Living Scores: A Portfolio of Orally-Transmitted Experimental Music
Compositions

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Abstract

This commentary reflects on a portfolio containing five of my recent orally-transmitted experimental music compositions created between fall 2013 and fall 2016. These living scores investigate transmission, community, orality and forgetting, which are the major themes of my original work. This commentary relates particularly to two main research questions: 1) what happens to the traditional practices and relationships surrounding composers and performers if the material aspect of the musical score is removed; and 2) what musical materials and processes are particularly suited to an orally-transmitted compositional method?

After a brief introduction in Chapter 1, Chapter 2 provides context to the portfolio, exploring the terms experimental music and living scores. The term living scores has been used by a variety of artists in contexts ranging from dance collaborations to digital media. A new definition of living scores is proposed based on a synthesis of these existing uses to mean contexts in which all compositional instructions are transmitted, rather than fixed. Living scores are essentially participatory – they foreground collaboration and encourage the formation of micro-communities. Because they eschew written notation, living scores allow the act of forgetting to become a vital part of the creative process. Composers such as Éliane Radigue, Meredith Monk and Yoko Ono are discussed in this new context.

Chapters 3 and 4 discuss my work within the paradigm of living scores. In Chapter 3, after a typical transmission of my work is outlined, aspects of oral and digital transmission are detailed, including the media, length, density and frequency of transmissions. Many of these aspects are discussed in relation to the act of forgetting, which through this creative work can be seen as a productive feature of artistic creation. In Chapter 4, the musical material of the portfolio is discussed, with an emphasis on the use and transformation of borrowed musical source material. A solution for the integration of the collaborative process into performances of these works is proposed: partial transmissions overlapping with performances.

A brief conclusion outlines the possibility for future research that explores other modes of transmission, further musical explorations and repeated use of this compositional method.

Acknowledgements

Table of Contents

List of Figures

List of Works in Portfolio

[factory] (2013–14)

I created *[factory]* between December 2013 and January 2014 in collaboration with the violinist Mira Benjamin. This piece was my first foray into orally-transmitted scores. *[factory]* can be realized in any live media, and is solely transmitted by Benjamin herself via live unrecorded conversations. *[factory]* has been performed three times by Benjamin, and transmitted to Isaiah Ceccarelli (percussion), Michael Baldwin (live art) and Angela Guyton (film). These subsequent realizations have been included in the documentation section of the portfolio.

Mode of Transmission

Primary transmission occurred between myself and Benjamin via a written document. Secondary transmissions occurred via unrecorded conversations of an open duration led by Benjamin. Transcribed excerpts of these transmissions can be found in Chapter 4.4

Background

[factory] began as a set of 22 text scores as well as a graphic map detailing the order in which play them. I sent these scores to Benjamin; however, we quickly agreed that she should read them once and then delete them. In deleting the scores and requesting Benjamin to be the sole transmitter of the information – the living score – I wanted to ask: what would happen to the traditional practices and relationships surrounding Western classical music if the material aspect of the musical score was removed?

Made of My Mother's Cravings (2014)

I created *Made of My Mother's Cravings* in collaboration with the Quatuor Bozzini (Montreal, QC) as a part of their Composer's Kitchen project between June and November 2014. During this period, I worked with the quartet in five, hour-long workshop sessions. The piece received two performances, one in Montreal, Canada (June 2014) and the other in Huddersfield, UK (November 2014).

Unrecorded conversations occurred between myself and individual members of the ensemble. Written contracts were used to enhance secrecy. Secondary transmission occurred between members of the ensemble and the rest of the group in rehearsal/workshop sessions.

Background

Quatuor Bozzini expressed a reluctance to work with an external living score. My main aim in writing this piece became how to adapt a previously wholly conceptual project to a professional situation. This method of adoption and adaptation is present in most subsequent portfolio pieces. This piece also explores how unrecorded information changes over time, here heard between the June and November performances of the piece.

The Strange Eating Habits of Erik Satie (2014–15)

I created *The Strange Eating Habits of Erik Satie* in collaboration with EXAUDI, a London-based mixed-voice choir directed by James Weeks. This collaboration was the result of a successful application to Sound and Music's Portfolio scheme, which pairs emerging UK-based composers with established ensembles. The ensemble rehearsed in three, two-hour-long workshop sessions that took place over the course of ten months (December 2014–October 2015).

Mode of Transmission

I recorded instructions featuring my own voice, uploaded them to SoundCloud and emailed them to performers. These recordings average four minutes in length and are deleted after performers have listened to them once. An example can be found in the audio examples section of the portfolio (audio example 1). Secondary transmission occurred between members of ensemble and the rest of the group in rehearsal/workshop sessions.

I used *Chorale Inappetissant* (1914) by Erik Satie as source material. This project addressed how I could transfer my conversational working method to a situation in which I was not working personally with an ensemble – hence the use of recorded audio (impermanent digital transmissions) instead of live conversations. The line between oral transmission and digital transmission thus becomes blurred. I also wanted to explore the use of source material closely-linked to the experimental music tradition.

Smokescreen (2015–16)

I created *Smokescreen* in collaboration with Architek Percussion in Montreal, Quebec, between September 2015 and January 2016. This project was the result of a commission funded by the Canada Council for the Arts. I began the project in a series of workshops with Architek Percussion taking place in Montreal, QC in September 2015. Architek transmitted the piece to VivaVoce, a small mixed-voice choir directed by Peter Schubert, in January 2016. Both groups combined to give the piece's premiere performance.

Mode of Transmission

Unrecorded conversations took place between individual members of ensemble and I. Secondary transmission occurred between members of ensemble and the rest of the group in rehearsal/workshop sessions. Tertiary transmission occurred between the percussion quartet and choir.

Background

Smokescreen uses *fumeaux fume par fumée* (fl. late 14th century) by Solage as source material. In *Smokescreen* I used a looser method of transmission that involved more interaction with the ensemble as a group. This was the result of a perceived pressure to achieve a precise sonic result (perhaps due to the official nature of the commission

and reputation of the presenter and venue). This led to solutions for transmitting my music in shorter amounts of time to larger ensembles.

Who's Exploiting Who (2016)

I created *Who's Exploiting Who* in collaboration with the Thin Edge New Music Collective (TENMC) in Toronto, Ontario, Canada between December 2015 and February 2016. This project was supported by the SOCAN Foundation. Unlike other pieces in the portfolio, this work did not involve workshop sessions, and I did not sit in on a rehearsal until the dress rehearsal.

Mode of Transmission

I recorded instructions featuring my own voice, uploaded them to SoundCloud and emailed them to the performers. These recordings average 16 minutes in length and were deleted after the performers had listened to them once. An example can be found in the documentation section of the portfolio (audio example 2). Secondary transmission occurred between members of ensemble and the rest of the group in rehearsals.

Background

I wanted to explore the use of popular music as source material, rather than music from the western classical tradition. I used the song *Exploitation* (2015) by Roísin Murphy and Eddy Stevens as source material. The transmissions themselves increased in length from four to fifteen minutes, more closely resembling the lengths of the conversational transmissions from earlier pieces. I incorporated some of the transmission into the performance of the piece, in an attempt to bring the audience closer to the process of the work.

Chapter 1: Introduction

This commentary relates to a portfolio containing five new experimental music compositions created using a novel method of oral transmission. These *living scores* investigate transmission, community, orality and forgetting, which are the major themes of my original work.

Following this introduction, the commentary is divided into three main chapters and a conclusion. The first provides context for the genre of experimental music and the term living scores, relating both to broader developments in the field – such as verbal scores – as well as to the work of other composers. The second explores the technique of oral transmission within my compositional practice across all five pieces in the portfolio. The third examines particular musical characteristics found in the portfolio, especially those related to musical borrowing and transformation.

1.1 Background and Motivation

The musical score is often seen as the written document produced by a composer that embodies their intention and houses the musical work.[1] Daniel Leech-Wilkinson argues that – by way of music cognition – we can dislocate any sense of inscribed intention from the score and that therefore we must acknowledge the extensive chain involved in the creation of Western classical music, which includes the listener, analyst, performer, editor and composer.[2]

Creating musical scores that could be seen to embody my musical intentions while unconsciously blotting out the essential role of collaborators and audiences goes directly against my most humanitarian instincts as an artist. The beginning of this portfolio was an effort to explore a new compositional process that privileged instrumental collaborators as key proponents of the compositional process. Much

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[1] Daniel Leech-Wilkinson, "Compositions, Scores, Performances, Meanings," *Music Theory Online* 18, no. 1 (2012): 1–17.
[2] Ibid.

score-based composition seems to resist this attitude, socially isolating composers from performers and abstracting the realities of physical performance from musical scores. The primacy of the musical score in discussing, evaluating and analysing classical music goes hand-in-hand with what Michael Talbot calls an attitude of *composer-centredness*.

Talbot writes that at around the same time Lydia Goehr claims the musical work to have emerged as a regulatory concept (c. 1800),[3] the concept of the freelance composer similarly emerged. Due to the rise of music as entertainment – rather than as functional accompaniment – composers overtook performers as the dominant producers of classical music. Similarly, organizing published music by composer supplanted organizing publications by genre, medium or style. As a result, works became ascribed to specific composers, who themselves gained recognition and fortune. Talbot argues that this prevalence continues to this day, citing examples such as record shops – which organize their music by composer – and the Eurovision Song Contest, where the composers make the bulk of the money involved. Talbot argues that this all amounts to an attitude of composer-centredness.[4]

Several composers are currently working in ways that – either inadvertently or explicitly – explore the notion of composer-centredness. In *fremdarbeit* (2009), Johannes Kreidler (allegedly) outsources his compositional process to Xia Non Xiang and Ramesh Murraybay, technicians in foreign countries.[5] He then presents this work in a lecture-performance that informs audiences of his various exploitations of creativity. Grúpat – a pantheon of fictional Irish artists created by Jennifer Walshe – skirts the lines of historical revision, hoax, and fiction.[6] In *Buzzed* (2015), Michael Baldwin composes by exchanging vocal improvisations with Samuel Stoll, eventually

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[3] Lydia Goehr, *The Imaginary Museum of Musical Works: An Essay in the Philosophy of Music*, 2nd edition (Oxford; New York: Oxford University Press, 2007), 90.

[4] Michael Talbot, "The Work-Concept and Composer-Centredness," in *The Musical Work: Reality or Invention?* (Liverpool, England: Liverpool University Press, 2000), 168–86.

[5] Martin Iddon, "Outsoucing Progress: On Conceptual Music," *Tempo* 70, no. 275 (2016): 36–49, doi:10.1017/S0040298215000613.

[6] Stuart Fresh, "A Short History of Grúpat," *Contemporary Music Centre*, December 8, 2006, https://www.cmc.ie/features/short-history-grupat.

erasing his own contribution and making an audio score wholly made up of Stoll's sounds. Éliane Radigue's current compositional practice involving acoustic instruments is only possible with a deep commitment by collaborating partners (such as Charles Curtis, Carol Robinson and Julia Eckhardt).[7] The Wandelweiser collective began with the goal of operating in partnership, establishing a firm musical and conceptual identity across diverse composers and practices. These examples evidence a current concern with the identity and importance of the composer within the wider ecology of Western classical music.

My own relationship with this conflict inspired me to experiment with different forms of musical notation. Initially, I attempted to make graphic scores and then verbal scores. Talbot criticizes this kind of early alternative notation – especially that used by John Cage – for paying lip service to the idea of freedom while defining exactly the kind of freedom the composer wanted.[8] Martin Iddon reflects on this at length in his exploration of the working relationship of John Cage and David Tudor. In their exchange of letters, we see interactions that highlight not only the specificity with which Cage was writing, but also Tudor's absolute importance in realizing – and sometimes defining – Cage's compositional process. The binary dynamic of composer and performer here begins to disintegrate.[9]

My early explorations in verbal scores led me to orally-transmitted scores. At the beginning of this PhD, I surmised that by removing the fixed material aspect of the score, I could destabilize the hierarchies I saw around me in the field of Western classical music. I began to imagine what a musical practice might entail given my skills as an experimental music composer. Rather than try to learn an entirely new genre of music that already privileged oral transmission – such as folk music, jazz, rock or a variety of others – I decided to extend my experience with verbal scores and experimental music into making orally-transmitted scores.

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[7] Luke Nickel, "Occam Notions: Collaboration and the Performer's Perspective in Éliane Radigue's Occam Ocean," *Tempo* 70, no. 275 (2016): 22–35.
[8] Talbot, "The Work-Concept and Composer-Centredness.", 184
[9] Martin Iddon, *John Cage and David Tudor: Correspondence On Interpretation And Performance*, Reprint edition (Cambridge, England: Cambridge University Press, 2015), 215.

Very quickly, and shortly after beginning to create my first portfolio work *[factory]* with violinist Mira Benjamin, my explicit motivations for this PhD were met. I had achieved a better collaborative relationship with performers that allowed for a less hierarchical exchange of creativity. What remained to be explored is what follows in this discussion: the many ways that creating scores orally affects a compositional practice, from their use in professional situations with players that are used to playing conventionally-notated music to the concerns of transmissions that occur in time.

1.1 Research Questions

- What is a living score, and how can it inform our current view of experimental music?
- What happens to the traditional practices and relationships surrounding composers and performers if the material aspect of the musical score is removed?
- What musical materials and processes are particularly suited to an orally-transmitted compositional method?

1.2 Methodology

I composed five orally-transmitted pieces. Each piece was created collaboratively with a specific musician or chamber ensemble. Each piece explored increasingly complex means of transmission, which resulted in the emergence of a new compositional method. I gained feedback through a variety of methods, including performances of the works, informal interviews and rehearsals with the performers, and critical reflection upon my own process. Throughout the PhD, my work has been disseminated via live performances, recorded documentation, conference-presentations and publication.

1.3 Outline of Contents

In Chapter 2, I discuss the context for my compositions in this PhD, notably discussing the genre of experimental music and the emergent terminology of living scores. In 2.2:

Experimental Music, I briefly outline the existing definitions of Anglo-American experimental music as well as my relationship to the genre. I discuss the relationship between verbal scores – one of the key innovations of experimental musicians – and oral scores, including the way that verbal scores provided a starting point for my own recent work. 2.3: Living Scores discusses the terminology of living scores. I begin by outlining past usages, surmising that these usages all add notions of biology, participation and community to traditional written scores. I examine living scores and my own work in relation to recent work on orality, emphasizing the value of forgetting in the creative process. Finally, I re-define living scores to include the concepts of transmission, forgetting, participation, and community. 2.4: Context provides examples of other composers whose work addresses similar concerns to those mentioned in 2.2–2.3. I begin by discussing three composers whose work highlights the collaborative nature of living scores: Éliane Radigue, Meredith Monk and Yoko Ono. I then examine three composers who utilize forgetting as a compositional method: Jennifer Walshe, Alvin Lucier and James Saunders. In 2.5: Conclusions I briefly discusses the implications of living scores, especially as related to the genre of verbal scores.

In Chapter 3, I begin discussing the compositions found in this portfolio. This commentary serves to illustrate and discuss aspects of the works' creation and context. The chapter focuses primarily on the act of live transmission, which distinguishes my works from those that are communicated with written scores. In 3.2: Standard Transmission I outline the method of transmission that I developed over the course of this PhD. 3.3: Format of Transmission discusses the evolution from unrecorded conversations to impermanent digital transmissions using an online streaming service. 3.4: Length of Transmission details the difference in length of transmissions across the portfolio. 3.5: Density and Frequency discusses how much silence occurs in transmissions as well as the proximity of transmissions to rehearsals or secondary transmissions by a musical ensemble. 3.6: Content outlines some types of content that are found in transmissions, including a detailed evolution of the introduction to each transmission and a preliminary discussion of other content. In 3.7: Forgetting I discuss how forgetting has been a productive compositional method in my work, especially

related to the first work in my portfolio, *[factory]*. And finally in 3.8: Future Transmissions I explore the different attitudes and strategies I might take towards future transmissions, as well the implications my working method has on traditionally important artistic concepts like legacy.

