieces. Sound and performance has the ability to frame the everyday and to perceptually elevate the seemingly mundane into something beautiful. The sound in-between the piece becomes the climax of the piece. An in-between within in-between time, an invitation to take time out while suspended in an in-between place. In order to achieve these two halves I decide to create two separate tracks which would be played one after the other (audio

extracts 3.5 and 3.6). As something of a whimsical gesture, I decide to include a recording of the first verse of the well-known Cork melody "On The Banks of My Own Lovely Lee" to reference the River Lee and the Mardyke past which it flows (audio extract 3.4).

Using primarily the recordings made on the first session on the 28th of February I assemble the recordings of the various sounds produced by the bridge. Structurally, I follow a basic arc and aim to create variety in the combinations of sounds used. Describing the process of assembling these recordings is more difficult for me than analysing the composition of notated music. Beginning with one of the clearest recordings I layer the different sounds so that the composition will develop from a simple to a more complex and layered texture. I find that this process is instinctive for me. As a composer of music with a wealth of experience in developing and maintaining interest in sonic material, I listen to the various sounds and arrange them in such a way that they sounded best to me. By trying different combinations of the recorded material I listen closely and repeatedly to the composition and make many small decisions about when each recording should start and at what volume they should be played. I use very little manipulation of the sounds since I want to maintain the impact and purity of the sounds I had first experienced. In this way the sounds would also be closer to the ambient sounds naturally produced by the bridge. The exception to this is the use of panning (stereo movement) to give a more active and immersive sense to the sound. The only use of an audio filter is for the recording of the song at the very end of the piece. Since the listener has already left the bridge at this point, I want the melody to sound distant and faint, a last trace of audible sound from the bridge, as if the bridge or perhaps the river itself was singing (audio extract 3.4).

I include two sounds which were not recorded at the site. The first is the use of wind sounds recorded from a chimney in Dublin (audio extract 3.2). This appears near the beginning of the first track between 1'49" and 3'02" when the narration talks about the wind playing the bridge. The sound is very low in the mix and is intended to subliminally reinforce the line in the text that the wind is producing some of the sounds. The other point at which extra sound is used is between 4'25"-5'15" in track 2. Here, the narration invites the listener to imagine the river flowing out to join the sea. The sound I use at this point is another field-recording I make the following day on the 1st of March at Youghal Lighthouse (audio extract 3.3). This sound is also very low in the mix and is intended to work at a subconscious level to invoke an acoustic image of the sea.

Audio walks are a relatively well established form which I am aware of when I create this piece. More specifically, the audio walks by Janet Cardiff and George Bures Miller are works which are

closely related to *The Shakey Bridge Listening Project*. These pieces use field recordings of specific places combined with narrations to guide a headphone wearing audience along specific routes (Cardiff and Miller 2017). My use of contact microphone recordings of the bridge is similar to Cardiff and Miller's works and many others. My piece does not invent a new form of performance and I acknowledge that my work sits alongside other pieces in this genre. I find that this form is a very effective way of creating sound pieces in specific locations using available and affordable technologies. My piece is also related to the flashmob events of ImprovEverywhere and other performance interventionists. As described in previous sections, *The MP3 Experiments* used pre-recorded tracks to give instructions to headphone wearing participants. As well as being a listening audio experience, *The Shakey Bridge Listening Project* also asked audiences to perform certain actions such as placing hands on railings and singing songs. In this way, the piece is related to to the flashmob events described above as well as to the more passive listening experiences of Cardiff and Miller. The listeners are both experiencing the piece from the inside and creating a visual and sound intervention which can be witnessed by external observers.

The Shakey Bridge Listening Project represents an important development in my practice because I began to use sound material gathered from the performance site itself. This technique led me to create later pieces such as *Harp | A River Cantata*, *Underground Gothic* and *Hidden Currents*. It was also the start of my research interest in listening and sound studies. This piece extended my idea of what could be considered as a performance. Although the material is pre-recorded and not live, the audience's participation in the piece created an element of live experience which could be regarded as a performance element. As in *BridgeSong*, space is treated as a composed element which is presented in a relationship with sound. The pathway described by the narrator relates very closely to the sound heard by the audience. In this way, I began to experiment with the composition of space in combination with the composition of sound. I will further analyse this piece in Chapter 3 of this thesis. Chapter 3 pays particular attention to pieces which use movement and walking as part of the core experience for listeners.

Developing a site-specific performance practice based on bridges

The three pieces discussed in this chapter were created in the first half of 2013, the beginning of my Ph.D. research into site-specific performance. The differences between these three pieces demonstrates the development in my approach to site-specific performance practice. *The Shakey Bridge Performance Experiment* and *BridgeSong* created performance interventions in specific sites using newly composed music. This music was not directly derived from the locations themselves. In *The Shakey Bridge Listening Project* I began to use material directly taken from the performance location itself. This represents a deeper engagement with the site which I continued to develop in subsequent pieces such as *Harp* in 2014 and *Hidden Currents* in 2015.

At the beginning of 2013 my own concept of what constituted a site-specific performance was similar to Patrice Pavis's definition[30]. This definition relates to the practice of performing existing material in new and unusual locations which generally fall outside of conventional performance venues. For example, although the music for *The Shakey Bridge Performance Experiment* and *BridgeSong* was performed in an unusual location, I composed musical phrases which were not specifically related to any elements of the performance location. Although the musical content of the composition was created *for* a specific location, this content was not derived *from* that specific location. By June 2013 my approach had become more closely aligned with Pearson and Shanks's position[31]. This position recognises site-specific performances as 'the latest occupation of a location at which other occupations – their material traces and histories – are still apparent: site is not just an interesting, and disinterested, backdrop' (Pearson and Shanks 2001, 23). My use of contact microphones gave me the technical means to be able to derive unique sound material which was directly linked to specific performance sites. *The Shakey Bridge Listening Project* and my later pieces could be described as being 'inseparable from their sites, the only contexts within which they are intelligible' (Pearson and Shanks 2001, 23). In my practice, the process of engaging more closely with the properties of particular locations came about as the result of using contact microphones (and later, hydrophones) to record the normally inaudible sound of these sites. The development of my practice could therefore be seen as a shift from “site-sympathetic*”* (an existing performance text physicalised in a selected site), to a more precisely defined “site-specific” (a performance specifically generated from/for one selected site (Wilkie 2002, 150). However, *The Shakey Bridge Performance Experiment* and *BridgeSong* contained music which was specifically

[30] *'A staging and performance conceived on the basis of a place in the real world'* (Pavis 1998, 337-8)

[31] '*Site-specific performances are conceived for, mounted within and conditioned by the particulars of found spaces, existing social situations or locations'* (Pearson and Shanks 2001, 23)

composed and influenced by the demands and conditions of the site. All three of the pieces discussed in this chapter were created for and about the places in which they were performed, but through the use of contact microphones I became progressively more able to derive sonic material from the sites themselves.

The Shakey Bridge Performance Experiment, BridgeSong, and *The Shakey Bridge Listening Project* all took place on bridges and worked counter to the conventional function of these places. This relates to Fiona Wilkie's description of performances in transit spaces that 'seek to mark the significance of transit spaces' (Wilkie 2015, 17). These performances 'work against the logic of uninterrupted flow at sites of transport, encouraging spectators to register their passage as a complex activity, simultaneously public and private, and culturally, socially and even morally loaded' (Wilkie 2015, 17). This was especially apparent in *BridgeSong* and *The Shakey Bridge Listening Project.* In the former, choral performance challenged the invisibility of the bridge as a "non-place" by disrupting the flow of people across the bridge. In *The Shakey Bridge Listening Project*, audience members lingered on the bridge and completed various actions while listening to the piece. This also challenged the conventional relationship between the audience and the site.

The Shakey Bridge Performance Experiment began my interest in treating space as a composed element. As can be seen in the performance score, the movement and positions of the two singing groups are presented in relationship with the music sung by those groups. *BridgeSong* simplified and refined this relationship and began the process of including movement instructions in the headphones of the listeners. *The Shakey Bridge Listening Project* further developed this technique by describing a clear pathway across the bridge. In all three of these pieces, I use space and movement as a composed element alongside sound and performance. My background as a composer means that I frequently structure performances using a linear form. This is a preoccupation which is derived from my score-based practice. I will deal with this concept more fully in Chapter 4 of this thesis. Chapter 4 discusses three of my pieces which are most conventionally scored and presented. As well as this, they clearly show an integration of spatial and musical elements through structural composition. As I will demonstrate, *Harp, A River Cantata* and *Beats, Bells and Bridges* are the later pieces of mine which show this integration most effectively. My move towards this practice was a process which began with the pieces presented in this current chapter. All three of these pieces show a preoccupation with pathways in combination with musical sound. The pathways that are presented in the pieces (for example the journey across a bridge in *The Shakey Bridge Listening Project* or the route which the performers take in *BridgeSong*) create a defined structure and narrative for the performances. The sound and music which accompany these

pathways is designed to follow their specific trajectories.

The Shakey Bridge Performance Experiment began my interest in bridges and showed the potential of activating these spaces through sound and performance. *BridgeSong* developed this potential by using a combination of performed music and the inherent sound of the bridge's environment. *The Shakey Bridge Listening Project* combined a site-specific experience with sound directly derived from the material and structure of the bridge itself. As I will show in my later chapters, my portfolio work continued to develop the techniques and approaches established in these pieces in 2013. Key themes such as bridges, headphones and contact microphone recordings became key parts of my site-specific practice. These pieces also marked the beginning of my preoccupation with structuring space using pathways and movement. This practice is influenced by my background as a composer because of the linear structure of the kind of score-based composition which I use most frequently.

The three pieces described in this chapter have recognisable similarities to several existing works by other artists. My pieces are located very much as part of existing genres, in particular flashmobs and soundwalks. *The MP3 Experiments* of the New York collective ImprovEverywhere are similar to my first two pieces which use pre-recorded tracks to synchronise the activities of groups of people. Although the piece is intended as a more personal and individual listening experience, *The Shakey Bridge Listening Project* is also related to *The MP3 Experiments* in that the recordings ask the participants to perform certain actions. The audio walks of Janet Cardiff and George Bures Miller are also closely related to the three pieces discussed in this chapter. Cardiff and Miller's work uses field recordings in combination with spoken narrations. *The Shakey Bridge Listening Project* also uses field recordings and narrations, the difference is that the field recordings were made using very specific types of contact microphone recordings. In contrast, Cardiff and Miller's work uses binaural recordings of the space in which the walks take place. *The Shakey Bridge Listening Project* blurs the boundaries of flashmob and audio walks to some extent: the piece creates an engaging experience for people listening to the recording on headphones, but the listeners also reproduce specific actions. This means that the piece has elements of both an audiowalk and a flashmob performance. I was very much aware of the existing genres when I made these pieces.

In my analysis of the creative process of *The Shakey Bridge Performance Experiment, BridgeSong* and *The Shake Bridge Listening Project* the balancing of practicalities and artistic requirements has frequently been an issue. In all of these pieces, and in the subsequent pieces featured in my portfolio, I have been driven by a strong need to make my performances realisable using the time and resources available to me in any given situation. For example, in *BridgeSong* I simplified the

pre-recorded track as much as possible in response to lessons I had learned in *The Shakey Bridge Performance Experiment*. I observed what had been complex and difficult to achieve in *The Shakey Bridge Performance Experiment* and I adapted the track for *BridgeSong* accordingly. This can be seen in the way that I used only one sung part for all of the participants, and the way that I included all of the movement information as part of the recording rather than using a separate movement score. My initial motivation for this was entirely practical, but in doing so I began to develop the techniques which would later be used in later pieces such as *The Shakey Bridge Listening Project* and *Hidden Currents*. These pieces developed my methodology of giving spoken instructions to listeners through pre-recorded headphone tracks. In this way, a purely practical problem solving feature of one piece became the creative and conceptual impetus for further pieces. This is a skill which is highly applicable for the kind of work presented in this thesis and also my work as a composer and sound designer for theatrical productions. This adaptability is extremely useful to me when working in a theatre environment because of the highly collaborative nature of this work.

The adaptability and willingness to find solutions to problems extends to the small scale compositional details of my work. As I described in the sections of this chapter which relate to *The Shakey Bridge Performance Experiment* and *BridgeSong,* the process of composing seemingly simple melodies presents a continuous series of decisions. When a decision regarding what specific notes to use comes up, I use a large amount of instinct and practical decision making. My aim is to make the most logical, practical and aesthetically pleasing choice in every instance.

In chapters 3 and 4 and later in this thesis, I will discuss further the idea that my practice of creating site-specific performances is closely connected with my experience of traditional score-based composition. The three pieces I discuss in Chapter 3 show this connection through their use of pathways to structure the audience's experience. Linear form is a way of organising space as a composed element. By combining a linear pathway with a linear piece of music or sound, I began to map out space using the parameters and forms of score-based composition. Later chapters in this thesis will demonstrate how I continued to develop this interaction between sound and space through more complex relationships and more elaborate pieces. A particular aspect of this is the concept of playing a place or an object as if it were an instrument. This concept, which is closely connected to the experimental precedents set by Cage and others in the 20th century, became a key feature of my work in the years 2014-2016. *The Shakey Bridge Listening Project* in 2013 marked the beginning of this journey thanks to its use of a specific kind of contact microphone technology. This approach allowed me to closely link the material and structural qualities of a place with sound. In the following chapters I will show how this became a more developed practice as I developed

greater skill and technical understanding. The three pieces presented in this current chapter sowed the seeds for the further development of my practice which I will describe and analyse throughout the rest of this thesis.

CHAPTER 3
SITE-SPECIFIC PERFORMANCES IN PLACES OF MOVEMENT

This chapter will focus on three pieces that I created in the years 2013 to 2015. These pieces continued to develop the site-specific performance practices which I began to explore in 2013, and expanded the ways in which I linked music and space through performance. All three of these pieces required their respective audiences to move throughout the performance, either by means of walking or public transport. These pieces all feature the use of headphones as a means of playing sound for members of the audience. In addition, contact microphone or hydrophone technology was used to extract recorded sound material from each of the performance sites. This chapter will discuss the theoretical ideas associated with each piece alongside detailed explanations of how the pieces were created. Particular attention is paid to how space is defined through movement and how this relates to site-specific performance. The work of Michel de Certeau is employed to investigate the relationship of movement, both pedestrian and vehicular, on definitions of space and place.

The pieces I analyse in this chapter are *The Shakey Bridge Listening Project* (2013)*, Underground Gothic* (2014) and *Hidden Currents* (2015). *The Shakey Bridge Listening Project* is featured in this chapter as well as in Chapter 2 because it fits into the group of pieces that emerged following my early work in 2013 and because movement is an important aspect of the piece. I categorise the sites featured in Chapter 3 as places of movement. Within this definition I include transit locations, moving bodies of water and forms of transport. *The Shakey Bridge Listening Project* took place on a bridge which enables the movement of pedestrians across it and the movement of water beneath it. The bridge also moves as a result of pedestrians walking across it. As well as this, the performance I created was itself moving since the audience walked across the bridge throughout the duration of the piece. *Underground Gothic* was a performance that took place on a moving train. This location represents a unique type of place. From the perspective of its passengers, the space within the train appears static while moving in relationship to the outside world. *Hidden Currents* explored the hidden underground waterways of Cork and took the form of a guided audio walk. The performance took place on a walking route across the city of Cork. The content of the piece was based on the visible and underground route of the River Lee, itself a moving body of water.

Although bridges, rivers and trains are disparate themes, the performance locations of these three pieces are all linked by physical movement. The three pieces in this chapter are also linked by their use of headphones as part of the audience experience. This was in part a practical consideration which was influenced by the mobile aspect of these pieces. Aesthetically, headphones allow a rich and immersive sound environment to be created in varied locations through the use of readily available technology.

The Shakey Bridge Listening Project



Fig. 4, Shakey Bridge, Cork (photograph: Ed Cashman)

A detailed description of the creative process behind this piece is included in Chapter 2 of this thesis. I include this additional analysis of this piece in this chapter because of the specific kind of location in which the performance took place. As well as giving detailed descriptions of my portfolio pieces which were created for these these types of place, this chapter is focussed on establishing a theoretical framework for understanding the consequences of these locations. My pieces addressed the practical considerations and necessities of these places as well as their theoretical and conceptual implications.

The Shakey Bridge Listening Project was created as an exploration of Daly's Bridge and its environs through sound. The piece takes place on one of what I call “places of movement”, a bridge. This piece sits within a context of a long history of work by other artists related to bridges. The Aeolian harps of antiquity were long strings played by the wind; these instruments can be seen as the precursors of a practice which in the 20th century was extended with contact microphone technology. This was most notably achieved by Bill Fontana, for example in his piece *Harmonic Bridge* which used the Millennium Bridge in London in 2006. This piece used contact microphones to transmit live sound from the Millennium bridge to the interior of the Tate Modern art gallery.

More recently, sound-artists such as the Australian Jodi Rose and Briton Di Mainstone have also created site-specific sound pieces on bridges. Rose's work has also used contact microphones, whereas Mainstone creates interactive, wearable devices which connect audiences directly to the bridges themselves. These devices then allow individuals to play the bridges like harps. The work of Fontana, Rose and Mainstone show a combination of amplifying the ambient sound of the bridge and treating the bridge as a musical instrument. In all of these cases, the sound making potential of the bridge structures is exploited.

The *Shakey Bridge Listening Project* was an exploration of the bridge as an extended metaphor for the concept of being "in-between" places and times. The bridge is literally a "suspension" bridge which hangs between two sides of the river. Listeners are suspended in space above water and between two sides of the city. Water passes underneath, further unsettling the sense of stillness. The goal of the piece is to find contemplation and stillness in a place of suspension, instability and movement. By directing attention towards the act of listening (the name of the piece, the constant instructions to listen and concentrate on sound) it directs the mind and the senses in a certain way and attunes listeners to the sound of the structure. The piece provides fifteen minutes of reflection and focus. In addition to the effect of the piece on the listener who has intentionally downloaded the tracks and is experiencing it at the specified location I also wanted to affect passers-by by featuring people enacting the instructions given in the narration.

The Shakey Bridge Listening Project took place in a transit space designed to enable pedestrians to cross the river Lee. The piece worked to counter this function of the bridge by inviting the audience to linger on the bridge and to focus, through sound, on certain aspects of the structure. This relates to Fiona Wilkie's description of site-specific performance in transit sites. Wilkie identifies the change of perspective in these performances that allows audiences to register their movement through spaces as a complex activity (Wilkie 2015, 17). This change in perspective takes place on several levels, including a change in walking pace. The content of the piece constantly encourages the listener to pay close attention to the sounds that they are hearing. This focus on listening demands a change in the way in which the environment is registered and experienced.

An important dimension of *The Shakey Bridge Listening Project* is the use of headphone technology to explore the relationship between the public and the private. Headphones can suggest that the user is listening to a 'public secret' (Thibaud 2003, Hosokawa 2012). Whereas performance is usually experienced as an explicitly realised activity, the use of headphones allows the listener to experience this particular piece 'secretly', without other people knowing what is happening. The

sense of secrecy in this piece was challenged by the invitations in the piece's recorded narration for the listening audience to physicalise several actions. These included instructions asking the audience to place their hands on the bridge railings and the request asking listeners to sing quietly to themselves. The primary audience intended for the piece was made up of those people who had downloaded the pre-recorded tracks and were listening to the piece in the specified place. However, onlookers who witnessed this audience enacting the requested actions became a secondary audience to an externalised version of the internal experience of the listening audience. In this way, the piece became a simultaneously public and private experience in a space intended for transit and passage.

Compared to my later piece *Hidden Currents*, this piece did not feature extended periods of walking. However, walking was central to the experience of this piece. The route walked by the listening audience members was important to the structure of the piece. The recorded narration described precisely where to stand at what time, and the accompanying sounds derived from the bridge where closely matched to these locations. Michel de Certeau describes walking as a 'spatial acting-out of the place' (de Certeau 1984, 98). While walking the route across the bridge in *The Shakey Bridge Listening Project,* I argue that audience members spatially redefined this space and their experience of it. The sounds that the audience heard through their headphones were mapped onto the space of the bridge resulting in new definitions and experiences of this place.

The attention to listening and walking presented in *The Shakey Bridge Listening Project* was later developed in my piece *Hidden Currents*. Walking became an important part of my practice of creating site-specific performances. Through the movement of the audiences as part of the pedestrian life of the city, urban space can become defined in new and enriching ways. In addition, *The Shakey Bridge Listening Project* began my practice of using contact microphone recordings in combination with headphone playback. I next explored these techniques in *Underground Gothic.*

Underground Gothic



Fig. 5: Irish Rail train used in performance, Heuston Station, Dublin (photograph: Neil Dinnen)

Underground Gothic represents an important aspect of the development of my site-specific performance practice. The only one of my portfolio pieces to take place on a moving form of transport, *Underground Gothic* is also the only one of these pieces to use radio or "silent disco" headphones as part of the audience experience. The creation and execution of the piece was undertaken in partnership with Maeve Stone, a frequent collaborator of mine in the years 2013 - 2015. As well as using a type of technology to present the piece which I had not yet used before, *Underground Gothic* is also significant because of the ways in which I developed the technique of presenting layered contact microphone recordings in combination with recorded text. In *The Shakey Bridge Listening Project* and later in *Hidden Currents*, I used this technique to direct audience members along a predetermined path as part of an audio experience. *Underground Gothic* incorporated this type of presentation (audio recordings of text combined with sound derived from contact microphones) into a performance that included live theatre and contemporary dance. *Underground Gothic* is closely related to *The Shakey Bridge Listening Project,* and later, *Hidden Currents,* because of the movement inherent to the performance locations of all three pieces.

Train travel represents a unique type of movement which contains much dramatic potential. The

relationship between the motion of a train and sound is especially important in this piece. While sitting in a train, passengers are isolated from the sound of the outside world. When in motion, the inside of a train appears (from the perspective of the passengers) to be static, whereas the outside world moves past silently and smoothly. The juxtaposition of a silently moving outside world with an apparently fixed interior makes a train an intriguing space for site-specific performance.

Here follows an account of how the piece was created:

In late September 2014 director Maeve Stone contacts me unexpectedly about a possible performance opportunity as part of the Dublin Bram Stoker Festival. As one of the events, the festival organisers have arranged for a special train journey through a tunnel which runs beneath the Phoenix Park linking Heuston and Connolly stations:

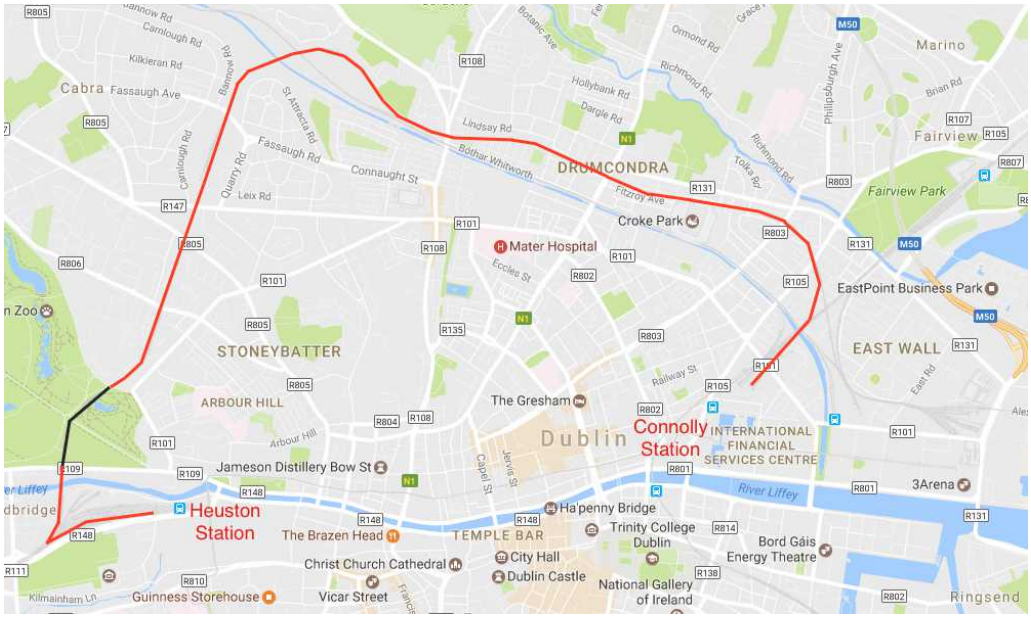


Fig. 6, also available on documentation website as map 5.23 (tunnel section shown in black)

At this time the tunnel is used by Irish Rail to move train stock between the two stations but it is only very rarely open to the public. The Bram Stoker Festival had previously intended that another company would stage a train performance in this tunnel, but arrangements changed shortly before the performance date. Maeve Stone and I had previously collaborated on the site-specific opera *WAKE* as part of the Limerick City of Culture in 2014, and so we are invited to come up with a proposal to create a train performance at short notice. There is a small budget available and we have four weeks to create a piece which would be in some way supernatural and unsettling. This is related to the tone of the festival which is based around Hallowe'en and vampire stories. There are technical limitations regarding what we are permitted to stage in the train. No additions or alterations can be made to the lighting or PA equipment in the train carriages. The train route is

already agreed with Irish Rail and can not be changed.

At this time my site-specific research interests are based around deriving sound from the locations in which they will be performed, and as an initial response to the project I decide to gather sound material from an Irish Rail train using the same contact microphones as I used for *The Shakey Bridge Listening Project* in 2013.

The following diary entry documents the aural experience of sitting in a train carriage and recording the sounds within it:

> *2nd of October 2014*
> *I am on the Irish Rail train from Cork to Dublin. There is the constant presence of high and low sustained sounds while the train is moving. There is also a rattling sound which comes and goes, changing with the speed of the train. I can feel intermittent low rumblings through the train as it crosses uneven sections of track. There is the quiet background sound of the conversations of other passengers and the occasional sound of a mobile phone ring. I record sound using my contact microphones. I place the microphones on different parts of the train including the windows, the seats and the tables. Using conventional microphones I also record the ambient sound of the train in the corridors and by the doors as the train stops at a station. I become aware at how full of sound the interior of a train is an enclosed box of vibrations of all kinds.*

In early October 2014 Maeve Stone develops the dramatic content of the piece inspired by a short animated film called *"Madame Tutli-Putli"*. In this film a woman in a train witnesses another passenger having his internal organs stolen by train robbers. Taking the fear of abduction as our inspiration, we decide to create a feeling of unease and terror in the audience as the train leaves the station and then comes to a stop in the tunnel. The festival specifies that the general outline of the performance needs to be defined by the predetermined structure of the train journey: the train will leave Connolly station, stop in the Phoenix Park tunnel, continue to Heuston station and then return to Connolly station via the same tunnel. We develop a narrative structure which will work as part of this journey. Two physical performers will sit amongst the audience, one in each of the train carriages, and when the train comes to a stop in the tunnel they will become agitated and start to move around the carriage in panic. Three figures wearing white "Haz-Mat" suits and gas masks will then enter each carriage and physically remove the performers from the space. The train will then continue to Heuston station and stop at the platform. The audience will then watch out of the train windows as the physical performers are dragged on to the station platform by the masked figures

and forcibly fed a mysterious pill. Following a violent reaction to the pill, the performers are then taken away unconscious out of sight of the audience. The train then returns to Connolly station as if everything nothing has happened. The action implies that the physical performers are escaping some sort of contagion which the mysterious figures attempt to contain by capturing them and administering some kind of lethal medication.

A key requirement for the piece is to create a growing feeling of unease and fear in the audience during the first section of the journey from Connolly station to the Phoenix Park tunnel. In order to create this unsettling effect I decide to create an immersive and powerful sound environment in the train carriage. Due to space and budget limitations we are unable to install additional PA equipment in the train carriages. The train PA is useable but its sound quality is not good enough to sustain the entire duration of the performance. I consider what alternatives could be used and I decide to use "silent disco" headphones that contain radio receivers. We decide to use these headphones for the first section of the piece in order to immerse the audience in a pre-recorded acoustic environment. This pre-recorded section would begin when the train leaves Connolly station and continue for eight minutes, which is the length of time between the train leaving the station and arriving at the tunnel. It is important for me to immerse the audience of *Underground Gothic* in sound because this relates to my own sonic experiences of train travel. A train carriage is an enclosed space which has the potential to be a noisy environment. While the train is in motion sound is experienced from every side and so the immersive sound quality offered by headphones is an instinctive choice for *Underground Gothic*.

To create the pre-recorded headphones track I follow a structure that begins sparsely and becomes more complex and intense throughout the duration of the recording, culminating in a final crescendo. The reason for this is that it fits with the dramaturgy of the performance to begin very calmly and then to become more unsettled and frenetic. The train journey begins apparently normal and then the performers in the carriage would become more anxious and panicked. The first element which is heard as part of the pre-recorded tracks is a conventional microphone recording of train doors closing. This is intended to appear as if it is the actual sound of the train doors closing. I follow this recording with a conventional microphone recording of the normal interior sound of a train. I slowly introduce more of the contact microphone train recordings that I collected during the train journey from Cork to Dublin on the 2nd of October 2014 (audio extract 5.17). These looped recordings fade in very slowly. As the track progresses, I begin to introduce more and more stretched and altered versions of the train recordings (audio extract 5.21). My intention is to slowly shift the tone of the recording from normality to a heightened sense of panic. As the contact

microphone recordings become louder, the soundscape becomes stranger, and yet the sounds which are heard are amplified versions of normal train sounds. These contact microphone recordings are familiar and yet strange. Towards the end of the track I add more and more layers of the contact microphone recordings and the stretched recordings to increase the impact of the crescendo. The complete eight minute track can be heard on the documentation website (audio extract 5.22) and a visual representation of the DAW structure is included with the supporting scores.

In the preparation time before the performance on the 26th of October 2014 we have some limited access to the type of train we will be using. We are taken on a journey from Connolly to Heuston stations through the Phoenix Park tunnel in the type of train we will be using. In addition to this, Maeve Stone and I test the radio headphone transmitter and receivers in a moving train. There are negotiations with Irish Rail regarding the safety of the radio transmitter when used in a moving train and we are asked to supply a safety certificate for all of the hardware we will be using.

The use of headphones within a moving train carriage has many implications for the spatial aspects of the piece. The audience hear sounds recorded using contact microphones from the inside of a train carriage. These sounds are versions of the sounds which are ordinarily heard within a train carriage. In conventional circumstances, train passengers wear headphones in order to block out these sounds. By immersing the audience in a heightened soundscape of train sounds they are made more aware of the sounds and vibrations of the environment they are sitting in. In the first section of *Underground Gothic* this is designed to induce a feeling of anxiety and unease in the audience. Headphones allow the audience to be completely immersed in these sounds for the first section of the piece. They also allow precise control over what each audience member hears during the performance. Another benefit of using headphones is that they are commonly used by commuters during train journeys: the experience of wearing headphones in a train carriage would at first appear familiar. Headphones also allow us to use binaural recordings to create unsettling effects. By using binaural recording techniques we spatially recreate the “ghosts” of other passengers in the carriage by recording actors. We set up a mockup of the inside of a train carriage and record actors having conversations as they walk past the microphones (audio extracts 5.18 and 5.19). When played back through the headphones this will sound as if other passengers are walking past despite the fact that no-one is there. To coincide with the dramatic narrative of the piece, the recorded track ends with a loud crescendo making extensive use of stretched versions of the train recordings (audio extract 5.21). Immediately following this crescendo, the pre-recorded headphone track includes an instruction for the audience to remove their headphones, and then sound is played over the train PA. This sound is based on the rhythmic sound which I recorded from a train interior using contact

microphones (audio extract 5.20). I combine short looped sections of these recordings in several layers to create a frenetic soundscape which corresponds to the rising sense of panic portrayed by the performers in the train carriage. To compensate for the limited range of the train PA system we decide to augment this recorded sound through the use of a live drummer situated between the two train carriages. The live drumming was inspired by the rhythmic recorded material in the piece. We use a live drummer (Conor Murray) because we are unable to instal additional speakers in the train carriages. A drummer located in the space between the two carriages is loud enough to be heard by both sets of audience. The drummer played an un-notated improvisation based around a free-jazz playing style characterised by unpredictability and driving energy.

In order to play sound through the train's PA system during the performance, it was necessary for me to be located in one of the driver's cabs to use the microphone in the PA hand-set. I attached the PA hand-set to a portable guitar amplifier which played sound from my laptop. The train's PA has severe limitations in terms of audio quality. The speakers have very little bass capability and their maximum volume is relatively low. To adapt to this I carefully balance the volume levels of the different sound layers I play through the PA handset in order to maximise the impact of the recordings. Due to safety regulations, I can not be in the train cab with the driver at the front of the train. I must therefore be located in the empty train cab at the rear of the train. Since the train changes direction at Heuston Station I walk through the train to get to the other driver's cab for the section of the performance just before the train returns to Connolly Station. In order to blend in with the other performers, I wear a white “haz-mat” suit and gas-mask while I walked through the length of the train.

Due to the inherent complexities of working with the limitations and timetables of a working railway, performances on moving trains are not common: *Underground Gothic* is located as part of this rather specialised genre. *Underground Gothic* shares similarities with some of the work of performance collective 11-18. 11-18 has created several performances and audio experiences on moving trains. For example, *The Farmer & The Fisherman* was performed on a train journey from Coleraine to Derry in Northern Ireland in 2013. The piece used radio headphones in combination with live performance (11-18 2017). A pre-recorded track consisting of spoken text and music was played through radio headphones worn by the audience in train carriages. Outside of the train windows the audience witnessed references to the recorded texts, for example words written in the sand of passing beaches or on signs held by performers. I was aware of the work of 11-18 at the time of making *Underground Gothic*. My decision to use radio headphones was partly influenced by my knowledge of their work. A key similarity is the use of radio headphones as part of the

performance on a moving train. *The Train Show* is another example of a performance piece which took place in a moving show. This piece took part on the Cork to Cobh train line in 2006 as part of the Cork Midsummer Festival and was produced by Maura O'Keeffe (Once Off Productions). Directed by Tom Creed with sound by Irene Buckley. A similarity between this piece and *Underground Gothic* is the way in which the performances took place within the same train carriage as the passengers. This proximity allows for a more intimate and potentially claustrophobic experience for audiences.

Another piece which is comparable to *Underground Gothic* was *Bewegtes Land,* performed in Naumburg, Germany in 2017. This event was a series of short scenes and performances which took place alongside a specific train route (Bewegtes Land 2017). Directors Jörn Hintzer and Jakob Hüfner worked with local volunteers to create an entertaining and fun experience for up to 20 train journeys per day over a weekend in August 2017. *Bewegtes Land* and *The Farmer & The Fisherman* featured live performances which took place outside of a moving train. Audiences saw the performances as they passed by and therefore only glimpsed the scene for an instant. In *The Farmer & The Fisherman* a consequence of this is was that written text was used to convey information quickly enough to be registered as the train passes. In *Bewegtes Land* the scenes which the audience saw from within the train were clear images which could be easily understood as the train passes by. In *Underground Gothic,* the action took place within the train carriage while the train was in motion. Only when the train was stopped at the platform in Heuston station did a scene take place outside of the train.

Underground Gothic was a unique experience. It is very rare to have the opportunity to create a performance for a moving train. The difficulties and setbacks we encountered while creating the piece demonstrated the difficulties in making a performance in collaboration with a national train service. As with all of the pieces in my portfolio, many of the choices I made during the creation of the piece came from practical necessity. For example, the limited sound quality and dynamic range of the train PA system led me to the use of radio headphones for a substantial part of the performance. When we used the train PA we augmented this through the addition of a live drummer situated between the carriages. Because of the limited amount of preparation time which was available for this event we had to make important technical decisions quickly without being able to test anything in the actual performance space we would be using.

The piece continued the development of my practice of using contact microphone recordings in combination with headphone playback. This was the first time I used radio headphones for the

audience rather than individual music players. The use of headphones for playback in performance is a very powerful tool that is being explored by many companies including Complicité (*The Encounter* 2015) and Dead Centre (*Chekhov's First Play* 2015). My work is located alongside these pieces, but in *The Shakey Bridge Listening Project, Underground Gothic* and *Hidden Currents* the choice to use headphones was partly influenced by the specific requirements of the performance locations. In the discussion at the end of this chapter I will write more extensively about the theoretical issues raised by *Underground Gothic*'s unique performance situation.

Hidden Currents



Fig. 7: Hydrophone sound recording by the River Lee, Cork (photograph: I Am A Cosmonaut)

This piece, created in 2015, represents a further development of the techniques I first developed in 2013 for *The Shakey Bridge Listening Project*. *Hidden Currents* relates to many of the concepts which I explored in the introduction to this thesis. Particularly important themes are the way in which the piece links sound with walking and movement, and the ways in which headphones are used to communicate "hidden" sounds to listeners. In *Hidden Currents*, these sounds are underwater recordings made using a hydrophone. These recordings are combined with a specific route through an urban environment. The sound is layered and composed to create an acoustic narrative which functions in a relationship with a spoken text. This text and soundscape is mapped onto a highly specific route. In the following section I will describe the process of creating this piece, and in the discussion at the end of the chapter I will further explore the theoretical concepts relating to it.

In November 2014 I am commissioned by a Cork festival called Quarter Block Party to create a piece which is to be completed by February 2015. Eszter Nemethi, the producer of the festival, commissions a series of public artworks relating to the North and South Main Street area which will incorporate local businesses. As with all of my projects I am wary about attempting to create a piece

in a limited amount of time using techniques which are unfamiliar to me. After considering what I can most successfully achieve using the available resources I decide to create a guided audio piece in a similar style to *The Shakey Bridge Listening Project*. This would use a recorded track listened to using headphones. The piece will be located around North and South Main Street and be available to the public free of charge, these being the key requirements of the Quarter Block Party commission.

At this point all I know about the piece is that it will follow a predetermined route in Cork city centre. In December 2014 I set about beginning to plan the route for the piece. In search of inspiration I decide to research the history of the area by comparing maps of the city from the 1600s to the present day. I notice that many of Cork's streets as we see them today had in the past been rivers. I learn that over a period of several hundred years these rivers had slowly been covered over or "culverted" and now flow underground. Thinking of ways to combine this with an audio walking tour, I imagine what it would be like to be able to hear the sound of water flowing beneath the streets. I know that this is not possible in reality, but I conceptualise how this could be simulated using creative technologies. I imagine that with the right resources it might be possible to create a mobile app which would allow users to wander the streets freely and hear the river as it would have sounded in the past. On streets which had at one point been rivers the sound of water would become stronger. After investigating the possibility of achieving this using the resources I have available, I decide to use a simpler technique. A pre-recorded track which describes a precise route could demonstrate the former location of watercourses in the city through sound. As long as the listeners stick to the predetermined route then I would be able to create a soundscape which would be precisely related to the former location of the course of the River Lee.

I repeatedly visit the area and get to know the specific qualities of each street. Using a map of the underground culverts as a guide I plot a route around the North and South Main street area which follows underground and open sections of river. Working with the festival producers, we arrange that to experience this version of the piece listeners would pick up an MP3 player and set of headphones from the "IT Outlet" shop on North Main Street in exchange for a personal ID as a deposit. After putting on the headphones and starting the pre-recorded track, listeners would be guided on a route which begins by going south on North Main Street, then left onto Castle Street (see image 6.7). The route then turns right onto Grand Parade and continues until it reaches the south branch of the River Lee. The route continues upstream on the south bank of the river as far as the South Main Street bridge. This is the end of the route and listeners then continue along South Main Street to return to the starting point.

In order to understand the timing and experience of walking this route, I make an audio recording of walking this route and narrating the changing sound environment and what I can see. The following is a diary entry documenting this experience of walking the *Hidden Currents* route:

> *11th of December 2014*
> *Standing at the starting point of the route on North Main Street I hear the frequent sound of passing cars. Snatches of conversation of people passing by. As I walk south towards Castle Street the traffic becomes busier and the sounds of the city become louder. More people can be heard on this part of the street. Moving onto Grand Parade and the street opens up acoustically and spatially. The street is much wider here and there is far more traffic. This is one of the busiest streets in the city and it is full of sound. Waiting to cross Washington Street the electronic beeping sound of the traffic lights brings a new element to the soundscape. The fountain on the way to the river creates a foreshadowing of the water sound which is to come. The high pitched sound of water cuts through the busy city street sounds. As I approach the river at the end of Grand Parade I start to faintly hear the sound of the rushing water. The water flows fast hear in this narrow channel of the Lee. Walking alongside the river towards the South Main Street Bridge the sound of the water gets louder and more present. When I arrive at the bridge the sound of the water going over the weir becomes overwhelming, almost drowning out the sounds of the traffic. This point on the route has a climactic quality because of the volume and presence of the sound of the water.*

Using this recording as a guide for the timings and visual description of the walking route, I write a 'script' consisting of a continuous narration of instructions necessary for following this route. I begin with just the information about which direction to walk and when to stop. I then incorporate some historical information about the route of the old river and the buried culverts beneath the road. I refer to the water sounds which can be heard as the sound of the river underneath the feet of the audience even though it will not be the *actual* live sound of that part river. I try to repeatedly mention direct instructions to listen and to encourage a focus on listening. Something which I had observed in *The Shakey Bridge Listening Project* was the way in which listening became a central theme of the experience of the piece. In *Hidden Currents* I want to create a similar state of concentration and deep listening by the end of the piece. I also want the audience to be able to creatively imagine that the sound they are listening to is actually coming from the invisible river under their feet or the visible river they are walking over or alongside.

In *The Shakey Bridge Listening Project* I had had a very positive experience working with an actor to record the text. I know that a professional actor will be able to perform the text much more effectively than if I were to read it myself. Based on my experience of Irish actors in theatre productions I had seen and worked in I consider different actors and the qualities of their voices. I choose the actor Olwen Fouéré to record the text of the piece due to the unique sound quality of her voice. Olwen's voice has a measured, timeless quality which fits very well with the subject of the piece. Due in part to her age and experience, Olwen's voice sounds like it could come from any period in history. This appeals to me since the river on which the piece is based is such an ancient and timeless thing. Olwen also has a deep personal interest in rivers since her seminal piece "Riverrun" (based on Joyce's *Finnegan's Wake*) and was very enthusiastic about working on the piece. I had also worked with her to record the narration for *Harp | A River Cantata* in September 2014, a piece which I will describe in greater detail in Chapter 4.

At this point in the creative process, based on my desire to show the historical location of the river through sound I know that audio recordings of the river would play a large part in this piece. I do not want the piece to be a purely text or sound-based experience. Rather, I intend that the recorded sound will at times underscore the narration and at times exist solely as sound. This is again something which I am building on and developing from *The Shakey Bridge Listening Project.* It is also a result of my work in theatre where sound often accompanies spoken text. I also want the recorded sound of the piece to be as authentic and specific to the performance location as possible. When the narration describes the sound as coming from an underground river, I want the recorded sound I use to come from the river which is being referring to. A way of recording the sound of water is to use a hydrophone. This is a type of contact microphone which is specifically designed to record sound underwater. After researching the best types of hydrophones to use, I purchase one manufactured by Jez Riley French. Using this hydrophone, I begin to assemble a substantial library of different underwater recordings from the River Lee (audio extract 6.1). I spend several days making experimental recordings of various sections of the river Lee. I discover that the sound varies considerably according to the depth and speed of the river at different points. I limit myself to parts of the river which are located as close as possible to the area in which the piece will take place.

Once I have collected these recordings, I prepare them so that they may be combined with the recorded narration. I select the clearest and most stable recordings and then loop them to create longer sections of continuous water sound. I then begin to assemble these recordings alongside the recorded narration so that the sound will complement the text. For example, at the very beginning of the piece there is only narration and no sound. This is because the starting point of the piece is not

over any sections of underground river. Continuing on along the route, I combine the sounds in a compositional way. I select the recordings which sound most appropriate, to my ears, to the section of the narration. This process is similar to the approach I took in *The Shakey Bridge Listening Project*. I immerse myself in the recordings and their particular sound qualities and then experiment with combining them in a compositional way. This is a method which for me is akin to the way I experiment with combining pitches, rhythms and instrumental timbres when composing a piece of scored ensemble music. I am aware that the final experience will be experienced through headphones, and so I can be confident that the audience will hear a very similar sound to what I can hear through my headphones during the creation process.

As the piece progresses along the route towards the junction of North Main Street and Castle Street, the sound of water becomes louder. From this point onwards until the end of the piece, the water sounds become more dominant in the mix between sound and narration. The climax of the first section of the piece comes at the end of the route when the audience stands on the South Main Street bridge. Here, I incorporate some manipulated water recordings in order to deepen the auditory experience. For example, I include recordings which have been slowed down and stretched (audio extracts 6.2 and 6.3). The river is particularly turbulent at this point and the ambient sound of the water is loud, and so I want the recorded sound to reflect this. On other sections of the route I incorporate stereo panning so that it will appear that the sound was coming from the river which the narration was referring to. For example, when the audience is walking along Grand Parade, the recorded water sound is panned to the left so that it is easier to imagine that there was once a river to the left of where they are walking (audio extract 6.4).

Following the successful completion of *Hidden Currents* as part of Quarter Block Party, an extended version of *Hidden Currents* is commissioned by the Cork Midsummer Festival in June 2015. The curator of the festival, Kath Gorman, asks me to create a version of the piece which will be twice as long as the original. The festival engages the River Lee Hotel as a sponsor for the event and because of this we decide to use the hotel a finishing point for the new route. In this extended version of the piece, listeners collect an MP3 player and set of headphones from the Cork Vision Centre on North Main Street (see image 6.8). This location was very close to the original starting point in version 1. Listeners give a cash deposit which can be reclaimed from a different location at the end of the piece. The route is the same as in version 1 until it reaches the South Main Street bridge. At this point, the route continues following this branch of the river along Sullivan's Quay and Proby's Quay until turning right towards Crosse's Green. The route then follows the river along Wandesford Quay until reaching a viewing point at St Finbarr's Road bridge. The route then crosses

this bridge and turns left, following the river along Western Road until reaching the River Lee Hotel on the other side of the river. Here, listeners return their headphones and MP3 players and reclaim their deposit. Using the same technique as in version 1, I record the sound of walking the new route while narrating to myself what I hear and see.

Diary entry documenting the aural experience of walking the new route of the extended version of the *Hidden Currents*:

> *5th of May 2015:*
> *Following the route onwards towards St Fin Barre's Cathedral the sound of the river recedes and is replaced by a quieter city soundscape. The section of the route which leads to Lancaster Quay follows the river. The water is quieter here and the road is also far less busy than in the city centre. The soundscape here is more still. At the weir before the bridge to Lancaster Quay the sound of the water once again builds in intensity. This weir is loud but not as loud as at the bridge across the South Main Street bridge. The river is wider here and I stand overlooking the water from the side and not directly above it. The final section of the route which leads to the River Lee Hotel along Lancaster Quay follows the river but it is impossible to hear the sound of the water above the traffic on the road. Students pass me and I hear parts of conversations. Crossing the bridge to the River Lee Hotel the sounds of the road recede behind me. As I enter the foyer of the hotel the soundscape changes completely to a reverberant indoor space.*

In this new section of the piece I decide to extend the content in two ways. The first way is inspired by my supervisor Róisín O'Gorman's observations to me that movement as well as sound is perceived by the ear. This resonates strongly with me due to the centrality of both movement and listening to the subject matter of the piece. I decide to include references to the inner-ear in the new section of the narration. I research the ways in which liquid inside our heads allows us to hear sound and to perceive movement. Since sound and movement are integral aspects to this piece, I relate the experience of experiencing the piece to the "hidden currents" within our own heads. I record the new section of the piece with Olwen Fouéré to maintain consistency between the two sections.

The other way in which the new version of the piece is extended is by the inclusion of a more musical type of sound created from underwater field recordings. By slowing down the recordings of bubbling water I create individual notes with defined pitches. I combine these pitches in a rhythmic chordal pattern at a tempo which matches a comfortable walking pace (audio extract 6.5). I begin by

creating a low rising minor key triad and extend this into a repeating triad shape. As well as the rhythmic sounds I include longer more sustained sounds which are derived from the water sounds.

At the point in the narration where the route reaches the bridge at the end of Wandesford quay, I create a moment of reflection and climax in a similar way to at the South Main Street bridge at the end of the first version. Here, I use more manipulated recordings to extend the range of the aural experience (audio extract 6.6). The sounds are deeper to reflect the wide, turbulent section of the river. The sustained stretched sounds are more prominent than at the end of the first version of the piece. The narration at this point asks the audience to feel the sound of the water through the railings. It is my intention that through the heightened sense of drama in the sound at this point the audience would imagine that they are hearing the sound through their hands. This mirrors the earlier instruction to “listen with your feet”. These instructions are intended to make listeners aware of the physical nature of sound which can be felt as well as heard.

As described in Chapter 2 in relation to *The Shakey Bridge Listening Project*, this piece is closely related to Cardiff and Miller's audio walk pieces. As in *The Shakey Bridge Listening Project*, *Hidden Currents* differs to Cardiff and Miller's work in that I used field recordings from hydrophones as opposed to binaural microphones. However, during the initial stages of creation I used binaural microphones to record the sound of walking the route and I based the structure of the piece on these recordings. In this way, *Hidden Currents* can be located in the same genre as other audio walks. Another piece which had a big influence on *Hidden Currents* is ANU's *Citizen X* which featured as part of the company's *Thirteen* cycle in 2013. This series of performances commemorated the 1913 Dublin lockout. In *Citizen X*, audience members listened to a pre-recorded audio track which included instructions to follow an actor onto a tram and into an apartment block (http://anuproductions.ie/thirteen/). I was very aware of this piece when I was making *Hidden Currents* and it was a direct influence on my work.

My experiences of the various sound environments of different sections of the route had a direct influence on the structure and composition of *Hidden Currents*. As can be seen in the diary descriptions of walking the route, the soundscape changes substantially throughout the different sections of the piece. Notably, the two instances in the piece which asks listeners to stop walking and to focus on listening for extended periods are the two points on the route where the river is at its loudest. At both points the river passes over weirs and the sound of the water is substantial. The section of the route which follows the river after passing St Fin Barre's Cathedral is the quietest section of the route and this is reflected in the more developed style of the audio at this point. In this

part I used the rhythmic musical section using sounds derived from the water recordings. Listeners experiencing the piece in the specific locations in which it is created for will experience sound similar to what I heard when planning. Although headphones shield listeners from the outside sound environment, it is still possible to hear sound mixed with the recording. This is particularly the case at the two points when the sound of the river is at its loudest. In this way, *Hidden Currents* creates a sound experience which works in conjunction with the sound already audible at the performance location.

Hidden Currents represented my first direct engagement with rivers as performance sites. This allowed me to extend my field-recording practice through the use of hydrophone recordings. The piece was commissioned in two parts, and this allowed me time to develop the concepts and technical aspects of the piece over a longer period of time. This piece continued to develop my sound-score creation technique. Comparing the DAW-derived score of *Hidden Currents* with *The Shakey Bridge Listening Project*, it is possible to see a far greater level of complexity and depth in the layering of sound. Although these layers are subtly presented, I believe that they help to create the textures and structures necessary to sustain interest in a sound piece over extended periods of time.

Establishing a site-specific performance practice in places of movement

This chapter is concerned with three different pieces in my portfolio. Each of these pieces features a different type of performance location. Bridges, rivers and trains are all unique spaces which are nevertheless linked by several characteristics. I classify these sites as places of movement. This idea might represent a paradox when first encountered. A site or place is most commonly associated with a fixed point in space, whereas movement implies an absence of this fixed quality. The sites which I chose to explore in these pieces are all fixed points in space, but these places all have close relationships to movement. A bridge is a liminal space between two sides of a river which enables the movement of traffic and pedestrians across it. In doing so, this movement functions perpendicularly to the movement of water beneath it. A river is a continuously moving mass of water which never stands still. As well as the movement of the water, the path of a river is also constantly shifting and moving through time. In *Hidden Currents* the site of the performance was a walk through the city of Cork along exposed and hidden parts of this river. This moving, walking experience represents another site of movement. *Underground Gothic* took place on a moving train. The train represents a type of moving place in which the outside world can appear to be moving in relationship to a static train interior (from the perspective of its passengers).

As described above, these three types of spaces are all associated with movement in different ways. My performances responded to the content and demands of these sites in specific ways, activating them in different ways through the use of sound. This process activated a change in the relationship between the audience and the site. A new sense of place was created through the reinterpretation of the sites as a source of sound and music. This is an idea which became central to my understanding of site-specific performance, but I did not create the pieces in this chapter with a conscious understanding of this idea. In Chapter 4 I will explore this concept more fully.

As well as being linked by the nature of their performance sites, these three pieces are also linked in the way they were created and presented. All three collected sound material from objects using contact microphone technology. *The Shakey Bridge Listening Project* and *Underground Gothic* used contact microphones to record sound within the structure of a bridge and a train. *Hidden Currents* used hydrophones to record sound from beneath the surface of a river. A hydrophone is essentially a waterproofed version of a contact microphone designed to pick up sound from water. In all three cases, these microphones enabled me to gather sound from the places in which the pieces were to be performed. These microphones allow for an extended listening capability which is not available to normal hearing or to conventional microphones. This recorded sound was then re-composed and re-

presented as part of a site-specific performance. In this way, the pieces revealed a hidden layer of sound from within the objects and the sites and in doing so, transformed the spaces into sources of music and composed sound.

My practice developed throughout the time period encompassed by the creation of these three pieces. In particular, I developed my ability and interest in manipulating the raw material of recorded sound. *The Shakey Bridge Listening Project* presented the sound of the bridge in a richly layered and composed way but did not significantly alter the sound recordings. *Underground Gothic* extracted a greater variety of sound from the contact microphone recordings by stretching and slowing down the material. The first half of *Hidden Currents* presents the underwater recordings in a largely unaltered way, but in the second half, manipulated sounds derived from these recordings are slowly introduced. The second version of *Hidden Currents* went so far as to create recognisable pitches from the underwater recordings and to present this as a piece of music. All three of these pieces used a recorded narration to describe sections of the performance. *Underground Gothic* differed from the other two since it featured live action as part of the piece.

A crucial aspect of these three pieces is the way in which they were presented. All three of the pieces used headphones as a way of delivering sound to the audience. In *The Shakey Bridge Listening Project* and *Hidden Currents*, the headphones were linked to personal music players. *Underground Gothic* used "Silent Disco" headphones linked to a radio transmitter. *Underground Gothic* was unusual in this way since it allowed all of the members of the audience to experience the same sound simultaneously. This created a collective and shared experience within the train carriage. In my pieces which use personal music players, the experience is much more individualistic and fragmented.

In all three instances, the use of headphones as a means of presenting sound to the audience was a direct result of the demands of the site. The physical movement inherent to the performances created the need for a mobile solution to the problem of sound reproduction. The same conditions which compelled me to use headphones in a performance situation also apply to conventional situations in these sites. In order to privately listen to music on a bridge, in a city or on a train, it is necessary to use headphones. In this way, headphones suited the type of situation which would normally be experienced in these types of sites.

The pieces show the development of a technique of creating site-specific performances in unique spaces. These spaces are interpreted in new ways through the creation of new relationships between

audiences and performances. Sound is derived from sites and re-presented in those sites in an ordered and composed way. In doing so, a space is turned into a place in the same way as an instrument creates music when it is played by a musician. This concept became more central to my understanding of my own practice throughout the process of writing this thesis. The pieces in Chapter 4 most fully explore this idea.

My work uses sound to reveal layers of meaning in bridges, rivers and trains. These sites are re-interpreted as resonant spaces through the use of mobile music technologies. Headphones are used to create an immersive sound experience for audiences. Michael Bull describes the ways in which individual iPod use can seamlessly join together urban experiences into one continuous flow (Bull 2012, 199). My pieces use continuous soundtracks to create a similar type of seamless experience. Listening to sound through headphones while walking through an urban environment links a series of disparate locations into one continuous pathway. This alters the way in which space is perceived. A fundamental feature of this redefinition of space is walking. Michel de Certeau describes walking as an enactment of place and space which defines what a city fundamentally is, namely a collection of interactions and relationships between individuals. Walking is 'the indefinite process of being absent and in search of a proper [...] universe of rented spaces haunted by a nowhere or by dreamed-of places' (de Certeau 1984, 103). This casts the city as an imagined place, a place brought into being by the imaginations and actions of its inhabitants. The stories, pathways and movements of individuals are the ways in which places are created spaces are defined. My work does feature stories in a traditional sense. However, through the use of spoken narrations, new pathways are presented to audiences along with information which is usually hidden. This information is mapped onto the city in combination with the pedestrian movement of the audience. This creates a new sense of place within the city and redefines urban space through performance.

In *The Shakey Bridge Listening Project* and *Hidden Currents*, the audience walks throughout the performance. The audience's experience of the pieces is shaped by an interplay of walking and standing stationary. In these pieces, the experience of walking through urban space is transformed through composed layers of sound which fit with specific routes and pathways. In addition, the audience follow a narrator's instructions to walk certain routes and to carry out particular actions along the way. By enacting these directions, the audience becomes a complicit enactor in realising the space defining content of the pieces. In this way, my walking pieces create new relationships between audiences and space through the combination of sound and movement. As described by Bull, listening to sound through headphones in urban environments has the power to join the experience of many individual places into one continuous flow. For example, in *Hidden Currents*, I

join together several different locations across a city into one continuous journey. The sound which is heard through the audience's headphones provides a seamless backdrop which allows these places to be linked. This soundtrack creates a specific audio-visual experience which is mapped directly onto the geography of the city.

Could the concept of flâneurism or flânerie[32] be applied to the analysis of my walking pieces? In sound studies, flâneurism is discussed in relation to urban personal stereo use since both practices relate to the experience of walking through cities. However, Michael Bull argues that the use of an iPod while walking in urban space differs fundamentally from the concept of flâneurism (Bull 2012, 198. Although both practices aestheticise the experience of individuals in urban space, they do so from subtly different perspectives. Flânerie becomes an integral part of the 'tourist' gaze, a sanitised way of looking at the world. Bull argues that flâneurism is an inappropriate concept for understanding the audio-visual world of the iPod user in that 'iPod culture embodies a directly contrary position to that of the flâneur' (Bull 2012, 198). The use of the iPod draws the 'other' into the user's own sphere of imagination by providing the observed world with a soundtrack. The iPod enables a filmic version of reality, an enhanced reality, an imagined reality, a reality which is more pleasing to the user. This assimilation of the observed other into the iPod user's private aesthetic experience is contrary to the empathetic gaze of the flâneur. I agree with Bull's position that iPod use is fundamentally too self-centred to be appropriately described as flâneuristic. Comparing Bull's description of iPod users with Gleber's definition, flâneurism is more concerned with the loss of individual self whereas personal stereos encourage the creation of an individual and enclosing bubble of sound.

The two walking pieces presented in this chapter are related both to ideas of flâneurism and modern personal stereo use. On the one hand, the pieces facilitate a voyeuristic passage through the city. The audience passes through urban space and the narration highlights certain visual and acoustic elements of the journey. The audience might imagine themselves in the positions of passers by, and the sound and narration encourages an imaginative appraisal of the sounds of the urban environment. On the other hand, the headphones in my pieces provide a continuous soundtrack which enables the experience to be joined together into a seamless flow of events. This is most

[32] Anke Gleber defines the practice of 'flânerie' as 'linked to the movements and images that belong to the processes of tourism, photography, and psychoanalysis' (Gleber 1999, 6). Flâneurism expresses the aesthetic of modernity through its close affinity to cinema and its 'reception of external reality' (Gleber 1999, 6). Flâneurism is recognised as a representation of the dominance of the visual in urban and cultural studies (Amin and Thrift 2002; Friedberg 1993; Jenks 1995; Tester 1994). This literature describes the flâneur as a rootless, wandering individual who places himself in the position of the 'other', observing and imagining from the outside.

apparent in *Hidden Currents* where the sound is continuous throughout the entire duration of the piece. In *The Shakey Bridge Listening Project* the piece is presented in two discreet halves. This allows for a framing of the everyday sound of the bridge within the continuous soundtrack of the piece.

Underground Gothic is unique within my portfolio since it took place on a moving form of transport. In contrast to *The Shakey Bridge Listening Project* and *Hidden Currents*, the audience sits stationary within the moving train rather than walking autonomously in an urban space. Marc Augé describes the traveller's space as 'the archetype of *non-place*' (Augé 1995, 86). 'Non-place' is the opposite to anthropological place, a space which prevents meaningful social interactions. In marked opposition to de Certeau's insistence that walking articulates space through the interactions and relationships which it actuates, these processes are denied to travellers and passengers in these non-places[33]. Transport nodes facilitate the passage of people through them rather than the habitation of people within them. The efficient movement of passengers minimizes the enunciating effect which the place-making of walking enables. In this way, these spaces become non-places in the same way that silenced language becomes unrealized. Site-specific performances in these non-places challenges this sense of place. In *Underground Gothic*, my sound design exaggerated and amplified the interior sounds of train travel. The audience became more aware of the acoustic experience of train travel and this created a new sense of place in a space which would conventionally be thought of as a non-place.

De Certeau uses the unique aspects of urban transport to elaborate his spatial theories. Since train travel is one of the smoothest forms of transport, it can engender the often unnerving sensation of being at rest and on the move at the same time[34]. This movement is very different to walking since it creates the illusion of being 'immobile inside the train, seeing immobile things slip by' (de Certeau 1984, 111). This movement and apparent lack of movement stems from the fact that the train travels smoothly while allowing a clear view of the outside world, made possible by the two lines represented by the window and the rail[35]. The rail removes the traveller physically by facilitating the

[33] Augé describes as non-places 'all the air, rail and motorway routes, the mobile cabins called “means of transport” (aircraft, trains and road vehicles), the airports and railway stations' (Augé 1995, 79). Through a process of 'hypermodernity', these non-place locations are all made to appear similar.

[34] For example, the strange feeling of seeing an adjacent train moving and experiencing the feeling that the train you are on yourself is moving despite it being stationary.

[35] De Certeau describes the track as 'the iron rail whose straight line cuts through space and transforms the serene identities of the soil into the speed with which they slip away into the distance' (de Certeau 1984, 112). The second line represents the windowpane, which permits a clear view of the world outside: 'the windowpane is what allows us to *see*,

speed of travel and the window separates by silencing the world beyond it. This silencing of the view through the window 'makes our memories speak or draws out of the shadows the dreams of our secrets' (de Certeau 1983, 112). The fact that the traveller is removed from the outside world enables the birth of 'unknown landscapes and the strange fables of our private stories' (de Certeau 1983, 112). The enclosed space of the train is here identified as a place of dreams and imagination. De Certeau's description of the train creates new associations and relationships in contrast to Augé's concept of the isolated non-place. This dream space is one which is predicated on the voyeuristic perspective of train travel, of gazing out of the window at a silenced outside world.

De Certeau's fundamentally visual perspective of the experience of train travel is due to the fact that the glass window forms an effective separation between the traveller and the outside world. De Certeau refers to the sound of the train however when describing the the 'beating of the rails, a vibrato of the windowpanes – a sort of rubbing together of spaces at the vanishing points of their frontier.' (de Certeau 1984, 112). The sound of the train becomes representative of the theatrical machinery which is 'the principle responsible for all the action taken away from both travellers and nature' (de Certeau 1984, 113). The train as a space of imagination and dreams is here directly compared to a theatre, and rail travel is shown to be a potentially fruitful space for performance. The more sinister aspect of this space is given as the machine's control and dictation over what is perceived and experienced. Unlike walking, trains take away the independence of movement which walking affords the city-dweller.

Fiona Wilkie contrasts rail travel with walking when she asserts that 'the physical agency of the pedestrian [...] has been connected with positive values such as autonomy, health, and subversive strength' (Wilkie 2015, 47). The train removes this autonomy and independence by dictating where and how fast we travel. This giving up of some measure of agency might, however 'engender certain kinds of pleasure, power and possibility' (Wilkie 2015, 48). The windowpane silences the outside world and simultaneously enables the viewing of it. The train allows for a better view of the passing world than, for example, a car or a bus. The sizes of windows, the speed, the constant and steady motion of the train. All of these things permit a relaxed and pleasurable voyeurism in relation to the outside world. The rail and the windowpane separate us from outside and allow us to observe and objectify that which is passing us by.

Underground Gothic focused on the distinctive sensations created by the sound of train travel itself, primarily the interior sound of the train. The sound of the outside world is inaudible from within the

and the rail, what allows us to *move through*" (de Certeau 1984, 112).

train and this was intensified by the use of headphones for a large section of the performance[36]. Larsen has argued that the 'sensuous economy' of the train 'privileges seeing over the other senses' (Larsen 2001, 81). The train takes away the sound of the world outside the train but the sound inside the train is intensified by sitting within a moving metal box. It is this powerful juxtaposition of a silently moving outside world with a noisy fixed interior which makes the train an intriguing space for site-specific performance[37]. My sound design and composition for the piece *Underground Gothic* played on the nature of this interior and exterior train sound. Through a combination of sound played through headphones, live acoustic sound and sound heard through the train's PA system, different layers of interior experience were created.

The subject matter of *Underground Gothic* was also related to the experience of being inside a train carriage. The dancers who played the protagonists in the piece were trapped by masked figures when the train came to a halt. At this point in the sound design, a pulsating heartbeat could be heard, increasing the sense of being trapped in an enclosed space. This piece presented train travel as a disturbing vision of an otherwise familiar experience. The sound design of this piece created a new sense of place by manipulating the acoustic experience associated with sitting in a moving train carriage. The exaggerated sound of the train's movement was presented in combination with the sensation of sitting in a stationary and yet moving place. This created new relationships and trajectories within the enclosed space of the train.

The pieces presented in this chapter focus on listening and feature direct references to listening. As part of spoken a spoken narration, listeners are told to listen to what they are hearing. For example, the narrator in *The Shakey Bridge Listening Project* repeatedly reminds you that the source of the sound you are hearing is the material of the bridge making the sound you are hearing. In *Hidden Currents* the listener is instructed to listen with their feet to the sounds of an underground river. These invitations and instructions are included in order to expand perception and increase awareness of sound and hearing. This expansion focuses on the difference between hearing and

[36] Lynne Kirby has suggested that early train travel was a prototype for silent cinema or a 'protocinematic phenomenon' which taught its passengers how to be spectators of film. This connects the immobility within the train with the viewing of mobility beyond the window it. Kirby also emphasizes the 'framing of vision' which connects the cinema screen and the train window. Passengers become spectators, themselves apparently immobile but watching the silent movement of the world through the window (Kirby 1997).

[37] In the field of tourism and travel research, the experience of train travel is an important area of interest. Just as audio trails can create the opportunity for pedestrians to experience audio and visual performance in the street, so Amtrak in the USA, working with Texas (A&M) University have devised performances on trains crossing the Rocky Mountains. The growing interest in “Slow Travel”, and the growth of heritage travel experiences, offer many possibilities (Fullagar, Markwell & Wilson, 2012).

listening. Hearing is the act of perceiving sound through our ears. Listening requires an attentive concentration on what we are hearing. The narrator in both pieces repeatedly refers to the act of listening as both an instruction and an invitation. Following the invitation there is space for the listener to hear both the sound coming through their headphones and the ambient sound outside of their headphones.

Paying this amount of attention to listening represents a meditative process which in certain fields is an essential part of engaging with the world on a sonic level. Directing attention to a particular sense requires intense concentration and focus. An influence on my perception of listening is the composer and writer Pauline Oliveros who developed the concept of "Deep Listening". In her writings, Oliveros describes the processes she engages with in order to focus on listening to the world around her [38] .Oliveros's listening practice evolved from many years of workshops, retreats and classes. For her, the process of tuning into the world is a meditative and almost spiritual one, but on another level seems quite scientific when she describes listening as an *"interpretation of complex wave forms by the ear"*. Listening is not the same as hearing and hearing is not the same as listening. Hearing is a simple act of receiving acoustic information through the ears. Listening is an attentive, focussed and active process. Oliveros describes this as: 'to give attention to what is perceived both acoustically and psychologically' (Oliveros 2005, 17). This implies that to listen is to search for an understanding of what is being heard through analysis and examination. Giving attention to what is perceived acoustically deals with the raw sound material which is heard. Giving attention to what is perceived psychologically refers to an examination of the effect of sound on the human mind.

All three of the pieces in this chapter are in many ways all about listening. Through the use of contact microphones, the pieces enable audiences to hear sound from within the physical structures of objects. This extension of human hearing is marked by the narrator's direct instructions to listen. In *The Shakey Bridge Listening Project*, *Underground Gothic* and *Hidden Currents*, the recorded sounds of bridges, rivers and trains are combined to create sound scores. The sound in these pieces

[38] "I sit quietly with my alarm clock, close my eyes and open my ears. At this point the curtain rises and the performance begins. My very surroundings seem to come alive, each sound revealing the personality of its creator. There are several sounds, which become fixed in my ear like some "basso ostinato": the continuous whirrings of factory machinery in the distance and the hollow sound of plopping water in a nearby fountain. This background of sound is interrupted by the piercing motif of a bird. A sudden breath of air sweeps across the deck. The pages of my book respond with quick snapping sounds. The door at the entrance squeaks and moan on the same pitch like an old rocking chair then closes with a thud. I can hear the drapery from an opened window rustling against the coarse plastered walls, while the drawing cord syncopates against the window pane." (Oliveros 2005, 18)

requires a combination of causal listening and reduced listening (as defined by Michel Chion, see Chapter 1). The narrator refers directly to the source of the recorded sounds is acknowledged and referred to. However, through their combination and layering, the sounds are presented as rich sonic material, akin to instrumental and composed musical sound. The presentation of these sounds encourages an engagement with the specific traits of the recorded sounds, in other words, reduced listening.

Immersion is important to my work because it places hearing at the centre of the experience of a piece. Headphones place the listener at the centre of the experience. This is an immersive effect which gives listeners the sense of being part of the sound of a place. The listener's head is literally immersed and enclosed in a pair of headphones. Immersion relates closely to the subject matter of the pieces themselves. Through the use of special kinds of microphones, the acoustic properties of the materials of the places which in which the pieces take place are recorded and presented to listeners through headphones. This allows a listener to experience the sensation of being part of the landscape or the specific physical environment (bridge, river, train) in which the piece is taking place.

This sense of immersion in sound through the use of headphones is explored in my piece *Hidden Currents*. In order to create the material for this piece the recording process involved literally immersing hydrophones in bodies of water. This expanded the normal limits of hearing through the use of technology. The hydrophone recordings allow listeners to hear what a river sounds like from the inside while observing it from the outside. Through information given by the spoken narration in the piece, the listener's attention was focussed on the river which he or she was walking beside or above. By placing the sound of water in a central stereo position in the headphones a sense of being underwater was achieved. It is interesting to note that this effect is different to actual physical submersion in water. Hydrophones pick up underwater sound in a much clearer and less distorted way to how human ears function when immersed in water. In this way, the piece facilitates an imaginative extension of human perception.

Immersion is clearly represented by *Hidden Currents* due to the piece's focus on water as its subject. *The Shakey Bridge Listening Project* also immersed listeners. Contact microphones were used to record sound directly from the material of a metal suspension bridge. Again through the use of a recorded spoken narration, the attention of listeners was directed towards the substance of the bridge while the sounds were played through headphones. The result was an effect of listening *into* the bridge, of perceiving sounds from deep within the structure which would normally be inaudible

to normal human hearing. This is again a type of immersion since it represents a penetration of the fundamental fabric of the bridge. The physical shape of the bridge also envelops the listener since its sides rise up around the central walkway. As well as the recorded sounds which listeners heard through headphones, the bridge itself produced un-amplified sound through the rattling and clanging of its supports. This sound surrounded the listeners outside of the sonic space created within the immersive world of the headphones. Since the outside sounds of the bridge were so closely related to those sounds heard through the headphones, a resonant space surrounding the listener was created. A similar effect was achieved in *Hidden Currents* when the route of the piece was near a section of the river where the sound of the river itself was audible. Although the sound of water above its surface is quite different from the sound heard below it, this nevertheless created a larger sense of immersion in the sound by surrounding the listener with a sonic space outside of the headphones.

The three pieces in this chapter all feature headphones as part of the performance and as such are related to the many pieces by other artists which also use headphones as part of the performance. As described above, my pieces have particular similarities with pieces which take place in related locations. 11-18's work on moving trains also uses radio headphones, and ANU's piece *Citizen X* featured a pre-recorded track listened to by audiences in an urban environment. I was aware of the work of both of these companies when I was creating the the three pieces in this chapter. My work is located as part of several types of site-specific performance. *Hidden Currents* and *The Shakey Bridge Listening Project* are similar to audio walks by Cardiff and Miller, as well as more recent work by companies such as ANU. I used techniques similar to those of these companies because I was confronted with similar challenges. These challenges were created by the need to create immersive sound environments in mobile situations using readily available and affordable technology. *Underground Gothic* belongs to the more exclusive tradition of locating performances on forms of transport. The moving train environment necessitates creative solutions to the challenges of creating engaging work in a unique space.

The three pieces described in this chapter represent many important developments in my site-specific practice. My sound-based work increased in complexity, compare for example the DAW derived scores of *The Shakey Bridge Listening Project* from 2013 with those of *Hidden Currents* and *Underground Gothic*. My ability to create effective sound material from contact microphone field-recordings also improved. I also began to use more manipulated sound to create more varied types of acoustic textures. These three pieces relate to many concepts of space and place. Through an interaction of sound and movement, these pieces define urban space in new and complex ways.

As described in Chapter 2, I believe that my use of space as a composed element stems from my background as a composer of instrumental concert music. In the three pieces presented in Chapter 3, I compose space in a specific relationship with sound. In particular, these three pieces present spaces (defined through movement) in new relationships to sound. My preoccupation with presenting pieces using linear forms was also continued in these pieces. Rivers and trains represent ways of moving along linear pathways, and these journeys are mirrored in the forms I give to my site-specific pieces. The following chapter concerns three pieces which continue to explore these issues within the context of live instrumental site-specific performances.

CHAPTER 4
LIVE INSTRUMENTAL SITE-SPECIFIC PERFORMANCE

This chapter focusses on three pieces that I created between 2014 and 2016: *Harp | A River Cantata*, *Underground Gothic for Viola* and *Beats, Bells and Bridges.* These pieces all feature a substantial live instrumental performance element. The headphone pieces presented in chapters two and three are experienced by their listening audiences as live events but these pieces use pre-recorded sound as their primary source material. *Harp | A River Cantata*, *Underground Gothic for Viola* and *Beats, Bells and Bridges* differ to these headphone pieces because they use live instrumental performance as their primary source material. Although *Harp | A River Cantata* and *Underground Gothic for Viola* use live performance in combination with pre-recorded sound, the live instrumental element is foregrounded. In this current chapter I will argue the case that *Harp | A River Cantata*, *Underground Gothic for Viola* and *Beats, Bells and Bridges* represent a key development in my site-specific practice towards transforming places and objects into instruments. This development is significant because it allows me to synthesise a more conventional scored composition practice with physical features of specific sites. For example, the instrumentation of *Beats, Bells and Bridges* was a combination of percussion instruments and existing elements such as bridge railings and church bells. This integration of musical instruments, space and objects within a scored composition allows me to create new experiences and interpretations of specific places. Following in-depth descriptions of the composition and creation of each piece, I will further develop the associated theoretical ideas further. In particular, this will focus on the idea of 'instrumentalizing' spaces and objects by treating them as if they were musical instruments. In this chapter I change from a present tense description of my compositional process to a past tense description. This is more suited to the predominantly score-based compositions which are featured in this chapter. For example, when I describe decisions I made about the compositional process and event which happened to influence those decisions, I write in the past tense. However, when describing something which is happening in one of my musicals scores, I use the present tense in order to reflect the unfolding experience of the music more effectively.

