THE CREATIVE PROCESS IN CROSS-INFLUENTIAL COMPOSITION

Jonathan Douglas Anderson, B.A., M.M.

Dissertation Prepared for the Degree of

DOCTOR OF MUSICAL ARTS

UNIVERSITY OF NORTH TEXAS

May 2010

APPROVED:

Cindy McTee, Major Professor
Stephen Slottow, Minor Professor
Joseph Klein, Committee Member and Chair,
Division of Composition Studies
Graham H. Phipps, Director of Graduate Studies in
the College of Music
James C. Scott, Dean of the College of Music
Michael Monticino, Dean of the Robert B.
Toulouse School of Graduate Studies
Doctor of Musical Arts (Composition), May 2010, 73 pp., 21 illustrations, bibliography, 16 titles.

This dissertation describes a compositional model rooted in cross-influential methodology between complementary musical compositions that share generative source material. In their simultaneous construction, two composition pairs presented challenges that influenced and mediated the other’s development with respect to timbre, transposition, pitch material, effects processing, and form.

A working prototype first provides a model that is later developed. The first work *Thema* is for piano alone, and the companion piece *Am3ht* is for piano and live computer processing via the graphical programming environment Max/MSP. Compositional processes used in the prototype solidify the cross-influential model, demanding flexibility and a dialectic approach. Ideas set forth in the prototype are then explored through a second pair of compositions rooted in cross-influential methodology. The first work *Lusmore* is scored for solo contrabass and Max/MSP. The second composition *Knockgrafton* is scored for string orchestra. The flexibility of the cross-influential model is revealed more fully through a discussion of each work’s musical development. The utility of the cross-influential compositional model is discussed, particularly within higher academia.
Copyright 2010

by

Jonathan Douglas Anderson
# TABLE OF CONTENTS

LIST OF FIGURES ........................................................................................................................ iv

PART I: CRITICAL ANALYSIS ........................................................................................................... 1

Introduction ......................................................................................................................................... 2
Background and Significance ............................................................................................................... 4
Prototype ............................................................................................................................................. 10
Cross-Influential Model .................................................................................................................... 15
Conclusion .......................................................................................................................................... 35
Appendix ........................................................................................................................................... 37
Bibliography ....................................................................................................................................... 41
Discography ......................................................................................................................................... 42

PART II: COMPOSITIONS ................................................................................................................... 43

*Thema* .............................................................................................................................................. 44
*Am3ht* ............................................................................................................................................... 46
*Knockgrafton* ................................................................................................................................... 48
*Lusmore* ........................................................................................................................................ 70
LIST OF FIGURES

Figure

1. Prototype thematic model .................................................................................................................. 11
2. First three measures of Thema .......................................................................................................... 11
3. Final sonority of Thema ...................................................................................................................... 12
4. Excerpt from the final phrase of Thema ............................................................................................ 12
5. Opening measure of Am3ht ................................................................................................................ 13
6. Diagram of the cross-influential compositional process .................................................................... 16
7. “Da Luan, da Mort” ........................................................................................................................... 18
8. Transcription of Mary O’Hara’s verse segment .................................................................................. 19
9. Transcription of Hiller’s chorus segment ........................................................................................... 20
10. Grouping structure, metrical grid, and rebarring of Hiller’s melody .................................................. 21
11. Version of the “Da Luan, Da Mort” melody used in Lusmore .......................................................... 22
12. Harmonic scheme for the four-voice chorale .................................................................................... 24
13. Fragmented accumulation of the four-voice chorale ........................................................................ 25
14. Resultant melodic lines from the fragmented accumulation ............................................................ 25
15. Successive chorale sample recorders ................................................................................................ 26
16. Contrasting material in the first “Jack McFadden” phrase of Lusmore ............................................ 27
17. Soundfile buffers used in the Introduction of Lusmore .................................................................. 28
18. Four-part chorale in triple meter with attempted timbral changes .................................................. 30
19. Four-part chorale with attempted modulations at successive entrances .......................................... 30
20. Cues moving through the Max/MSP patch ....................................................................................... 33
21. GUI Interface for the performer of Lusmore ................................................................................... 34
PART I

CRITICAL ANALYSIS
Introduction

This dissertation describes a compositional model rooted in cross-influential methodology between complementary musical compositions that share generative source material. Two compositional pairs derived from this model are documented in this accompanying essay. In their simultaneous construction, these works presented compositional challenges that influenced and mediated the other’s development with respect to timbre, transposition, pitch material, effects processing, and form.

A need for new dialectic compositional models is first addressed, summarizing technological developments that led to the current state of electronic music. The literature review revealed a need for new dialectic models of composition. Responses to the call for new models must address challenges that hold relevance for both electronic and acoustic music composition. They should be particularly helpful to students and instructors in the academic institution.

A working prototype is then outlined that addresses these concerns and provides a model that is later developed. The creative process is documented surrounding a pair of compositions for solo piano: the first work Thema is for piano alone, and the companion piece Am3ht is for piano and live computer processing via the graphical programming environment Max/MSP. Compositional processes used in the prototype solidify the cross-influential model, demanding flexibility and a dialectic approach.

Ideas set forth in the prototype are then explored through a second pair of compositions rooted in cross-influential methodology. The first work Lusmore is scored for solo contrabass and Max/MSP. The second composition Knockgrafton is scored for string orchestra. Pre-compositional stages are discussed, including background information. The flexibility of the
cross-influential model is revealed more fully through a discussion of each work’s musical
development documented in this chapter.

Finally, the conclusion examines the utility of the cross-influential compositional model
and its use in the academic institution.
Background and Significance

This chapter reviews technological innovations that led to the current state of electronic music composition. Common themes that emerged in this literature review revealed concerns about a balance between material and ideas in composition.

Technological advances over the past century have opened boundless compositional possibilities. In a relatively short period, technology has shifted emphasis away from innovations in acoustic instrument design in favor of electronic musical invention. After the development of the gramophone and telephone circa 1875, this transition began with vast and costly implementations, as seen with Thaddeus Cahill’s ambitious Telharmonium in 1897. Next came the development of pioneering electronic instruments: the Theremin in 1920, and the Ondes Martenot in 1928, and the accessible Hammond organ in 1934. The development of magnetic tape recording gave rise to a central figure in electronic music’s evolution, Pierre Schaeffer, who created tape pieces at the Radiodiffusion-Télévision Française in 1948. Schaeffer and his objet sonore (sound object) followed decades of invention and musical integration, culminating in his forming the French Radio Institution’s Groupe de Recherche de Musique Concrète (GRMC).