In Chapter 4, I discuss the musical material across the portfolio. I provide examples by way of short transcribed fragments of transmissions, notated illustrations and audio excerpts. In 4.2: Source Material, I discuss why I chose to use source material as the basis for most of the pieces in my portfolio. I examine how this relates to other musical borrowing, and why I chose particular sources above others. The bulk of the compositional features are detailed in 4.3: Transformations. In this section, I investigate the evolution of compositional features across the portfolio, focusing on the development of mechanisms such as loops and cycles as well as smaller transformative devices such as replacement. I examine how these mechanisms relate to the form of pieces, and how all this discussion connects to an outlier in the portfolio, *Smokescreen*. 4.4: Process and Product provides a brief exploration of the inclusion of my compositional process in final performances, detailing various strategies of making the audience aware of the unique process undergone by performers.

Chapter 5: Conclusion ends the commentary with a discussion of findings, the implications and limits of this research, improvements I could have made during the PhD, and future directions in my own compositional practice.

Chapter 2: Experimental Music and Living Scores

2.1 Introduction

In this chapter, I will begin by exploring the use of the term experimental music. I will link together historical definitions with newer definitions to provide a deeper context that is based on both characteristics and relationships. I will also assess my own relationship to the genre. I will propose verbal scores – one of the key early developments of experimental music as well as an integral part of my compositional development – as an important precursor to the idea of *living scores*. Then, I will unpack the term living scores. I will present the various extant uses of the term, as well as a summary of what these terms have in common through the exploration of the concept of *living*. Through a brief discussion of orality, I will foreground the notions of participation and forgetting. I will propose an inclusive definition of living scores that focuses on transmission, participation, community and forgetting. I will conclude with examples of experimental composers creating living scores, as well as a brief discussion of scores that foreground the action of forgetting. It is my aim in this chapter to provide context for my own work as well as to highlight aspects of discussion that my own work has raised across the creation of my portfolio.

2.2 Experimental Music

In the title of this thesis, I have described my portfolio of compositions as relating to the genre of experimental music. I have made this distinction to illustrate the novelty of my compositional approach within a specific musical community.

My own search for less hierarchical ways of making music led me to the genre or community of experimental music. Experimental music celebrates an attitude of inquisition that allows for the dismantling of perceived hierarchies. It is because of the strong community surrounding experimental music that these radical practices can

occur. This blend of attitude and community forms the basis for my inclusion in the genre of experimental music.

The following account mostly considers the genre of Anglo-American experimental music – though this community is widened in later scholarship by Benjamin Piekut and Jennie Gottschalk. Experimental music can be seen as both a collection of conceptual characteristics and a relationship to a community of artists. Michael Nyman proposes that experimentalism arose in a direct and binary opposition to the avant-garde. He suggests numerous musical characteristics that might distinguish the former from the latter , as well as a canon of participants that share these musical characteristics.[10] Christopher Fox calls this a modernist project aimed at establishing a sharp binary between two groups who may be intertwined.[11]

To further investigate the relationship between these seemingly disparate groups – as well as that of experimental jazz music – Benjamin Piekut examines the edges of what might have been termed experimental at the time Michael Nyman wrote his book. Using Latour's actor-network theory (ANT), Piekut suggests that we should not look at musical features as defining factors of what might be termed experimental, but instead at the relationships, writings, music and, ultimately, networks that might seem to suggest a canon of composers.[12] He argues that the constant re-definition and multi-modal performance of defining the canon might itself be seen as a kind of act of composition.[13] Piekut uses the failures that result from the genre rubbing up against others to explore its boundaries.

eldritch Priest theorizes that the entire genre of experimental music may be seen as a constant and pointless act of failure. Priest believes that pointlessness and failure are inherent to experimental music because it is music that highlights and encourages

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[10] Michael Nyman, *Experimental Music: Cage and Beyond*, 2nd edition (Cambridge, England; New York: Cambridge University Press, 1999), 2.
[11] Christopher Fox, "Why Experimental? Why Me?," in *The Routledge Research Companion to Experimental Music* (Farnham, England; Burlington, VT: Routledge, 2009), 9.
[12] Benjamin Piekut, *Experimentalism Otherwise: The New York Avant-Garde and Its Limits* (Berkeley, CA: University of California Press, 2011), 9.
[13] Ibid., 14.

inconsistencies within itself, especially those between intention and result.[14] If experimental can even survive as a description of a genre, it might be a "very loose designation which refers to an open, messy, and incredibly rich and vibrant field of activity which can include composers [who are] diverse in aesthetic".[15] As we move further from Nyman's book, Piekut's idea of a constant re-performance of the canon may get more complex to the point of failure.

Rather than try to define the field, James Saunders allows its current participants to speak or write for themselves, exposing a web of connections through text, music and personal relationships. Saunders proposes that it is "meaningless to define experimentalism in a closed way".[16] Instead, he lists a set of referents that relate mostly to the attitude and configuration of experimental music. He suggests that no single feature defines the genre, but that perhaps through the intersection of many features broader characteristics might emerge.[17]

Similarly, at the beginning of *Experimental Music Since 1970*, Gottschalk argues that the term experimental music is multifaceted, relating at once to lineages, attitudes and musical material. Gottschalk traces five arcs that – either separately or in relation to each other – form the basis for her definition of experimental. These arcs are: indeterminacy, change, non-subjectivity, research and experience. She makes the point that it is the way these arcs relate to each other that begins to describe the genre of experimental music.[18] However, Gottschalk also integrates many of Piekut's criticisms of Nyman's work, casting her net wide and exploring the boundaries of media, geography, race, class and sexuality. In a sense, the scope of Gottschalk's project prevents it from becoming a canon, and allows it to become a flowing, loose

[14] eldritch Priest, *Boring Formless Nonsense: Experimental Music and the Aesthetics of Failure* (New York: Bloomsbury Academic, 2013), 18.
[15] Jennifer Walshe, "(Some Other) Notes On Conceptualisms," *Musiktexte : Zeitschrift Für Neue Musik.* 145 (2015): 2.
[16] James Saunders, ed., *The Ashgate Research Companion to Experimental Music* (Farnham, England; Burlington, VT: Routledge, 2009), 2.
[17] Ibid.
[18] Jennie Gottschalk, *Experimental Music Since 1970* (London, England; New York: Bloomsbury Academic, 2016), 1–6.

exploration of the term experimental. In this way, perhaps experimental is a subculture within the broader subculture of new music.[19]

On the subject of expanding our definition of experimental, the perspective of performers is often curiously absent. Phillip Thomas makes the case for an experimental performance practice that involves a focus on action rather than continuity or narrative.[20] I believe this points to a potentially interesting exploration of where we might locate experimentalism: in the acts of composition, transmission, preparation, performance, listening and dissemination.

It is Gottschalk's approach that I wish to use in exploring my own inclusion in the genre of experimental music. Her use of broader conceptual arcs as well as relationships makes for the most thorough examination of experimental music available at this time. At once I can trace my relationship to several of her arcs, as well as a personal connection to key figures of the genre (in writing, performances and music).

2.2.1   Beyond Verbal Scores

My own relationship with experimental music began with a theme common to the genre – the exploration of alternative musical notation. Before this PhD, I experimented with graphic scores and verbal scores, as well as many variations of traditional musical notation. I took inspiration from canonical experimental composers such as John Cage, Cornelius Cardew, Morton Feldman, James Tenney and Yoko Ono. The transition to using oral transmission as a notation system was the byproduct of these experiments and was, at first, a logical extension of creating verbal scores. What began as an exploration of notation quickly expanded to become an investigation of other common experimental tropes: communication, social situations and hierarchies, indeterminacy, and musical borrowing. Like Fox, I found myself

[19] Martin Iddon, "What Becomes of the Avant-Guarded? New Music as Subculture," *Circuit: Musiques contemporaines* 24, no. 3 (2014): 85, doi:10.7202/1027610ar.

[20] Philip Thomas, "The Music of Laurence Crane and a Post-Experimental Performance Practice," *Tempo* 70, no. 275 (2016): 11, doi:10.1017/S0040298215000595.

embodying the complexity of the scope of experimental music by using different methods of composition for every new project.

I can also place myself within the experimental tradition by way of lineage or inclusion. For a time I received mentorship from John Lely, as well as from Martin Arnold and Jennifer Walshe, who are themselves all connected to many prominent figures in the traditional experimental music canon. Recently, Gottschalk included me in *Experimental Music Since 1970* (chapter 5.4 – interaction). I have also been programmed on numerous concerts dedicated to experimental music. Because my attitudes and relationships combine to identify my work as experimental, I choose to respond to this tradition.

One connection between experimental music and orally-transmitted living scores can be found in one of the key developments of experimental music: the verbal score. Lely and Saunders use the term verbal scores to indicate works that use text in place of traditional musical notation. Lely and Saunders propose that verbal scores have a number of qualities that distinguish them from traditional Western musical notation. These include: accessibility, the ability to flexibly express complex temporal relationships between elements, a relationship to other genres of writing from which the musical score has previously separated itself, the ability to express ideas with either precision or generality, the ability to express various relationships between the author and the reader, the ability to represent both ideas and concepts, and the ability to prescribe action.[21]

The perceived difference between text and speech might be relatively recent. In his text on the history of lines, Tim Ingold demonstrates that hard divisions between speech, dictation, manual gesture and writing were at one time – and may continue to be – artificial.[22] Verbal scores highlight this fluid relationship. Their written dictation often implies manually-produced sonic gestures, among other actions. Certain

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[21] John Lely and James Saunders, *Word Events: Perspectives on Verbal Notation* (London, England; New York: Continuum, 2012), XIX.
[22] Tim Ingold, *Lines: A Brief History* (Oxon, England: Routledge, 2007), 28.

experimental composers have tangled further the web of text and speech by creating pieces that exist intermediately between the two media.

Yoko Ono's word-spreading pieces perfectly represent the sometimes paradoxical relationship between fixed verbal scores and orally-transmitted scores. In these orally-transmitted pieces, and their later published versions, texts are fixed and published, they are spoken and changed, they are performed in actions and sounds, they are described in other people's writing and they are photographed as visual art. They form a thriving inspiration for the muddy and paradoxical relationship that occurs when we consider scores as *alive*.

2.3   Living Scores

The term living scores evokes a paradox. Musical scores are an attempt to fix things down. Living is unfixable. How can the two terms possibly be used in conjunction? It is good to recall that these words have a history that makes them strange bedfellows: the noun "score" comes from ancient Norse/Germanic origins and means "notch, tally, twenty", from the practice of inscribing a count of twenty beasts passing through a gate.[23] Here, a score is a series of dead marks. But *scoring* is also an action, making it inherently alive. *Scoring* is done by living people who make marks for other living people. Thus, there is a strange tension that plays out when we examine several of the existing uses of the terminology living scores.

Despite musical scores being an attempt to fix things down, they are not themselves a fixed concept. Ingold provides a comprehensive overview of how the early musical score was developed in relation to the act of writing text, and demonstrates that both the score's appearance and function has varied vastly over time.[24] We might be tempted to think of the post-Beethovian score as relatively stable, using Goehr's temporal placement of the emergence of the concept of the musical work to mark a

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[23] "Score, N.," *OED Online* (Oxford University Press), accessed September 16, 2016, http://www.oed.com/view/Entry/173033.
[24] Ingold, *Lines*, 18–24.

freeze in notational development.[25] However, within 200 years of this date, we see the advent of verbal scores, graphic scores, sculptural scores, live-coded scores, animated scores and many other variations. In jazz music, the lead-sheet becomes a kind of score. In pop music, chord charts and tablature become de facto scores. The score is not, and never was, a stable concept. Given the rich variety of types of scores, what might musicians mean when they invite the term living into the score's construction?

2.3.1 Existing Usages

In the following examples, I hope to explore the way scholars and artists have used the term living score to describe certain musical and artistic practices. I do not wish to propose that these practices are themselves unique in a broader artistic context.

In the most common use of the term, the addition of the modifier "living" refers to the replacement of the normally fixed material score object by a biological being. A performer interprets the mostly visual information presented by this being – such as colour, gesture and movement – as cues for performance. In certain uses, such as those found in music therapy, cues like feelings and senses are also used.

For example, dancers' physical gestures can be interpreted in real time by musicians and, as such, the dancers themselves can be seen as living scores.[26] In music therapy, a learnt set of behaviours and appropriate therapeutical responses can turn a patient into a living score.[27] Musicians can interpret other living beings besides humans as scores as well. Andrea Koepnik refers to his 1998 piece *Music for Microbes* – during

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[25] Goehr, *The Imaginary Museum of Musical Works*, 90.
[26] Sally Banes, *Writing Dancing in the Age of Postmodernism* (Middletown, CT: Wesleyan University Press, 2011), 315; Janice Pomer, *Dance Composition: An Interrelated Arts Approach* (Champaign, IL: Human Kinetics, 2009), 88; Lilli Adato, "Project - a Living Score," *Ov London*, accessed August 5, 2016, http://ovlondon.weebly.com/project---a-living-score.html.
[27] Inge Nygaard Pedersen and Lars Ole Bonde, *Music Therapy Within Multi-Disciplinary Teams* (California: Aalborg Univ.-Forl., 1996), 186; Sergio Pisano and Oxygene Media, *Natural Self Improvement* (Capriglia Irpina, Italy: Oxygene Media, 2012), n.p.; Giulia Trovesi, "'Symphony in the World' Body, Gestures, Voice, Music," trans. Caterina Ravenna (6th Croatian Symposium with International Participation «Medicien and Music» University Hospital Dubrava, Zagreb, 2010), n.p., http://www.musicoterapia.it/Symphony-in-the-world-Body.html.

which musicians observe microbes through virtual reality glasses – as a living score.[28] Another biological example that has been referred to as a living score includes fish that "conduct" an ensemble.[29]

In their biographical information, the Heart Chamber Orchestra cleverly use the term living score in a double meaning. First, similar to the examples above, they refer to the fact that in their performances, live-beating human hearts provide significant structural and musical information to be interpreted by musicians. However, unlike the examples above, this information is mediated by a computer program that turns it into ever-changing musical notation.[30]

This links to the secondary use of the term "living", which refers to a visual score being transformed in real time. The score is responsive to its environment, like a living being – even if this responsiveness is in itself wholly digital. For example, Katharine Norman refers to a projected spectrogram made visible to the audience as a "kind of living score".[31] A living score might also refer to a creative environment and all its components, including notation, instrument and performance practice. For example, Bowers and Villar write about a new musical interface meant to aid in live coding that – when combined with types of notation and seen as an environment – might form a living score.[32]

The transformative, live-evolving aspect of a living score might be seen as subversive in and of itself, and might not refer to solely visual information as processed by computer programs. Helga Fassonaki refers to the living score as a site for inviting the

[28] Edgar DaSilva, "Art, Biotechnology, and the Culture of Peace," in *Biotechnology – Volume XIII: Fundamentals in Biotechnology*, ed. Horst W. Doelle, J. Stefan Rokem and Marin Berovic (Oxford, England: EOLSS Publications, 2009), 298.

[29] https://www.kmh.se/fish-as-conductors.

[30] Peter Votava and Erich Berger, "The Heart Chamber Orchestra," *CEC | Canadian Electroacoustic Community*, eContact!, 14, no. 2, accessed September 13, 2016, http://econtact.ca/14_2/votava-berger_hco.html.

[31] Katharine Norman, "Listening Together, Making Place," *Organised Sound* 17, no. 03 (2012): 260, doi:10.1017/S1355771812000143.

[32] John Bowers and Nicolas Villar, "Creating Ad Hoc Instruments with Pin&Play&Perform," in *Proceedings of the 2006 Conference on New Interfaces for Musical Expression*, NIME (New Interfaces for Musical Expression, NIME-06, Proceedings, Paris, June 4-8, 2006, Paris, France: IRCAM — Centre Pompidou, 2006), 239, http://dl.acm.org/citation.cfm?id=1142215.1142274.

actions of editing, renewal, dialogue and memory into the traditionally materially fixed practice of music composition.[33] I will return to this usage later, as it most closely matches my own conception of the term.