Harp | A River Cantata



Fig. 8: Samuel Beckett Bridge, Dublin (photograph: Dublin Fringe Festival)

In September 2012, I walked through Dublin with Sam Jewell, a visiting engineer friend of mine who, upon seeing the Samuel Beckett Bridge (map 4.13) for the first time, asked me whether it would be possible to play the bridge like a harp. This question came up because the bridge's shape is strikingly similar to a harp. This shape has a particular resonance in Ireland due to the harp's position in Irish music and culture. I took my friend's question as a challenge and an inspiration, and over the following months a project formed around the idea of actively playing and activating the bridge like a harp. At the same time, following the successful production of my opera *Flatpack* at the 2012 Dublin Fringe Festival (DFF), the DFF director Róise Goan asked me and my collaborators in Ulysses Opera Theatre to propose a new large-scale event for the 2013 Fringe. I suggested the idea of playing the bridge, and several different plans as to how to realise this were made in collaboration with director Conor Hanratty, producer Matthew Smyth and the Dublin Fringe Festival. These included a pre-recorded headphone piece in the style of *The Shakey Bridge Listening Project*, a sound and light installation, and a performance in which the audience themselves would sing the music. We considered for a long time whether or not we would be able to amplify the metal "strings" of the bridge in a live performance. This question was ultimately decided by the available budget for the piece. Although it was definitely not impossible to amplify the strings live, the decision to do so or not was determined by the available budget for the piece, and the cost of amplifying the strings live was deemed to be prohibitive. We began to explore a way of creating a performance that harnessed the idea of playing the bridge live without amplifying the

strings directly during the event.

I had recently begun experimenting with using contact microphones to record sound generated by and from the Shakey Bridge in Cork, and so I decided to try this technique on the much larger Samuel Beckett Bridge. On the 4th of March 2013 I undertook a series of recordings using contact microphones placed on various parts of the bridge's structure (audio extract 4.1). The accompanying documentation shows how I attached the microphones to various sections of the bridge (images 4.9-4.12). In order to hear the sounds of the central bridge supports or "strings", I struck each one with my hand while the microphone was attached.

In mid March 2013, Conor Hanratty, Matthew Smyth, Róise Goan and I applied for an Arts Council Music Project Award for €34,480. This was a substantial amount of money but because of the ambitious scale of the piece we were aware that the overall budget would be closer to €100,000 and would therefore require additional sources of funding. In May 2013 we discovered that our Arts Council application was successful. The producers of the event worked to try and realise the performance for 2013, but it transpired that the Fringe Festival did not have enough available extra funding to go ahead with the event that year. We met with the Arts Council in June 2013 to explain the situation and we agreed with them that the event would be temporarily placed on hold and rescheduled for the 2014 festival.

Aside from the issues surrounding funding and production I continued to be engage with how to work creatively with the bridge as a performance location. In the following diary entry I describe my 'aural experience' of the Samuel Beckett Bridge during a research visit to the site:

> *14th of May 2014*
> *Standing on the bridge facing west. The overwhelming sound is from the traffic crossing the bridge. This sound comes and goes according to the traffic lights at either end of the bridge. When the vehicles are stationary their engines hum more quietly and I can hear snatches of conversations through open car windows as well as music and voices from car radios. The continuously changing sensation of vibrations felt through my feet. The sources of these low frequencies are hard to place but seem to emanate from the feet of passersby and the engines of the bigger vehicles on the bridge. The structure thrums with these pulses of sound and movement, I can feel how the bridge responds to impacts and agitations. The tension of the span and the suspension cables is revealed through these vibrations which I experience when standing still on the bridge. When I start to walk the sensation goes. The*

sound of water lapping at the base of the bridge, quiet but present. Wind, always wind, on this exposed manmade object jutting out into the empty space above the wide river. The wind fills my ears and changes as I turn. I imagine what it would be like to create a piece of music in this location using the metallic sounds of the bridge itself as inspiration. I close my eyes and try to picture the overall spectacle of the piece in this place.

From the start of 2014, we worked to solve many of the practical issues surrounding how we would make the piece performable. At the stage that we had left the piece in June 2013, we knew that the event would take the form of a performance located on the bridge itself, that it would involve live music, and that it would in some way play the "strings" of the bridge. Working out the details was an important next step. The instrumentation of the piece was a major consideration. The live element of the piece needed to be performed by instruments which were both loud and weather-proof. In early plans for the performance we envisaged percussionists playing the strings of the bridge directly. After we had met with structural engineers we were advised that this would not be safe for the bridge and we also discovered that the technology required for reliably amplifying the strings live would be beyond our available budget. I considered what we could do instead and I decided that percussionists playing drums immediately adjacent to the strings would be a close equivalent to actually playing on parts of the bridge. We needed a style of drumming which was loud, weather-proof and celebratory. We investigated who these percussionists could be and what performing groups would be available to take part in the event. Through some investigation of potential partners I got in touch with Simeon Smith from the Dublin MaSamba Drumming group. He was enthusiastic and agreed that the group would take part in the project. After discussing how the group usually works, I decided with Simeon that much of the drum music would be based on call and response patterns. Only the drum leader would be required to be able to read drumming notation and the remaining members of the group would imitate the leader. Knowing this information about how this samba group was organised was vitally important in writing the score for the piece, so it was essential to secure the type of performing group before beginning to compose the music.

The sound material which I recorded from the bridge using contact microphones contained recognisable pitches. To correspond with this I wanted to create melodic and harmonic content for the piece. In addition, the purpose of the piece was a celebratory opening event, a genre which is often associated with a fanfare style of music. Brass instruments have long been associated with outdoor performances and fanfares. The metal of the brass also corresponded with the material of the bridge and provided a distinctive, festive and powerful sound. Because of our limited budget,

we were not able to pay professional performers for the event. After contacting conductor John Doyle (a colleague of mine with whom I had worked before) we decided to use players from the Dublin Concert Band, a high standard amateur group which John conducts. This band provided a substantial group of reliable and competent musicians who rehearsed and performed the music to a high standard.

The third live musical element was the human voice. Because of Ulysses Opera Theatre's background as an opera company, the idea of using vocal music in the performance had long been associated with the project. I made the decision to use a choir. The drumming group and the brass band were comprised of substantial numbers of performers, and the vocal element needed to match this. The choir would give a human voice to the bridge. Sourcing an existing high standard choral group proved to be more difficult than with the brass and percussion groups. In collaboration with conductor Robbie Blake we decided to form an SATB choir, aiming for around fifty people. We decided on this number so that each part would have at least ten people, and the numbers would match the size of the drumming group and the brass band. The choir was based on Robbie's choral group *Tonnta* with additional volunteers. I wanted to feature soloists who would be able to perform more elaborate and operatic music than the choir. This also allowed musical contrast within the choral section. We decided to use soloists who had previously worked with the company, and it proved easiest to find four soprano soloists. My decision to include operatic soloists was due to the influence of cantata and oratorio style piece on the work.

The fourth musical element to the piece was recorded sound that was played alongside the live instrumental and vocal music. I decided to interweave the sound which I had derived from the bridge in March 2013 with the newly composed live music in order to simulate the experience of playing the bridge like a harp. Another recorded element was an introductory narration written by Conor Hanratty which would set the scene for the performance. We chose actor Olwen Fouéré to record this spoken text because of her commanding voice. This is the first time that I worked with Fouéré's voice, I went on to work with her again for *Hidden Currents* in 2015.

Once all of the elements of what would constitute the live music of the piece were decided upon, I began composing the score and creating the recorded music element. Beginning in June 2014 I returned to the sound I had recorded from the bridge using contact microphones in March 2013. From the raw material I had recorded, I selected the four sounds of hitting the bridge strings that have the clearest perceptible pitches. These were: B, C sharp, G sharp and A sharp (audio extract 4.2). Because I knew I would be working with brass instruments I made a decision early in the

process to transpose the notes one semi-tone higher so that the music would be in C major or the relative key A minor. The resulting pitches were C, D, A and B. I corrected the pitch of the A note which was a quarter-tone flat because the music will be performed by instruments in equal temperament. This was a key decision in consideration of the instruments and musicians that I know will be playing the composition. Because of the requirements of the event, I decided to write music in a style similar to other opening ceremony compositions such as the *Olympic Fanfare and Theme* written by John Williams for the 1984 Olympics, and Dave Pierce's suite for the 2010 Winter Olympics. This style can be traced back to earlier works such as Ludwig van Beethoven's cantata *Der glorreiche Augenblick* Op. 136, which is scored for four soloists, chorus and orchestra. This piece was composed in 1814 to celebrate the opening of the Congress of Vienna following the end of the Napoleonic Wars. All of this music is loud, celebratory and joyful. I wanted to work with the strengths of the players we were working with rather than to compose music which would be impossible to play for performers of their experience level. The event for which the piece was written was envisaged as inclusive and celebratory and the music needed to tell the story of the harp in the context of Irish mythology. As described above, the process of finding the best available musicians to perform as part of the event was complicated and influenced by the available funding for the piece.

Compositional Process

To improve the sonic quality of the notes I recorded from the bridge I undertook a series of steps to manipulate the recordings while still striving to preserve the fundamental quality and texture of the notes (audio extract 4.3). I also wanted to give the notes more depth so that when they were played in the performance they would match the impressive size of the bridge. For example, to the raw recording of the note “C” I added a second layer of sound which contained an amplified and reinforced attack (audio extract 4.4). The third layer was taken from some of the recordings of sustained sounds from different parts of the bridge which I transposed to act as an overtone to the other layers (audio extract 4.5). These sounds were recorded from parts of the bridge railings near the base of the bridge. While making the recordings, I observed that the sustained sound was created by someone wheeling a suitcase across the bridge. The fourth layer was a combination of sine tones which reinforced the lower fundamentals of the note and the fifth layer was a stretched version of the initial note which added a longer sustain to the sound (audio extract 4.6). I repeated this process for the remaining notes using the different recordings for each one.
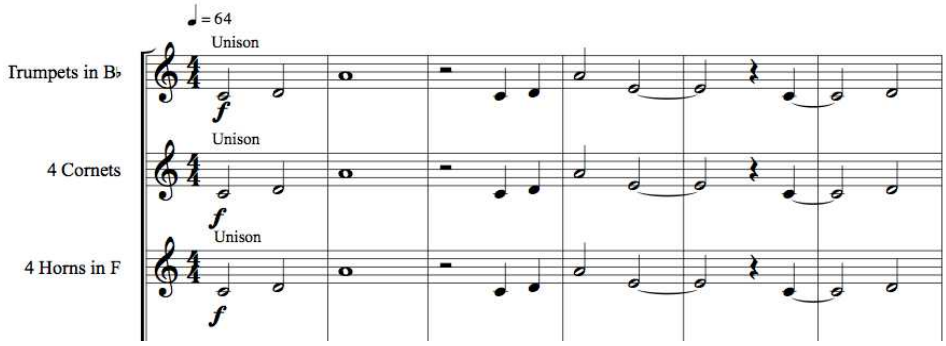
Using the recordings of the notes which I had created, I assembled the musical pattern C, D, A, B

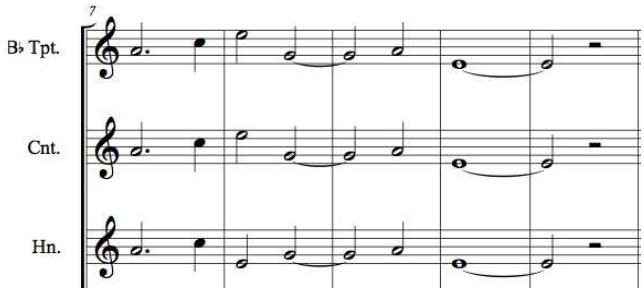
which I call the Harp Theme. I underscored a recording of the opening narration by beginning with the basic harp theme and expanding this to create more complex and epic melodies (audio extract 4.7). To harmonise the theme I added thirds above and below the theme and this produces the dorian mode in which most of the music is composed. To my ears, this mode was in keeping with the mythological theme of the performance. The dorian mode is used in many traditional and folk melodies which use a minor key with a flattened 7th. Because of its frequent use in an older and more traditional style of music, this mode evokes a more ancient sound.

The next part of the score I composed was the brass fanfare. I chose to write for brass instruments because of the outdoor nature of the piece. A brass ensemble is more effective at playing outdoors than for example a string ensemble or woodwind group. Groupings of brass instruments are commonly used to playing in outdoor situations. We had chosen to work with the Dublin Concert Band who use a traditional brass band instrumentation of trumpets, cornets, horns, euphoniums, trombones and tubas.

As already described, I had made a decision to write the brass section of the piece in a fanfare style. I had already created the underscored text of the opening section using the Harp Theme. Due to the gong-like sound of the recorded Harp Theme notes the music was fairly slow moving. I also chose to represent the large size of the bridge using a slow moving melody, for me this is a "heavy" sounding type of music associated with weight and size. The brass fanfare would immediately follow the recorded Harp Theme section and I wanted the brass music to relate directly to the recorded section. This was a deliberate choice to make it clear that the live instruments were playing a version of the recorded notes which had been derived from the bridge.
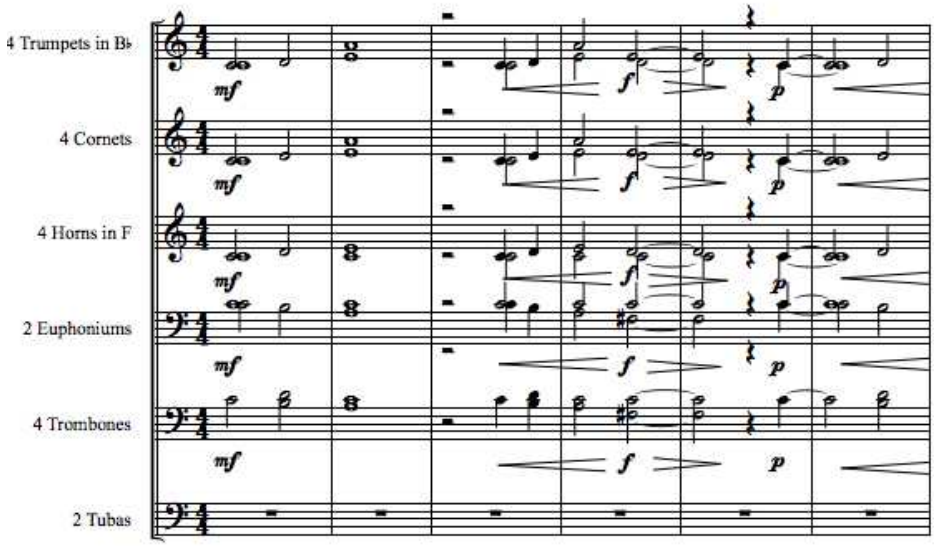
To begin the fanfare and to relate it to the previous section, I extended the first three notes of the Harp Theme into a longer melody for the trumpets, cornets and horns (bars 1-11):
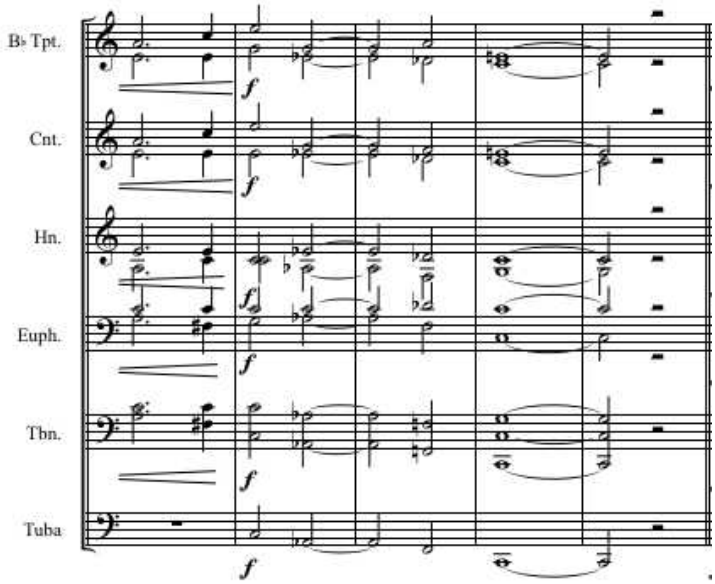




I wrote this melody by choosing notes that would continue the first three notes into a longer melody, that was, itself, in keeping with the modal tonality of the opening underscored section. The tempo of the music and the duration of the notes is similar to the music in the opening section to establish a clear link with the recorded notes. The melody builds additively. Starting with a statement of the three notes C, D, A in bars 1-2 these notes are restated with shorter durations in bars 3-4 and the note E is added as a fourth note. As the dominant note of the implied A minor/A dorian tonality, this E prepares for a return to the theme in the third statement of the melody in bars 5-11. This third statement extends the length of the phrase and rises to an E an octave higher than the previous statement of the note. In bar 8 a new note, G is introduced for the first time, and the melody ends on an E in bar 10. I composed this melody using a piano and by experimenting with playing different notes in different orders until I had decided on the right combination of notes. I kept this melody as simple as possible limited it to very few notes.
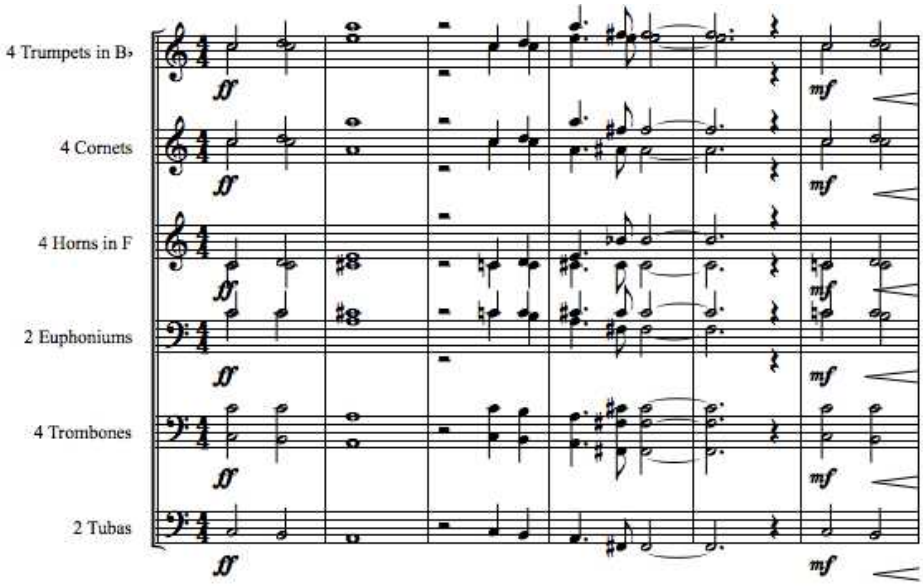
In bars 12 to 22 I wrote a harmonised version of this melody using the full brass group:
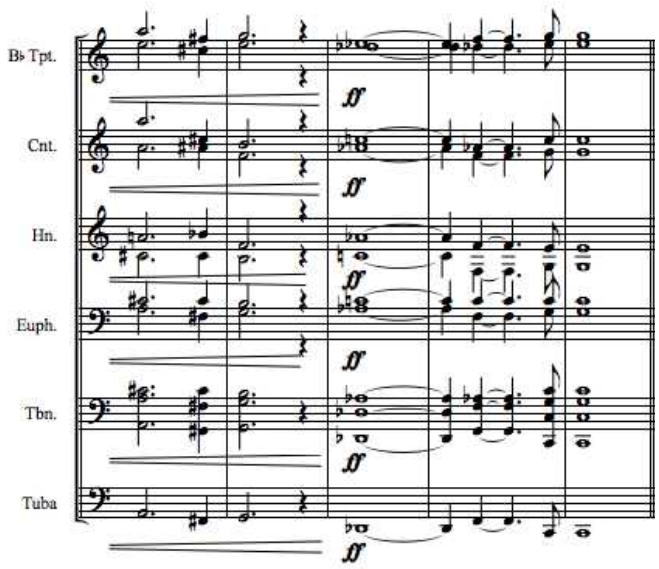




The tonality in this section is very much centred around A minor/C major, but through the addition of chromatic chords a feeling of movement away and towards the home key is achieved. At bar 15 the addition of an F sharp in the bass creates a first inversion chord of D major with an added 9th. In bars 19 and 20 the harmony moves through A flat major with a major 7th to an augmented first inversion D flat major chord which then resolves to a C major chord at bar 21. I deliberately chose to harmonise the modal melody using these highly chromatic chords so that the return to C major in bar 21 would be emphasised.

The section from bar 23 to bar 51 continues to expand the instrumental range of the fanfare and to provide more chromatic chords:



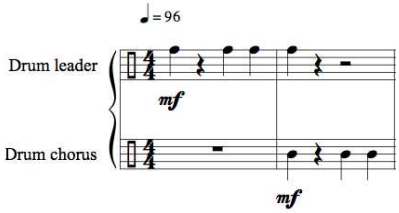


What was previously a chord of A minor becomes A major, and what was previously D major first inversion becomes F sharp major through the addition of an A sharp. All of these chords resolve to C major at the end of this section. The final section of the fanfare from bar 51 to 61 restates the melody in octave unison without any harmonisation. I wrote this to provide a feeling of emphatic conclusion to the fanfare. The repetition of part of the four-note Harp Theme from the opening narration section provides a feeling of unity within the sections. This theme is originally heard played the recorded notes from the bridge and underscoring the highly descriptive language of the narration of the opening section. The statement of this theme and melody by the brass ensemble transfers the bridge's sound material onto the instrumental forces of the performance. The material was first heard as gong-like metallic thuds emanating from the structure of the bridge in the opening section. The music in the opening section described the bridge and made a clear link between the sound and the bridge. The music of the brass fanfare which followed the opening section was directly and clearly linked to the music of the opening. I did this to make it clear that the live music of the performance was directly derived from the recorded sound from the bridge.
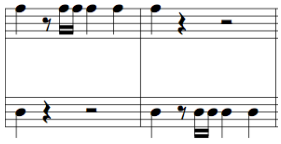
Because the drummers in the piece were performers from a samba group I knew that their music would need to be written in call and response patterns. I discussed with the organisers of the drumming group how we could create something which would be easily rehearsed and performed by the group in the time available. In the MaSamba performing group, only the drum leader reads from a score. The rehearsal time available made it impossible for the entire group to learn a long and complex sequence of patterns from memory. Samba music often uses call and response patterns interspersed with layered beats. Based on the strengths of the group I was working with, I decided

that I would compose the music for the drums so that it would be almost entirely call and response.
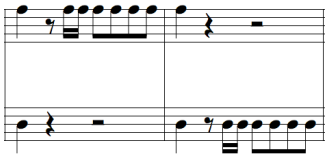
In the drumming section of the piece, I composed simple rhythms which become more complex as the music progresses. For example, the rhythm in bar 1 is the very simple pattern of a crotchet followed by a crotchet rest and two crotchets. The pattern is first stated by the drum leader, and then repeated directly by the drum chorus in a call and response fashion.
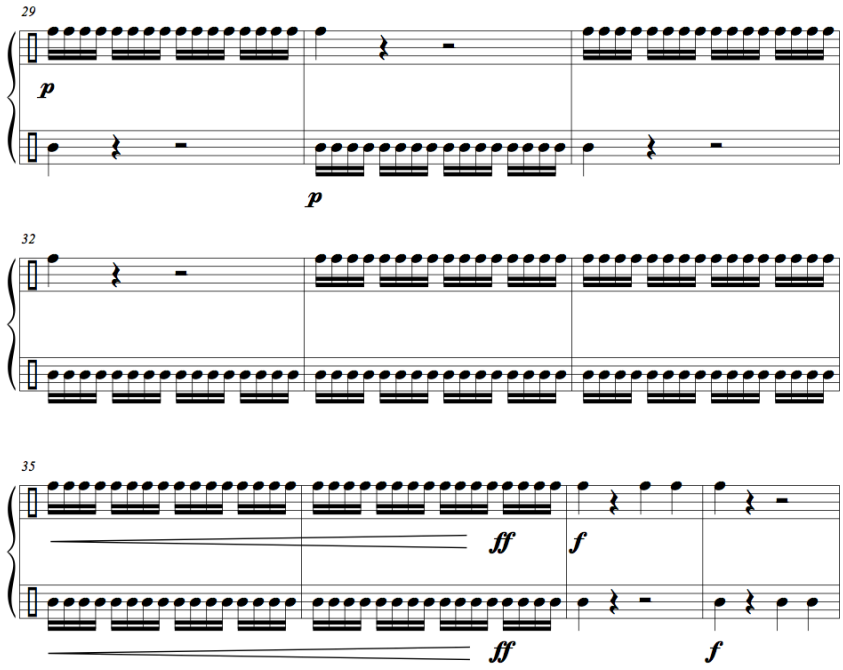


In bar 3 I added two semiquavers to the basic pattern, and this too is played in a call and response form by the ensemble:
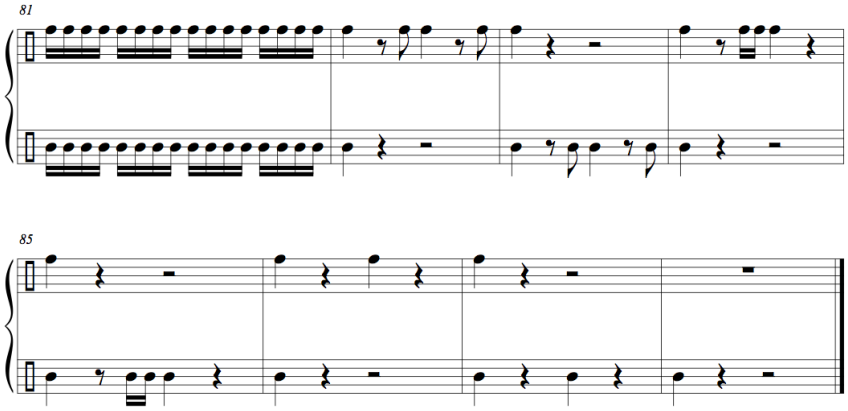


In bar 5 I continued this development by adding two additional quavers to the pattern.



I continued to write variations on the simple pattern from bar 1 to provide the music with interest and rhythmic development. The patterns vary and change in complexity. The call and response sections from bars 1 to 32 and 37 to 74 alternate with repeated semi-quaver patterns from bars 33 to 36 and bars 75 to 81. I do this in order to propel the energy of the music forward and to give a break from the call and response patterns using a technique which would be easily achievable by the performing group. This can be seen in the following example:



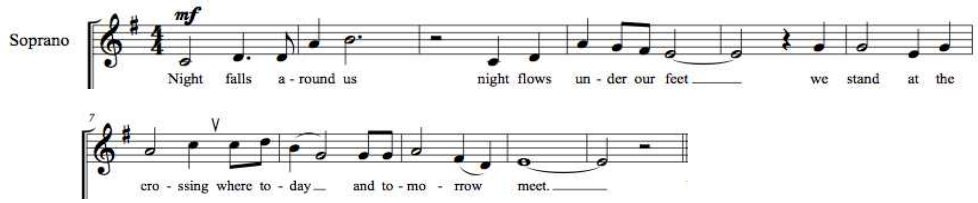
Following this build up, the music returns to a version of the call and response patterns. This is followed by another, longer statement of the building semi-quaver pattern from bar 75-81. Following this, from bars 82 to 88 a final simplified version of the patterns is heard:
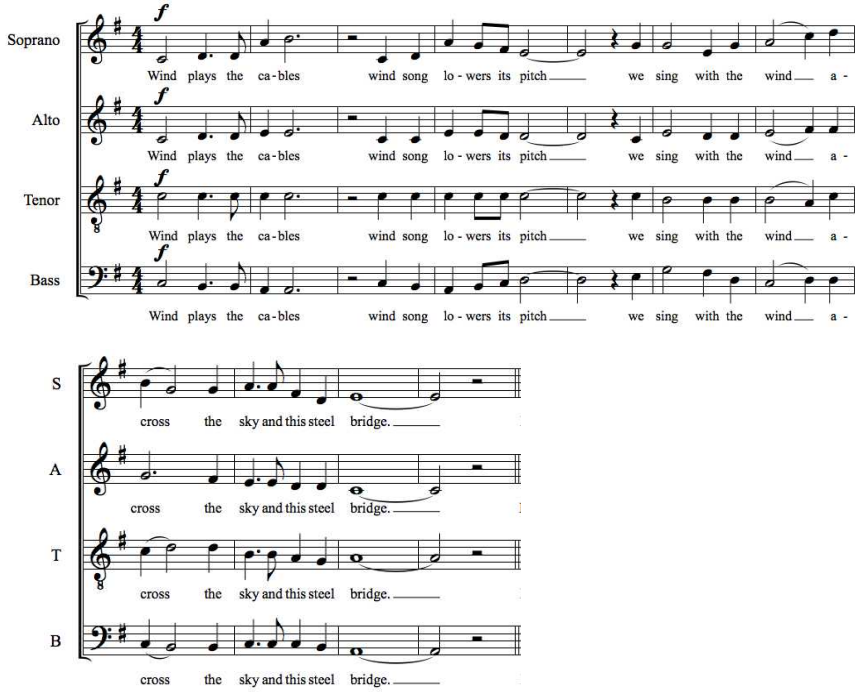


This provides a feeling of conclusion to the drumming section. After a continuous build in complexity and movement, the patterns in these final bars becoming progressively simpler, with fewer notes.

In the entire drumming section, the rhythms played by the drums do not relate to any of the music which has been heard already. This was partly due to the call and response nature of the music. The call and response rhythmic patterns are heard later in the "Musical Centrepiece" where they are combined with the other musical themes.

In the course of the composition process, the structure of the Harp River Cantata is evolving into a series of musical statements for each performing group. Following the composition of the brass fanfare and the drumming section I started to compose music for the choir. I began by extending the 4 note Harp Theme into a new melody for the choir:



I created this choral melody in a similar way to the unison brass melody in the fanfare section. In this choral section I added an F sharp to the key signature to alter the tonality. Although the music is now in E minor, I avoided using D sharp as a leading note in dominant chords. This gives the music a definite dorian mode tonality. This had been implied in the opening section of the piece and the brass fanfare but the tonality is more confirmed in this choral section. In order to give variety to the music in the harmonised section from bars 12 to 22 I did not use any accidentals but I re-harmonised the melody using unexpected chords. For example, in bar 13, the B at the end of the four note Harp Theme becomes a 9th above an A minor harmony. In bar 16 the E in the melody is also harmonised as a 9th in a D major chord.



In bars 23 to 34 I used a similar harmonisation as in bars 12 to 22 but I began with a statement of the melody one octave higher in the soprano part to make the music more striking and to provide variety and development in the choral texture (see accompanying scores). The section from bar 35 to 57 is an extended middle section for the 4 soprano soloists and the upper voices of the chorus. In this section, the sopranos and altos of the chorus and one of the soloists sing an elongated version of the melody that is first heard in bars 1 to 11. This melody functions as a *cantus firmus* to hold the extended melismas of the soloists together. From bar 48 this melody begins to introduce a C sharp and then a G sharp to the tonality, implying A major and E major, before returning to A minor at the end of the passage. The solo parts sing in three part canon, two beats apart. I composed the melodic lines to move in predominantly step-wise motion and to outline the modal tonality of the music. The parts are mainly melismatic and explore the full range of the soprano soloists. The final section from bars 58 to 70 is a re-statement of the octave unison melody and lyrics from bars 1 to 11. This restatement of the opening melody gives a sense of return and conclusion to the choral section. In the restatement of it in bars 58 to 70, the melody is elongated to give more of a sense of finality.
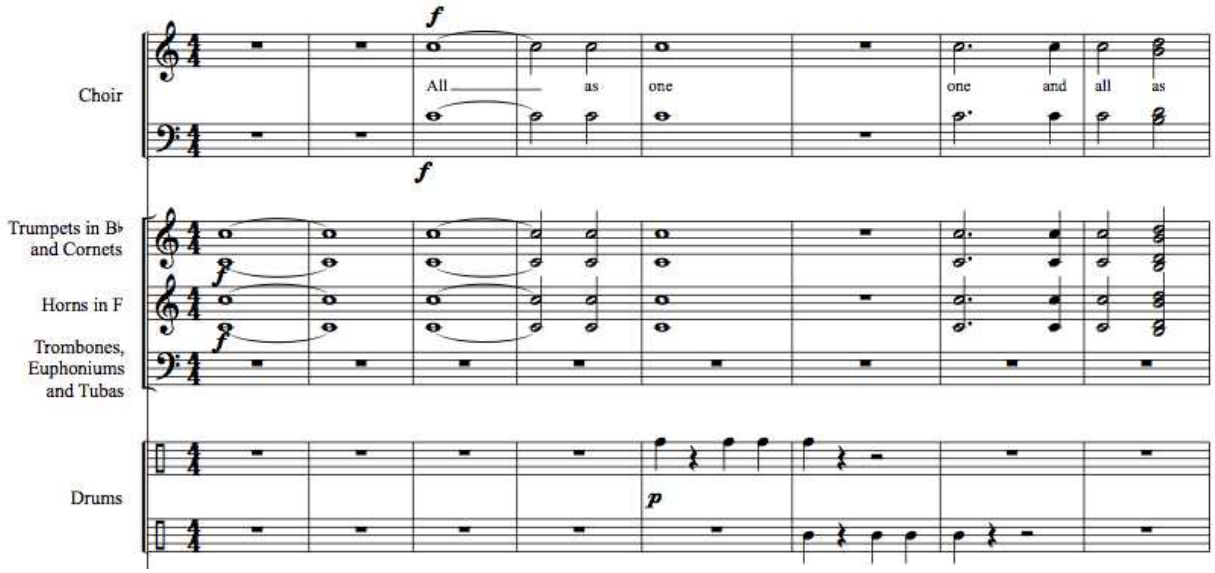
I composed much of the music for the choir before the words had been written. At the time of beginning writing the music for the choir I did not have any lyrics because we had not yet engaged someone to write them. However, I needed to begin writing the music so that I would be able to meet deadlines for completing the work. So I began to write the choral music without any lyrics. This was an unusual step for me to take, in all of my previous vocal compositions up until that point I had always begun with words or lyrics and then set them to music. I researched potential writers who could create lyrics for the work. By the end of June 2014 we had asked the writer Lily Akerman to create words for the piece. I sent her the score for the choral piece and she created words for the piece based on the themes of the project. Once Lily has written the lyrics I fitted them to the music, and we also collaborated on altering some of the lyrics to fit more closely to the music.

In the choral section, the recurrence and development of the 4 note Harp Theme which was first heard in the opening section of the Cantata further reinforces the feeling of unity in the piece. Because of the way in which it was used during the opening section of the River Cantata, the theme originally appears to be emanating from the structure and the narrative of the bridge itself. The choir takes up the theme and develops it both harmonically and melodically. The addition of sung lyrics humanises the theme and the bridge.
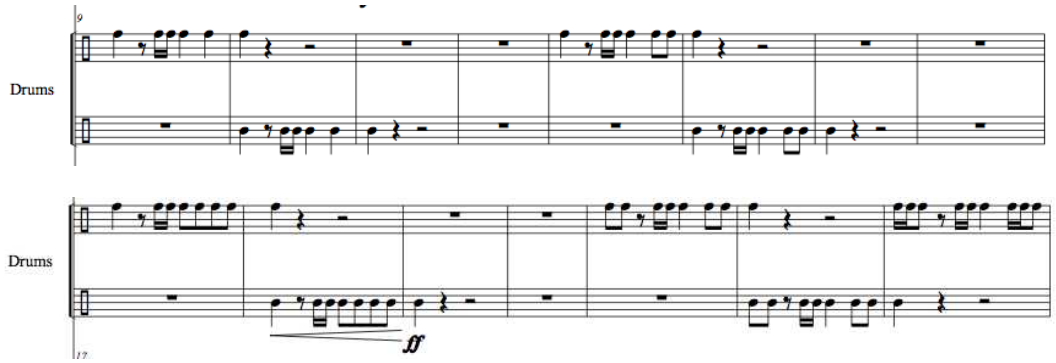
For the performance, it was envisaged that the choir and the brass group would be placed on
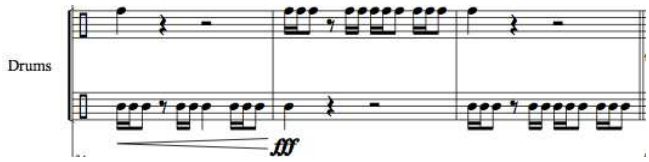
opposite sides of the bridge, with the drummers standing in the very centre of the bridge. In the fanfare, drumming, and choral sections, the musical groups would be heard separately. In the the following section of the composition known as the "Musical Centrepiece" all three groups were integrated into the score along with the recorded notes first heard at the beginning of the Cantata.

In this "Musical Centrepiece" section, the call and response patterns of the drum group are combined with the choral and brass music. At the climax of the piece the live music is accompanied by the recorded gong-like sounds from the opening underscore section of the Cantata. The music starts with octave unison statements in the brass and choir. This single C octave expands to a minor third in bar 8:



This unison opening presents a strong and simple beginning for this important section of the Cantata which will unite all of the forces. This strong unison was influenced by existing work such as the opening of Beethoven's *Der glorreiche Augenblick.* The singers and musicians are given the opportunity to "gather" on octave unisons before the music increases in complexity. At bar 18, the harmony of the brass fanfare is recalled through the use of F sharp major and D flat major chords which resolve to C major in bar 26. In this section from bars 1 to 26, the drums play call and response patterns which are similar to those heard in the previous drum only section. This can be seen in this passage from bar 9 to 26:





As in the drumming only section, the call and response rhythms become additively more dense throughout this passage and this helps to propel the music of the Musical Centrepiece to the next section.
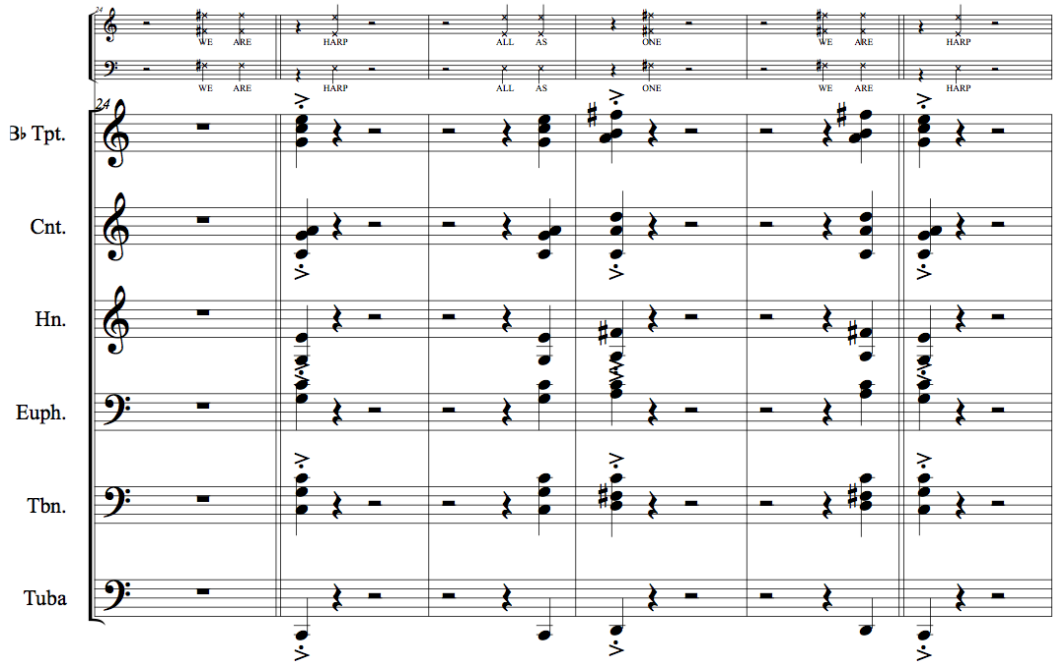
The section from bars 27 to 46 is a melodic passage which is then restated with different lyrics from bar 47 to 66 and then with added intervals in the choir from bars 67 to 86. In this section the drums play a continuous beat that is comprised of a two bar repeated pattern. I composed the melody in this section in an intuitive way. I wanted the melody to be in a similar modal style to the melodies of the brass fanfare and the choral section, but I was also aware that it needs to be extended into a longer phrase. As in the choral section, due to the deadlines which needed to be met before we had secured a writer to work on the piece, I composed the music before the lyrics had been written. Later, I worked with the lyricist Lily Akerman in order to fit her words to the music, at times adapting the shape and rhythm of the music to work better with the lyrics. The section in the Musical Centrepiece from bar 87 to the end is composed as a conclusion to the this part of the complete piece. Here, I recall the music from the underscore at the opening of the River Cantata, in particular the rising pairs of thirds beginning on C which recall the Harp Theme derived from the bridge itself.

During the performance of the Musical Centrepiece, the conductors of the brass group and the choir and the drum leader heard a click track playing through their earpieces in order to synchronise the music. Each section also had monitor speakers so that they could hear what was being played by the other groups. This was especially important for the choir since they needed to be able to pitch their notes from the brass group. Given the large distances between each group and the limited rehearsal time we had available before the performance, it was remarkable how well the groups played together. I composed the music to be clear and straightforward to perform with the knowledge that the groups were not comprised of professional musicians and that rehearsal time would be limited. In addition, the outdoor setting of the piece and the large distances between the groups made the performance even more difficult. This was partly why I chose to write in tempos which were not too fast and I avoided writing very fast notes and difficult to perform passages. As can be heard in the recording of the piece, there are only one or two sections when the performers got slightly out of sync. They quickly recovered however, and this was a testament to the skill of the conductors and

the hard work of the performers.

The Musical Centrepiece section epitomised my approach to the spatial dimensions of the composition. The individual elements of recorded sound, brass music, choral music and drumming were all heard separately from different locations up until this point. In the Musical Centrepiece, all of these elements worked together and all of the musical themes were united. This provided a sense of spatial and thematic unity and togetherness.

The final section of *Harp | A River* Cantata, the Finale took its inspiration from electronic dance music and the samba rhythms of the drum group. A rhythmic beat derived in part from the contact microphone recordings (audio extract 4.8) is combined with celebratory shouts from the choir and the narrator as well as stab chords in the brass group:



This section continues the unifying process of the Musical Centrepiece. The feeling of unity is strengthened by the chants of "WE ARE ONE, ALL AS ONE". A key feature of the dramaturgical structure of the piece is that a feeling of unity and resolution is achieved by the end of the piece. This move from disparate elements to a unified conclusion is also a key feature of my compositional style, and so this is instinctively what I wanted to achieve. The piece was also intended to function as a celebratory opening event for the Dublin Fringe Festival, and so it was important to create a feeling of optimism throughout the composition.

Large-scale site-specific bridge composition

A bridge is an exemplification of a point of transition and movement, both across it and underneath it. Bridges are structures designed to be passed over and underneath but at the same time they are some of the most monumentally impressive achievements of modern engineering. Suspension bridges are especially interesting to me because of the inherent sonic potential which is created though the tension in their metal supports and cables. Sound and listening gives an unexpected way into these objects. We are given an opportunity to stop and listen to something which is normally a purely functional or visually considered object. *Harp* is a direct example a performance marking the significance of a transit space (Wilkie 2015, 17). The Samuel Beckett Bridge is a transit space which was transformed through site-specific performance. The significance of the bridge's similarity to the cultural symbol of the harp was marked by the performance. The bridge could be described as a 'non-place' as defined by Marc Augé since it is an example of a traveller's space. The performance worked counter to the intended function of this space. Instead of the conventional use of the bridge which facilitates the crossing of the river by traffic and pedestrians, the performance re-purposed and re-imagined the bridge as a new object. The traffic was of course literally stopped for the duration of the performance but, as well as this, the event drew attention to the bridge as an object of imagination and creativity. The bridge became both a stage and a performer, dwarfing the human musicians and dancers who realised the performance. The bridge is so much bigger than any object which would normally be considered as an instrument. The size of the bridge makes it function as part of the urban landscape rather than as an object. This meant that the performance and the composition had to work on the same scale as the site. For this reason, I chose simple and slow moving themes and melodies. The music had to be appreciable over a considerable distance and the unifying process needed to be clearly recognisable.

The question of whether or not the original provocation of the piece was fulfilled is an important one. This question underpinned the entire creative process of the piece and was one of the most significant descriptions of the event in marketing and advertising. The bridge's inherently instrumental shape and its name meant that these associations were virtually unavoidable, and to do so would have avoided addressing an obvious demand. We didn't play the bridge as a harp. We didn't physically strike the “strings” of the bridge to produce sound during the performance. However, we didn't fake this process with mimed striking of the strings triggering pre-recorded sound. I have demonstrated how all of the sound and musical material for the piece was directly derived from the structure of the bridge. The music was created from the material of the bridge and creatively manipulated in order to give an imaginative interpretation of what “playing” the bridge

might mean. The opening narration speaks of reclaiming the harp and its power. The equates the bridge to a mythical instrument which has lain dormant for thousands of years. *Harp* was the first time that the potential musical properties of the Samuel Beckett bridge were activated through performance. The performance facilitated this potential through sound, text, lighting, choreography and music. In this sense, the performance "played" the bridge by bringing it to life and re-purposing it as a site of imagination and play.

In composing this piece, I was highly conscious of the nature of the event which I was writing for. As mentioned above, *Harp* is similar in style to other music written for opening ceremonies. In these pieces, brass instruments are used to create stirring and evocative fanfares which provide a sense of festivity and occasion for the openings of large events. As described above, the decision to use brass instruments, percussion and voices was based on the specific requirements of creating an outdoor performance on the Samuel Beckett bridge. However, during the decision making I was also conscious of these existing celebratory works and the fanfare style. I was also influenced by the work of Daniel Ott, I composer whom I studied and performed with in Berlin during my time at the *Universität der Künste*. In particular, his contribution to the collaborative piece *MittenDrin* (2010) was a particular source of inspiration for me. In this work (in which I took part as a performer), Ott employed brass players and percussionists in various sites around the German town of Eisenach. Brass players on boats interacted with percussionists who played on bridges as the vessels passed by on the rivers below. Ott has a long history of engaging with landscape through site-specific compositions and performances (www.danielott.com) and he has been a key influence on my work since I studied with him at the Berlin University of Arts from 2007-2009. There is no doubt in my mind that without my knowledge of Ott's performances composed for specific bridges I would not have decided to create *Harp* in the way that I did. Ott's decision to use brass and percussion was also influenced by the requirements of creating outdoor performances. Instruments need to be weatherproof and audible in open-air acoustics. At the time of composing *Harp* I was aware of both the genre of celebratory fanfares such as John Williams' *Olympic Fanfare and Theme*, and the more experimental and esoteric work of composers such as Daniel Ott. I see my work on this piece as a synthesis of these two styles.

Harp was undoubtedly a site-specific performance on a very large scale. This scale defined many of the musical, dramatic and structural elements within the piece. Although the creation of the piece was highly collaborative, I believe that it represents an important part of my site-specific practice. The structure of the piece was based on presenting individual elements separately and then together. This is a simple technique taken from the composition of effective concert music. The piece also

relied on the contact microphone recording techniques which I first developed in *The Shakey Bridge Listening Project*. The combination of recordings with live instrumental music represents a major development in my compositional practice. This development enabled new ways of engaging with place and space through site-specific performance. The piece created a very public spectacle on a large-scale using elements of experimental contemporary music and site-specific performance. This function is different to the traditional place of contemporary music in Irish society. By making an open and celebratory work in a very prominent location, the potential audience size and demographic was expanded significantly. In addition, the conceptual premise of the piece was simple and arresting enough to draw people in to the imaginative space of the piece. By setting the challenge of treating such a large-scale and public object as a source of music and creativity, the piece allowed a piece of civil engineering to assume a new meaning and status.

At the end of this chapter and in the conclusion at the end of the thesis these ideas will be discussed further. My next piece revisited one of the pieces featured in Chapter 3.

Underground Gothic for Solo Viola and Recorded Sound



Fig. 9: Sebastian Adams in performance (photograph: Kirkos Ensemble)

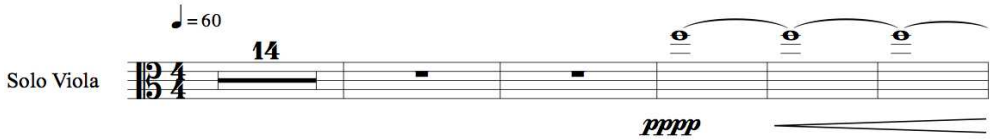
Underground Gothic for Viola has a unique place in my portfolio since it returns to the subject matter of one of my previous pieces. By placing this material in a new performance context it further developed the spatial themes associated with train travel that had been explored in *Underground Gothic*.

In November 2014, Kirkos Ensemble published an open call for pieces related to train travel as part of the ensemble's "Blackout" concert series. The concept for this series is that performances would take place in almost complete darkness. I successfully applied for the open call and I composed the piece in December 2014 and January 2015. I worked with viola player Sebastian Adams on specific performance issues with the score and the notation in the run up to the performance in June 2015.

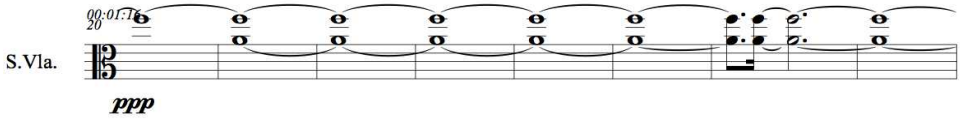
The subject matter of my existing piece *Underground Gothic* was highly relevant to this open call. I decided to base the piece on the pre-recorded track played through the audience's radio headphones during that site-specific performance. This was the most through-composed section of the original performance and also corresponded to the desired length of just over eight minutes. Since the viola

piece would be played in a different context to the original performance I decided to somewhat modify the recorded track. I removed some of the recorded voices, in particular the text *"You may have spent your whole life"* etc. I left in some of the other recorded text in order to hint at a story during the piece. This story would be less clear as it was not accompanied by physical movement or heard in the train carriage location as in the original performance but I wanted to hint at overheard narratives. I integrated the recording into my notation software and I began composing the score around the recording. This allowed me to very precisely synchronise the existing recorded track with the newly composed score. In the score I included the timecode as well as bar numbers at the start of each line.
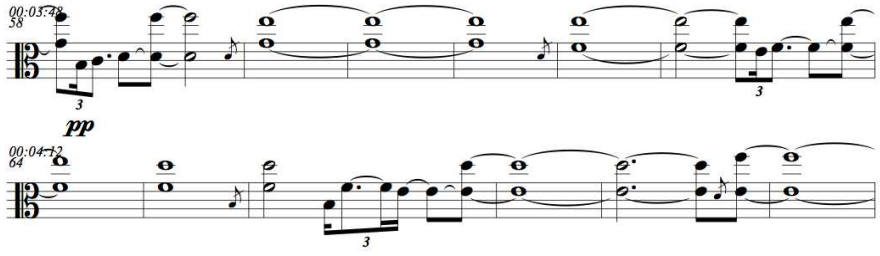
The viola enters at around one minute from the beginning of the track at bar 17 and starts by playing a very distant echo of the sustained sounds heard in the track:



I made a decision that the viola will start extremely quietly (marked *pppp*) so that it will be almost impossible to hear whether or not instrumentalist has begun playing. In this way, I intended that the live music would blend seamlessly with the recorded sound. Imitating the pitches of the recorded track, the viola begins on the note F and then extends to include the A a sixth lower:
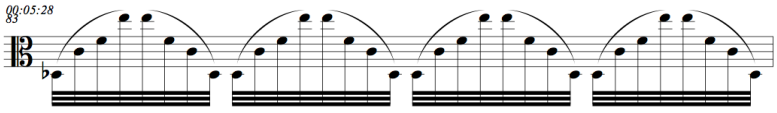


The harmony changes slightly between bar 52 and bar 63, corresponding to a change in the pitches of the recorded sound. From bar 58 the viola begins to imitate some of the recorded voices in the track using short melodic phrases:



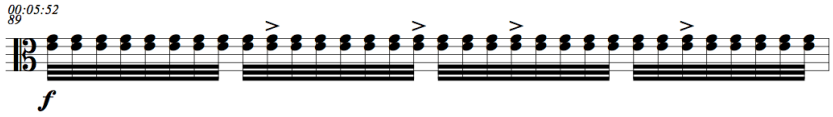
This is influenced by Steve Reich's *Different Trains*. In this piece, Reich uses a string quartet to imitate the pitches of recorded voices. From bar 71 onwards the viola rhythm starts to become influenced by the rhythmic train sounds in the recorded track; this is developed in bars 73 and 74:



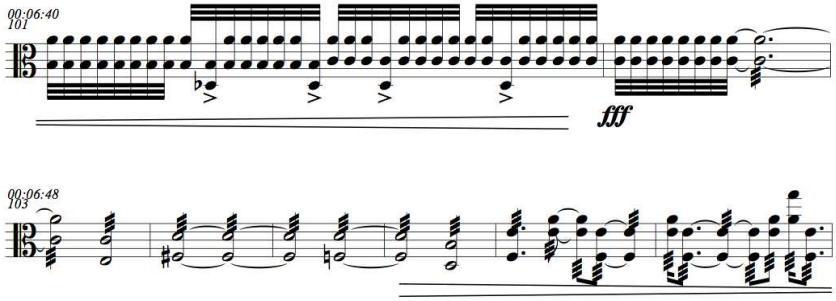
This rhythm increases in intensity throughout bars 78 to 82. At bar 83 the viola figure becomes a *bariolage*[39] style passage:



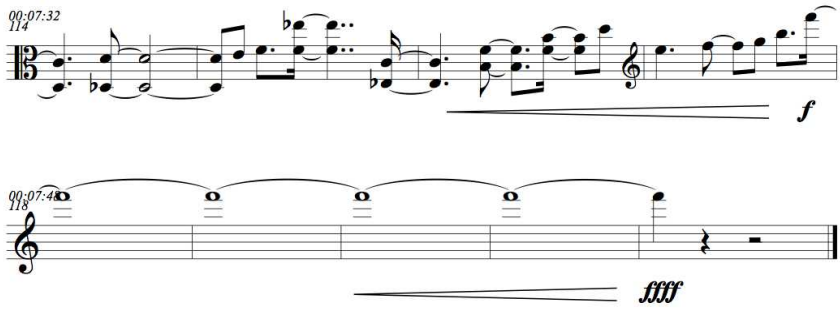
This style of playing continues until bar 89 where this develops into a repeated double stopped 32nd note section:



The general progression of the music is towards ever greater intensity. This pattern of development stems from the recorded track upon which the viola music is based. Following this escalation of intensity, the 32nd note figure develops into an aggressive passage until bar 101 where the bowing transitions to a *tremolo* style:



The harmony in the viola begins as being directly related to the recorded music but then starts to develop this from bar 101 onwards. The viola plays more quietly from bar 106 until bar 110 which reflects the volume of the recorded track. From bar 111 to the end the viola plays an expressive and expansive melody which concludes with a high climax:



This coincides with the climax in the recorded track. The harmonic language of the piece is intended to emphasise the unsettling quality of the original performance. The rhythm drives the

[39] Rapid string crossing with the bow in a repeated rhythmic pattern

piece forward and takes its inspiration from the rapid sounds of movement record from trains using contact microphones.

A key work by another composer which is related to this piece is *Different Trains* (1988) by Steve Reich. This piece featured alongside *Underground Gothic for Viola* in the concert in which it was first performed. *Different Trains* was a direct influence on my composition since I knew that my piece would be programmed alongside it. Apart from the similarities of the subject matter, Reich's piece also uses recorded sound in combination with live string sonorities. *Different Trains* features a recorded string quartet and recorded voices with which the live instruments interact. My piece also uses recorded voices, and I deliberately aimed to imitate the rhythm and pitches of the voices in a similar way to Reich. For example, bars 63 to 70 in my piece feature short melodic passages which imitate the recorded voices on the accompanying soundtrack. Another piece which is similar to my work is Luciano Berio's *Viola Sequenza* (1967). As well as the similar instrumentation, Berio's piece also makes use of fast and aggressive tremolo writing for the viola. I was very aware of this piece when composing *Underground Gothic for Viola* and I intended my piece to fit alongside this type of repertoire. *Toponymy* (2016) by Yannis Kiriakides is another piece which makes use of recorded sound in combination with live instrumental performance in a similar way to my piece. My work is located within this solo viola repertoire. I composed the piece for a viola player who was familiar with this repertoire and so I used similar instrumental performance techniques.

Theoretical Discussion

This piece is the least site-specific of all of the pieces in my portfolio. Although composed for a specific event and place, the piece was created to be a concert performance which could take place anywhere. I believe however that this piece helps to shed light on certain aspects of site-specific performance. The original performance was created for a specific train travelling along a specific route. The sound was recorded from trains and then assembled to create an aural experience which would be listened to in the train itself. The concert version of this piece moves the performance to an entirely different site (map 7.3). The Katherine Brennan Hall is a small concert hall in a musical institution, a location which is completely different from the interior of a moving train. The sound recorded for the original version of this piece was created to complement the sounds already present within the train carriage. In the concert hall, these sounds are no longer present. However, since the sound which constitutes the pre-recorded element of the piece was created from the materials of the original performance location, a ghost of the train remains. One particular aspect of the original performance site, the sound of the train, is transposed to a much more neutral site. This version of

the piece does not take as its subject matter the relationship between the performance and the location of its performance, rather it is about the performance and an entirely different location. It could be described as a nonspecific-site-specific performance. The performance is about another site and contains traces of the original site, but it was performed in an entirely different place.

It is necessary to refer to these issues in this description because this piece is the only one of my portfolio works which was performed in an indoor concert situation. I have decided to include the piece because I believe it nevertheless demonstrates features of site-specific performances. It was created as a response to a site-specific performance and contains traces of the original site. The piece is also significant because it further developed compositional techniques which I used in other pieces in this portfolio. It belongs very much as part of the same collection of pieces.

Beats, Bells and Bridges



Fig. 10: Alex Petcu rehearsing "Beats" in University College Cork quadrangle (photograph: Tom Lane)

This series of three pieces was composed for percussionist Alex Petcu. Alex and I began with the idea of creating a series of site-specific performances for unique spaces in Cork city which would feature as part of the 2016 Cork Midsummer Festival. Alex and I had previously worked together on a production of *Twelfth Night* at the Abbey Theatre in 2014 and we wanted to continue developing a rewarding collaborative relationship. We successfully applied for funding from the Arts Council of Ireland to create a site-specific performance in three different locations in Cork. During a research trip on the 7th of August 2015 we identified three spaces which particularly interested us: the University College Cork quadrangle because of its reverberant acoustics, the Mardyke Bridge because of its resonant sound when jumped on, and the Shandon Bells because they can be played musically. I composed the pieces in close consultation with Alex. Throughout the composition process I sent him versions of the music, and we tested out various sections of the music at the specific sites before the final performance. In the following sections of this thesis I will describe the process of creating these pieces and analyse their related theoretical concepts.

Beats
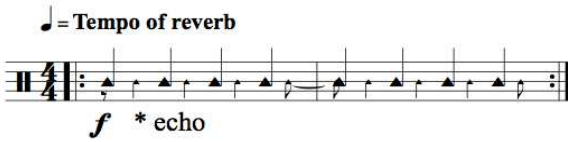
This piece was created in direct response to a specific location in Cork. The following is a diary entry describing my aural experience of the quadrangle of University College Cork during a research visit with percussionist Alex Petcu:

> *7th of August 2015*
> *Sitting in the UCC quad listening to the sounds of this space. This is a quiet day in the summer vacation and so there are not many people around. In term time this is a busy space located close to the main library building and several lecture theatres. Sitting still with no percussive noises present, it is difficult to discern any particular acoustic effects or reflections. There is little wind today but the space is also particularly well sheltered due to the walls on three sides of the quadrangle. There is an intermittent rhythmic sound coming from a flagpole one one side of the quad. Overall this is a peaceful space today. Alex Petcu and I test the reflective acoustic qualities of the space using a woodblock struck with a hard stick. The stone walls create very definite reflections and echoes which change as the source of sound and listening position move around the space. When playing this type of sound the quad becomes a highly acoustically resonant space and it seems to invite us to create a piece of music for it.*
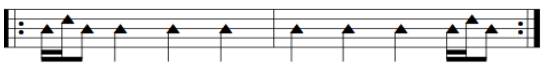
Following our acoustic investigation into the UCC quad, Alex and I decided to locate a performance in the main quadrangle of University College Cork (map 8.1). The space has very particular acoustics since the stone walls on three sides are highly reflective of sound. Alex Petcu and I decided to create a performance which would explore these acoustics in a musical way. We discovered that if you play a short percussive sound in the quadrangle, the echo time varies according to where the source of the sound and the location of the listener are within the space. Alex and I mapped this pattern of echo times and decide to incorporate this into the structure of the piece. The echoes are a unique feature of the space and for me they represented a specific type of acoustic potential. In contrast to the sounds I recorded from bridges, trains and rivers in earlier pieces, this acoustic property is not the result of sound within the physical material of the quadrangle. Rather, it is the shape of the buildings and the hard surface of the stone which results in the sound being reflected in a certain way. The size of the space means that it is possible to stand in different places in the quadrangle and to hear the sound different in different ways, and it is also possible to move the source of a sound within the space. Instruments also have interior acoustic properties. For example, if it were possible to stand in different places within a guitar or violin the

sound would be radically different at different points. The size of the quadrangle means that as listeners we are dwarfed by the space and it becomes possible to experience multiple internal perspectives on its acoustic properties. The large scale of the resonating space means that it is possible to hear the changes in acoustic reflection in close detail. I intended the composition of the piece so that it would explore these changes in a performative way.
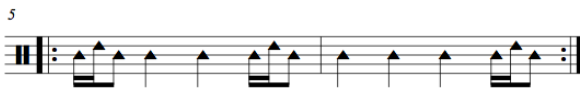
Alex and I discussed various ways in which we could create a piece for the quad. Based on the instruments we had experimented with during our research visit to the space, we agreed that the piece would use percussive, un-pitched sounds and that it would use various different locations within UCC Quad. Although we had experimented with some instrument in the space already, I decided that I would need to compose some new rhythmic material to experiment with in the performance location. In April 2016 I began to compose the material for the score of what will be called "*Beats"*. The first section of the piece consisted of an 84 bar rhythmic composition which was to be played in three different locations throughout the quadrangle. I write for 5 different relative pitches, and at this point I did not specify exactly what instrument the notes will be played on but I imagine something similar to the woodblock we used while testing the acoustics in August 2015. The first 2 bars consist of a simple repeated crotchet pattern on the middle pitched object:
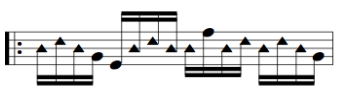


The small notes on the quaver off-beats were written to represent the sound of the notes reflected from the walls of the quad as heard by the percussionist. These 2 bars are repeated, and all subsequent 2 bar groups are also repeated. From bar 3 onwards, I increased the complexity and density of the rhythms. In bar 3 I inserted a semi-quaver figure on the first beat of the bar. This figure is repeated on the fourth beat of bar 4:



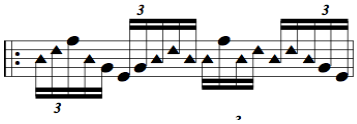
In bar 5 I inserted this same figure on the fourth beat of the bar:



The semi-quaver figures build up additively, so that by bar 15 the rhythm consists completely of semi-quavers:



From this point onwards I wanted to further increase the complexity of the pattern and so I began to insert a semi-quaver triplet figure. These figures increase additively until a point of maximum complexity is reached in bar 21:



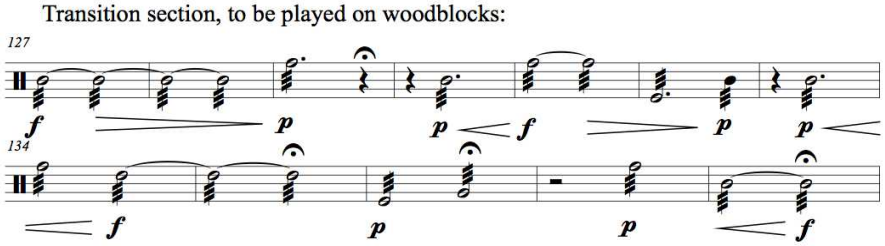
From this point onwards until the end of the section, the process of addition is reversed so that the patterns become gradually less and less complex until the pattern becomes a simple crotchet figure again at bar 41.

We tested this musical material in UCC Quad on the 18th of May 2016 and we decided that it would be effective to play the same material in three different locations using different instruments. A final section would use different music and will be located in a central location in the quad. I made the decision to feature new material in the final section in order to present a sort of coda to the piece. Following so many repetitions of similar sounding material, I felt the need for a contrasting final section which would give a sense of finality to the piece.

In the three repetitions of the opening material, the rhythmic patterns remain the same but the dynamics are varied. For example, in the first iteration of the section, it is played entirely *forte*. In the second iteration, *forte* sections alternate with *piano* sections to create an echo effect. These sections vary in length from between 1 and 4 bars. In the third iteration, the alternating *piano* and *forte* sections are spaced with much more variety. For example, in bar 86 only the first beat is *piano* and the rest of the bar is *forte*. In bars 94 to 100 however, whole bars alternate between *forte* and *piano.*

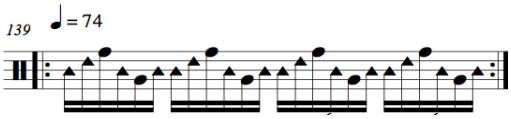
Following our experimentation in the performance location we decided that each iteration of the sections will be played at the tempo dictated by the echo time in each location. Alex would play repeated crotchets and vary the tempo until the echoes which he hears create a quaver rhythm in counterpoint to his crotchet beat. In between each section, Alex would continue to play a repeated note with a changing tempo depending on where he is in the quadrangle.

Following the third repetition of the opening material there is a short transition section consisting of rolled notes:

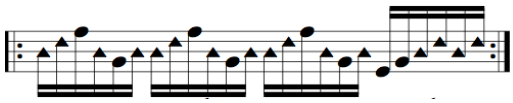


This rolled note passage precedes the final coda section. I decided to compose this in order to give a moment of stillness and suspension before the impressive ending of the final coda section. The musical effect of this is also related to how the piece appeared in performance. For example, the final coda section appears more impressive and dramatic since it appears suddenly after a still and suspended passage of music. The important of virtuosity was something I was constantly aware of during the composition of the piece. This is partly to do with the nature of the piece as a solo performance piece, but it was also due to my close relationship with the performer Alex Petcu. I knew that his playing style and personality would suit a virtuosic style of performance and composition and I wanted to showcase this in this piece.

Beats concludes with a final coda-like section which is to be played at a fourth and final location. This section is different to the previous parts in that the rhythm consists entirely of semi-quaver sextuplets. Each individual bar is repeated as opposed to each pair of bars in the first part of the piece. Bar 139 consists of 4 statements of an initial pattern which begins on a central note and expands over and below this pitch:



In bar 140 the fourth beat of the bar changes to a different pattern which begins on a low pitch:



This pattern is then played on the third and fourth beats of bar 141. In bar 142, this pattern appears on beats two and four. In bar 143 the original pattern appears through the bar, and in bar 144 the second pattern appears on every beat of the bar. In bar 145 a new pattern is introduced on the fourth beat of the bar, and this new pattern begins to be alternated with the two already introduced patterns. New patterns are gradually introduced and alternated with existing patterns in ever greater complexity until a sudden break at bar 161. From here until the end of the piece sudden breaks alternate with short statements of the patterns until an abrupt end at bar 172

Throughout the composition *Beats* I develop patterns of rhythms in logical and systematic ways. The patterns always start simply and then develop into more complex ones. This is similar to my compositional approach to the drum music in *Harp*. The process appealed to me because it builds up a comprehensible language of development and progression.

While working on the performance of the piece I gave Alex a high degree of freedom when

deciding on which percussion instruments to use. After he experimented with different sounds in the performance space, we decided on wood blocks for the first section of the piece, glass bottles for the second, lengths of metal scaffolding tubing for the third, and bongos for the fourth section. The varying speeds and instrumentations of the pieces of music in different parts of the quadrangle explored the space through sound and music. The reverberation time of the space dictated the tempo of the music, and the instrumentation was selected as a creative and practical response to this. By including a continuous repeated beat in between sections, the mapping of the music to the space was made clear to the audience. By encouraging the audience to stand in different places in the quadrangle and by moving the source of the sound, we explored the way in which it is possible to have different acoustic perspectives within the space.

The *Beats* section of the *Beats, Bells and Bridges* is similar in style to solo percussion pieces such as *Reponds A* and *Reponds B* by Iannis Xenakis. This similarity is particularly apparent in the virtuosic final section of my piece which is played on small skin covered drums. While composing this music I wanted to make the most of Alex Petcu's skill and virtuosity, and these Xenakis pieces are a core part of his solo percussion repertoire. I would locate *Beats* as part of the same type of genre as these works by Xenakis; I was directly influenced by this work as I was writing the piece.

Bells

As with *Beats*, this piece was created and composed in response to a particular location in Cork. The following is a diary entry describing my aural experience of the performance location during a research visit to the performance site:
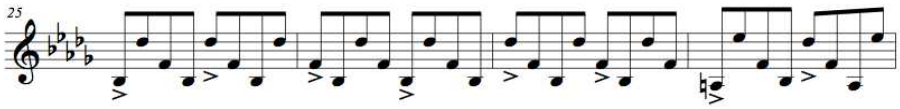
> *18th of May 2016*
> *Outside the Shandon Craft Centre, opposite St Anne's Church in Cork. This part of the city is strangely quieter than other parts of Cork. The low buildings are spaced close together and there are few cars on the narrow streets. A feeling of stillness and quietness pervades the air. This is punctuated by the frequent sound of the bells which ring from the church tower above. These bells dominate the soundscape of the area as they are played by visitors to the St Anne's. Beyond the bells and the stillness of Shandon, the low hum of the city is audible as a muted sound. I imagine what it would be like to create a piece of music which would interact with the famous Shandon Bells.*

While searching for sites in which to create percussion performances, Alex Petcu and I were aware that St Anne's Church in Shandon in Cork had a set of eight bells which can be played by visitors. We visited the church tower in May 2016 and we discovered that these bells are tuned to the key of D flat major. We noticed that the bells are more audible from outside of the church tower, and so we looked for locations around the church in which a performance could take place. The courtyard of the Shandon Craft Centre (map 8.2) is located directly opposite the church. This provided us with a sheltered area very close to the church tower. We decided to use the marimba which is Alex's main solo instrument in combination with the church bells. This instrumentation appealed to me because the marimba presents a dynamic and expressive range of textures and timbres which would expand the limited range and capabilities of the church bells. To provide more of a direct link to the sound of the church bells, we also decided that the piece will include a two octave set of hanging bell-plates which Alex would make himself. These provided a more traditionally bell-like sound which established a direct link to the sound of the church bells. We decided that the piece would be written as a duet between the church bells and a solo percussionist at ground level. We engaged percussionist Brian O'Regan to play the Shandon bells in the St Anne's bell tower because Alex had worked successfully with him in the past. We envisaged that the bell tower percussionist would be able to hear the ground-level percussionist, but in rehearsal we found that this was not possible. We implement a monitoring system using walkie talkies to enable Brian O'Regan to hear what Alex Petcu was playing and this proved a highly effective solution to the problem.

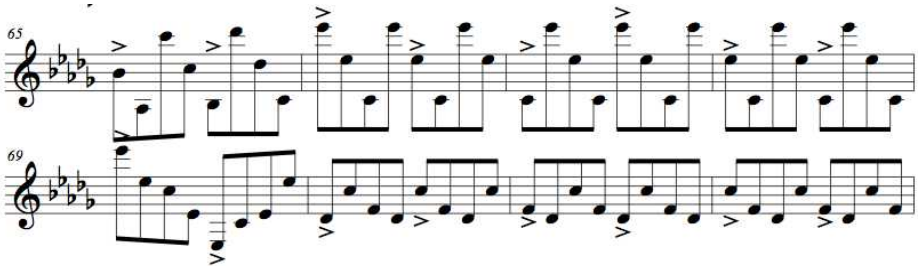
Bells begins with a statement of a 78 bar *moto perpetuo* section in the marimba. This passage is characterised by broken three note chords which are metrically split across the 4/4 time signature:



Harmonically, the music starts with a D flat major seventh chord which alternates with a B flat minor chord which first appears in bar 25:
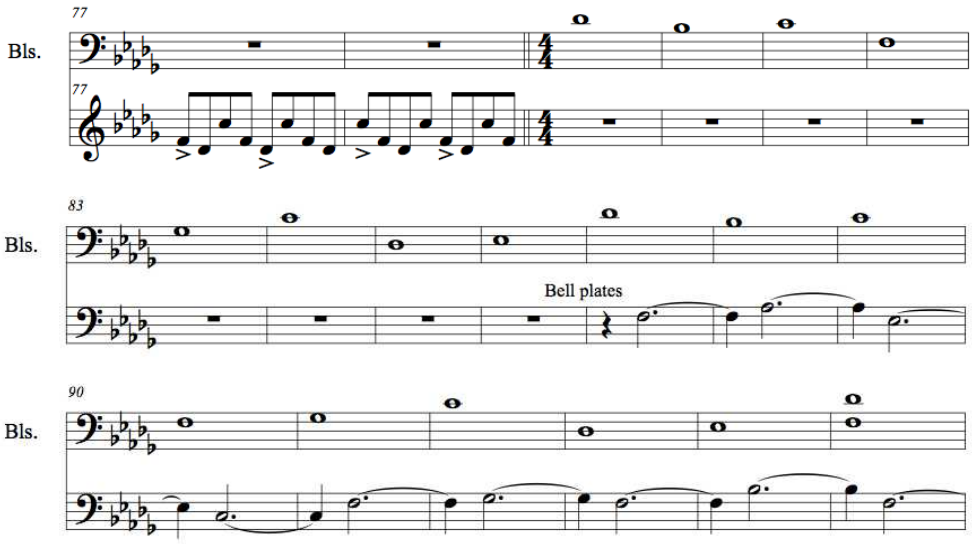


This expands outwards to an outline of the dominant chord A flat major at bar 66 before returning to D flat major at bar 70:

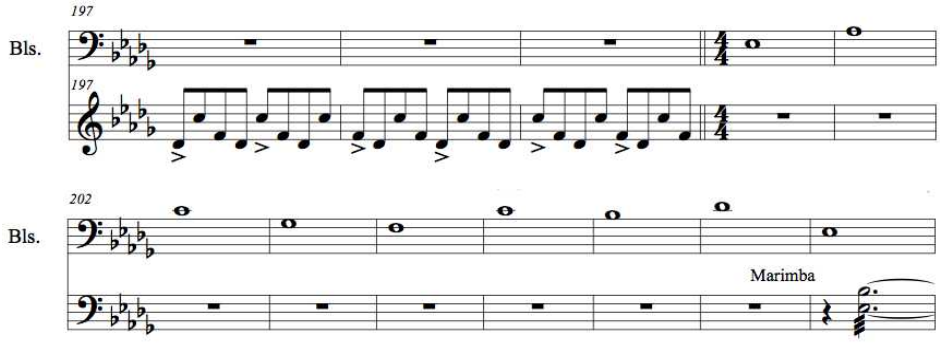


I chose the key of D flat because this was the key in which the church bells are pitched. I made the decision to write something idiomatic to marimba technique, and this broken chord pattern works very effectively on the instrument due to the way in which players commonly hold two sticks in each hand. The pattern begins in bar 1 with a D flat, C and F, and at bar 4 the lower D flat begins to alternate with a C, returning to just a D flat at bar 7. At bar 10, this alternation continues but with a B flat. The D flat/C alternation returns at bar 22, this time with the top C also alternating to a D flat. At bar 25 this alternation leads to a statement of a B flat minor harmony. In this harmony, at bar 28 the bottom B flat alternates with an A natural and the top D flat alternates with an E flat. At bar 40 this A natural alternation is replaced by an A flat, and this leads to a new harmony at bar 43. This new harmony is a 1st inversion E flat minor 7th chord, which leads to a root position version of this chord at bar 49. This moves back to a B flat minor chord at bar 55, and back to an E flat minor 7th at bar 61. At bar 66 the harmony moves through a diminished chord of C, E flat and G flat to return to a D flat major 7th chord at bar 70. This continues until bar 78.