Additional prominent studios established themselves in Milan and Columbia-Princeton in the 1950s and continued through the 1960s in Utrecht, Paris, Stockholm, Padua, and Toronto. Hardware research led to the development of radio electronics, including oscillators, filters, and variable-speed tape records. The birth of the RCA synthesizer at Columbia-Princeton Electronic Music Center and voltage-controlled instruments at Ottawa’s National Research Council advanced this evolutionary trend.

For those with access to technological resources, the rapid development of the personal computer presented unique challenges—challenges that extend into teaching today. Open-ended,
fully-customizable compositional software, such as Max/MSP,\(^1\) advanced the presence of interactive electronic music and continued a long history of musical instrument development. For composers, heightened sensitivity to the effects of compositional decisions, technological choices, and their influence on the overall artistic vision are required. As today’s composers have access to abundant, new technological resources, new approaches in composition are welcomed, especially for students to grow as both acoustic and electroacoustic music composers.

Bruce Pennycook noted in retrospect that a widely-accepted aesthetic position had developed among music researchers, which is important to the development of the cross-influential compositional model:

\[ \text{T} \text{he ‘discovery’ of new sounds through the manipulation of tape, or the construction of custom devices to generate unique timbres, grew to be as important for the success of the piece as matters of temporal context.} \]

Increased consumer and academic demand for powerful, less expensive, and intuitive inventions in hardware and software, provided a wealth of new sonic possibilities.

A false satisfaction of finding and working with new sounds and technology led Pierre Boulez to issue a warning against a potential imbalance between technological material and artistic vision. A decade after computers had been in use for music synthesis, Pierre Boulez addressed this concern in 1977, speaking of a need for new compositional models. He perceived a “conservative historicism” among the musical community that pervaded attitudes toward new compositions

engaged not in making models, or in destroying them in order to create fresh ones, but in reconstructing them and venerating them like totems, as symbols of a golden age which has been totally abolished.\(^3\)

\(^1\) Puckette, Miller and David Zicarelli, Max/MSP. ver. 4.6. (San Francisco, CA: Cycling ’74, 2004).


\(^3\)
Boulez continued to assert that oscillators, amplifiers and computers were not invented to create music; they were conceived from an inherently unmusical place. He felt composers wanting to work with the new sound material generated from experimentations in this medium must further the exploration of technology for use in composition.

Few have the courage or the means directly to confront the arid, arduous problems, often lacking any easy solution, posed by contemporary technology and its rapid development. Rather than ask themselves the double question, both functional and fundamental, whether the material is adequate to the idea and the idea compatible with the material, they give way to the dangerous temptation of a superficial, simple question: does the material satisfy my needs? Such a hasty choice, detached from all but the most servile functions, certainly cannot lead far, for it excludes all genuine dialectic and assumes that invention can divorce itself from the material, that intellectual schemas can exist without the support of sound.4

In Simon Emmerson’s collection of essays addressing the future of electroacoustic composition,5 David Keane noted:

The things that the electroacoustic devices could do, and could not do, very rapidly became a part of contemporary musical practice and this development took place with little reflection on the part of composers. Processes not particularly suited, even alien, to musical appreciation or perception found a place in electroacoustic music. One example of this was the degree of complexity that became part of some electroacoustic music. The youthfulness of the medium and its potential to extend beyond the physical or psychophysical bounds of musical and artistic tradition therefore requires special scrutiny when we reflect upon the appropriateness of electroacoustic music-making today.6

Boulez challenged composers to create new dialectic models of composition, especially in the academic institution. He wrote,

---

4 Ibid, 570.
When either the material or the idea develops independently, unconcerned whether or not they coincide, a serious imbalance develops, to the detriment of the work, which is tugged this way and that, between false priorities.\textsuperscript{7}

In the tradition of Boulez, Tristan Murail challenged composers three decades later to radically rethink traditional methodology. Murail asserted:

any attempt to integrate these new sounds that are above all, as we shall see, sounds of a ‘complex’ character, necessitates a profound revision of traditional compositional techniques (by ‘traditional’ I include serialism, aleatoric composition, stochastic composition, etc.: techniques that continue to use antiquated grids of parameters) and of our very conception of the compositional act.\textsuperscript{8}

An imbalance between technology’s process and music’s product is evidenced by research surrounding electroacoustic and acoustic composition’s influence on one another. Electronic music changed the way composers traditionally wrote acoustic music. Electronic music continued the shift from traditional concepts of pitch, melody, and harmony toward an emphasis on timbre and sound events—a focus both indebted and tied to the blossoming twentieth century repertoire for percussion instruments. Additionally, as composers and performers began experimenting with their traditional practice, sounds explored in electronic music inspired extended techniques on acoustic instruments.

Sound evolved in response to electronic hardware and software development and inspired instrumental techniques challenging traditional practice and standard custom. As a result the growth of electronic music composition led to a large-scale reevaluation of conventional listening and the emergence of new compositional techniques. These electronic techniques, such as delays, loops, and reverberation, were realized in acoustic compositions and inspired experiments in the acoustic realm, such as sounds of infinite duration, sound masses, complex

\textsuperscript{7} Boulez, 570.

timbres, and innovative organizational approaches. Murail noted that electronic music allowed for “the fluctuation between abstract concept and aural perception that permits access into the depth of sounds, that allows us truly to sculpt sonic material, rather than piling up bricks or layers.” He concluded that electronic music established the very essential idea that the musical ‘atom’ is not the notehead written on staff paper. The musical atom is the perceptual atom, tantamount, perhaps, to Pierre Schaeffer’s ‘sonic object.’

Few writings, however, directly addressed the opposing influence acoustic music had on electronic music composition. Agostino DiScipio, attempting this reversal, examined works of Iannis Xenakis and Paul Dolden, illuminating each composer’s use of the orchestra as a sonic resource for electroacoustic music. Others, such as Gerard Grisey and Tristan Murail, concentrated on the orchestral simulation of computer analyzed sound-spectra, which influenced many works by Kaija Saariaho. Todd Winkler, Noel Zahler, and Mari Kimura examined the added notion of “transparent technology” as an important aesthetic perspective for combating heavy technological presence in interactive electroacoustic compositions.

Boulez issues a final challenge to composers at the end of his essay:

Research/invention, individual/collective, the multiple resources of this double dialectic are capable of engendering infinite possibilities. … What is absolutely necessary is that we should move towards global, generalizable solutions. In material as in method, a

---

9 Ibid., 123.
10 Ibid., 123.
constant flow must be established between modes of thought and types of action, a continual exchange between giving and receiving. Future experiments, in all probability, will be set up in accordance with this permanent dialogue. Will there be many of us to undertake it?\(^{15}\)

In response, this dissertation is offered as one answer to this call in electroacoustic and acoustic composition by actively engaging in cross-influential dialectic decisions. More specifically, linking two musical works through the same generative material and abstract conceptual frameworks allows the composition pairs to benefit from mutual and simultaneous development. This model promotes heightened sensitivity to the creative process in a cross-influential compositional approach.