Thus the use of "living" can refer to a subversion of societal practices that are born from the material aspect of the musical score. For example, Reagon writes that folk musician Roberta Martin can combat the normal practice of handing her own music over to other agents by using her ensemble as a living score: she publishes her own songs, these songs are only performed by her ensemble and she sells the music at their concerts.[34] Equally, dance notes, in their idiosyncratic formats with mostly personal uses, can be seen as living scores because they enrich the discourse of a medium which is mostly transmitted by embodied demonstration.[35]

All this brings much confusion: what is alive, and where is the score? What do these definitions have in common, if anything? The clear – and completely circular – answer is that all of these uses invite the word "living" into their construction.

2.3.2   Living

Below, I propose two significant ways in which all of the above artistic projects use the term living – participatory and biological – and how each one might be linked to another field's similar usage. I will also highlight how my own use of the term in my compositional practice both relates to and differs from these previous uses.

All of the authors discussed previously use the word living to describe situations with additional levels of participation beyond those found in a traditional musical score. These authors invite the participants – mostly performers – to take control over the

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[33] Zeug, "Khal by Helga Fassonaki," *The Auricle Sonic Arts Gallery*, September 30, 2015, n.p., http://auricle.org.nz/khal-by-helga-fassonaki/.

[34] Bernice Johnson Reagon, *If You Don't Go, Don't Hinder Me: The African American Sacred Song Tradition* (Lincoln, NE: University of Nebraska Press, 2001), 28.

[35] Laura Karreman, "The Dance without the Dancer: Writing Dance in Digital Scores," *Performance Research* 18, no. 5 (2013): 125, doi:10.1080/13528165.2013.828934; Scott Delahunta, Wayne Mcgregor, and Alan Blackwell, "Transactables," *Performance Research* 9, no. 2 (2004): 68, doi:10.1080/13528165.2004.10872012.

scores in some way, whether this involves the participants literally becoming the scores themselves, manipulating the scores to change their fundamental nature, or reclaiming ownership in systems designed to take power away from them. Living becomes a relational act that draws living beings into collaborative and participatory situations with each other.

We might explore the word living using the concept of the *living lab* – a term that is found in the fields of product design and innovation. Living labs are user-driven environments in which varied experiences drive the future direction of the development of a product or service.[36] Here, living implies several things: participants' lived experience is valued in product and service design, and participants influence the design process together. Innovators see the value in removing the traditionally hierarchical roles of researchers and testers to create broader frameworks that allow for greater innovation.

There is thus a connection between living scores and living labs. Like living labs, living scores also weaken the hierarchical divide between composer, performer and spectator by inviting extra participation from all these parties. Many of the examples of practices described using the term living scores also place value on the idea that embodied knowledge can transform and evolve the fundamental features of a project. For example, Fassoniki's collaborative situations allow musicians' embodied musical memory to become an integral part of the music-making process.

Most of the authors who describe living scores also invite the biological sense of the word living into the score object, whether by replacing the material score with a biological being, or by allowing biological beings – who are often not the composer – to affect the score's stability. This resonates with the idea of indeterminacy, which is a key aspect in the discussion of experimental music.

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[36] Seppo Leminen, Mika Westerlund, and Anna-Greta Nyström, "Living Labs as Open-Innovation Networks," *Technology Innovation Management Review*, 2012, 6 and Anna Ståhlbröst and Melita Holst, *The Living Lab Methodology Handbook* (Luleå, Sweden: Plan Sju kommunikation AB, 2012), http://www.ltu.se/cms_fs/1.101555!/file/LivingLabsMethodologyBook_web.pdf.

For this biological definition I look to the term *autopoiesis*: that is, if a score itself is alive, it can have a relationship with itself. Thus the score is living and self-reproducing, maintaining itself in the face of the complex ecology – made up of composer, performers and audiences – in which it is embedded. The score becomes relational, as it is an inherently participatory act. There exists no score without its participants.

The application of the word living to more traditionally scored musical practices is often based on a small conceptual turn in a practitioner's field: what if the dancer could themselves be seen as a score for performance? How might a computer scoring-program more closely resemble the mutability found in a living being?

In my own practice, this small conceptual turn was made by investigating what might happen if unrecorded verbal instructions, rather than written text, were used to score a music composition. I connected the notion of *living* to the oral because it was a simple way to unfix the traditionally written information of a musical score and render it unstable.

My own living scores are collaborative compositions that rely on the participation of micro-communities to orally-transmit musical instructions. Like Fassoniki, I invite the musicians involved in my work to inhabit and transform the entire musical work itself. Because instructions are transmitted orally, I invite forgetting into my compositional practice.

But as we shall see below, orality is not essential to the process of creation, transmission and stabilization. A brief discussion of orality in relation to my compositional practice will, however, bring into relief an essential ingredient: the bottleneck of communication, which gives "life" and creates structure.

2.3.3 (Sc)orality

My use of oral transmission within my compositional practice does not fit into the common definition of an oral tradition, which includes the transmission of sourceless oral messages from the past beyond a single generation.[37] In my own work, small numbers of people give and receive transmissions, which generally stop after one generation. Like a written score, those who want to access the musical work must either contact me or a chosen surrogate living score, rather than access the work through an ever-changing set of transmitters.

In his seminal text on orality, Walter Ong identifies ten features of orality based on primary oral societies (societies untouched by text).[38] Most of these features do not describe the "microsociety" created by my living scores – perhaps confirming Ong's thesis that it is not possible to create fully-oral transmissions in societies which utilize the technology of writing. In addition, many of Ong's characteristics describe a relationship with the real or the non-abstract that is not present in my work. I will discuss this in more detail in Chapter 3 in my reflection on the creation of *[factory]*.

Ong's ten features of orality relate to the preservation of information over time. But recent scholars of oral tradition and language have recognized some features that are relevant to my more fluid conception of living scores. Anne Dhu McLucas writes that in the oral folk music transmission of the USA, forgetting was sometimes seen as an opportunity for creativity. If notes of a tune were forgotten, musicians had to creatively add new ones in their place.[39] McLucas even goes on to describe colloquial descriptions of forgetting such as the "wearing down" of a tune.[40] This idea of memory and forgetting polishing or shaping the form of something comes very close to the concept of bottlenecking described by the linguist Simon Kirby. In a similar way, Ingold highlights sources that relate the remembering and performance of music to

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[37] Jan Vansina, *Oral Tradition as History* (England: James Currey Publishers, 1985), 27.
[38] These are: Formulaic Styling, additive rather than subordinative, aggregative rather than analytic, redundant or 'copious', conservative or traditionalist, close to the human lifeworld, agonistically toned, emphatic and participatory, homeostatic and situational rather than abstract.
[39] Anne Dhu McLucas, *The Musical Ear: Oral Tradition in the USA* (Oxon, England: Ashgate Publishing, Ltd., 2011), 47.
[40] Ibid., 48.

the actions of chewing, ingesting and belching.[41] In these bodily functions, the same notion of bottlenecking is evoked.

Bottlenecking is necessary for the evolution of linguistic structure in iterated learning. In Kirby et al.'s observations, the restriction of a language-learner's memory – the bottleneck – increases their ability to perceive patterns found in larger sets of language. Linguistic structure increases in bottlenecked learning because the newest generation cannot learn an infinite set of arbitrary words to describe everything. Therefore, because of the implicit limitations of transmission and memory, a language-learner begins to both recognize and create linguistic patterns.[42] So, in linguistics, forgetting becomes a useful tool in the creation of structure, similar to its role in increasing creativity in orally-transmitted music. If a folk musician forgets a part of a tune, they will rely on their knowledge of similar structural elements to replace it with a new part, rather than simply play random notes.

Forgetting holds importance in my compositional process. The idea of a bottleneck – an imposed restriction requiring a performer to remember a large set of information – encouraging structural stability can be found across many of the works in my portfolio. Orality is a focussed lens that draws out the power of forgetting in creative practice.

2.3.4   A New Definition

Much like the study of orality's fascination with primary oral societies, my project began with the idea that I could create a primarily oral mode of transmission for my compositional practice. I began by attempting to create a fully oral system for the transmission of musical scores. However, in each successive project there were professional roadblocks that encouraged me to consider other more multimodal methods of transmission. In the final pieces of my portfolio, I mix oral, digital and

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[41] Ingold, *Lines*, 18.
[42] Simon Kirby, Tom Griffiths, and Kenny Smith, "Iterated Learning and the Evolution of Language," *Current Opinion in Neurobiology* 28 (2014): 108, doi:10.1016/j.conb.2014.07.014.

embodied practice to transmit scores in ways that encourage the creativity found in remembering, forgetting and transmission.

Living scores do not only include those that are orally transmitted. Mixing media may further strengthen their unique qualities: technology may heighten and control aspects of forgetting (as seen in my later portfolio pieces and the work of Jennifer Walshe), an increased level of participation might strengthen musical material (as in the work of Éliane Radigue), and the engagement of micro-communities might allow the risk of forgetting to become a productive and creative act (as in the work of Meredith Monk).

Perhaps the paradox in the terminology of living scores discussed at the beginning of the chapter renders such scores perfectly matched to the genre of experimental music. Priest theorizes that experimental music is a genre that inherently embodies and celebrates failure through a constantly pointless interruption of intention and result.[43] Living scores, and their use of forgetting, celebrate and foreground this interruption and highlight its use as a creative force.

Therefore, I use the term living scores to mean contexts in which all compositional instructions are *transmitted*, rather than fixed. Living scores are essentially *participatory* – they foreground collaboration and encourage the formation of micro-communities. Because they eschew written notation, living scores allow the act of *forgetting* to become a vital part of the creative process.

2.4   Context – Other Composers

In this section of this chapter, I will describe several composers whose practices fit into my conception of living scores. These composers work in micro-communities where the participation of performers in the scoring process is essential. Many of these composers also acknowledge the power of memory and forgetting in the transmission and transformation of musical material. In the first part of this section, collaborative

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[43] Priest, *Boring Formlesss Nonsense*, 18-20.

scores, I will discuss the compositional practices of Éliane Radigue, Meredith Monk and Yoko Ono. Each of these composers foregrounds the collaborative nature of her compositional practice, making the formation of micro-communities essential to the performance and existence of her work. Jennifer Walshe provides the pivot point, as in separate projects she explores both these micro-communities and the action of forgetting. Given the centrality of the action of forgetting to my conception of living scores, I will then propose three composers who make *forgetting* scores. In the first example, the score itself is forgotten along with all the information about it. In the second two examples, forgetting is employed – either unconsciously or consciously – as a compositional tool to transform musical material. In later discussions about my own work, I hope the reader will understand my practice as a combination of many of these features.

There are further similarities between these composers, of which, I suggest two more here. The first is a connection to the genre of experimental music, as problematic as the definition of this genre might be. Most of the composers described have a close relationship with either the New York or English faction of experimentalism, with some figures such as Monk and Ono often represented as key proponents of the movement. A second more elusive connection might be to the notion of transdisciplinarianism: many of these composers arrived at the act of music composition via other disciplines (or other practices of music rather than the written-scoring route). Perhaps it is the enrichment provided by these other routes – dance, theatre, conceptual art, electroacoustic music – that allows these artists the freedom to move outside the traditional practice of materially-scored contemporary classical composition.

2.4.1 Collaborative Scores

2.4.1.1 Éliane Radigue

Éliane Radigue currently only creates music in oral and aural collaborations with a dedicated set of performers. Radigue has spent the majority of her life composing electroacoustic music. She has said that she would have worked with acoustic

musicians earlier, but there were none skilled enough to replicate her extremely precise compositional aesthetic.[44] It is through the combination of Radigue's defined aesthetic and a small set of extremely generous performers that her unique compositional process has emerged. Though there are small variations in her wholly collaborative process, Radigue's method has now codified into a specific practice that is repeated across many transmissions.[45]

Radigue typically begins projects by exchanging communications with her potential collaborators. During these initial exchanges she ensures that these musicians are aware of her unique working process. After agreeing upon a time for their first meeting, her collaborators prepare musical material to bring to Radigue. In general, this is a combination of personally-developed extended instrumental techniques and material modelled after Radigue's aesthetic sensibilities. In some ways, a collaboration between Radigue's past, present and future musical practices is already occurring before the first session begins.

During their first session together, Radigue asks her collaborators to select an image of water. This image guides their musical explorations and, for some collaborators, serves as a kind of memory aid in recalling the form or affectation of the piece. Radigue and her collaborators then engage in an intense exchange of spoken words, music and lived experiences – few of which are documented in written or recorded format and none of which are transcribed into traditional musical notation. After multiple sessions, Radigue terms the piece ready, and her collaborators can begin publicly performing it. Radigue also informs her collaborators that they may transmit the piece to other instrumentalists, though this has not occurred in any known cases.[46] Over the last ten years, the process described above has crystallized into a consistent collaborative practice.

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[44] Radigue in Bernard Girard, *Entretiens avec Éliane Radigue* (Château-Gontier, France: Editions Aedam Musicae, 2013), 85.
[45] Nickel, "Occam Notions," 25–26.
[46] Ibid., 26

Radigue's collaborative practice might itself be transmitted to other musicians. Despite her individual pieces currently lacking secondary transmissions, there is beginning to be evidence of Radigue's practice itself being transmitted. Carol Robinson has recently co-authored a piece with Radigue. In this co-authorship, Radigue began the collaboration by conversing with the commissioning ensemble using live video streaming, and Robinson finished the piece by developing it in person. Robinson's method was closely modeled after Radigue's. Perhaps this is the logical development of Radigue's compositional method. It might form the beginning of an elaborate practice that encompasses both her localized musical aesthetic as well as her broader working method and collaborative ethos.

As in my description of living scores, Radigue's working method foregrounds collaboration and participation. Her process is essentially relational, wherein no music would exist without the full participation of her collaborators. These collaborators eschew most recorded forms of documentation and rely almost completley on their own memories to perform Radigue's music. Their use of memory can be seen as similar to that of the notion of bottlenecking described by Kirby: given a complex sensory array of input combined with an essentially ephemeral medium, a (musical) structure emerges in repeated live presentation.

2.4.1.2 Yoko Ono

> Most of my pieces are meant to be spread by word of mouth [and] therefore, do not have scores. This means is very important since the gradual change which occures [*sic*] in the piece by word spreading is also part of the piece ...[47]

In the above quotation – a letter written to George Maciunas - Ono purposely invites into her pieces the transformation of information inherent to peer-to-peer transmission. She describes a working method that is inherently participative and that acknowledges the power of memory and forgetting. Ono encapsulates this transformational process into her piece *Word of Mouth Piece*, in which audience-

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[47] Yoko Ono, *Grapefruit* (Tokyo; Bellport, NY: Wunternaum Press, 1964).

members repeat a phrase to each other. When the phrase reaches the last person in the room, it is invariably transformed.[48] Here Ono frames a traditional children's game, telephone, as a performance piece. While initially this process might seem different to the acts of remembering and forgetting mentioned earlier in this chapter, upon examination both Ono's word-spreading pieces and her *Word of Mouth Piece* share some significant characteristics. In the latter, information is distorted through a combination of mishearings and short term memory – participants must immediately repeat the phrase that originates with Ono. In the former, a longer term process is taking place, one which invites mishearings, short-term memory, longer term memory and ultimately forgetting to influence the piece itself. It is highly likely that some (or many) of these word-spreading pieces were forgotten entirely. Both her word-spreading pieces and *Word of Mouth Piece* allow forgetting to transform Ono's instructions.

This philosophy of transformation pervades Ono's work. Yoshimoto notes that even despite the written versions that exist of some of Ono's word-spreading pieces, Ono often later published alternate versions, thereby subverting their primacy or fixed nature.[49] Heather La Bash writes that this may also show Ono attempting to dismantle the very idea of the artistic original.[50] Ono demonstrates that even the fixed medium of printed distribution can be subverted by employing strategies drawn from oral transmission.

Ono's orally-transmitted work existed in a micro-community of specific participants. While some of her word-spreading pieces were eventually destined to be made democratic through publication, they were originally dedicated and transmitted to a specific set of individuals. Ono's word-spreading pieces point to a valuation of grassroots community and alternate methods of dissemination rather than an institutionalized approach. In numerous instances, Ono showed discomfort at being

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[48] Midori Yoshimoto, *Into Performance: Japanese Women Artists in New York* (New Brunswick, NJ: Rutgers University Press, 2005), 99.
[49] Ibid., 99
[50] Heather La Bash, "Yoko Ono: Transnational Artist in a World of Stickiness" (Kansas University, 2008), 65.

included in any kind of establishment or institution.[51] Oral transmission allows

practitioners to build micro-communities of likeminded individuals, which may be

suited to more radical art practices.