At bar 79 the church bells answer this section with an 8 note sequence which is repeated and then harmonised by the bell plates on ground level:



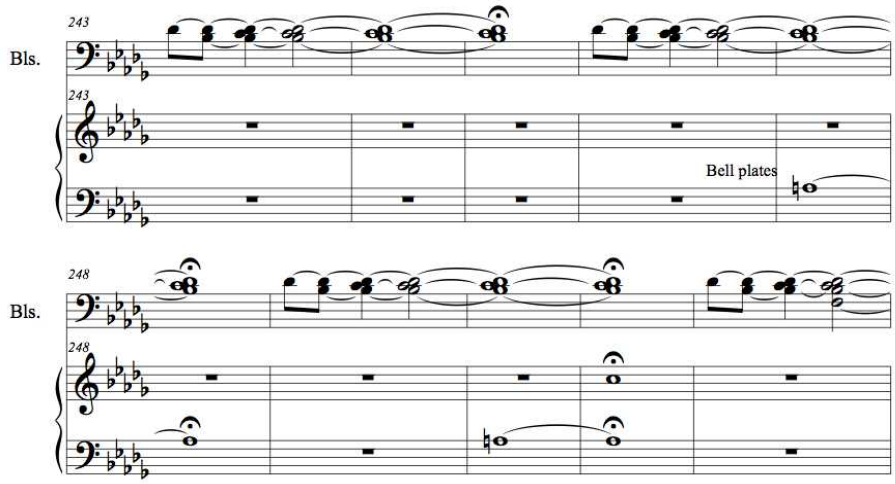
I decided to use this sequence of notes so that the bell theme is reminiscent of the descending patterns heard in traditional change ringing sequences. The bell plates enter at bar 87 and harmonise the bell theme within the modal D flat major harmony. From bar 95 the church bells play two notes to create a more extended harmony. At bar 103 the bell plates begin to play two notes at once, and from bar 111 the bell plates play 2 notes at once followed by a third which adds to the harmony. Due to the rope mechanism used to play the church bells, the bell player was only able to play a maximum of two notes simultaneously. Because of the layout and size of the bell plates, the ground level percussionist was also only able to play two notes at once, but in my composition I extended this by the addition of the extra third note from bar 111 and then the fourth note from bar 118. The intention behind this section was that the bell theme begins as a solo line and then becomes more and more densely surrounded by other notes. After several statements of this sequence in an ever denser harmonic context, the marimba returns at bar 122 with a re-statement of a modified version of the opening marimba theme. Throughout this section the church bells play the same sequence of notes as the bell theme at bar 79. This is integrated in such a way that it harmonises with the modified marimba part. At bar 200 the church bells play a new 8 note sequence:
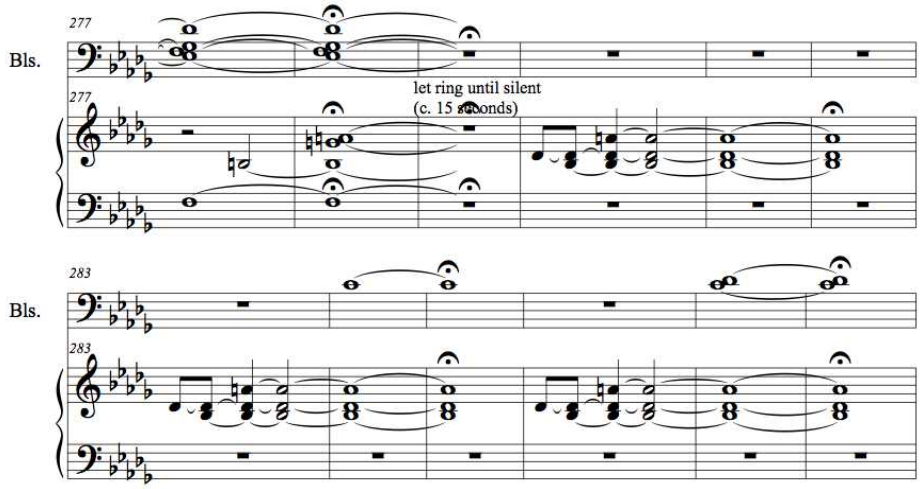


This bell theme is based on a retrograde version of the bell theme from bar 79. As in bars 79-121,

this theme is repeated and then harmonised by increasingly dense chords. In this section, the marimba accompanies the bells with rolled chords. At bar 232 bell plates are added to the marimba chords. In this way, the ground-level percussionist plays both the marimba and bell-plates at the same time. As well as extending and developing the types of sounds and instrumentation in the piece, this also served as another display of virtuosity for Alex Petcu. As I have already described, I wanted to provide opportunities for impressive display throughout *Beats, Bells and Bridges* in order to showcase Alex's talent and performing personality.

From bar 243 a “call and response” section is initiated by the church bells. This is answered by the bell plates at ground level:



I chose a close harmony (close clusters of notes), using the available notes which are possible to achieve on the church bells. The notes are D flat, B flat and C natural. At bar 279 the call and response pattern is reversed and the ground level bell plates begin the dialogue:



From bar 329 the call and response pattern is truncated to shorter lengths with an increase in tempo. This pattern becomes a fast statement of the same sequence of notes first heard in the church bells at bar 79. This is ornamented by the marimba in increasingly complex patterns until a return of the opening theme at bar 365, initially an octave higher. The church bells continue to play the 8 note

theme until bar 413. The theme is then fragmented and harmonised until it is re-stated at bar 434 until the end of the piece.

The overall structure of the piece presented the church bells and the ground level percussion instruments at first separately and then unified. This gave a sense of conclusion and resolution to the piece. This structure also unified the two spaces presented in the piece. Although the bell tower and the craft centre garden are separated by distance, the music brought the spaces together through a narrative structure. My use of this structure came about as a result of my experience in composing instrumental concert music which can demand a satisfying structural conclusion. As in *Harp,* this piece shows a synthesis of my site-specific practice with my concert composition style. The composition of the music of the piece also composed the experience of the space contained within the performance location. Through specifically musical techniques, disparate spaces were unified and re-imagined. The spatial properties of the places are composed into the fabric of the performances. The pieces are inseparable from their locations because the space is a fundamental element in the music's structure.

Bells is closely related to minimalist percussion pieces in style. In particular, Steve Reich's *Six Marimbas* and Philip Glass's *Glassworks* were key influences on the harmony and repeating pattern style. This style of minimalism was a particular influence on the rhythmic *moto perpetuo* sections in the piece. This type of music alternates with sections which have a more free tempo, and these sections are more like Arvo Pärt's meditative approach to minimalistic music.

Bridges

The following is a diary entry describing my sonic impression of the performance location during an early site visit:

> *7th of August 2015*
> *Standing on the Mardyke Bridge in Cork. The river is wide at this point and fast flowing. Although we are still in the city, there is no noticeable sound of traffic. The wind in the trees and the sound of the bridge and the water are the most present sounds. When a pedestrian crosses the bridge behind me, the sound of footsteps reverberates through the bridge's structure. It is possible to feel these vibrations as well as hear them. I notice that bikes and skateboards produce different sounds and vibrations. The setting of the bridge is peaceful, but because of the fast flowing water and the vibrations in the bridge the location does not seem particularly calm or relaxed.*

While searching for possible performance locations in Cork in August 2015, Alex Petcu and I visited the Mardyke bridge (map 8.3). This is a footbridge with a metal arch supporting a wide walkway. I had experience of deriving sound from bridges (*Harp | A River Cantata*) and so we investigated which sounds are available to us by trying to play the bridge in various ways. When jumped on with two feet, we found that the bridge produced a low thud similar to a bass drum. By striking the railings of the bridge in different places with hard sticks it was possible to obtain a variety of pitches and sounds.

We considered what kind of piece we want to perform on the bridge. I was familiar with Alex's virtuosic playing style which lends itself well to complex solo percussion pieces. I wanted to make use of this style by writing a piece which would incorporate the sound of the bridge with other percussion instruments. Based on this and the playing experiments we had undertaken on the bridge, I decided to write a piece for four floor toms, three railing sounds and a “bridge jump” sound. The railing sounds refer to the sound of the bridge railings when played with wooden drum sticks. The “bridge jump” sound refers to the sound of the bridge when jumped on with two feet by the percussionist.

An important issue here is why I chose to use floor toms as extra instruments as well as playing directly on parts of the bridge. After several experimentation sessions on the bridge itself, Alex Petcu and I chose to augment the available sounds of the bridge with the instruments that we felt worked most effectively in the location, the four floor toms. Although the original concept for the

piece was to play the bridge itself like a percussion instrument, we decided that in order to create a virtuosic and engaging piece of music for a solo player we needed to add additional instruments. It would have been possible to create more diverse sounds from the bridge but the parts of the structure we would have needed to work with were spaced out over too great a distance. So in order for one percussionist to be able to play a diverse enough range of sounds within arms reach and to play the kind of virtuosic performance we were looking for, we added four extra drums. We chose these particular floor toms so they would function as a kind of transition sound between the railings and the "bridge jump" sound. In addition to the full tom sound, the toms also offered a rim-shot sound which was similar to the metallic railing sounds. We decided to position the toms close to the railings so that they might appear to be an expansion of the railings. In this way, the toms functioned as a creative extension of the *idea* of bridge as instrument.

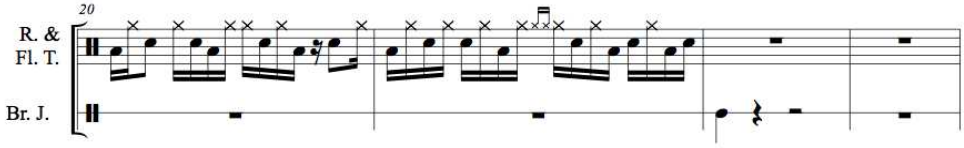
The structure of this piece is ABACA. The opening A section from bar 1 – 92 presents a combination of floor tom and railing sounds which build up to a bridge jump sound at the end of each completed phrase. The patterns are presented additively, slowly building in complexity. For example, the opening phrase starts very sparsely from bars 1 – 16 and then builds in intensity until the bridge jump sound at Bar 22. In bar 1 a short motif is presented which incorporates a railing sound and two floor toms. This short motif is re-stated in bar 2 on the fourth beat. Bar 3 is silent, and then bar 4 fragments this short motif into two parts:



After a silent 5th bar, bar 6 is a repetition of bar 5, and this is extended in bar 7 with an inverted rising version of the motif:



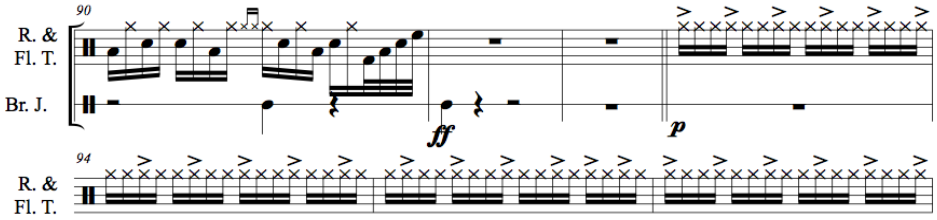
In this way, the short motif in bar 1 is extended and developed into an 8 bar phrase. The fragmentation and rebuilding of the motif interspersed with periods of silence creates a system of expectation and fulfilment in the music. From bars 9 to 22 the short motif is again fragmented but also interspersed with more and more short patterns. This culminates in bars 20 and 21 where the bars are almost completely full of semi-quavers:



This build in intensity is punctuated by the abrupt thud of the bridge jump sound at bar 22. In this way, bars 1 to 22 represent a slowly building crescendo without an increase in volume. By beginning very sparsely and building to a more dense and complex texture, I aimed to achieve development and direction in the music using a limited range of sounds and pitches.

This pattern of sparseness to complexity is repeated and developed until the final passage at bat 87 – 90. Bridge jump sounds are slowly introduced to become part of the rhythmic patterns rather than the climax of these patterns. The purpose of this process is to present the instrumental drum sounds, the railing sounds, and the bridge jump sounds in an evolving dialogue with each other. In a similar way to *Bells,* the different sounds are brought together to form a musical language or grammar by at first presenting them separately and then uniting them.

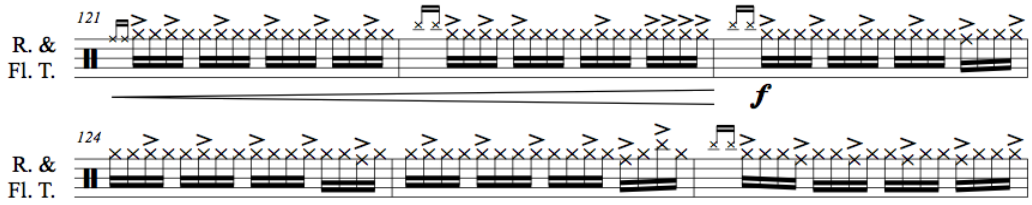
The B section begins at bar 93 and presents a different type of rhythmic pattern focussed primarily on railing sounds:



The music is based on a continuous semiquaver pattern centred around a middle pitch railing sound with accented emphasis every three semiquavers. This pattern continues for the first two bars, and then I interrupt it on the last two beats of bar 95 with accents every two semiquavers. This pattern is then repeated from bar 96 but three bars later at bar 98 the accents are introduced every two semiquavers for the whole bar. From bar 97 to 107 the pattern of accents is developed to create the sensation of ever increasing complexity. This is a similar process to the beginning of the piece, complexity is increased to create a crescendo in activity and provide direction in the music. From bars 108 to 122 the pattern of accents from bars 93-107 is repeated but with the addition of grace notes and a *mezzo forte* dynamic marking:

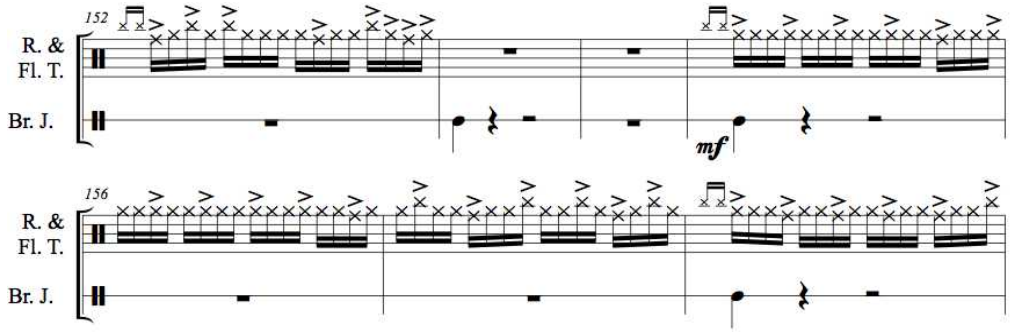


These grace notes are played on different parts of the bridge railings, and I introduced them here so that the palette of sounds begins to be expanded throughout this section. At bar 123 I increased the dynamic to *forte* and also I also began to change the pitch of the accented notes:
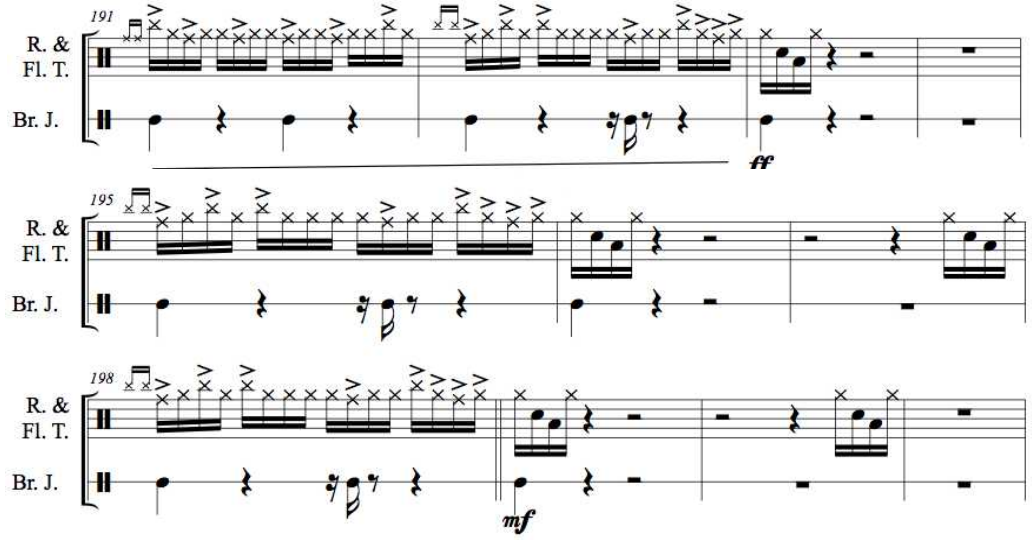


In this way, the different railing pitches which were presented in the previous section as grace notes begin to become part of the central rhythmic pattern. At bar 138 this pattern of accents, grace notes and different railing sounds increases in complexity, continuing the type of "complexity crescendo" which I use in other sections.
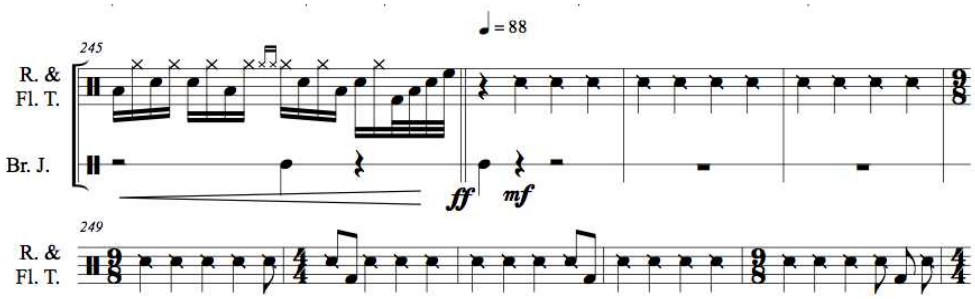
From bar 153 the bridge jump sounds are introduced, at first interrupting the patterns and then becoming integrated:



This process continues progressively until bar 192. At bar 193 the A theme is reintroduced, at first fragmented in alternation with the B section and then fully stated at bar 199:
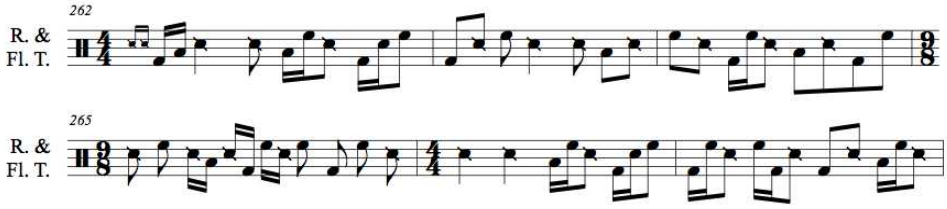


This is a shortened and modified version of the opening A section. From bar 246 a new C section is stated for the first time. This is a theme based primarily on the floor toms and features rim shot sounds (shown by struck through note-heads) as well as the full tom sound:
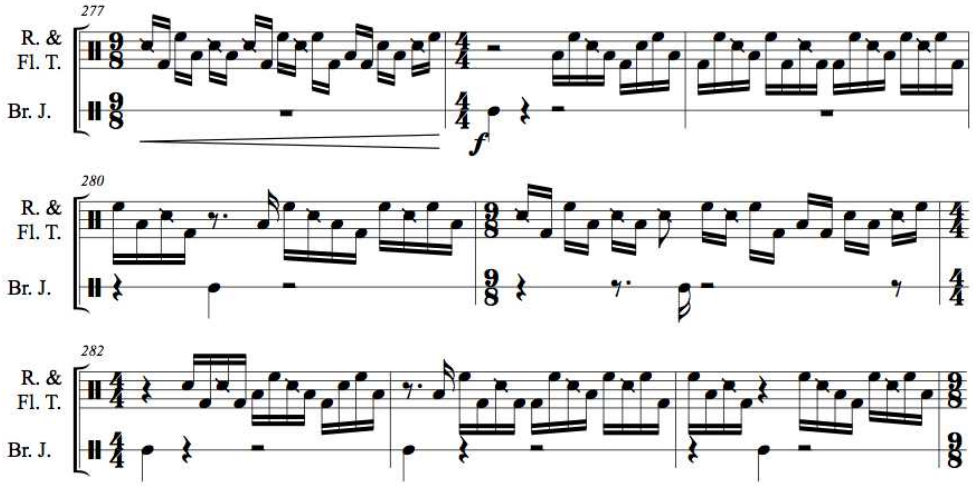


At bar 246 this theme begins extremely, almost comically simply. It consists of four bars of four crotchet rim shots per bar with the exception of the fourth bar in which an additional quaver is added to the bar (a 9/8 bar). From bar 250 additional tom notes are introduced to first augment and then disrupt the simple crotchet pattern.

From bar 262 grace notes and semiquavers begin to be introduced:



The complexity increases in a similar way to previous sections of the piece until the patterns are interrupted by a bridge jump sound at bar 278. This sound is then progressively integrated into the prevailing patterns:



From bar 294 the B section pattern is reintroduced in a fragmented way, alternating with the C section patterns. This process continues in an ever more complex alternation until bar 314. Bar 315 to the end of the piece presents a concluding statement of the A section.

The structure of the piece is partly related to the structure of *Bells*. As in that piece, I presented separate themes and sounds which were slowly brought closer together through alternation and

incorporation. For example, the bridge jump sound is at first presented as a sound which abruptly ends patterns, but throughout the piece it is integrated into the sound world of the other themes. The rondo-like structure of the piece is also similar to *Bells*, this provides recognisable elements which reappear throughout the piece and can give a sense of conclusion. I feel that this is especially important in a piece which uses un-pitched percussion instruments since there is no sense of tonality or key to provide resolution. In contrast to *Beats* and *Bells*, only one space is explored in this piece. The percussionist remains in one place throughout the performance and the bridge surface is the only performance space. However, I will argue that in a similar way to the other two pieces, the audience is included within the instrumental space of the pieces. The bridge resonated physically with the playing of the piece and this included the parts of the bridge which the audience were standing on[40]. In *Beats* the whole quadrangle was made to resonate with the sounds of the percussion instruments, and in *Bells* the space between the tower and the garden was brought to life.

As in *Beats,* this piece is also related to *Responds A* and *Reponds B* by Xenakis. The virtuosity of the fast percussion playing was influenced by my knowledge of Alex Petcu's solo percussion repertoire. In addition, Daniel Ott's music for the site-specific performance *MittenDrin* in Eisenach in 2010 was an important influence on my approach to this piece. In *MittenDrin,* groups of percussionists played semi-improvised sequences directly on various bridges in Eisenach while brass players traveled beneath the bridges on boats and canoes.

[40] In the video of the performance it is possible to hear audience members gasp the first time that the bridge jump sound is played, this is presumably because they can feel the bridge moving under their feet.

Integrating site-specific performance with instrumental composition

The three pieces presented in this chapter are grouped together because of their use of live instruments in site-specific performance contexts. By presenting instrumental music in a relationship with specific locations, these pieces re-define an audience's perception of these spaces. *Harp* re-imagined a bridge as a musical instrument in a creative way. *Beats, Bells and Bridges* used musical composition and sound to explore an audience's experience of three performance locations. In both pieces, spatial relationships were re-interpreted through the process of musical composition. Music and sound were key factors in these relationships. Yi-Fu Tuan places sound's interaction with space in the context of other experienced senses. Sound, he writes, 'can convey a strong sense of size (volume) and of distance' (Tuan 1977, 14)[41]. Tuan refers to the motion of music as a 'spatial illusion' due to the fact that 'movement logically involves space' and 'music is often said to have form' (Tuan 1977, 15). The musicologist Nicholas Cook also refers to 'the neglected auditory dimensions of space' as key to understanding the experience and meaning of music (Cook 2013, 225). Like Tuan, Cook writes that it is possible to gauge the size of physical spaces from 'hearing them as well as from seeing them' (Cook 2013, 225).

The pieces presented in this chapter feature direct examples of music interacting with urban space, in particular with architectural and engineering objects. Nicholas Cook gives specific examples in musical history of when space and music have intersected, stating that 'Venetian antiphonal music wasn't simply composed for the interior spaces of churches such as Santa Maria della Salute, but actually composed those spaces' (Cook 2013, 226)[42]. As well as architectural space, Cook refers to the concept of space and movement within music itself when he states that 'music is itself always already spatial' (Cook 2013, 226). Referring to the internal spatial characteristics of music, Cook

[41] Tuan gives the example of an empty cathedral where 'the sound of footsteps tapping sharply on the stone floor creates an impression of cavernous vastness' (Tuan 1977, 15). Tuan also describes the spatial qualities of sounds themselves, for example 'voluminous' low sounds such as thunder and 'thin and penetrating' high pitches such as the squeaking of chalk on slate (Tuan 1977, 15).

[42] The Venetians and others experimented with the spatialisation of music in space, but sound installation artists have gone further in this process. This began in the 1950s with electronic spatial music projects concerned with sonic geometries within three-dimensional space and 'routing sound objects along Cartesian grids at different speeds and angles, positioning masses and planes of sound within Euclidean space' (Ouzounian 2013, 89). This practice has expanded and developed since that time 'to what has become a critical sonic-spatial practice: one that is concerned not only with the 'composition' of acoustic space, but with the confluence of acoustic, political, social and public spaces.' (Ouzounian 2013, 89). As described by Cook and Ouzounian, the performance of music and sound has been part of the production of space for centuries. Music's close association with architecture produces a symbiotic relationship between the two forms.

states that 'inherently musical spaces are constructed through the embedded metaphor of musical motion' (Cook 2013, 226). This relates to 'the idea of music being inherently a compound of time and space, which is after all what motion means' (Cook 2013, 226). One aspect of musical space is created by harmonic and tonal movement[43]. A sense of space and geography is created by 'a topological distinction between the 'home' and the 'foreign', literally in terms of tonic and non-tonic keys' (Cook 2013, 227). Cook is describing an abstract musical space which is created through composition and performance, but these features can also be mapped onto real physical space. Much of my compositional technique is reliant on the tonal relationships which Cook refers to, and metaphors of musical space and movement are big parts of my musical imagination. In earlier chapters I have discussed how journeys and pathways relate to the ways in which I have structured my site-specific sound pieces. These forms appeal to me naturally because they are inherently musical narrative structures. A piece of music begins at a certain point, develops and then concludes. This is also a type of musical space which is created every time a piece of music is listened to.

The composition of my site-specific instrumental pieces creates new relationships between musical and physical space. The spacing of disparate musical elements in space and the ways in which these are combined through composition creates new relationships. One of these combinations is the use of structural and tonal movement in combination with spatialisation. For example, the structure of *Bells* aims to unify two separate spaces through tonality and thematic development. The piece first presents material for the church tower and ground-level percussionist as separate elements which are slowly brought closer together to create a satisfying conclusion. This “bringing together” is achieved in musical space, but the intended effect is that the two separate physical spaces are also linked. In *Bridges*, the different sounds produced by drums and various parts of the bridge are also presented separately and then integrated. This is intended to re-interpret the bridge space as a musical instrument. *Harp* also presented separate performance elements at first individually and then finally in combination in the final sections of the piece. Although linked through the use of a common four note theme, these elements were separated musically, rhythmically and spatially. The recorded bridge sounds, the brass fanfare, the drumming, and the choral section were all presented separately and then brought together at the end of the piece. These elements were also physically located on different parts of the bridge itself. In addition, the spoken narrative element of the performance was linked to this idea of re-activation through harmonious resolution.

[43] Cook refers to tonality as 'a particular temporal model that is generally referred to as teleological, involving the narrative construction of subjectivity epitomised by Beethoven's *'Eroica'* ' (Cook 2013, 227, emphasis in original). Although not unique to this symphony, the reference to this piece stems from its 'ability to enlist our identification, to make us experience its surging course as if it were our own' (Burnham 1995, 24).

As demonstrated above, the use of musical structure and thematic development in the context of site-specific performance are key features of my practice as a composer. This technique enables me to create new relationships between music, sound and space.

A key part of this thesis is my argument that a space becomes realized as a place through the process of playing that space like a musical instrument. This is a theme which emerges throughout the progression of my portfolio pieces. It was not completely apparent to me in the earlier stages of my site-specific performance practice that this was a concern for me. From *The Shakey Bridge Listening Project* onwards, the performance site became the source of sound material in many of my pieces. This development became crucial in my site-specific practice. In my performances, sound and site are inextricably bound together. By creating contexts for otherwise hidden or inaudible sound to emerge, places and things are interpreted as instruments and sources of music.

As described in my introduction, the twentieth century saw an expansion of what could be used as a musical instrument. In the highly influential work of John Cage, everyday household objects such as domestic appliances and furniture were treated as musical instruments. My own work can be seen in the context of these developments in twentieth century experimental music. These developments allowed for any sound and any object to be considered musical. My work merges instrumental score-based composition with site-specific performance. Places and objects are transformed into instruments through a variety of creative methods and presentation modes. Due to the demands of specific sites these include modes such as acoustic instrumental music, dramatic spectacle and electro-acoustic composition. As I have described, structural features common to many of my pieces create a feeling of unity and cohesion between disparate spatial and sonic elements.

A key concept which I aim to prove is that my compositions present spaces and objects as musical instruments. As argued by Henry M. Johnson 'a musical instrument is a sound-producing object of material culture used to make humanly organized sound during a context which is aesthetically removed from everyday behaviour' (Johnson 1995, 260). Although Johnson's definition was written in the context of ethnomusicological research into ritualised performance practices, I believe that it has useful consequences for my own work. Fiona Wilkie argues that performances situated in sites associated with movement 'work against the logic of uninterrupted flow at sites of transport, encouraging spectators to register their passage as a complex activity' (Wilkie 2015, 17). Performances create meaning by working contrary to the conventional functions of transit spaces. In a similar way, Johnson demonstrates that objects are transformed into instruments by changing the

context in which their sound is experienced. My pieces often relate to both Wilkie's and Johnson's positions. *Bridges* and *Harp* instrumentalized the spaces in which they were performed and interrupted the flow of traffic in a transit space. In the case of *Harp* this interruption was a temporary road closure. In *Bridges* the Mardyke bridge was still open to limited pedestrian traffic. In the video recording of this performance, pedestrians can be seen engaging with the performance while they cross the bridge.

The re-imagining of places and large-scale objects as instruments allows for dramatic shifts in scale. Instruments cease to be objects held by humans but become spaces which envelop and surround audiences. One method is the exploitation of acoustically resonant spaces for site-specific performance. For example, in the *Beats* section of *Beats, Bells and Bridges*, the UCC quadrangle became the interior of a giant instrument which resonated with the sounds of rhythmic percussion music. The *Bridges* section of the work was experienced in a tactile way since the audience was standing on and within the structure of the instrument. The percussionist jumped on the bridge to create a bass sound which was felt through the feet of the audience who were also standing on the bridge. As well as this, sections of the piece were played on the railing of the bridge. This sound could be heard by the audience across the length of the bridge. In this way, the bridge became a giant instrument which enveloped the audience, allowing them to become immersed in the music. In the *Bells* section of the piece, the space between the Shandon Craft Centre and the Shandon Bells became a musically resonant space. Since this interaction was audible across the city, the urban space itself was transformed into an instrumentalized and acoustically resonant space. *Harp* transformed the Samuel Beckett bridge into an instrument in an imaginative and performative way. Unlike *Beats, Bells and Bridges*, the bridge was not physically struck during the performance. However, through the use of pre-recorded sound in combination with live instrumental sound the performance transformed the river Liffey into a sounding board for the instrumentalized bridge. The bridge functioned as both a stage and an instrument. The powerful amplification of the natural sound of the bridge extended the reach of the performance, increasing the reach of the music to several kilometres. The bridge space became activated through live percussion, vocal and brass instruments within the larger space of the bridge as an instrument.

This process of converting large-scale outdoor spaces into instruments is markedly different to the concert performance style of *Underground Gothic for Viola*. In this piece, a performance which was originally located within a moving train was brought to an indoor, fixed setting. The already instrumentalized space of the train was re-interpreted through recorded sound and a classical instrument. The ghost of the space remained in the form of the sound recorded from the train

through contact microphones. However, instead of applying concert forms to outdoor locations and objects as in *Harp* and *Beats, Bells and Bridges*, a site-specific performance was imposed on a concert form. In addition, the piece was performed in a concert setting in a traditional concert hall. Although on one level *Underground Gothic for Viola* does not appear to be related in a direct way to the other two strictly site-specific pieces in this chapter, I believe that it provides a useful contrast which allows the nature of site-specific performance to be made clear. Although the piece is not strictly site-specific, by engaging with the physical properties of space through sound it is closely related to the site-specific performance practices I have developed throughout this portfolio of pieces.

The pieces in this chapter are related to a wide range of other works in a variety of musical styles. *Harp*'s celebratory public style is reminiscent of composers such as John Williams and Dave Pierce, but its site-specific nature is similar to the work of Daniel Ott. *Underground Gothic for Viola* has similarities to the interplay of recorded and live sound of Reich's *Different Trains* and Kiriakides's *Toponymy.* As well as this, the virtuosic solo writing places it in the context of Berio's *Viola Sequenza*. The solo percussion writing in *Beats, Bells and Bridges* was influenced directly by Alex Petcu's own virtuoso repertoire. I drew on my experience of work by Xenakis to create an impressive performance work. As well as this, minimalist influences are discernible in the solo marimba writing of *Bells*.

In the context of my own development as a composer, the three pieces presented in this chapter represent a synthesis of the instrumental and vocal music I composed up until 2013 and the site-specific performance practices I developed from 2013 until 2016. As I have demonstrated, I employ clear structures to present disparate material and spaces in the context of composed concert music. These structures function both musically and spatially to define relationships between performances and spaces. Due to the prominent live instrumental elements in these pieces, the interpretation of places as instruments is especially apparent in this chapter. In my conclusion I will argue that this is potentially a feature common to every piece in my portfolio.

CHAPTER 5
CONCLUSION

In the introduction and the first three chapters of this thesis, I described my creative process and created a theoretical framework in order to analyse my portfolio pieces. In this final chapter, I bring together the arguments raised, and draw conclusions relating to my creative and written work. I begin by discussing my approaches and methodologies in regard to my practice-based research, before going on to write discursively about the theoretical concepts introduced earlier in this thesis. In addition, I discuss the coherence, success and sustainability of my portfolio pieces.

Practice-based Research

This practice-based Ph.D. consists of a portfolio of pieces and a written document. The written document, or thesis, is in a dialogical relationship with my practice. I also consider the creative practice to be a form of research in itself, in that it explores and creates new knowledge and new techniques. Throughout this written document I have demonstrated how my work has developed over the course of the creation of the eight pieces in my portfolio. In this thesis, I both describe the creative process and analyse that process and the resulting outputs. The portfolio comprises work created over a period of three and a half years, from January 2013 to June 2016. As I created each successive piece, my conception of site-specific performance changed and evolved. Each piece presented new challenges and demands, and I adapted my practice to meet the needs of each situation, developing research strategies, new methods, and new approaches.

My portfolio represents my research in the form of scores and recordings, and my thesis represents this research in the form of a written text. I believe, however, that these different media represent different dimensions of the same research. As discussed in Chapter 1, the debate between Ian Pace and John Croft exemplifies the issues at stake. Pace argues for the acknowledgement of composition and performance as research in his article *Composition and performance can be, and often have been, research* (Pace 2015). This ongoing discussion centres around the place of composition and performance research in the academic life of English speaking teaching institutions. The application of research questions to works of musical composition allow practices to be evaluated and discussed in a way which qualifies the work as research. One of Pace's examples is to frame an analysis of Brian Ferneyhough's *Sonatas for String Quartet* in terms of the research question 'is it possible to sustain a large-scale composition with extensive use of a post-Webernian vocabulary, and if so, how?' (Pace 2015, 65). In a similar way, my thesis applies specific research questions to my own practice and seeks to find answers to them. Key research questions in my own work are concerned with the ways in which is it is possible to derive sound from specific places in order to create music for site-specific performances, and the ways in which places and

objects can be treated as instruments and compositional elements.

Throughout this written thesis I have used diary entries and recollections to narrate the processes I undertook while making my portfolio pieces. Through a combination of verbatim quotations and present tense descriptions I have sought to convey as much useful detail as possible. In the case of pieces which are predominantly score-based I have shifted the description of my creative process to the past tense in order to fit with the way in which I describe the unfolding nature of the score. These descriptions have included in-depth descriptions of decision-making processes on many different levels ranging, for example, from the choice of individual performers and instrumentation to close analysis of decisions made throughout the compositional process.

This style of dense sequential description was inspired by David Toop's highly personal sound observations in works such *Sinister Resonance* (2010) and Justin Bennett's writing in *Site of Sound #2* (2011). Toop and Bennett's texts describe the individual experience of the soundscapes and acoustics of specific places. I have based my writing style on these texts since they demonstrated a way for me to cross the divide between my personal experience of the sound of specific places and more abstract theoretical approaches to listening. The type of writing I have undertaken in describing my experience of the sound of specific places and my approaches to the many different decisions I took throughout the compositional process have been useful in allowing me to analyse the ways in which I create site-specific performances. Deconstructing my creative process - listening to and looking at its individual components in detail - has deepened my understanding of that process.

Throughout every step of the creative processes in new research questions and fields of enquiry are raised and exposed. Some practical questions might be: how do I create a musical performance on a bridge? How do I create a performance on a moving train? These broader questions demand answers and also create more questions, all of which need solutions so that a practical outcome can be achieved. In addition to these practical questions, theoretical fields of enquiry are also invoked. For example, if I am making a piece of musical performance for a bridge or for a moving train, how does this alter the perception of this specific performance space? How does the use of headphones in an urban space alter the ways in which that space is defined? I have sought answers to these practical and theoretical questions throughout my thesis, and often the practical and theoretical questions are closely interlinked. My portfolio of works ultimately provides answers to the questions that inspired each of the pieces within it. The thesis clarifies and describes how I reached those conclusions. There is very rarely just one definitive answer to any given research question.

This is what creates the continuous series of decisions present on many levels throughout the creative process. There is a need to confront and answer these decisions in order to achieve practical and tangible artworks which are fixed and finished.

Approaches and Methodologies

Although my pieces are all very different, in Chapters 2, 3 and 4 I have demonstrated three broad methodological approaches to the creation of site-specific performances. *The Shakey Bridge Performance Experiment* and *BridgeSong* used pre-recorded tracks to control outdoor choral singing on bridges. *The Shakey Bridge Listening Project*, *Underground Gothic*, and *Hidden Currents* presented pre-recorded audio experiences for moving audience member using headphones. *Harp | A River Cantata*, *Underground Gothic for Viola* and *Beats, Bells and Bridges* used predominantly live musical performance in site-specific contexts. The broad definitions of site-specific performance that I outlined in my introduction helped me to shape my understanding of what I seek to achieve in my work. In my early pieces *(The Shakey Bridge Performance Experiment* and *BridgeSong*), I was interested in using spaces such as bridges to stage public urban interventions. These pieces did not derive musical or sound material from the sites themselves, but they nevertheless altered the experience of transit spaces through performance.

In later pieces, my use of contact microphone technology allowed me to derive more sound from the physical materials of performance spaces. This important development facilitated a deeper engagement with performance locations, and the resultant pieces were more thoroughly specific to their sites. As well as this, the close attention to sound and listening that this process demanded led me to create a more introspective and reflective style of experience. This type of experience can be seen in *The Shakey Bridge Listening Project* and *Hidden Currents*. Influenced by fields of research such as Deep Listening, Sound Studies and Soundscape, these pieces paid close attention to the act of listening itself. Both of these pieces presented sound information in a direct relationship to landscape and geography through the use of walking. In this way, the pieces are closely related to Soundwalk practices. As I have shown, there are many types of Soundwalk, and my pieces do not fit into any one specific category. The use of contact microphones, along with the narration of route guidance instructions presented via headphones to the audience are key aspects of *The Shakey Bridge Listening Project* and *Hidden Currents. Underground Gothic* used a soundscape comprised of sounds recorded from trains using contact microphones, and live drumming also featured. Recorded sound was presented through the medium of radio headphones as well as the internal train public announcement system.

The final part of my portfolio returned to live performance as a way of exploring the interaction of sound and space. *Harp | A River Cantata* used a combination of live music and pre-recorded sound. The musical and sound materials of the piece were directly derived from the performance location. *Beats, Bells and Bridges* engaged directly with three unique spaces but the musical materials were not derived from any part of the performance site. As I demonstrated in Chapter 4, these pieces used musical structure and thematic development to give unity to disparate sites and performance locations. Somewhat of an anomaly, *Underground Gothic for Viola* was an exploration of the effect of shifting a site-specific piece into a more generic performance location. In so doing, the remnants of a specific site were re-enacted in a new location, giving a new sense of place in a conventionally neutral performance space.

The distinct methodologies presented above were developed alongside each other, and I continue to create site-specific compositions that use various combinations of live and pre-recorded materials in my practice. The methodologies are contrasting, but they nevertheless closely inform and influence each other. For example, *Underground Gothic* used a combination of my headphone practice and live music, whereas *Harp* used live music with influences from my contact microphone practice.

As I have described in each chapter of this thesis, my practice developed throughout the development of each piece. I developed new methodologies based on what had been successful in previous pieces. For example, *BridgeSong* was highly influenced by *The Shakey Bridge Performance Experiment,* and *Hidden Currents* was directly inspired by the experience of creating *The Shakey Bridge Listening Project.* I believe that this interrelationship between methodologies represents a flexible and adaptable approach to creating site-specific performances. I consider the range of form, scale and style represented by my portfolio to be a strength. I will also demonstrate the coherence of my portfolio later in this conclusion.

Why site-specific Performance?

Why have I created, and why do I continue to create, site-specific performances? I have been engaged in this field of research and composition since at least 2008, and I will continue to plan and execute performances of this kind into the foreseeable future[44]. My earliest motivations for

[44] My 2009 opera *Abenteuer Im Einrichtungshaus* was an opera which was originally presented in a former university canteen hall in Berlin as if it was located in a furniture store. The piece was later performed in an actual furniture store (IKEA Wembley), and again in Dublin in the CHQ building in 2012 as *Flatpack*. In addition to the portfolio pieces presented here, in 2014 I also created music for *Wake,* a site-specific performance in a residential home in Limerick, and

performing music in unusual locations stemmed from a desire to bring contemporary music to a wider audience by taking it out of the cloistered space of the concert hall and opera house. This is related to Ngũgĩ wa Thiong'o belief that 'the struggle for performance space is integral to the struggle for democratic space and social justice' (Thiong'o 1997, 28). Although I have been privileged enough never to have experienced direct oppression, I continue to believe that the democratisation of contemporary music might provide positive impacts on society.

As a young composer, this belief coincided with the fact that it was more established older composers who most frequently had their work performed in conventional spaces by established performing groups. Creating site-specific performance represented a way for me to create new performance spaces and new opportunities for myself. By creating new spaces for performance, it became possible to create my own language and context for these performances. The freedom to perform in public spaces is liberating. By taking music outside into the wider world, the art-form's potential to engage with communities, cities, landscape and spaces in direct, un-mediated ways, expands.

As a composer who had become disillusioned with the competitive orthodoxies of contemporary music, site-specific composition represented a chance to create something truly new and relevant. In literally opening up my work to the fresh air I have engaged with architecture, rivers, engineering and design. I believe that my work has reached a far wider audience than it would have done had it remained in indoor, conventional performance spaces. *Harp*, for example, reached an estimated 5000 people in one performance, and the event arguably brought a city together through contemporary music.

Although my pieces are often still influenced by the same musical structures and themes as conventional concert music, new contexts and scenarios allow new relationships and connections to be created. For example, *Bells* could equally be performed indoors with a set of tubular bells rather than the Shandon Church bells. However, the piece was created to engage specifically with that

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Meeting House, a site-specific performance in a former Quaker Meeting House in Clara, County Offaly. In 2017 I created *Front Of House*, a new site-specific opera for the foyer of Cork Opera House. The success of this piece led on to the creation of two further site-specific operas for Cork Opera House. *Backstage* (2018) took place in the dressing rooms and wing space of the opera house. *The Stalls* (2019) was performed in the auditorium with the audience seated on the stage of the opera house and the performers in the stalls. In July 2020 I was commissioned by Dublin Culture Night to create a new site-specific audio walk along the River Liffey narrated by Olwen Fouéré, a direct result of *Hidden Currents* in 2015. For further details of these pieces see *Additional Site-Specific Work* section of my documentation website.

building and that environment. It was designed to be heard in that space and to interact with that place at a specific time. *Underground Gothic for Viola* is the only piece in the portfolio that was created for a concert performance location. I have described this process in Chapter 4.

Developing a theoretical framework

At the start of this thesis, I set out to create a theoretical framework in order to better analyse and understand the work which I have created, and here, in this conclusion, I evaluate this approach. Conventional musical analysis allowed me to illuminate and understand specific structural and thematic elements of my music. As I have demonstrated, these structural tools are also useful to some extent when analysing the way I deal with spatial composition. However, in order to fully understand my own work, it has been necessary to investigate many other areas of research, as well as attempting a synthesis of different areas.

Concerning the site-specific nature of my work, I have found it most useful to focus on scholarship related to the relationships created between performance and location. Nick Kaye's assertion that site-specific performances 'articulate exchanges between the work of art and places in which its meanings are defined' (Kaye 2000, 1) applies directly to my own work. Kaye's belief that 'site-specific art frequently works to *trouble* the oppositions between the site and the work' (Kaye 2000, 11, emphasis in original) also resonates strongly with those of my pieces that are presented in places of movement. For example, my bridge pieces deal with the oppositions created when performances create points of focus in transit spaces. Wilkie proposes that such pieces 'work against the logic of uninterrupted flow at sites of transport, encouraging spectators to register their passage as a complex activity' (2015, 17). These exchanges between works of art and places create site-specific performances that are, in the words of Pearson and Shanks, 'inseparable from their sites, the only contexts within which they are intelligible'. As I stated in my introduction, much of my portfolio work features specific sites as the subjects of performances. In many of my pieces, recorded sound derived from the material of a site engages directly with the specific performance locations. These site-specific pieces take their performance location as key elements of their subject. These theoretical positions have been key to my understanding of my work as I create it, and these concepts continue to shape how I think about the site-specific work that I make. Because I undertook the theoretical research alongside the making of the creative work, the practical and theoretical side of this thesis are closely intertwined. For example, I have described how throughout 2013 and 2014 my site-specific work moved towards a practice that derived more and more of its material from the performance locations themselves. In *The Shakey Bridge Performance*

Experiment and *BridgeSong* I did not derive musical material from the bridges on which the pieces took place. In *The Shakey Bridge Listening Project* and *Harp | A River Cantata*, I used contact microphones to capture sound recordings from bridges, and in the case of *Harp*, I developed an entire musical score from these recordings. This development in my creative practice unfolded at the same time as I was researching texts such as those by Pearson and Shanks referred to above. This theoretical and academic research shaped and guided my understanding of what site-specific performance could be. The idea that a performance might be inseparable from its site, and only intelligible in the context of that site, led me to seek ways of listening deeper into the physical material of bridges and other performance locations.

In some of my site-specific compositions, I also draw on additional subjects and themes. For example, although *Harp* was nominally about a specific bridge, it also contained narrative content relating to Irish mythology. *Underground Gothic* was certainly all about the experience of train travel, but by drawing on contemporary fears of contamination and disease it included multiple themes within the one piece. In all of these cases however, the way in which the site-specific nature of the performance was dealt with became a prime concern. In other words, by treating the spatial characteristics of the performance location as a composed element, the site became as much a subject of the composition as any of the specific musical or narrative themes.

The incorporation of a substantial theoretical dimension in the thesis supported my discussion of the site-specific nature of my portfolio pieces. When I began the PhD research, I lacked sufficient knowledge of theoretical concepts and terminology that could be employed to frame the analysis of my site-specific composition work. The subsequent research into writers and practitioners from a variety of backgrounds and disciplines has supported the analysis of the site-specific work that I have created as part of this PhD.

My interest in exploring concepts of space and place, and especially those practices that transform spaces into places, drew me to the writings of Michel de Certeau, Yi-Fu Tuan and other spatial theorists. As Yi-Fu Tuan states, 'space becomes place as we get to know it better and endow it with value' (Tuan 1977, 6). Similarly, de Certeau asserts that it is the pedestrians of a city that define relationships with places that transform them into spaces: '*Space is a practiced place*. Thus the street geometrically defined by urban planning is transformed into a space by walkers' (de Certeau 1984, 117, emphasis in original). Movement and walking contributes to the definition of spaces.

Since many of my pieces feature movement and walking as part of the central experience of the

audience, it follows that these theories are important to the understanding of my work. If one of the chief concerns of site-specific performance is to define and give meaning to spaces, then a definition of space based on walking is highly applicable to pieces that are based on the experience of pedestrians. As Fiona Wilkie states, 'performance as a set of mostly live practices has a vested interest in meaningful encounters' (Wilkie 2015, 17), and de Certeau provides an explanation of a theoretical network of ideas which allows these practices to become meaningful in site-specific, movement based circumstances.

As well as walking, transport and transit play important parts in the understanding of space and place within my creative practice. Augé's description of transit space as 'the archetype of *non-place*' (Augé 1995, 86, emphasis in original) offers an important framework in which to analyse my work. “Non-places” are spaces such as bridges, roads and transport hubs. These locations are designed to be passed through rather than experienced as places. The site-specific performances I create for these spaces re-contextualise an audience's experience of non-places. In some instances, this is achieved by working counter to the intended movement of a non-place. This is apparent in *Harp* and *BridgeSong*. In these pieces, transitory movement across the bridges is arrested in order to draw attention to the instrumental qualities of its structure. In both of these cases, the performances physically interrupted the flow of traffic and/or pedestrians across the bridge. *The Shakey Bridge Listening Project* and *Hidden Currents* also achieved subtle interactions with their settings. In both of these pieces, listeners were invited to stand still at certain points on the bridge and along the flow of the river. These periods of stasis did not substantially impede or restrict movement across the bridge or along the river. However, for the listener, the spaces, which are conventionally associated with transit and movement, became stilled through focussed listening, creating new relationships between non-places and audiences.

Can a non-place still be referred to as such once it has been the subject of a site-specific performance? Once the event is finished and the piece is no longer taking place, movement across, along or through the space returns to normal. The alteration of the spatial relationships of these locations may persist in the memories of those who witnessed, experienced or performed these pieces. However, no lasting change to the space has been effected. This shows the fluid and changeable nature of space and how easily our experience of it can be shifted and bent by relatively subtle means. My pieces vary considerably in the extent to which they interrupt and alter the physical attributes of a space. During the period of performance, an audience's perception of non-places can be said to have been manipulated. The ephemeral nature of musical performance and sound means that my pieces and their spatial effects exist only temporarily in the locations in which

they are performed.

Places and Objects as Instruments

Throughout this thesis, I have referred to the process of treating spaces and objects as instruments. In the process of reflecting on my own work, I have come to recognise that my approaches to creating site-specific performances are rooted in my background as a composer. In the course of my education I trained extensively as a composer of instrumental and vocal music. I learned how to create scores that give precise instructions to performers to create sounds in specific combinations and sequences. This training continues to shape how I think about and create music.

I believe that my approach to creating site-specific performance is closely related to this practice. The highly stylised and structured response to the challenge of creating site-specific performances is derived from the way I have learned to organise sound and music. In *Harp* and *Beats, Bells and Bridges*, I have demonstrated how I use musical structures to organise not only the musical materials but also spatial content. Musical themes and physical spaces are presented as separate and discreet elements before being combined and unified throughout the duration of a piece. *Hidden Currents* also uses musical form to structure the experience of the piece. Taking the form of a walking tour, the audience is led on a narrated journey along the path of a river. The overall shape of the piece is a musical one, with crescendos and climaxes coinciding with specific locations and points along the journey. The piece even goes so far as to directly compare a stretch of the river to a musical score. In this section, the sound of the water slowly develops into more recognisably musical sounds - the course of the river transformed into music. The methodology is different to that in *Harp* or *Bridges,* but the intention is the same: to create music from non-musical objects and places, to draw attention to places, and to alert listeners to interesting aspects of what are at first sight, non-places.

This process of transforming spaces into instruments is part of the way in which I create place from space. Andy Keep, quoting Paul Théberge, states that an instrument 'is only made “complete” through its use' (Keep 2009 116, quoting Théberge 1997, 9). I extend this to mean that instrumentalized non-musical objects become more complete through site-specific performance. For example, a bridge or a river becomes more complete when its musical potential is realised through performance; space is transformed into place through the process of playing that space like a musical instrument.

Composed Space

Throughout my portfolio, my background as a composer can be seen as influencing my approaches to non-musical content such as space and narrative. This results in a broader compositional practice that presents diverse elements in a structured and sequential way. When this approach is applied to instrument-like objects such as bridges, my work can be described as 'playing the space', or playing *with* the space in which it is performed. In pieces such as *Harp* and *Bridges*, where I derive sounds from striking the structure like a percussion instrument, this playing with the space is especially clear. Other pieces, such as *Beats* and *Hidden Currents,* do not invoke sound directly from the inanimate objects upon which they were based, but they do activate space by using methods similar to the ways in which musical play and performance activates musical instruments. *Beats* uses the resonant sound of an architectural space to amplify and define rhythmic patterns. The space shapes and creates the sound of the piece, acting in a manner similar to the resonant interior of a musical instrument. In *Hidden Currents*, the sound of the river can be heard at a distance, speaking to the audience in a new way. The piece presents this sound in a composed, musical way and even derives recognisably musical material from it. The piece uses sound to activate and animate a non-musical object in a way that is related to the methods used in *Harp | A River Cantata* and *Bridges.*

The concept of composed space is central to my site-specific performance practice. As I have demonstrated, my background as a composer of instrumental and choral music has had a direct influence on the approaches I use when space is a feature of my pieces. In some of these pieces, objects are physically played in a way that makes their comparison to musical instruments more apparent. In other pieces, space is treated as a composed element which is employed in relationship to musical sound and structure.

Urban Space

All of my pieces demonstrate an ongoing interest in the urban environment and in the experience of cities. I have lived in cities all of my life, and it is perhaps natural that when seeking to engage with the world outside of enclosed performance spaces I should create work that seeks to explore and enhance urban spaces. Much of my work explores the ways in which natural and urban environments interact and intersect. For example, *The Shakey Bridge Listening Project* took place on an urban bridge, located over a river and surrounded by trees. A bridge represents a quintessentially man-made object built to overcome nature. The piece used sound from this artificial object to frame a centre-piece of stillness and reflection that encourages the appreciation of natural

sound. In a similar way, *Hidden Currents* took place in the heart of a busy urban space, but the piece was focussed on the River Lee, a geographical feature that arguably defines the city and is the reason for its existence. The sounds heard in the piece began as unfiltered and unaltered field recordings of the flowing waters of the river, bringing an iconic sound from the natural world that is typically inaudible over the sound of the city into audible presence. In addition, the piece demonstrated how much the shape of the city and its streets has been influenced by the passage and flow of the river.

Headphones feature prominently in the pieces I have created in and with urban spaces. As I have described in earlier chapters, headphone use in performance pieces has many parallels with personal stereo use in cities. Through the use of headphones in urban environments, Cook argues, 'private space is “nested” within public space' resulting in a 'phenomenological space that is dissociated from physical space' (2013, 230). Jean-Paul Thibaud describes personal stereos as 'an urban tactic that consists of decomposing the territorial structure of the city and recomposing it through spatio-phonic behaviours' (Thibaud 2003, 329). The distancing effect of headphones is also described by Fran Tonkiss who refers to the 'logic of separation and of indifference' (2003, 304). Privatised sound, as featured in many of my portfolio pieces, isolates and distances headphone users from the experience of urban space.

Many of my pieces tap into this spatial process. If, as Doreen Massey suggests, place is defined as 'an ever-shifting constellation of trajectories' (2005, 151), then these individual trajectories are fundamentally influenced by the use of personal stereos. In Massey's opinion, place is defined by these trajectories rather than comprising of them. The space itself may be fixed but the trajectories within it are constantly shifting. Massey recognises space as 'the product of interrelations; as constituted through interactions' (2005, 9). The creation of smaller, enclosed auditory bubbles within urban spaces limits and redefines these interactions. *BridgeSong, The Shakey Bridge Listening Project, Hidden Currents* and *Underground Gothic* all offer individualised experience of urban space. The headphones that feature in these pieces create privatised soundscapes for audience members and, in so doing, reconstitute urban space in new ways.

This individualisation of spatial experience is contrasted with the communal experience shaped and represented in some of my other works. For example, in *Harp* and *Beats, Bells and Bridges*, public spectacles were created in prominent and highly visible places. People gathered together to watch and listen to these events. *Harp* was the biggest of these events, with an estimated 5000 people lining the banks of the River Liffey on the night of the event. The narrative of this event also

resonated with concepts of community and togetherness[45]. The audience experience of communal togetherness in my live pieces and the individualised experience in my headphone pieces is an important marker of two distinctive approaches I have taken to the creation of site-specific performances in urban spaces.

Despite this distinctiveness between approaches there are many points of overlap in the methodologies associated with the creation of the pieces discussed above. In the piece *Underground Gothic*, a more thorough synthesis of these two compositional approaches is achieved. Silent Disco headphones, which receive signals from a single radio transmitter, were used in this piece. Each member of the audience, while sitting in a moving train carriage, wore headphones for the first section of the performance. In contrast to the headphone use in my earlier pieces, where each individual had independent control of their own audio playback, the individual audience members in *Underground Gothic* heard the same sound simultaneously. This resulted in a shared, communal experience for the audience rather than the privatised sound bubble that headphones conventionally create. This was achieved within a moving railway carriage, a space in which headphones would normally be used to isolate and remove individuals from communal experience. In this way, the piece played with expectations of public and private spatial experiences in transit locations.

The use of headphones in site-specific performances is an essential part of my practice. As I have shown in this thesis, I began by using headphones as a means of communicating the materials of my compositions to performers and singers without the need for musical scores. This evolved into giving headphones to audience members as I began to realise the potential of creating aestheticised and theatricalised experiences in urban spaces through portable and readily-available technology. Since, in many of my pieces, walking and movement constitute an essential part of the audience's experience, the need for a sound source to travel with the listeners has often been critical. As Shuhei Hosokawa writes, the use of personal stereos in the negotiation of urban space enables a move towards 'an autonomous pluralistically structured awareness of reality' (Hosokawa 2012, 112).

Due to the countless possibilities offered by their use in urban space, headphones will remain a vital part of my site-specific performance practice. In 2016 I collaborated with historian Maeve Casserly and programmer Mick O'Brien to create a site-specific experience using a location-triggered mobile app. This featured recorded information about Goldenbridge Industrial School taken from the Report of the Commission to Inquire into Child Abuse (2009). This information was played through headphones at certain points on a map and was presented alongside recorded music and sound

[45] The lyrics by Lily Akerman included the lines “WE ARE ONE, ALL AS ONE, WE ARE ALL ONE”

design.

Coherence

In Chapter 1 of this thesis, I set out to examine whether my portfolio of pieces represents a coherent body of work. Throughout this thesis I have grouped my pieces in various ways and shown similarities and differences between individual works. One method of demonstrating coherence is to examine the types of performance locations featured in my pieces. At least five of my pieces were performed on bridges, one follows the course of a river and one took place on a train. Two of my pieces took place in grounded, fixed locations and another was a concert hall version of a piece first performed in a train.

My portfolio has been created to be a coherent body of work. I have defined bridges, rivers and trains as places associated with movement, an association that links all of the portfolio pieces together. Some site-specific pieces created between 2013 and 2016 are not included in my portfolio because they have no link to the principle of places associated with movement[46]. In addition, non-site-specific composition work created in the period of the PhD is not included in the portfolio[47]. Furthermore, I have demonstrated how specific themes have been carried through in the creation of these pieces. For example, in Chapter 2 I demonstrated how I created my own headphone technique, in Chapter 3 I showed how I developed this practice with contact microphone recording, and in Chapter 4 I showed how I linked these site-specific principles to live performance. All of my portfolio pieces demonstrate a clear and direct engagement with site-specific performance. In each case the motivations, contexts and methodologies are different, but the performance media and performance location types are all related.

Development

In this thesis, I have shown how I have developed specific skills and approaches while working on the challenges presented by each piece. For example, the level of sophistication and complexity in my sound-based work developed substantially from *The Shakey Bridge Listening Project* in 2013 to *Hidden Currents* in 2015. My ability to handle live instrumental and choral forces in site-specific pieces also developed substantially: compare for example the relatively simple *BridgeSong* with the

[46] *Wake* (July 2014), *Meeting House* (November 2015)

[47] *Human Child* (June 2013), *Drei Rilke Lieder* (July 2013), *With Raised Arms* (January 2014), *Twelfth Night* (March 2014), *Between Trees and Water* (September 2014), *Slip* (January 2015), *Oedipus* (October 2015)

massed forces of *Harp* or the complex spatial locations of *Beats, Bells and Bridges.* As a composer, it is important for me to be able to recognise an ongoing and continuous development in my work. The development of my compositional technique and diversification of the types of pieces I create in the course of this Ph.D. has resulted in more successful, satisfying and profound compositions.

Throughout this thesis, I have described in detail the many necessary decisions along each step of the creative process. Often, these decisions can be directly traced back to previous pieces I have worked on. For example, I chose to work with pre-recorded tracks to synchronise choral performance in *BridgeSong* because of the experiences I gathered and learned from in *The Shakey Bridge Performance Experiment*. In turn, this piece was influenced by older pieces I had created, and those pieces were influenced by others. As well as input from my own work, I have also been directly influenced by work by other artists, for example the idea to use radio receiver or "Silent Disco" headphones as part of *Underground Gothic*. This was inspired by performance collective 11-18's use of this type of headphone on moving trains.

The ongoing process of developing new methodologies is the result of a need to answer new research questions and to investigate new fields of enquiry. For example, the opportunity to create *Underground Gothic* on a moving train was offered to Maeve Stone and I with very little time before the performance date. Once we had accepted the commission we were compelled to devise methodologies of performing in an unusual and challenging space in a relatively short space of time. The creative process raised new questions and new areas of enquiry that needed to be resolved. The solutions I presented contributed to my development as a composer and creative collaborator. In this way, personal development is closely associated with practice-based research.

Success and Sustainability

The relative merits of the various approaches I have taken can be understood in different ways. My headphone pieces[48] and live, site-specific performance pieces[49] are two very different types of practice. The pre-recorded headphone pieces are far more economical and require far fewer resources for their realisation. Since no live performance is necessary, the pre-recorded headphone pieces can be reproduced countless times without needing a live human performer or performers to create it. The cost of *Hidden Currents* was a fraction of *Harp* for example, and the resulting

[48] *The Shakey Bridge Listening Project*, *Hidden Currents*

[49] *Harp | A River Cantata*, *Beats, Bells and Bridges*

experience was entirely different. On the one hand, *Hidden Currents* was an intimate piece that nevertheless explored a large area of a busy city. *Harp,* on the other hand, was performed on a large scale featuring over 100 performers and witnessed live by nearly 5000 people. The scales and ambitions of both of these pieces are completely different, and the budgets and resources needed to realise them reflect this. *Hidden Currents* was as successful at creating an introspective experience as *Harp* was at creating an extravagant spectacle.

Another measure of these pieces is sustainability. I define the sustainability of a composition as its ability to be performed multiple times over a period of time or to lead to further iterations of similar work. Using these criteria, the headphone pieces are much more sustainable. For example, through the use of a short video it was possible to demonstrate the effectiveness of *The Shakey Bridge Listening Project*, and this led to commissions to create both versions of *Hidden Currents*. The headphone pieces create uniquely intimate experiences for audiences at minimal cost. In addition, the pieces can be easily remounted since they do not require physical alterations to the spaces in which they are performed. *Harp* and *Beats, Bells and Bridges* by contrast require physical interventions, extensive rehearsal time and complex planning. As a result, these pieces receive one-off performances that can not be easily reproduced. Due to their outdoor and public nature, these kinds of pieces receive substantial attention at the time of their performance, but this attention tends not to be sustained for any length of time after the event. In addition, the probability of reviving these pieces is negligible. As well as the high costs associated with their production, the pieces are created for one specific site and can not be toured effectively.

Documentation

The documentation of my work is a particularly important concern in my practice, and the question of how to present performances in a format which can be easily contained within a physical, reproducible document has been a constant throughout my PhD research. This question is, of course, not unique to site-specific performance, but site-specific work does present particular documentation challenges. Site-specific work can only exist in its intended form if it is performed in a relationship to the place it is intended for. Site-specific performances, as Pearson and Shanks point out, are 'inseparable from their sites, the only contexts within which they are intelligible' (2001, 23). In addition, where the subject of the pieces is the experience of being in the site itself, any attempt to dissociate the performance from the site could be argued to be the equivalent of removing the key musical thematic material from a piece of music.

This dilemma is not unique to site-specific performance. All recordings of musical or theatrical performances are not the same as experiencing the piece in the original form. In addition, my writing about my performances alters the act of performance itself. In my thesis, I have used both written and recorded methods to try to capture some of the experience of site-specific performance. As Peggy Phelan argues, such attempts can never fully reproduce a performance without altering it substantially: 'to attempt to write about the undocumentable event of performance is to invoke the rules of the written document and thereby alter the event itself' (Phelan 2005, 148). The documentation of site-specific performance is, as I have suggested, especially problematic. While it is possible to see and hear the recording of a performance in any location, it might be argued that experiencing the work in this way goes against the fundamental principle of site-specific performance. Documentation of site-specific performances must acknowledge the fact that a written or media document is a separate and distinct entity.

I have explored various approaches to overcoming this challenge. In order to capture some of the interplay between the visual and acoustic elements present in my work, I have created a video recording as well as a sound recording of almost all performances of my pieces. The exceptions are *Underground Gothic* and the subsequent *Underground Gothic for Viola*[50]. For the documentation of *Beats, Bells and Bridges*, the most recent of my pieces, I attempted to use the video recording to recreate a greater sense of "being there" than with earlier pieces. Through the use of multiple moving cameras, more of the performance is captured, and more of a sense of the live event is achieved. The techniques of close-up and cutting, which are employed in the video, are of course taken from the language of cinema, an entirely non-live form. As such, the documentation uses the language of another form to attempt to create – or transpose - some of the immediacy of the original performances.

Philip Auslander differentiates between mediated and mediatized performance. 'Mediated' refers to the use of technology to transmit performance, and 'mediatized' should only be used when performance is recorded: *'reproduction* (recording) is the key issue' (2008, 57). Furthermore, he contends that 'it is only since the advent of mechanical and electric technologies of recording and

[50] The location of *Underground Gothic* on a busy moving train made it very difficult to film the experience without substantially altering the experience of the audience. In order for the camera to capture the intimacy of the performance it would have blocked the narrow performance space available for the performers and restricted views for the passengers. *Underground Gothic for Viola* took place in a concert hall and as such was the least site-specific of all of my pieces. I have included still images but there is no video material available. This was also partly due to the fact that the first performance took place in near total darkness. In addition, the recording I submit here was created in a studio following the first performance.

reproduction... that performance has been mediatized' (2008, 58). For Auslander, the issue is not whether or not performance is viewed through a screen, it is whether or not a performance is experienced in the moment of its creation. Had *Beats, Bells and Bridges* been streamed live during its performance, Auslander would argue that audience members viewing the streamed performance would have had a more faithful experience of the piece than those who viewed a recording of the piece at a later time. Simply being in the same place as a performance, for Auslander, does not equate with a full experience of the live event: 'for an audience to share space with performers does not in itself guarantee any sort of intimacy, connection, or communication between performers and spectators' (2008, 66). Auslander's key distinction is between the recording and live transmission of real time events.

Auslander's position is that sharing space with performers does not guarantee connection and communication. In site-specific performances, the space shared by audience members and performers takes on an even greater import. My performances use the sound of specific spaces to create new relationships between an audience, a performance and a location. The experience of the sound of a place *in that place* is key to my understanding of site-specific performance. Engagement with the piece through an audio-visual (documentary) recording of it is, therefore, a *dis*-placed experience, which is qualitatively different to the live, *in*-place experience of the piece.

In the case of my headphone pieces, the issue of sound reproduction could be regarded as less of an issue. In the documentation of these pieces, the original sound can be used to form the soundtrack of the video. This can be listened to through headphones creating an audio experience very close to the original piece. What is different, however, is the double immersion in sound created by hearing the sound of the performance site outside of the headphones at the same time as hearing the recorded sounds inside the headphones. This double immersion is a critical sonic dimension of these pieces. For example, in *The Shakey Bridge Listening Project*, the sound of the bridge could be heard outside of the headphones which played an amplified version of this sound. In *Underground Gothic*, the sound of the train could also be heard outside of the headphones, and in *Hidden Currents,* the sound of the city and the sound of the water could be constantly experienced. There may be a way to reproduce a version of this double immersion in sound for documentary recording purposes and dis-placed, post-performance listening by using binaural in-ear microphones situated beneath headphones and recording the sound during an experience of the piece. However, the sound quality of the original recording would be reduced and extraneous sounds such as clothing and microphone friction would become too prominent.

There are several important dimensions of my pieces that are very difficult, if not impossible, to reproduce using audio-visual recordings. The experience of movement is one such dimensions. The sensation of walking along the route prescribed by *Hidden Currents is* integral to the experience of the piece[51]. The sensation of motion - of sitting in a moving train - in *Underground Gothic* also plays a major part in creating the experience of this piece. It is not currently possible to incorporate the sensation of movement into the documentation of my pieces or to include a documentation of smell, air-pressure, temperature, humidity and countless other environmental factors.

Tactile senses also play a part in many of my pieces. *Bridges* creates sound that can be felt through the material of the bridge itself. *The Shakey Bridge Listening Project* asks audiences to place their hands on a railing and feel the sound of the bridge as a touch sensation. Spatial listening is crucial in *Beats* and *Bells* as well as in *Harp*; hearing each sound emanating from a different location is a vitally important in the experience of these pieces. It is not possible to reproduce accurate experiences of any of these elements using audio-visual documentation.

The writing about performances in this thesis serves both as a form of discursive analysis of my creative practice and an attempt to describe the many dimensions of my pieces and the performance of them. Phelan argues that the aim of all types of documentation is the preservation of a performance beyond its natural lifetime. Phelan demands that writing about performance should be undertaken with an awareness that writing can not preserve: 'the act of writing toward disappearance, rather than the act of writing toward preservation, must remember that the after-effect of disappearance is the experience of subjectivity itself' (Phelan 2005, 48). In my own writing about my work, the subjectivity of this experience is even more apparent. If I were writing about my own work without reference to external research material I would be in danger of disappearing down a self-referential rabbit-hole. Through reference to this external material, I hope to give a more balanced approach to my writing.

Ultimately, the documentation of my portfolio pieces can not hope to re-create the tangible experience of being present at a site-specific performance. The documentation of my portfolio does not claim to represent the pieces themselves. I recognise that the scores, videos, audio recordings and images included as part of this thesis are an attempt to capture and preserve that which can not be preserved. While the process of writing about my practice inevitably alters the record of the pieces themselves, the documentation presented represents a true and valuable account of the

[51] Interestingly, the link in the inner ear between hearing and the perception of movement was also directly referred to in the piece itself.

recordable audio and visual aspects of my performances.

Collaboration

The fundamental nature of my portfolio work is interdisciplinary. It is difficult to categorise my work as purely music since the work contains elements from several different forms. The interdisciplinary nature of my creative work and the fact that much of it is influenced by theatre composition, means that I have worked with a number of different collaborators on some of my pieces. Most notably, *Harp | A River Cantata* was directed and co-created by Conor Hanratty and the lyrics were written by Lily Akerman. I previously worked with Conor on the 2012 Dublin production of my opera *Flatpack*. In *Harp*, Conor and I co-conceived the narrative and dramatic framework of the piece. I composed the musical material and created the pre-recorded sound element of the piece. Conor Hanratty wrote the introductory narration and Lily Akerman wrote the lyrics to the sung sections. Because of its scale, *Harp* featured many more collaborators in comparison to my other works. I claim full ownership over the composition of the music, but of course Conor and Lily also had a creative input into certain aspects of it, just as I had some input into the staging and the lyrics of the piece.

Underground Gothic was also created collaboratively with director Maeve Stone. Maeve and I had previously worked together in July 2014 on the site-specific piece *Wake*. In *Underground Gothic*, Maeve and I co-conceived of the structure and narrative of the piece, although she took more of a lead in the visual and dramatic elements. I worked on the musical composition of the piece by myself but naturally Maeve contributed to the shaping of the final material. The creative rehearsal process was too finely nuanced and detailed to be able to give direct and exact examples of who had most influence over which parts.

The nature of my smaller scale pieces such as *BridgeSong, The Shakey Bridge Listening Project, Hidden Currents,* and *Beats, Bells and Bridges* meant that I had greater individual creative control. I was the sole creator in these pieces. However, *Beats, Bells and Bridges* was co-conceived of with percussionist Alex Petcu. We chose the performance locations together and undertook the production of the piece collaboratively. I composed the musical material, but Alex gave me continuous feedback regarding instrumentation and issues relating to writing for percussion. This was most apparent in the process of creating the music for *Bells*. Alex made the metal bell plates for the piece himself. The resultant pitches were not quite exactly in tune with the church bells of St. Anne's. We adapted the musical score collaboratively in order to accommodate the specific pitches

of the bell plates.

Final Thoughts

This Ph.D. thesis has sought to achieve many different things in one relatively short document. This text accompanies a portfolio of work that represents approximately 150 minutes of performance material created over a three and a half year period from 2013 to 2016. Reflection, analysis, documentation and contextual reading took place alongside and after the completion of the pieces. As I have demonstrated, the pieces may be grouped in various ways according to their performance locations, subject matter and the methodologies they employ. I have compared and contrasted my approaches to creating site-specific performances in order to draw conclusions on several different levels. I have attempted to quantify the relative successes of different types of pieces.

I have aimed to create a descriptive and discursive style of writing in order to shed more light on the content and background of my portfolio pieces. As with the creation and composition of the pieces themselves, the process of writing this thesis has driven me to learn new skills and disciplines. In order to write this text I have been compelled to develop new approaches to the analysis, evaluation and documentation of my own work. This has been an extremely difficult process over a period of many years, requiring a level of discipline across a span of time much longer than any single project I have yet worked on. I hope that this text may create new and useful interpretations of my own work, and through this foster new scholarship and practice.