\(^{15}\) Boulez, 571.
Prototype

This section articulates an adaptable cross-influential compositional model addressing concerns previously discussed. First, this model is explored through documentation of a prototype pair of compositions and the effects of compositional decisions made in a cross-influential environment. Following a discussion of the prototype’s findings, the model is then explored on a larger scale for a second pair of compositions using similar methodology. It is not the aim of this model to provide a definitive, one-size-fits-all, step-by-step solution. Rather, the methodology explored in these two studies encourages an organic process, allowing composers to adapt and modify stages of the cross-influential approach. The attached two pairs of compositions represent two possible realizations of the model.

The purpose of the prototype was to design a model instrumental in the creation of two short compositions for piano, sharing similar generative material. While Thema remained a work for piano alone, Am3ht incorporated live signal processing via Max/MSP. Max/MSP\textsuperscript{16} is available from Cycling’74\textsuperscript{17} for Macintosh and PC platforms. Based on the MAX\textsuperscript{©}\textsuperscript{18} object-oriented programming language developed by Opcode Systems and IRCAM, Max/MSP integrates MIDI and audio data allowing the composer to program patches that function at the control and audio rate of the computer system.

For the prototype, improvisational sessions on an acoustic piano explored pre-composition material. This generative material centered around two motives “x” and “y” shown

\textsuperscript{16} MSP © 1997 David Zicarelli—All rights reserved based on Pd by Miller Puckette © 1997 The Regents of the University of California.

\textsuperscript{17} Cycling ’74, 1186 Folsom Street San Francisco, CA 94103 USA. (415) 621-5743. fax (415) 621-6563. info@cycling74.com. URL http://www.cycling74.com

\textsuperscript{18} MAX copyright © 1990-1997 Opcode systems/IRCAM.
in Figure 1. The motives share the same opening two pitches but the tonal “x” motive centers on longer-note values, while the shorter-note value “y” creates a complementary atonal gesture. When expanded and integrated, they comprise the opening phrase shown in Figure 2.

![Figure 1. Prototype thematic material.](image1)

Since the material in Theme would later be explored in the electroacoustic interactive environment, portions were constructed modularly. This allowed for an improvisatory structure and organization in Am3ht.

The final sonority of Theme is shown in Figure 3. In an attempt to integrate the solo piano work with the Max/MSP composition, this sonority was replicated at the beginning of Am3ht as a complementary structural gesture. A Max/MSP patch was programmed to sample this chord into a memory buffer. When recalled and processed throughout the live performance, this functioned as the electroacoustic work’s first thematic gesture.

![Figure 2. First three measures of Theme.](image2)
Figure 3. Final sonority of *Thema*.

In the electroacoustic version, it was decided to progress through the score of *Thema* in reverse motivic order. The first sample was processed to create a soft, resonant background texture.

A second sample buffer was added to capture the more active phrase based on motive “y” that preceded the chord in the acoustic score. This second buffer was processed at gradually increasing speeds and provided necessary contrast to the first processed sample’s more ethereal quality.

The final measures of *Thema* illustrate the acoustic version’s progression forward, while *Am3ht* moves backward from the “x” chordal sonority, as shown in Figure 4. Material sampled into the two buffers is circled in Figure 4 as Buffer 1 and Buffer 2. The resultant piano score is shown in Figure 5. A compositional decision to extend creative license was taken to avoid an exact note-for-note copy of this reversal process.

Figure 4. Excerpt from the final phrase of *Thema*.
Figure 5. Opening measures of *Am3ht*.

The process described above was repeated: the solo piano score developed, followed by electroacoustic realization. Motives evolved into subsequent phrases, and the formal elements in *Thema* solidified. In this prototype, *Thema* was completed first (see Appendix B). The electroacoustic version demanded additional considerations. Sections of the modular piano solo were used in improvisational sessions and recorded to best determine how the sound buffers would interact with the larger form of *Am3ht*. In addition, because *Am3ht* was to be executed solely by the pianist, the programming design of the interactive element in Max/MSP required a design with minimal amount of technical execution for the pianist. In this case, the compositional decision was made to have the pianist perform with a laptop on the piano, simply pressing the spacebar to advance the patch. These moments for advancement are marked with square rehearsal numbers throughout the score of *Am3ht*.

To mirror the gradual build in measures 14-15 of *Thema*, a similar design developed in the electroacoustic version. The opening measures populated the sound buffers with the opening “x” chord and the following “y” material. The “x” material slowly produced a subtle background texture for the pianist’s opening material. The “y” buffer, however, gradually built in intensity while the pianist worked through a variety of free transformations of both original motives. The buffer was read through at gradually decreasing timeframes. Initially, a fast read resulted in a chaotic jumble of sounds; however, as the buffer was read through more slowly, the sounds
revealed the disjunct nature of the “y” motive. Eventually this led to a climactic section at Score Number 5. An abrupt cut-off of the “y” material, cued by the pianist, occurs at Score Number 6 where material from the opening section is then reintroduced.

As a result of working through this initial prototype, two cross-influentially related compositions for different mediums were successfully created. It became clear that this model, emphasizing compositional dialogue between two works with similar generative material, could be adapted to a larger scale. In this instance, the prototype model favored completion of the acoustic work before the electroacoustic version.¹⁹

Movement through this compositional model prototype was necessarily discretionary. This allowed for variations, making it a highly adaptable model so long as the conscious effort to engage in complementary compositional thought processes between acoustic and electroacoustic works was attempted. This prototype served as the basis for the second pair of compositions, outlined in the next section.

¹⁹ The opposite would later occur in the large-scale model presented in the next section as the material for the electroacoustic version was solidified before the acoustic version reached its completion.
Cross-Influential Model

The first pair of compositions discussed in the prototype provided a model that is expanded in this section. After work on the prototype was completed, a basic flowchart of the cross-influential model’s methodology was constructed. This was applied to a second pair of compositions on a larger scale. The first composition *Lusmore* was an interactive electroacoustic work scored for solo string bass and Max/MSP; the second composition *Knockgraffon* was an acoustic work scored for string orchestra. This composition pair was not intended to produce direct, composed-out arrangements of each other. Rather, in their simultaneous cross-influential construction, decisions made in one work affected the other’s development. The result was a pair of compositions that could either be performed separately or together on the same concert.

