Missa Della Grande Transizione: For Live Processed Voice and Stereographic Video

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MISSA DELLA GRANDE TRANSIZIONE: FOR LIVE PROCESSED VOICE AND STEREOGRAPHIC VIDEO

By
Liza Seigido

A DOCTORAL ESSAY

Submitted to the Faculty of the University of Miami in partial fulfillment of the requirements for the degree of Doctor of Musical Arts

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UNIVERSITY OF MIAMI

A doctoral essay submitted in partial fulfillment of
the requirements for the degree of
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Missa della Grande Transizione: For Live
Processed Voice and Stereographic Video

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Missa della Grande Transizione  
(December 2012)

for Live Processed Voice and Stereographic Video

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Missa della Grande Transizione is a twenty-two minute electro-acoustic nuptial Mass for live processed voice, and stereographic video—using red-blue 3D glasses. The stereographic video backdrop was constructed with stereograms taken at a 1955 wedding in Marianao, Cuba. Missa focuses on the human aspect of the wedding-Mass ritual—praising God and one’s beloved for giving one love, pleading for God’s mercy and help in the face of uncertainty, and resigning oneself to have faith in love. In order to accomplish this goal, the text of the Mass Ordinary was supplemented with excerpts from Francesco Petrarca’s Canzoniere—a highly spiritual yet humanist masterwork of the middle ages composed of 366 poems (mostly about love, politics and fame) in archaic Italian. The vocalist, which is the only sound source in Missa, is sampled and processed in real-time by Max/MSP applications designed to turn one voice into a diverse assemblage of sonorities.
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CHAPTER 1
INTRODUCTION

My work as a composer has spanned many genres and instrumentations. I have dedicated much of my undergraduate and graduate career to writing for small vocal and instrumental ensembles. I first experimented with electro-acoustic composition late in my undergraduate studies. Although developing an appreciation for the genre, initially I had little interest in devoting a large amount of time to electro-acoustic composition. One pivotal experience changed my entire outlook on electro-acoustic composition and although I still enjoy writing for small acoustic ensembles, I dedicate much of my time writing specifically for processed voice and video.

My interest in these particular compositional elements was sparked during the International Alliance for Women in Music’s World Congress in 2005. Here, while attending lectures and concerts and assisting the event’s coordinator and host, I experienced Alicyn Warren's *Mirror Story*—an opera for soprano, dancers, fixed playback, and video. *Mirror Story* is a dispassionate, yet evocative, electro-acoustic opera that tells the story of a young woman who experiences her life in reverse as she lies dying on a hospital bed due to complications following an illegal abortion. The composition features computer-generated sounds, processed recorded sounds, and a large video backdrop.¹ This work convincingly combined disparate artistic disciplines to great effect.

The use of technology also enabled the economical production of the piece. I was greatly inspired by the effectiveness of Warren’s work and have since wanted to write a large work for voice and technology.

*Missa della Grande Transizione (Mass of the Great Transition)*, is the apex-work of my processed voice and video output. It is a twenty-two minute electro-acoustic nuptial Mass for live processed voice, and stereographic video—using red-blue 3D glasses. The impetus behind this project was prompted last summer when my father helped his parents scan and digitally store their wedding photos. Stereo photography was in vogue when my grandparents were married in 1955; their entire wedding album is composed of stereograms meant for viewing through a stereoscope. These powerful vintage images, revealing the splendor of *La Capilla de Belen* in Marianao, Cuba, and recalling a beautiful chapter in my family’s past, defined this project. I created a stereographic video backdrop for the performance of *Missa della Grande Transizione* using these stereograms as source material. The work is a sacred stage work honoring the sacrament of marriage—one of life’s great transitions.