2.4.1.3 Meredith Monk

> Things that are not on the tape become mysteries to be solved … the piece is
> like a piece of swiss cheese with many holes.[52]

> The more I work on this, the more I realize that first comes memory; then you
> see if you can actually do what you remember in a way rigorous and accurate;
> then, you have to let it go and let any new insights, material, ideas come into it.
> It's like starting all over again.[53]

In the above quotations, Meredith Monk highlights the utility of forgetting in her

artistic practice. As in the discussion of American folk music earlier in this chapter,

Monk sees forgetting as a way to allow creativity into the practice of restaging her

works.

Like Ono, Monk also engages in a highly pluralistic artistic practice that is expressed

in dance, music, theatre, film and multimedia performance. It is outside the scope of

this thesis to discuss Monk's output as a whole; however, I wish to focus on the above

quotations to demonstrate her relationship to living scores.

Monk approaches the creation of music for her vocal ensemble much like a

choreographer does dancers, devising pieces by testing out small modules directly

with performers. She rarely writes her music down, and if so does so only after

creating the piece. She almost never uses traditional notation for this purpose.[54] Tom

Johnson remarks that if Monk's music were to be notated, it would often appear much

more simplistic than the live experience suggests.[55] Monk's process is also inherently

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[51] Yoshimoto, *Into Performance*, 91.
[52] Meredith Monk, "Digging for Quarry," in *Meredith Monk* (Baltimore, MD: JHU Press, 1997), 75.
[53] Ibid., 78.
[54] Deborah Jowitt, *Meredith Monk* (Baltimore, MD: JHU Press, 1997), 13.
[55] Tom Johnson, "Hit By a Flying Solo," in *Meredith Monk* (Baltimore, MD: JHU Press, 1997), 63.

participatory. She encourages performers to make suggestions that vastly influence the finished piece.[56] Similar to the work of Ono, Monk came around to writing music by way of other artistic disciplines, which greatly informs her aesthetic. Working with a set of highly dedicated and skilled performers allows Monk to embrace the forgetting she describes above.

Perhaps the tight communities mentioned in the work of Radigue as well are what provide a safe space for the risky practice of forgetting which, instead of threatening the erasure of a work, can be seen as the site for creativity. Monk's work highlights the importance of communities, and "despite the darkness that threatens these small worlds, her vision is essentially moral, humanistic and hopeful".[57]

2.4.2 Forgetting Scores

> There is no such thing as a sonic freeze-frame. With audio recordings, if the playback is paused, the sound occurring at the moment of interruption does not hang, object-like, in the air, but evaporates, recoupable only in memory.[58]

Kim-Cohen's statement above could just as easily be applied to unrecorded conversation or oral transmission. There is no way to pause and examine these media of communication using anything besides recorded documentation or the human memory. Certain artists have foregrounded this notion of ephemerality, inviting the act of remembering – and ultimately forgetting – into their music as a productive means of transformation and enhanced creativity.

2.4.2.1 Jennifer Walshe

Walshe's *THMOTES* (2013) is a system for delivering musical instructions that disappear as soon as they are experienced. Once they are gone, these temporary scores are recoupable only in memory. *THMOTES* are pieces – sometimes pictures, sometimes videos and often with textual additions – that are disseminated using

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[56] Jowitt, *Meredith Monk*, 13.
[57] Ibid., 16.
[58] Seth Kim-Cohen, *In the Blink of an Ear* (New York: Continuum, 2009), 223.

Snapchat, a smartphone application that presents videos to subscribers for a period of 1–10 seconds before erasing them permanently. *THMOTES* is not one score, but a system for the delivery of temporary scores.

It is unlikely that recipients of *THMOTES* perform their scores (if at all) from short-term memory. A study by Pielot, Church and Oliveira in 2014 finds that most mobile phone users respond to notifications of emails within about 3.5 minutes of receiving them.[59] By extension, we can infer that Walshe's audience likely views her score-notifications wherever and whenever they are, rather than waiting for a convenient time. Thus the act of remembering begins the moment they view the score, and lasts until whenever they decide to engage with rehearsal, realization or performance of the score.[60] The gap between viewing the score and performing it introduces the required action of remembering – or forgetting.

Walshe's snapchat scores embody a paradox of notation and value. Her scores are often not performed, highlighting the nature of the scores themselves as artistic objects, similar to the way we now view certain graphic and verbal scores as works of visual art – such as Ono's word pieces. However, despite the value associated with these score objects, Walshe's scores disappear almost immediately after being transmitted. Snapchat was initially introduced to promote the creation of ephemeral media in an era where most data is stored permanently. By placing the fixed idea of a musical score into a wholly ephemeral media, Walshe subverts the very nature of musical notation.

2.4.2.2 Alvin Lucier

In *(Hartford) Memory Space* (1970), Lucier inadvertently invites forgetting into his score. Lucier asks performers to go to a location and record – by memory, notation, or tape recordings – the sound situation of the environment. Then, he asks them to

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[59] Martin Pielot, Karen Church, and Rodrigo de Oliveira, "An in-Situ Study of Mobile Phone Notifications," in *Proceedings of the 16th International Conference on Human-Computer Interaction with Mobile Devices & Services* (Mobile HCI, New York: ACM Press, 2014), 233–42, doi:10.1145/2628363.2628364.

[60] CMC Ireland, "Jennifer Walshe's THMOTES," *Contemporary Music Centre, Ireland*, accessed January 8, 2015, https://cmcireland.wordpress.com/2013/03/27/jennifer-walshes-thmotes/.

return to the concert hall and perform a realization of these environmental sounds without additions, deletions, interpretations or improvisations.[61] In these instructions in the score, Lucier indicates the possibility of perfect reproductive memory, though by virtue of the medium of reproduction – natural instruments and voices – these realizations remain simulated and likely unrecognizable to the final listener.

Lucier views memory as a tape recorder or inscription pad,[62] whereupon one can record the details of a space and recall or replay them at will. In his later pieces, he relies less on live performances and more on devices that can do the remembering for the performer. Cox describes *(Hartford) Memory Space* as offering a spatial model of time and memory: each member of the ensemble presents a small slice of the geographical location to form a composite sonic whole.[63]

In Lucier's piece, remembering is a conscious act that is prepared by a period of inscription. Despite Lucier's instructions for the performers to play without additions, deletions, interpretations, or improvisations, if the performer chooses to inscribe upon memory rather than a tape recorder, these perceived failings are inevitable. Even if a player uses a tape recorder and plays it back during the performance to imitate, that player must utilize their memory not only to grasp the larger form of events within time – otherwise they would always be a step behind, imitating the recorder at a delay – but also to provide emotive and affective context to each sound. This emotive context is one of the strengths of memories and one of the weaknesses of tape recorders.

In the context of other works in this chapter, Lucier differs by unconsciously or accidentally inviting forgetting into his score. The failure of memory mirrors the

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[61] Alvin Lucier, *Chambers* (Middletown, CT: Wesleyan University Press, 1980).

[62] Alvin Lucier, Gisela Gronemeyer, and Reinhard Oehlschlagel, *Reflections: Interviews, Scores, Writings 1965–1994* (Köln, DE: MusikTexte, 1995), 88; Christoph Cox, "The Alien Voice: Alvin Lucier's North American Time Capsule 1967," in *Mainframe Experimentalism: Early Computing and the Foundation of the Digital Arts*, ed. Hannah B Higgins and Douglas Kahn (Berkeley, CA: University of California Press, 2012), 182, http://www.ucpress.edu/book.php?isbn=9780520268388.

[63] Cox, "Mainframe Experimentalism," 181.

failure inherent to the task he asks of his musicians – translating a sonic environment into the sounds of natural instruments without alterations.

2.4.2.3 James Saunders

Unlike Lucier, Saunders purposefully highlights the act of forgetting in his verbal score *overlay (with transience)* (2014). In this piece, Saunders asks performers to record an initial realization of a simple score. The score consists of a page with numbers indicating the number of events that are to occur in each minute of the 15-minute piece. The numbers do not indicate which sound to play – Saunders asks performers to prepare eight different choices – nor their temporal position within each minute. In this way, Saunders limits the task to the choices of which sound to make and when. Performers are then instructed to record many realizations of the same page of the score. During each realization they must try to recreate their initial choices of sound and placement within time. Performers do not ever listen to any of the recordings they have made, using only their memory to replicate their initial realization. After a sufficient amount of recordings, the realizations are layered to demonstrate the evolution of patterns and the crystallization of a definitive version of the piece.

Saunders' simple setup and iterative recordings make it almost viable for use in a data-producing context. Using a tone that sounds remarkably like laboratory experiment directives, Saunders asks the performers to record their realizations at the same place and time of day as the initial realization. The composer references sequential learning as inciting the piece's development, referring to articles by Rosenbaum et al. and Clegg et al.[64] There is also an element of multi-layered remembering in this piece, because the performer must also remember to realize the piece itself. There is no set structure for when the piece should be realized or recorded. Unlike a scientific experiment where the subject might be prompted to complete the task every few days, the first task is for Saunders' performer to remember to realize the piece. Then, once realizing the piece, they must remember their initial realization and make a new one as

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[64] R. Shayna Rosenbaum et al., "Theory of Mind Is Independent of Episodic Memory," *Science* 318, no. 5854 (2007): 1257–1257, doi:10.1126/science.1148763 and Benjamin A. Clegg, Gregory J. DiGirolamo, and Steven W. Keele, "Sequence Learning," *Trends in Cognitive Sciences* 2, no. 8 (1998): 275–81, doi:10.1016/S1364-6613(98)01202-9.

accurate to the original as possible. This multi-layered remembering has inspired my own creative work greatly.

In the process of realizing Saunders' piece myself, I noted several things of interest relating to memory. The first was that despite the primacy of the original realization, it is eventually choices based on memory that become the structure of the sounds chosen. The first recording is not sonically privileged in the final layering, so in some ways later decisions influence the final recording more than the initial realization. Starting in my second realization I noted that I did not remember nearly half of my initially-recorded events. Many of these I placed into arbitrary timings so that I might remember them in the future. For example, I made sounds at the beginning or halfway through minutes, as these simple divisions of time were easier to remember. The second thing I noted was that I was much more focused on the task of remembering than creating a convincing performance of the piece. I did pay particular attention to my choice of sounds, but I noticed in my fourth realization that in my first recording I had not thought at all about the overall form or density of the piece. I viewed the piece's concept – the accumulation of layers until the patterns of my own mis-memory began to show – as the main concept to be communicated, rather than any of my own musical expressivity. Finally, I noticed that the very act of repeating the activity at the same time of day in the same manner meant that my brain often went through similar patterns of activity. I often forgot the same sections of the piece, which refused to clarify until I inserted an arbitrary pattern. Saunders' piece was an incredibly valuable experiment in self-reflection about forgetting, and allowed forgetting also to become a crucial creative practice that is discernable in the final recording.

2.5 Conclusions

Living scores allow for possibilities that go beyond Lely and Saunders' discussion of verbal scores. Through the use of bottlenecking in oral transmission, forgetting can be used as the genesis for structure and creativity; living scores embody score-knowledge directly in performers (which can challenge certain hierarchical structures implicit to fixed media); there might be a relationship to other genres or media (such as orally-

transmitted poetry, computer software or language acquisition); and the social situation of music making and scoring can be altered in ways only possible in live situations (rather than those simply suggested by text).

The use of forgetting not only provides a bottleneck for information that allows structure and patterning to emerge, but also subverts some of the most dominant characteristics of Western classical music, such as the fixed nature of the musical score. Forgetting requires trust and a tight-knit community to keep scores alive.

Each work in my portfolio embodies certain aspects of the discussion above. I use different methods of *transmission* (wholly oral, partly digital) while inhabiting micro-communities to encourage *participation* and allow the invitation of *forgetting* into the musical process.

Chapter 3: Transmission

3.1 Introduction

This chapter will detail the transmission process I have used throughout my PhD portfolio. Because there are no written scores for any of my compositions, a thorough explanation of my transmission process is integral to reflection and analysis.

In creating pieces without written scores, I aim to investigate how musicians will respond to a collaborative working method outside their usual experience of performing notated music, as well as how this new working method will affect my own compositional identity. Throughout my portfolio, I worked primarily with musicians who were performers of written musical notation, rather than improvising performers. I seek to align my project with notated music, as I see the living score as an extension of musical notation.

I have not made the transmissions discussed in this chapter available for public consumption. There would be considerable problems in retaining the fluid nature of living scores while at the same time providing extensive fixed documentation of the transmission process. The strength of living scores lies precisely in their fluidity. Living scores emerge from a collective understanding of all the participants involved.

The dissemination of my work has occurred in live concert performances taking place in Canada and the UK, as well as in recorded documentation published on the internet. I have also used my experience in creating living scores to study the work of Éliane Radigue. I aim for this written discussion of my transmission process to provide guidance to future adopters as well as all those broadly interested in oral scoring methods.

A common theme running through this discussion is the way that professional situations have altered my transmission process. I believe that these alterations have occurred because transmission is an inherently participatory act. When someone transmits information, that information will be shaped by both participants as they transmit and receive it. Much of this portfolio was transmitted using unrecorded conversation. Because there is no recorded document to refer to, the living score becomes a community's collective understanding of the piece.

My transition to digital transmission is logical in striving for a standardized and professionally feasible practice. Unlike Radigue, I have not established my compositional process over a long period of time. Nor do I currently have a community of musicians dedicated to performing my work. For this reason, I believe the change from conversational transmission to digital transmission has aided me in removing certain barriers – such as scheduling time – while at the same time preserving the ephemeral nature of spoken conversation.

This chapter comprises three sections. The first consists of an outline of a typical transmission of a work in this portfolio. The second details the evolution and differences between transmissions of different pieces in my portfolio: format, length, density, frequency and content (3.2–3.5). The third consists of discussions about the ramifications of creating living scores, focusing on forgetting, community and legacy (3.6–3.7).

3.2 Standard Transmission

The following is an attempt to describe the general process I have used in creating my portfolio pieces. I have chosen to describe the creation of an ensemble piece because most of my portfolio pieces were written for chamber ensembles. I will discuss *[factory]*, an outlier in this regard, in more detail in section 3.3.

Each portfolio piece evolved in a unique way and therefore has peculiarities and specificities in its method. This standardized description takes into account the

common features that evolved over the portfolio. The most accurate match to this description will be found in the final portfolio piece, *Who's Exploiting Who*. In the later parts of this chapter I will discuss the many exceptions to the following description, as well as the motivations and practical limitations that led to this method's development.

3.2.1 Precomposition

Generally, an ensemble contacts me requesting me to write them a commissioned piece. In most cases, I have previous knowledge of the ensemble. Most importantly, I must be aware that the musicians have a positive attitude towards experimentalism and a willingness to work without a written score.

I then engage in a pre-compositional process. This involves choosing musical source material as well as deciding how that material will be manipulated to form a new composition. I imagine the piece as a bundle that generally contains three types of information: parameters, mechanisms and metaphors. Parameters might describe things such as form, overall length, dynamics and the use of pitch. Mechanisms describe how these parameters behave over time, particularly in relation to the original source material. Mechanisms generally comprise of transformations of the source material. Metaphors provide additional reference by describing the piece and the process of making the piece in relation to other concepts.

Once I have decided on the collection of information that I will transmit to the ensemble, I separate it into multiple parts. Each player receives a combination of their own information as well as information that is common to the entire group. I try to ensure that concepts fundamental to the piece's success are found in more than one transmission.

3.2.2 Primary Transmission

My first communication with the ensemble describes the source material and general working process of the piece. This communication might take the form of an email, a permanent sound-file or a conversation with the ensemble.

I transmit the information about the piece to the members of the ensemble in multiple stages. The transmissions all occur orally, but may be individual conversations, group conversations or temporary sound files. The transmission process is always ephemeral, and is never recorded by the performers who are receiving the information.