In an effort to formulate a working basic model of cross-influential methodology, the following general process was solidified (Figure 6):

A) Pre-composition material was developed.

B) Sessions with the solo performer enabled exploration and experimentation of material using the chosen software program (Max/MSP in this case). All sessions were recorded.

C) Material from Step B was rescored as a compositional exercise for the other medium (in this case string orchestra). Material was further developed and revisions were made outside of the electroacoustic environment.

D) Processes explored in the revisions in Step C were evaluated for use in the electroacoustic solo. These were subsequently implemented, further developed, reserved for possible use later, or discarded.

E) Dialogue between Steps C and D continued until the work was completed.
Figure 6. Diagram of the cross-influential compositional process.

Step A: Pre-Compositional Material Develops

Generative material for each composition was derived from the Gaelic myth, the legend of Knockg grafton. The version of the story used was recalled in 1825 by Irish antiquarian and
humorist T. Crofton Croker. A brief synopsis of Croker’s version of the tale follows; the unedited story is documented in the appendix.

Lusmore was a societal outcast due to the enormous hump on his back. One day he encountered a dazzling group of forest fairies whose never-ending song fascinated him. After careful listening, he realized the song was stuck in a tiresome round. The fairies were unable to complete the song because they had forgotten the final cadence. After patiently studying the round, he joined them in an attempt to dispel the curse. The fairies were receptive to Lusmore’s melodic counterpoint. As a reward for Lusmore’s heroic act, the fairies removed Lusmore’s hump, and he was able to rejoin society and live a happy life.

After Lusmore’s triumph, the tale introduced a second humpback, Jack McFadden, who learned of Lusmore’s miraculous healing by the fairies. Motivated purely by selfishness to have his own hump removed, he also located the fairies responsible for Lusmore’s miraculous transformation. Unlike Lusmore, however, McFadden interrupted the round with his own attempt devoid of Lusmore’s musicality and patience. As punishment, the fairies merged Lusmore’s old hump on top of Jack’s hump, adding to his misery. McFadden was forced to leave the forest. In some versions of the tale, the weight of the two humps later crushed Jack McFadden to death.

Various elements imbedded in this tale were applied to the thematic material, instrument selection, and form of Lusmore and Knockgrafton. The pitch material used throughout the compositions, first discussed below, was derived from a traditional melody found in the tale’s dissemination. The choice of string bass and string orchestra as appropriate for the composition pair is then discussed, followed by an explanation of the score’s formal elements as they pertain to the Lusmore story.

Thematic material was derived from Croker’s documentation of the legend of Knockgrafton since Croker’s collection of Irish fairy legends was the first to include a transcription of the fairies’ song “Da Luan, Da Mort” by A. D. Roche. This melody, shown in Figure 7, was passed down through centuries of aural tradition.

![Figure 7: “Da Luan, da Mort”](image)

This F major transcription, notated in duple-compound time, presents the completed fairy song. In the story, the fairies were forced to repeat the “Da Luan, da Mort” portion of the melody (translated as “Monday, Tuesday”) as they had forgotten the “augus da Dardine” (translated as “Wednesday”) cadence, which Lusmore later provides. Croker composed a simple counterpoint to the melody that features a near-stepwise octave descent with a backrelating dominant C in measure 2 to the subdominant B-flat as part of an overall plagal I-IV-I progression. This corresponds to the point at which the fairies are unable to complete the melody and is coupled with the emphasis on D in the melody. Without the bass accompaniment, this D emphasis obscures the melody’s tonic and mode.

Contemporary folk musicians who recorded variations of this published melody illuminate this vaguarity and provided additional points of reference for Lusmore’s generative
material. Irish folk harpist Mary O’Hara and storytellers Timmy Abell and Stephen Hiller recorded two versions of the Lusmore melody. Subtle differences in their use of Croker’s melody are analyzed below.

Harpist Mary O’Hara recorded the story of Lusmore on her 1993 album *Irish Traditional Folk Songs.* O’Hara set the Croker melody to the verses of the tale, rather than the main “Da Luan Da Mort” chorus. My own transcription of her melody is given in Figure 8.

![Transcription of Mary O’Hara’s verse segment.](image)

**Figure 8.** Transcription of Mary O’Hara’s verse segment.

O’Hara’s version closely follows the 1825 transcription with a few modifications. Most notably, some melodic embellishment allows for the setting of the more verbose text in each verse. Structurally, however, the main phrase A maintains both the original “sentence” framework (a+a+B) and cadential structure of Croker’s transcription in a fairly predictable manner. The melody, as in Croker’s version, is set in the major mode in duple compound meter.

In 1998, Stephen Hiller composed a version of the Legend of Knockgrafton for Timmy Abell’s children’s album *Stories to Grow On.* In Hiller’s version, Croker’s melody was used

---

for their “Da Luan, Da Mort” chorus; however, they chose to emphasize the natural minor mode. A transcription of his melody without accompaniment is given in Figure 9 as a traditional Irish slip jig\textsuperscript{23} in triple compound meter.

![Figure 9](image)

**Figure 9.** Author’s transcription of Hiller’s chorus segment (d minor) in triple compound meter.

The phrase groupings are initially similar to the O’Hara and Croker versions. The only change is a metric alteration from duple to triple compound time. This metric change is further intensified and explored, however, in the accompaniment. A metric reorganization of the melody utilizing methods employed by Ray Jackendoff and Fred Lerdahl is used to reveal my own perceived rhythmic complexity that is common in Irish folk music.

Ray Jackendoff and Fred Lerdahl’s *Generative Theory of Tonal Music*\textsuperscript{24} introduced rhythmic analysis of common-practice era music using hierarchical metric grids. These grids layered simultaneous pulse levels that occur at different division levels of the beat. This enabled aspects of rhythmic design to be included in traditional analysis of harmony and melody. Figure 10 adds a metric grid to reveal levels of rhythmic hierarchy. Dots are first provided for each

\textsuperscript{22} Timothy Abell, *Stories to Grow On*, Upstream 096657401X, 1998, compact disc.


pulse of the beat level (B). Dots are also added for the larger group levels (G1 & G2) and the division levels (D1) as appropriate.

When taken into consideration the accompaniment provided by Abell and Harris, my own subjective metric understanding of the melody is shown in Figure 10. When combined with the beat level pulses and overall phrase structure, the dots representing the first group rhythmic level show my perceived hearing.