Throughout the process of writing this text I have had several realisations about the nature of my own work. Especially important was the recognition of how the practical ways I repeatedly deal with space as a composed element are closely related to the ways in which I use musical material in concert compositions. This acknowledgement will be of practical use for me going forward in my career as a composer. In addition to this, this thesis has opened my eyes to my interest in unlocking the hidden musical potential within objects. This has potentially limitless applications and will surely be a fruitful avenue of exploration in future work. This “instrumentalizing” is a playful and creative process which can give new life to a wide variety of locations and objects. I seek to embrace playfulness in my practice. I believe that playfulness can open up new, deeper ways of listening and experiencing. Through playfulness, spaces and objects have the ability to take on new meanings and to forge new relationships with audiences. Treating objects and spaces as if they were musical instruments allows for a deeper experience of the world. Through this process, we can breathe life into a seemingly endless array of lifeless things. Although the playfulness of

instrumentalization is open to anyone, I believe the composer is uniquely placed to co-ordinate and shape this process into an organised and coherent whole.

I seek to create processes that are playful and improvisatory in and of themselves, while at the same time maintaining an artistic rigour and consistency so that these powerful qualities may be harnessed most effectively. Through the writing of this thesis I have been compelled to acknowledge that my processes and approaches are in a constant state of development. I hope never to lose the ability and drive to adapt my creative potential to whatever demands are presented to me.

The new knowledge generated and disseminated by my research includes the practical knowledge of how to write, direct and perform site-specific pieces in challenging, non-music dedicated spaces. It includes new knowledge about ways of generating interest in live contemporary music performances in a competitive marketplace and about the many forms that site-specific performances can take and the new meanings such performances can bring to places themselves and our experiences of them.

POSTSCRIPT

I am writing my final thesis corrections in the summer of 2020 during the global COVID-19 pandemic. It is a time of unprecedented change and uncertainty, especially for live performance. A glimmer of hope emerged in June of this year when Cork Midsummer Festival presented a reduced programme called Midsummer Moments. My two audio walks *The Shakey Bridge Listening Project* and *Hidden Currents* were included as part of this programme (image 3.9). These were two works which could be experienced outside by audiences using their own smartphones and headphones. Some revisions were necessary, for example the instructions to touch railings in both pieces needed to be removed. But the solitary nature of the medium meant that these pieces suddenly became one of the few types of performances thing which it was able to experience outside in the real world.

Later, in July 2020, viola player Sebastian Adams continued this re-exploration of my site-specific work in the context of a COVID-19 world (video 7.9). Sebastian performed and recorded himself playing *Underground Gothic for Viola* on a DART commuter train in Dublin. He made the recording for a Contemporary Music Centre “Salon” event, part of a series which has been held online since the start of the pandemic. Given the lack of access to live audiences and conventional concert performance spaces, Sebastian took this piece back into the environment from which its source material was derived. In doing so, the piece once again became a site-specific event.

Looking forward to the future, Alex Petcu and I also intend to continue our exploration of outdoor percussion performances in 2021. This is another form of performance which could be safely experienced by audiences.

Before March 2020 it was impossible to predict what would happen to live performance culture. It is remarkable that several of the site-specific pieces presented as part of this portfolio have emerged as viable performance mediums in a world where the use of conventional indoor spaces is currently no longer possible. This virus has had a devastating effect on vast swathes of what we previously considered normal daily life. Outdoor site-specific events have suddenly become an unexpectedly resilient form of performance which offer some kind of alternative way forward at a time when nothing is certain.

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APPENDIX

Site and Sound: musical composition and site-specific performance – developing a creative practice through practical methodologies

Portfolio of Scores

Tom Anton Zahlbruckner Lane MA (Oxford), LRAM ARAM MMus
(Royal Academy of Music)

University College Cork
School of Music and Theatre

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5. Underground Gothic Page 53

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7. Underground Gothic for viola and recorded sound Page 63

8. Beats, Bells and Bridges Page 71

Complete audio-visual documentation may be found at:

www.tomlaneportfolio.weebly.com

A note on scores and performances materials:

The scores contained in the following pages represents the material which was used to create a series of site-specific performances. In contrast to many musical scores, these are not necessarily intended to be used for future performances of the pieces. As discussed in further detail in the text of my Ph.D thesis, the pieces in this portfolio were created for very specific sites and situations. I was directly involved in the realisation of every one of these performances. The process of realisation often included steps and procedures which are not fully documented in these scores. These scores should be regarded as part of my complete Ph.D document which is comprised of a written thesis, a portfolio of scores, and a website which contains audio-visual records of all performances. It will only be possible to obtain a complete overview of the work by taking into account all three of these elements.

Declaration:

I declare that this is my own original work and that it has not been previously submitted for any other degree, either to University College Cork or elsewhere.



Tom Lane

1. The Shakey Bridge Performance Experiment

This piece consists of two pre-recorded tracks containing instructions for singers. Each track represents a high and a low voice part. These tracks are downloaded in advance and listened to through headphones by the singers during the performance. In addition, the singers should have a recording of song which they commonly listen to when they are “in between places”.

The following page consist of a document which shows the schedule and plan for the specific performance day on which the piece took place. Following this there is a table showing the different configurations of movements and positions which were experimented with on the 25th of February 2013. Finally, there is a musical score which contains the notational and textual information which is presented in the pre-recorded tracks.

The Shakey Bridge Performance Experiment
Róisín O'Gorman DTS class, Monday 25th of February, 1-3pm

PLAN OF DAY:

12:30: meet Ed Cashman (camera man) outside DTS department.

1pm-1:15: introduction and vocal warm-ups in DTS department.

1:15-1:30: students present their songs which they have brought with them, describe what the song means to them.

1:30-1:45: rehearse with pre-recorded tracks "Shakey A" and "Shakey B"

1:45-2pm: walk to Shakey Bridge

2pm-2:15: students sing with their individual songs in the following formations:

- All standing still together in a line on the bridge facing east.
- All walking slowly across the bridge in single-file (approx 1 metre apart) from the north bank.
- All standing still on the ramp up to the bridge.

2:15-2:30: students sing pre-recorded tracks in the following formations:

- "Shakey A" group stand on ramp up to bridge, "Shakey B" stand on bridge.
- All standing on bridge, "Shakey A" facing west, "Shakey B" facing east.
- "Shakey A" walks slowly from north to south in single-file, "Shakey B" walks slowly from south to north in single file. Only walk during singing, stationary during silences.

2:30-3pm: combination of individual songs and group singing (if time):

- Individual songs: "Shakey A" walks slowly from north to south in single-file, "Shakey B" walks slowly from south to north in single file, stop in positions on bridge.
- Group singing all standing on bridge, "Shakey A" facing west, "Shakey B" facing east. First two sections of pre-recorded tracks.
- Groups disperse while singing sections 3 and 4 of pre-recorded tracks.

CONFIGURATIONS TO BE EXPERIMENTED WITH AT PERFORMANCE SITE:

Group A

Section	*Singing*	*Position*
1.	Individual songs	All standing still together in a line on the bridge facing east.
2.	Individual songs	All walking slowly across the bridge in single-file (approx 1 metre apart) from the north bank.
3.	Individual songs	All standing still on the ramp up to the bridge.
4.	Shakey A	Stand on ramp up to bridge
5.	Shakey A	All standing on bridge, facing west.
6.	Shakey A	Walk slowly from north to south in single-file, only walk during singing, stationary during silences.
7.	Individual songs	Walk slowly from north to south in single-file, stop on bridge in positions from section 5.
8.	Shakey A, first 2 parts.	All standing on bridge, facing west.
9.	Shakey A, parts 3 and 4	Disperse to south bank.

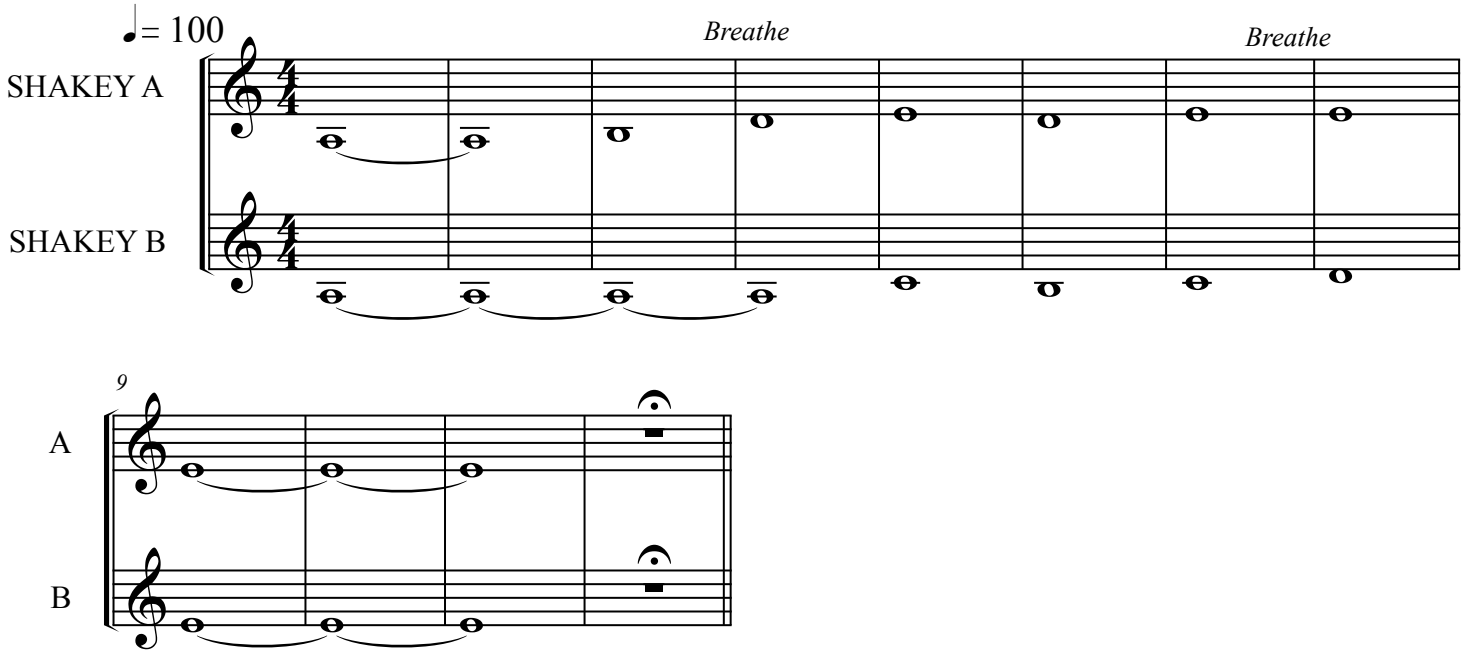
Group B

Section	*Singing*	*Position*
1.	Individual songs	All standing still together in a line on the bridge facing east.
2.	Individual songs	All walking slowly across the bridge in single-file (approx 1 metre apart) from the north bank.
3.	Individual songs	All standing still on the ramp up to the bridge.
4.	Shakey B	Stand on bridge.
5.	Shakey B	All standing on bridge, facing east.
6.	Shakey B	Walk slowly from south to north in single file, only walk during singing, stationary during silences.
7.	Individual songs	Walk slowly from south to north in single file, stop on bridge in positions from section 5.
8.	Shakey B, first 2 parts.	All standing on bridge, facing west.
9.	Shakey B, parts 3 and 4	Disperse to north bank.

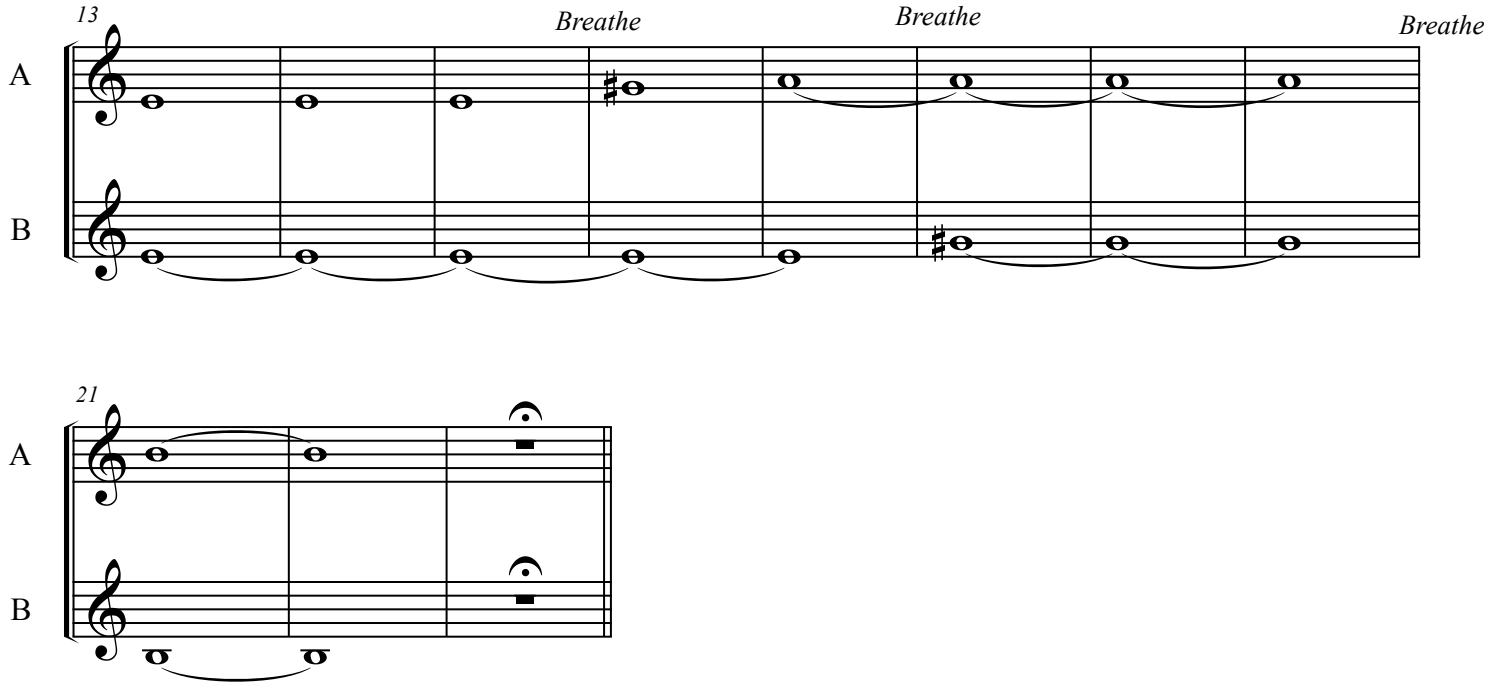
The Shakey Bridge Performance Experiment

Tom Lane

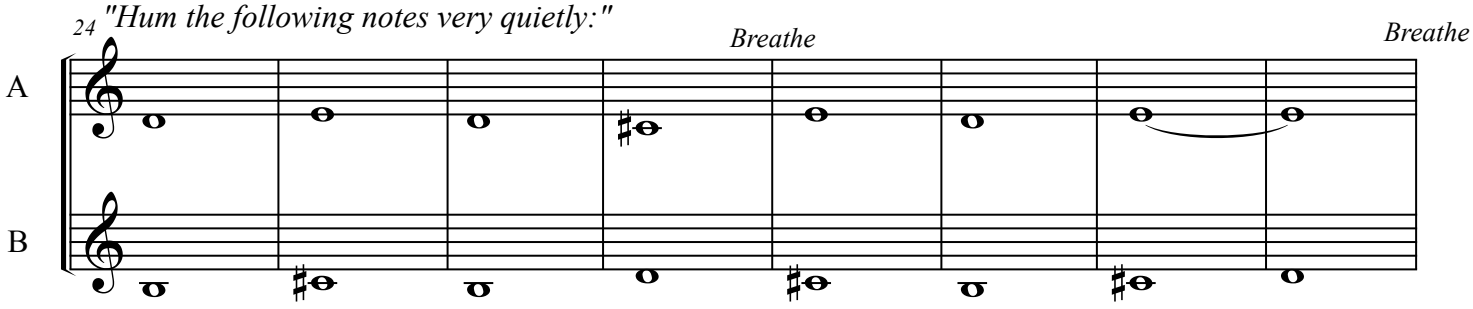
"Please stand by. When instructed, please sing with the recorded notes, breathing when necessary, or when you hear the word BREATH. Hum the following notes at a moderate volume:"



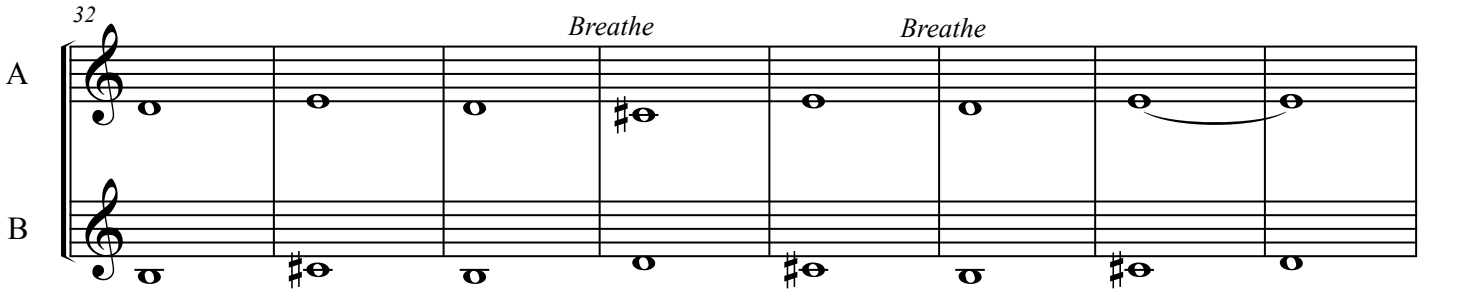
"Sing the following notes to a loud AH:"



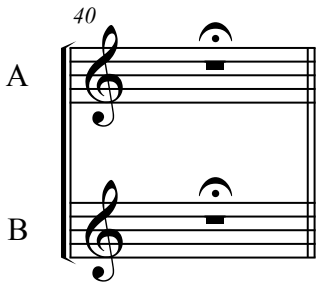
24 *"Hum the following notes very quietly:"*



32

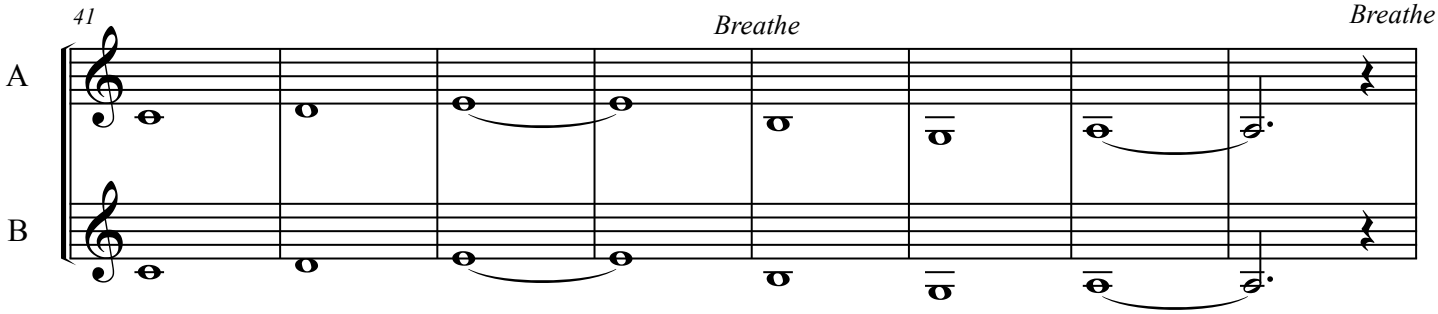


40

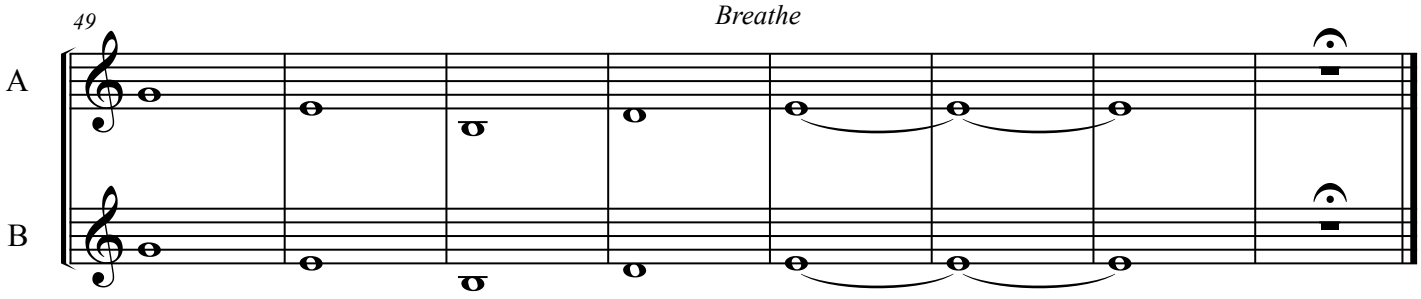


"Sing the following notes to a quiet AH:"

41



49



"End of recording."

2. BridgeSong

This piece consists of one pre-recorded track containing instructions for singers. This track is downloaded in advance and listened to through headphones by the singers during the performance. In addition, the singers should have a recording of song which they commonly listen to when they are “in between places”. The performance begins in the foyer of the Cork Opera House. The singers receive instructions to leave the foyer and space themselves along the Cork Opera House bridge facing west. At the end of the performance, the singers dissipate.

The following pages contain a musical score which consists of the notational and textual information in the recorded tracks.

BridgeSong

"Please follow the spoken instructions. Please only make a sound when asked to do so. Try to keep a neutral expression and focus on listening to the recording.

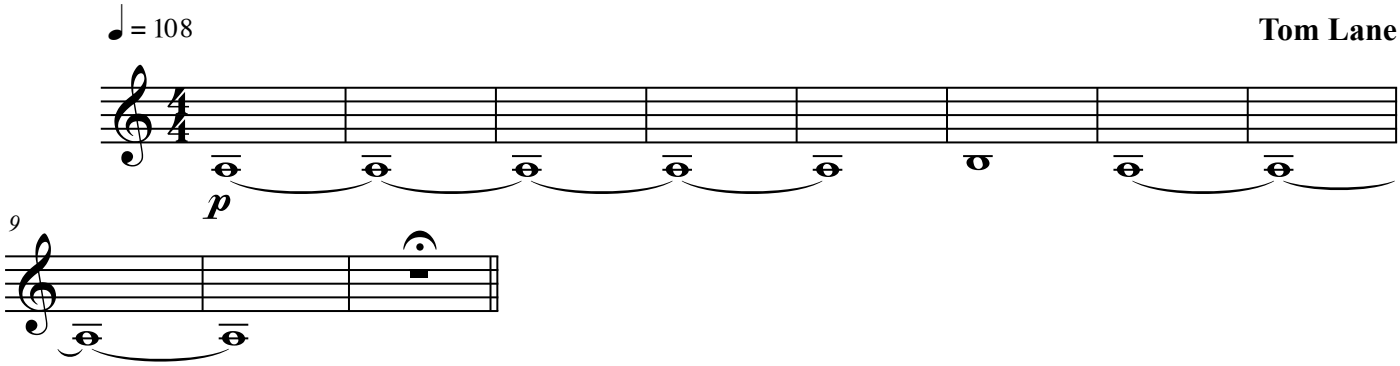
Please make your way out of the opera house foyer. Turn left towards the bridge, then turn left towards the traffic lights. Cross the road when it is safe to do so.
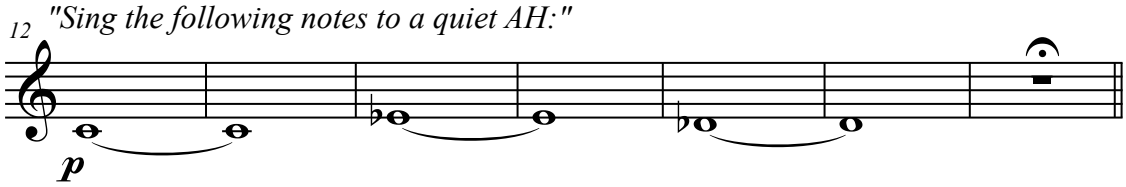
Stay on the left-hand side of the bridge and make your way half-way across it.

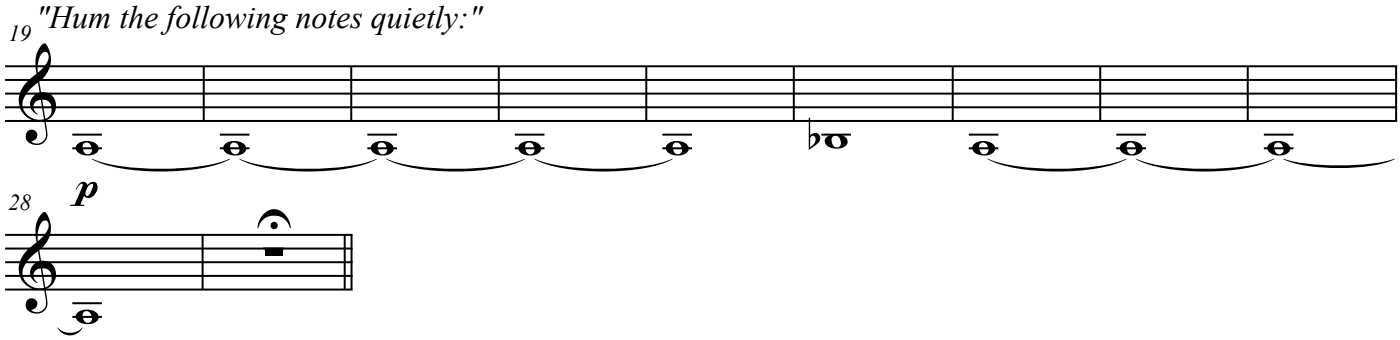
When you get half-way across, turn to your left and stand close to the railing, looking out up the river. Try to be about 1 metre from the people on either side of you.

Please wait here for the notes to start.

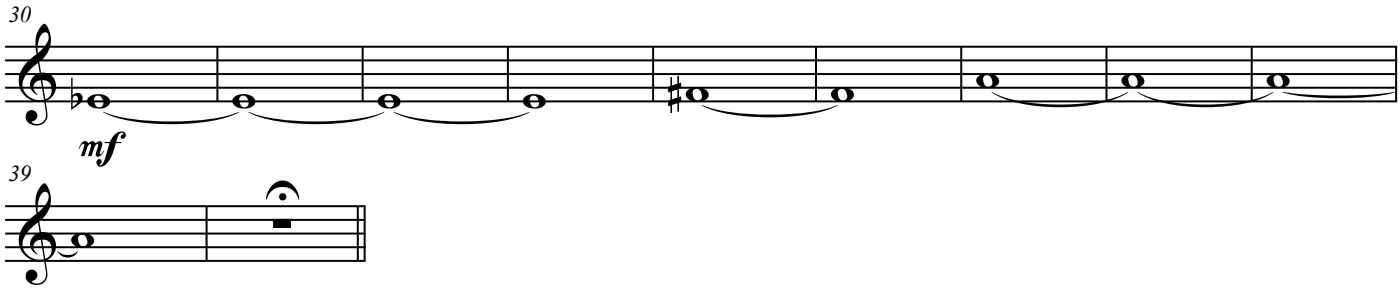
Hum the following notes quietly:"
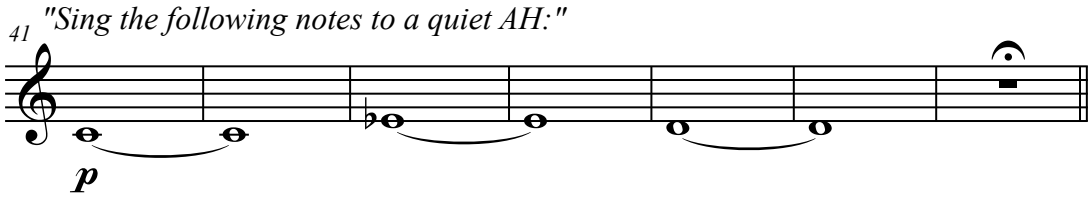


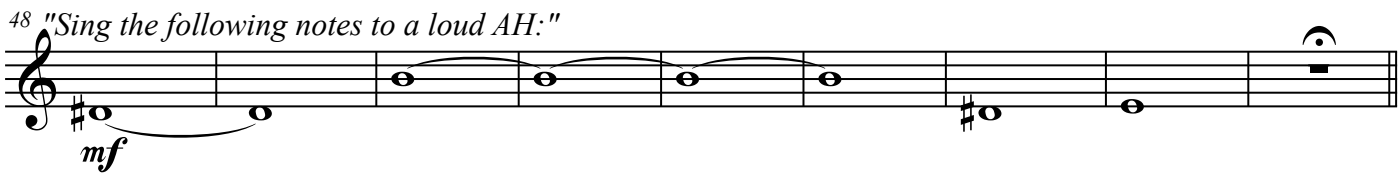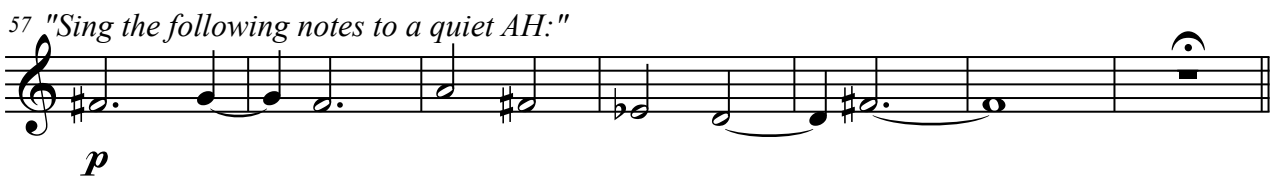




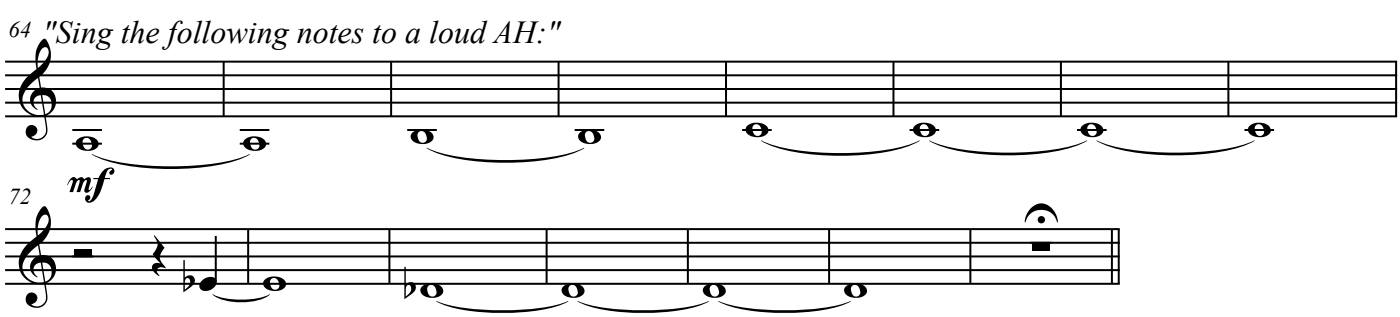
"Sing the following notes to a loud AH:"

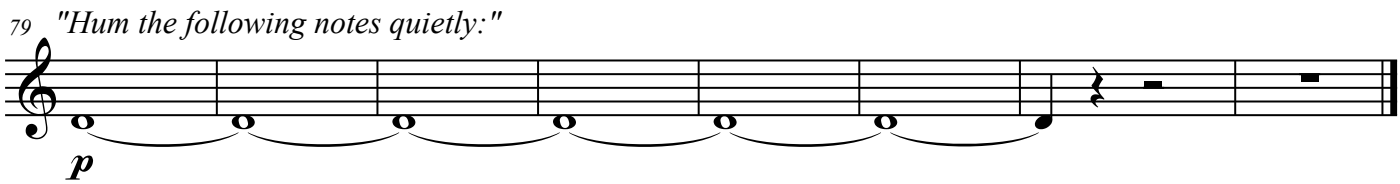












"In a moment, when instructed, stop this track and play the song that for you represents being in between places. Sing along with this track and disperse from the bridge, returning to the opera house foyer in your own time.

Please stop this track now.

End of recording"

3. The Shakey Bridge Listening Project

This piece consists of two pre-recorded tracks which are listened to by audience members. These tracks are downloaded in advance and listened to through headphones via a mobile device by the audience during the performance at a specific location. The performance begins at the bottom of the ramp leading up to the Shakey Bridge in Cork City.

The following pages contain a text which is which is spoken by an actor, and two DAW derived scores of the two separate audio tracks.

The Shakey Bridge Listening Project: text narration

Welcome to the Shakey Bridge listening project by Tom Lane, narrated by Mark D'Aughton.

Before you continue listening, make sure you are standing at the bottom of the ramp leading up to the south side of the Shakey Bridge in Cork.

"Shakey" isn't its real name. It is officially called "Daly's Bridge" and was opened in 1927. It is still the only suspension bridge in Cork.

Stand at the bottom of the ramp leading up to the south side of the bridge. In a moment, I'll ask you to start walking up the ramp towards the bridge. Before this however, I'd like you just to take a moment to look at the shape of the bridge.

[pause]

Now, please walk slowly up to the top of the ramp. You'll hear the sound of the bridge get louder as you approach it

[bridge wind sounds get louder]

Stand underneath the pylon at the top of the ramp facing north across the bridge.
What you are listening to is the actual sound of the wind vibrating the structure of the bridge.

Lean closer to one of the pylons of the bridge at the top of the ramp. You can start to hear deeper into the structure of the bridge. Listen.

[SOUND]

When people walk across it, the bridge acts like an instrument: even the wind plays the bridge. In a moment, I'll ask you to walk across the bridge. You'll hear the sounds of the material being vibrated and stretched.

Now, walk across the bridge to the halfway point.

[pause]

At the halfway point of the bridge, turn left to look west, upriver. Place your hands on the railings in front of you and feel the vibrations passing through them. Listen with your ears and your hands.

Imagine if you could see all the way to the source of the river, high up in the hills. Picture all of the water which has flowed this way and all of the stories and people it has seen.

Now, turn around and face east, downriver, towards the city. Place your hands on the railings on this side. Imagine the water flowing out to join the sea. Picture how far that water will travel around the world before it one day returns to rejoin the river at its source.

In a moment, I'll ask you to stop this recording and listen to the ambient sounds which are surrounding you. Listen for as long as you like and then start the second recording. Stop this recording now.

[2nd Track]

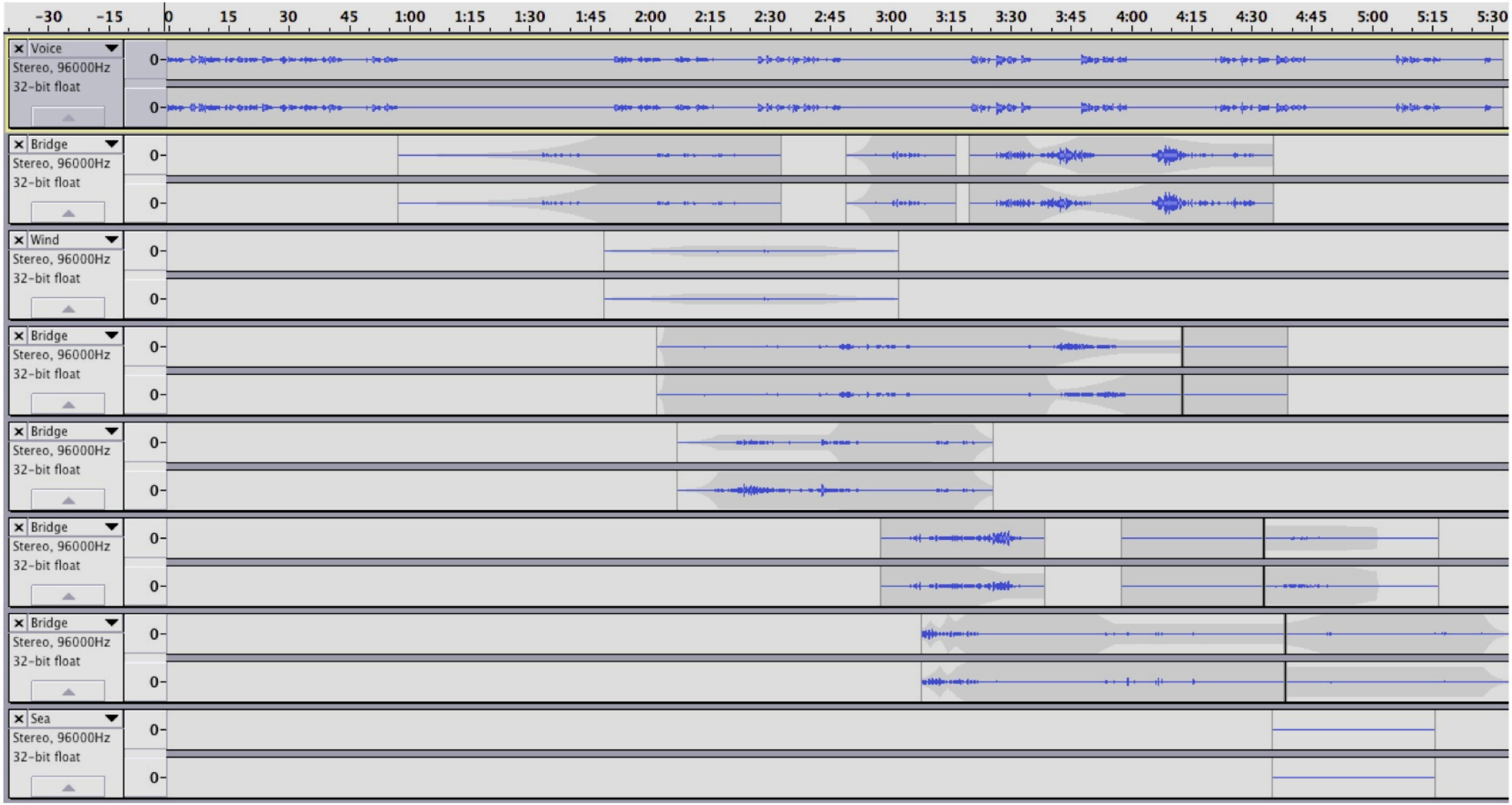
Welcome back. I'd like you to think of a song which you listen to, sing to yourself or hear in your head when you are in between places. It might one you associate with waiting for a bus or being stuck in traffic. In a moment, I'll ask you to quietly sing a short part of this song out loud. If you'd prefer not to, you can just hum quietly or listen to it in your head. Please sing the song now.

Thank you. In a moment, I'd like you to carry on walking across the bridge towards its north side. When you have crossed over and entered the laneway on the other side you are welcome to either continue listening or to stop the recording. When you stop the recording, this piece will be finished. Please walk across the bridge to the north side now.

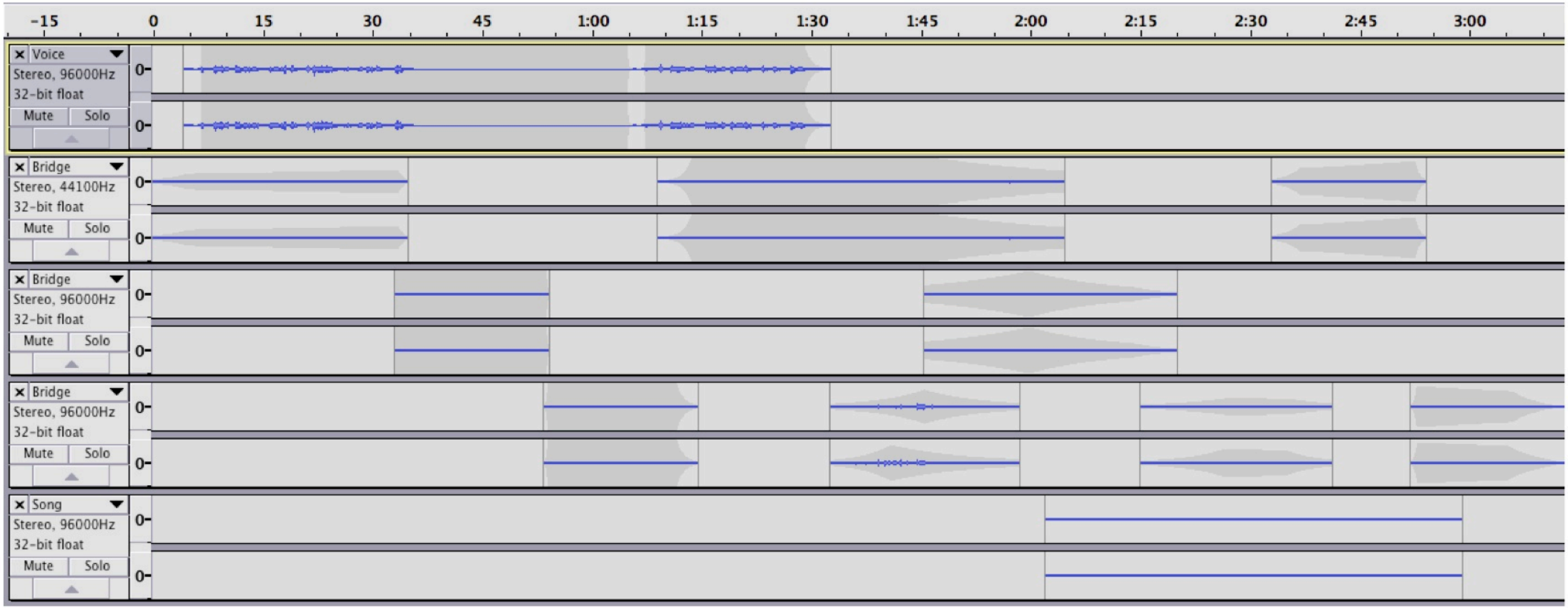
[bridge sounds swell and we hear song below]

How oft do my thoughts in their fancy take flight
To the home of my childhood away,
To the days when each patriot's vision seem'd bright
Ere I dreamed that those joys should decay.
When my heart was as light as the wild winds that blow
Down the Mardyke through each elm tree,
Where I sported and play'd 'neath each green leafy shade
On the banks of my own lovely Lee.

The Shakey Bridge Listening Project, track 1
DAW derived score



The Shakey Bridge Listening Project, track 2
DAW derived score



4. Harp | A River Cantata

This piece was performed live on the Samuel Beckett Bridge, Dublin on the 6th of September 2014. This score represents the live instrumental and choral music elements of the composition. The live music was preceded by a recorded spoken narration which was underscored by sound derived from the bridge itself. This recorded sound was also combined with the scored material in the two final sections of the piece.

The complete structure of the work is:

1. Opening narration and underscore
2. Brass fanfare
3. Drumming section
4. Choral section
5. Musical centrepiece
6. Finale

HARP | A RIVER CANTATA

for brass, SATB choir,
four soprano soloists,
drums and recorded sound

Music by Tom Lane

Lyrics by Lily Akerman

Performed Saturday 6th of September 2014 on the Samuel Beckett Bridge, Dublin as the opening ceremony of the Tiger Dublin Fringe Festival. The performers included the brass of the Dublin Concert Band conducted by John Doyle, singers from Tonnta conducted by Robbie Blake, soloists Rachel Corash, Rebecca Rodgers, Chloë Morgan and Margaret Bridge, the MaSamba drumming school led by Sharon O'Reilly, and Olwen Fouéré as the voice of the river.

Directed by Conor Hanratty
Produced by Matthew Smyth

Instrumentation:

4 Trumpets in B flat
4 Cornets
4 Horns in F
2 Euphoniums
4 Trombones
2 Tubas

SATB Choir (at least 10 singers per part)
4 soprano soloists

Samba drumming group with group leader

Recorded sound
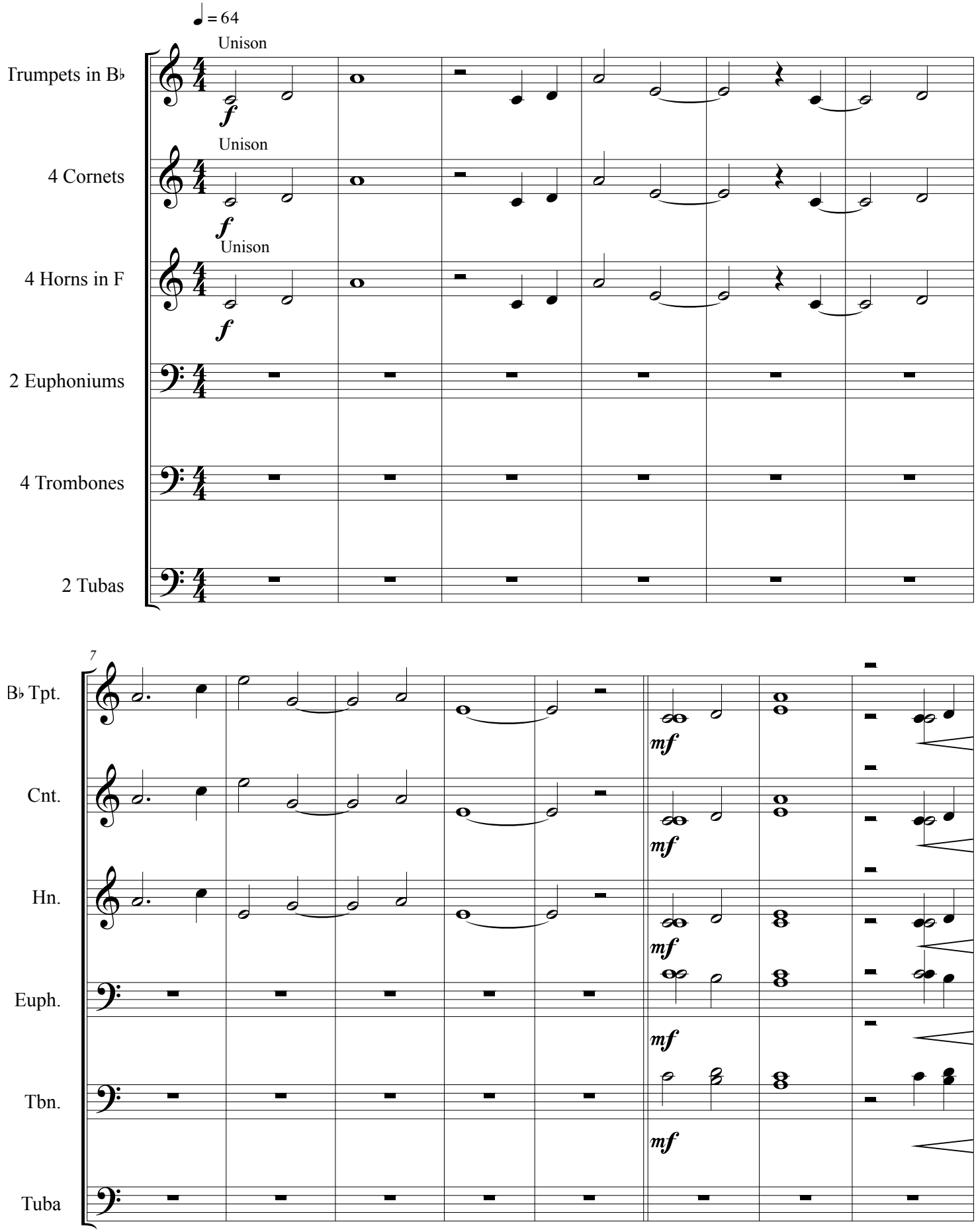
Please note, the scored music printed here was preceded by a recorded narration underscored by sound recorded from the Samuel Beckett Bridge by Tom Lane. This is included in the accompanying video recording.

HARP
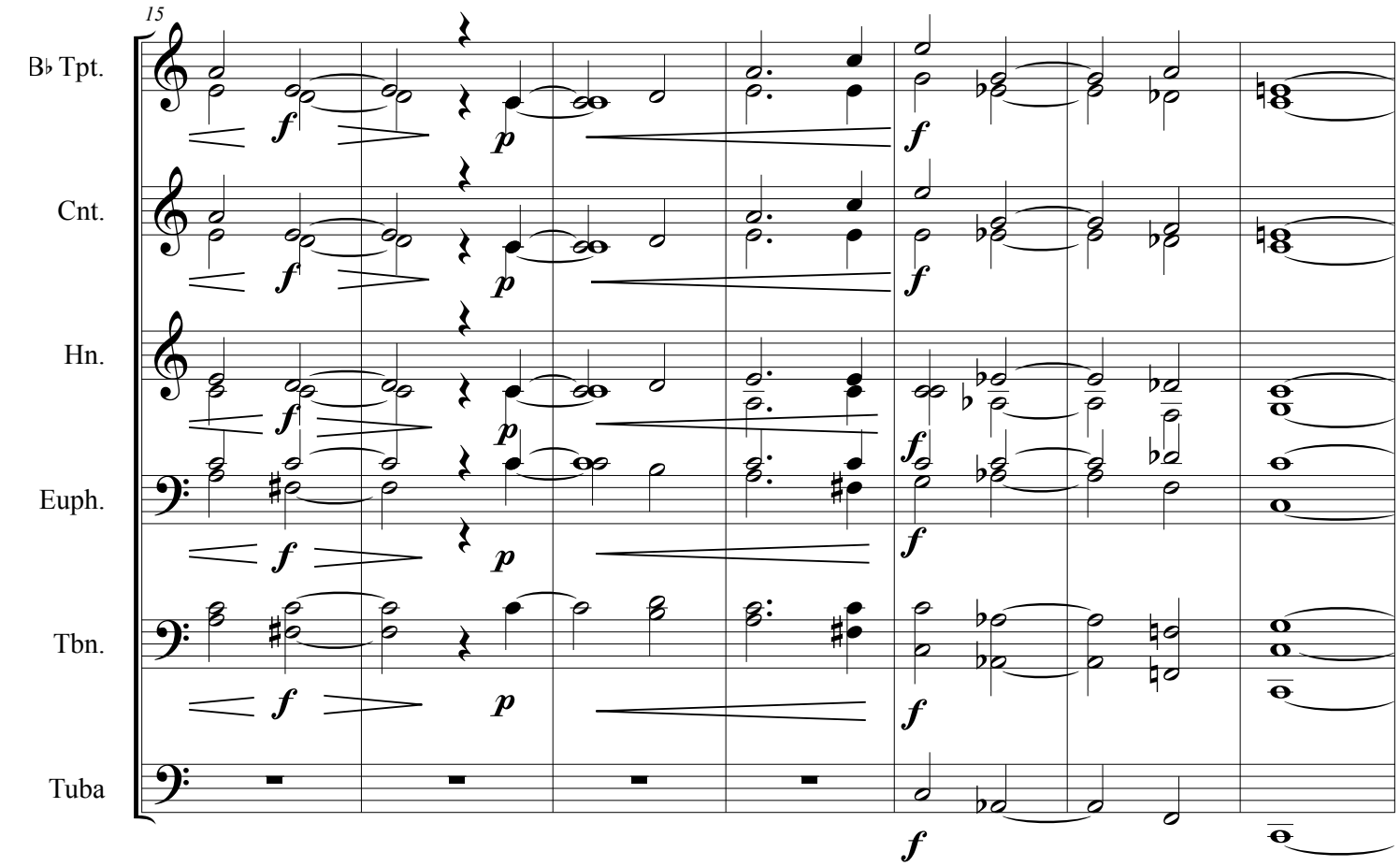
Brass Fanfare
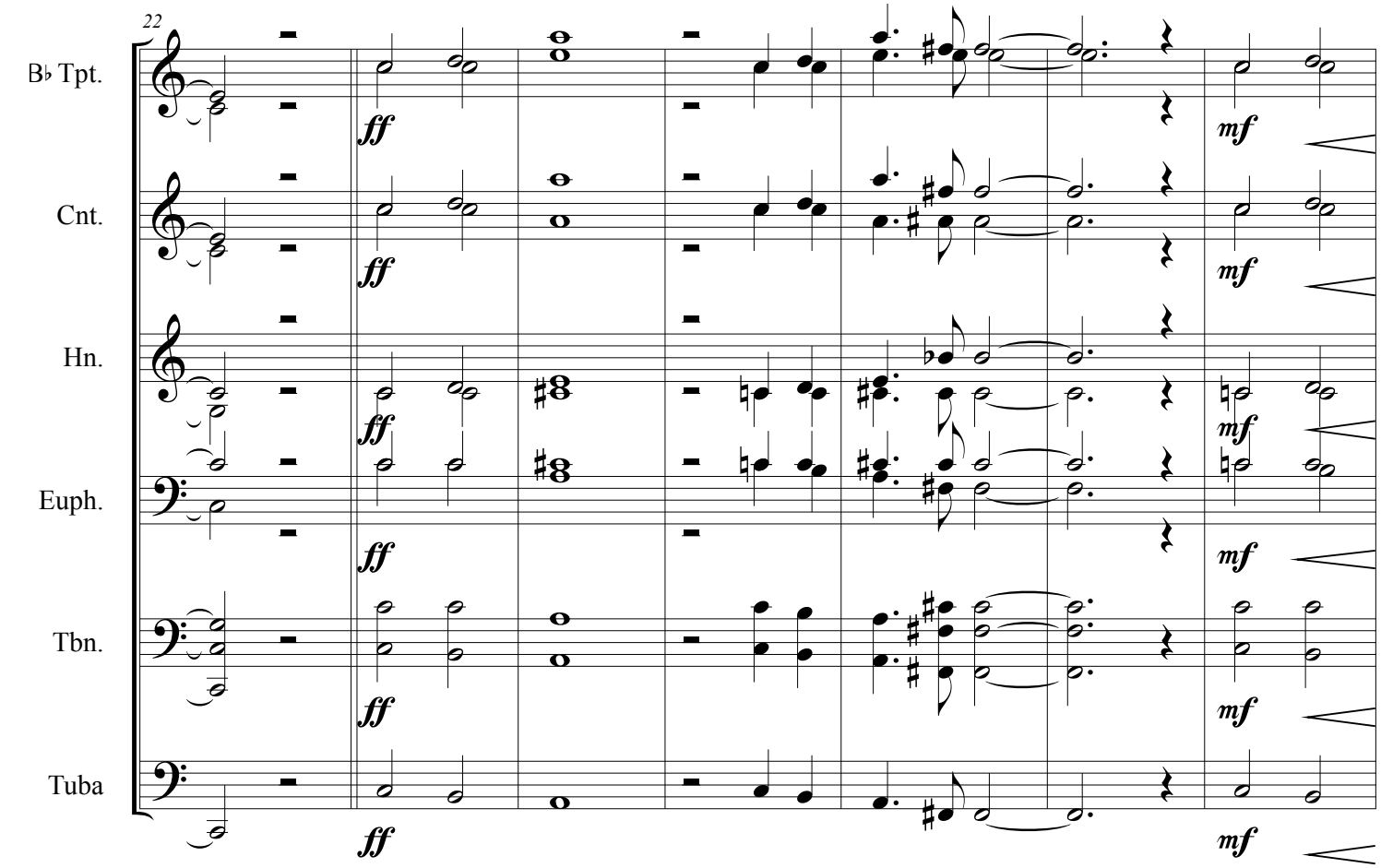
Score in C
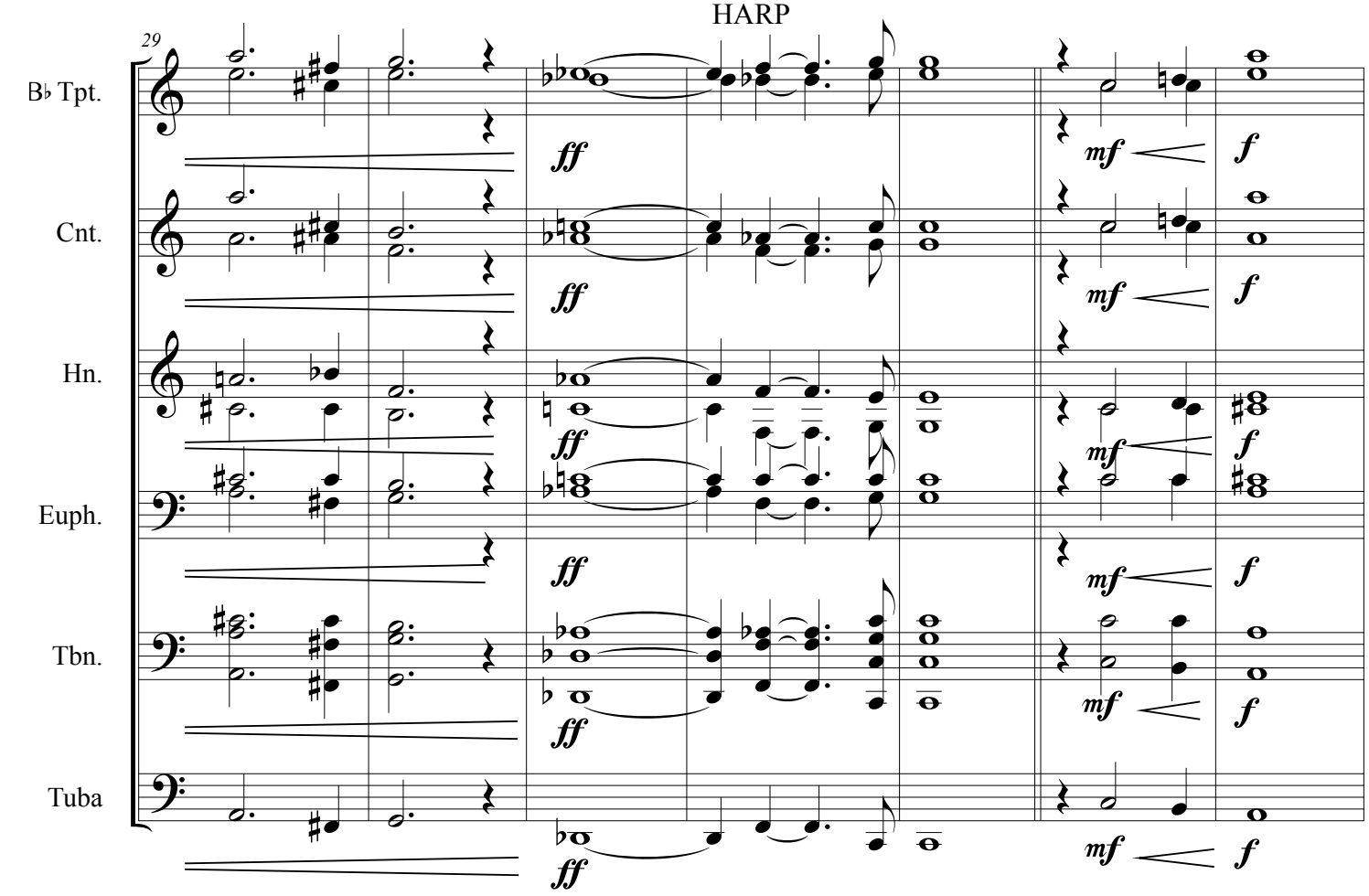
Tom Lane
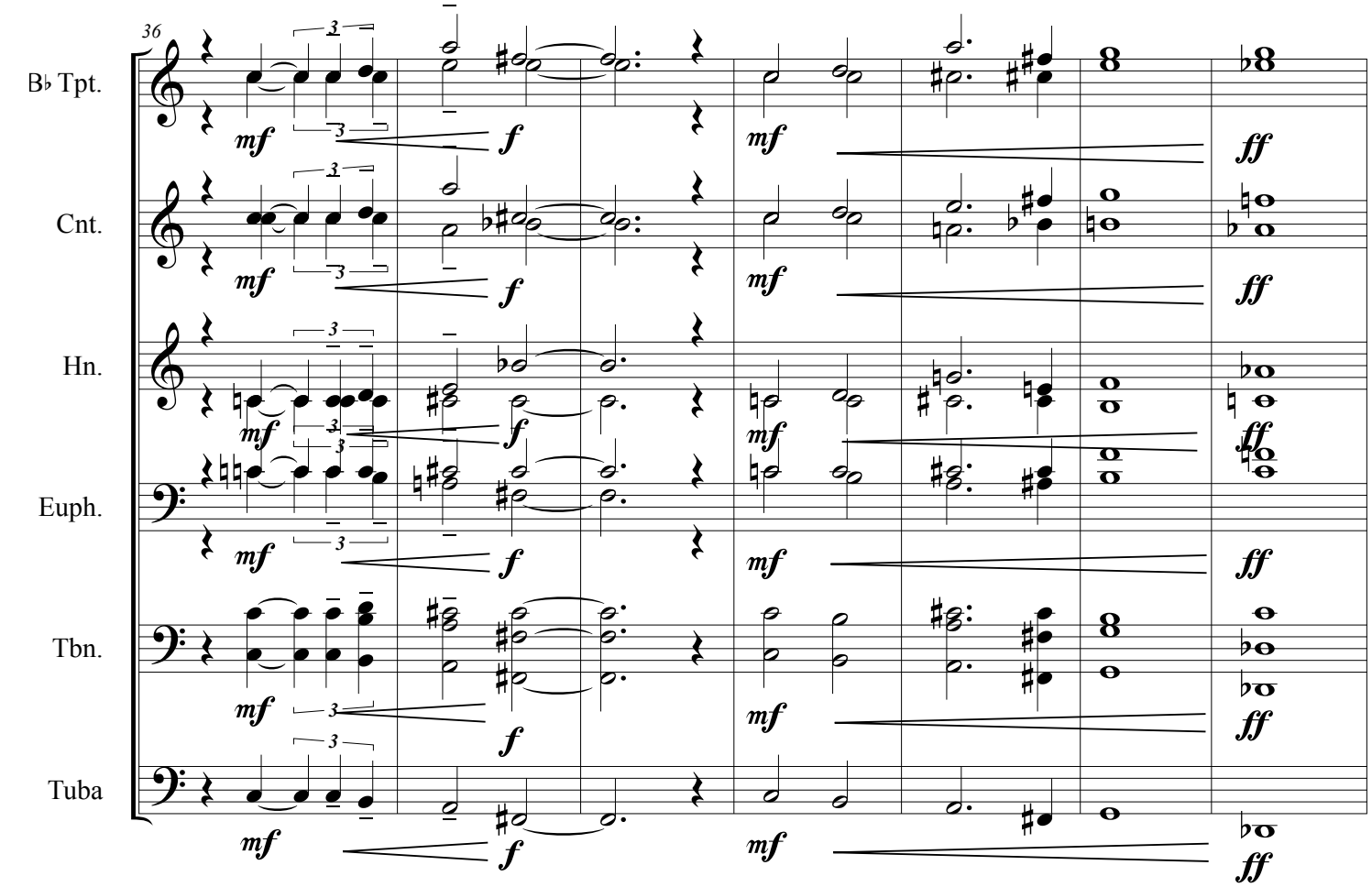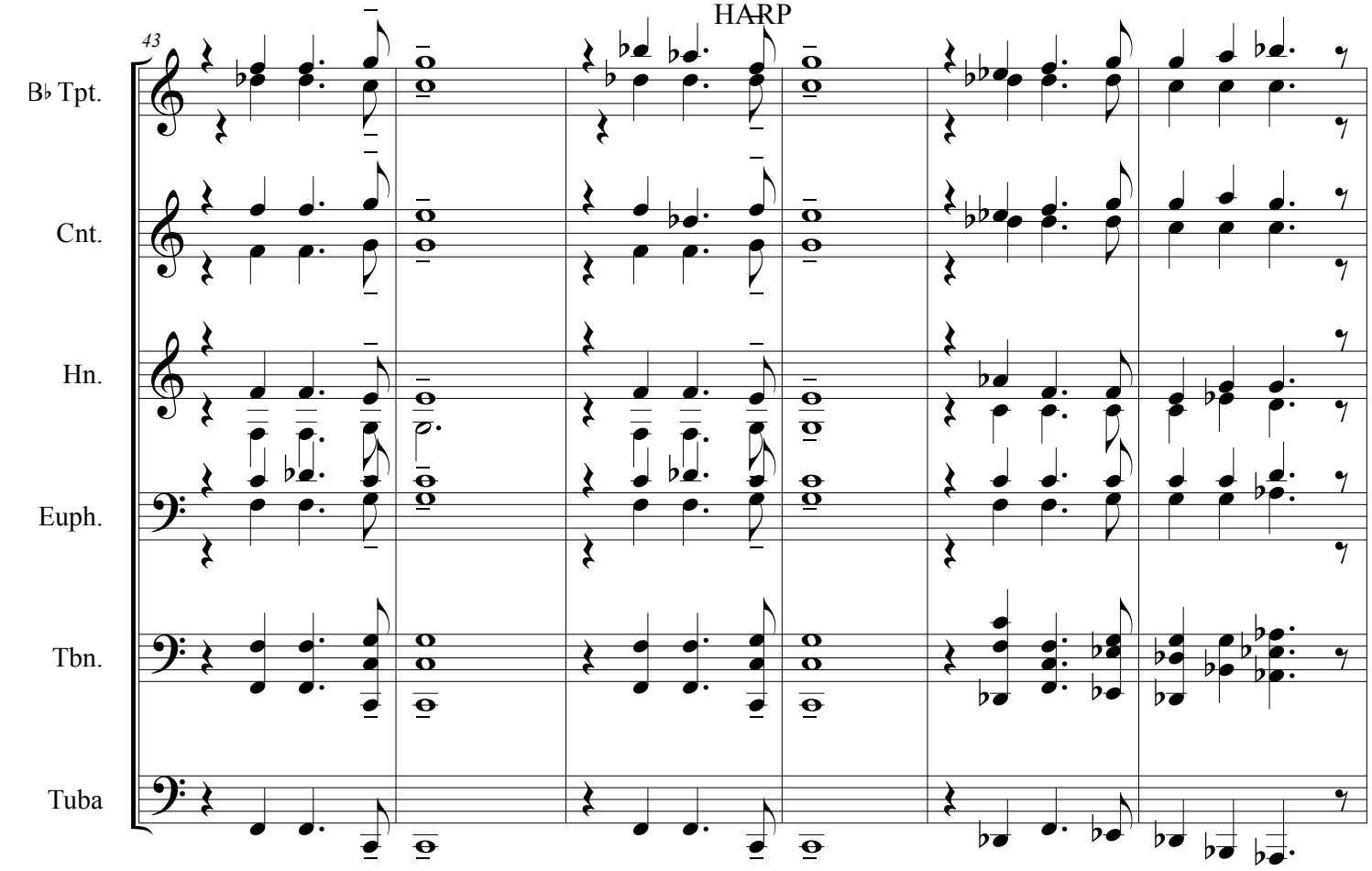


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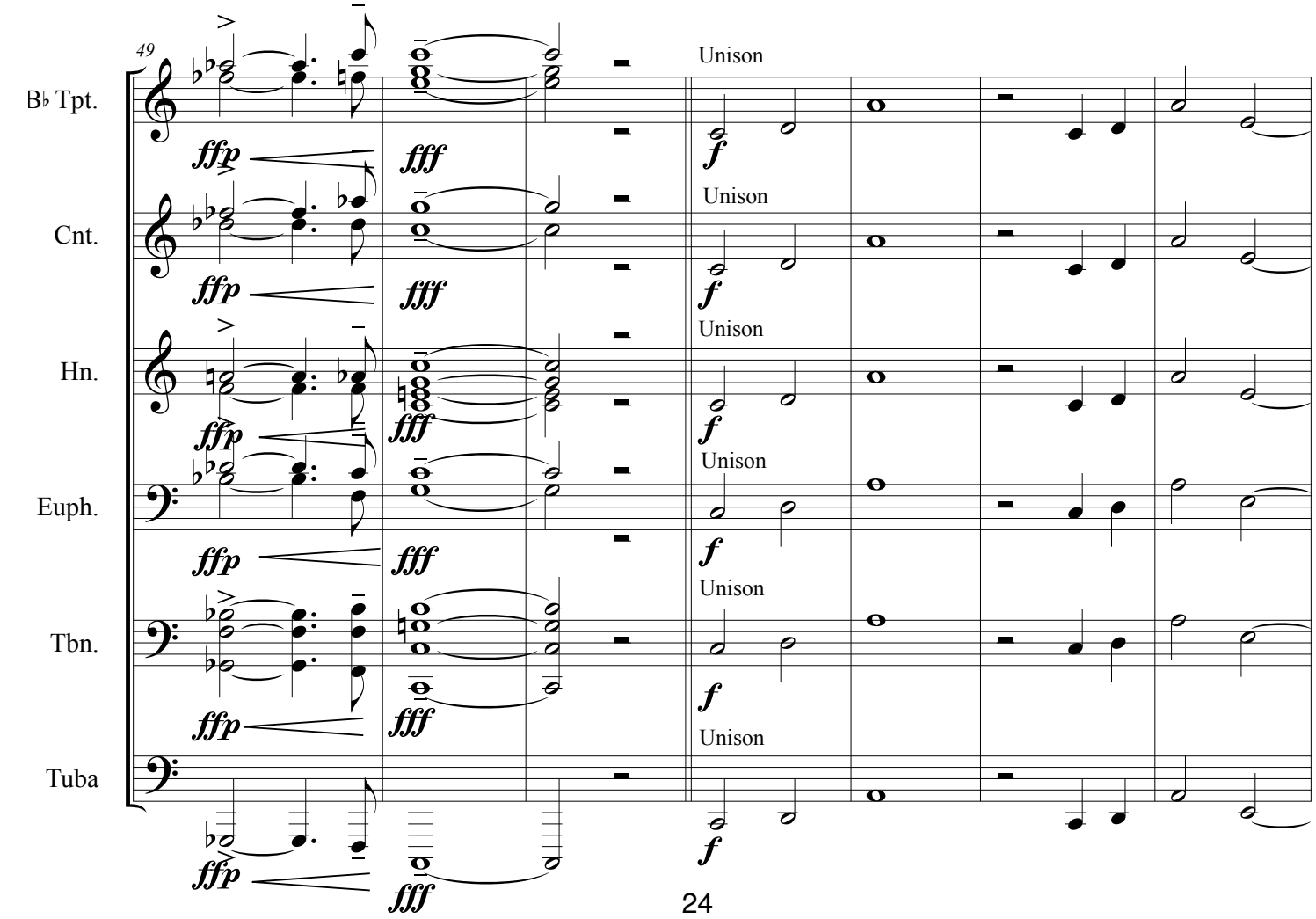

15
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba
f
p
f
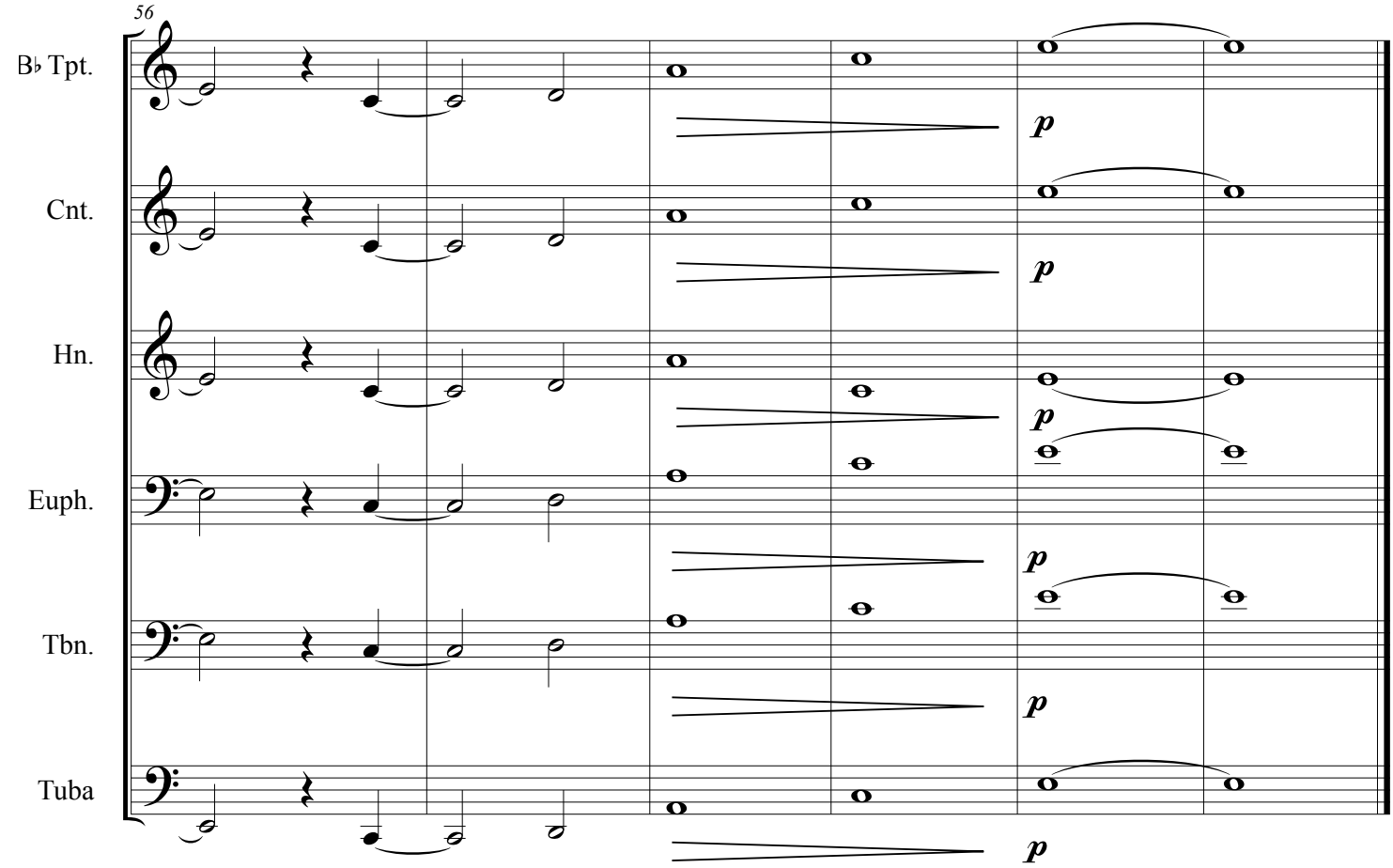