3.2.3 Secondary Transmission and Rehearsals

After each receiving a transmission, members of the ensemble congregate for a rehearsal. I may or may not be present at this rehearsal. If I am present, I attempt to remain silent so that the ensemble's communication becomes paramount. I do not try to impose my own view of the musical material at this early stage.

The ensemble may choose to begin by playing what they can remember of their instructions. A more successful method of rehearsal begins with the ensemble divulging the information they remember to each other. The inclusion of suggestions about best-practice was integrated into later transmissions, thus wrapping a performance practice into the composition itself.

The information that the members of the ensemble communicate to each other may require a multimodal delivery: sometimes it is best represented by a musical example. During rehearsal, the information begins to be shaped by the ensemble. Certain parts of the information are forgotten. Others are misunderstood. The ensemble must make sense of the way the information fits together, and build a strategy for forming a performance-ready piece of music.

3.2.4 Additional Transmissions and Performance

There may be any number of additional transmission sessions, as well as further rehearsals. At a certain point, developmental rehearsals end and more traditional rehearsals begin. This point is marked when there is no new information to transmit to the ensemble.

If I have heard the rehearsals, further transmissions might involve slight clarifications to previous material. In general, I try only to intervene when the group cannot come to a solution or agreement, or if the proposed solution vastly distorts the piece. This brings to the forefront an issue that will be significant in the discussion of the PhD: the adherence to conceptual frameworks versus the desire for a specific sonic result.

I try to limit my comments to those focused on specific instrumental techniques, rather than altering larger aspects of the piece's framework. For example, I might ask a player to try a different approach to bowing.

After the piece has been performed, the ensemble may then have the option to transmit it to another ensemble. This will be discussed in greater detail in section 3.8 of this chapter.

3.3 Format of Transmissions

The format of transmission changed from wholly oral at the beginning of my portfolio to partly digital by the end. I began creating my portfolio pieces with the intention of starting a compositional practice that was mostly oral – as in Ong's description of primary oral societies. My motivations, which I have outlined in the introduction of this thesis, mostly related to the subversion of my own role as a composer. My method of transmission changed over the course of the portfolio due to professional experiences that demanded flexibility.

3.3.1 Conversations

I was originally going to create a closed community of five people who would become living scores – then called living *archives* – who would embody a repertoire of multiple musical works. My first work created in this community was *[factory]*, which involved the participation of Mira Benjamin. My goals while creating *[factory]* were to model a system which I could use to develop other pieces in this future micro-community. Many of the principles I was considering – a lack of written documentation of transmissions, forgetting as a tool for transformation, and an increased level of participation by performers in the scoring process – continued to be important throughout my portfolio.

I did not use any of the characteristics described by Ong to create *[factory]* with Benjamin, and therefore I did not encourage fidelity in the transmission of the work. Benjamin says that she "doesn't think it would be a very joyful experience for anyone if [she] was really trying to adhere to some rote system". Rather, she goes on to say that the joy of *[factory]* is found in the fact that each time it is accessed, the conversation changes the score.[65] In transmitting *[factory],* Benjamin celebrates the changes introduced by forgetting and socialization.

This experience taught me that it is difficult to form a community that involves a great deal of continuing participation from its members. While the other people who I had originally proposed to become living scores were amicable, they did not actively seek to participate. I believe Benjamin's participatory role evolved for two reasons. The first is that she herself performed the piece. The second is that *[factory]* taps into Benjamin's particular generosity as a person, in addition to her conceptual and pragmatic mindset.[66] In successive works in my portfolio, I inhabited existing micro-communities – musical chamber ensembles – rather than creating new ones.

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[65] Benjamin in Gottschalk, *Experimental Music Since 1970*, 217.
[66] Nickel in ibid.

The first change in my process of transmission occurred when working with Quatuor Bozzini while engaging in their Composer's Kitchen project.[67] The quartet felt that bringing an outside voice into the creative process of the Composer's Kitchen would compromise the integrity of my experience. This raised the question: how could I continue to explore the transmission of information without using someone external to the ensemble? I decided that each of the members of the quartet could serve as a living score for the other members of the ensemble. Rather than one designated individual giving information to the whole quartet, each member of the ensemble would transmit information to the other three members of the group.

At the time, the implications of this decision on my compositional process were critical: rather than working with a single performer, I had to divide my pre-compositional information into multiple parts. This act rendered members of the ensemble receivers of transmissions but also transmitters, with each member participating in the information's secondary transmission. Gottschalk writes that the players are taking part in an "oral, folkloric tradition without any sense of irony or flippancy" and that they are "working hard to project something that is already internalized".[68]

Dividing information into parts also made it more abstract in my own mind. In transmitting a single long piece of information to a single performer, I can imagine being much more concerned about the fidelity of that information. Transmitting smaller amounts of information – which, when divided, already lose some of their meaning – to multiple performers allowed me to focus more on the act of transmission than the fidelity of remembering.

3.3.2   Impermanent Digital Transmissions

The second change in my process of transmission occurred when working with EXAUDI on *The Strange Eating Habits of Erik Satie*. Due to the time-limited nature of

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[67] A week-long workshop led by Quatuor Bozzini encouraging the development of experimental music practices.
[68] Gottschalk, *Experimental Music Since 1970*, 216.

the project and the ad hoc structure of the choir, it was not possible for me to meet in person with each member of the ensemble prior to the workshop sessions. I had to consider a way of preserving the ephemerality of unrecorded conversation in digital transmission.

I decided to use SoundCloud – an audio streaming service – to transmit a recording of myself speaking to the ensemble. I recorded the sound files on a simple hand-held digital recording device. The files contained no other significant sounds besides that of my own voice. I did not allow the file to be downloaded. I requested that the ensemble members email me a receipt to demonstrate that they had listened to the file once. This, combined with my own monitoring of the file to watch when the play-count increased, allowed me to delete the recordings after they had been listened to. The use of a non-downloadable and time-limited streaming file was the closest process to ephemeral conversation available, albeit without the ensuing discussions.

In my portfolio, three works were transmitted in unrecorded conversations and two using non-downloadable time-limited streaming files. While the development of the second mode of transmission occurred chronologically, it does not follow that its development replaced my use of unrecorded conversation. After creating *The Strange Eating Habits of Erik Satie* using the digital mode, I created *Smokescreen* again using unrecorded conversation. The return to this mode of transmission foregrounds discussions about the method as a whole and its possible use in parallel with traditional musical notation.

There are significant differences in the two modes of transmission I have discussed. As Benjamin points out in her discussion of *[factory]*, a conversation allows a two-way exchange that alters the living score itself. While there is a similar conversational exchange when each member of the ensemble transmits their part of the score to each other, if the original audio files were used with a new ensemble no changes would be present. This latter method of re-staging a living score has not yet occurred. I do not see one mode as more successful than the other. Rather, each allows for different uses in different situations.

The evolution of the mode of transmission within my portfolio highlights a theme that runs through much of my discussion: professional development opportunities, or the participation of an ensemble in shaping a compositional practice. While it is useful to attempt to construct theoretically ideal situations, as I did in *[factory]*, the way these constructs interface with reality can bring about change that makes them more universally accessible. This process of evolution highlights the fact that my method of composition is collaborative, with collaborators playing a key participatory role in shaping future projects and an overall practice.

3.4   Length of Transmissions

A main difference between my living scores and traditional musical notation is that living scores are transmitted – a process that occurs within time. In contrast, a performer can study a written score indefinitely. Therefore, the amount of time during which a transmission occurs must be significant. Figure 2.1 details the average length of transmission for each of my portfolio pieces.

	[factory]	*Made of My Mother's Cravings*	*The Strange Eating Habits of Erik Satie*	*Smokescreen*	*Who's Exploiting Who*
conversation or digital?	conv.	conv.	digital	conv.	digital
number of musicians in ensemble	n.a.	4	5	4*	6
number of transmissions per musician	n.a.	4	4	1*	4
average length of transmission	n.a.	16:00	04:55	32:58	16:29

Figure 3.1 – *Length of Transmissions*

This data has been taken from recorded documentation of transmissions. The recordings taken of transmissions of *Made of My Mother's Cravings* and *Smokescreen* are not intended for listening, and were only captured for analytical purposes.

There are some notable absences in figure 2.1. Because *[factory]* is an open-ended living score that is still being transmitted, the number of musicians and number of transmissions required for each musician cannot be indicated. Similarly, the average length of transmission cannot be calculated. Anecdotally, however, Benjamin has said that generally she requires at least two, hour-long sessions to transmit parts of the piece for performance. At this point, Benjamin has not transmitted the whole of *[factory]* to any one musician.

Smokescreen also presents analytical difficulties. Although there was only one transmission between myself and each member of the percussion quartet, I attended rehearsals and added more information to the piece *in situ*. The percussion quartet also transmitted the piece to a choir, though this happened in an informal setting and not in multiple measured transmissions. Both of these developments in rehearsals were integral to the piece's identity, but also not within the scope of this thesis to discuss fully. In making *Smokescreen*, I was attempting to use a more choreographic working method.

The length of transmissions began as something outside of my control, but through the use of digital media became an important aspect of collaborations. While making *Made of My Mother's Cravings* in a workshop setting, I had limited time for transmission conversations. The first transmissions I engaged in with each member of the ensemble were only about ten minutes in length. This truncated length was largely due to the restrictions of the workshop setting, as time outside of rehearsals was very limited. I realized that I needed more time to convey any information in a memorable manner to the ensemble. The transmissions I engaged in for the second round were closer to half an hour in length. My initial digital transmissions returned to shorter durations. When I was recording the digital transmissions for *The Strange Eating Habits of Erik Satie*, I did not think to increase their length beyond the time it took to convey the information succinctly, which was usually around five minutes.

After the premiere of *The Strange Eating Habits of Erik Satie*, one of the singers remarked that they found it very difficult to remember the information after listening

to a communication because they did not have time for reflection. I was surprised, because I had assumed that the singers would take a few minutes after listening to transmissions to reflect on the information they had just heard. The singer explained that they were very busy and had a significant amount of other music to practice. Because the track was only five minutes long, they did not allot any extra time for reflection. This caused me to reflect on the nature of the communications themselves. I decided to build time for reflection and remembrance into the sound files. In the next piece for which I used this digital method, *Who's Exploiting Who*, the sound files were closer to 16 minutes in length, with pauses of up to three minutes between key pieces of information.

I believe that this change also uncovered a tacit understanding of how I was viewing the living scores for these pieces. In the short transmissions I created for *The Strange Eating Habits of Erik Satie*, I was regarding the transmissions more like traditional musical scores. Even though they could only be accessed in memory, I was imagining the short transmission as an object that could then be viewed like a traditional score at any time a musician chose. By changing the transmission length to include time for reflection, I acknowledged the difference in medium and allowed the transmission to become more of a performance itself.

The length of a transmission plays an important part in the work of the composers mentioned in the context section of this thesis. Radigue's collaborations rarely occur in less than two, four-hour-long work days. Walshe's snapchat scores are viewable for a maximum of ten seconds. I believe that both of these examples highlight similar attitudes to my own above. Walshe's scores exist as objects to be remembered, whereas Radigue's become a holistic practice that requires a long-term commitment to be completed.

Much like the medium of transmission, both attitudes about the length of transmission could be useful in future collaborations and compositions. I believe that the most effective length of transmission is that which matches the volume of information being transmitted, as well as the scope of the piece being produced. Short

transmissions are matched to Walshe's snapchat scores, while longer transmissions match the dedication required to play Radigue's music. In my own work, I do not necessarily see the need for multiple days of transmission, but I believe that the longer transmissions utilized in *Who's Exploiting Who* significantly influenced the absorption of information by the ensemble. The exploration of variable lengths of transmissions throughout the portfolio has provided me with valuable information to advance my practice in the future.

3.5   Density and Frequency and Transmissions

3.5.1   Density

The length of a transmission is only one of many factors involved in how information might be remembered by musicians. In general, I did not make any great attempt at making information memorable: this would have involved the introduction of techniques found in Ong's discussion of orality, such as the use of repetition or alliteration. I discuss this more in section 2.7 of this chapter. I made some small efforts to aid in memory, such as the speed at which I talked or the clarity of my articulation. By and large, the greatest change I made over the course of the portfolio was the density of information included in a transmission. In this discussion, I use density to indicate the ratio of speaking to silence.

I cannot remark on the density of information included in the compositions transmitted by conversation. In general, conversations allow for an exchange wherein if one party feels they have not fully-understood something, they can ask questions.

In my digital transmissions, I can discuss density based on how much silence is inserted between blocks of speech. In a typical transmission, both *The Strange Eating Habits of Erik Satie* and *Who's Exploiting Who* began with an introduction of approximately two minutes in length. In the former piece, this was followed by another three minutes of speaking, bringing the average length of transmission to five minutes (as shown in figure 2.1). During these final three minutes of transmission, there were no silences longer than four seconds in length. In the latter piece, *Who's*

Exploiting Who, the introduction was followed by roughly one minute of silence. Further blocks of information were divided into approximately two-and-a-half minute speeches followed by three-minute silences.

Musicians involved in performing *Who's Exploiting Who* remarked that the long periods of silence in each transmission gave them a chance to reflect on the information they had just heard. The silence also made the experience a calming one that they said was similar to meditation. This tone is exactly what I was looking for in using the recorded medium.

Weaving silence into the recordings allows me some control over how my digital transmissions are experienced. I believe that because my practice of creating living scores is new for many musicians, this kind of guidance can be invaluable in ensuring that they are ready for rehearsals.

3.5.2   Frequency and Proximity to Rehearsals

The proximity of transmissions to the rehearsals in which they are shared with the rest of the ensemble was also explored over the course of the portfolio. In the three works of my portfolio that relied on conversations as transmission, I was at the mercy of the schedule of the musicians. For this reason, I made no conscious decision about when the transmissions should occur in relation to rehearsals. In my first work using digital transmissions, *The Strange Eating Habits of Erik Satie,* I aimed at first to give the musicians as much freedom as possible. Figure 2.2 shows the transmission date in relation to when it was opened by the director of EXAUDI, James Weeks. I have also included the nearest workshop date.

Transmission Date	Opened on	Nearest Workshop Date	Transmission Length
19/11/2014	7/12/2014 (+18)	10/12/2014 (+3)	6:07
10/04/2015	19/04/2015 (+9)	21/04/2015 (+2)	4:59
05/08/2015	23/08/2015	-	10:35
14/10/2015	15/10/2015 (+1)	15/10/2015 (0)	4:32

Figure 3.2 – *Frequency of Transmissions*

In both of the first two transmissions, despite receiving them weeks before the workshop, Weeks opened the transmission within just three days of each rehearsal. Members of EXAUDI remarked that they didn't know when I wanted them to open transmissions, as they were worried that if they listened to them too early they might forget them entirely. Before sending the final transmission, we agreed that I would send it the day before the workshop, narrowing the window of time during which they could listen. The musicians remarked that this made their task much clearer.

I adopted this same strategy in creating *Who's Exploiting Who*. Each transmission was sent the day before a rehearsal. The members of the Thin Edge New Music Collective told me that they often listened to the transmissions the morning of rehearsals, and that they found that this aided their memory greatly. I do not believe that this proximity brought the musicians any closer to perfect fidelity, which was never my intention. I do, however, now send transmissions as close to rehearsals as possible. I believe that this gives the musicians enough freedom to arrange time to listen to the transmission – if they know it is coming – without impinging too much on their schedules. Sending a transmission closer to a rehearsal also narrows the gap for variability between all the musicians. Rather than one musician listening to a transmission two months before and forgetting most of it, all musicians will listen within the same small range of time, promoting less variance in the amount of information that is remembered. As many musicians have pointed out to me, there are still many external factors which might influence how they remember a transmission that go beyond my control, but this is integral to the way that I work. The wild instability of memory was one of the initial reasons I was attracted to working in this manner.

3.6 Content of Transmissions

3.6.1 Introductions

In a non-standard compositional or creative process, protocol about procedures can be extremely helpful. While discussing *[factory]* with Benjamin, the need for some

standardized information to be included with each transmission became apparent. This information would include some of the basic ideas about the project, as well as some of the best practices for engagement – such as the prohibition of audio recording during transmissions. Benjamin and I never formally produced such a protocol; however, in her ongoing transmissions of *[factory]* she has gradually established a consistent preamble. Over the course of my portfolio pieces, I began to include information about my collaborative process in the beginning of all transmissions.