![Figure 10](image.png)

**Figure 10.** Grouping structure, metrical grid, and rebarring of Hiller’s melody as perceived by the author.

Hiller’s third beat of measure 2 receives a large-scale synchronous emphasis in both the slip jig transcription and in my own perceived rhythmic grid. Phrase A still divides into two equal groups of six dotted-quarter notes as in O’Hara and Croker’s version. However, this metric accent provides additional contrast between the subphrases.

My hearing starts with an unaccented anacrusis to preparing the first subphrase group’s (a+a) large-scale synchronous pulse on the downbeat of measure one, followed by the weaker large-scale pulse at the downbeat of measure two. Phrase B contrasts this by overlapping the space between the two phrases and interrupting the predictable upbeat preparation. In doing so,
my hearing of the melody shifts between duple, triple, and quadruple meters (3+2+4+3). Figure 10’s rebarring reflects this rhythmic complexity inherent in the melody.

The Lusmore variation explores the rhythm through performer interpretation of proportional notation. Evoking more of a chant-like quality, the note values convey comparative duration (Figure 11). As the “Da Luan” text was not incorporated in this instrumental solo/ensemble work, compositional liberty was taken to emphasize other aspects of this melody. The opening ascending major 2\textsuperscript{nd} serves as a recurring introductory gesture for Lusmore’s character. The motive’s contraction to a descending minor 2\textsuperscript{nd} is used to reference the McFadden character. The Croker melody was also given an alternate agogic treatment, emphasizing the highest pitches of each subphrase (corresponding to the first two whole notes in Figure 11). This provided a subtle, alternative perspective to the melody and introduced a complementary rhythmic flow.

![Figure 11. Lusmore’s version of the “Da Luan, Da Mort” melody.](image)

Additionally, a third possible tonal center was introduced. While the overall shape of the Croker melody is maintained in Figure 11, the subdominant G was added at the end of the second subphrase. This references Croker’s retrogressive dominant to subdominant counterpoint (see Figure 7). It also suggests G as another possible tonal center for the melody, adding to an overall tonal ambiguity explored in the opening passages.
As the melodic variation unfolded in the pre-composition stage, the instrument and ensemble choice was solidified. For the solo version, the size and weight of the string bass appropriately evoked an intrusive visual representation of Lusmore’s hump. The range of the instrument also provided rich exploration of material with great processing potential. The companion piece, written for string orchestra, was chosen to maintain instrumental family consistency, essential for facilitating cross-influential dialogue between the two mediums.

One important requirement of the electroacoustic realization was to design a work that could be executed solely by the performer utilizing a laptop with minimal technical assistance. Pitch recognition was chosen to progress through the Max/MSP patch. Specific pitches trigger events in the patch, eliminating the need for additional performance hardware. Since the performer is already wielding a large bow, additional equipment such as MIDI foot control pedals, or keyboard presses from the performer, as was done in the prototype compositions, or to employ a performance partner sitting at the laptop were not incorporated. Timers could have been used to move through the work as well but were excluded to keep the technology as transparent to the audience as possible. Pitch recognition was used to allow for performer flexibility in the timing of their performance as they progressed through the score.

Step B: Solo Performer Sessions

In order to begin work on both compositions, a variety of recording sessions were arranged with the bassist, David Molina. We were primarily interested in recording portions of all three “Da Luan, da Mort” melodies with different tempos, bowings, and articulations. Additionally, Molina’s improvisation on the instrument yielded a variety of sound samples that
allowed exploration and integration of potentially new electroacoustic environments outside of the recording sessions.

From the structure of the fairies’ song, one of the first compositional structures emerged. Since “Da Luan, Da Mort” melody is presented in the Knockgrafton legend as a continuous round, it was important to formally acknowledge the idea. Three additional voices were composed that could be performed by the soloist and gradually layered on top of each other by the computer. This accumulative structure for the soloist weaved together four melodic lines that slowly evolved into a four-part chorale. The harmonic scheme for the chorale, shown below (Figure 12), was then solidified. At times disjointed and sometimes muddy, the harmony centers on a fourth tonal region: C major, instead of O’Hara’s F major, Hiller’s D minor, and my own G emphasis in the opening melody. The concluding F major chord of the progression again emphasizes the subdominant in a plagal ending.

![Harmonic Scheme](image)

**Figure 12.** Harmonic scheme for the four-voice chorale.

It was necessary to alleviate predictability in the chorale’s repetition. Rather than simply layering each of the four lines successively, the soloist meandered among the four voices as shown in Figure 13. Weaving through the chorale introduced a tension in the otherwise smooth voice-leading of the chorale. As each voice is layered in the Max/MSP patch, the main melody and its accompaniment are revealed in a fragmented accumulation. Figure 14 shows the resultant four solo lines actually performed by the soloist.
Figure 13. Fragmented accumulation of the four-voice chorale.

Figure 14. Resultant melodic lines from the fragmented accumulation.

The disjunct progression of the chorale connects with Lusmore’s patience. His determination to understand the foreign fairy song and his successful contribution form the main event in the story. However, even without the influence of the Lusmore story, the chorale’s evolution provides basic musical progression, slowly moving from disorder to order.

To accomplish the additive chorale, a patch shown in Figure 15 was created. Three memory buffers were dedicated to record the live audio. After each recording, the resultant sample was played back while the performer recorded in a second buffer that was activated. In this example, visual cues are added in anticipation of graphical user interface (GUI) that was eventually created for the performance. Colored progress bars were added to visually represent the point when the computer is recording the performer (corresponding to the red lines), and at which point the computer is playing back previously recorded material (corresponding to the
Example 15. Successive chorale sample recorders.
green lines).

To contrast the material in the chorale, possible sections were investigated that would break up the chorale’s accumulation with a secondary developmental motive. The interaction of Jack McFadden with the fairies served as an important storytelling contrast to Lusmore. By similarly inserting secondary musical phrases in the composition (see Figure 16), the chorale’s development was interrupted and displaced over time. The idea of having both storylines engaged simultaneously was explored and served to halt an otherwise linear progression of the musical structure.

Figure 16. Contrasting material in first “Jack McFadden” phrase of Lusmore.

An introduction was then developed, contrasting melodic characteristics from the chorale melody and the McFadden gesture. The opening gesture for the solo bass increases the bow speed over a stable pedal tone, thus altering the string’s timbre from smooth to gritty textures. Opening gestures such as this were sampled live into memory buffers (see Figure 17), manipulated, and later recalled throughout the electroacoustic performance.
Figure 17. Soundfile buffers used in the introduction of *Lusmore*.