22
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba
ff
mf


29
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba
ff
mf
f


36
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba
mf
f
ff


43
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba
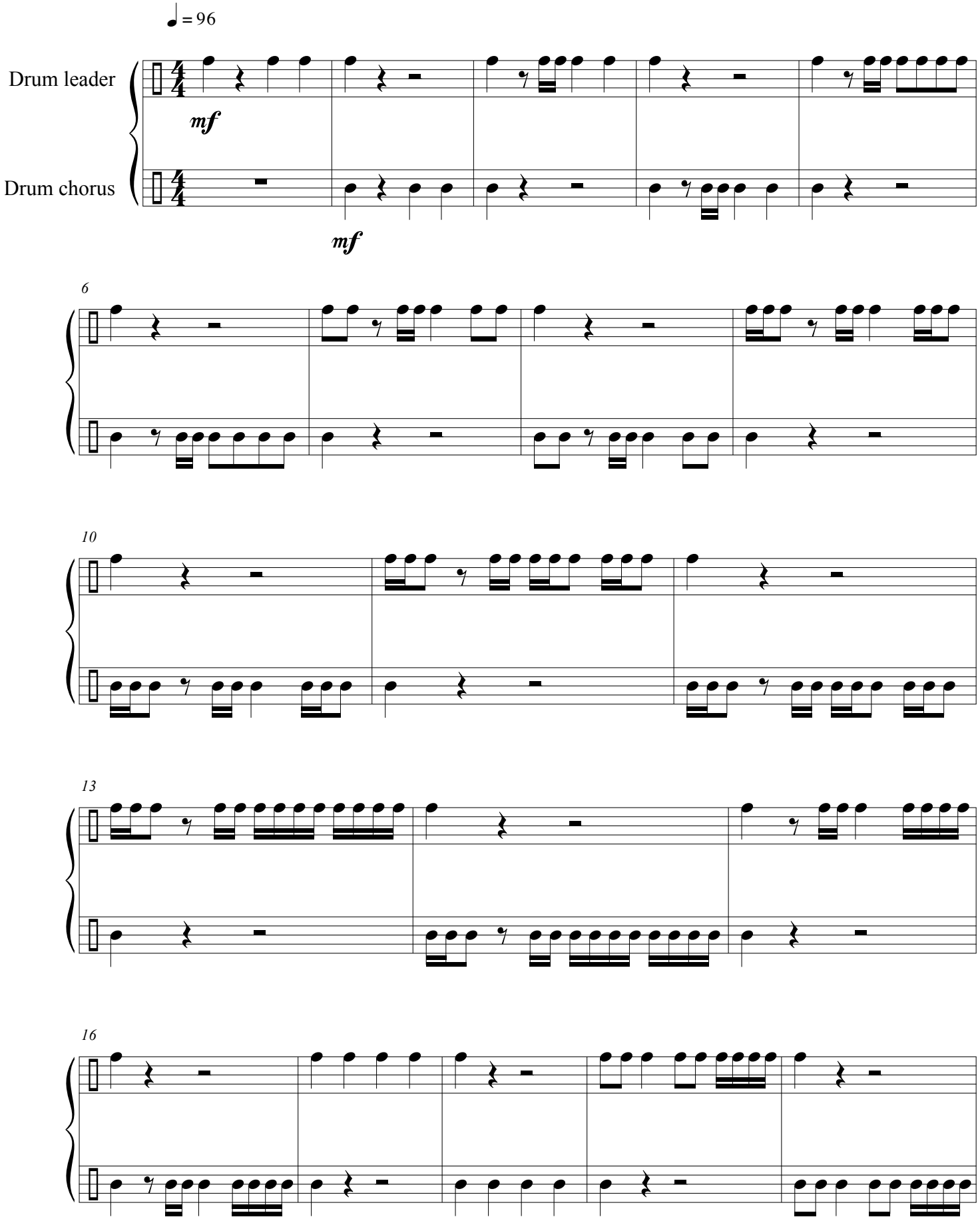

49
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba
ffp
fff
Unison
f


56
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba
p
p
p
p
p
p

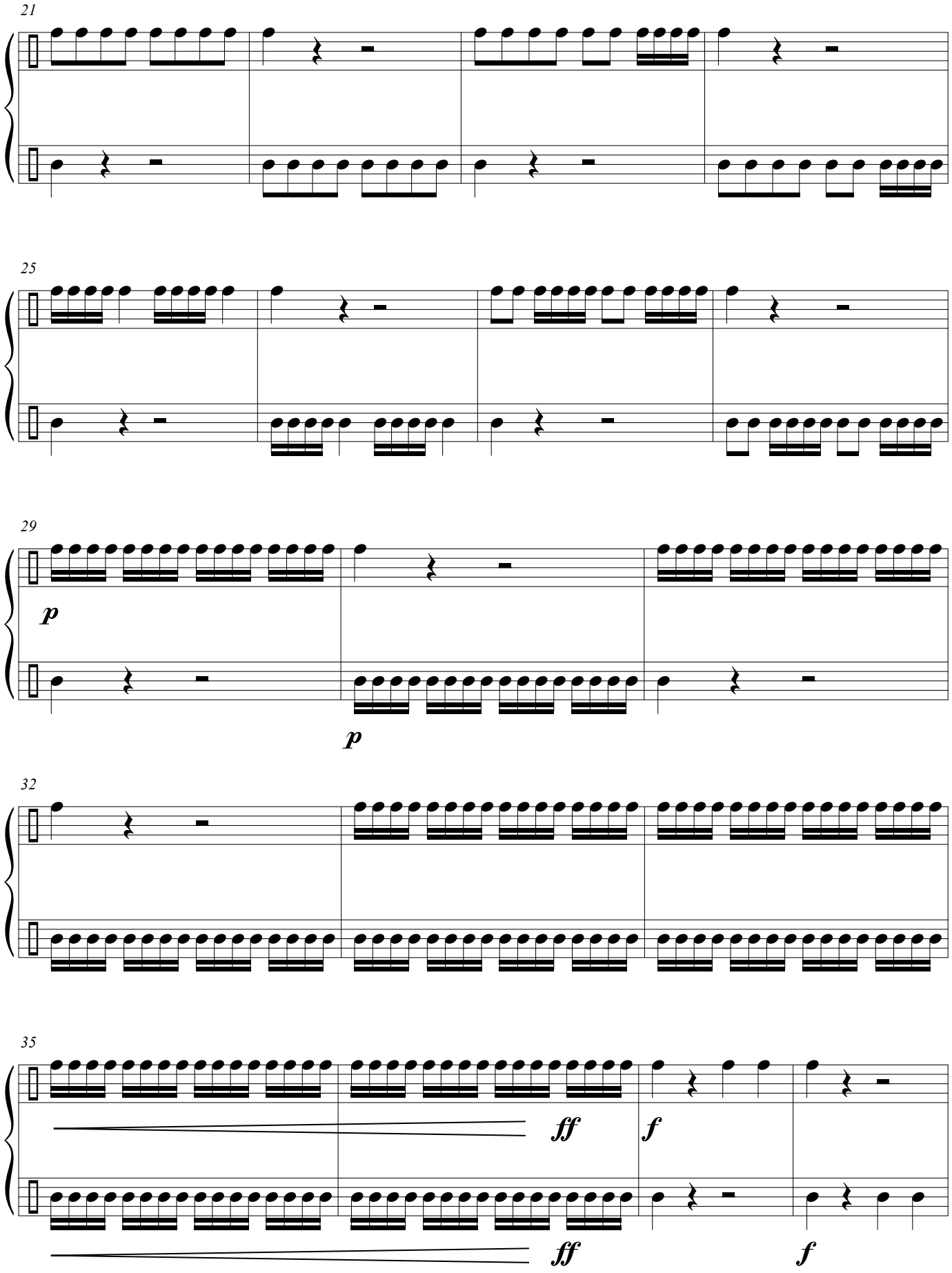
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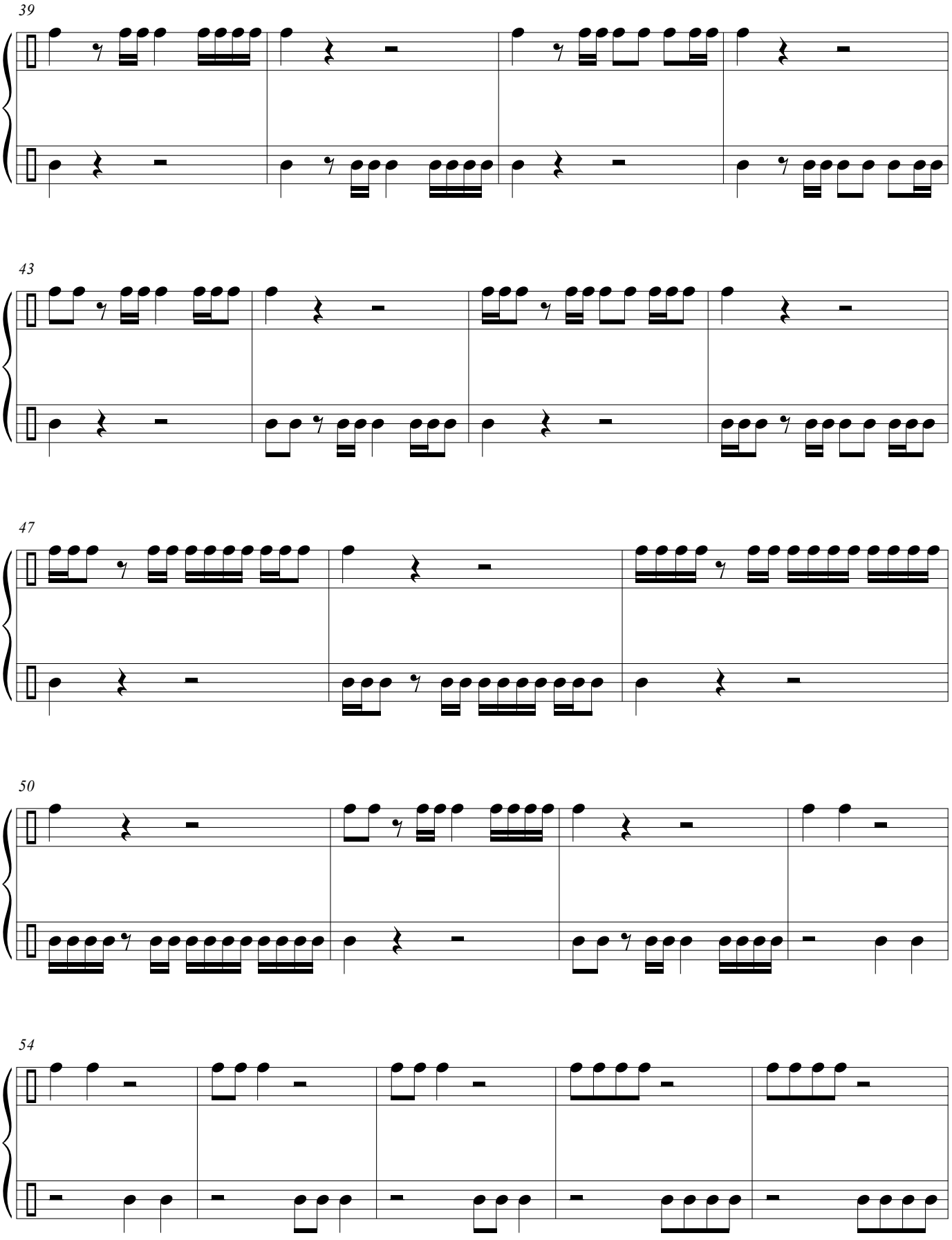
Drumming
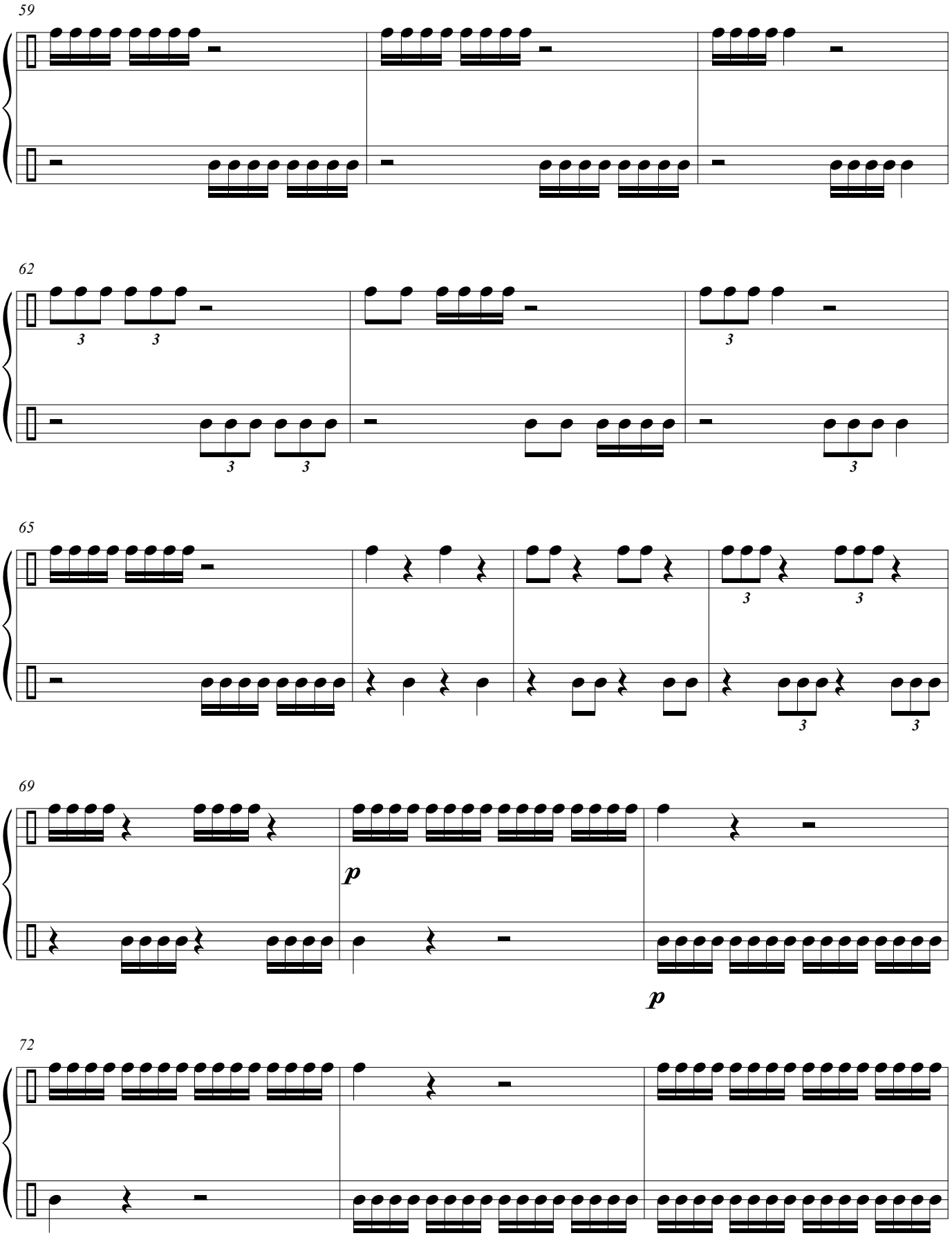
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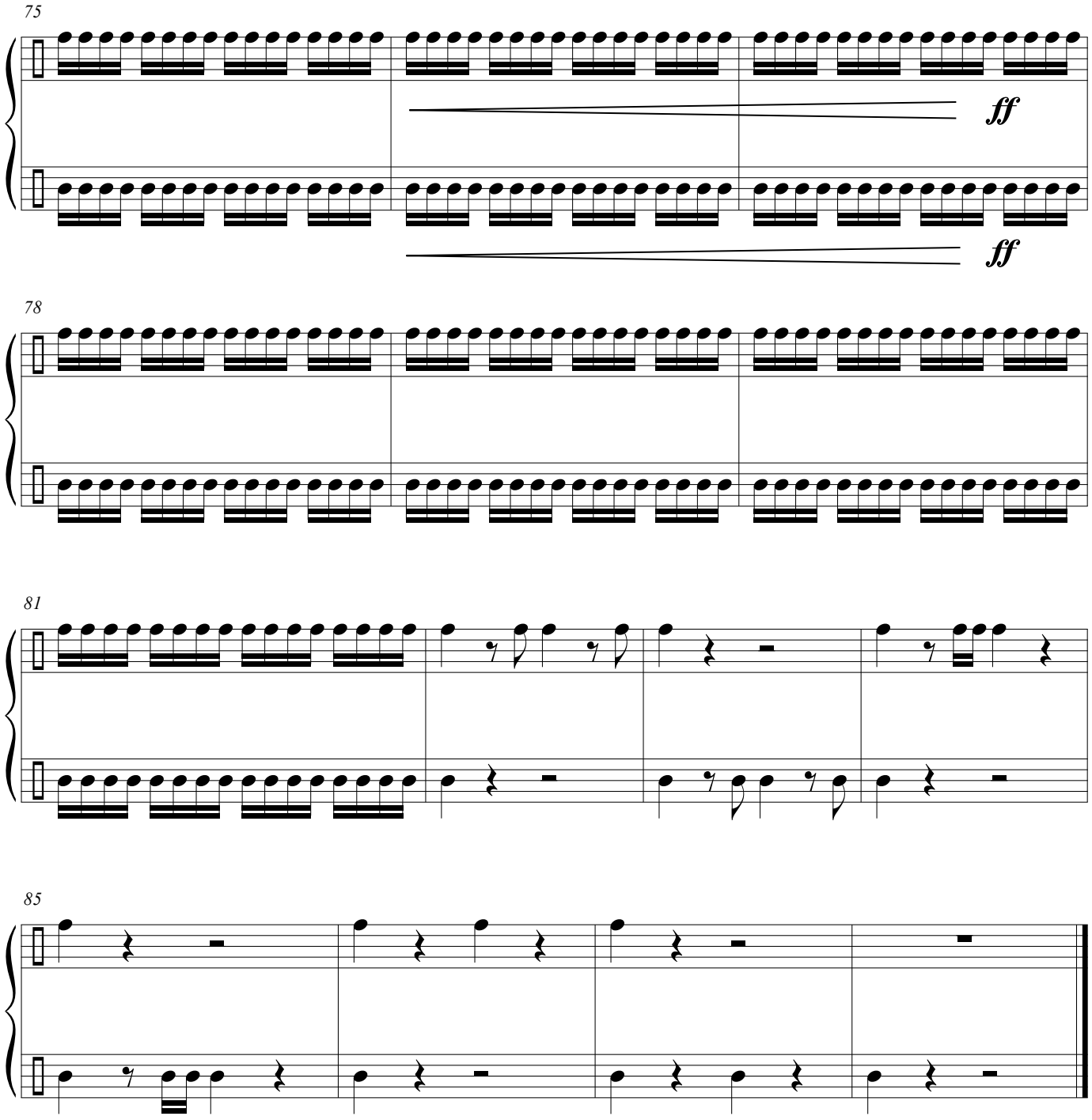


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21
25
29
p
p
32
35
ff
f
ff
f


39
43
47
50
54


59
62
65
69
p
p
72
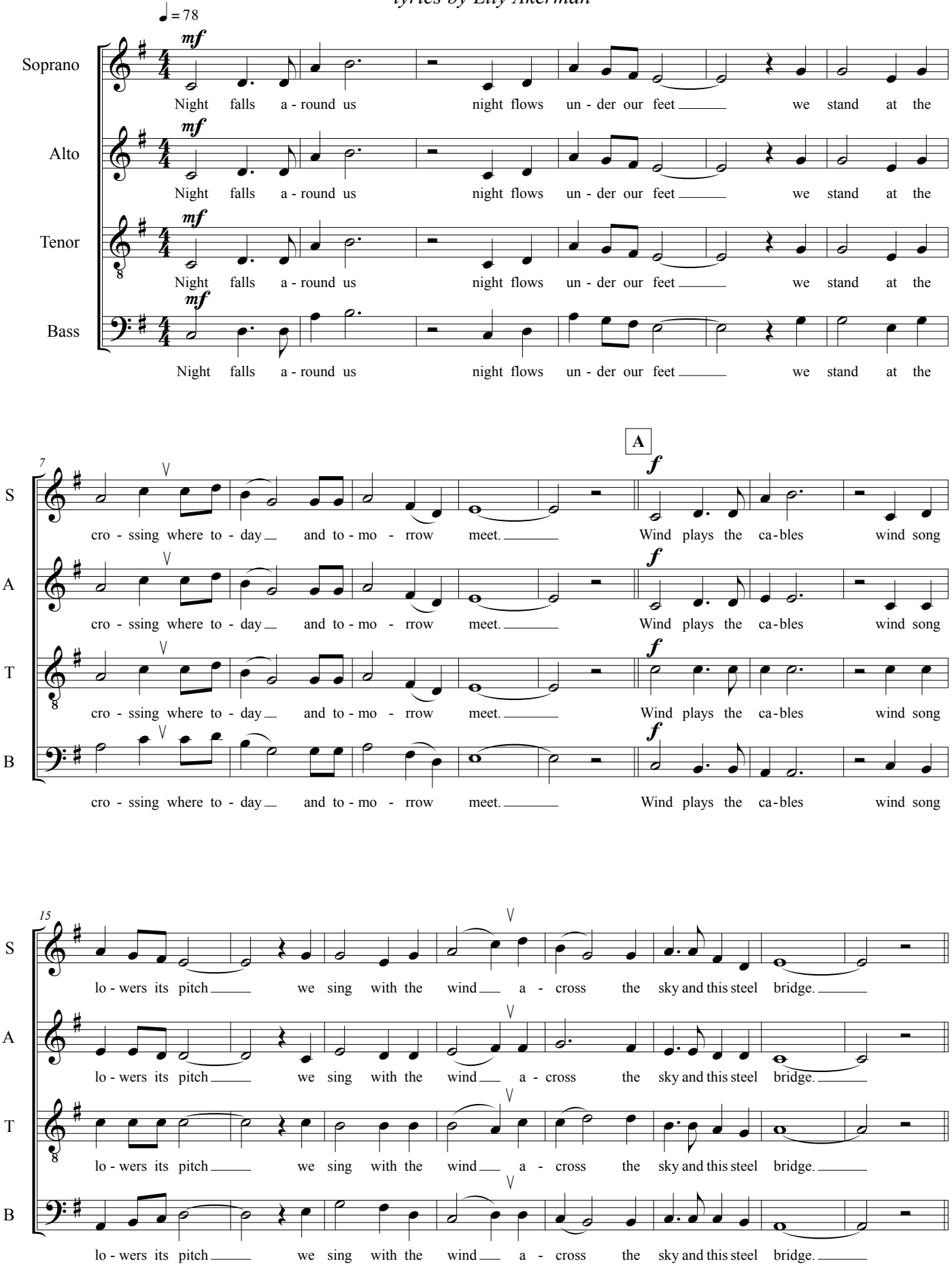

75
ff
ff
78
81
85

HARP
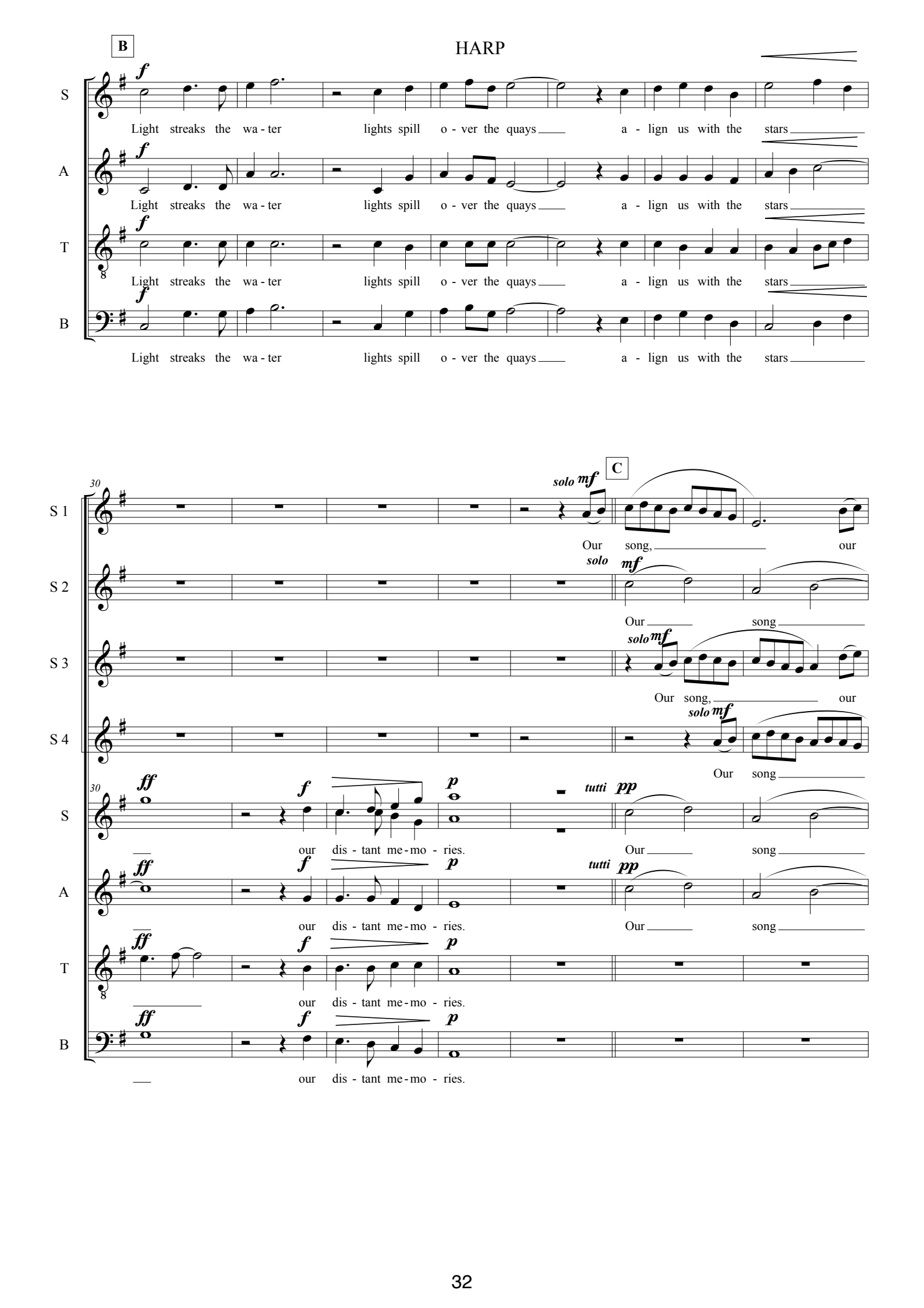
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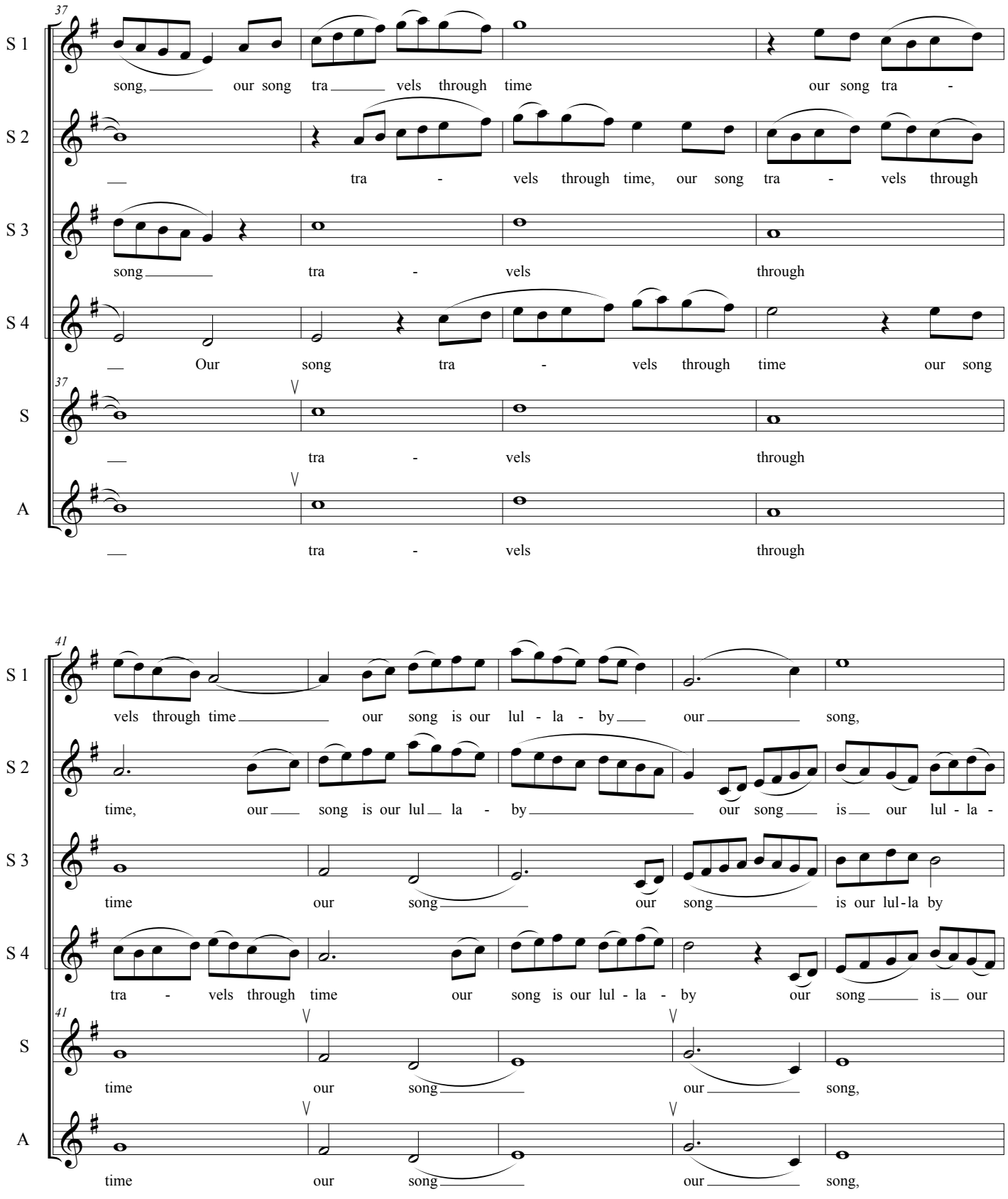
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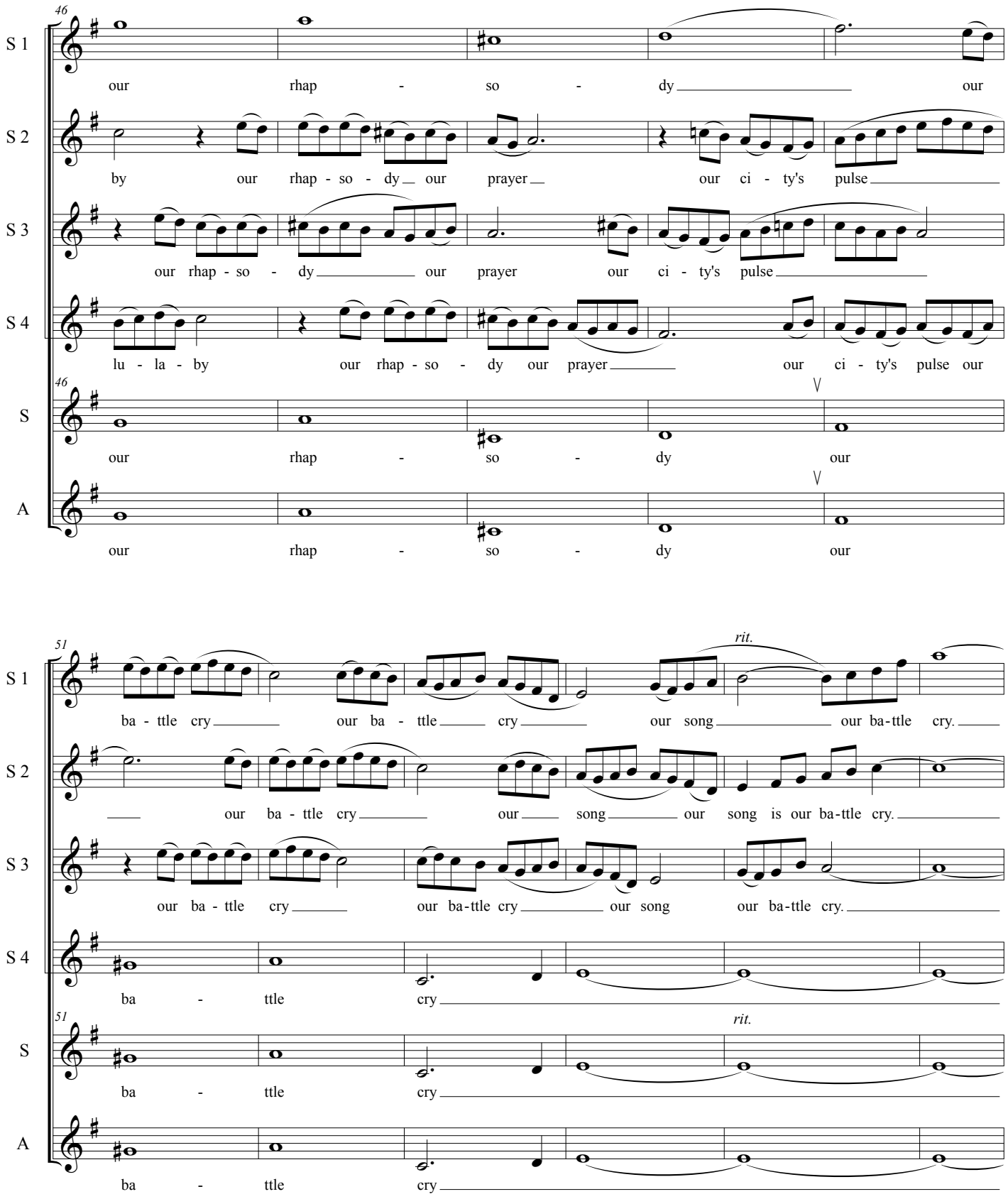
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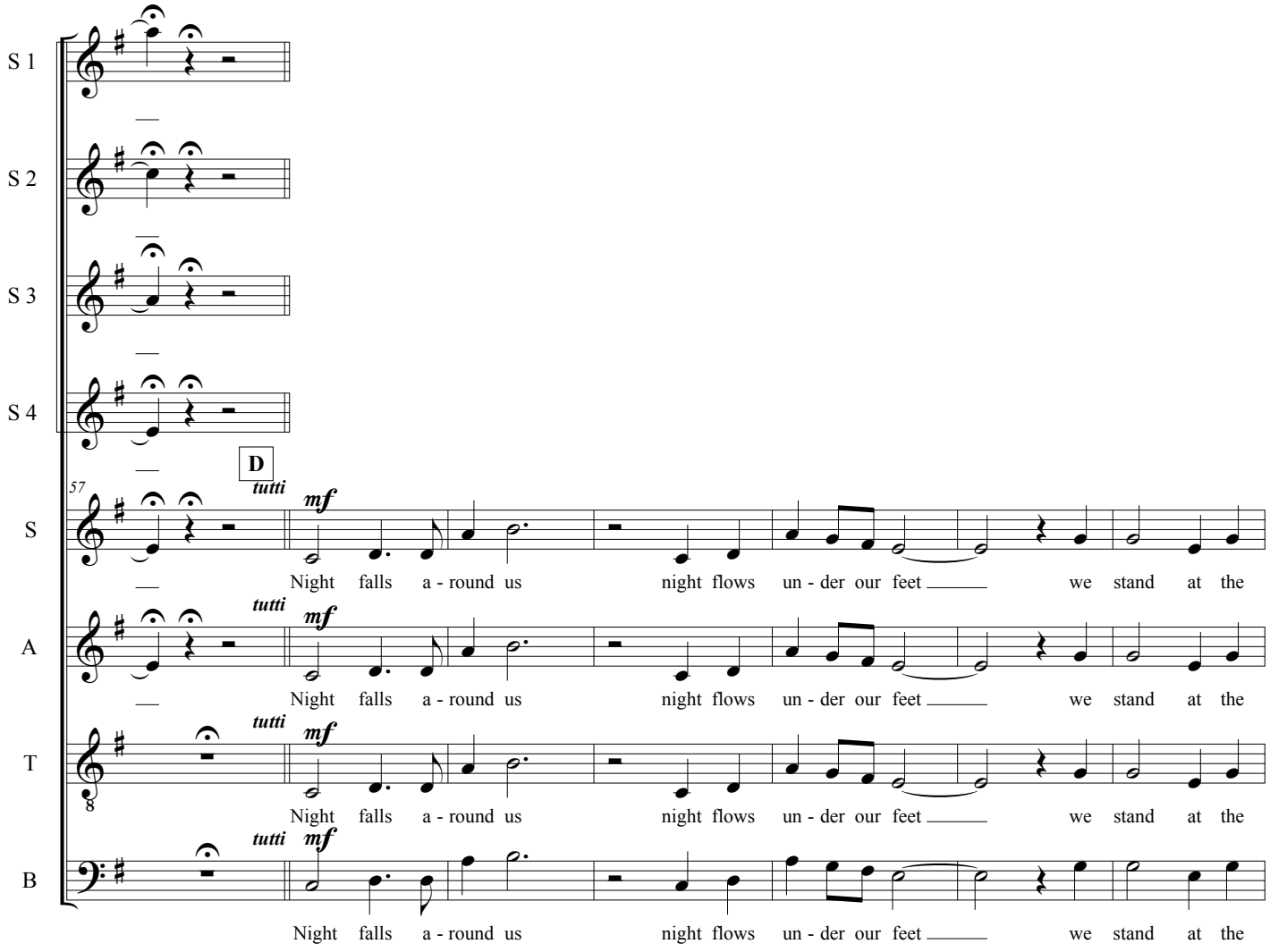


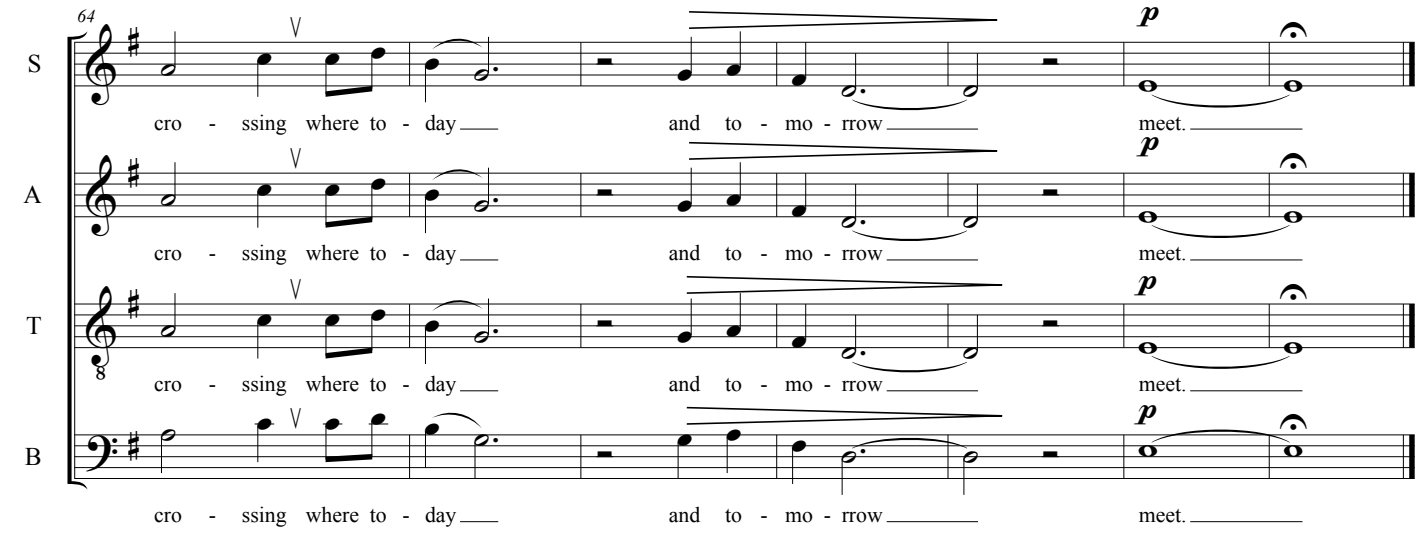
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HARP
B
S
A
T
B
Light streaks the wa - ter lights spill o - ver the quays a - lign us with the stars
C
S 1
S 2
S 3
S 4
solo mf
Our song, our
Our song
tutti pp
our dis - tant me - mo - ries.


37
S 1
song, our song tra vels through time our song tra -
S 2
tra - vels through time, our song tra - vels through
S 3
song tra - vels through
S 4
Our song tra - vels through time our song
37
S
tra - vels through
A
tra - vels through
41
S 1
vels through time our song is our lul - la - by our song,
S 2
time, our song is our lul la - by our song is our lul - la -
S 3
time our song our song is our lul-la by
S 4
tra - vels through time our song is our lul - la - by our song is our
41
S
time our song our song,
A
time our song our song,


46
S 1
our rhap - so - dy our
S 2
by our rhap - so - dy our prayer our ci - ty's pulse
S 3
our rhap - so - dy our prayer our ci - ty's pulse
S 4
lu - la - by our rhap - so - dy our prayer our ci - ty's pulse our
46
S
our rhap - so - dy our
A
our rhap - so - dy our
51
rit.
S 1
ba - ttle cry our ba - ttle cry our song our ba-ttle cry.
S 2
our ba - ttle cry our song our song is our ba-ttle cry.
S 3
our ba - ttle cry our ba-ttle cry our song our ba-ttle cry.
S 4
ba - ttle cry
51
rit.
S
ba - ttle cry
A
ba - ttle cry


S 1
S 2
S 3
S 4
D
57
tutti
mf
S
A
T
B
Night falls a - round us night flows un - der our feet we stand at the


64
S
A
T
B
p
cro - ssing where to - day and to - mo - rrow meet.
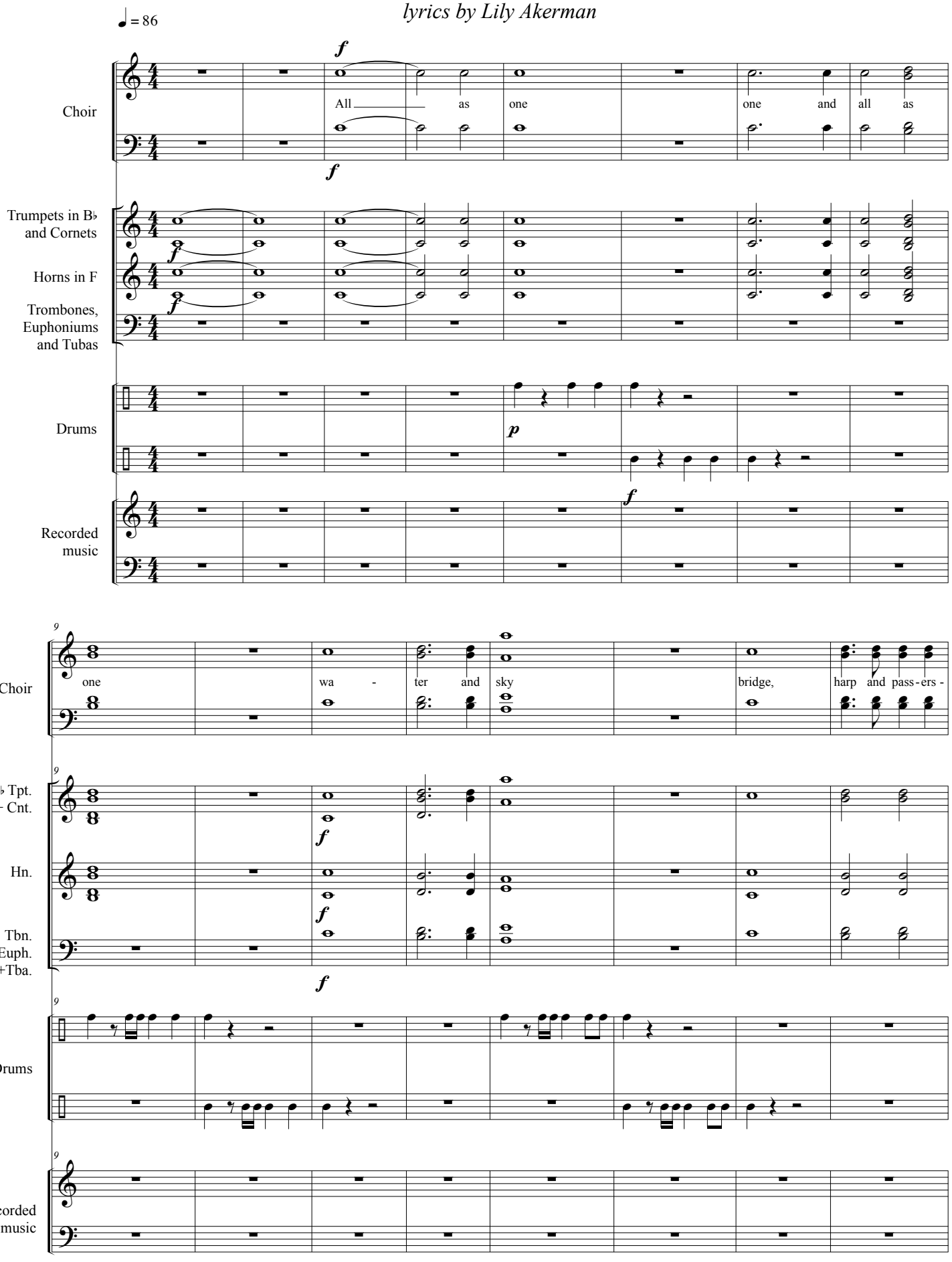
Score in C

HARP
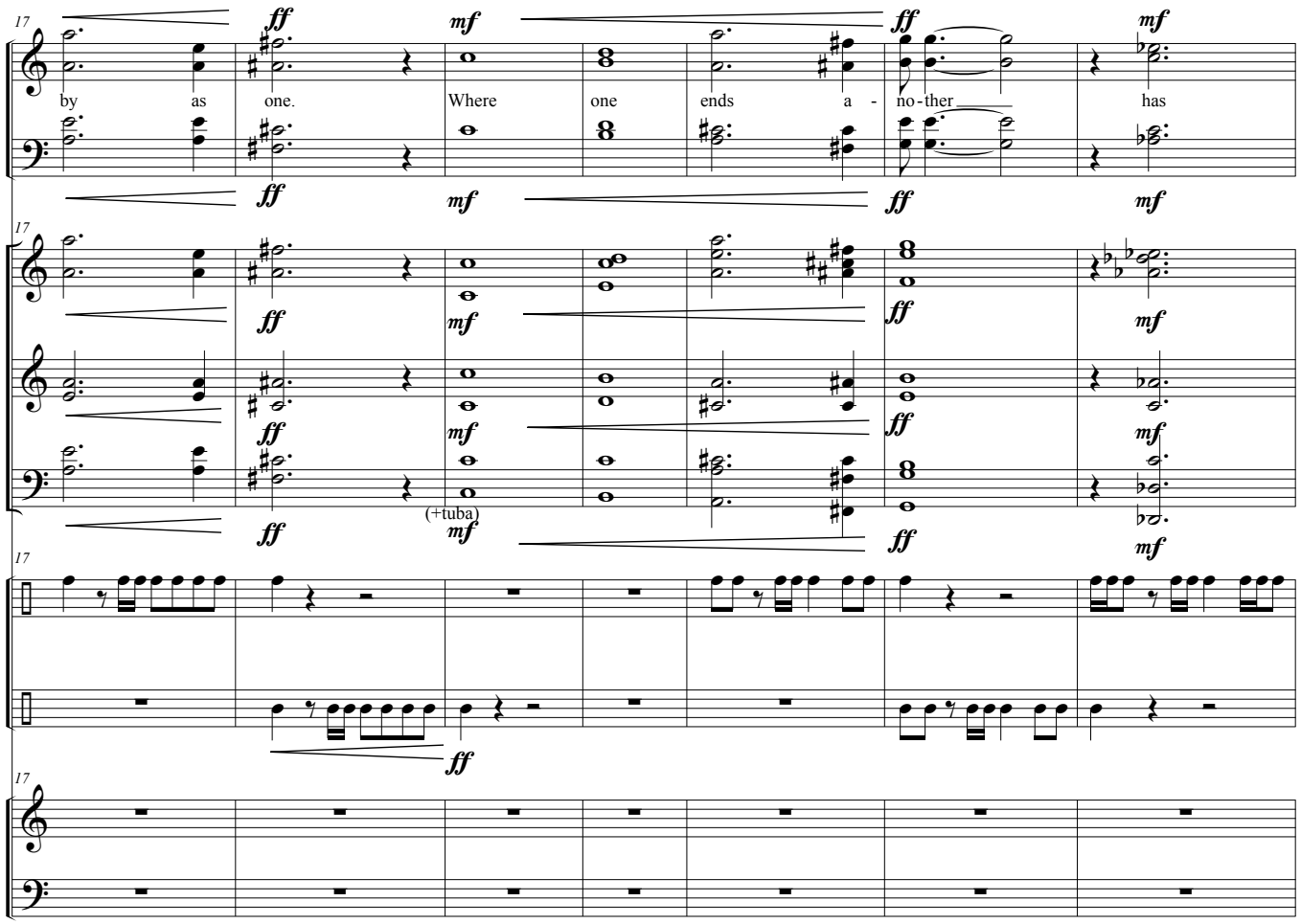
Musical centrepiece FULL SCORE
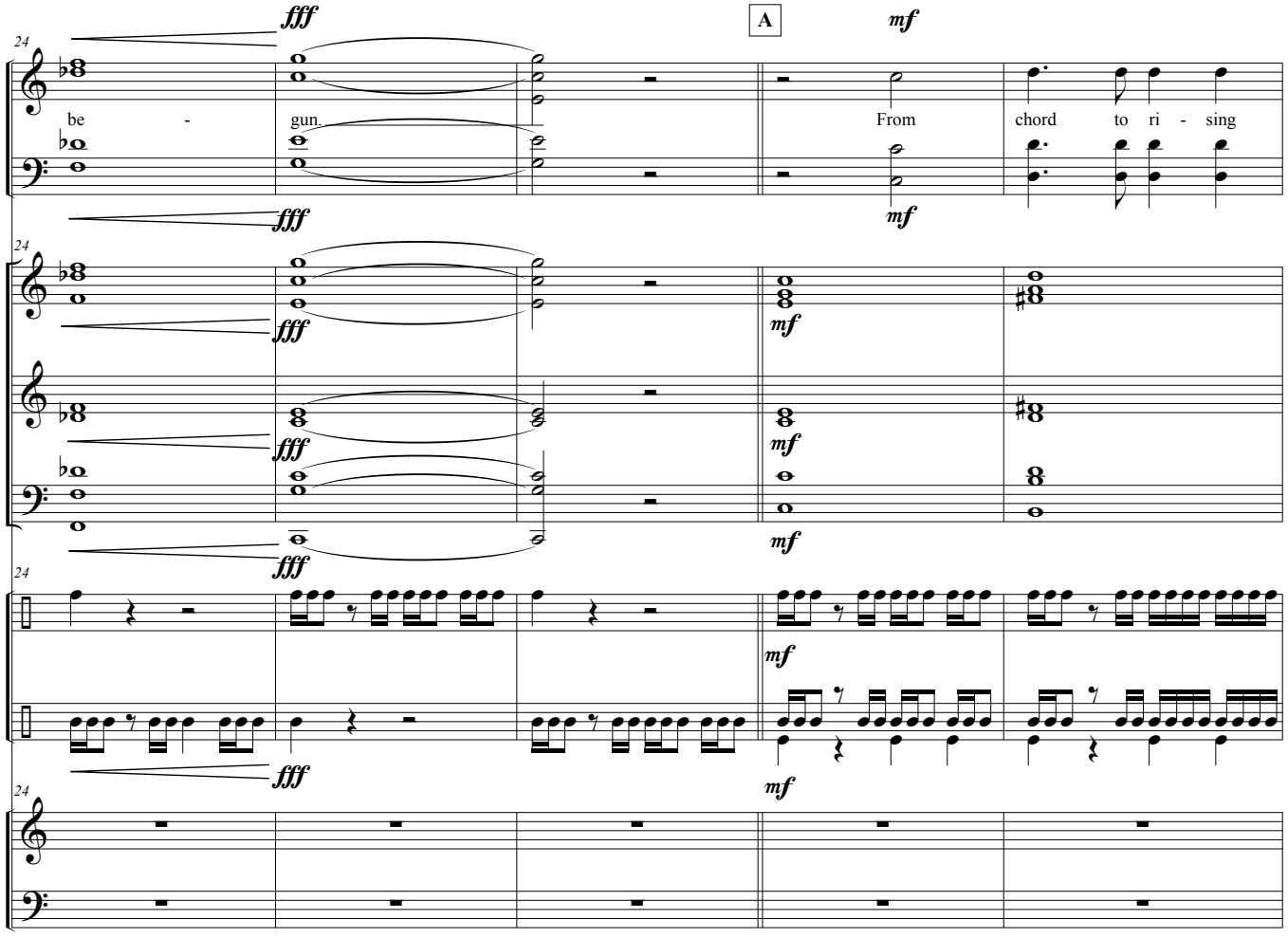
lyrics by Lily Akerman
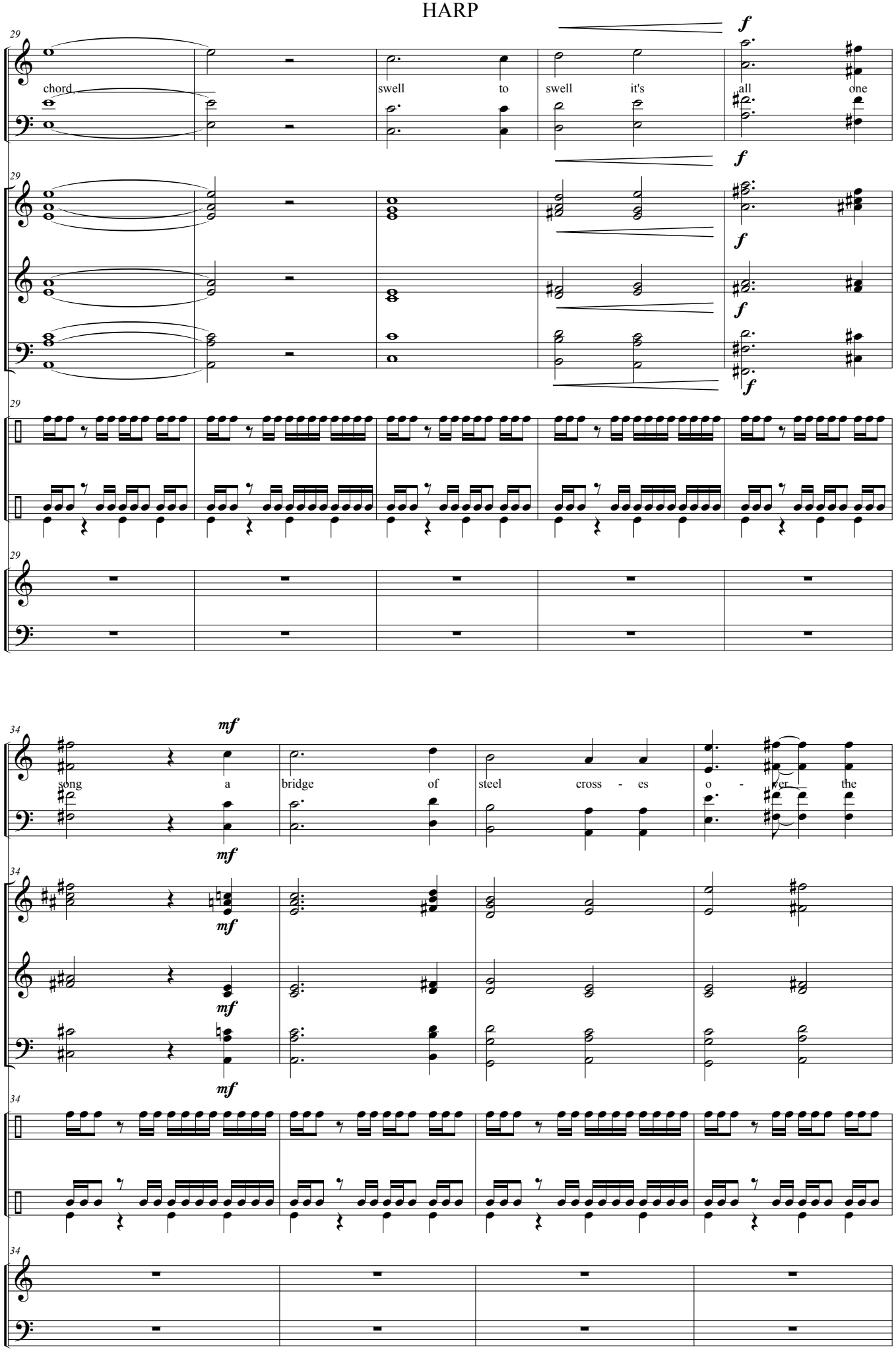
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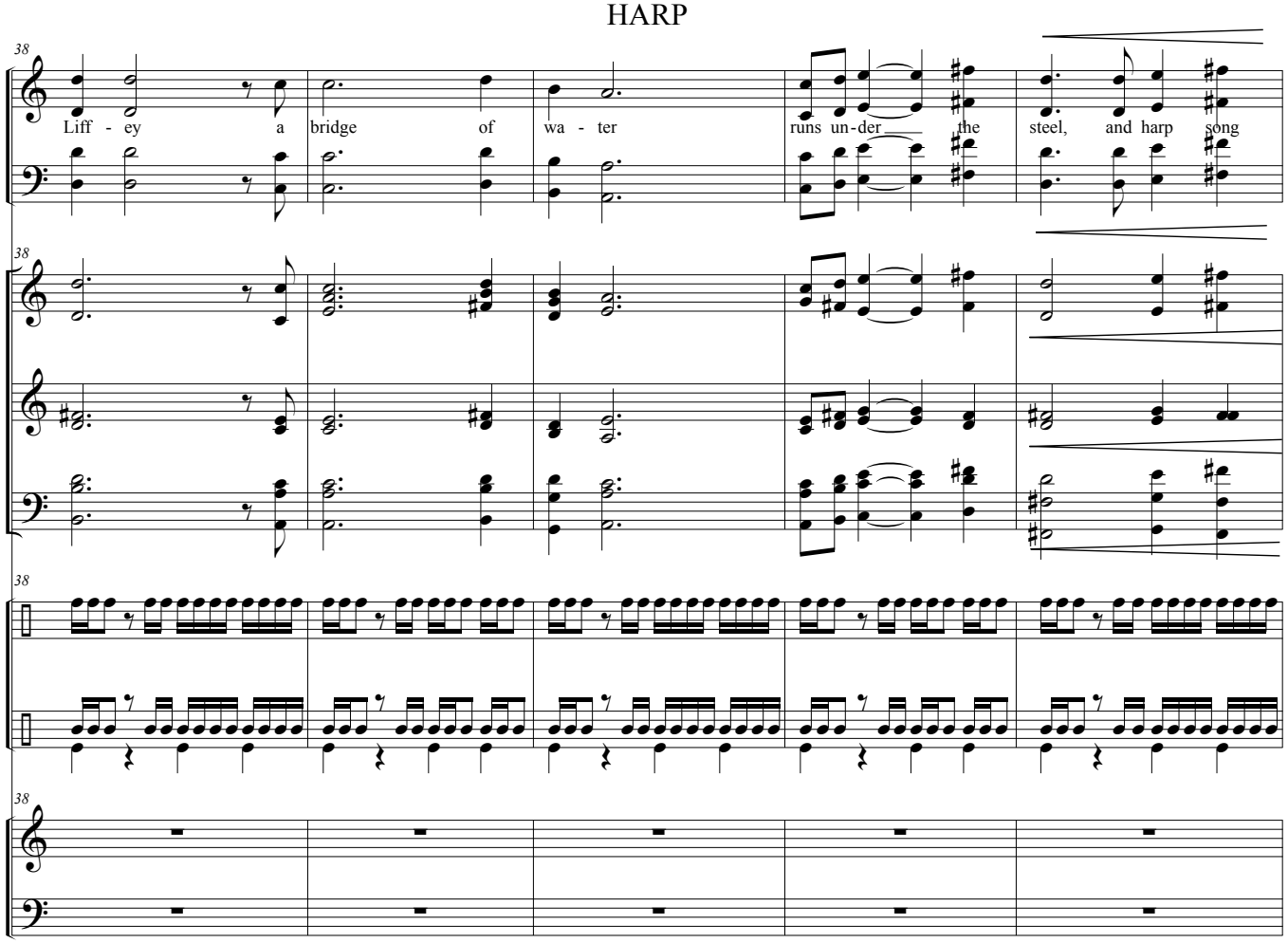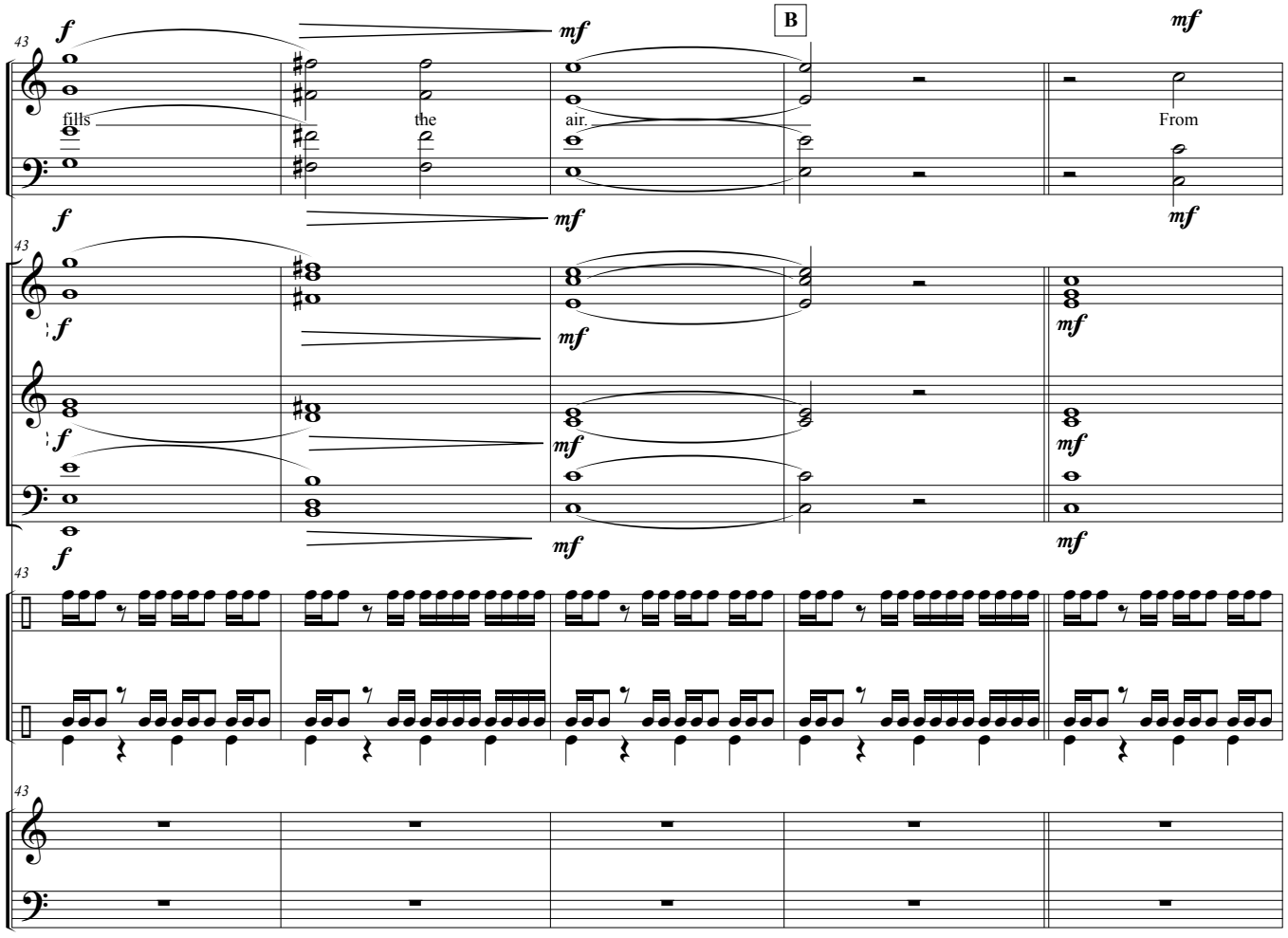


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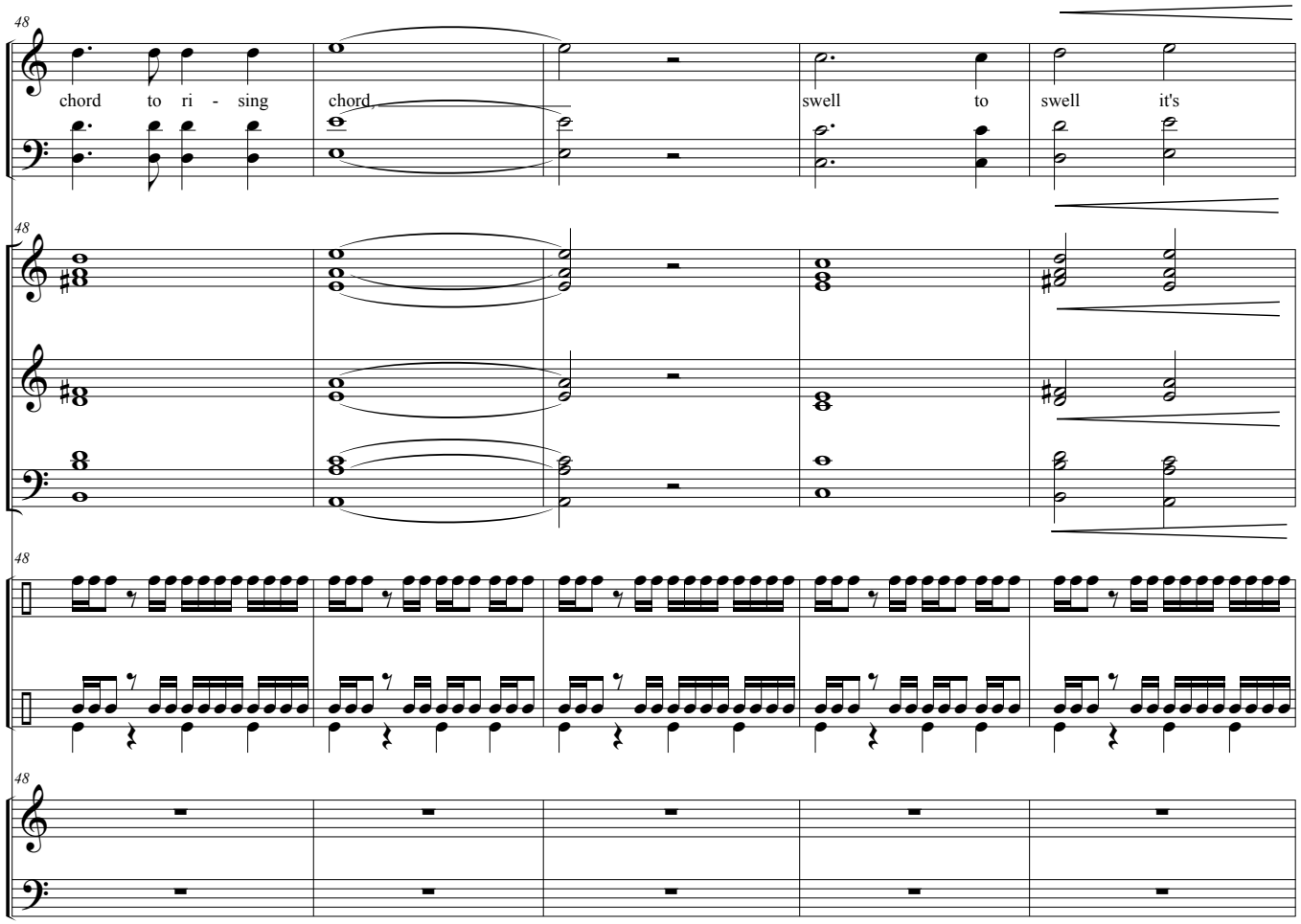

17
Choir
by as one. Where one ends a - no - ther has
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
(+tuba)
Drums
Recorded music
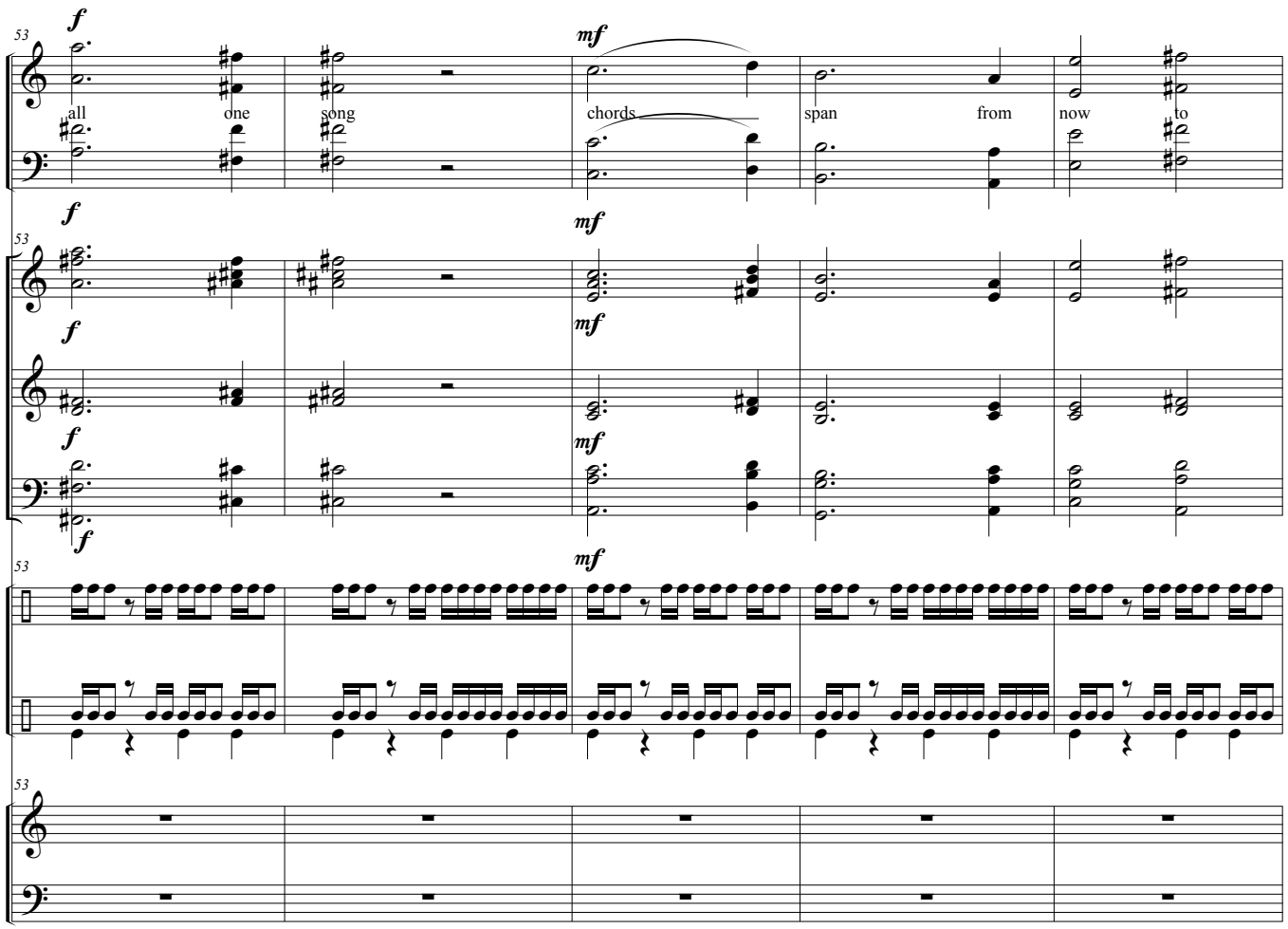

24
A
Choir
be - gun. From chord to ri - sing
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music
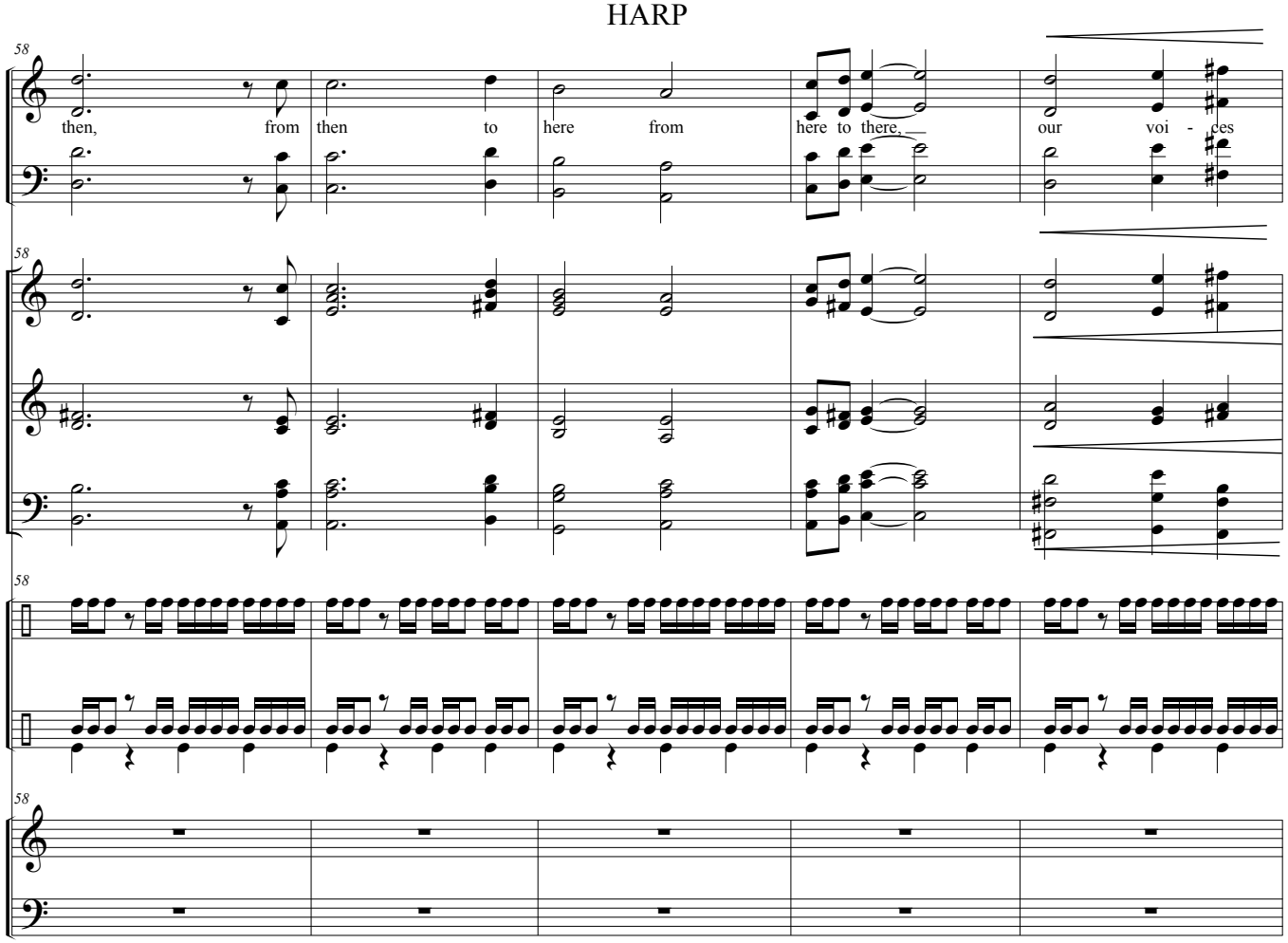

29
Choir
chord
swell
to
swell
it's
all
one
f
B♭ Tpt.
+ Cnt.
Hn.
Tbn.
+Euph.
+Tba.
Drums
Recorded
music
34
mf
song
a
bridge
of
steel
cross
-
es
o
-
ver
the