In *Made of My Mother's Cravings* created with Quatuor Bozzini, I wrote some of these protocols into a contract to be signed by each member of the group. The four main clauses are found below:

> *1. I will not record any aspect of the conversation we are about to engage in using electronic or written means.*
>
> *2. I will not disclose any details of this conversation to anyone (including other members of Quatuor Bozzini) unless explicitly advised to do so by the composer.*
>
> *3. I understand that if I violate any of the articles of this contract, I shall voluntarily withdraw from the performance(s) of the composition without penalty or judgement.*
>
> *4. I understand the terms of this contract and the explanation provided to me. I have had all my questions answered to my satisfaction, and I voluntarily agree to participate in this composition.*

Upon reflection, I felt that these contracts overly formalized a process which relies on the good nature of performers and, as a result, did not use them in further portfolio pieces. The contracts did, however, set a precedent for the inclusion of important information in the preamble of future transmissions.

In the next piece I created, *The Strange Eating Habits of Erik Satie*, I included a preamble to each recorded transmission that reminded musicians about the collaborative process. This information was received at the beginning of every transmission. I have reproduced it via transcription below:

Make sure you're in a reasonably calm, quiet place to listen to this recording. Darkness might help, but it's not necessary. You can close your eyes if you want to. Please do not record this sound file in any form. Please do not even take notes. I want to focus on what you remember. I don't expect you to remember everything. This link to this sound file will be taken down as soon as you've listened to it.

Your part in this piece is just one in a web of connections, a puzzle that will be assembled with the other performers. I don't expect it to fit together perfectly. In fact, it's the jagged edges – the pieces jammed together – that interest me most.

Please pay particular attention to what information is intended for the whole group, and what is intended just for you. There are secret parts of the puzzle. Please don't mention these secret parts to the group: not their content, or even their existence. Anything that isn't mentioned is up to you.

When you're finished listening, please immediately email me a receipt message to prove you've watched the video[69] in its entirety. Include the word "Satie" in the subject line. The following information is just for you ...

Transcription of Audio Example 1

The tone in this excerpt is noticeably different to the clauses from the earlier contract. Instead of using legalese, I attempted to create a good-natured collaborative situation that fostered comfort and generosity. A binding contract seems at odds with the fluid nature of my projects. It implies a hierarchy between myself and the contractee. I believe the amicable requests found in the above excerpt to match my project much more closely. I employed this same strategy in creating *Who's Exploiting Who*, using almost the same text to begin each transmission.

In creating the final piece of my portfolio, *Who's Exploiting Who*, I aimed to render as much peripheral information into the transmissions as possible. For this purpose, I created a master transmission that was not deleted after the musicians had listened to it. In this permanently accessible transmission, I spoke to the ensemble about the broader project of my work, the way the following transmissions would arrive (including both their format and their frequency), the background of my work and a possible strategy for rehearsal (audio example 2).

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[69] I was originally going to communicate by way of videos, but in the end decided only to use the audio.

Including a possible strategy in transmissions greatly increased the efficacy of rehearsals. In previous first rehearsals, such as those with Quatuor Bozzini and EXAUDI, I had to intervene because the performers were not sharing any information with each other. It became clear that the nature of the collaborative process – namely, that the performers needed to transmit their remembered information to each other – was unclear. Including information about the structure of rehearsals allowed the ensemble to engage more fully in the goal of the project: the transmission and discussion of information.

3.6.2 Content

After the introduction to all transmissions, the information I attempt to transmit generally falls into the following four categories: 1) methods of musically modifying source material; 2) details about the piece's form and the way various mechanisms interact with that form; 3) tone, timbre and dynamics; and 4) metaphorical or abstract information. Each piece in my portfolio privileges different aspects of these four types of information. For example, the transmissions of *[factory]* that I am aware of generally contain mostly metaphorical or abstract information. In contrast, when creating the digital transmissions for *Who's Exploiting Who* I mostly used the first three types of information. The content of these instructions will be discussed in more detail in <u>Chapter 4: Musical Material</u>; however, I will not reproduce full transcriptions of any transmissions, as these could be construed as a kind of score for reproduction. I will instead use small transcribed excerpts of transmissions to demonstrate specific characteristics.

Another reason to avoid the direct transcription of this information involves the transformation it undergoes during the rehearsal process. Similar to previous pieces in this dissertation, I did not intend the performers to follow my instructions literally. By removing the literal – the written – element, I encourage performers to remember and interpret the information themselves. The performers' experience of the score becomes equally important to mine, and producing records of the original

transmissions would not allow for this flattened hierarchy. Participation shapes the living score's essential musical qualities.

3.7 Forgetting

Kirby's concept of a linguistic bottleneck as a productive device in language learning is also useful in the context of reflecting on my compositional practice. By imposing a restraint on performers' memories – the requirement to remember a transmission and then transmit it to other performers – I encourage them to fill in any gaps with information they see as fitting to the performance situation. There are other bottlenecks as well, such as the amount of transmissions that occur in any given piece and the one-sided nature of digital transmission.

In *Made of My Mother's Cravings*, which does not use explicit musical source material,[70] the ensemble remarked that they did not know a sufficient amount about the piece's sound world to improvise in a convincing manner when they forgot information. There was not enough structure in the information they had been transmitted to comfortably allow them to generate new material. The use of source material greatly improves this situation. When something is forgotten, a musician can draw upon the source material's structure to add something in its place. This process closely resembles the transformations discussed later in Chapter 4, such as inserting silence, holding notes for additional durations or replacing pitches with other nearby pitches.

3.7.1 Forgetting Between Transmissions

Initially, I did not purposely develop strategies to manipulate the way players would forget transmissions. I was confident that the bottlenecks and restrictions inherent to my project would already result in enhanced structuring and creativity. In each successive piece, I listened to the performers' feedback about remembering and

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[70] There is a small quotation found in the extra voice part that was added on the day of the first performance in June 2014, sung by Leo Chadburn. This quotation is from Dido's Lament by Purcell, and was introduced to surprise the ensemble on the day of the performance. At the time, I was trying to fight against the piece becoming concrete through multiple rehearsals by introducing new surprises at every opportunity.

forgetting and slightly altered the transmission process. This feedback related to earlier sections in this chapter, such as the length (3.4), and density and frequency (3.5) of transmissions. By slightly adjusting parameters related to the retainment of information, I was able to broadly influence the experience of the performers.

For example, when creating *The Strange Eating Habits of Erik Satie*, one performer remarked that if they received a transmission weeks before they were expected to transmit it to the rest of the ensemble, they were not sure when would be the best time to listen to it. Because they had to choose, they often felt that they had chosen the wrong or non-optimal amount of time between the two events, resulting in them forgetting more of the information than they thought appropriate. We discovered that if I transmitted the information one to two days before rehearsals, musicians had enough time to fit listening into their schedule but not so much time that they forgot all of the information. Essentially, I worked to ensure that there was a still a bottleneck present – the information was still being transmitted to the rest of the ensemble at a later time – but I controlled the opening of that bottleneck so that it was not so narrow that nothing could pass through.

Ultimately, even without the specific manipulation of forgetting as a parameter, the removal of the written score and the invitation of forgetting into the compositional process profoundly affected transmissions in my creative practice.

3.7.2   Forgetting Between Performances

Much like in Monk's work, forgetting allows some of my compositions to evolve. The best example of this can be found in *Made of My Mother's Cravings*, which benefitted from two performances, each separated by six months. In the first performance, the piece featured a ten-note cantus based on early Renaissance polyphony (see figure 2.3). This cantus was described in my initial transmission to the ensemble; however, it was developed specifically by one member of the ensemble for the initial performance. After six months, the performers could not remember any significant information about this original cantus other than its descending nature as well as the presence of

alternating long and short note values. Gottschalk describes the ensemble members'
memories of the score as being "eroded or replaced".[71]

Figure 3.3 – *Transformation of Cantus in* Made of My Mother's Cravings

The forgetting of the original cantus allowed for new material to be introduced into
the composition. Rather than only erosion occurring, here we can imagine the act of
construction. A removal of material frees space for the new to emerge. To my surprise,
this forgetting also allowed participation from members of the workshop situation
beyond the members of the musical ensemble. Quatuor Bozzini relied on the
collective memory of the group to remember features of the original cantus. In
addition, they allowed input from other members of the workshop to decide on the
suitability of the new cantus with regard to the piece. I had not previously considered
this effect of forgetting: it can reduce barriers and allow for the participation of
everyone involved in the creation of new material. In *Made of My Mother's Cravings*,
forgetting allowed a closed community, the string quartet, to gain new collaborative
members, the rest of the workshop participants. I wish to foster this sense of expanded
collaboration in more of my music in the future.

3.8   Future Transmissions and Legacy

So far, only *[factory]* and *Smokescreen* have been transmitted to multiple performers.
Because, in general, I have *inhabited* micro-communities rather than created them, I
have not actively encouraged the secondary transmission of my work. The reasons for
this attitude are mostly practical, relating to similar problems faced by many emerging
composers in relation to seeking second performances of their existing works. Unless
secondary transmission is an explicit responsibility of the performer, such as

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[71] Gottschalk, *Experimental Music Since 1970*, 216.

Benjamin, an ensemble would have no reason to seek out further performers. As in the case of Radigue's collaborators, other groups playing the pieces would also decrease their importance as key repertoire pieces for their original commissioning ensembles.

3.8.1 [factory]

[factory] has currently been transmitted by Benjamin to three other artists: Isaiah Ceccarelli, Michael Baldwin and Angela Guyton. These three realizations have been included in the portfolio. All of these realizations feature Benjamin in some way; however, Baldwin's diverges from Benjamin's original performance of the piece most greatly. The other three realizations share similar musical features, as Benjamin uses both her own embodied memory of her first performance as well as the interpretation of her new collaborators.

Because of the work's relative size, Benjamin has not yet transmitted what she sees as the whole piece to any collaborators. Benjamin is currently planning on a realization of the piece in which she transmits different parts of it to different performers, and allows them to play the piece simultaneously in a walk-about format.

[factory] could cease to exist for many reasons: Benjamin might decide she would like to stop transmitting the piece; Benjamin might not have anyone interested in receiving a transmission and might eventually forget the piece herself; or I might decide that the piece should stop being transmitted. I do not believe that this greatly differs from written musical notation, which can also suffer from disinterest or disuse. If Benjamin ever decides to stop transmitting *[factory]*, I may ask her to transmit the piece back to me so that I might decide to continue its transmission should the opportunity arise. Until this point occurs, I am not interested in becoming a living score for the piece.

3.8.2 Smokescreen

In creating *Smokescreen*, I wanted to explore the concept of secondary transmission. In a sense, I wanted to replicate the concept of *[factory]*, using an ensemble rather

than a solo performer as the living score. I wanted to create a situation in which the original ensemble had the ability to transmit the completed piece to another ensemble. In this case, the second ensemble would be a choir who would perform the piece alongside the percussion ensemble. To do this, I thought the most appropriate process would be for the original ensemble, Architek Percussion, to learn all of the material (both percussive and vocal). Then, Architek could teach it to the choir as a secondary transmission. The by-product would then be that Architek could perform the piece in a single-ensemble version. Architek confirmed that this option would aid in their ability to perform and tour the piece.

Part of the idea to transmit the piece to other ensembles was born out of the nature of the commission: originally, the project was to involve a cross-Canada tour that would involve different choirs in every city. The need to transmit the piece in relatively little rehearsal time influenced not only the transmission procedure but also the musical material I chose. However, the focus of transmission is very different in *Smokescreen* than *[factory]*. In *[factory]*, the transformation and interpretation of information is an important part of the work. The transmission strategy for *Smokescreen* was implemented more for accessibility, allowing the percussion ensemble to tour and teach the work to as many choirs as possible.

3.8.3 Legacy

I am mostly unconcerned about the future transmission of my work. In part, I believe this may reflect my current status as an emerging composer. Commissions comprise most of my new activity and, as a result, I do not often consider second performances of existing pieces by new ensembles. I also believe that I share a similar attitude to Radigue. When Radigue finishes a collaboration with a performer, she christens the piece "theirs". She does not believe that the future of pieces lies with her, but rather with her collaborators.

I could take a number of approaches to future transmission – of both existing and forthcoming works – inspired by the composers mentioned in the context section of this thesis.

While Radigue says she does not consider legacy important in the process of making her music, she also requires a dedicated community of performers to realize her work. Radigue's work with performers begins as an exclusive collaboration and therefore often becomes a cornerstone of a performer's repertoire, ensuring its continued performance. Although Radigue's collaborative works have not been transmitted beyond their original performers at this time, some of her collaborators have mentioned that when they are finished performing a piece they may see the need to transmit it to ensure its legacy.

Or, like Walshe, I could allow both the transmissions and the compositional process itself to be temporary. Walshe's snapchat scores were a limited project that occurred for a few months. The project's temporary nature reflects the temporary scores.

After performing *Made of My Mother's Cravings*, Quatuor Bozzini requested a written version of the piece. Should I choose to make printed versions of any of my pieces, I might look to Ono's subversion of the idea of the original via the creation of many versions of the same artwork.

I believe Monk's approach fits my compositional process best. Using a combination of embodied memory and recorded material, either myself or an ensemble might be able to reconstruct a piece. Invariably, there would be holes, either in memory or documentation, and these could be filled with new material that fits the general concept of the piece. This is how I originally imagined the pieces to grow, allowing information to ferment over time and emerge slightly changed.

I think that keeping in line with the overall project, preserving the energy involved in transmitting information is key. It does not seem right to come up with too universal a system, especially one that would allow for the performance of pieces without a level of participation embedded in the process.

Ultimately, we might ask similar questions about the legacy of notated music. Unless we truly believe that a musical work is located in its material score, we must rely on dedicated performers, oral performance practices and recorded documents for the survival of a work.

Chapter 4: Musical Material

4.1 Introduction

In this chapter I will discuss the musical characteristics of the pieces within my portfolio. I will begin by discussing my use of musical source material, paying particular attention to my motivations for using different types of material. I will then discuss specific musical mechanisms that occur throughout the portfolio: loops, cycles and transformations. I will conclude by exploring the signaling of the collaborative process within the performances of my portfolio pieces.

Throughout this chapter, there is a challenge in discussing my work: when I refer to musical characteristics, am I referring to those that I transmitted originally, those that the musicians transmitted to each other, or those that are apparent in the final recordings? To this, my answer is that I will be writing this chapter from the vantage of personal reflection. I will attempt to distinguish the information that I initially transmitted from that which arose or emerged over the course of the portfolio as a result of collaboration. I will not specifically examine how secondary transmission from one ensemble member to another changed my original transmissions. This level of analysis – which would require laboratory conditions and deep linguistic analysis – lies outside the scope of this critical reflection.

I will attempt to provide a certain amount of transcribed material from transmissions of *The Strange Eating Habits of Erik Satie* and *Who's Exploiting Who*. These should not be viewed as comprehensive, but rather as indicative examples of certain types of transmitted information.

My aim throughout this portfolio has been to explore how musical material might be transformed when it is transmitted orally in a series of social situations. I created a set

of increasingly complex pieces that each tasked musicians with remembering more complex instructions. Each subsequent piece explored a relationship to source material in a slightly different way.

Very little discussion of *[factory]* will occur in this chapter, because the piece's original transmission contained almost no expressly musical information. My intention in creating *[factory]* was to explore the mechanism and social situation of the transmission process. The musical material that emerged was a result of Benjamin's translation of the metaphors found in the original score, rather than any implicit musical material.

In general, I will avoid using musical notation for examples unless it will best serve to illustrate a particular idea. In general, I will use notation to show a relationship between my work and its musical source material.