Step C: Material from Step B was Rescored for the Acoustic Medium

Having established pre-compositional material, the next step involved working though ideas sculpted in Step B. Portions were realized for acoustic string orchestra, beginning with the chorale. In this stage, processes used in the electroacoustic composition were evaluated for their effectiveness in a traditionally acoustic medium.
It quickly became clear that, as written for a full string ensemble, the repetitive nature of the simple rhythm and fixed pitch center of the chorale, regardless of the accumulation process, would not have the same novelty as the solo performer. The first dilemma in translation to the string ensemble was creating a virtual evolving ensemble from multiple versions of one’s own performance. This was the first challenge to the electroacoustic composition from a traditional acoustic perspective. In an acoustic piece, repetition (unless part of a minimalist work) would require some degree of rhythmic, melodic, transpositional, or timbral modification.

A rhythmic modification of the chorale was explored as illustrated in Figure 18. This version incorporated the triplet feel in the original O’Hara and Croker versions of the melody and explored timbral quality changes possible with the string ensemble. In addition, modulations were employed with each successive addition to the chorale. Figure 18 depicts the resulting four lines. Both examples presented a challenge to the electroacoustic version central to the cross-influential model. Modifications made in this stage of the model were attempted in the solo electroacoustic composition during Stage D.
Step D: Processes Evaluated for use in the Electroacoustic Solo

Modifications made by the acoustic realization in Step C were addressed in the electroacoustic version. Changes made to the variety in meter, timbre, and transposition were
tested for their incorporation in the string bass solo. Additional sessions with the soloist incorporated new versions of the chorale.

It was evident that neither the rhythmic nor the transpositional versions proposed in the acoustic realization of the chorale would work in *Lusmore*. The chorale layers sampled in the Max/MSP patch did not allow for such transpositions. Although it was possible to transpose and read through each pass at a different pitch level, the transition between phrases was too abrupt and unmusical in the electroacoustic version to be usable. In addition, the metric alteration detracted from the overall accumulation that was central to the success of the electroacoustic work. Therefore, a decision was made to discard the findings of the acoustic realization in the electroacoustic version. However, interrupting the accumulation with alternate material seemed to be a viable solution to advance the musical tension toward the final reveal of the chorale. This dialogue was central to the successful realization of the electroacoustic work, even though the results of the string orchestra version were not appropriated.

Step E: Continued Dialogue at the Composer’s Discretion

Step E calls for continued dialogue between the acoustic and electroacoustic experiments. Since the transposition and metric changes made in Step C were not going to be adopted in Step D, then its the electroacoustic version required some other element to augment interest. To avoid incessant repetition, the chorale statements were spread throughout the duration of the electroacoustic version. These statements were interrupted by the contrasting McFadden phrase material in *Lusmore*.

A climactic point in the composition is reached when the computer and soloist in *Lusmore* finally reach the 4-part chorale. Even though the chorale was complete with the final
statement of the fourth voice, another compositional challenge arose because the harmonic scheme was still based on the incomplete plagal cadence. The harmonic structure at this point was unalterable due to the reliance on the looping layers of recorded material, so focus shifted on combining the agitated nature of the McFadden phrases with a new descant. Incorporating the shorter note values of the McFadden phrases, this new counterpoint was sampled into the looping structure, yet performed without synchronization restrictions that allowed for a degree of improvisational freedom for the performer against the chorale.

To represent the computer’s place in the score, an elaborate system of cues (Figure 20) was developed and linked to specific score measures. A simplified graphical user interface was then developed to assist the performer in locating his place in the score. This GUI, shown in Figure 21, provides score location references to the performer via a continually refreshing comment box. In addition, the red and green progress bars that correspond to the four-part chorale recordings are cued by a larger maroon progress bar.

In Figure 21, for instance, the performer has already been cued for the second chorale recording (indicated by the full maroon color bar). He has also performed one pass through the chorale (indicated by the full red color bar) and the computer is now playing back the multi-layered result (indicated by the progressing green bar).
Figure 20. Cues moving through the Max/MSP patch. The text in the lighter yellow boxes is displayed to the performer throughout the performance for syncing purposes.
Figure 21. Performer’s graphical user interface (GUI) for *Lusmore*.

The opening and closing sections of *Knockgraffton* were then realized. Part II presents this string orchestra version that incorporates artistic license in modulation and melodic content.

The finalized score for the electroacoustic version is also presented in Part II. In 2006, David Molina premiered *Lusmore* at the Wild Ginger Philharmonic Orchestra concert. The work was subsequently performed at the 2009 SEAMUS Conference in Muncie, Indiana.
CONCLUSION

The two composition pairs are products of a compositional model grounded in cross-influential methodology. Each set shared generative material and informed the other’s construction. The simultaneous creation of these works presented compositional challenges that impacted and mediated each other’s development in mutually beneficial ways.

As illustrated in the review of literature, technological developments and innovations indicated the need for new compositional models in electroacoustic music composition. A working prototype was developed by pairing the construction of two compositions: a work for solo piano and a companion piece for piano and interactive electroacoustic music. The prototype solidified a methodology and confirmed the usefulness of the cross-influential model on a small scale. On a more ambitious level, the prototype methodology was employed for the creation of a second set of cross-influential compositions: *Lusmore*, an interactive electroacoustic solo for contrabass and Max/MSP; and *Knockgrafton*, an acoustic composition for string orchestra.

Having applied the model in two pairs of compositions, it is clear that this model is an effective tool for use by composers interested in new approaches to electroacoustic composition. Each composition is enhanced by the other’s simultaneous development. Creative potential in the acoustic version is similarly affected by musical choices made possible by technology. Because the model stressed flexibility in its implementation, not all choices made in one version necessarily needed to be applied verbatim in the other. Most importantly, it is this reflective and productive dialogue in the process stages that inform the core of the strengths in this cross-influential model.

The cross-influential model holds the promise of highly useful application as a pedagogical tool in the academic setting. This model can be applied in a variety of levels with
undergraduate and graduate composition students. Young composition students working through their first experiences with electroacoustic pieces can benefit from the model’s clear design and multiple bridges to the acoustic paradigm. For graduate students solidly working in the electroacoustic medium, the cross-influential model provides an alternate perspective of composition. By shifting to the acoustic medium, musical elements such as form and motivic material can be evaluated from a new vantage point, enhancing the work’s overall musical statement.

As an additional benefit, the cross-influential model’s completion provides the potential for two stand-alone compositions. More pragmatically, each composition may be submitted to various festivals and programmed on a variety of concerts appropriate to the medium. The composition pair thus serves to increase the composer’s visibility in the larger musical community, particularly invaluable for young composers in higher education.