I chose to use the Mass as the framework for *Missa della Grande Transizione*. For many Christians, the rite of matrimony is performed in a Mass, which is a multifaceted ritual. It is a celebration and a commemoration of the works of Christ. It is also an opportunity for Christians to invoke God’s mercy. In addition to centering on the Mass’s traditional themes, I also wanted this work to focus on the human subjects of the video, my grandparents—representing their emotions and states-of-mind in the music. A wedding is an emotionally complex ceremony for the bride and groom.
While it is a joyous and hopeful event, it is also a daunting event—an event of transition taking the subjects from a life they know into a life they do not know, which may or may not be positive. It is partly for this reason that many cultures perform laments at weddings.\(^2\) *Missa della Grande Transizione* is a nuptial Mass that focuses on the human aspect of this ceremony—praising God and one’s beloved for giving one love, pleading for God’s mercy and help in the face of uncertainty, and resigning oneself to have faith in love. In order to accomplish this goal, I supplemented the Latin/Greek text of the Mass Ordinary with excerpts from Francesco Petrarca’s *Canzoniere*—a highly spiritual yet humanist masterwork of the middle ages composed of 366 poems (mostly about love, politics and fame) in archaic Italian.

Although the *Canzoniere* is a secular work, the author’s deep-running spirituality allows for its verses to weave easily in and out of the Mass Ordinary’s text. The *Canzoniere*’s spirituality also gives rise to another compositional advantage; although *Missa della grande Tranzisione* is meant for the concert hall, it could also be used in an actual nuptial Mass (after removing the video element, of course).

I find concert pieces or stage works that incorporate video to be effective—videos are often used to complement or counterpoint events in the music and/or onstage. Video can also facilitate directness in the expression of ideas and emotions. Having attended many electronic music festivals across the country (such as Electronic Music Midwest, SEAMUS, Studio 300 and the Electro Acoustic Juke Joint/Electro Acoustic Barn Dance)

I have seen video used in various and interesting ways; most interesting to me is when video merges with live performers onstage either as a backdrop and/or overlay. In *Missa della Grande Transizione*, I take the idea of the video backdrop/overlay for concert music in a new direction with stereography. *Missa’s* stereographic video creates a moving three-dimensional world onstage with which the vocalist can interact, thus providing audiences with a unique concert experience.

In *Missa della Grande Transizione*, the vocalist is the only sound source of the entire composition; there are no prerecorded samples or synthesizers used in this work. The vocalist (which can be of any vocal category) is sampled and processed in real-time by Max/MSP applications that I built designed to turn one voice into a diverse assemblage of sonorities.³ *Missa*, my pinnacle contribution to the voice-technology repertoire, demonstrates how one can produce an infinite pallet of sounds with the voice and electronics and I hope that it will encourage other composers to write for this medium.

**Overview of the Compositional Process**

Although later chapters go into great detail about the methods and procedures used to create *Missa della Grande Transizione*, an overview of the compositional process is as follows:

³ Max/MSP is a graphic-object oriented programming interface for musicians.
I. Text

My work on Missa della Grande Transizione began with establishing the text. Missa’s text determined the form and character of the music and videos of each movement. Work on the text began by combining the Mass Ordinary’s text with excerpts from Petrarca’s Canzoniere. I consulted a native Italian speaker—my friend and colleague—Alessandra Salvatti, to help me combine the Mass ordinary and Petrarca in a coherent way.

II. Music

I composed the music prior to working on the videos and the Max/MSP applications. I drew inspiration from Penderecki’s St. Luke’s Passion and Machaut’s Messe de Notre Dame. The melodic writing is primarily modal, except for the angular chromatic aria in the Credo. Non-classical singing techniques are used throughout the composition for expressive purposes. The musical texture of Missa is primarily polyphonic which is generated by canons at the unison occurring on the surface of each movement and by processed vocal samples that function as descants or bass pedals in the background. I composed the surface canons using the medieval contrapuntal technique of “imperfect-to-perfect progressions.” Stretching, pitch-shifting and reversing the opening material of each movement generate the descants and bass pedals. Sample renditions of each movement were recorded using Adobe Audition, an audio editor, to begin my work on the videos and the Max/MSP applications. These sample recordings determined the timing of occurrences in the videos and the Max/MSP applications.