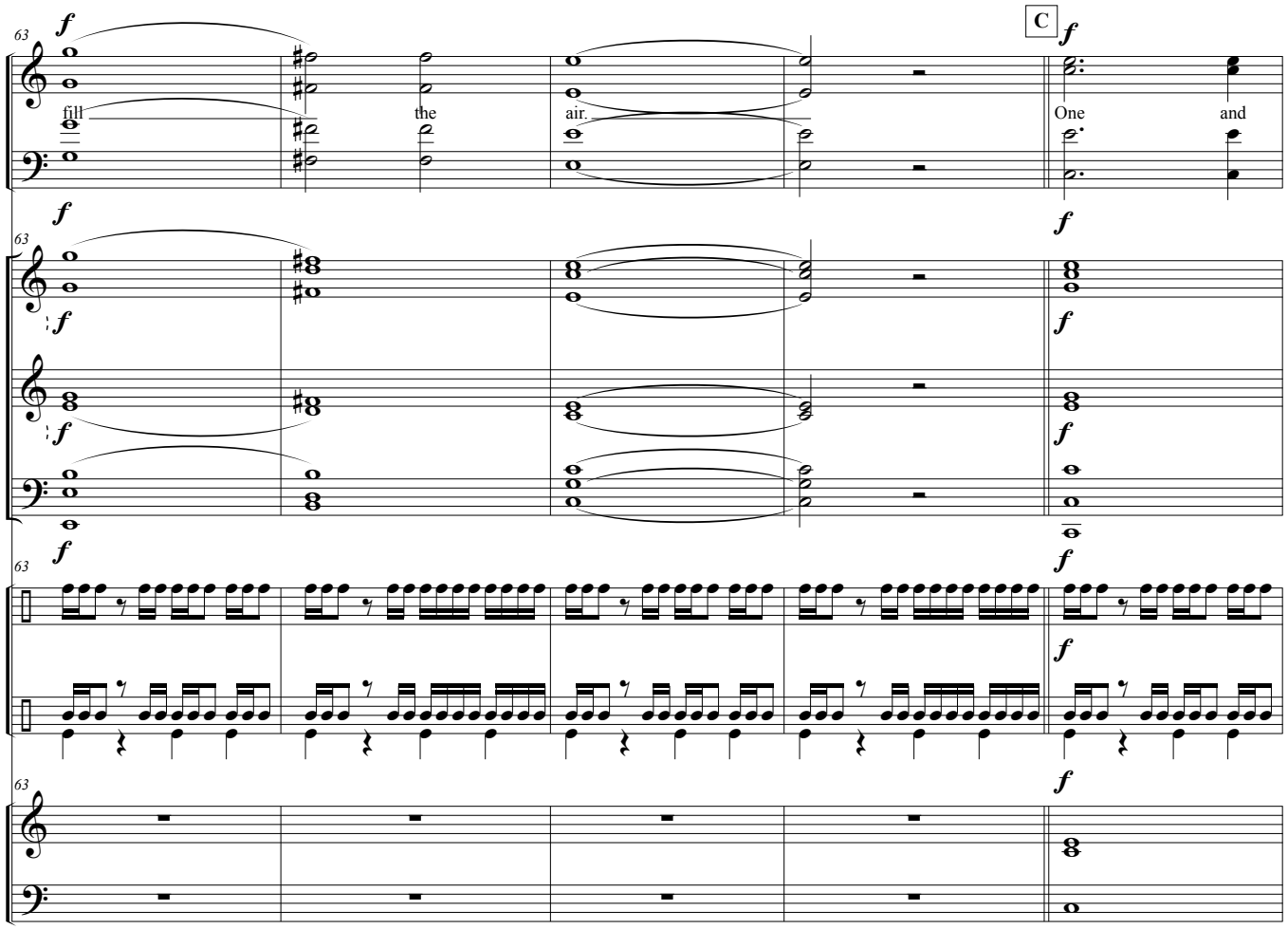

38
Choir
Liff - ey a bridge of wa - ter runs un-der the steel, and harp song
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music
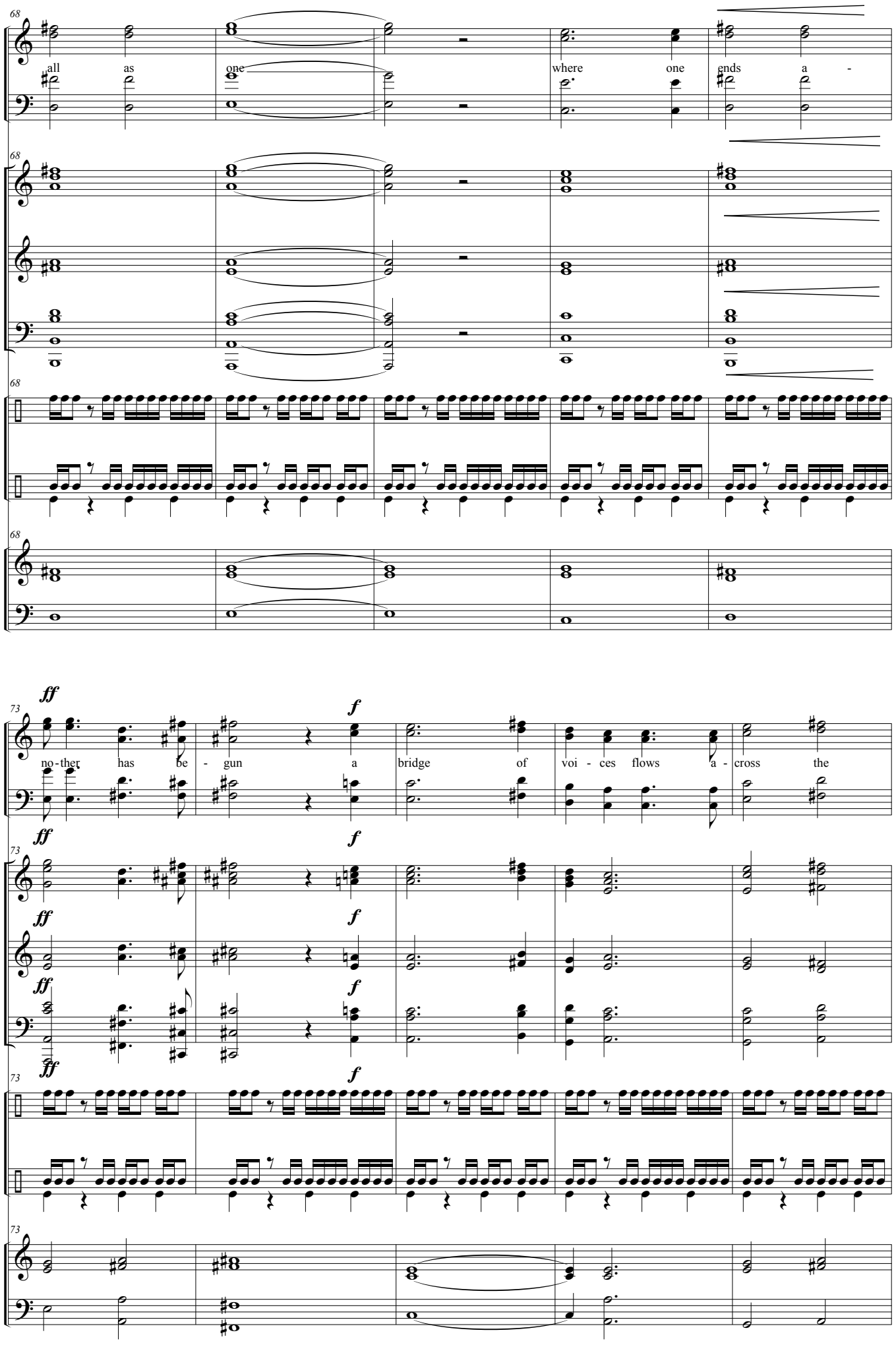

43
B
f
mf
fills the air. From
Choir
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music
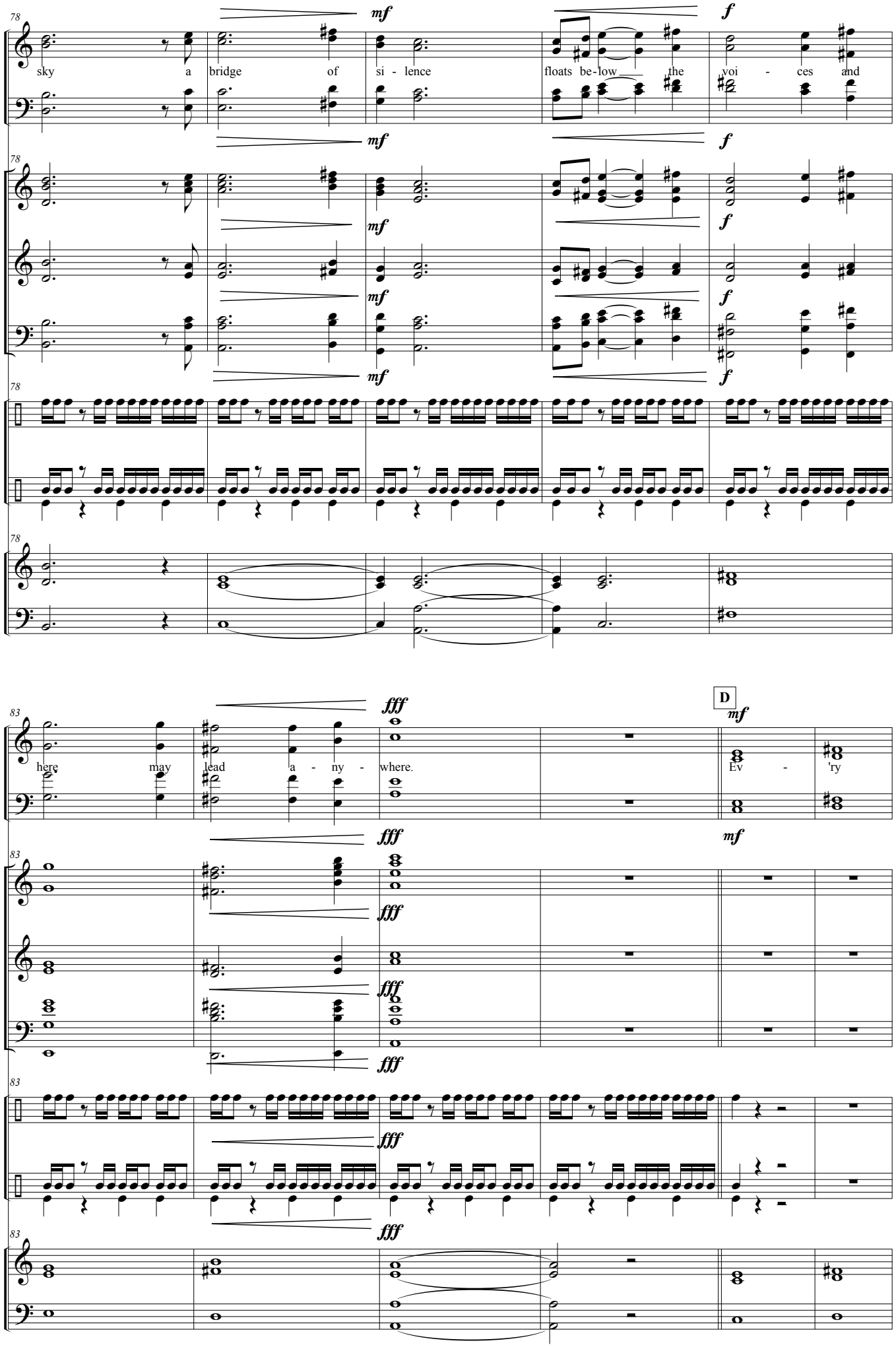

48
Choir
chord to ri - sing chord swell to swell it's
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music
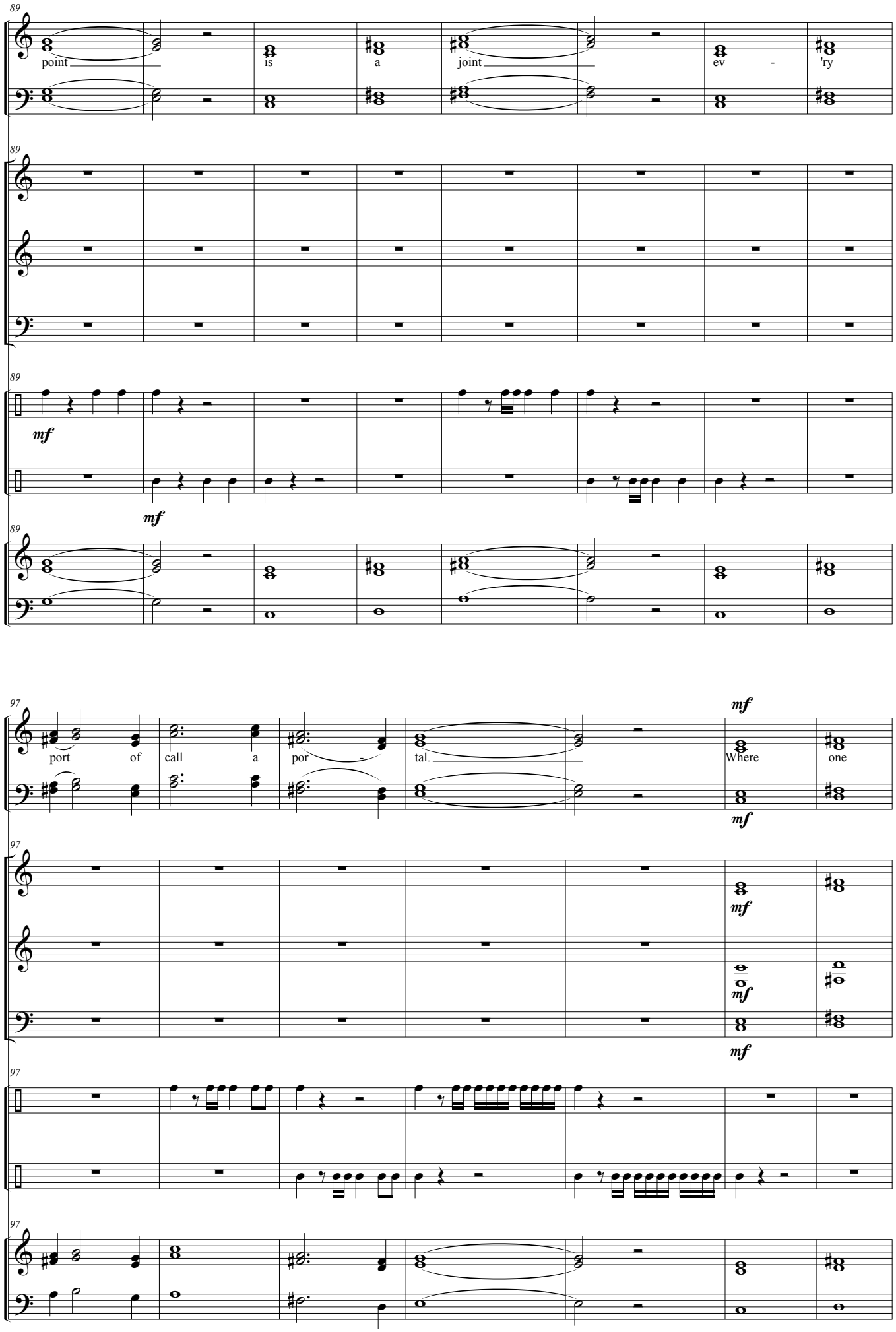

53
f
mf
Choir
all one song chords span from now to
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music
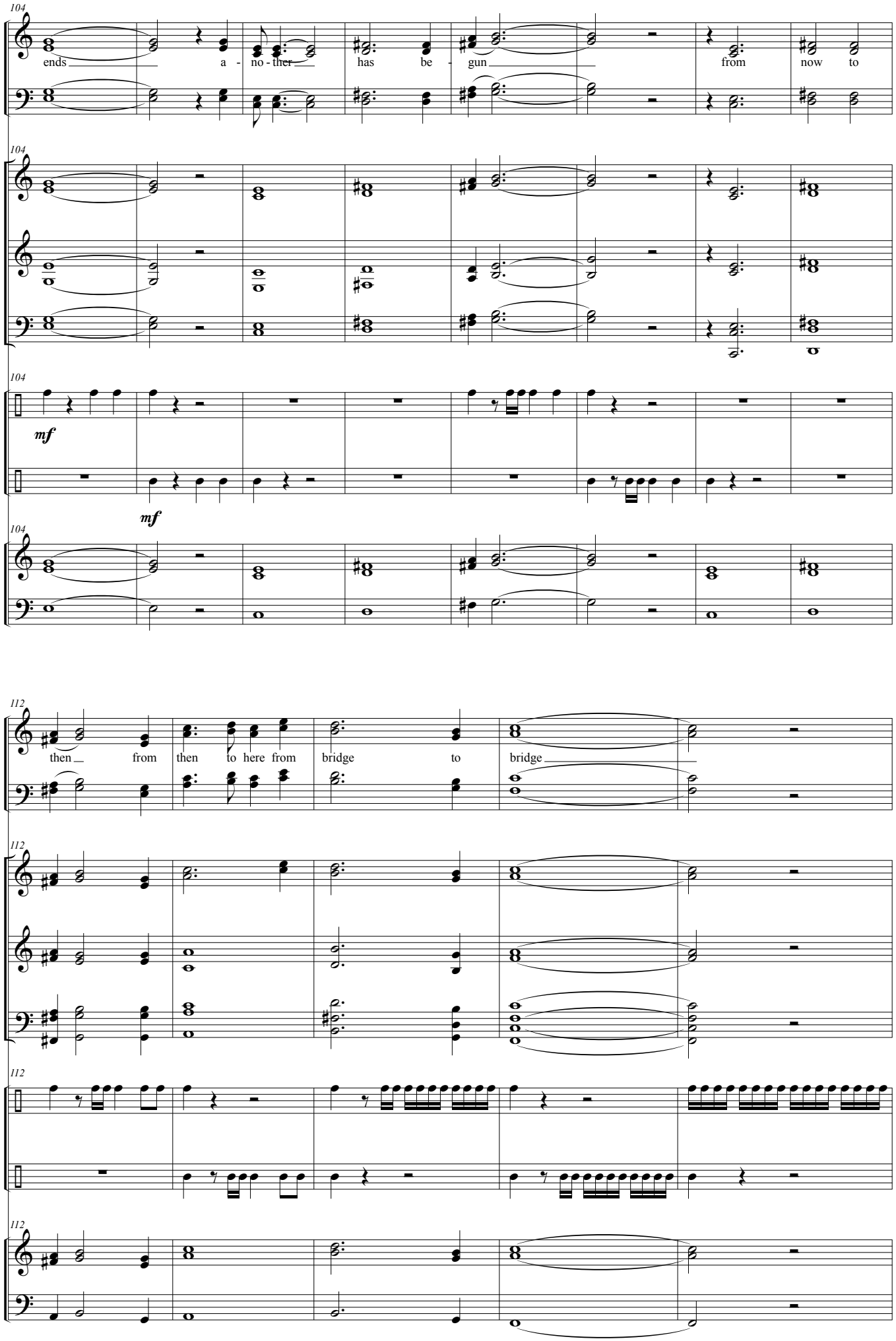

58
Choir
then, from then to here from here to there, our voi - ces
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music

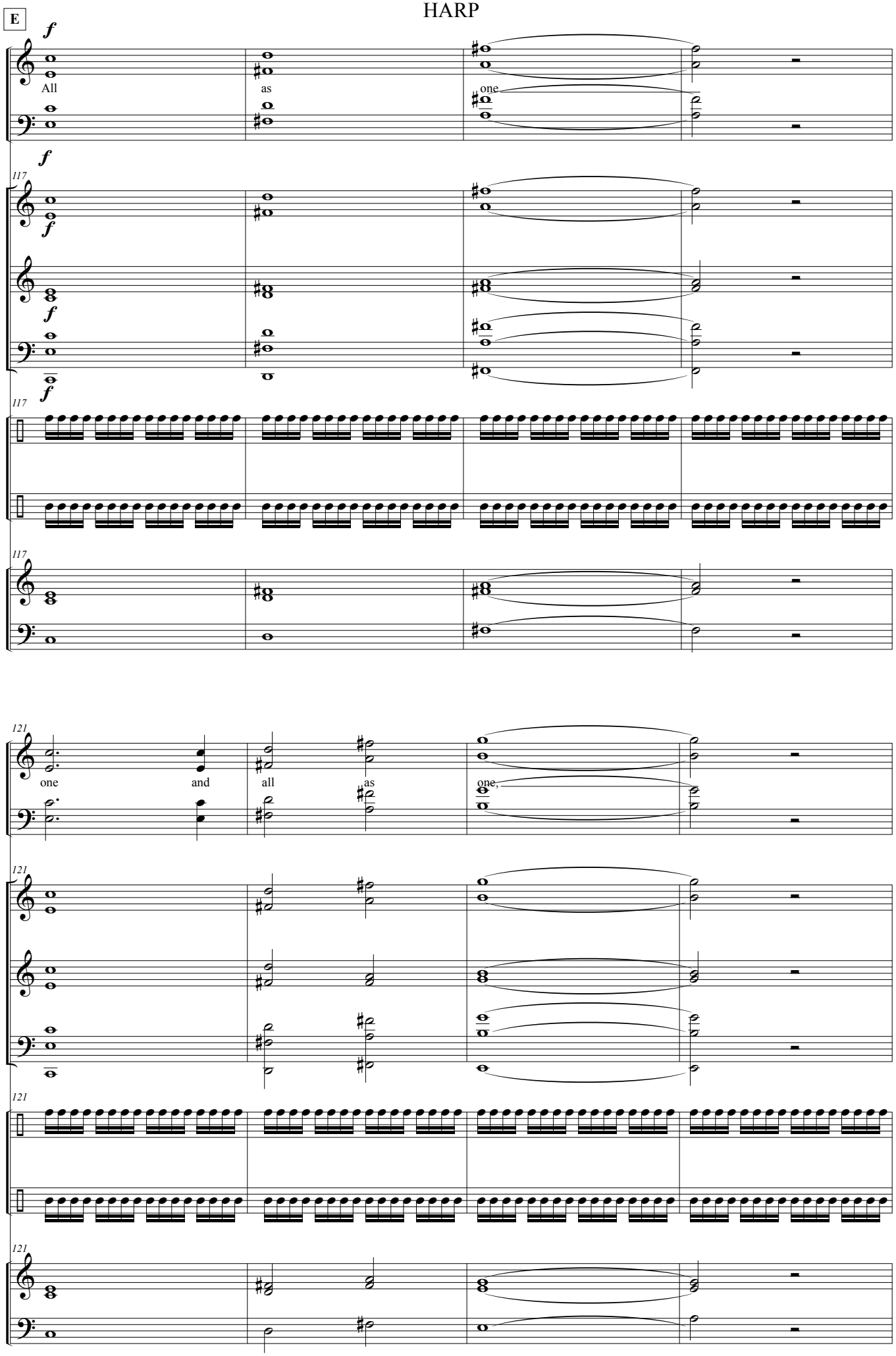

63
C
f
Choir
fill the air. One and
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music

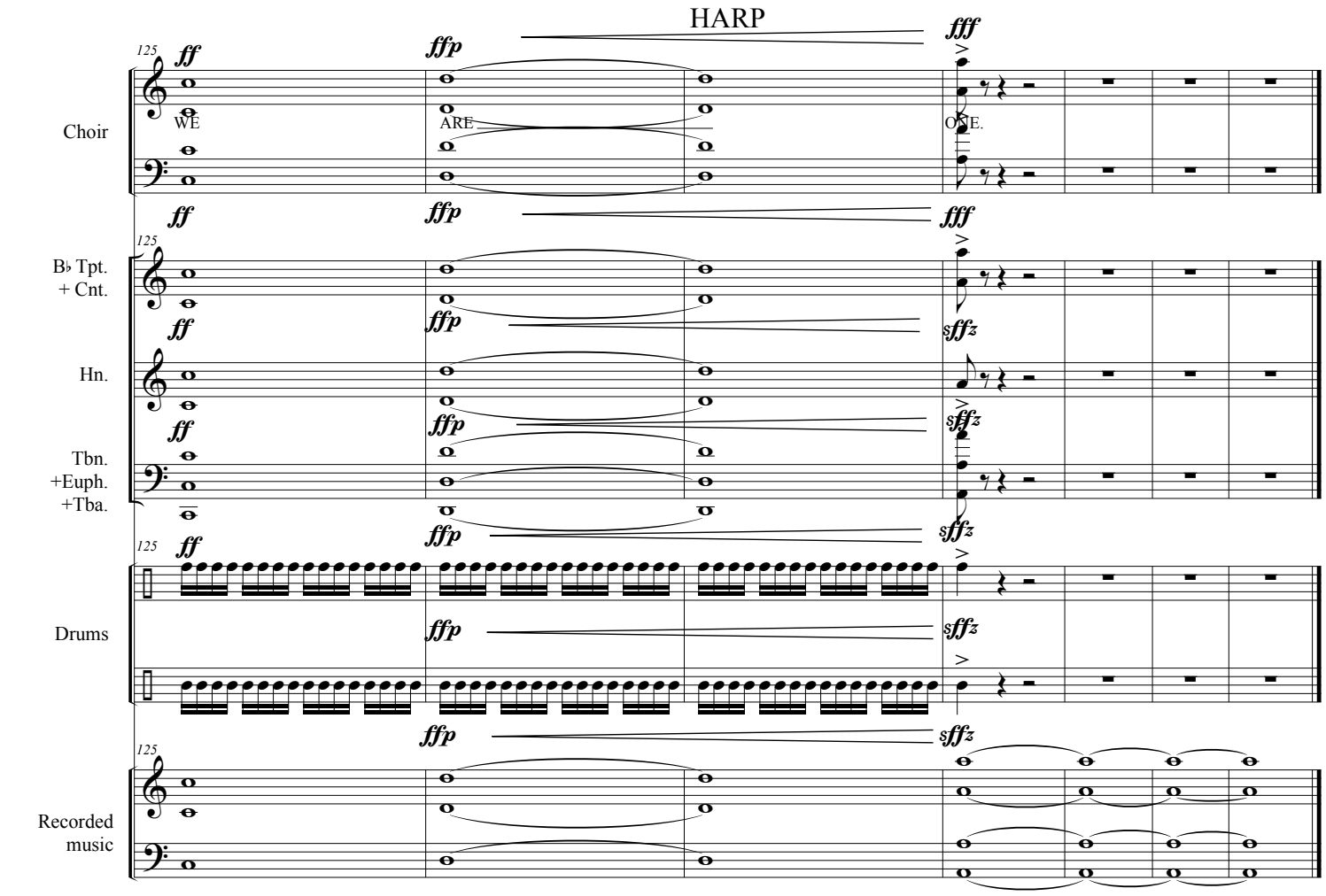

68
Choir
all as one where one ends a -
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music
73
ff
f
no-ther has be - gun a bridge of voi - ces flows a - cross the


78
Choir
sky a bridge of si - lence floats be-low the voi - ces and
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music
mf
f
83
here may lead a - ny - where.
D
Ev - 'ry
fff


89
Choir
point
is
a
joint
ev
-
'ry
B♭ Tpt.
+ Cnt.
Hn.
Tbn.
+Euph.
+Tba.
Drums
mf
mf
Recorded
music
97
port
of
call
a
por
-
tal.
mf
Where
one
mf
mf
mf
mf


104
Choir
ends a - no - ther has be - gun from now to
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
mf
mf
Recorded music
112
Choir
then from then to here from bridge to bridge
B♭ Tpt. + Cnt.
Hn.
Tbn. +Euph. +Tba.
Drums
Recorded music


E
Choir
All
as
one
B♭ Tpt.
+ Cnt.
Hn.
Tbn.
+Euph.
+Tba.
Drums
Recorded
music
117
121
one
and
all
as
one,

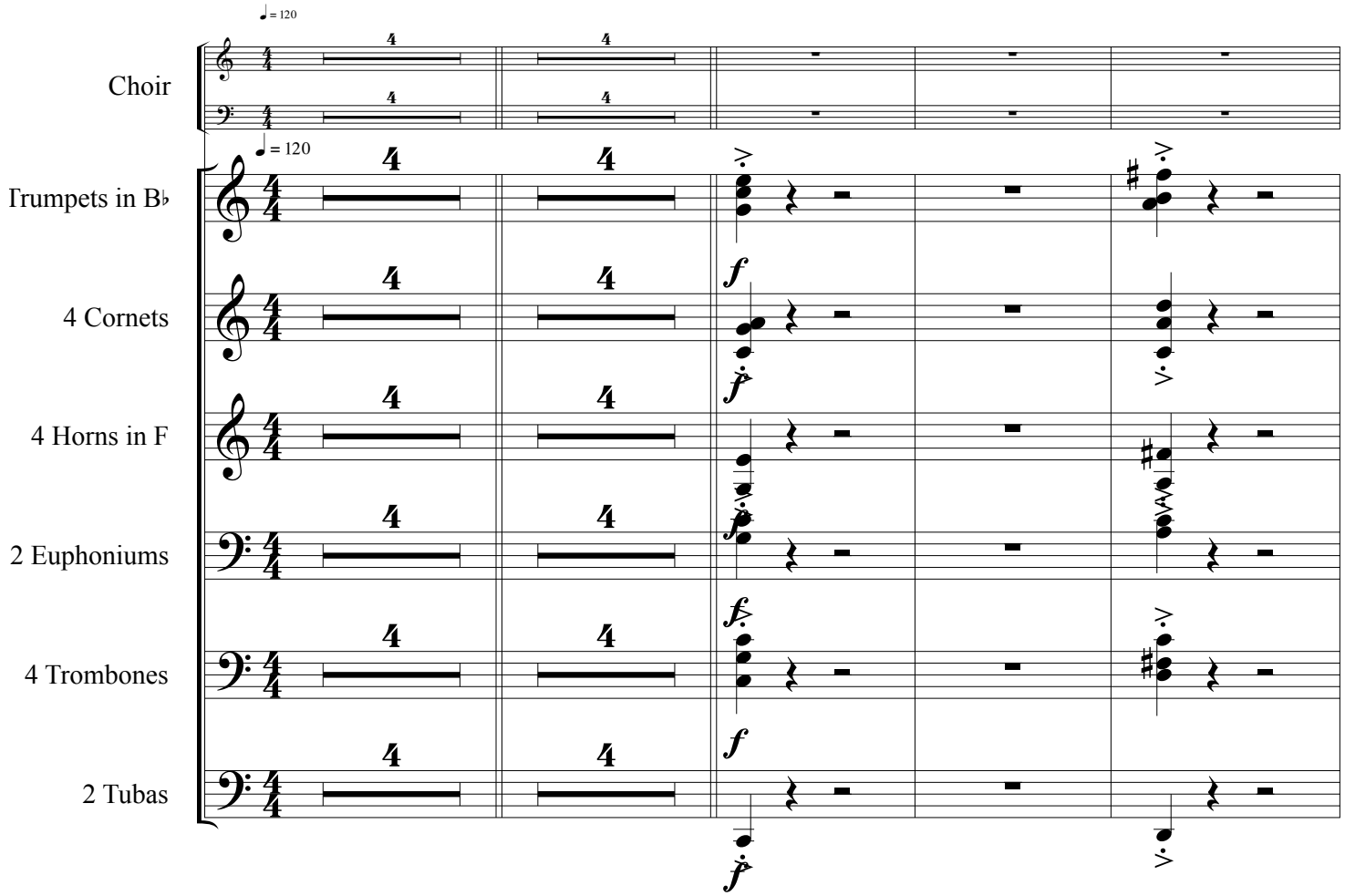

HARP
125
Choir
WE
ARE
ONE.
B♭ Tpt.
+ Cnt.
Hn.
Tbn.
+Euph.
+Tba.
Drums
Recorded
music

HARP
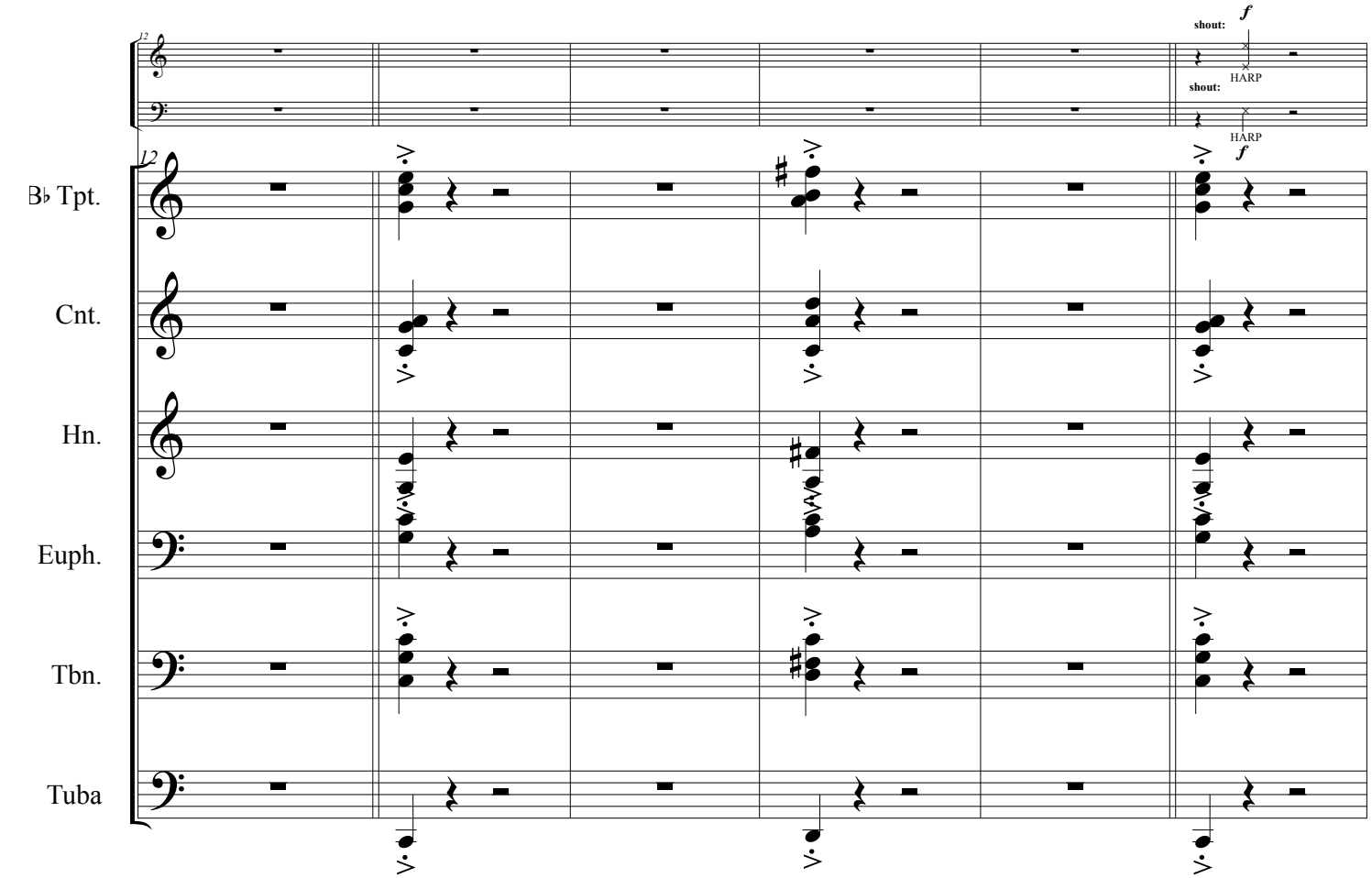
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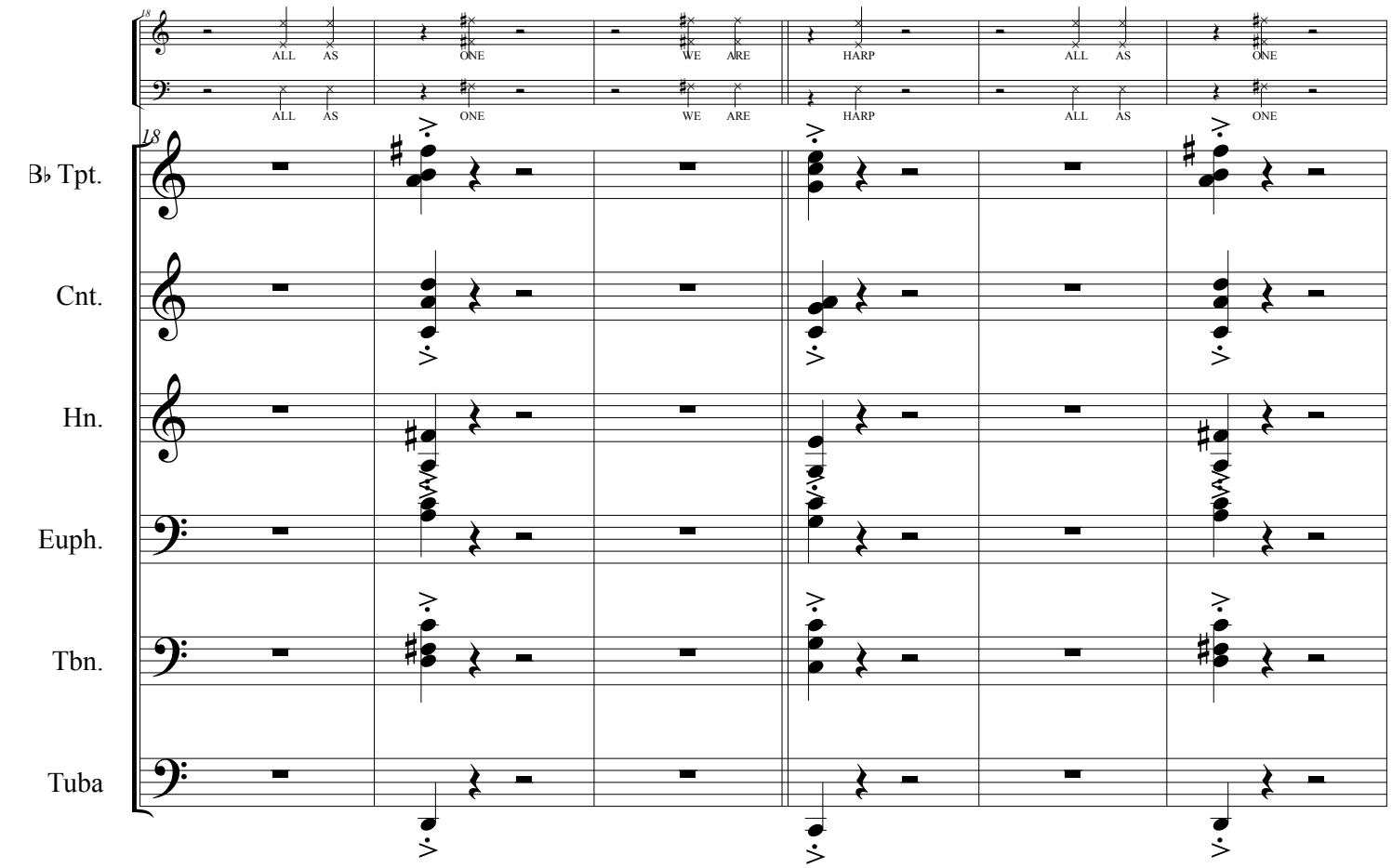
Finale
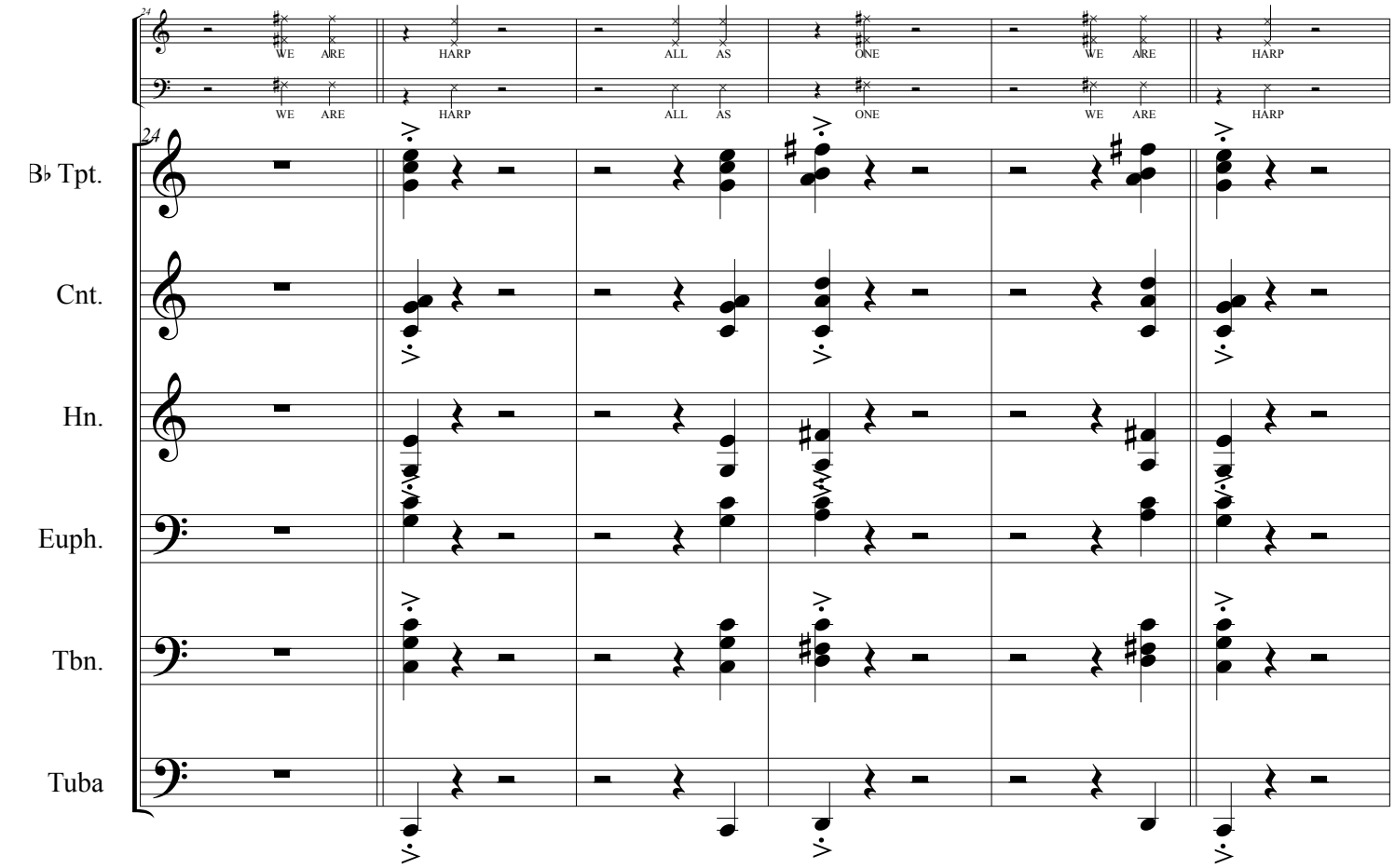
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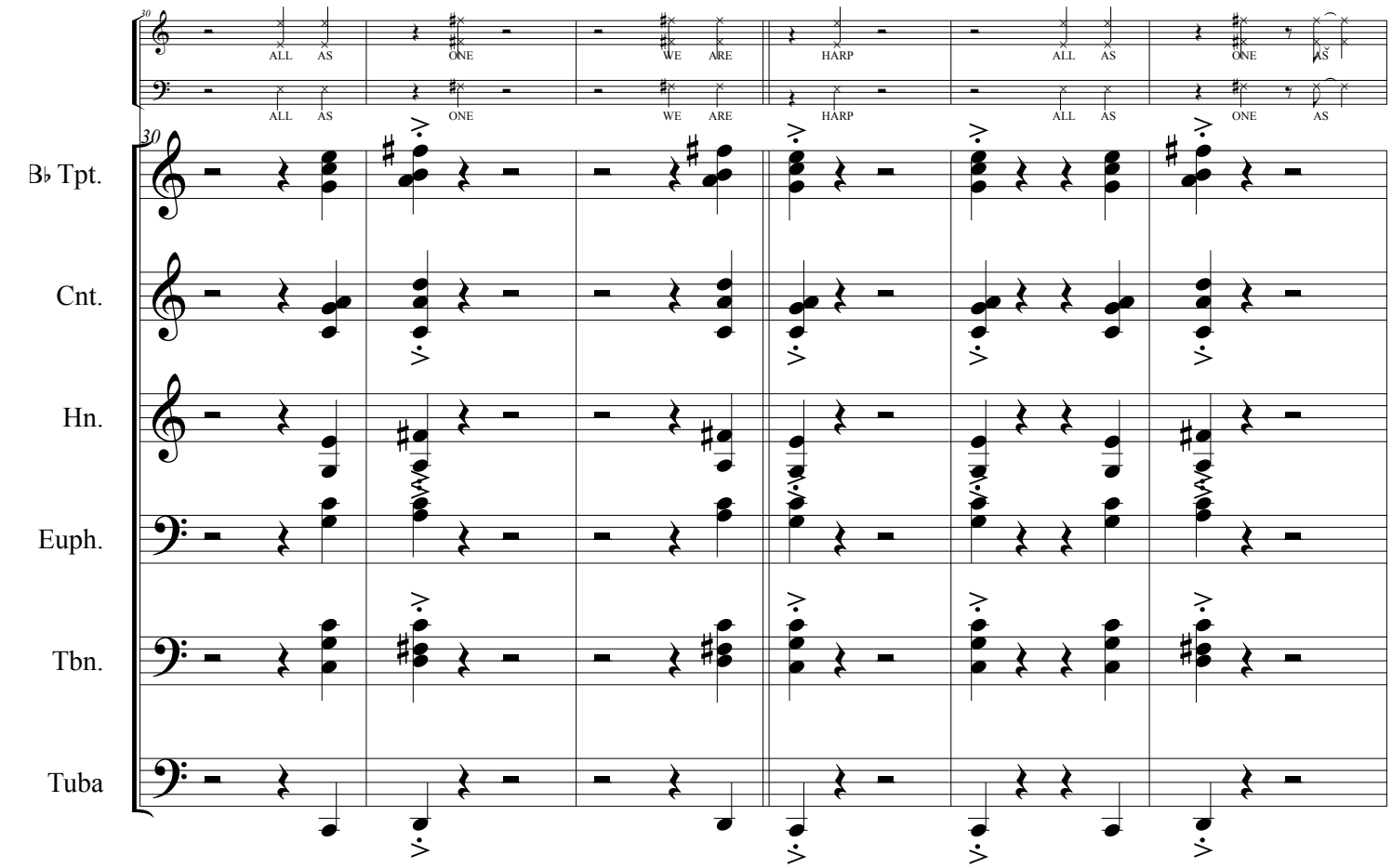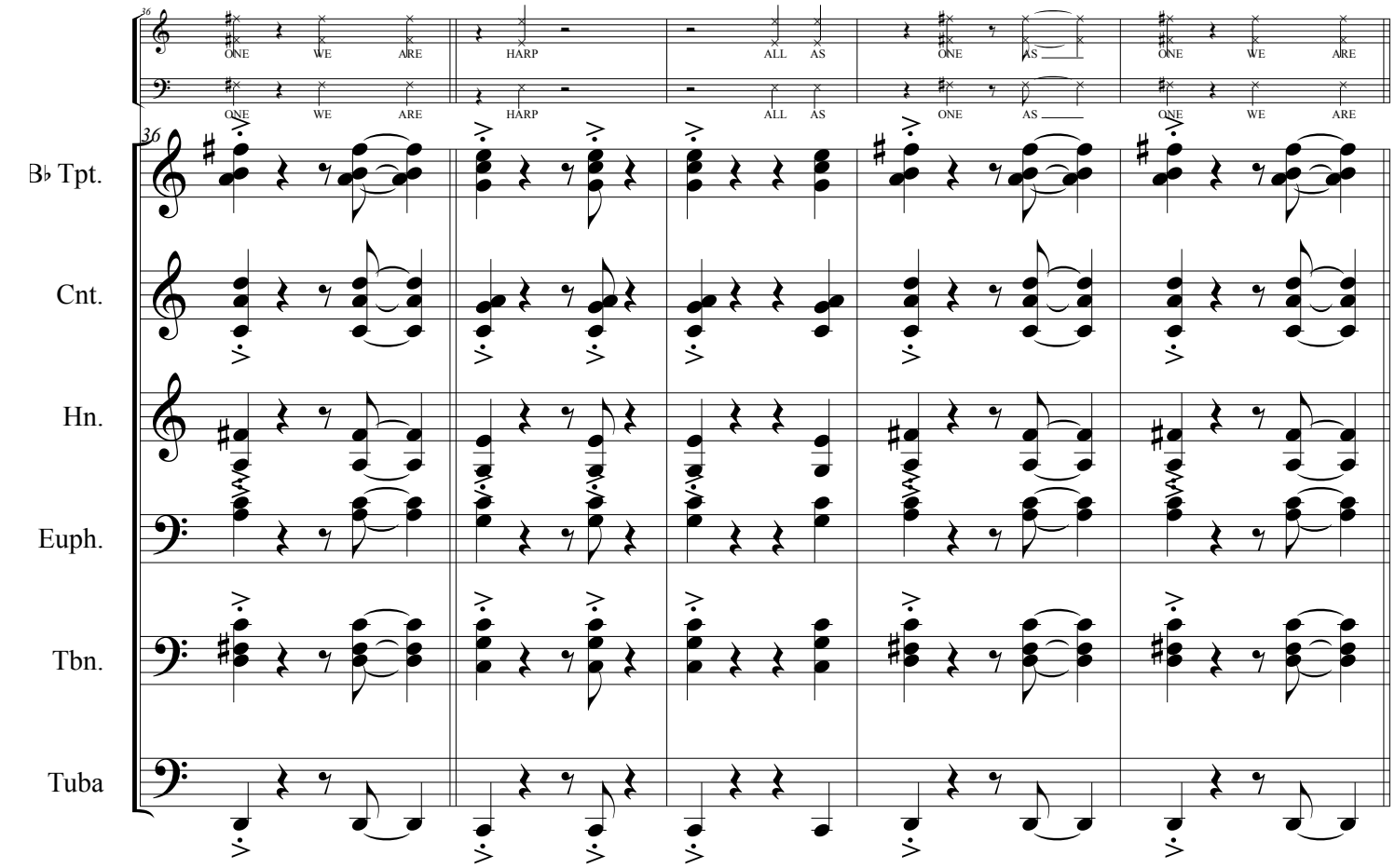


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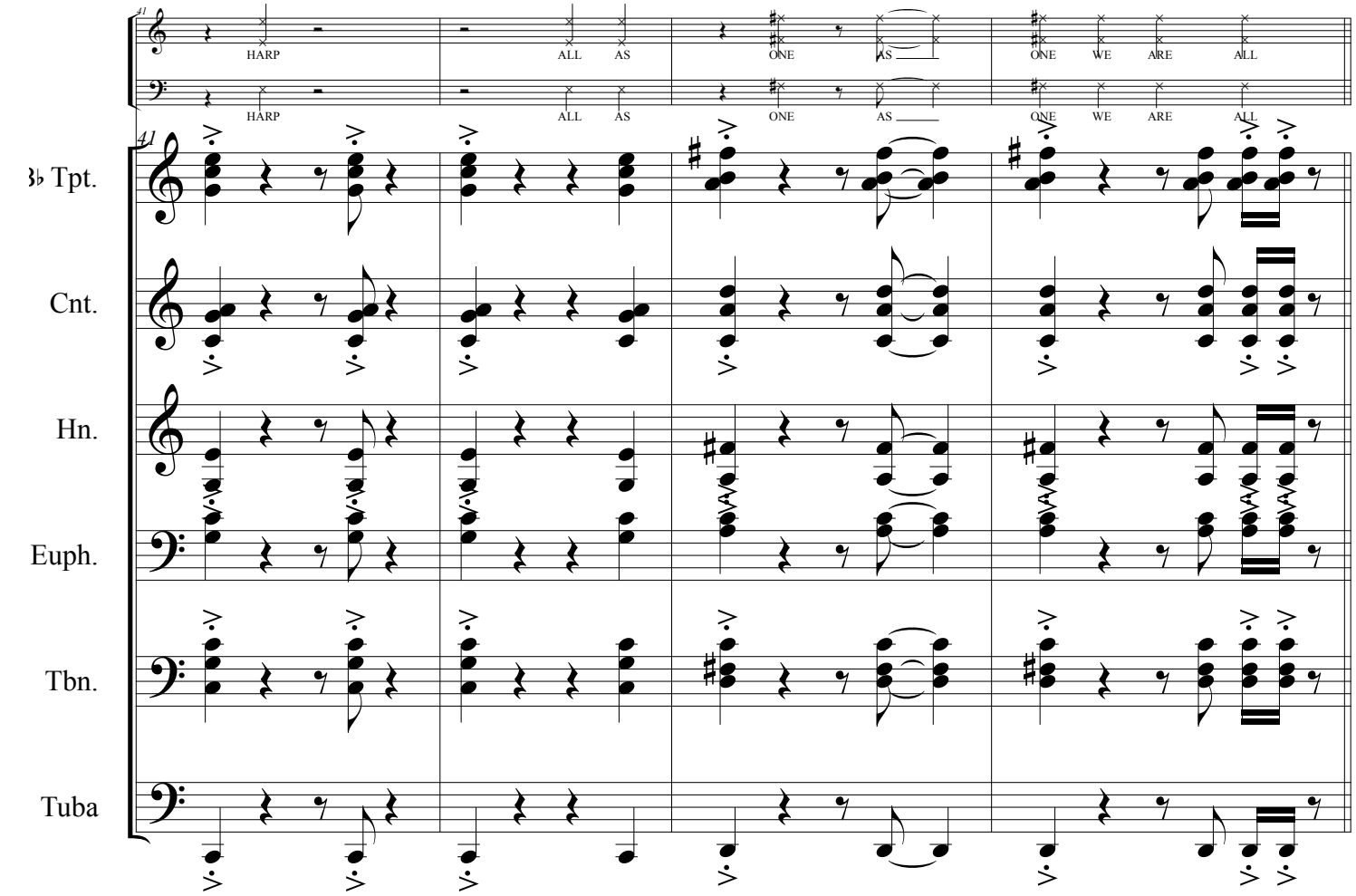

12
shout:
f
HARP
shout:
HARP
f
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba
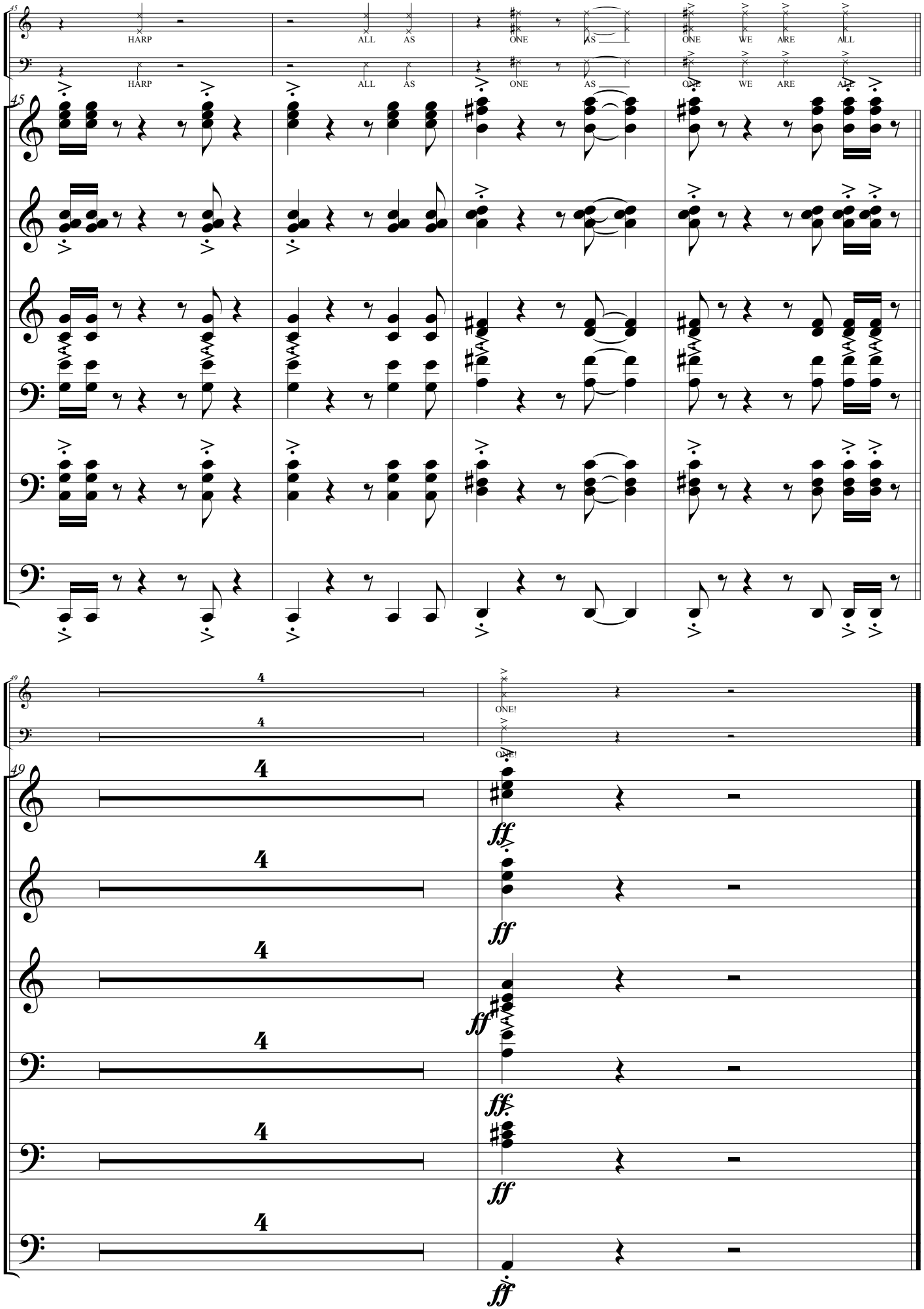

18
ALL AS ONE WE ARE HARP ALL AS ONE
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba


24
WE ARE HARP ALL AS ONE WE ARE HARP
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba


30
ALL AS ONE WE ARE HARP ALL AS ONE AS
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba


36
ONE WE ARE HARP ALL AS ONE AS ONE WE ARE
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba


41
HARP ALL AS ONE AS ONE WE ARE ALL
B♭ Tpt.
Cnt.
Hn.
Euph.
Tbn.
Tuba

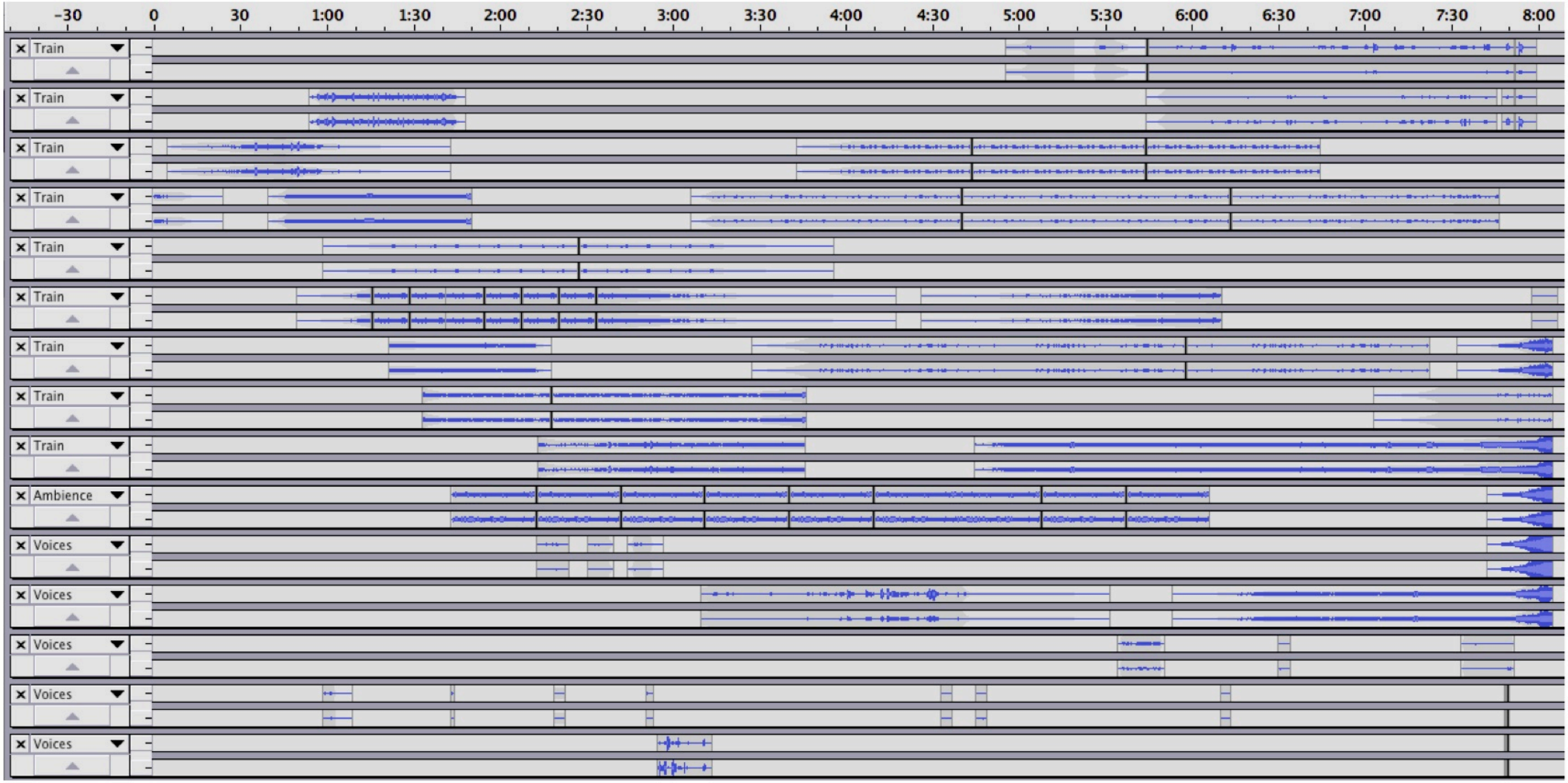

45
HARP
ALL
AS
ONE
AS
ONE
WE
ARE
ALL
49
ONE!
ff

5. Underground Gothic

The pre-recorded element of this piece consists of a track which is listened to by audience members during a train journey. This track is broadcast to “silent disco” headphones during the performance on the train.

The following page contains a DAW derived score of the pre-recorded audio. The recorded tracks and images of the performance can be found at www.tomlaneportfolio.com.

Underground Gothic, recorded headphone track
DAW derived score



6. Hidden Currents

This piece consists of a pre-recorded track which is listened to by audience members. This track is played through a portable music player and listened to through headphones by the audience during the performance beginning and ending at a specific location in Cork.

The piece was created in two separate versions. The second version begins in essentially the same way as the first, but is extended to around double the length. The following pages contain the spoken texts and the DAW derived scores of both versions of the piece.

Hidden Currents, version 1

TEXT:

Welcome to Hidden Currents by Tom Lane, narrated by Olwen Fouéré. This audio piece explores the hidden streams and rivers of Cork city using sound recorded from the water itself. Follow the instructions closely in this recording. You may pause the playback at any time but it is recommended that you listen to the whole track from beginning to end. Are you ready? Step outside of the shop from which you have collected the audio player.
PAUSE
You are now standing on North Main Street. Turn to your right and begin walking south at a normal walking pace. You should pass “Bradley's” on your right hand side. North Main Street was one of the first streets to be built in the medieval city of Cork nearly a thousand years ago. The name of the city comes from the Irish word “corcach” which means marsh or bog. The city as we know it today was once wet marsh land, a patchwork of islands criss-crossed by small streams and rivers.
PAUSE
Keep walking towards the crossroads up ahead. You should pass the “mmMad” shop on your right. Ahead of you, you can see “Fast Al's” on the opposite side of the street. Staying on this side of the street, walk towards the corner of North Main Street and Liberty Street, and stand directly opposite “Fast Al's”.
PAUSE
Where you are standing now was the site of a bridge across part of the River Lee until around the mid 17th century. This part of the river flowed along Liberty street behind you and Castle Street in front of you. This bridge spanned the river and joined North Main street and South Main street which were the two main halves of the city at the time. Over the course of the centuries, the water was covered over or “culverted” and streets and houses were built on top of it. The river still flows through this spot however. Below where you are standing a culvert carries part of the old river on its journey to the sea. Listen carefully and you will hear the sound of the wild River Lee flowing under your feet.
PAUSE
We will now follow the path of the river. Cross the road towards “Fast Al's” and walk down the right hand side of Castle street which is the street to the left of “Fast Al's”. Keep walking towards Grand Parade ahead of you. Where you are walking now was a river in the old city of Cork. Try to imagine how the pavement you are standing on now was once the dark rushing waters of the River Lee. Can you hear the flow? The water still follows this ancient path. Below the street the river travels through a network of culverts and drains which follow the original pattern of the waterways.
PAUSE
Keep walking towards Grand Parade. You'll see the red “Outdoor Adventure Store” ahead on the left. Turn right when you get to the corner of Grand Parade and keep walking along Grand Parade on the right-hand side of the street. Until the early 18th century the city walls of Cork stood where you are now. These walls stood next to another section of the river Lee. Until at least 1760 the whole of grand parade was a wide river which flowed into what we now know as Patrick's street. At that time, Patrick's street was also a wide section of the river and this is what gives the street it's distinctive curved shape.
PAUSE
Imagine you are high up on the walls now looking down at the river below. Picture boats in the place of the cars you can see today. The river still flows deep underground. What you can hear now is the sound of that river. The shape of the streets and the layout of the buildings you can see around you are all traces of the water which once flowed here.
PAUSE

Keep walking down Grand Parade, crossing Washington street when it is safe to do so. Keep the sound of the underground river on your left. Continue walking towards what is now the south branch of the River Lee. When you reach the river, cross over using the footbridge and then turn right onto Sullivan's Quay. Walk along the river, keeping the water on your right. Keep walking between the flow of traffic one way and the flow of water in the other direction.
PAUSE
When you reach the first bridge you come to, cross the road to the upriver side of the bridge and stand halfway across the bridge looking up the river. Towards St Fin Barre's Cathedral you will be able to see the opening of one of the largest culverts in the city. See how the street above it follows the path of the river below. Until the 1780s this was a section of the river which was used to drive waterwheels for the local industry in the area. Standing here above the exposed water you can see a direct example of how much the city we know today has been shaped by the ancient waterways. The city evolved around and within the shape of the water and it is still developing in a dialogue with the river today. Without the River Lee, Cork would never have existed as we know it. The currents are hidden but they still influence our world and the maps of our streets.
PAUSE
This is the end of the piece. The sound you have been listening to was recorded from the River Lee using underwater microphones. To reach the start point, turn to your right and continue walking down South Main Street and North Main Street until you reach “IT Outlet” and return your audio player and headphones. Thank you for listening.

ADDITIONAL SENTENCES:

Keep walking

Keep going

You're nearly there

Can you hear the river?

Listen

Listen with your feet

Listen through your feet

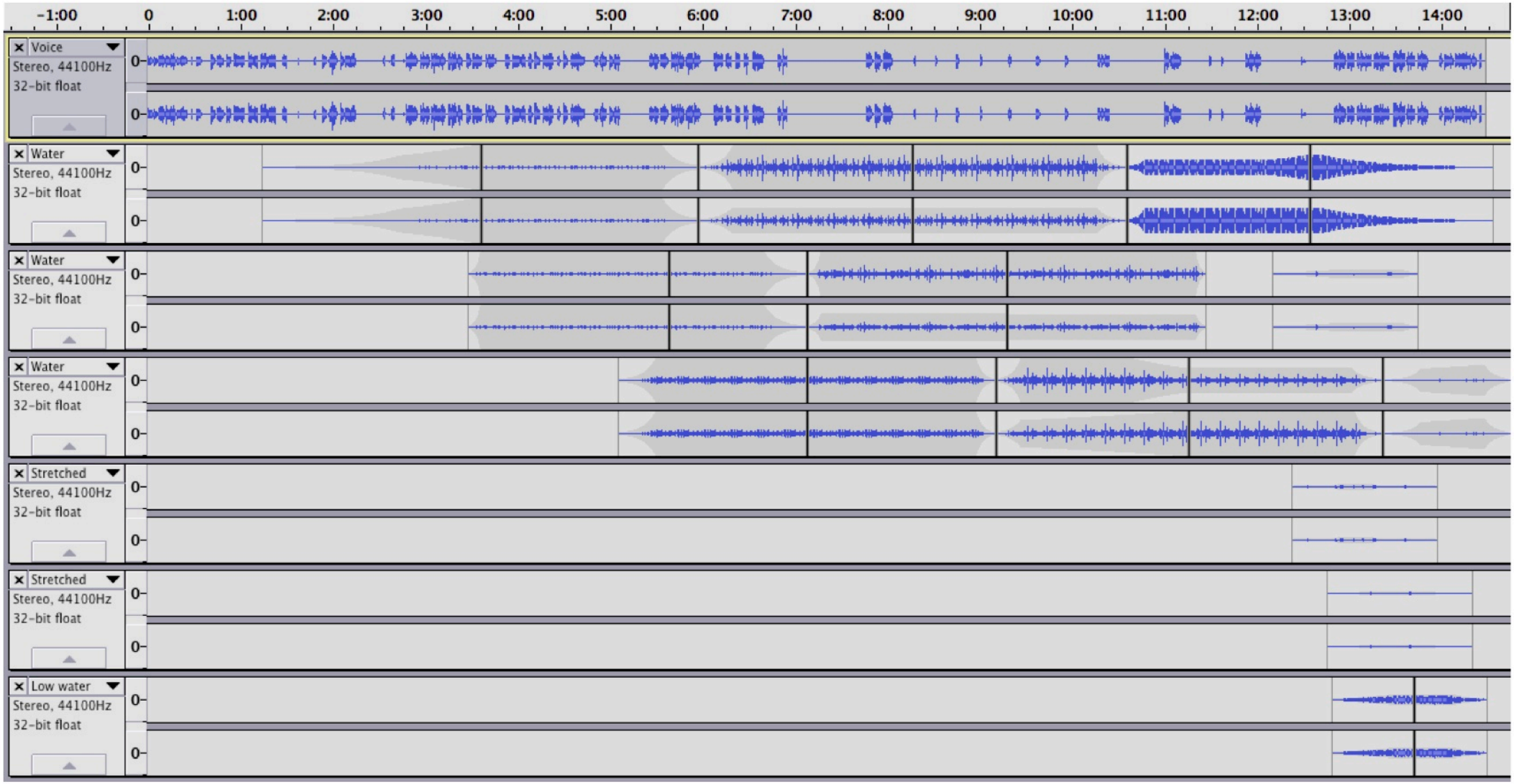
Listen to the water

Listen to the river

Feel the river under your feet

Listen to the river under you feet

Hidden Currents (1st version)
DAW derived score



Hidden Currents, version 2

TEXT:

Welcome to Hidden Currents by Tom Lane, narrated by Olwen Fouéré. This audio piece explores the hidden streams and rivers of Cork city using sound recorded from the water itself. Follow the instructions closely in this recording. You may pause the playback at any time but it is recommended that you listen to the whole track from beginning to end. Are you ready? Step outside of the Cork Vision Centre from where you have collected the audio player.

PAUSE

You are now standing on North Main Street. Turn to your right and begin walking south at a normal walking pace. After a while you should pass “Bradley's” on your right hand side. North Main Street was one of the first streets to be built in the medieval city of Cork nearly a thousand years ago. The name of the city comes from the Irish word “corcach” which means marsh or bog. The city as we know it today was once wet marsh land, a patchwork of islands criss-crossed by small streams and rivers.
PAUSE

The intervening material is the same as in version 1

PAUSE
When you reach the first bridge you come to, cross the road to the upriver side of the bridge and stand halfway across the bridge looking up the river. Towards St Fin Barre's Cathedral you will be able to see the opening of one of the largest culverts in the city. See how the street above it follows the path of the river below. Until the 1780s this was a section of the river which was used to drive waterwheels for the local industry in the area. Standing here above the exposed water you can see a direct example of how much the city we know today has been shaped by the ancient waterways. The city evolved around and within the shape of the water and it is still developing in a dialogue with the river today. Without the River Lee, Cork would never have existed as we know it. The currents are hidden but they still influence our world and the maps of our streets.