This model may also be applied to other disciplines such as visual art, dance, and theatre, in a global effort to promote the rethinking of the creative process in the arts. However, this one instance of the cross-influential model is offered as a direct response to the need for new dialectic compositional models in music.
Appendix

The Legend of Knockgrafton

There was once a poor man who lived in the fertile glen of Aherlow, at the foot of the gloomy Galtee mountains, and he had a great hump on his back: he looked just as if his body had been rolled up and placed upon his shoulders; and his head was pressed down with the weight so much, that his chin, when he was sitting, used to rest upon his knees for support. The country people were rather shy of meeting him in any lonesome place, for though, poor creature, he was as harmless and as inoffensive as a new-born infant, yet his deformity was so great, that he scarcely appeared to be a human being, and some ill-minded persons had set strange stories about him afloat. He was said to have a great knowledge of herbs and charms; but certain it was that he had a mighty skillful hand in plaiting straw and rushes into bats and baskets, which was the way he made his livelihood.

Lusmore, for that was the nickname put upon him by reason of his always wearing a sprig of the fairy cap, or lusmore [literally, the great herb - Digitalis purpurea] in his little straw hat, would ever get a higher penny for his plaited work than any one else, and perhaps that was the reason why some one, out of envy, had circulated the strange stories about him. Be that as it may, it happened that he was returning one evening from the pretty town of Cahir towards Cappagh, and as little Lusmore walked very slowly, on account of the great hump upon his back, it was quite dark when he came to the old moat of Knockgrafton, which stood on the right hand side of his road. Tired and weary was he, and noways comfortable in his own mind at thinking how much farther he had to travel, and that he should be walking all the night; so he sat down under the moat to rest himself, and began looking mournfully enough upon the moon, which,

"Rising in clouded majesty, at length,
Apparent Queen, unveil'd her peerless light,
And o'er the dark her silver mantle threw."

Presently there rose a wild strain of unearthly melody upon the ear of little Lusmore; he listened, and he thought that he had never heard such ravishing music before. It was like the sound of many voices, each mingling and blending with the other so strangely, that they seemed to be one, though all singing different strains, and the words of the song were these: -

“Da Luan, Da Mort, Da Luan, Da Mort, Da Luan, Da Mort,”

When there would be a moment's pause, and then the round of melody went on again.

Lusmore listened attentively, scarcely drawing his breath, lest he might lose the slightest note. He now plainly perceived that the singing was within the moat, and, though at first it had charmed him so much, he began to get tired of hearing the same round sung over and over so

---

often without any change; so availing himself of the pause when the Da Luan, Da More, had been sung three times, he took up the tune and raised it with the words augus Da Gadine, and then went on singing with the voices inside of the moat, Da Luan, Da Mort, finishing the melody, when he pause again came, with a'ugus Da Cadine. [correctly written, Dia Luain, Dia Mairt, agus Dia Ceadaoine, i.e. Monday, Tuesday, and Wednesday.]

The fairies within Knockgrafton, for the song was a fairy melody, when they heard this addition to their tune, were so much delighted, that with instant resolve it was determined to bring the mortal among them, whose musical skill so far exceeded theirs, and little Lusmore was conveyed into their company with the eddying speed of a whirlwind.

Glorious to behold was the sight that burst upon him as he came down through the moat, twirling round and round and round with the lightness of a straw, to the sweetest music that kept time to his motion. The greatest honor was then paid him, for he was put up above all the musicians, and he had servants tending upon him, and every thing to his heart's content, and a hearty welcome to all; and in short he was made as much of as if he had been the first man in the land.

Presently Lusmore saw a great consultation going forward among the fairies, and, notwithstanding all their civility, he felt very much frightened, until one, stepping out from the rest, came up to him, and said,-

"Lusmore! Lusmore! Doubt not, nor deplore, For the hump which you bore On your back is no more! - Look down on the floor, And view it, Lusmore! "

When these words were said, poor little Lusmore felt himself so light, and so happy, that he thought he could have have bounded at one jump over the moon, like the cow in the history of the cat and the fiddle; and he saw, with inexpressible pleasure, his hump tumble down upon the ground from his shoulders. He then tried to lift up his head, and he did so with becoming caution, fearing that he might knock it against the ceiling of the grand hall, where he was; he looked round and round again with the greatest wonder and delight upon every thing, which appeared more and more beautiful; and, overpowered at beholding such a resplendent scene, his head grew dizzy, and his eyesight became dim. At last he fell into a sound sleep, and when he awoke, he found that it was broad daylight, the sun shining brightly, the birds singing sweet; and that he was lying just at the foot of the moat of Knockgrafton; with the cows and sheep grazing peaceably round about him. The first thing Lusmore did, after saying his prayers, was to put his band behind to feel for his hump, but no sign of one was there on his back, and he looked at himself with great pride, for he had now become a well-shaped dapper little fellow; and more than that, he found himself in a full suit of new clothes, which he concluded the fairies had made for him.

Towards Cappagh he went, stepping out as lightly, and springing up at every step as if he had been all his life a dancing-master. Not a creature who met Lusmore knew him without his hump,
and he had great work to persuade every one that he was the same man - in truth he was not, so far as outward appearance went.

Of course it was not long before the story of Lusmore's hump got about, and a great wonder was made of it. Through the country, for miles round, it was the talk of every one, high and low.

One morning as Lusmore was sitting contented enough at his cabin-door, up came an old woman to him, and asked if he could direct her to Cappagh?

"I need give you no directions, my good woman, said Lusmore, " for this is Cappagh; and who do you want here?"

"I have come, said the woman, "out of Decie's country, in the county of Waterford, looking after one Lusmore, who, I have heard tell, had his hump taken off by the fairies: for there is a son of a gossip of mine has got a hump on him that will be his death; and may be, if he could use the same charm as Lusmore, the hump may be taken off him. And now I have told you the reason of my coming so far: 't is to find out about this charm, if I can."

Lusmore, who was ever a good-natured little fellow, told the woman all the particulars, how he had raised the tune for the fairies at Knockgrafton, how his hump had been removed from his shoulder, and how he had got a new suit of clothes into the bargain.

The woman thanked him very much, and then went away quite happy and easy in her own mind. When she came back to her gossip's house, in the county Waterford, she told her every thing that Lusmore had said, and they put the little hump-backed man, who was a peevish and cunning creature from his birth, upon a car, and took him all the way across the country. It was a long journey, but they did not care for that, so the hump was taken from off him; and they brought him, just at nightfall, and left him under the old moat of Knockgrafton.