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4 Guillaume de Machaut, Messe de Nostre Dame: mixed voices. (New York: C.F. Peters Corporation, 2011), iii.
I constructed Max/MSP applications to process the vocalist in order to generate the surface canons and background descants and bass pedals in real-time. Canons at the unison were generated by carefully programmed delays. The descants and bass pedals were generated with MSP objects that sample, stretch, transpose and reverse sounds. Reverberation, granularization—constructing a sound from grains, or small samples, of another sound—and various filters are also used throughout the composition for atmospheric effect and to enhance the vocalist’s performance. Each movement has its own application and each application is fully automated—the vocalist does not have to worry about triggering processes himself/herself.

![Figure 1. Max/MSP Application for the Kyrie Movement](image)

The applications are also designed to synchronize the vocalist with the video. Figure 1 shows the user interface used for all of Missa’s applications. I began my work on the score after the applications were built. Graphic elements from the applications appear in the score in order to help the vocalist synchronize with occurrences in the applications.
Missa della Grande Transizione’s score is a composite of traditional music notation and graphics generated in Max/MSP and Microsoft Word. The vocalist’s part is represented by traditional notation and the vocal processing is represented by graphics designed in Microsoft Word to look like audio tracks within an audio editor application. The live vocalist’s part is transposable to accommodate all voice types. Underneath the traditional notation in each system is a track window containing track bars. Each processed sample is assigned a track in the track windows. The track bars show when processed samples begin sounding and end sounding. Effects such as delay and live pitch-shifting are marked by text. On the bottom right corner of each system is a Max/MSP number-box object. These number-boxes display the elapsed time in seconds. The score is designed to aid the vocalist in staying synchronized with the Max/MSP applications, which in turn will keep the vocalist synchronized with the videos.

III. Video

I used Adobe Premier Pro CS 5, a track based video editor, and Adobe After Effects CS 5, a video compositor, to create Missa’s stereographic videos—each movement has its own video backdrop. I used Adobe Premier Pro to animate and process the left-side and right-side photos of my grandparents’ wedding according to the occurrences of the sample recordings I created during the composition of the music. Videos created with left-side photos were exported separately from videos created with the right-side photos. The left-side videos and right-side videos were integrated for red-blue 3D glasses in Adobe After Effects.
The upcoming chapters will describe the compositional process and use of technology in greater detail. Chapter 2 reviews the works that inform the music and expands on the composite text. Chapter 3 expands on the compositional and technological techniques used throughout the piece. Chapter 3 also demonstrates how those techniques are applied through an analysis of the Ite Missa Est— the last movement which makes use of every compositional devise in the Mass. Chapter 4 delineates the procedures used to build the videos.
CHAPTER 2
REVIEW OF INFORMATIVE LITERATURE AND TECHNIQUES

There were four works that directly influenced me during the composition of Missa della Grande Transizione: Alicyn Warren’s *Mirror Story*, Kryzstof Penderecki’s *St. Luke’s Passion for Mixed Choir and Orchestra*, Guillame de Machaut’s *Messe de Nostre Dame*, and Francesco Petrarca’s *Canzoniere*.

**Mirror Story**

As previously stated, Alicyn Warren’s *Mirror Story* was a pivotal work in my development as a composer. It changed my outlook on electro-acoustic music and introduced me to new possibilities in regards to the production of my compositions. In *Missa*, you will not hear *Mirror Story*, but you will see it’s influence over the visual aspects of my work. The most haunting aspect of *Mirror Story* is its staging. *Mirror Story*’s large video backdrop, unaccompanied by props, encompasses the entire rear section of the stage platform while the performers (including the vocal soloist) move sparingly onstage (See Figure 2).