PAUSE

We will now continue walking along the river in the direction of St Fin Barre's Cathedral. Walk along the lefthand side of the river and keep the water on your right. You should pass the “Istanbul Barber” on your left. Keep walking against the flow of water, and when the river curves away from you continue straight along the road towards St Fin Barre's Cathedral.
PAUSE
You are now walking along the path of the culvert you could see from the bridge over the weir. Do not take the first turn to the right along the river but when you see the sign for “Deans Hall” on the corner on the right, take this turn to the right and walk towards the river.
PAUSE
You are now in a part of the city which was an island surrounded by branches of the river until the early eighteen hundreds. To your left would have been Clark's Marsh. The single branch of the river you are walking towards is what is left of a complex series of streams and smaller rivers which were amalgamated as more land was drained and built on

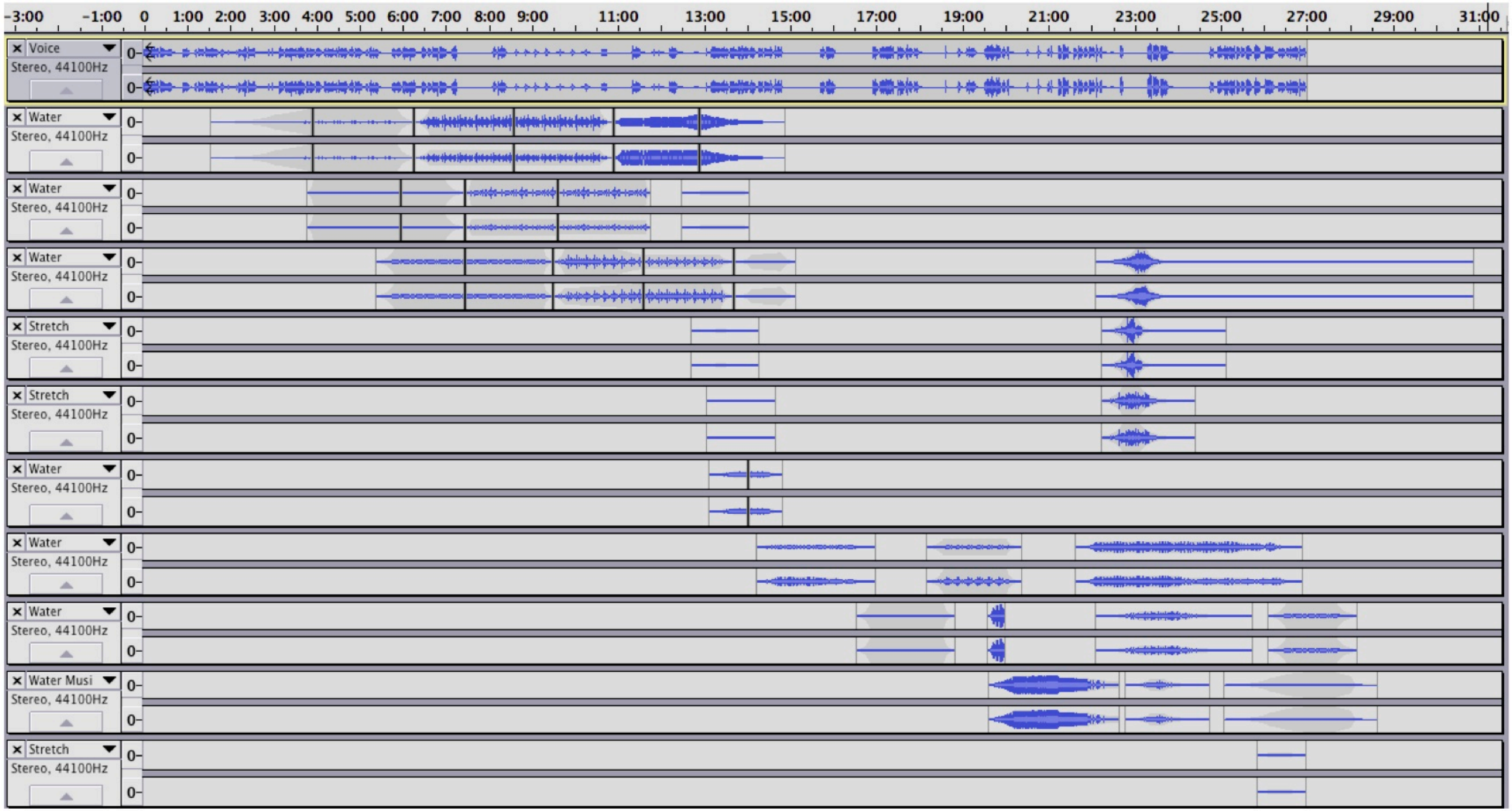
throughout the 19th century. Keep walking towards the river and when you reach it cross the road so that you are walking alongside the water. You should pass the “Meitheal Mara” boatyard on your right, a community boatbuilding project founded in 1994. Now, keep the river on your right and follow it until you reach the second bridge.
PAUSE
Keep following the river on your right.
PAUSE
Keep going
PAUSE
The flow of the river is quiet here but what you can hear through your headphones is the sound from underneath the water.
PAUSE
As you walk along it, notice how the speed of the water changes and how this changes the sound you can hear. The river's flow changes just like in a piece of music. Think of the course of the river as a musical score which you are passing through as you trace the water to its source.
PAUSE
The music you can hear comes the water. Can you hear it bubbling up from underneath the surface?
PAUSE
As you reach the bend in the river you will approach a more turbulent part of this score. Ahead on your left you can see the “Snap” printing shop on the opposite side of the street. Keep following the curve of the water around to the right.
PAUSE
Just before you reach the bridge you will notice a viewing area jutting out into the water. There should be two trees and a life ring at the side of the river. Go to this area now and stand with your hands on the railings in front of you so that you are looking out over the rushing water. Listen to the sound of this part of the river. Can you feel the movement of the water through the railings?
PAUSE
We will now continue walking along the river and then across the bridge you come to. When you have crossed the bridge turn to your left and cross the road using the traffic lights.
PAUSE
When you have crossed the road, keep walking along this straight part of the river. The water will now be on your left-hand side.
PAUSE
Keep walking along the river, keeping the water on your left.
PAUSE
As you walk alongside the water, look over at the dark water on your left. Can you see the currents? There are hidden currents within us all. Inside your inner ear there is a complex series of channels and canals which are filled with fluid. We perceive sound because of vibrations in the fluid within the cochlea. The ear is not just used for hearing however. The vestibular system which allows us to perceive movement is comprised of a set of channels filled with fluid. When we move our heads, the resultant currents in these channels is translated into our sensation of movement.
PAUSE
The currents you can see in the river are just like the hidden currents inside your head. These currents allow you to hear the river's sound and and to move along its pathway.
PAUSE
When you reach the second bridge on your left, cross the river and walk into the foyer of the River Lee Hotel. Return your headphones to the Cork Midsummer staff.

PAUSE
This is the end of the piece. The sound you have been listening to was recorded from the River Lee using underwater microphones. The piece was created by Tom Lane and narrated by Olwen Fouéré. Thank you for listening.

ADDITIONAL SENTENCES:

Keep walking
Keep going
Keep listening to the water
Keep the water on your right
Keep the water on your left
Follow the river
Follow the flow
Stay with the water
Can you hear the river?
Can you hear the water under your feet?
Can you hear the bubbles in the water?

Hidden Currents (2nd version)
DAW derived score



8. Underground Gothic for Viola and Recorded Sound

This piece consists of a written score for solo viola and a pre-recorded track which is played with the live viola in performance. The recorded sound track is closely based on the pre-recorded sound element of *Underground Gothic*.

Underground Gothic

for viola and recorded sound

Tom Lane

First performed 12th of June 2015 by Sebastian Adams at the Royal Irish Academy of Music, Dublin as part of the “Blackout” concert series.

Duration: 8 minutes

About the piece:

This piece is an instrumental version of a site-specific performance created by as part of the Bram Stoker Festival in October 2014. The original piece took place on a commuter train in Dublin, Ireland on a journey from Connolly to Heuston stations via a tunnel below Phoenix Park. Audience members listened to the piece using “Silent Disco” headphones. All of the sound heard in the recorded part of the piece is derived from recordings made on trains using conventional and contact microphones. The spoken element of the piece should be interpreted as an overheard conversation which slowly becomes more fragmented and incomprehensible. There might be clues to a story hidden within the sound but the narrative is intentionally incomplete. The viola player is positioned as another actor in this dialogue, contributing a rhythmic counterpoint to the clattering sounds of the train. Virtuosic string techniques are employed to complement the train sounds culminating in a terrifying climax.

Performance notes:

This piece is accompanied by a pre-recorded track which runs from the beginning of bar 1 until the end of the score. Synchronisation between the track and the live performance can be achieved through the use of a click track played through an earpiece for the performer. This click should be set at 60 beats per minute or at 120 beats per minute if the performer prefers to hear eighth notes.

In order to achieve a balance between the recording and the live performance, it is recommended that the viola is slightly amplified.

An MP3 version of the recorded track for rehearsal purposes may be found here: http://bit.ly/1SLPPuQ

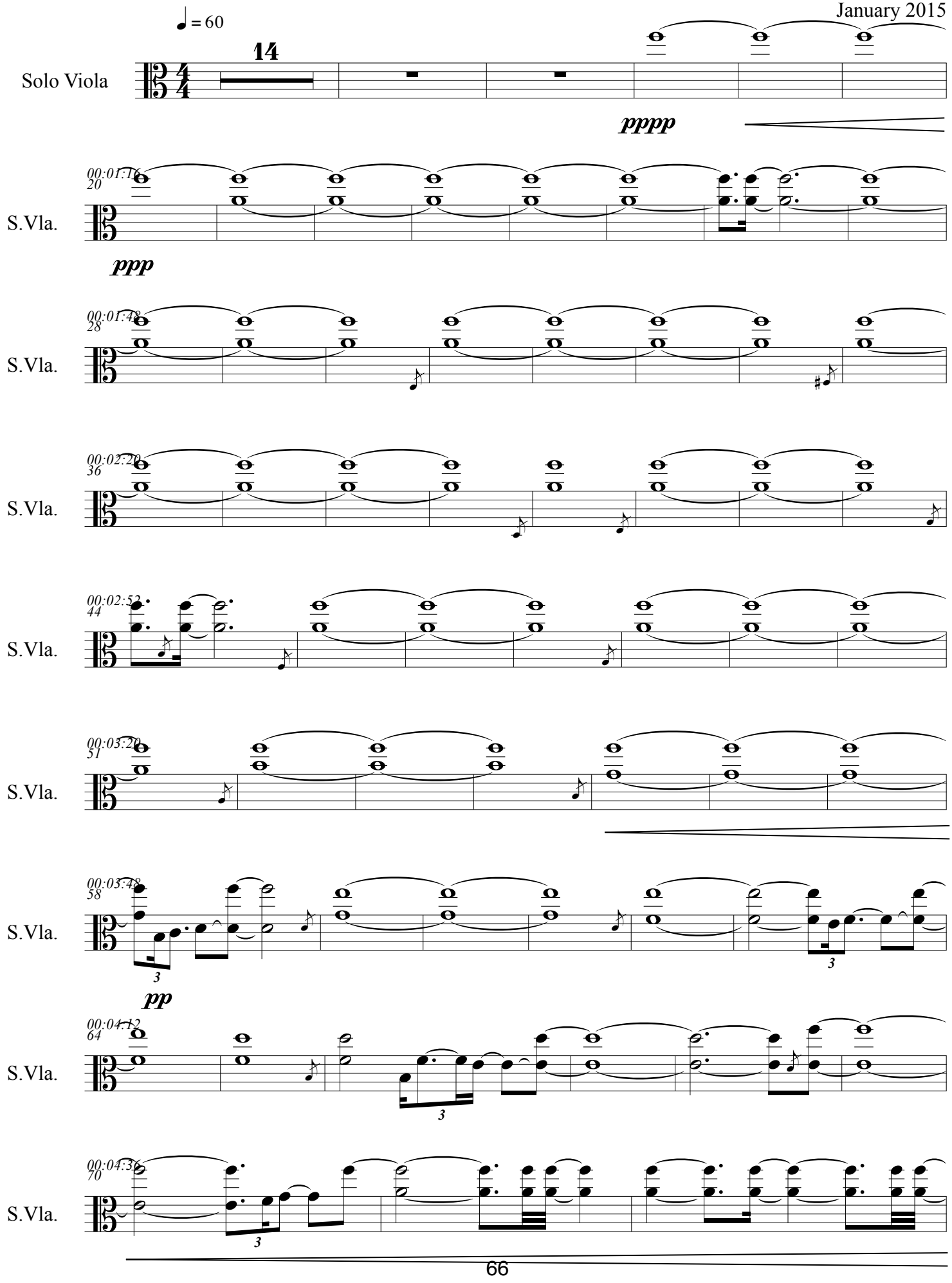
Please contact the composer on tazl@hotmail.co.uk for a high quality WAV recording for live performance.

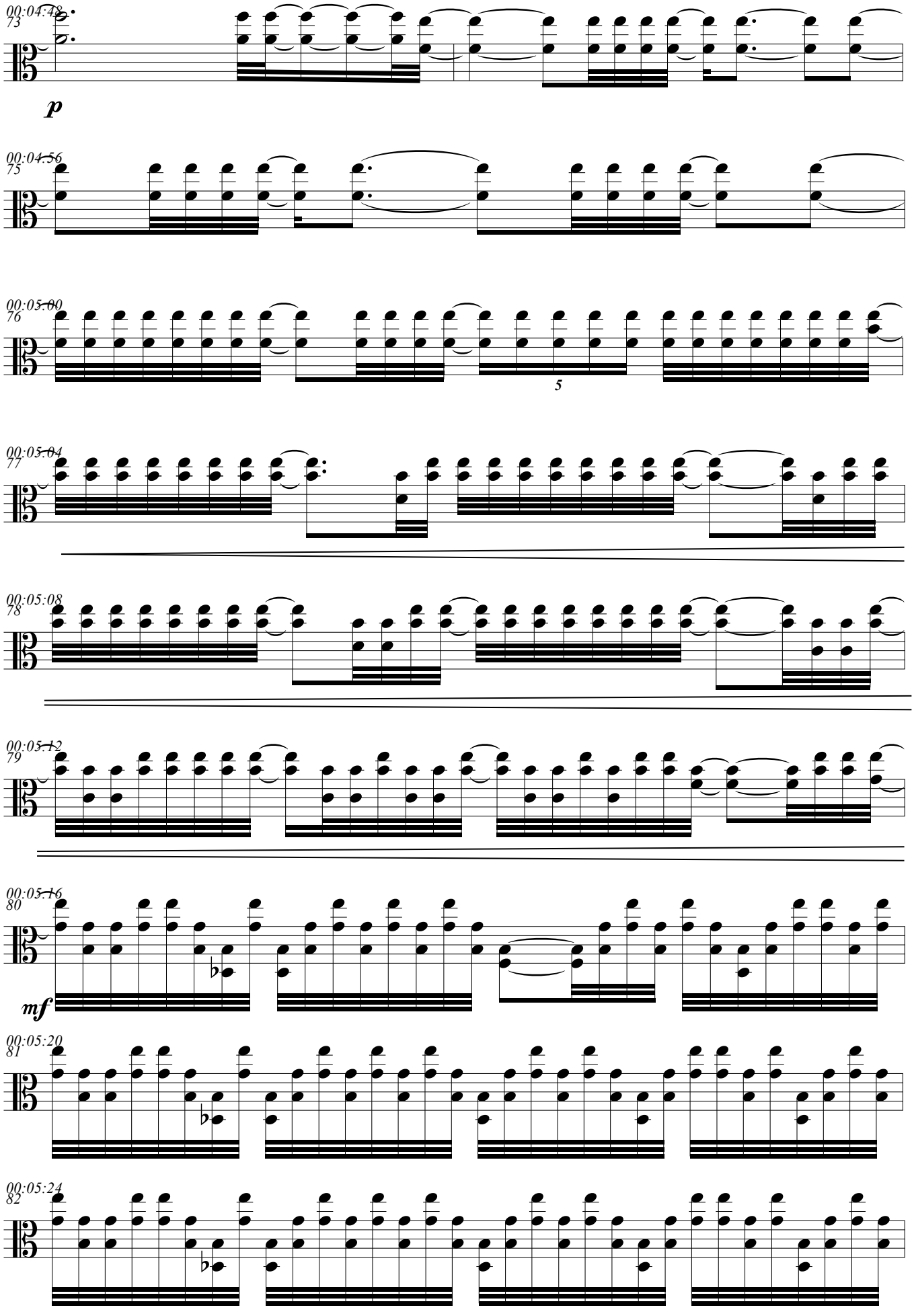
Underground Gothic

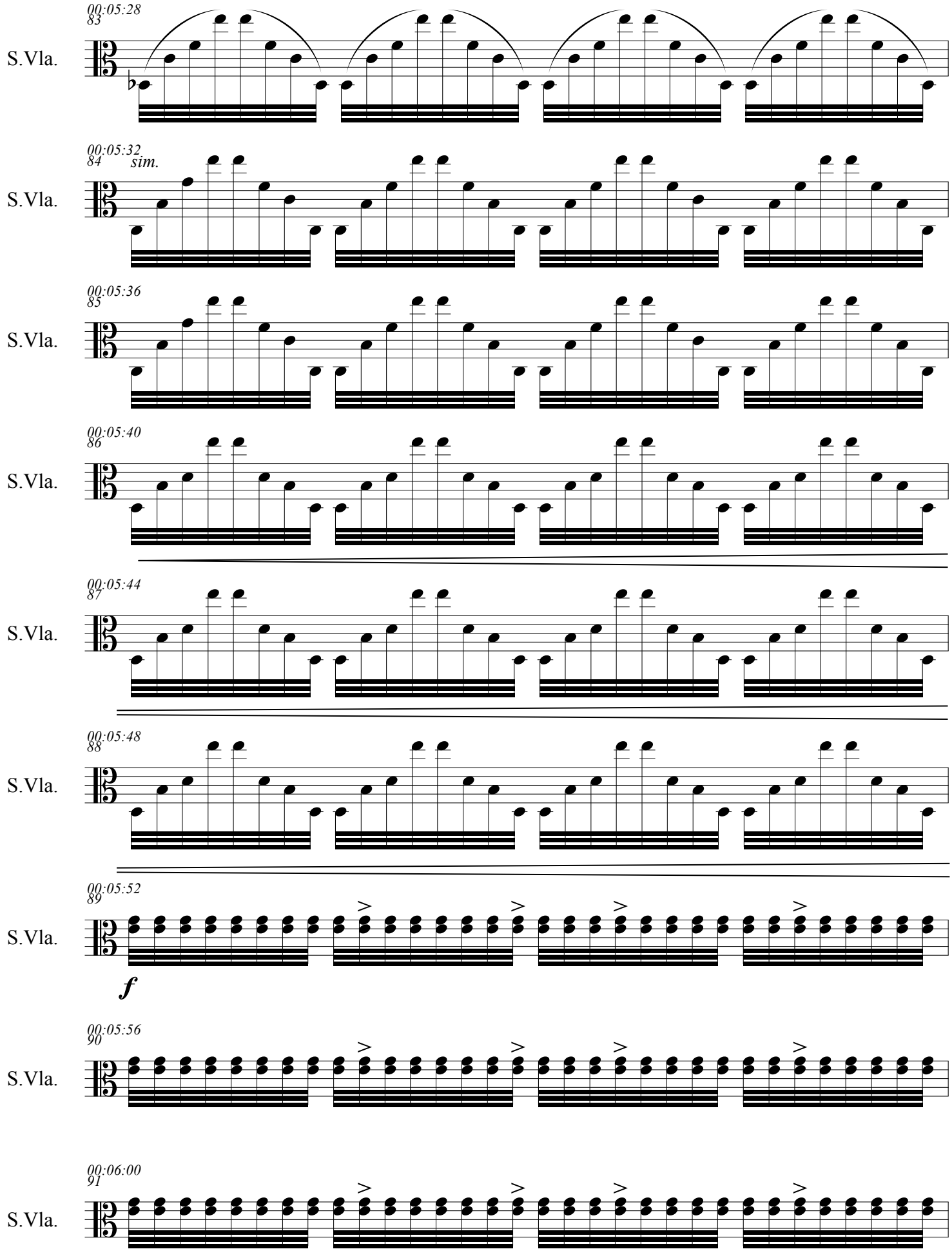
Score

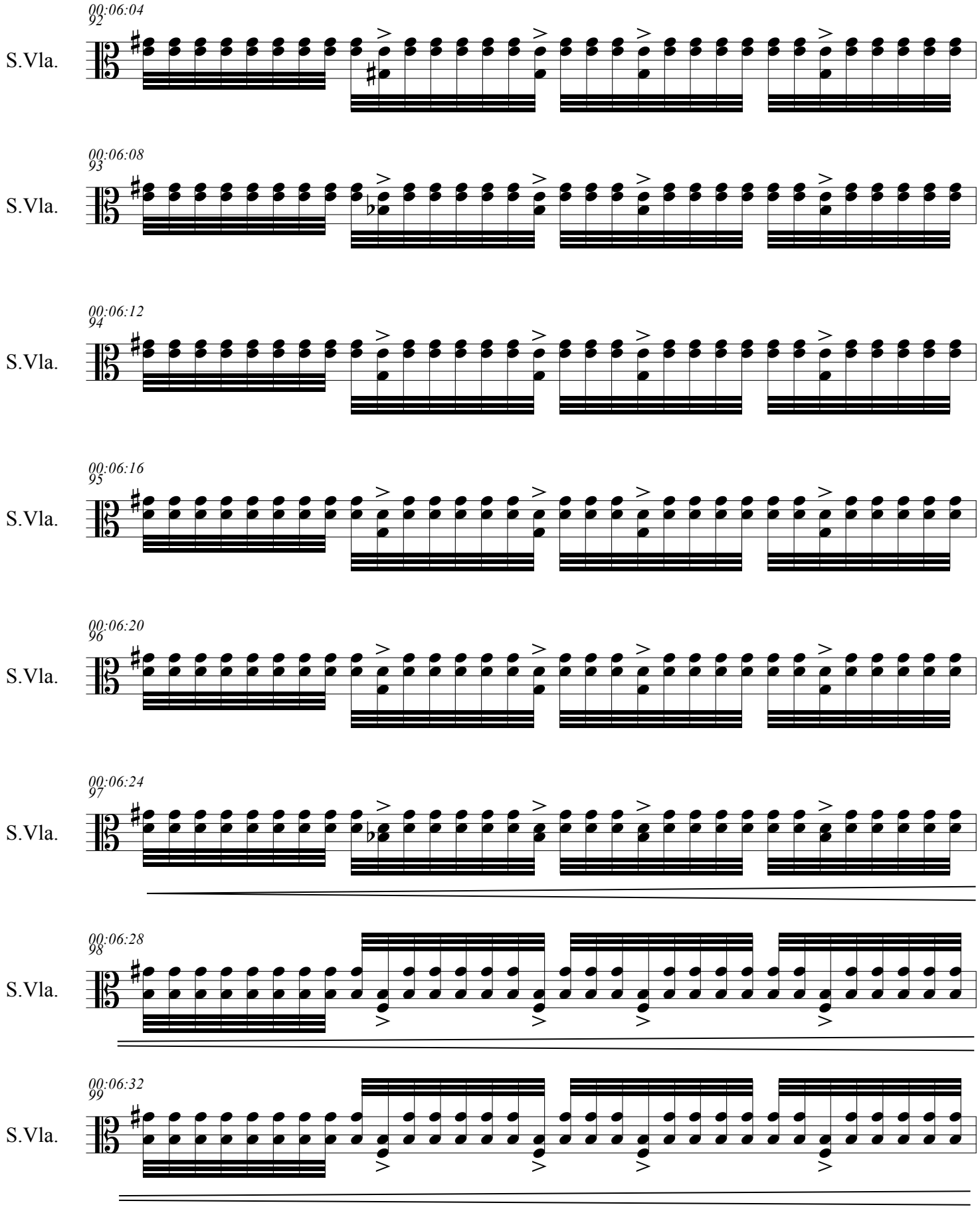
for viola and recorded sound
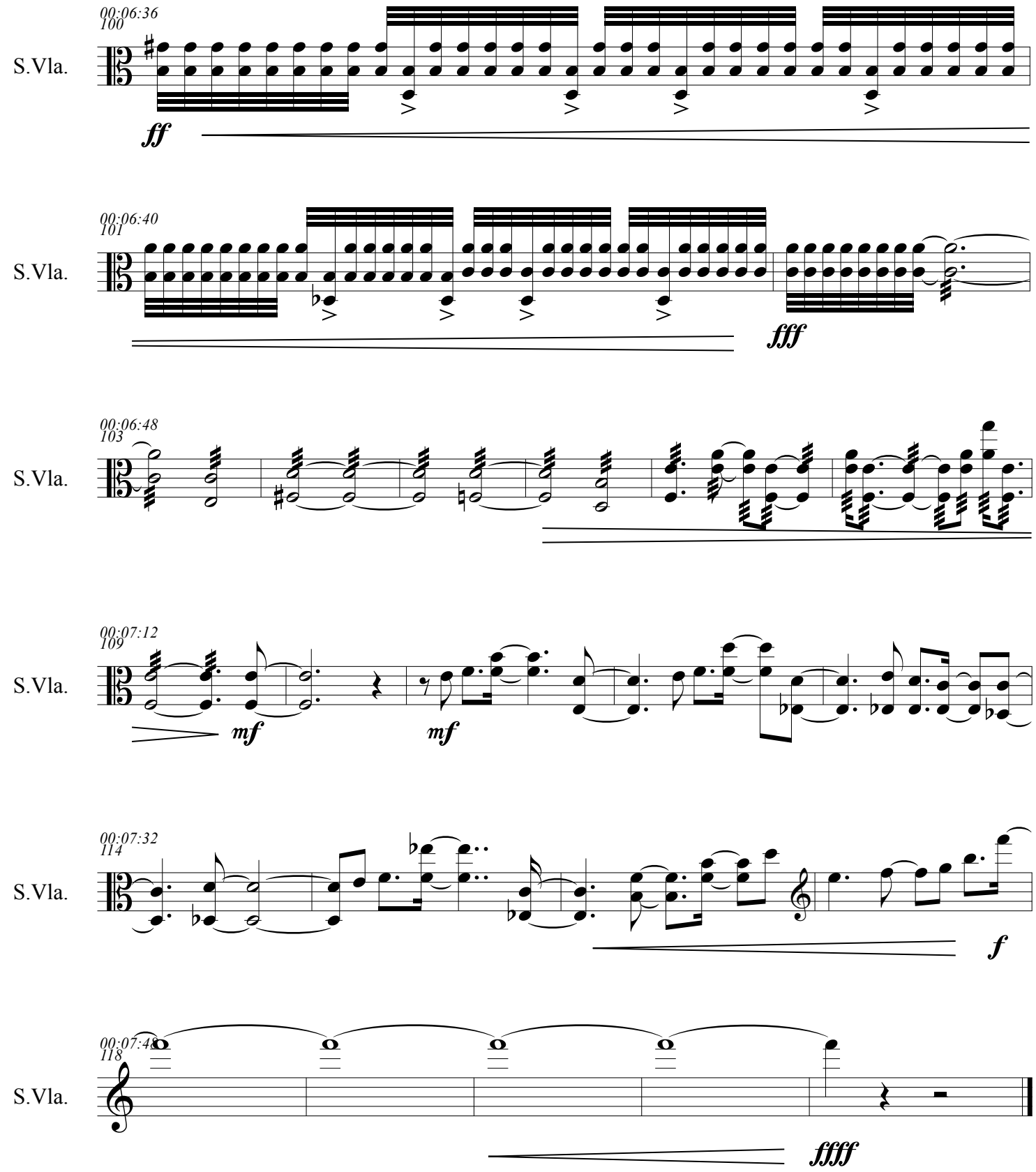
Tom Lane
January 2015




00:04:48
73
S.Vla.
p
00:04:56
75
S.Vla.
00:05:00
76
S.Vla.
5
00:05:04
77
S.Vla.
00:05:08
78
S.Vla.
00:05:12
79
S.Vla.
00:05:16
80
S.Vla.
mf
00:05:20
81
S.Vla.
00:05:24
82
S.Vla.


00:05:28
83
S.Vla.
00:05:32
84
sim.
S.Vla.
00:05:36
85
S.Vla.
00:05:40
86
S.Vla.
00:05:44
87
S.Vla.
00:05:48
88
S.Vla.
00:05:52
89
S.Vla.
f
00:05:56
90
S.Vla.
00:06:00
91
S.Vla.


00:06:04
92
S.Vla.
00:06:08
93
S.Vla.
00:06:12
94
S.Vla.
00:06:16
95
S.Vla.
00:06:20
96
S.Vla.
00:06:24
97
S.Vla.
00:06:28
98
S.Vla.
00:06:32
99
S.Vla.


00:06:36
100
S.Vla.
ff
00:06:40
101
S.Vla.
fff
00:06:48
103
S.Vla.
00:07:12
109
S.Vla.
mf
mf
00:07:32
114
S.Vla.
f
00:07:48
118
S.Vla.
fffff

8. Beats, Bells and Bridges

This piece consists of three written scores for percussion. The *Bells* section of the piece is scored for two players, *Beats* and *Bridges* for one.

The three sections of the piece were composed for three specific locations in Cork. *Beats* for the University College Cork Quadrangle, *Bells* for the Shandon Bells, and *Bridges* for the Mardyke Bridge. In performance, over a period of two days, the order of the three sections was: *Bridges, Beats, Bells*. The three piece could be performed in any order.

Performance notes:

Beats: the instrumentation for this section was developed in collaboration with percussionist Alex Petcu. The performer used four separate arrangements of small percussion instruments in four different locations in the UCC Quadrangle. These arrangements were chosen according to what sounded best in the acoustics of each location. They were:

1. Five woodblocks of varying size
2. Five glass bottles of varying size
3. Five metal scaffolding poles of varying size
4. Five small skin covered drums of varying size

Bells: this piece is a duet between the Shandon Bells of St. Anne's Church, Cork and a percussionist located in the Cork Craft Centre. The Shandon Bells are a set of eight bells tuned to an octave of D flat major and played using hand-operated ropes. The percussionist at ground level plays a five octave marimba and a two octave set of chromatically tuned bell plates. Alex Petcu made these bell plates especially for this performance.

Bridges: this piece was performed on the Mardyke Bridge in Cork. The percussionist plays on sections of the bridge and on four free standing floor toms. A detailed diagram of the instrumentation is provided in the score.

BEATS, BELLS AND BRIDGES

for solo percussion

Tom Lane

Composed for Alex Petcu and three specific locations in Cork city.

BEATS: an acoustic exploration of University College Cork Quad
BELLS: a duet between marimba, bell plates and the Shandon bells of St. Anne's Church
BRIDGES: plays the Mardyke bridge and transforms it into an instrument
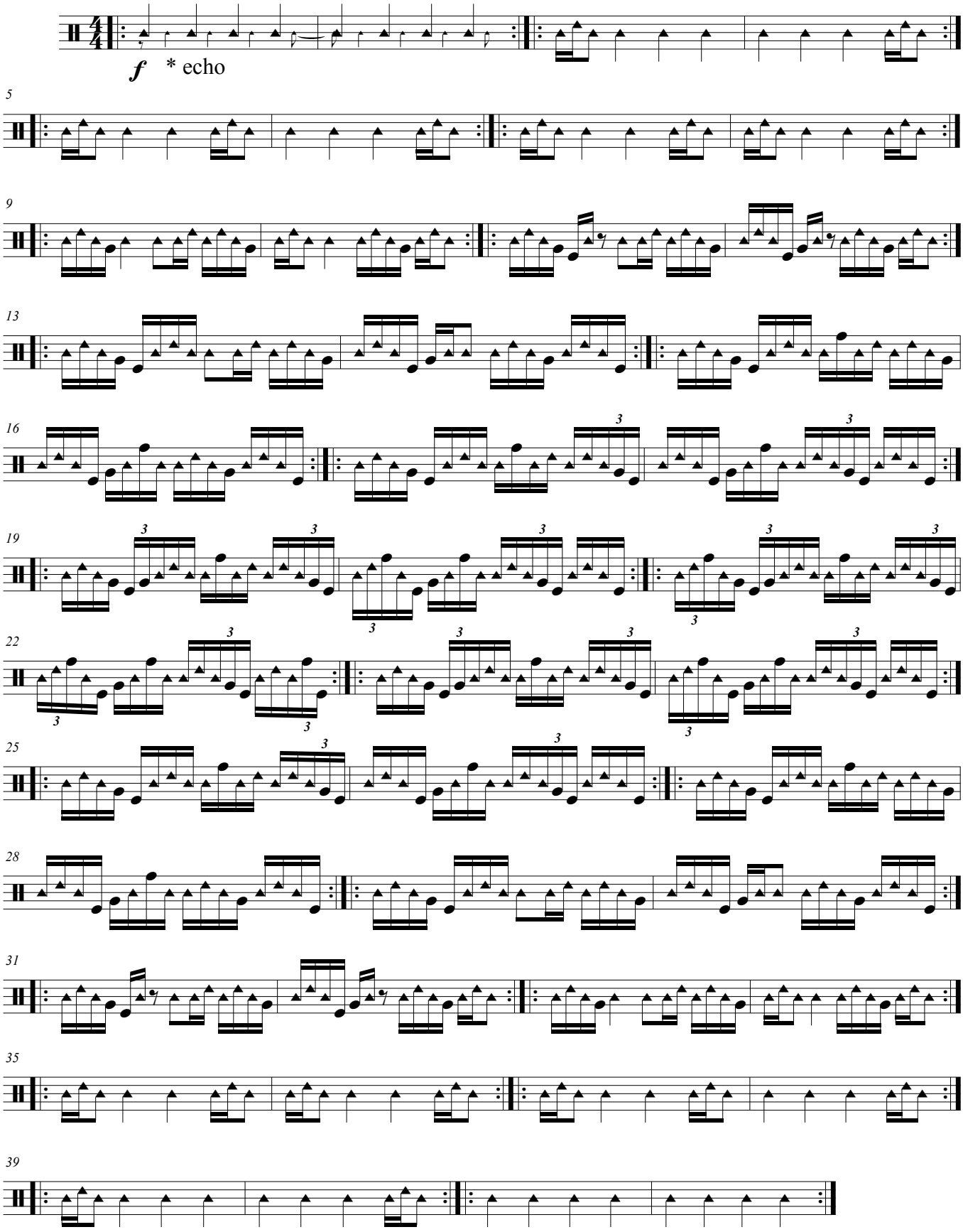
1. Play this section in three different locations.

Beats
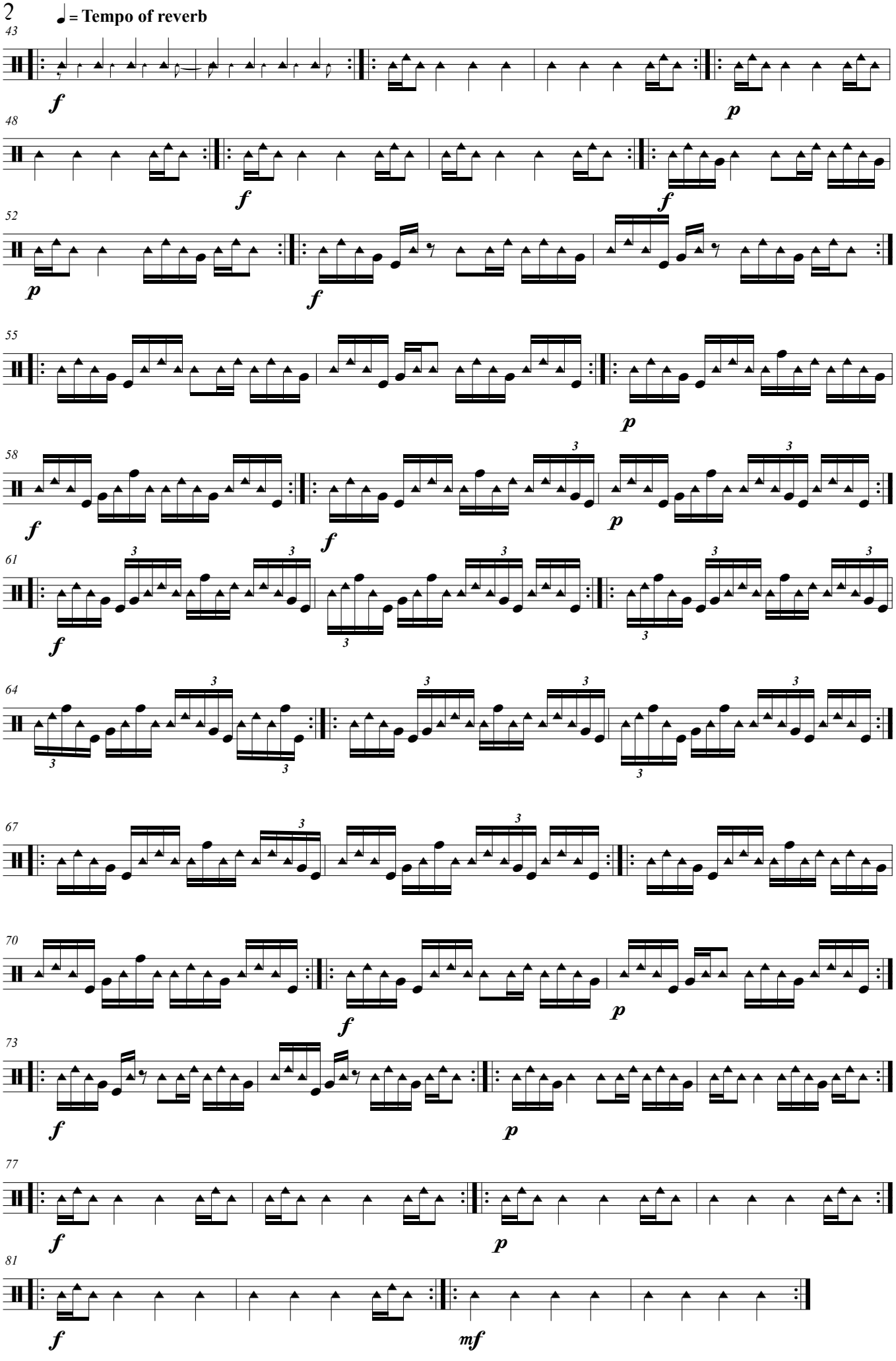
for Alex Petcu
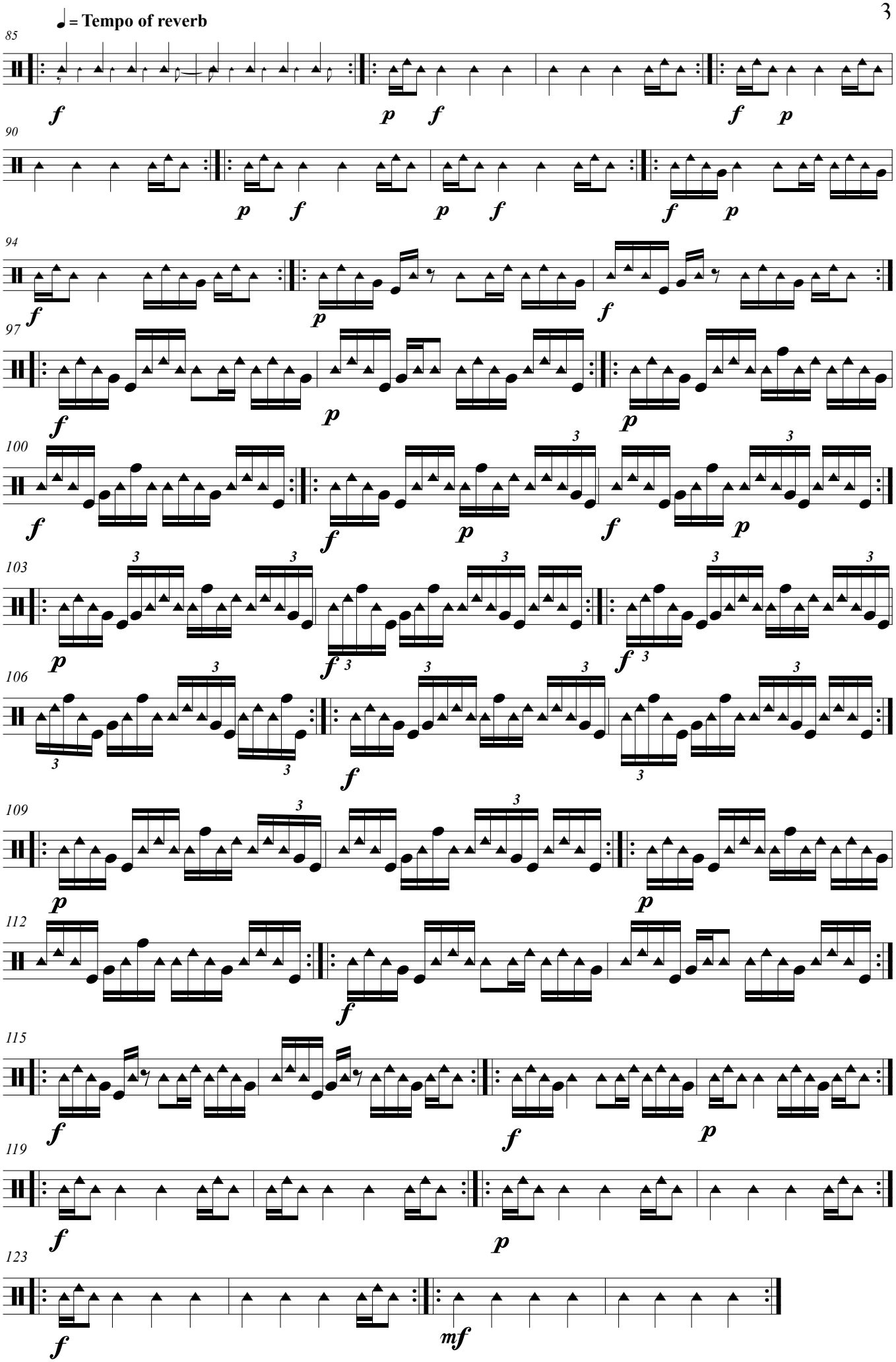
Tom Lane
April 2016

♩ = **Tempo of reverb**

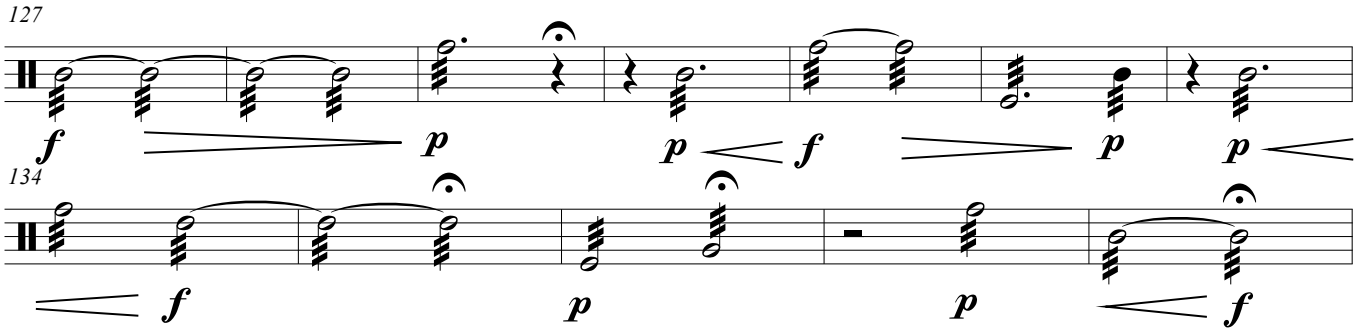


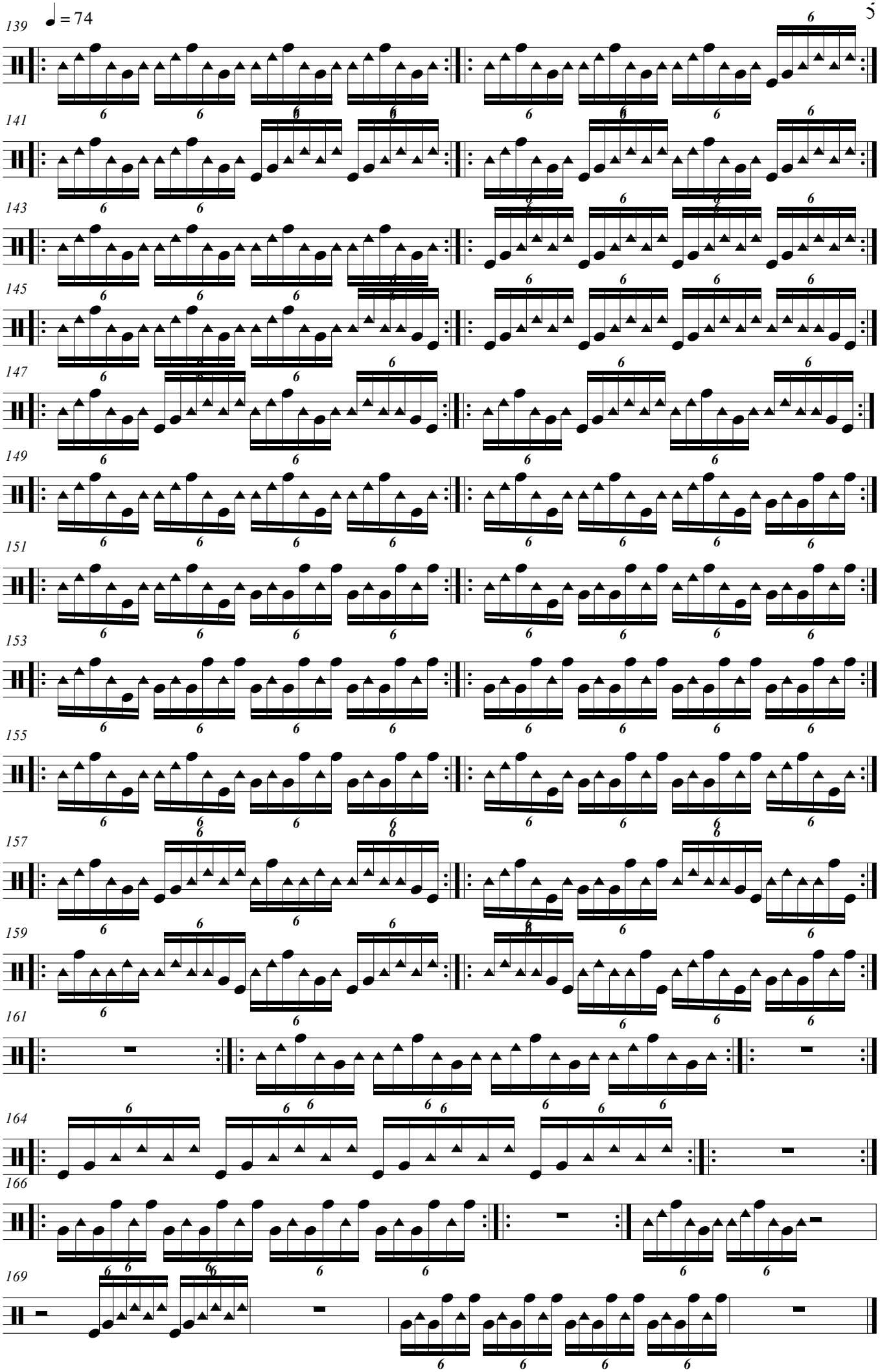
© Tom Lane


2
♩ = Tempo of reverb
43
48
52
55
58
61
64
67
70
73
77
81
f
p
mf
3


♩ = Tempo of reverb
85
90
94
97
100
103
106
109
112
115
119
123

4 Transition section, to be played on woodblocks:
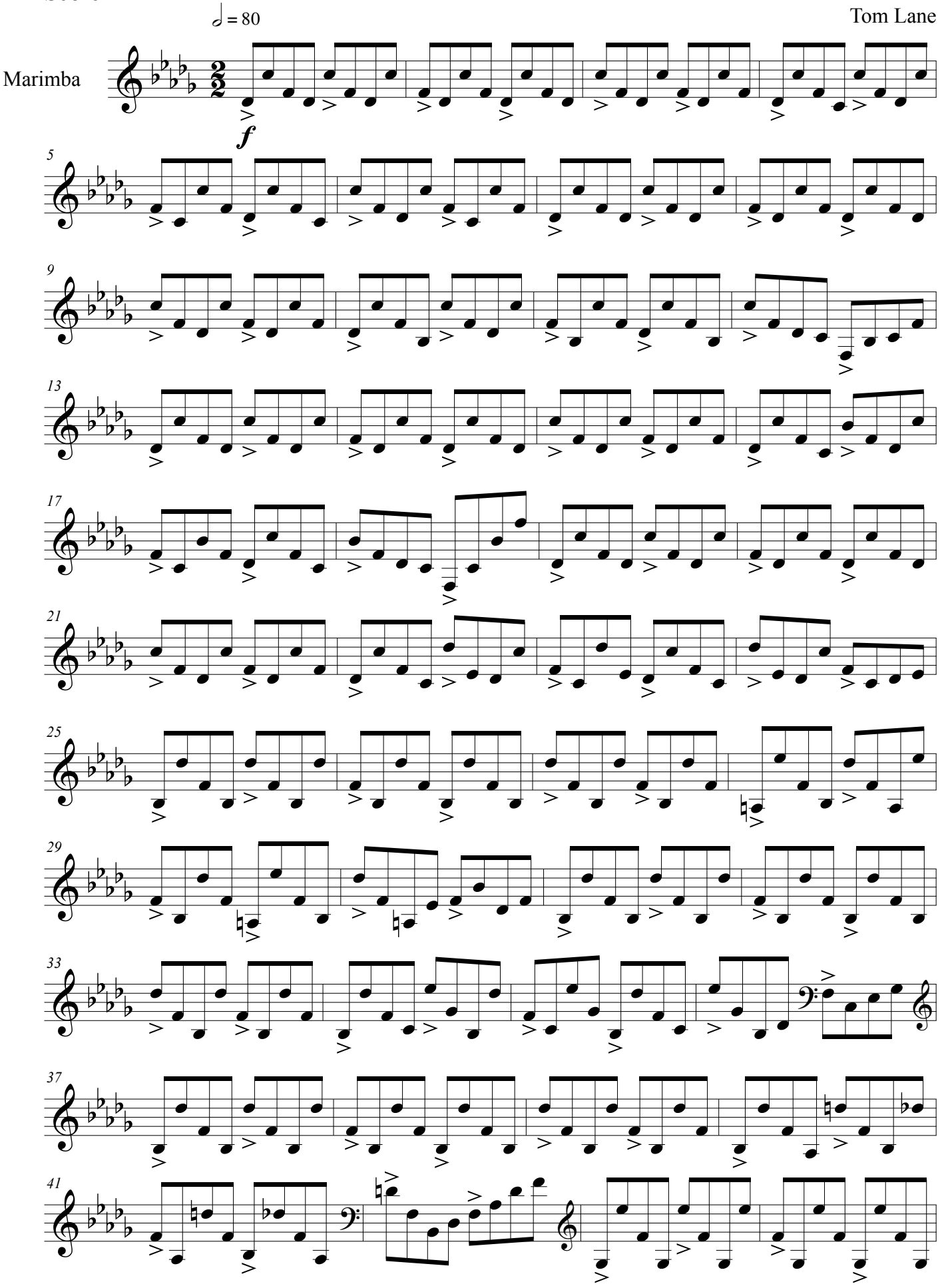



139
♩ = 74
141
143
145
147
149
151
153
155
157
159
161
164
166
169
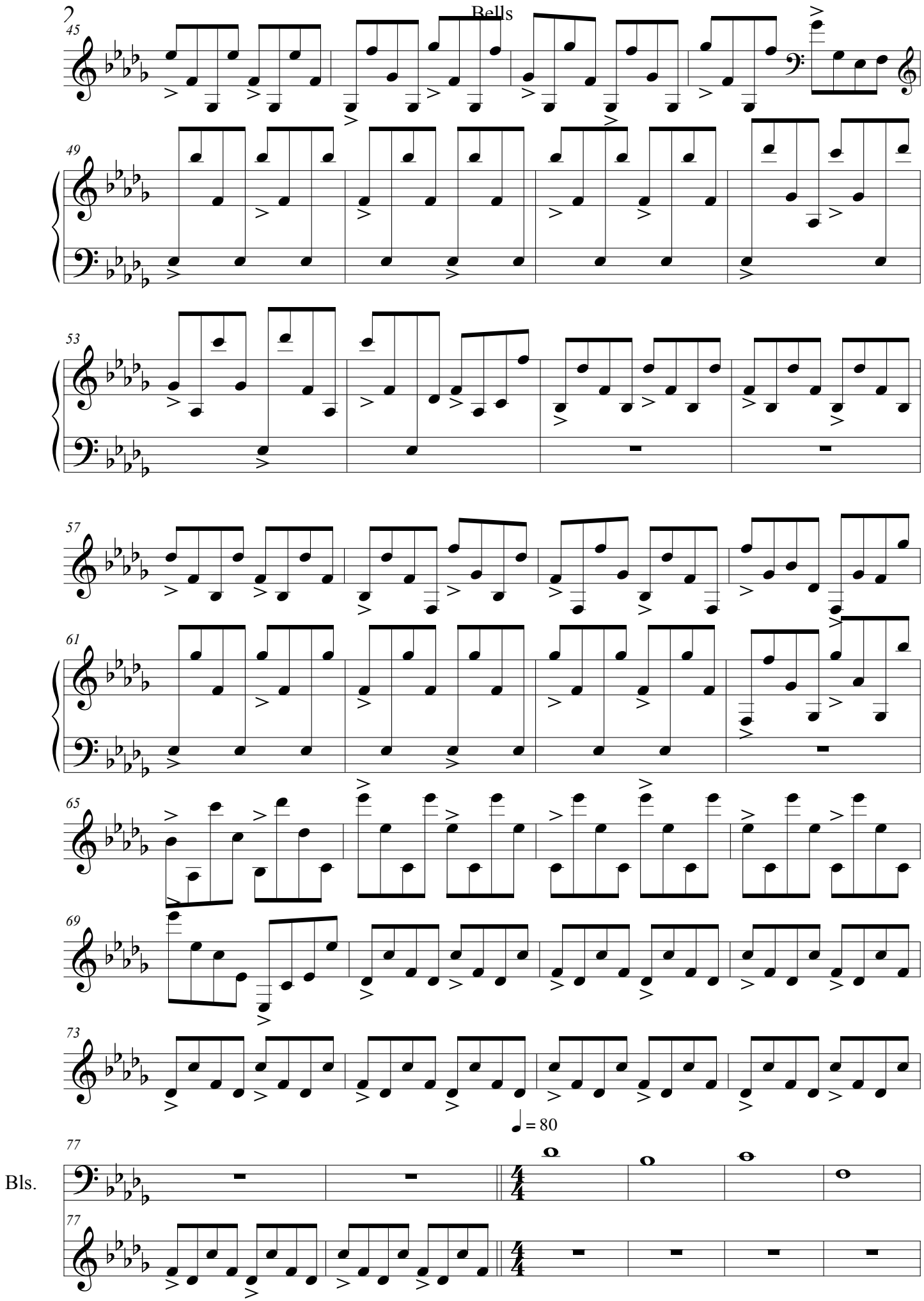
Bells
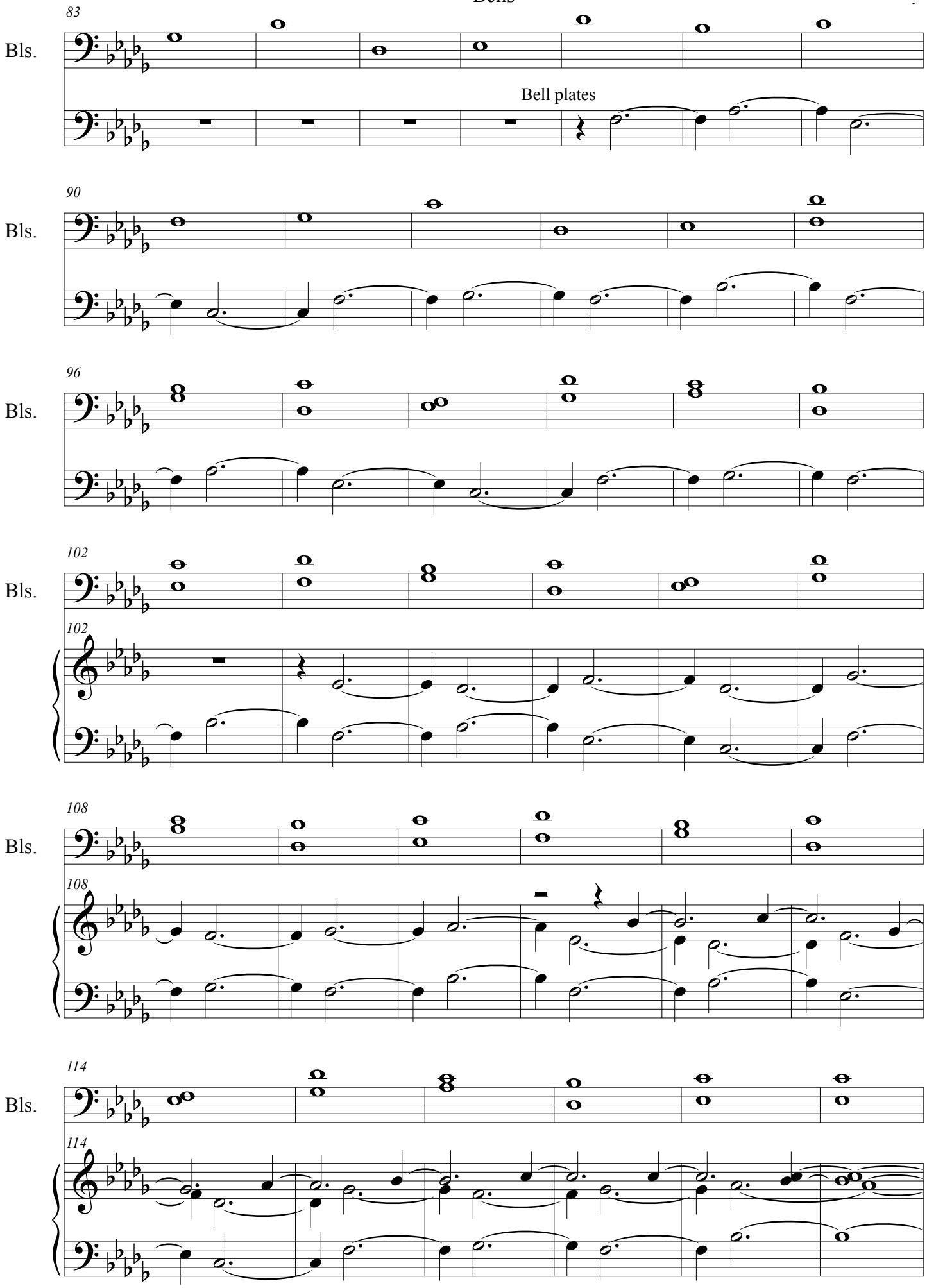
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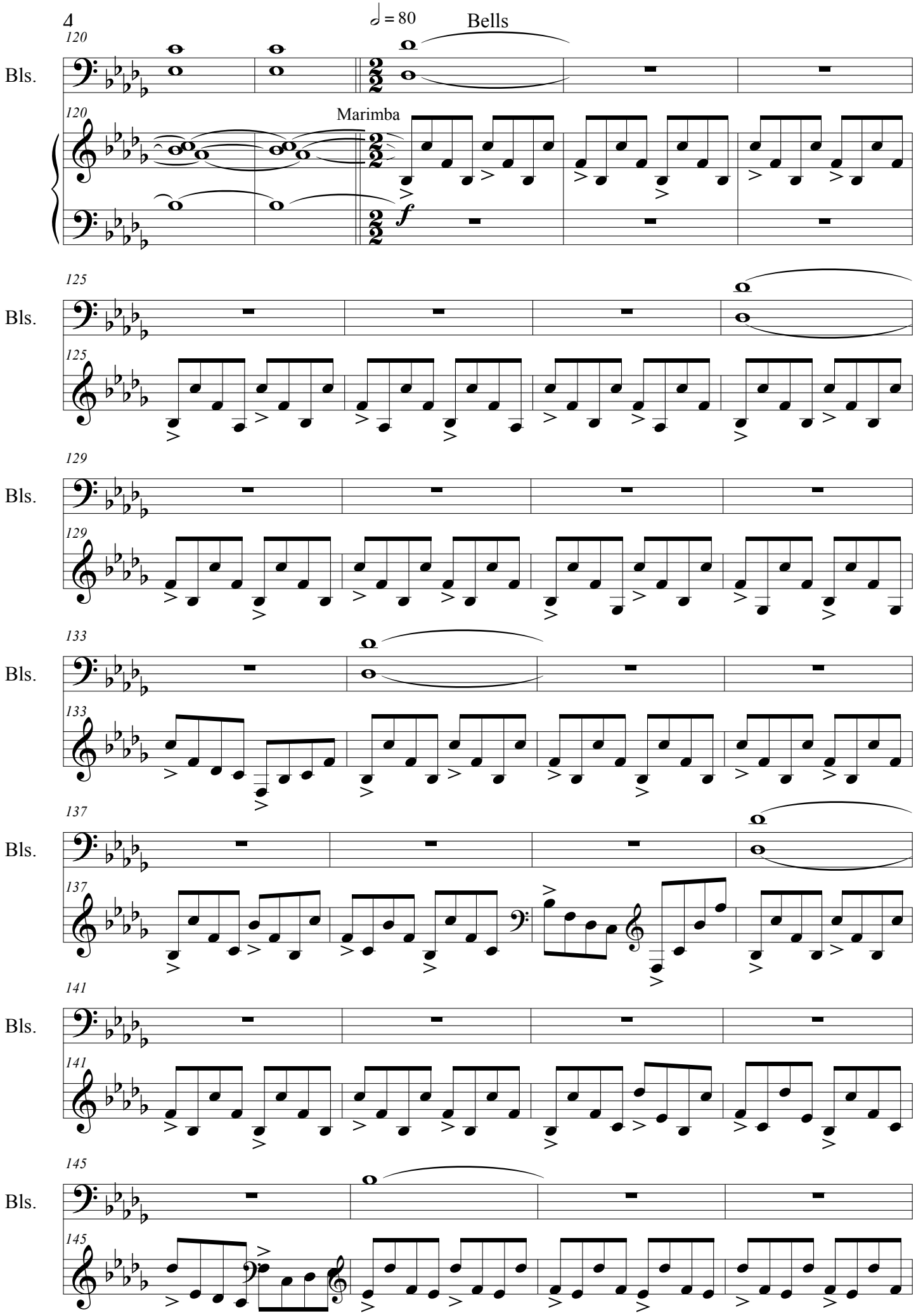
Tom Lane
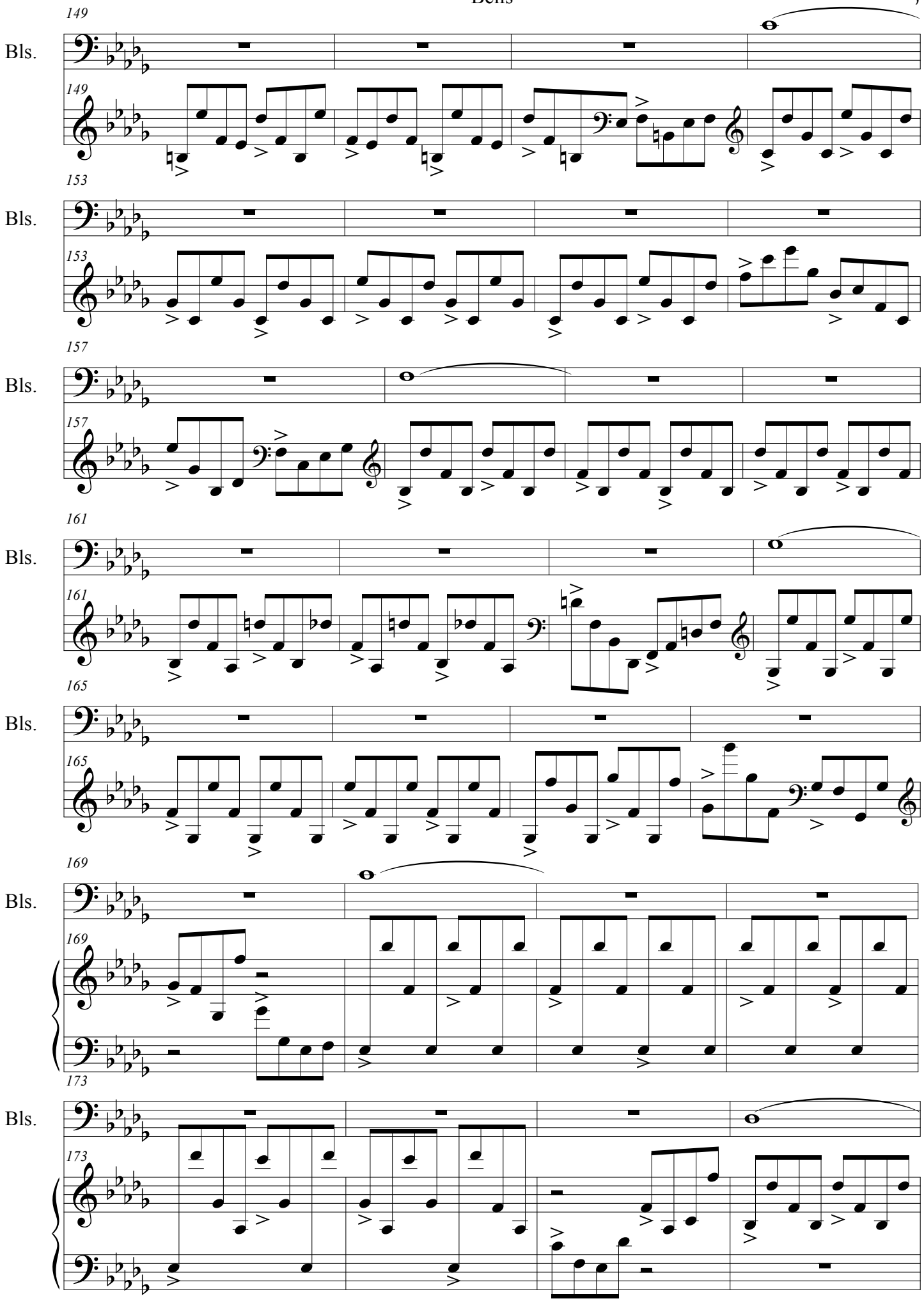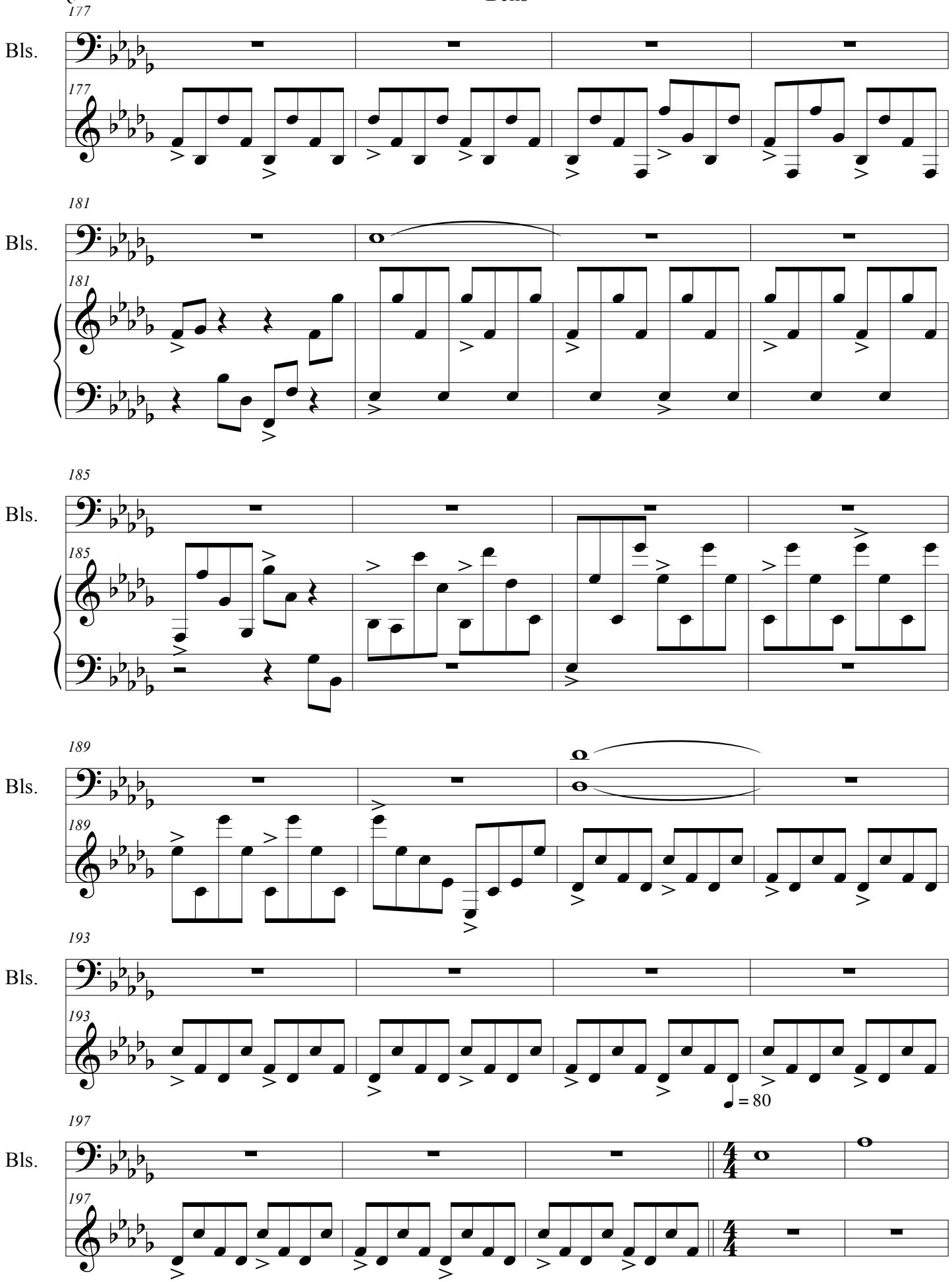


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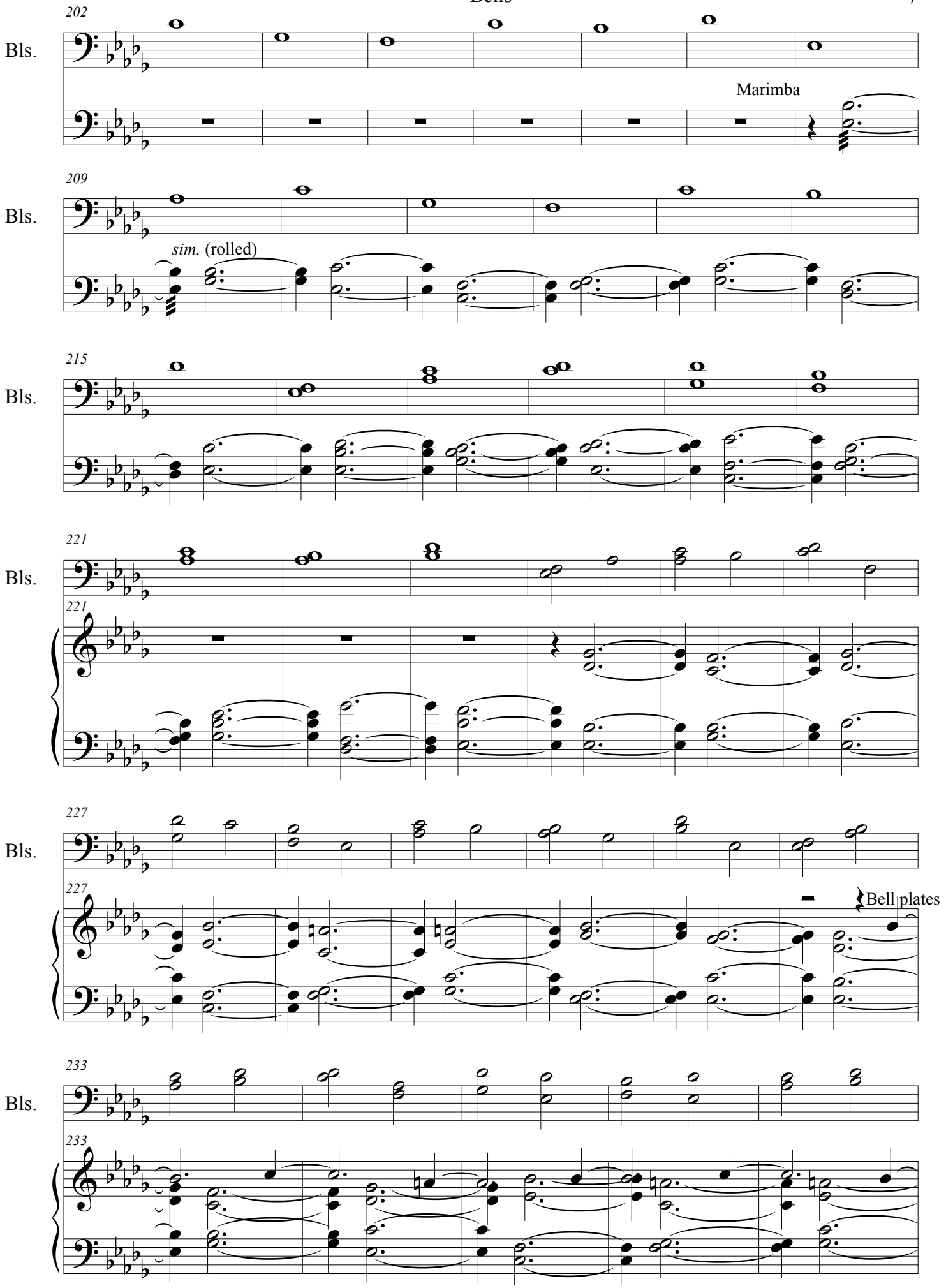

45
49
53
57
61
65
69
73
♩ = 80
77
Bls.
77
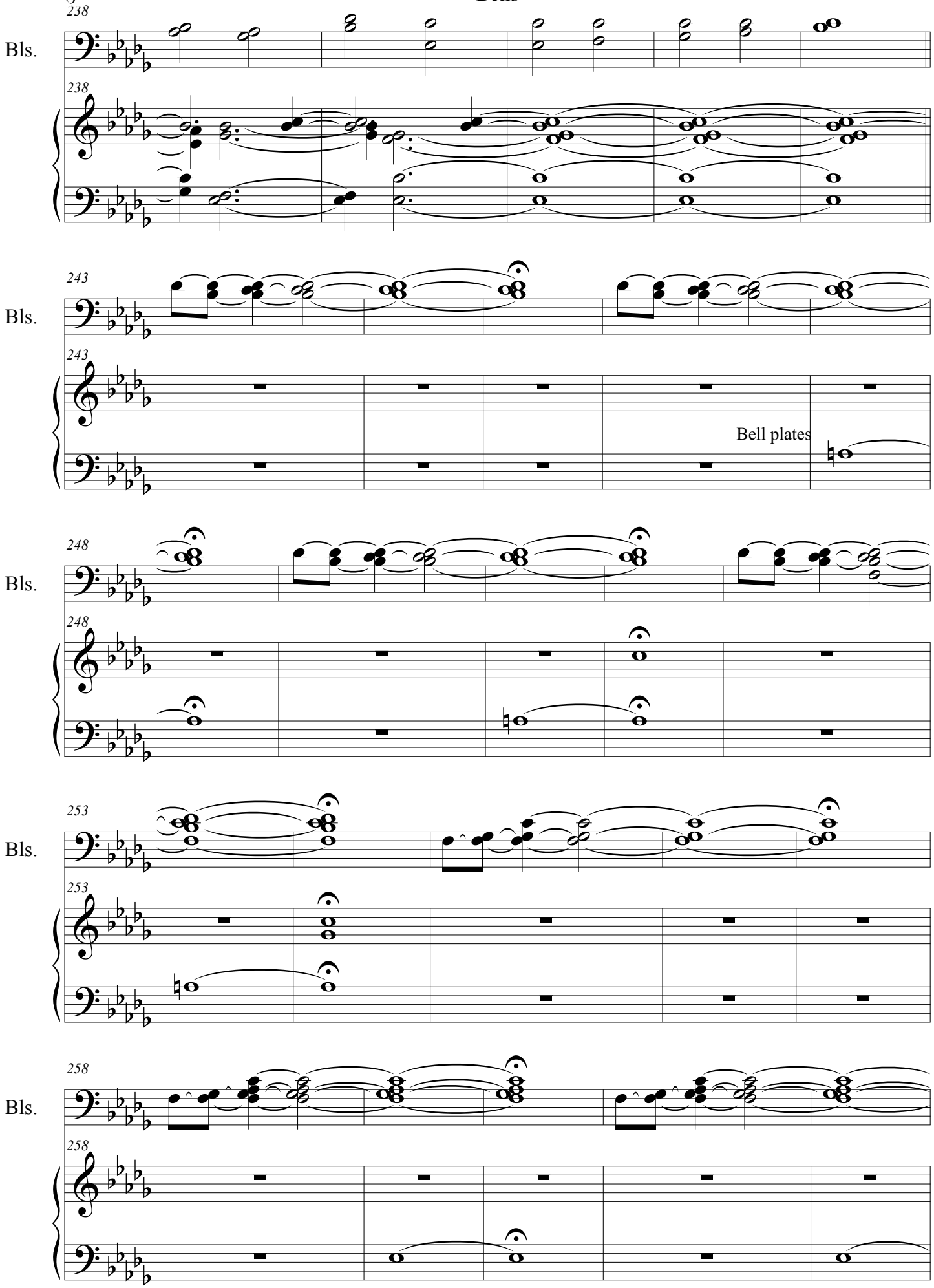