4.2 Source Material

In a discussion of medieval and renaissance musical borrowing, Clark and Leach describe how the act of borrowing might be located on a spectrum of scholarly citation and entertaining referencing. Or it might connect to intertextuality, with some borrowers intentionally referring other sources and others unintentionally borrowing through shared practice and experience.[72] Some medieval borrowing was even employed because the very act itself represented sophistication, relating to the practice of grafting plants.[73]

Lisa Colton and Martin Iddon identify various reasons why contemporary composers might use intentional musical borrowing in their work. Two in particular resonate with the work created in this portfolio, which are the use of musical borrowing as a

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[72] Suzannah Clark and Elizabeth Eva Leach, Introduction, *Citation and Authority in Medieval and Renaissance Musical Culture: Learning from the Learned* (Boydell & Brewer Ltd, 2005), xxi.
[73] Judith A. Peraino, "Monophonic Motets: Sampling and Grafting in the Middle Ages," *The Musical Quarterly* 85, no. 4 (2001): 669.

"starting point or catalyst for experimentation"[74] and to "[document] a personal relationship with the historical trajectories embedded in the music or compositional technique which is being quoted".[75] It is the intersection of these motivations that best describes my own use of musical borrowing.

These motivations can also be used to describe the practices of current experimental composers such as Cassandra Miller and Erik Carlson. Miller preserves musical virtuosity and views creative borrowing as a way of documenting her relationship with source material.[76] Carlson manipulates parameters of existing musical works, exposing their internal scaffolding.[77] These provide contrast to Cage's *Cheap Imitation*, one of the most well-known examples of experimental borrowing. In that piece, Cage – motivated by copyright law – transposes the pitches of a piece by Satie, leaving the rest of the work intact.

It is outside the scope of this thesis to provide an extensive history of musical borrowing and citation. However, connecting certain medieval and contemporary attitudes to musical borrowing might serve to illuminate reasons why I have used and transformed source material in this thesis. I have chosen to examine contemporary and medieval music because it is in the emergence of major new technologies such as notation and recording devices that borrowing seems to flourish.

The media in which borrowing occurs often molds the technique of borrowing itself. Judith Peraino outlines how mensural notation became a creative aspect of the composition of motets, and how similarly the record player's scratching techniques became a creative aspect of modern-day musical sampling in early house and hip-hop music.[78] Similarly, Miller uses Melodyne – a music analysis and editing software – to

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[74] Lisa Colton and Martin Iddon, "Introduction: Recycling and Innovation in Contemporary Music," *Contemporary Music Review* 29, no. 3 (2010): 229, doi:10.1080/07494467.2010.535353.
[75] Ibid., 230.
[76] Jennie Gottschalk, *Experimental Music Since 1970* (London, England; New York: Bloomsbury Academic, 2016), 263.
[77] Ibid., 262.
[78] Peraino, "Monophonic Motets," 667.

turn smoothly expressive audio samples into complexly-notated glinting fragments using a convert-to-midi function.

Peraino describes both medieval music and modern-day sampled music to be "received, dismantled, and transformed through oral procedures, but retaining the mark of technology".[79] My own music uses the media of conversation and memory to creatively alter source material. I allow musicians to both consciously chip away at material and unconsciously let it decay in their memory. This process is similar to the inadvertent forgetting and embellishment that happens in orally-transmitted folk music. My choice of source material sometimes relates to a history of the genre, such as the use of Satie's *Chorale Inappetissant*, and other times simply documents a personal love of a composition, such as the use of Roísin Murphy's *Exploitation.*

Using source material has allowed me to focus on the transmission process, rather than also developing an entirely new musical or compositional language. My previous compositional explorations would not have necessarily been suitable for oral transmission. Prior to eschewing written scores, I also realized that I was beginning to lose interest in choosing exactly when in time specifically pitched events should occur. Source material allows me to search broadly for musical qualities that I favour while also allowing me to form a conceptual connection to other music and time periods. Source material has been both a catalyst for larger compositional developments and a starting point for each composition.

My reasons for choosing source material throughout my portfolio were both musical and conceptual. In *The Strange Eating Habits of Erik Satie*, I wanted to use a source that was related to the history of experimental music. Rather than choose something authored by John Cage, who is often heralded as a key member of the rise of experimental music, I decided to choose something by Erik Satie, who Cage quoted in multiple pieces. I chose to borrow Satie's *Chorale Inappetissant* for several reasons: it was short enough for the group to memorize all four parts; the notes generally fit the

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[79] Ibid., 670.

appropriate vocal ranges of each singer; it was rhythmically mostly homophonic and quite simple; the title related to the idea of eating; and it was harmonically vague. Some of these characteristics relate to the process of making living scores (such as the length of the piece to be memorized), others relate to the technical capabilities of the ensemble, and yet others relate to aesthetic qualities I was seeking to highlight in the final piece. In choosing the source material for *Who's Exploiting Who*, I was looking for source material that fit into my concept of loops (explained later in this chapter). I chose a looping electronic organ sample from Roísin Murphy's *Exploitation*. The loop was short enough to be easily memorized, and contained harmonically attractive tuning deviations. In addition, I thought that borrowing from a non-classical source might carry an interesting resonance with my project, as both the source and my version would exist in non-written forms of music. All of the sources from which I have borrowed come from music that I appreciate, and which knows no boundaries of time period or specific genre.

In two of my portfolio pieces – *The Strange Eating Habits of Erik Satie* and *Who's Exploiting Who* – my approach to using source material was very similar. In *The Strange Eating Habits of Erik Satie*, I asked the singers of EXAUDI to memorize all four parts of Satie's original chorale. I provided the choir with a sheet-music version of the chorale; however, when memorizing all four parts the singers found it more useful to listen to a recording of themselves singing the chorale. In *Who's Exploiting Who*, I provided the following page of transcribed music from *Exploitation* by Roísin Murphy (see figure 4.1). I transcribed both fragments with the help of Melodyne, a software for audio analysis and modification.

Who's Exploiting Who

MATERIALS

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Loops should be learned by all players able to play microtones accurately. Each player should learn every line of the loop, and players capable of producing multiple pitches should learn lines in combination if possible

numbers above and below notes refer to cents deviated from standard tuning
it is understood that these will be approximate (though as close as possible to accurate!)

②

Scales should be learned by all players throughout all their registers. Players should practice them forward and backward, as well as in modes so that they are comfortable starting on any pitch. Goal tempo for scales is around ♩=130+

Figure 4.1 – Who's Exploiting Who *Materials Transcribed from* Exploitation

In both examples, I asked players to learn all of the different lines of the example, regardless of register. Stringed instruments in *Who's Exploiting Who* were asked to learn combinations of double stops. These lines, previously harmonic in function, become horizontal melodies. This betrays my general tendency for horizontal thinking, rather than vertical: everything becomes a horizontal line, and vertical relationships (harmony) become indeterminate when horizontal lines are combined in new ways. Then, each musician can choose which part to play, and within the piece they often switch between parts. Finally, the source material is looped indefinitely and slowly decayed using one of a set of transformations. The effect is that the source material imbues the composition with melodic intervals and contours, but places everything in new rhythmic, harmonic and timbral contexts.

4.3 Transformations

In this section, I will begin by outlining the evolution of two of the main mechanisms used throughout my portfolio: loops and cycles. This development focuses specifically on *Made of My Mother's Cravings*, *The Strange Eating Habits of Erik Satie* and *Who's Exploiting Who*. Then, I will investigate loops in more detail, specifically examining the transformations that the musicians can use to modify discrete musical events in real time on the basis of the source material. Following that I will investigate transformations that the musicians can use to modify longer sections of the source material in cycles. I will briefly discuss other musical transmissions and characteristics. Then, I will write about how these mechanisms interact with the form of the piece on micro and macro levels. Finally, I will discuss the way that these three pieces interact with *Smokescreen*, a musical outlier in my portfolio.

4.3.1 Evolution of and Use of Terminology *Loops* and *Cycles*

The terminology that I use has evolved over the course of the portfolio as a result of collaborating with multiple chamber music ensembles. When creating *Made of My Mother's Cravings* I lacked this terminology, which made discussing and transmitting the piece more confusing. At that time, in conversations with the ensemble I had to talk around the concepts to try to reach an understanding of the mechanisms within

the piece. I recall speaking to the ensemble about loops, but we were more concerned with a broader cueing system. Sets of loops did contain the transformations which I have written about as cycles; however, their function was more a result of a cueing system that the whole ensemble employed rather than a device used by individual musicians. While working with EXAUDI, the need to establish consistency when discussing micro and macro level transformations emerged. We began discussing terminology: repetitions of source material became loops; sections and movements and restarts became cycles. For example, the following is transcribed from one of the transmissions before the April 2015 workshop:

> *You may choose to ring a tiny bell or produce a bell-like sound to indicate the beginning of your repetitions (objects such as wine glasses, finger cymbals and prayer bowls are all acceptable).*

In this excerpt, I used the word repetitions rather than cycles. However, in my transmission to the group in September 2015, I use both the term repetitions and cycles. In this transmission, I believe that I had begun to use the word repetitions for loops, and cycles for the broader collections of loops.

> *In the final third of the piece, within a repetition individual singers may choose to reduce the note-value of each note of the choral, making them into short staccatos separated by silences …*

> *Should you choose, if you are "sitting out" of one cycle (as people should be doing frequently), you may quietly harmonize any note with a third (even if it is a drone) …*

Gradually consistency emerged, and the ensemble was able to speak to each other about the piece using terminology that was created in rehearsals. This collaborative exchange shaped the material I transmitted to the Thin Edge New Music Collective. In *Who's Exploiting Who*, I used all of the previously discussed terminology, which was not modified by the ensemble. The lack of questions from the ensemble suggests that this information is now codified into a form that could be used in further iterations of this orally-transmitted process. Examples of my use of loops and cycles can be found in the following transcribed excerpt of my first transmission to the violinist of the Thin Edge New Music Collective:

... you will begin the piece by playing the loop in time with the other group. However, immediately on playing the loop for the second time, you will play it slightly slower, and slightly lower in pitch (approximately 10–30 cents). Each time you repeat the loop, it will get slightly slower and lower. It is understood that after around the 3 or 4th time you play the loop, you and the cellist may begin being slightly out of synch with each other. Each time you repeat this decaying, slowing down, and falling loop you should also play it a little bit quieter and a little bit more sul-tasto. It should decay in every sense.

Either you or the cellist may choose to return to the pitch and tempo of the flute/bass-clarinet group with a simple head-cue. These groups of falling loops are hereby going to be discussed as cycles – each cycle begins back at the starting pitch and tempo and falls until someone decides to start a new cycle.
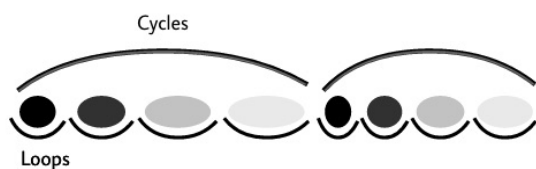

Figure 4.2 - *Diagram of Mechanisms in Portfolio Pieces: Loops and Cycles*

4.3.2   Loops

The bases for the three pieces mentioned above are loops of their individual source materials. For the most part, I did not transmit information about whether or not the start of the loops should be synchronized between all the players. Sometimes, this resulted in players roughly aligning their loops, as in the beginning of *Made of My Mother's Cravings – November*. One can hear (in audio example 3) that the two instruments playing the descending theme tend to start their loops at roughly the same times (0:00, 0:10, 0:20, 0:31, 0:48). As the piece continues, the players gradually become less synchronized.

In other pieces, I transmitted information that gave individual players the ability to truncate their loops at different times, as in *The Strange Eating Habits of Erik Satie* and the final section of *Who's Exploiting Who* (audio example 4).

As a player continues looping, they can continue to apply more of each transformation to the source material. The result of this process is that the musical source material

gradually decays and becomes unrecognizable over time. This particular transformation was chosen to resonate with the way information itself is forgotten over time, while at once paradoxically embodying the fact that as something is repeated it can be remembered more completely.

4.3.3 Transformations that Apply to Single Events in Loops

Within each loop, players can apply several different transformations. These transformations generally occur incrementally. For example, if the transformation involves skipping a note of the source material in each loop, as the loops continue more notes will be skipped, eventually leaving silence.

I first explored ways that musicians could transform a horizontal musical line in a previous piece – *Kyrie* (2013). There were only three options in that piece, which are demonstrated below. These three options became the main options for transformation in my portfolio.

The following transformations are demonstrated in relation to the source material of *The Strange Eating Habits of Erik Satie*; however, they are present in all three pieces mentioned in section 4.3. This is by no means an exhaustive list of transformations used by the musicians in these pieces. Rather, this example should be viewed as a small sampling of the ways that I encouraged musicians to transform source material during performances.

> *i. Skip a note in the chorale, inserting silence in its place*
> *ii. Hold one note for double its original value, "erasing" the next note*
> *iii. Displace one note by an octave in either direction*

Figure 4.3 – *Transformations of Source Material in* The Strange Eating Habits of Erik Satie

In *The Strange Eating Habits of Erik Satie*, I also transmitted other modifications, such as:

> *... each time the chorale is repeated, increase every leap of a second by an equally small amount, for example less than a quarter of a tone. Hold your ground even if you're in "unison" or "octaves" with other singers. As the piece goes on, your line should gradually escape its original shape.*

This modification, along with many others, is not immediately audible in the final performance. Some of these transformations appeared in rehearsals, while many were not remembered at all.

These transformations serve several aesthetic and social purposes. Primarily, they distort the source material into something musically different. I hope that this distortion resonates with the remembering and forgetting processes singers must employ when transmitting the piece. Beyond that, the modifications give singers a platform to react and change the texture of the piece during the performance. This agency is important to me on a conceptual level. It also serves to ensure that the piece will be different in every performance, and that the singers must be extremely mentally active during performances of the piece. Although the transformations all move in a similar direction – towards the erosion of the source material – each time a player applies a transformation there is an opportunity for them to control the texture of the piece on a local level. The way these modifications are controlled over time is a factor of cycles, which will be explained later in this chapter.

I chose to transmit these transformations because of their relative simplicity to employ and their varied musical results. Transformations such as inserting silence create a way for the musicians to thin out the texture, and contribute to a gradually decaying sound that will be discussed later in this chapter. Displacing notes by octaves or fifths were the easiest transpositions for most musicians to remember, especially when they were required to jump back to the non-transposed source material afterwards.

Because the musicians involved in my living scores have to learn and memorize an entire piece of music, the elements must to be reasonably simple. I believe that if I worked with an ensemble on multiple pieces in a row, I could increase the complexity of transformations and the form of the piece. This will be discussed further in the conclusion section of this thesis.

4.3.4   Cycles

Cycles are collections of loops. Cycles represent periods of increasing distortion to the source material. Each time a cycle begins, all transformations to the source material are removed. For example, players might gradually remove all the notes of the source material over the course of their loops but, when a new cycle begins, all of the notes will have returned, and will gradually begin decaying again throughout the course of the new cycle. The mechanisms of loops and cycles share some similarity to structures such as the *ritornello* and theme and variations.

Cycles are treated differently in each of the pieces. In *Made of My Mother's Cravings*, players begin the piece with the ability to cue all other players to begin a new cycle. As the piece goes on, their cycles desynchronize. In *The Strange Eating Habits of Erik Satie*, players choose when to begin new cycles with an audible signal – a louder first note as well as a percussive bell sound. Other performers can then choose whether to join a new cycle or continue their current cycle. This same system is used in the final section of *Who's Exploiting Who* (audio example 4).

Cycles are another means by which to give the performers agency in controlling the texture and form of the piece on a larger scale.

4.3.5   Transformations Within Cycles

For the most part, the only transformations that take place within cycles relate to tempo and dynamic. The source material might slow down over the course of a cycle,

only to return to its original tempo at the beginning of the next cycle. The source material also might get quieter over the course of a cycle.

In two of the pieces, players also fall in pitch over the course of cycles. In *Made of My Mother's Cravings*, all members of the string quartet fall in pitch over the course of each cycle. In the first section of *Who's Exploiting Who* (audio example 5) half of the ensemble plays the loops without falling in pitch while the other half gradually falls in pitch.