Jack Madden, for that was the humpy man's name, had not been sitting there long when he heard the tune going on within the moat much sweeter than before; for the fairies were singing it the way Lusmore had settled their music for them, and the song was going on: “Da Luan, Da Mort, Da Luan, Da Mort, Da Luan, Da Mort, augus Da Cadine,” without ever stopping. Jack Madden, who was in a great hurry to get quit of his hump, never thought of waiting until the fairies had done, or watching for a fit opportunity to raise the tune higher again than Lusmore had: so having heard them sing it over seven times without stopping, out he bawls, never minding the time, or the humor of the tune, or how he could bring his words in properly, augus Da Cadine, augus Da Hena [And Wednesday and Thursday], thinking that if one day was good, two were better; and that, if Lusmore had one new suit of clothes given to him, he should have two.

No sooner had the words passed his lips than he was taken up and whisked into the moat with prodigious force; and the fairies came crowding round about him with great anger, screeching and screaming, and roaring out, "who spoiled our tune? who spoiled our tune?" and one stepped up to him above all the rest, and said -

"Jack Madden! Jack Madden!
Your words came so bad in
The tune we feel glad in; -
This castle you're bad in,
That your life we may sadden:
Here's two bumps for Jack Madden!"

And twenty of the strongest fairies brought Lusmore's hump. and put it down upon poor Jack's back, over his own, where it became fixed as firmly as if it was nailed on with twelve-penny nails, by the best carpenter that ever drove one. Out of their castle they then kicked him, and in the morning when Jack Madden's mother and her gossip came to look after their little man, they found him half dead, lying at the foot of the moat, with the other hump upon his back. Well to be sure, how they did look at each other! but they were afraid to say any thing, lest a hump might be put upon their own shoulders: home they brought the unlucky Jack Madden with them, as downcast in their hearts and their looks as ever two gossips were; and what through the weight of his other bump, and the long journey, he died soon after, leaving, they say, his heavy curse to any one who would go to listen to fairy tunes again.
BIBLIOGRAPHY


DISCOGRAPHY


PART II

COMPOSITIONS
Thema
for solo piano
Jon Anderson
duration: 1 minute

© 2010
Themä

Jon Anderson

Piano

gradually detached, mischievous

mf

assertively

accel.
Ah3ht
for solo piano and max/MSP

Jon Anderson

duration: 5 minutes

© 2010
3m-3h-T

Jon Anderson

Piano

Rubato

Gently, gaining momentum

Interrupting, impatient

(lightly)

Gradual cresc.

47
Knockgrafton
for string ensemble

Jon Anderson

© 2010
**Knockgrafton**
for string ensemble

Jon Anderson

Duration: 5 minutes

**PERFORMANCE NOTES:**

The violins are divided à tré. Each section of violins will use 5 stands for parts.

**PROGRAM NOTES**

The generative material for *Knockgrafton* is derived from the Gaelic myth, “The Legend of Knockgrafton” as recalled in 1825 by Irish antiquarian and humorist T. Crofton Croker. Though this work is not a linear programmatic recounting of the legend, the story finds Lusmore, an outcast of society because of his hump, encountering a dazzling group of fairies whose seemingly endless song fascinates him. After months of listening to the song, he realizes the fairies are tormented by a curse preventing them of remembering the song’s final cadence. He bravely joins, harmonizes, and provides the much-needed cadence for the song and is rewarded by the magical removal of his hump. A second humpback hears of Lusmore’s story and joins their song in hopes of similar effects, however without the patience of Lusmore. His futile attempt results in the fairies’ punishment of placing Lusmore’s old hump on top of his own. In some versions of the story, the excessive weight of the two humps crushes him to death. Croker’s documentation of the myth includes a roughly notated version of the fairy melody passed down through centuries of the legend’s oral tradition, which serves as a springboard for the pitch material in this composition.
Slowly emerging $\frac{7}{15} = 58$

Violin 1

Violin 2

Violin 3

Viola 1

Viola 2

Cello 1

Cello 2

Bass

Knockgrafton

for string orchestra

Jon Anderson
Vln. 1

Vln. 2

Vln. 3

Vla. 1

Vla. 2

Vlc. 1

Vlc. 2

Cb.

pizz.

f

22

23

24

25

54
Agitated $j = 72$

Vln. 1

Vln. 2

Vln. 3

Vla. 1

Vla. 2

Vlc. 1

Vlc. 2

Cb.
accel. poco à poco
Intensified $j = 90$

Vln. 1

Vln. 2

Vln. 3

Vla. 1

Vla. 2

Vlc. 1

Vlc. 2

Cb.
Lusmore
for solo contrabass and Max/MSP

Jon Anderson

© 2010
**Lusmore**

for solo contrabass and Max/MSP

Jon Anderson

Duration: 6 minutes

**PERFORMANCE NOTES:**

The graphical interface for *Lusmore* is only seen by the performer. It displas various cues in a text bar for syncing processes in Max/MSP with the live performance. Other settings enable the performer to adjust the delay and feedback percentages to adapt to the acoustic attributes of various performance venues.

In the second section of the work, an additive chorale is slowly constructed with the soloist recording four segments of the chorale. The three Chorale Indicators visible on the right-hand side of the graphical interface provide visual preparations for the performer as to when the segments of this additive chorale are being recorded, as well as when they are being played back along with the performer. These additive chorales are played back throughout the work and are represented in the score above the performer’s part.

The Max/MSP patch for *Lusmore* is executed and controlled by the performer on stage via laptop computer.
Lusmore
for solo contrabass and max/msp

Jon Anderson

I. Slowly emerging
Contrabass

delicate, chant-like
without vibrato

Continue the pitch's attack,
wait for on-screen pitch recognition
confirmation before releasing

ADDITIVE CHORALE

II. Relaxed, transparent
Computer
Solo
molto rubato, improvisatory
intensifying
the generative material for lusemore.hmp is derived from the gaelic myth, "the legend of knockgrafton" as recalled in 1825 by irish antiquarian and humorist t. crofton croker. though this work is not a linear programmatic recounting of the legend, the story finds lusemore, an outcast of society because of his hump, encountering a dazzling group of fairies whose seemingly endless song fascinates him. after months of listening to the song, he realizes the fairies are tormented by a curse preventing them of remembering the song's final cadence. he bravely joins, harmonizes, and provides the much-needed cadence for the song and is rewarded by the magical removal of his hump. a second humpback hears of lusemore's story and joins their song in hopes of similar effects, however without the patience of lusemore. his futile attempt results in the fairies' punishment of placing lusemore's old hump on top of his own. in some versions of the story, the excessive weight of the two humps crushes him to death. croker's documentation of the myth includes a roughly notated version of the fairies' melody passed down through centuries of the legend's oral tradition, which serves as a springboard for the pitch material in this composition for string bass and max/msp.