83
Bls.
Bell plates
90
Bls.
96
Bls.
102
Bls.
102
108
Bls.
108
114
Bls.
114
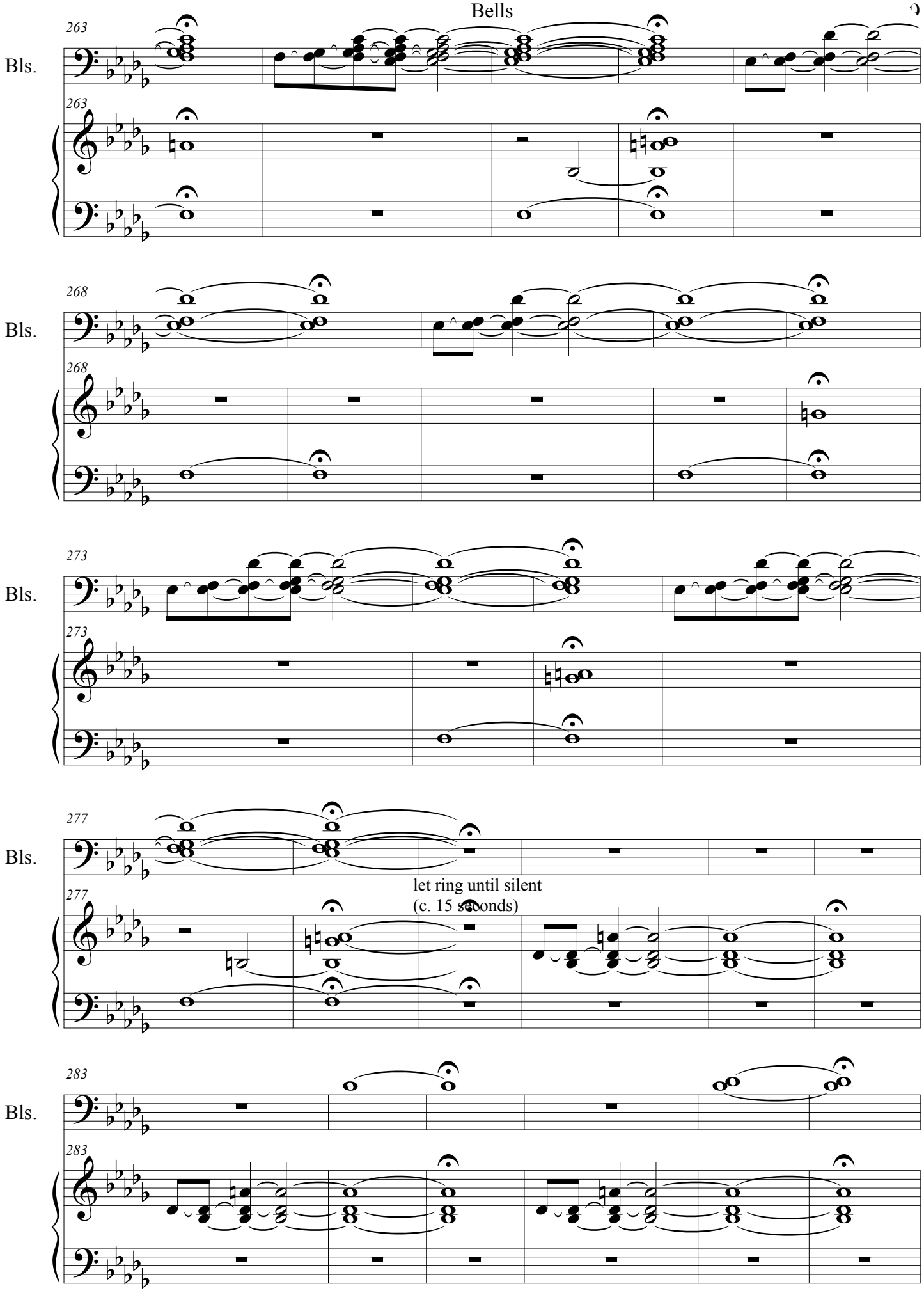

4
120
♩ = 80
Bells
Bls.
120
Marimba
f
125
Bls.
125
129
Bls.
129
133
Bls.
133
137
Bls.
137
141
Bls.
141
145
Bls.
145
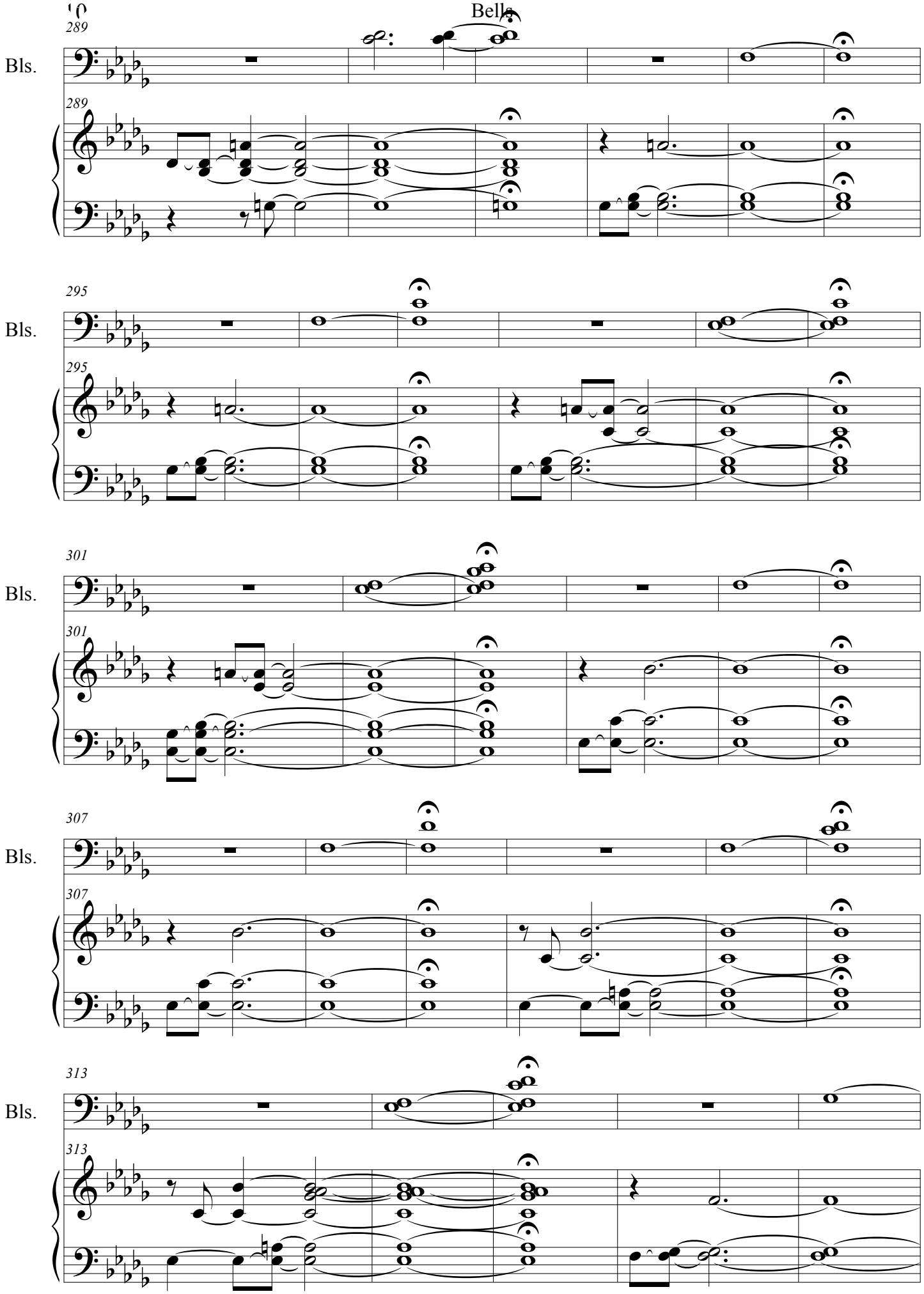

149
Bls.
149
153
Bls.
153
157
Bls.
157
161
Bls.
161
165
Bls.
165
169
Bls.
169
173
Bls.
173
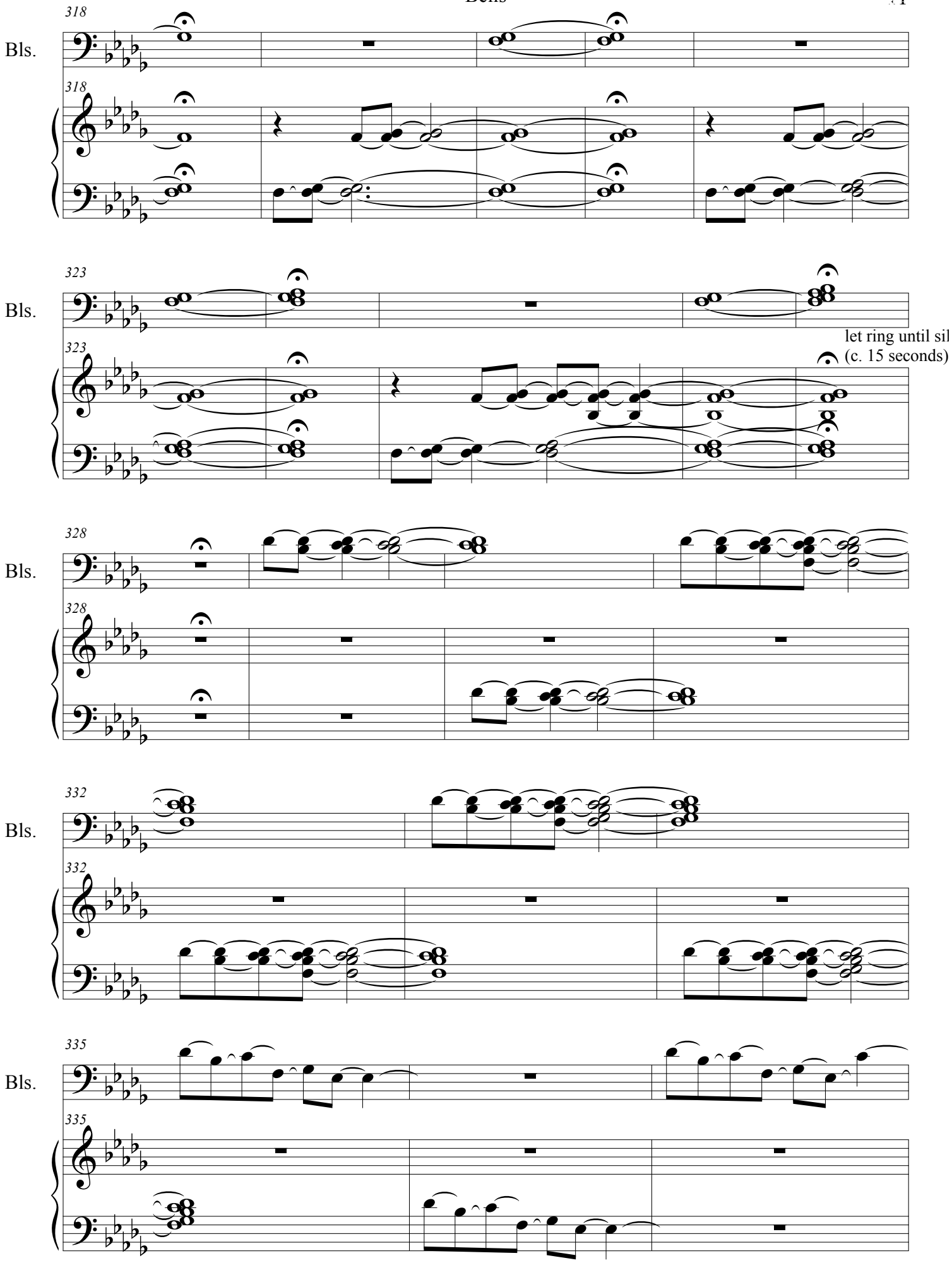

177
Bls.
177
181
Bls.
181
185
Bls.
185
189
Bls.
189
193
Bls.
193
♩ = 80
197
Bls.
197
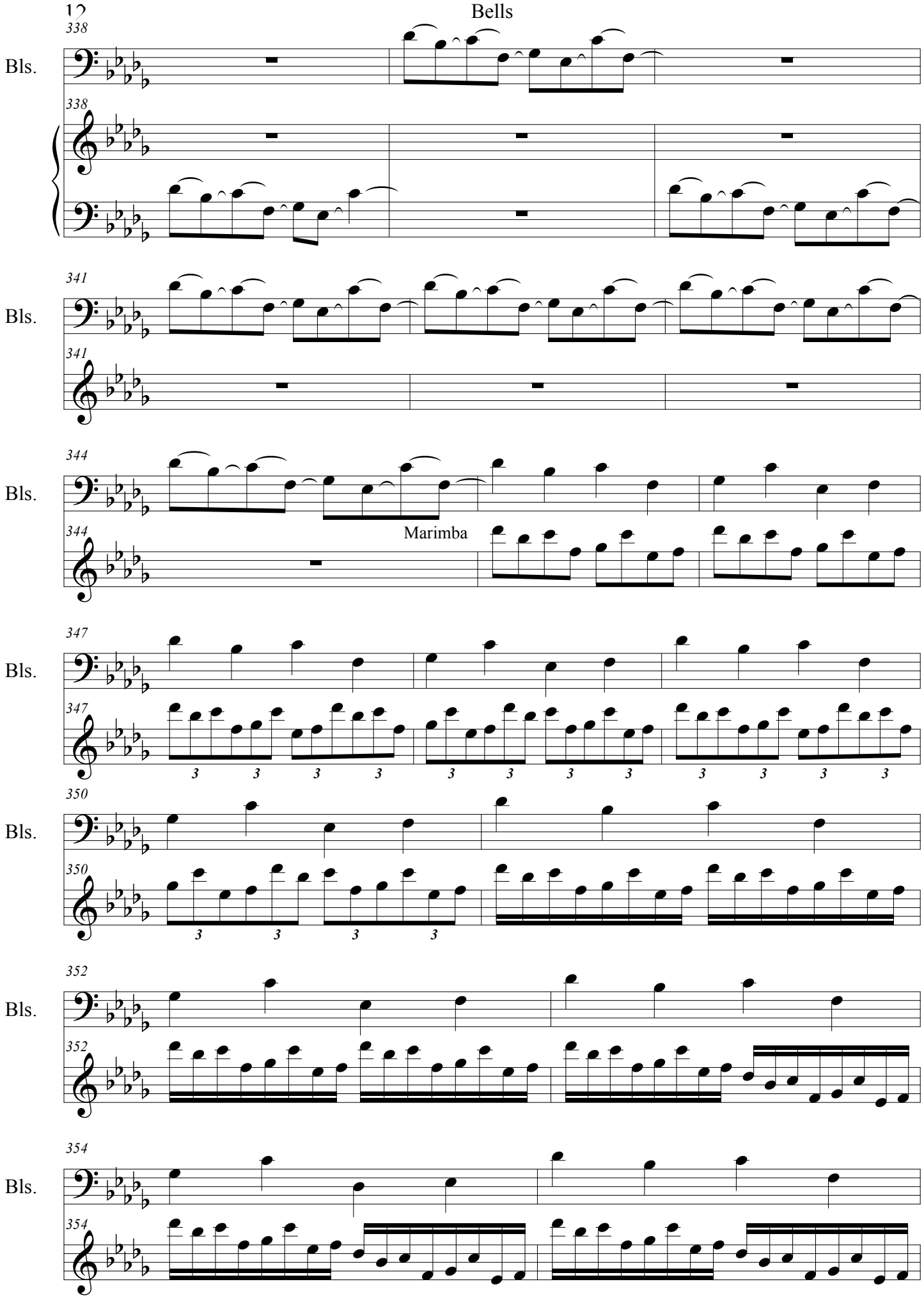

202
Bls.
Marimba
209
Bls.
sim. (rolled)
215
Bls.
221
Bls.
221
227
Bls.
227
Bell plates
233
Bls.
233

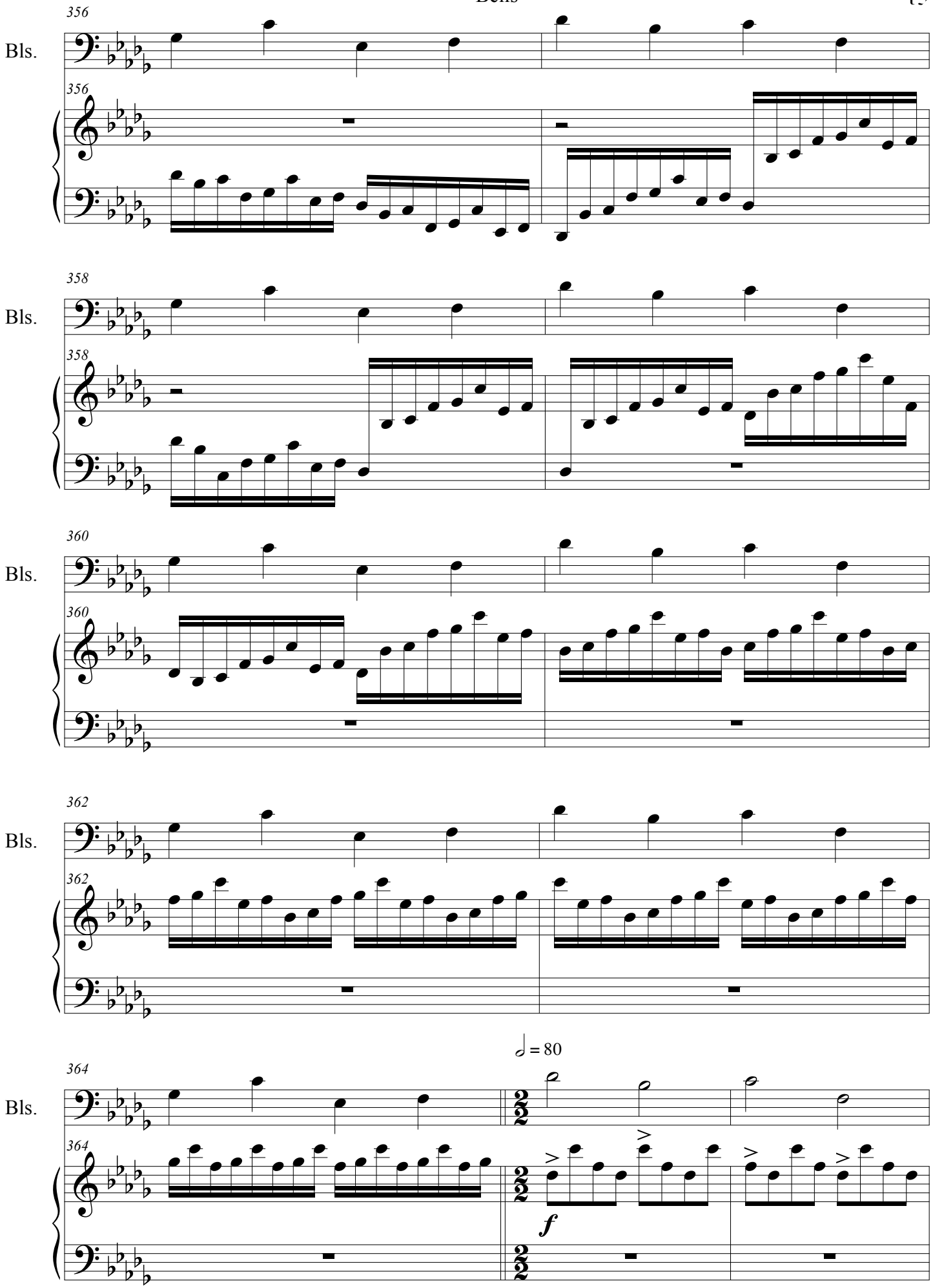

238
Bls.
238
243
Bls.
243
Bell plates
248
Bls.
248
253
Bls.
253
258
Bls.
258
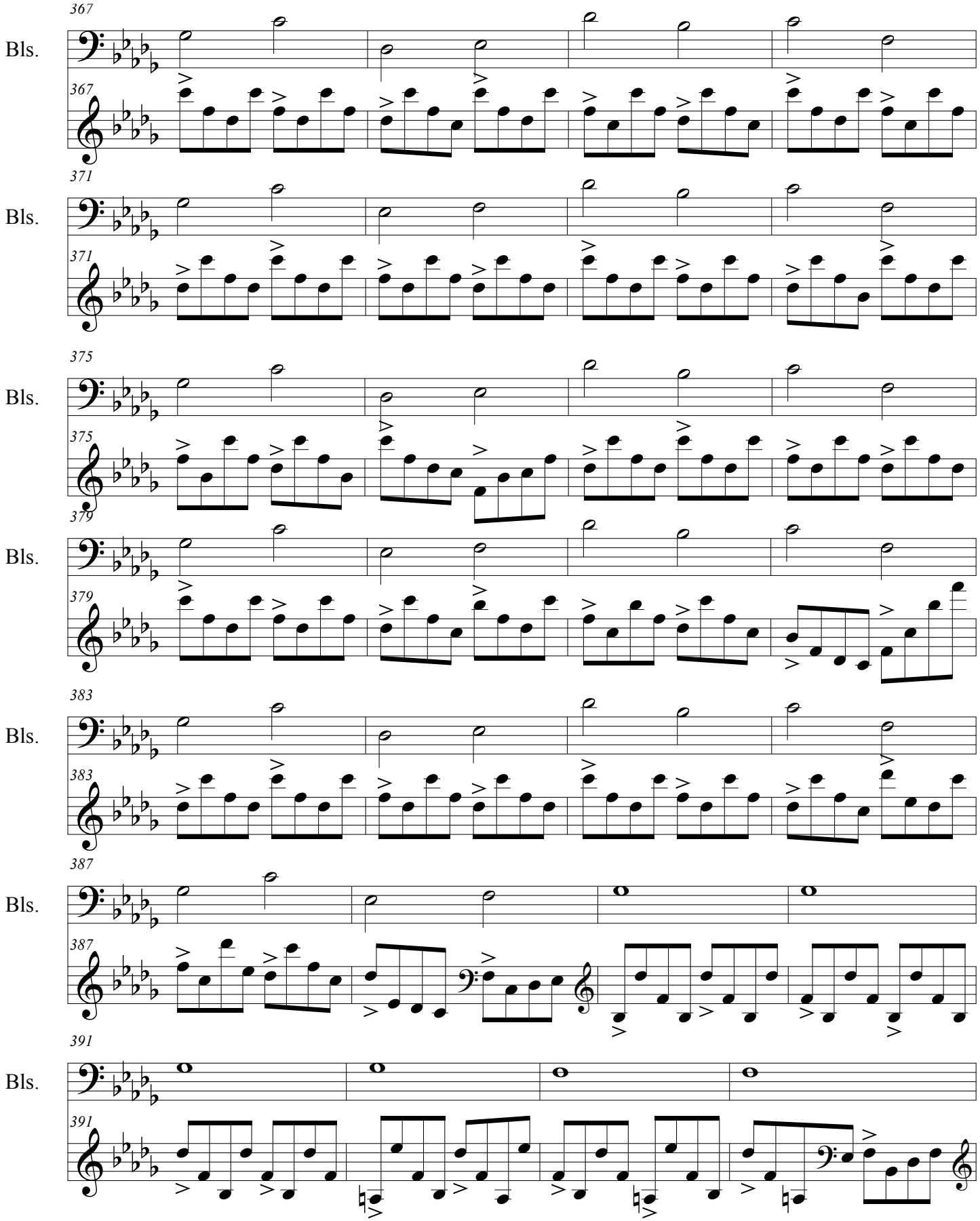

263
Bls.
263
268
Bls.
268
273
Bls.
273
277
Bls.
277
let ring until silent
(c. 15 seconds)
283
Bls.
283
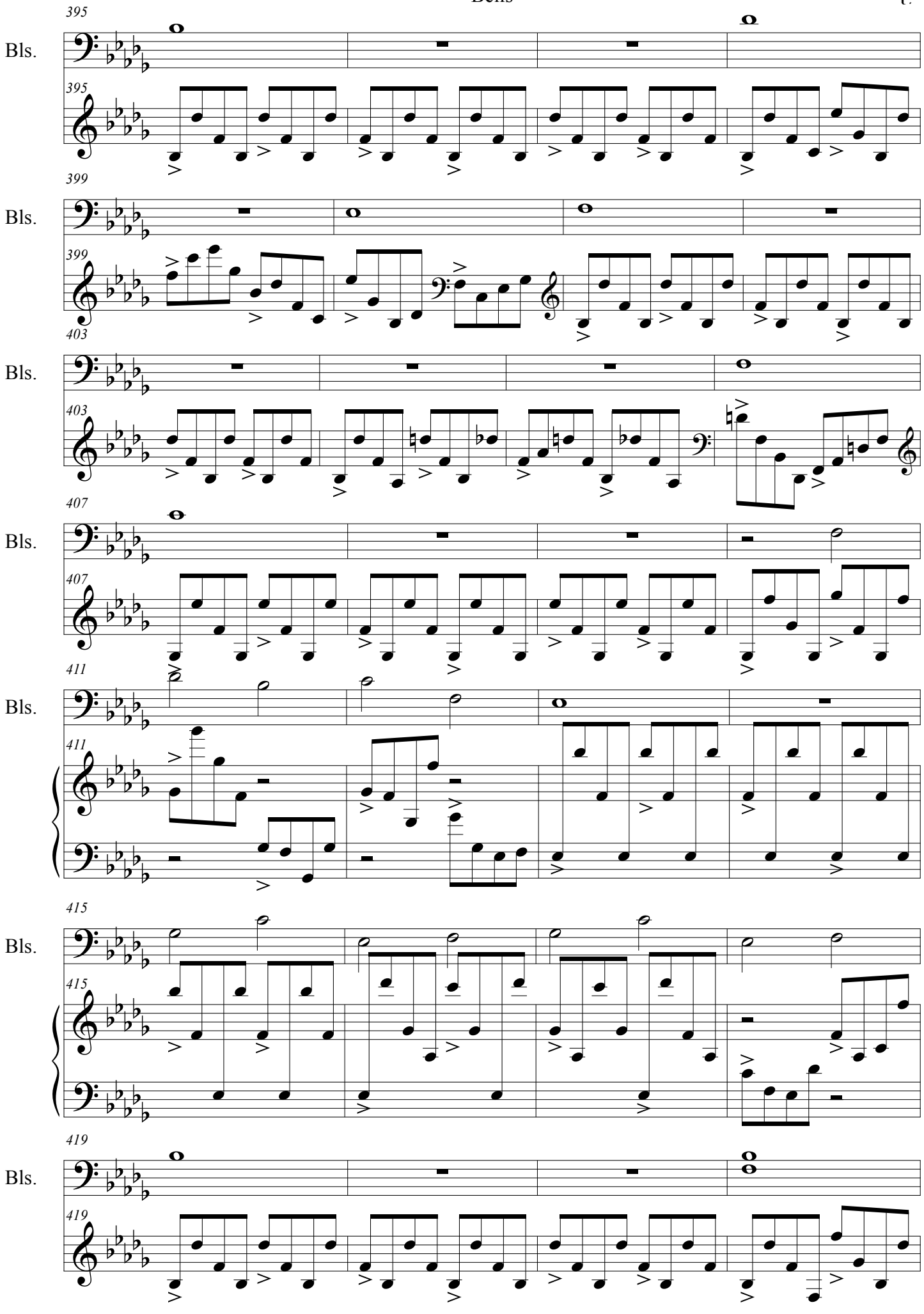

289
Bls.
289
295
Bls.
295
301
Bls.
301
307
Bls.
307
313
Bls.
313
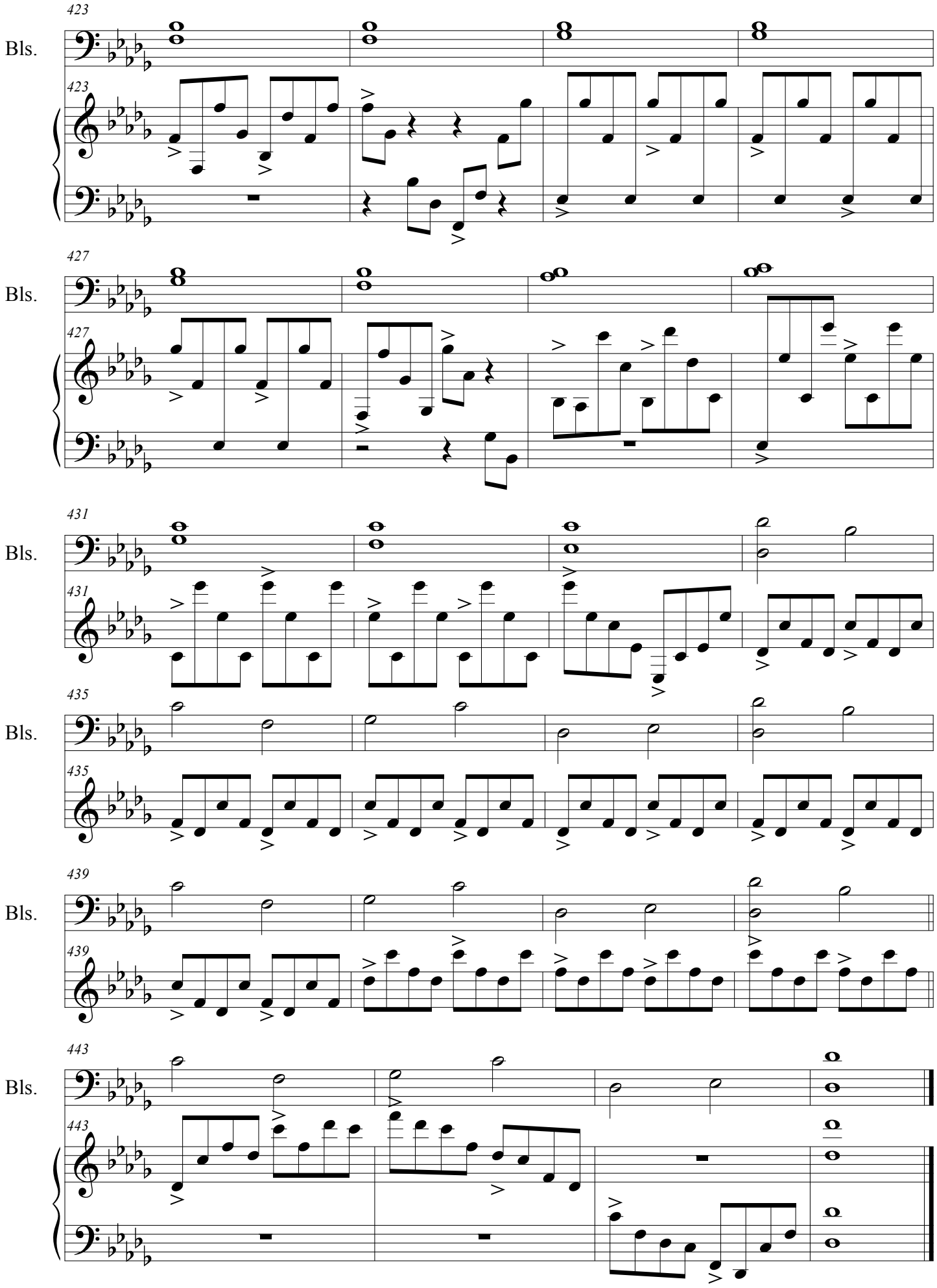

318
Bls.
318
323
Bls.
323
let ring until sil
(c. 15 seconds)
328
Bls.
328
332
Bls.
332
335
Bls.
335


Bells
338
Bls.
338
341
Bls.
341
344
Bls.
344
Marimba
347
Bls.
347
3 3 3 3 3 3 3 3 3 3 3 3
350
Bls.
350
3 3 3 3
352
Bls.
352
354
Bls.
354


356
Bls.
356
358
Bls.
358
360
Bls.
360
362
Bls.
362
364
Bls.
364
♩ = 80
f

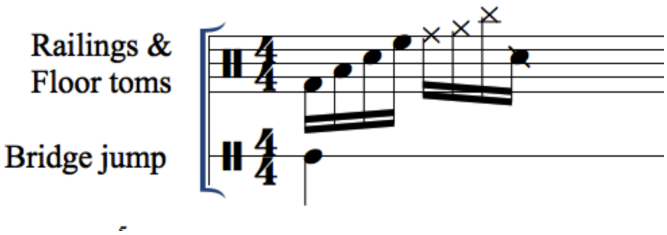

367
Bls.
367
371
Bls.
371
375
Bls.
375
379
Bls.
379
383
Bls.
383
387
Bls.
387
391
Bls.
391


395
Bls.
395
399
Bls.
399
403
Bls.
403
407
Bls.
407
411
Bls.
411
415
Bls.
415
419
Bls.
419


423
Bls.
423
427
Bls.
427
431
Bls.
431
435
Bls.
435
439
Bls.
439
443
Bls.
443

4 floor toms

3 railing sounds



Jump with both feet
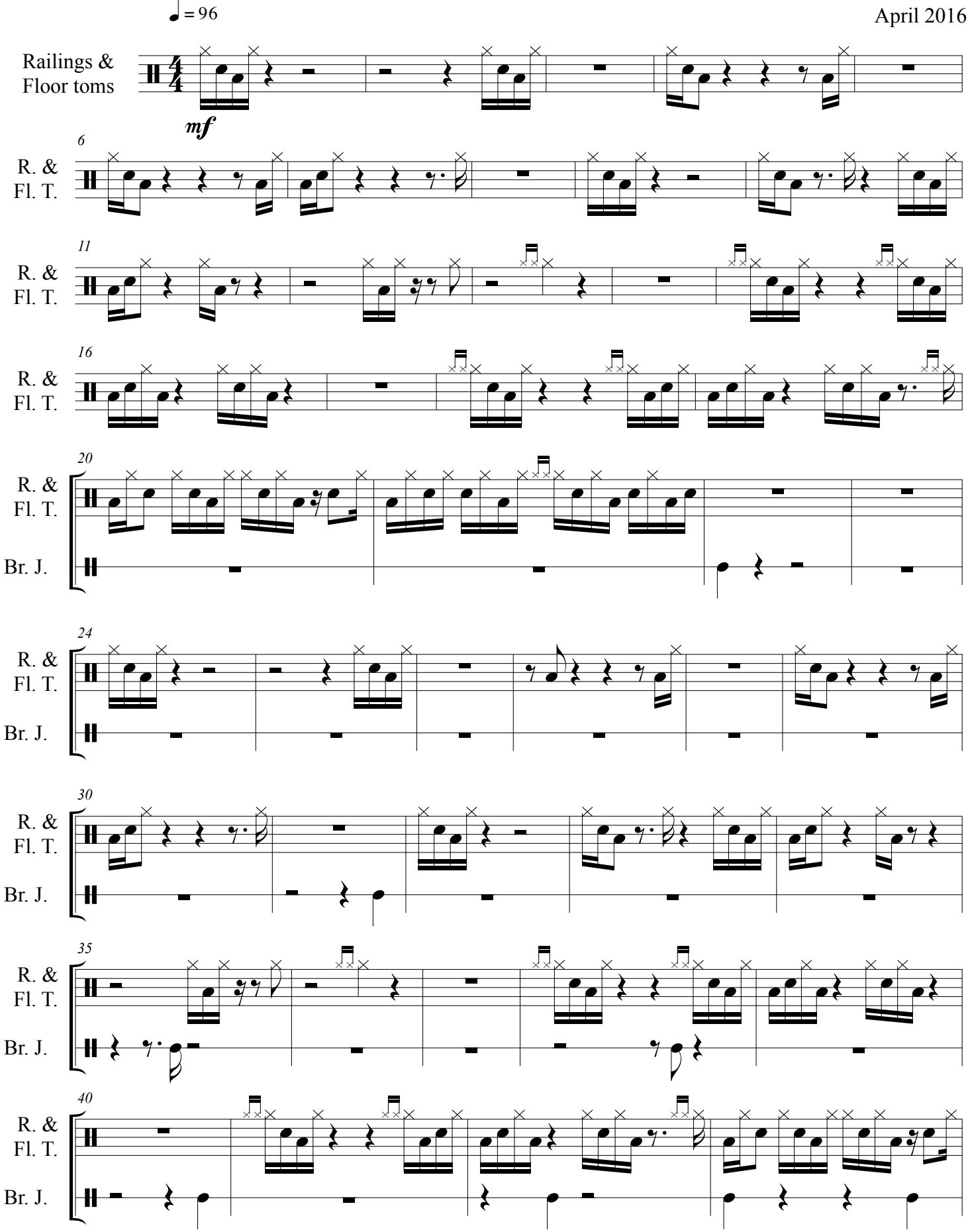
floor tom rim

Score
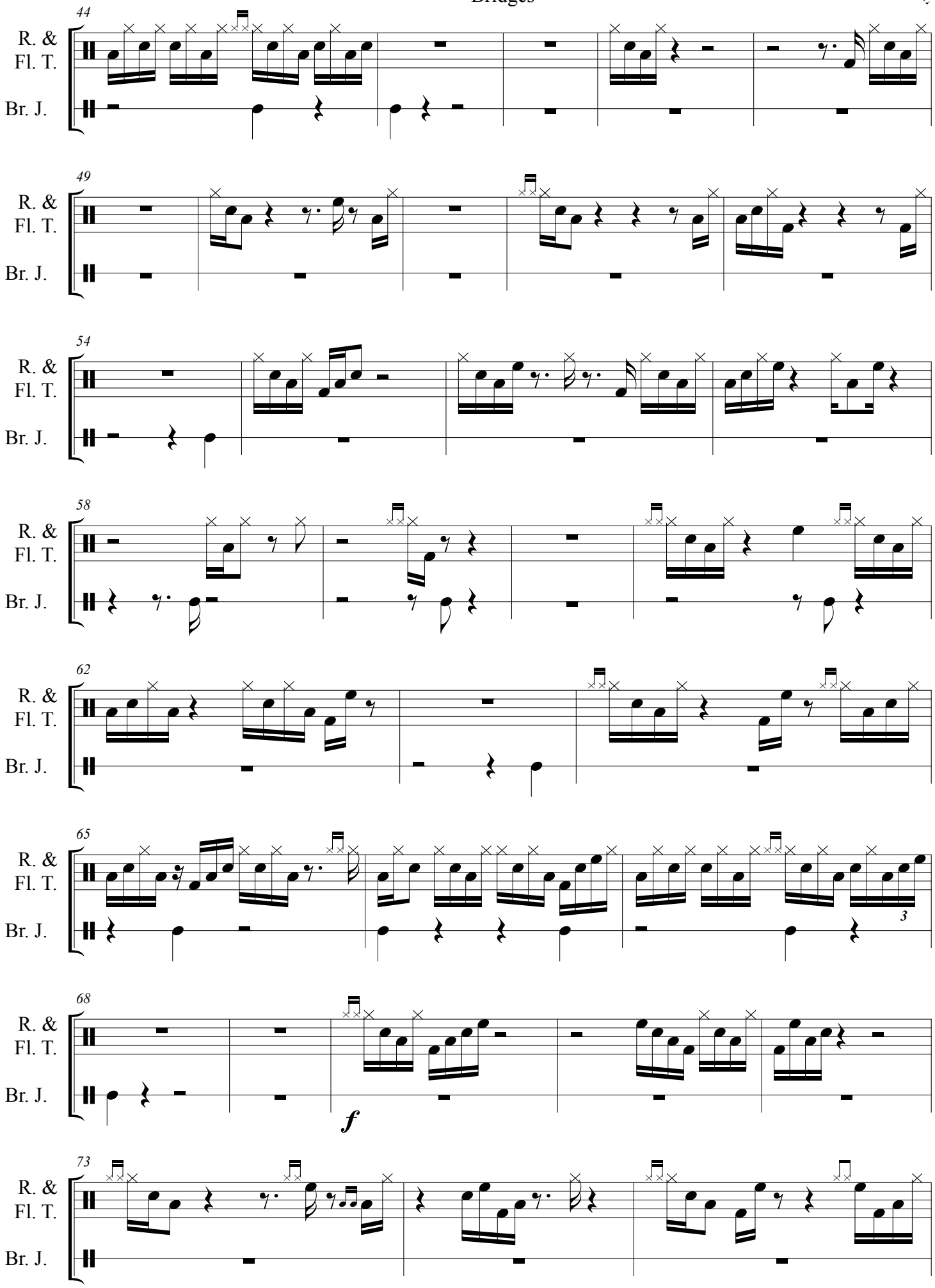
Bridges

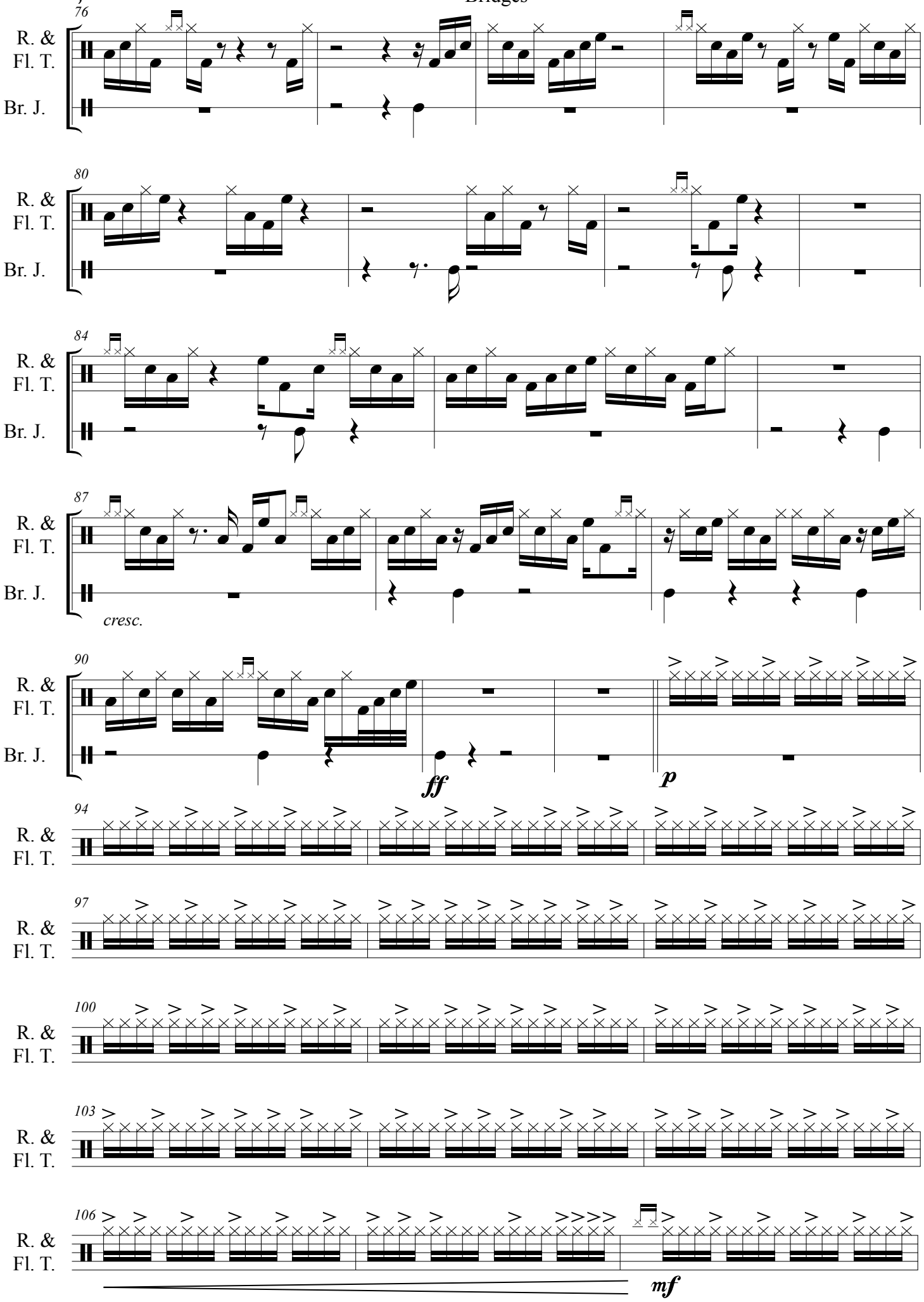
for Alex Petcu

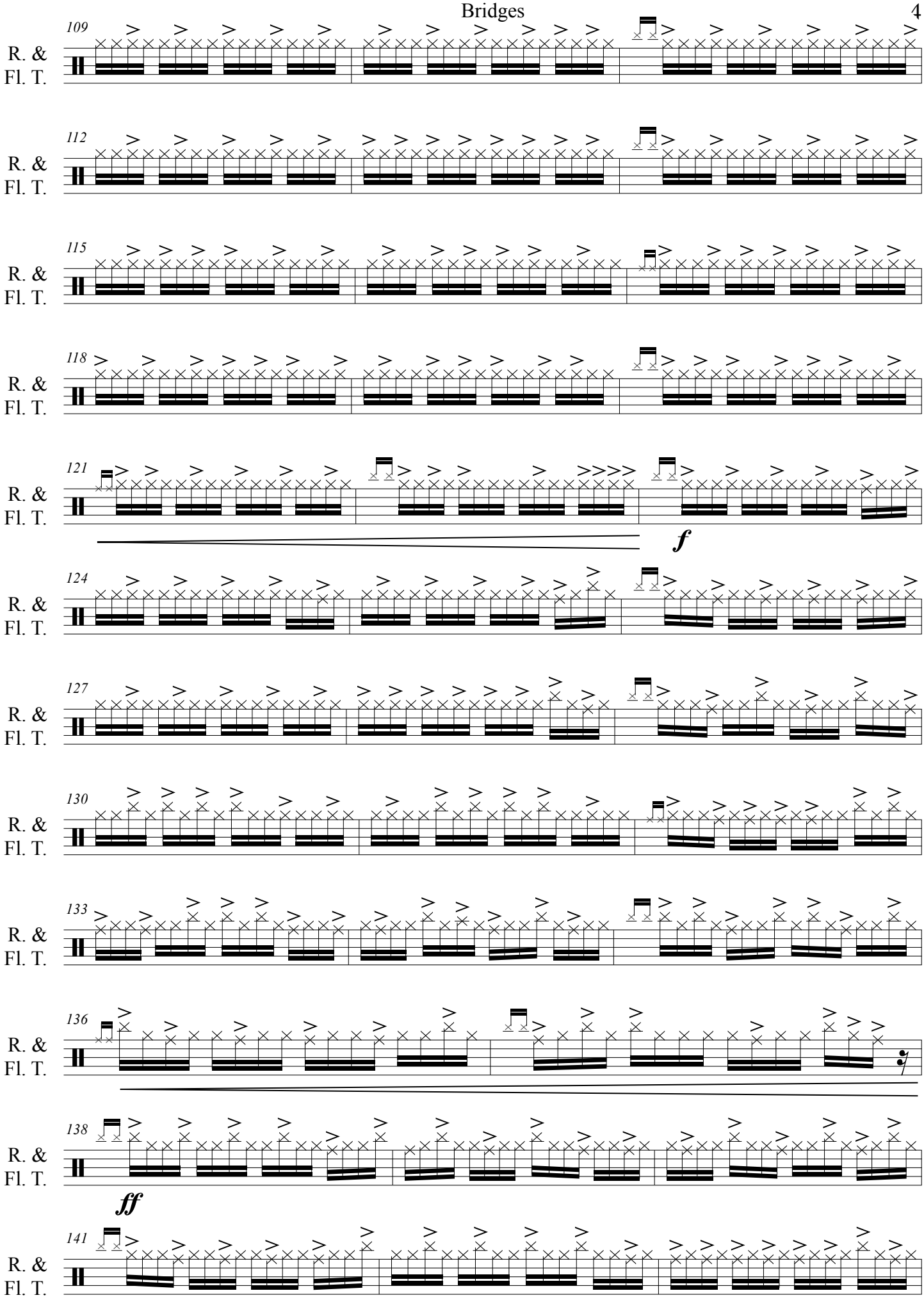
Tom Lane
April 2016

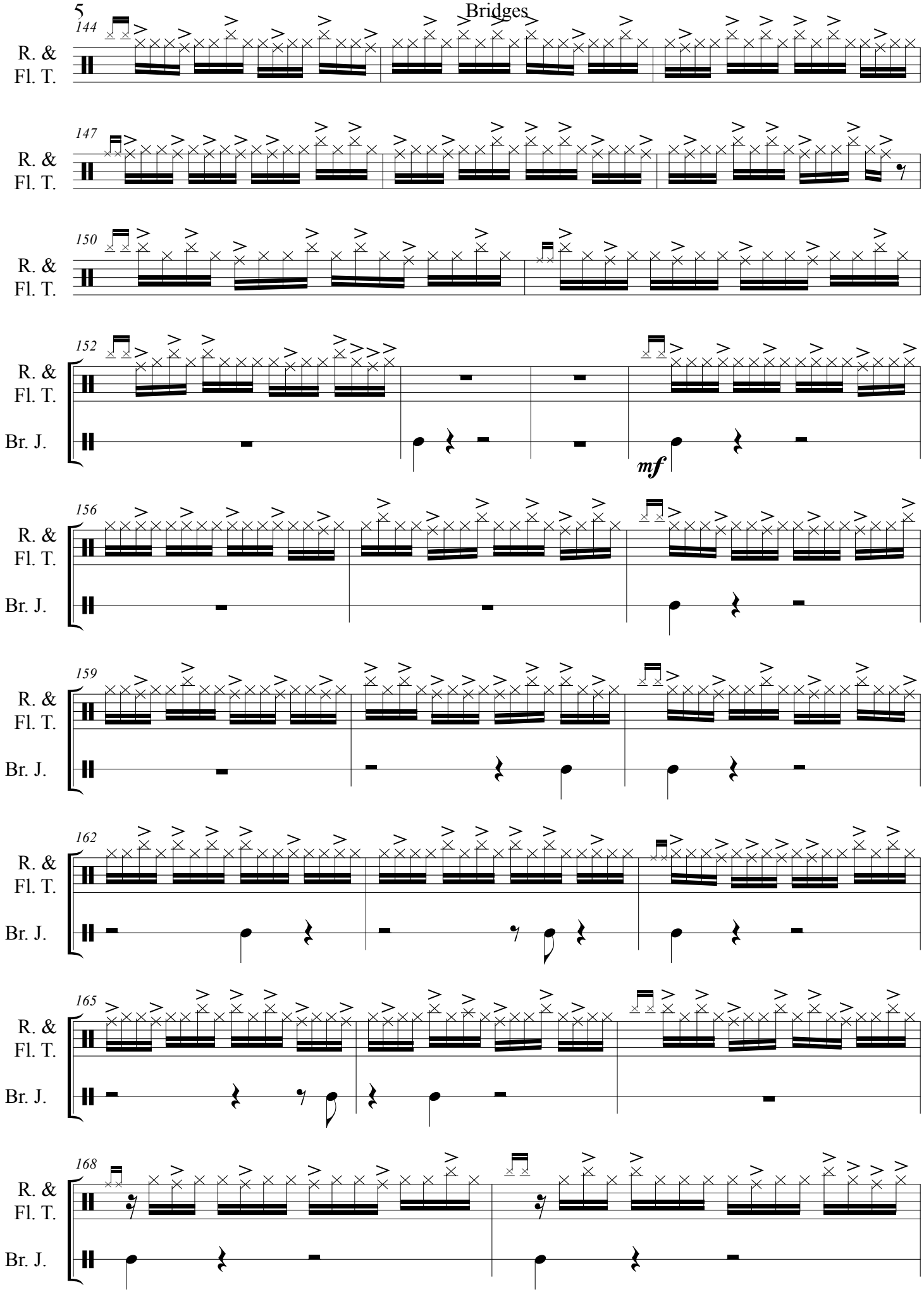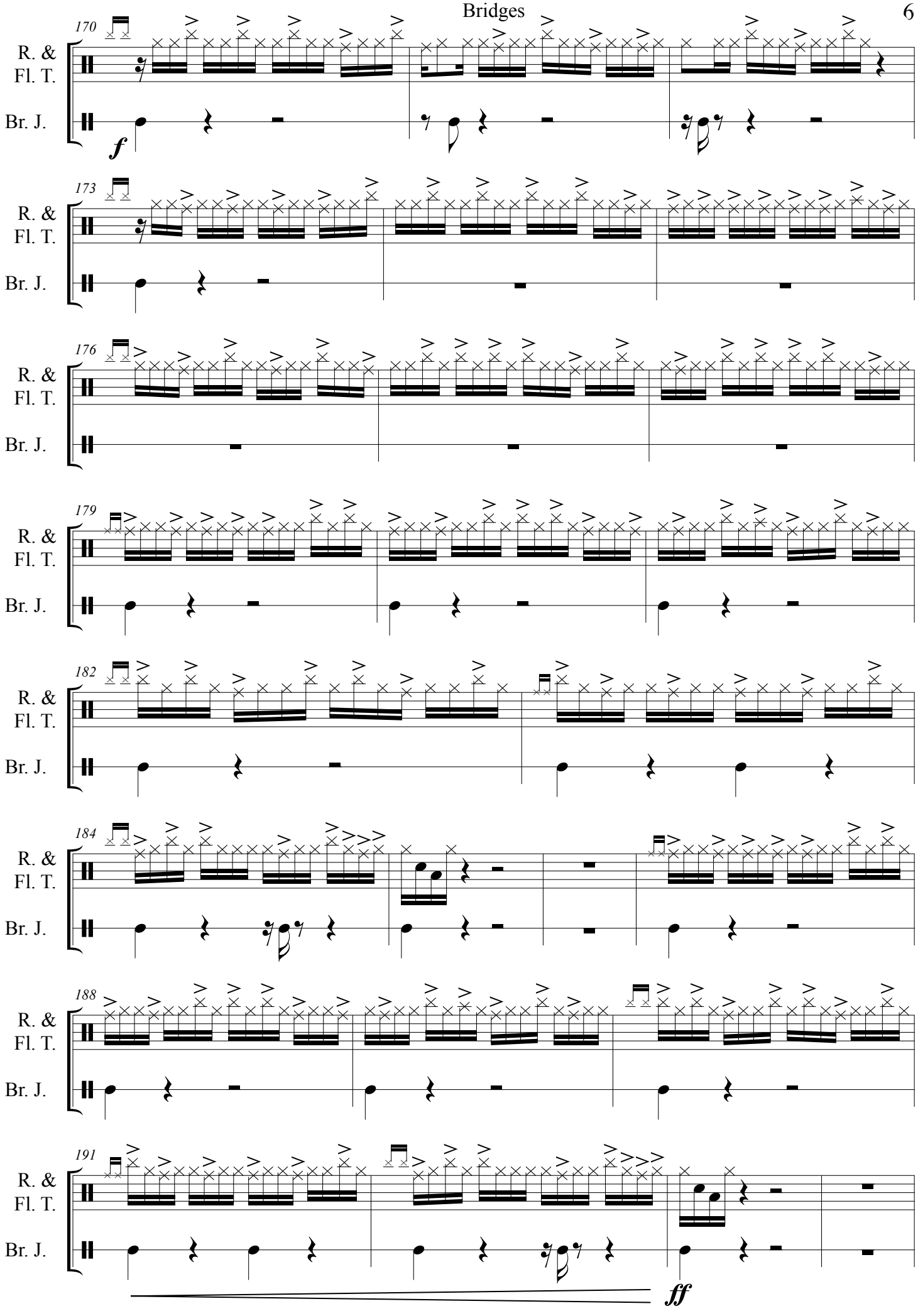


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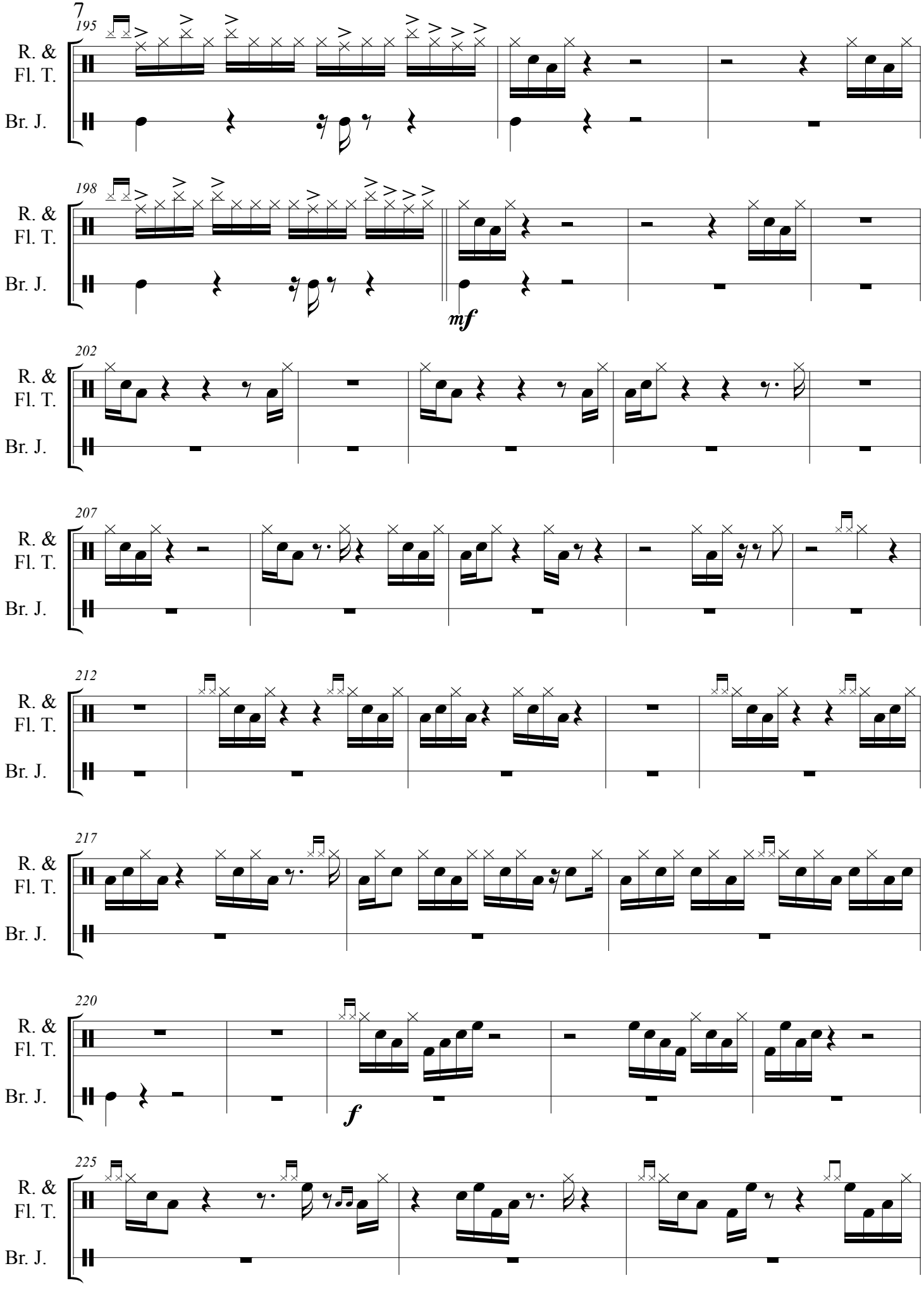

44
R. & Fl. T.
Br. J.
49
54
58
62
65
3
68
f
73
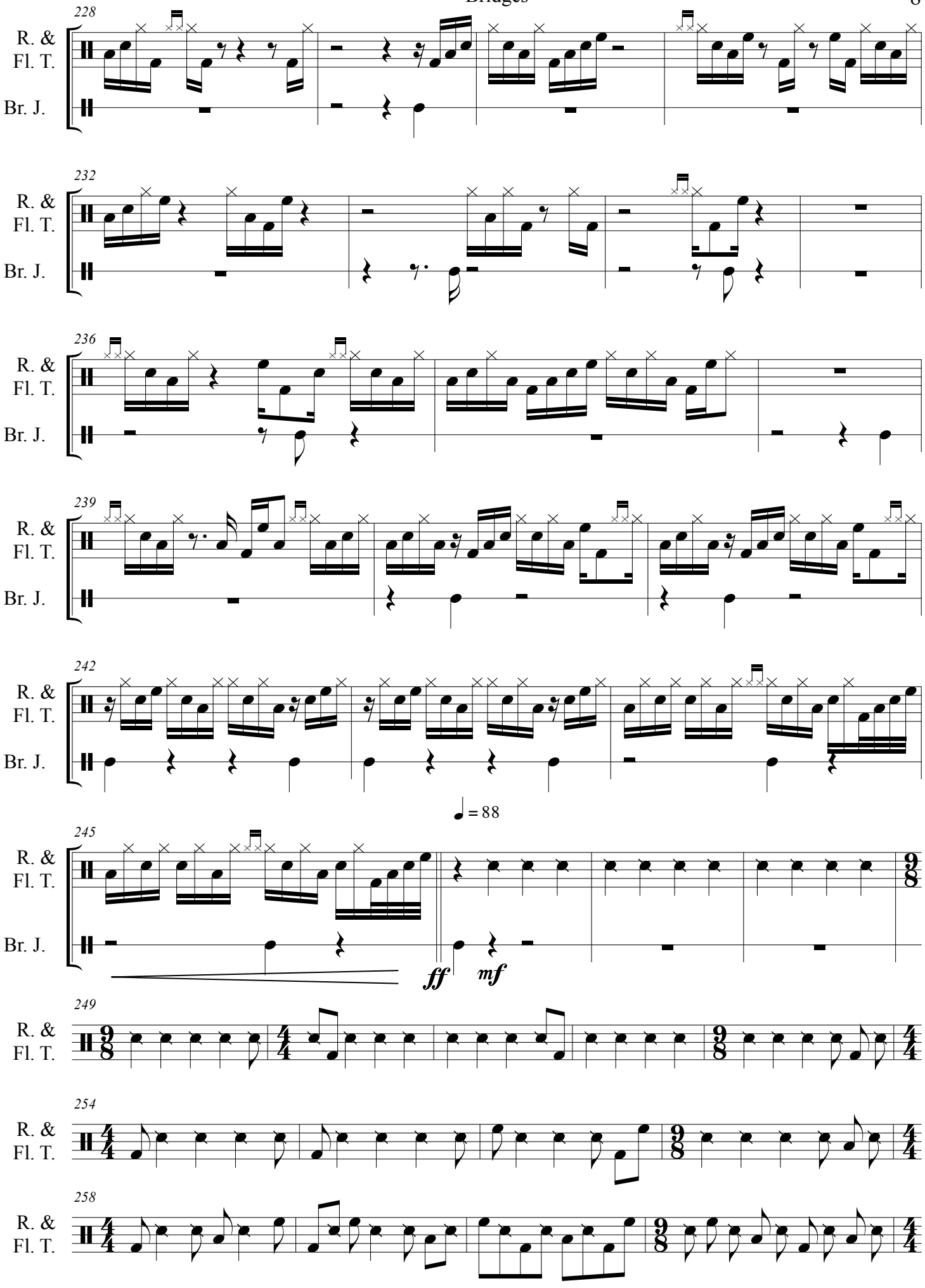

76
R. & Fl. T.
Br. J.
80
84
87
cresc.
90
ff
p
94
97
100
103
106
mf
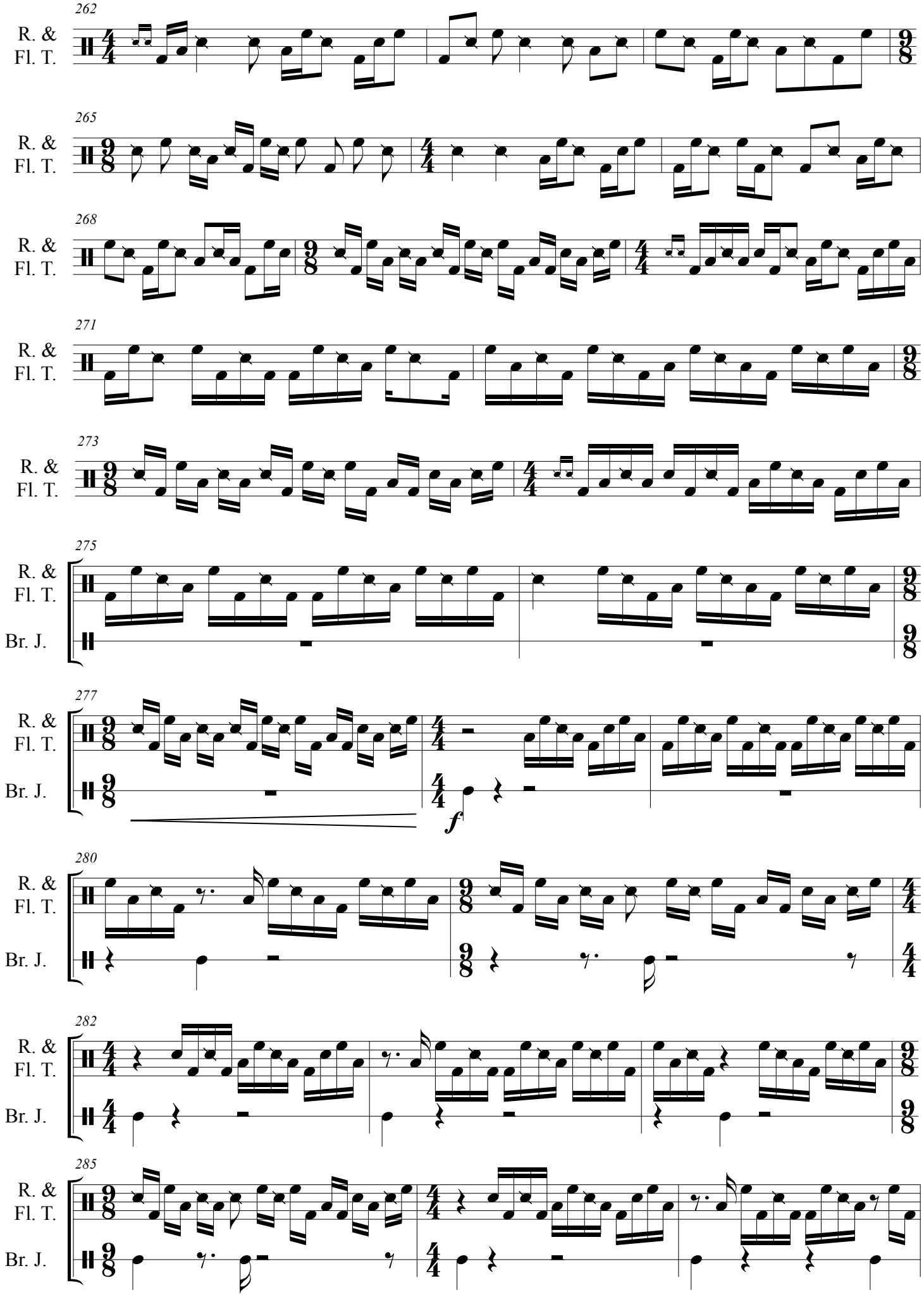

109
R. &
Fl. T.
112
R. &
Fl. T.
115
R. &
Fl. T.
118
R. &
Fl. T.
121
R. &
Fl. T.
f
124
R. &
Fl. T.
127
R. &
Fl. T.
130
R. &
Fl. T.
133
R. &
Fl. T.
136
R. &
Fl. T.
138
R. &
Fl. T.
ff
141
R. &
Fl. T.

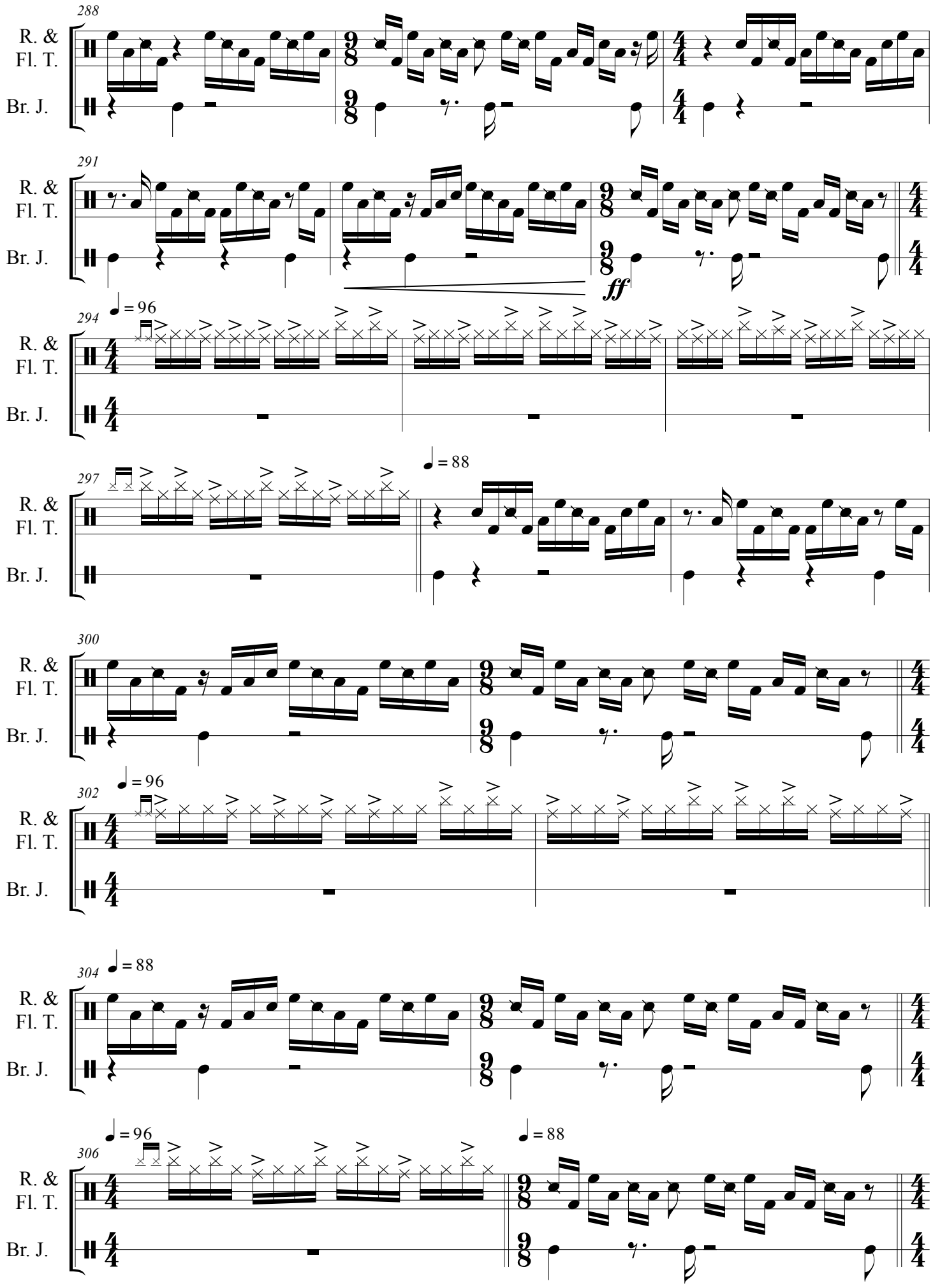

144
R. &
Fl. T.
147
R. &
Fl. T.
150
R. &
Fl. T.
152
R. &
Fl. T.
Br. J.
mf
156
R. &
Fl. T.
Br. J.
159
R. &
Fl. T.
Br. J.
162
R. &
Fl. T.
Br. J.
165
R. &
Fl. T.
Br. J.
168
R. &
Fl. T.
Br. J.
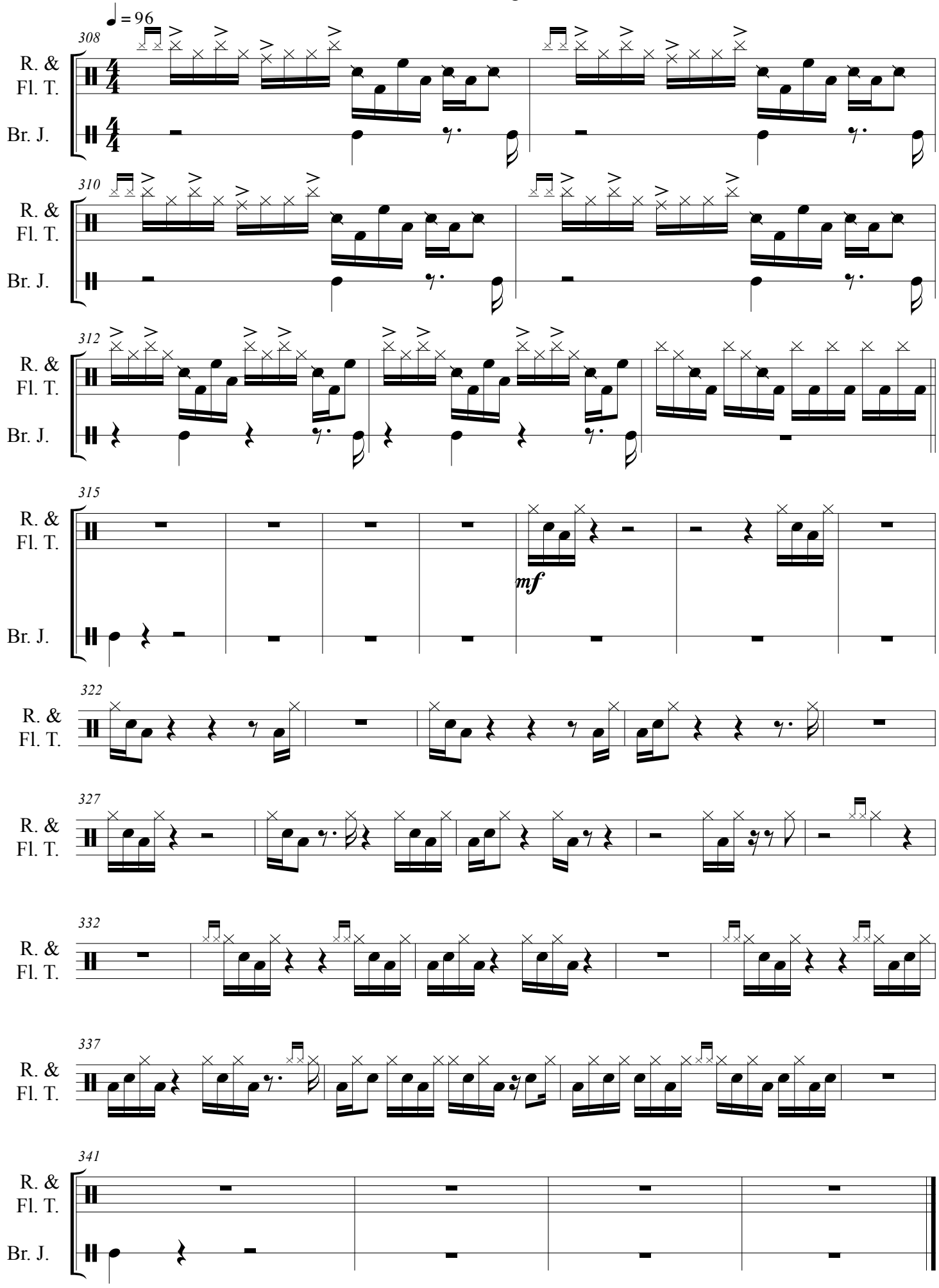

170
R. & Fl. T.
Br. J.
f
173
176
179
182
184
188
191
ff


7
195
R. &
Fl. T.
Br. J.
198
mf
202
207
212
217
220
f
225


228
R. & Fl. T.
Br. J.
232
236
239
242
♩ = 88
245
ff
mf
249
254
258


262
R. & Fl. T.
265
R. & Fl. T.
268
R. & Fl. T.
271
R. & Fl. T.
273
R. & Fl. T.
275
R. & Fl. T.
Br. J.
277
R. & Fl. T.
Br. J.
f
280
R. & Fl. T.
Br. J.
282
R. & Fl. T.
Br. J.
285
R. & Fl. T.
Br. J.


288
R. & Fl. T.
Br. J.
291
ff
294
♩ = 96
297
♩ = 88
300
302
♩ = 96
304
♩ = 88
306
♩ = 96
♩ = 88


♩ = 96
308
R. & Fl. T.
Br. J.
310
312
315
mf
322
327
332
337
341