Figure 2. A Scene from Alicyn Warren's *Mirror Story*
This economical, yet effective, design of presentation has made its way into much of my work—including *Missa della Grande Transizione*. The ideal staging for *Missa* and most of my works for live processed voice requires the solitary and stationary vocalist to be accompanied by a large video backdrop. Figure 2, Warren’s *Mirror Story*, and Figure 3, my *St. Vitus’ Kyrie* demonstrate similar staging.

*Missa* takes the video backdrop a step further with stereography. As previously stated, the source materials for *Missa*’s videos are stereograms from my grandparents’ wedding. The left and the right images are integrated and processed for red-blue 3D glasses; this is a unique way to generate depth and video-effects in live-performance video backdrops. Stereography in performance backdrops can create a “window” behind or beside the performer, thus, in a way, transforming the video into a moving set or a fixed stage performance.

![Figure 3. Image from a Performance of Liza Seigido's St. Vitus' Kyrie (2010)](image)

Depending on the venue, the vocalist in *Missa* may stand in front of the projection as in *Mirror Story* (see Figure 2), or beside the projection (see Figure 3). *Missa*’s onstage window, created by the stereographic videos, place the vocalist just outside the visual boundary of the depicted wedding Mass.
St. Luke’s Passion for Mixed Choir and Orchestra

An important reference in Missa is Kryzystof Penderecki’s *St. Luke’s Passion* for mixed choir and orchestra. What first struck me about this work was its expressiveness through extreme performance techniques—techniques not often associated with traditional sacred music. Seminal moments in the work, where emotions are expressed in a shockingly direct manner, include the “O crux” section—featuring extreme registers, pitch bends, and tone clusters in the choir and orchestra; the “Deus meus” baritone aria—a simple pensive aria that gradually becomes a terrifying plea through hyper vibrato; and the “Domine, quis habitabit tabernaculo…” soprano aria in Part One—featuring angular melisma, pitch bends and piercing straight-tone screams. Equally important moments are the opening and closing declamations of the choirs in Part Two: “In pulverem mortis”—which feature dense and dissonant tone clusters.5

Before hearing Penderecki’s *St. Luke’s Passion*, I had never experienced so bluntly-expressed emotions in sacred music; it was a viscerally powerful and moving experience. The audience at the premier of the *Passion* in 1965 at the Münster Cathedral in Germany had similar reactions to the work; the *Passion* was received enthusiastically by the Catholic Church and by the audience.6 Robert Henderson, in his 1967 article for the *Musical Times Vol. 108*, wrote the following on the *Passion* anticipating its first performance in England:

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“The *St. Luke Passion* is Penderecki’s most ambitious and highly acclaimed work, bringing to fruition all the various expressive ideas and technical procedures which he explored so thoroughly in earlier works.”

It was after my experience with Penderecki’s *Passion* that I felt encouraged to utilize the expressive devices present in much of my vocal work, such as extreme registers, declamation, and screaming in *Missa della Grande Transizione*—these devises are used in the Kyrie, Credo and Ite Missa Est movements.

In addition to the devices mentioned above, I used a number of modern effects found throughout Penderecki’s *Passion*, such as tone clusters, echoes, and transposed echoes, which are used contrapuntally amongst the sections of the choir and orchestra. Penderecki creates his characteristic tone clusters in the *Passion* by having blocks of the orchestra and choirs perform long glissandi together. He notates the starting notes for the glissandi but because the numerous performers of the orchestra and choirs cannot coordinate their pitches, microtonal tone clusters naturally result from this process. Example 1, from the “O Crux” section of Part One, shows one of the many instances where Penderecki uses long glissandi in the choir and orchestra to create tone clusters.


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7 Ibid.
Another way in which Penderecki creates tone clusters in the Passion is by assigning sections of the orchestra ranges of notes; the performers in a particular section each select different notes to play within a given range. Example 2, from the “Domine, quis habitabit tabernaculo…” soprano aria in Part One, shows a tone cluster performed by the flute section pitted against a tone cluster performed by a small organ called the armonio; this excerpt exemplifies how Penderecki notates this particular type of tone cluster.