I often transmitted this information by way of metaphor. For example, in the following transmission to the Thin Edge New Music Collective for *Who's Exploiting Who*, I refer to the transformations over cycles as a dying record player:

> *The main image of the piece is a record player that, as soon as it begins playing a record, is constantly slowing down and decaying. By nature of being a record player, slowing down also means dropping in pitch. Frequently during the piece somebody jumpstarts it back up to the original pitch, but immediately it begins falling and decaying again.*

I began using this metaphor in *Made of My Mother's Cravings*. In other pieces I used other metaphors, such as a cloth bag full of objects that gets repeatedly strewn all over the floor, or a hazy fog that rolls in over the source material. I believe metaphor to be a strong way to transmit information that can guide musicians in making creative decisions within the piece. Metaphors embed themselves differently in the mind and provide the complexity required to allow musicians to make confident choices when a bottleneck prevents them from remembering all of a transmission.

4.3.6   Other Musical Instructions

In most of the pieces within my portfolio, I tried to provide musicians with options to perform material outside of the relatively strict mechanisms of loops and cycles. For the most part, these transmissions had to do with either matching pitches that other musicians were performing, or performing random pitches to make the harmonic texture more complex. For example, in *Made of My Mother's Cravings*, I recall telling one of the players that they could casually use high glinting harmonics to provide

relief against the relatively close texture of the falling line. The quartet made great use of this in both of their performances.

Another example can be found in *Who's Exploiting Who*. I transmitted the following instruction to the pianist:

> *During the first two thirds of the piece, because you are not playing looped material, you will slowly begin the scalar material in small pointillistic fragments. For the first third, think of only one or two notes, on off beats (to the bass drum). Jittery, very brittle, staccato. As dry as possible. As the piece goes on, in the second third, gradually adding more notes and expanding the registration into the upper and lower extremes.*

This transmission gave the performer the freedom to connect the different sections of the piece, as well as to punctuate the otherwise static texture with more active material.

4.3.7   Form

The form of most of the pieces in my portfolio is relatively simple, containing a number of cycles with one or two distinct changes to mark the evolution of the piece. In *Made of My Mother's Cravings*, towards the end of the piece the performers stop synchronizing their cycles, creating a more discordant texture. In *The Strange Eating Habits of Erik Satie*, the piece gets quieter until the end. And in *Who's Exploiting Who* there is a two-part form where the material completely changes halfway through, creating a completely different sound.

In general, the pieces demonstrate the behaviour of processes, rather than attempting to control specific events within time. I believe this to be most suited to the way they are transmitted: given that the musicians have to learn every aspect of the piece, it would be very difficult to learn specific gestures that occur at specific times. For this kind of learning, Ong's characteristics of orality or recent research on iterative learning could be used as a basis. For music that explores iterative learning and gestural memory, James Saunders' pieces *positions in the sequence correctly recalled (2014)* and *all voices heard (2015)* might provide points of reference.

Smokescreen does not use the formal devices of loops and cycles, or the transformations discussed earlier. The main similarity between *Smokescreen* and the other pieces in my portfolio is the gradual transformation of source material over time using dynamic and tempo envelopes. *Smokescreen* uses the piece *Fumeaux fume par fumée* by Solage from the Chantilly Codex as its source material.

The percussion quartet begins by playing the original source material extremely slowly (one player to each part with one doubling the third). The players each perform their line in their own unique tempo. Over the course of the piece, this source material gradually speeds up until it is played twice as fast as usual. At no point is the source material recognizable in the performance. During this time, the percussion quartet must also manage the addition and subtraction of static timbre via a set of radios, as well as match the pitches sung by singers. The singers in *Smokescreen* either match the pitches of the percussion, as in the opening section, or match them and glissando up a fifth or ninth. In the final section including voice, the singers sing homophonic parallel minor triads. The percussionists then perform a coda in which they play the original source material at double speed on high bell-like instruments.

Smokescreen does not use the same formal methods as other pieces in the portfolio. Instead, it represents an amalgamation of the broader lines of inquiry I have made throughout the rest of the portfolio – transmission, musical borrowing and gradual transformation.

4.4 Conclusion – Process and Product

During the creation of my portfolio I explored the idea of embedding some of the process of making the pieces into their final performances. Because there are no music stands on stage during my pieces, audiences are immediately alerted to the fact that they are listening to something that departs from the use of written scores.

A few audience members remarked after hearing *The Strange Eating Habits of Erik Satie* that they knew something different to traditionally scored music was occurring on stage, but that they had no idea what it was. I had not considered the experience of watching this work take place: on stage there are no music stands or scores, but the performers are also clearly working towards a very specific goal and reacting to specific things. This caused me to reflect on whether there was some way of embedding the process into the musical product of the work. I was not seeking necessarily to create a didactic experience that taught the audience what the ensemble was doing. Rather, I was looking for a way to create a resonance across the learning process and performance experience.

I explored several possible solutions that were ultimately rejected. For example: a rehearsal on stage that becomes the performance; or an open transmission that the audience could listen to prior to the performance online. Ultimately, I decided to explore the idea of embedding part of a transmission into the beginning of the piece. In *Who's Exploiting Who*, I included a part of my transmission to the ensemble in the beginning of the piece. I selected part of my opening preamble that was intended to prepare the ensemble to listen to the transmission itself. I thought this preamble also suitable to prepare the audience to listen to the work. I believe that this solution was successful, and would consider using it in future projects.

In some pieces, such as *[factory]*, I also attached a significant programme note to the piece explaining some of the process behind it. In the note for *[factory]*, I focus on transcribed dialogues between Benjamin, interviewers, as well as other performers. In these transcriptions, I redact anything that might be used as a score in future performance, leaving only the perfunctory text explaining and hinting at the processes behind the work. This interview text is provided below:

> *The following is an excerpt of an interview of Mira Benjamin by* Jennie Gottschalk:
>
> **JG**: *So I wanted to talk about the process around these pieces ... about the transmission of scores, what possibilities there are for an experiment to take place in that activity, at that intersection.*

MB: Luke uses the term "accessing" – someone who wants to know [factory] must access an archive of sorts.

JG: So you're the archive?

MB: I'm a living score – one of six or so people who house Luke's various pieces. The only currently active living score, I believe.

JG: Is your memory the score of [factory], or you yourself?

MB: That distinction is not really made. My relationship and dialogue with my own memory is an essential part of the process of actualizing these pieces. It is inevitable in this process that I will forget and unintentionally "rewrite" certain elements, and that each act of relaying a piece will feed back into my own memory. The original artifact of [factory] will degrade and this is the creative, transformative process that is opened by this approach. This process is all about contamination.

JG: Would it be in keeping with the spirit of the project to actually ask you to relay a piece [factory] to me now?

MB: If I started telling it to you now, your interview would just be full of "redacted"s! *laughs* To allow memory to take priority in this process, I can only transmit pieces during a dedicated accessing session, and they can't be written down or transcribed.

Accessing
The following is an excerpt of an accessing session between Michael Baldwin *and* Mira Benjamin:

MBa: Before we dive directly into this, I'm curious to know what the bounds of the score are. So, for example, in our conversation today, at what point do you begin transmitting [factory]? Is it intermittent throughout the conversation or is there a moment at which it is delivered?

MBe: This entire conversation is the score for [factory]. Everything we talk about contributes to it. When I actualize [factory], I base the performance on my memory of Luke's texts in combination with an understanding of the mentality of the project. That's why I was telling you about the map before.

MBa: Sorry, just so I'm clear, is this a part of [factory]?

MBe: Yeah, this is one of the rooms, it's called [redacted] or [redacted]. So you're in a situation where either you allow a memory to, or can't stop a memory from, [redacted]. And it could be [redacted], or it also could [redacted]. Because of the conditions of the first room I gave you, I think it allows for that. And you just [redacted].

Chapter 5: Conclusion

5.1 Summary

In <u>Chapter 2: Experimental Music and Living Scores</u> I discussed the existing use of the term living scores. I discovered that the term is slippery and used by many artists in different ways. I summarized, however, that the similarity in usage essentially comes down to a combination of participation, biology, collaboration, transmission and community. When viewed as an advancement to the media of verbal scores, living scores add further possibilities: forgetting can be used to generate structure and creativity; score-knowledge can be embodied by performers (challenging hierarchical structures implicit to fixed media); and, like verbal scores, living scores might allow relationships to be drawn with other genres and artforms.

I re-draw a definition of living scores based on existing uses to mean contexts in which all compositional instructions are *transmitted*, rather than fixed. Living scores are essentially *participatory*: they foreground collaboration and encourage the formation of micro-communities. Because they eschew written notation, living scores allow the act of *forgetting* to become a vital part of the creative process.

In <u>Chapter 3: Transmission</u> I explored the use of transmission across the works in my portfolio. I discovered that transmissions differ from written scores because they occur in time. As such, they must be treated more like performances: how long will they be, when will they be transmitted in relation to secondary or tertiary transmissions, how will they be passed, what tone will be used and how much effort will be made to make information memorable? Many of these concerns arose from dialogue with performers. I discovered that I could broadly influence how much information the musicians perceived that they retained by: 1) sending transmissions closer to the rehearsals in which they would be secondarily transmitted; 2) increasing the length of

transmissions; and 3) including more silence between pieces of information in transmissions.

I placed particular emphasis in my explorations on the differences between media of transmission, exploring unrecorded conversation and impermanent digital transmissions. I found that impermanent digital transmissions allowed me to create pieces with ensembles from around the world in more agreeable schedules. They also created an added layer of abstraction between myself and the ensemble.

In <u>Chapter 4: Musical Material</u>, I discussed the use of borrowed material and how it allowed me to focus more on the transmission process. I also explored how using borrowed material relates to other periods and genres of music, particularly that of American folk music and medieval partially-notated polyphony. The use of borrowed material resonated with my compositional process, allowing a musical object to be transformed both by memory and processes built into the pieces. Musicians found the use of borrowed material more successful because they had something on which to ground their performance. This might be a result of the fact that I was working with mostly classical musicians, and not improvisors. In the future, other possible strategies for the generation of material might include simple intervallic content or improvised melodic fragments.

5.2 Discussion

At first, living scores appear to be completely different to written scores. Living scores are often ephemeral, they are embodied, they allow material to transform, they invite forgetting into the transmission process, and they require greater participation from collaborators. But this difference is diminished when we consider the vast amount of performance practice required to play a traditionally written score.

From a composer-centric view it might be tempting to view a written score as fully embodying a musical work – and therefore the composer's intention. As Daniel Leech-Wilkinson argues, however, there is an often overlooked chain of participants

necessary to the creation and appreciation of Western classical music. By expanding our notions of who is responsible for the creation of musical works to include performers and collaborators – such as the experimental performance practice of Phillip Thomas or the deeply committed realizations of David Tudor – we can begin to see the necessity of performance practice in the creation of all experimental music.

The composition of living scores allows us to highlight these aspects normally found only in performance practice. Living scores unite creative and interpretive practices while essentializing the role of the collaborator in the compositional process. Similar to verbal scores connecting musical scores with other genres of writing, living scores might also allow us to connect experimental music to other genres, formal disciplines and participants.

The method of living scores developed in this PhD (summarized in section 3.2) could be useful to other composers and artists looking to expand their compositional method beyond the written score. Because it does not require musicians to read music, it is a system that could be accessible to a variety of types of musicians – such as improvisers, folk musicians or amateur musicians. I did not explore these links in my PhD thesis largely due to the professional development opportunities available to me, which mainly were in the field of experimental music.

5.2.1   Limitations of Research

While I focused on many of the mechanisms of how transmission might occur and what musical material would suit it, I did not study in depth what exact transformation to material occurred within my creative process. I valued creating complex, messy, but musically satisfying collaborations rather than attempting to distill one characteristic of a linguistic experiment and demonstrate its capacity to operate similarly in the field of music. In this sense, this truly is a practice-based PhD whose knowledge is embodied in the creative output rather than in guided experiments.

In the future, I could create short pieces for speaking participants that demonstrate more fully the linguistic and musical transformations found in oral transmission. This would be a logical continuation of work I completed during this PhD outside of this portfolio written for speaking performers.

Most of this portfolio was created with ensembles with less than six participants. The creative method I developed over the course of the portfolio might be greatly compromised in creating music with larger ensembles – which was largely why in creating *Smokescreen* I opted for a more adaptable and choreographic method. In *Smokescreen* I chose to transmit the piece to a small ensemble of four participants, who would then teach the piece – more or less by rote – to a larger ensemble. The challenge posed has to do with the limits of discussion. It would take a very long time for everyone in a large ensemble to share small amounts of information with everyone else in the absence of an obvious hierarchy.

Looking to other composers creating in similar ways, we can find some solutions to the problem of ensemble size. Radigue has approached the creation of larger-scale ensemble works by working methodically with each section of the ensemble, and finally putting the whole piece together with the help of a director. She ensures that each musician participates in her unique collaborative method, which in turn gives the large ensemble work similar characteristics to her chamber pieces. Meredith Monk works with larger ensembles by functioning as the group's leader. She does not allow her own leadership to discourage input from all members of her ensembles.

Currently, I have only worked with ensembles of musicians that primarily play notated music. One of the benefits of this working method is its potential use in ensembles of varying skill levels, instrument types and even artistic disciplines. In the future, I would particularly like to explore the creation of pieces for non-skilled vocal performers, which would be an opportunity to emphasize the linguistic change in the transmission process.

5.2.2 Improvements

Attempting to make a system of living scores to convey generic works at the beginning of the PhD was not a success. I had initially imagined four or five people who would participate as living scores, each learning and transmitting up to five or more works. I found that the social commitment expected of participants was unrealistic. As well, I found that without musical material that was designed specifically for this type of transmission, there often felt like no reason to be transmitting material the way I was. Artists such as Éliane Radigue or Meredith Monk have a lifetime of work building up communities of like-minded individuals with whom to share their work. They have not artificially created a community as a project, but instead have had individuals seek them out and aid them in creating their work.

I believe that it was for these reasons that *[factory]* was successful: it joined the already hugely generous force of Mira Benjamin and allowed that to become a starting point for the transmission process. Gottschalk writes of this personal connection found in the working processes of Meredith Monk, Éliane Radigue, and myself:

> They draw the specific personhood of each collaborator into the content of the work. From the very inception of the process, long before any performance, a meaningful interaction shapes the foundational content of the material [...] Specific attributes of the musician — character, life experience, values, associations, memory — are undivorceable from the piece [...] If there is a score, it only assumes its form on an instrument, in a conversation, in a relationship, or in the minds, hearts, or memories of the people who have come together to extrapolate an idea through sound.[80]

The failure to create a complex community-based transmission system early on in the PhD allowed me to adopt an important attitude for the creation of further works in the portfolio. Rather than resisting specifications imposed by certain creative or professional situations, I allowed them to affect my creative process. For example, when Quatuor Bozzini requested that I not use a participant who was external to the ensemble for transmission, I was able to devise a way for the group to transmit

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[80] Gottschalk, *Experimental Music Since 1970*, 213.

information to each other. These developments were invaluable for the creation of a robust new compositional method.

5.2.3 Future Directions in Research

My primary mode of research following this PhD will be the continuing creation of experimental compositions. Currently, I have three different projects planned, each of which continues to explore one or more aspects of this portfolio. The first project I will complete will be a written-notation string orchestra piece. In this piece I will continue to use the transformations I developed in the portfolio, attempting to preserve the flexibility they allow performers despite the written notation. Inspired by Yoko Ono, I may create multiple versions – both written and orally-transmitted – of the piece to decrease the primacy of the first written version. The second project will be a solo piano piece that explores another mode of oral-transmission: teaching by rote. I will create this piece at the piano, an instrument at which I am not technically proficient. Upon completion, I will teach the piece to a much more advanced pianist. In this transmission process, we will establish a necessary but temporary performance practice that explores the limits of technical ability and interpretation. The third project will be a piece for chamber ensemble and turntables. This piece will continue to use the digital transmission method established over the course of this PhD, as well as transformations to source material. The use of electronic turntables will deepen my exploration of source material and alterations of pitch, speed, and length. In addition to artistic research, I hope to continue researching the fascinating compositional process of Éliane Radigue and her collaborators. I would like to present this research in the form of lecture-concerts, as well as ongoing publication.

As exemplified by these future projects, the research undertaken during this PhD has unlocked many doors to new artistic exploration. Removing the material document of the written score has brought me into closer contact with performers and collaborators. The use of oral and digital transmission has allowed my compositional process to become personal, and has encouraged me to learn from my collaborators in as many ways as possible.

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