Whereas tone clusters are generated between groups of instruments and voices in the Passion, I generate clusters in Missa with one voice aided by technology. For tone clusters, the Missa applications copy the voice into multiple tracks in real-time and then apply the following processes to those tracks: time stretching, pitch shifting, reversing, and granularization.
Each track, as seen in Missa’s score, represents a different process. Example 3 is an excerpt from Missa’s Credo movement. Measure twenty-eight of the excerpt shows one of the Credo’s climactic moments where all tracks of the movement are active to create a loud and thick cluster of pitches and noise.

Example 3. Measures 24-30 of Missa della Grande Transizione’s Credo

The way that Penderecki approaches composition in the Passion is similar to how many musique concrète composers approach composition—focusing on blocks of sonorities rather than on individual pitches. He even makes use of a staple effect in electro-acoustic music in the Passion—delay. Previously, I referred to this effect using the word “echo” rather than delay so as not to imply that Penderecki used tape, or analogue effects boxes to generate delay effects in the Passion. Delay is an echo generated by sampling a sound and then reproducing copies of that sample in regular intervals. Rather than use technology to generate delay effects, Penderecki notates his delay into the Passion’s score. Example 4, from the “O Crux” opening in Part One, shows a delay effect amongst the alto sections of the three mixed choirs. The delay occurs on the settings of the words “Piis adauge gratiam.”

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8 Penderecki, Passio, 3.
Behind most of the counterpoint generated by Missa’s delay effects is the compositional method of imperfect-to-perfect progressions used by Guillame de Machaut in his Messe de Nostre Dame. Messe has long been one of my favorite polyphonic works and, like Warren’s Mirror Story and Pendereki’s Passion, it is overtly yet freely referenced in Missa della Grande Transizione. Machaut’s Messe de Nostre Dame is a historically significant piece. It is the longest medieval composition in existence. It is also the first piece in which a single named composer set the entire Mass Ordinary to music—including the Ite Missa Est, which usually wasn’t set to music.
Messe also implemented four-voice polyphony—which was rarely used in medieval music.⁹

Having a primarily polyphonic texture, counterpoint, like in Messe de Nostre Dame, is an integral compositional feature in Missa della Grande Transizione. Counterpoint has always been an important feature in my music. However, I must clarify that my approach to contrapuntal writing, like that of many atonal and serial composers, deviates from that of the common practice period, when harmony was an important consideration in contrapuntal writing. In much of my work, especially in my twelve-tone writing, I generate melodies and countermelodies disregarding the vertical sonorities that result from the counterpoint between them. My approach in much of these compositions, in which vertical sonorities are often arbitrary, stems from a love for melodic writing. I have found that if the linear, textural and rhythmic aspects in a contrapuntal context are compelling, the resultant verticalities/harmony become secondary in importance. In studying Messe de Nostre Dame, I found that Machaut’s approach to counterpoint, although considering vertical intervals between an upper or lower voice and the tenor/cantus firmus, also focused on melodic writing. After experimenting with Machaut’s contrapuntal method, I decided to utilize his technique to generate the surface canons in Missa della Grande Transizione.

In chapter one, I refer to Machaut’s contrapuntal method as the technique of imperfect-to-perfect progressions.

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Detailed writings about this technique are available due to the work of Petrus dictus Palma ociosa—a theorist, and peer of Machaut, who “catalogued” his “contrapuntal vocabulary.”

The technique, whether or not one is writing for more than two voices, is an exercise in two-part-writing in which the impetus of the counterpoint relies on the movement from imperfect intervals to perfect intervals.

The first step in the process is composing the cantus firmus, or the tenor, all the way through. All melodies in the texture thereafter are composed as countermelodies to the tenor; the countermelodies have no bearing on each other. I composed the countermelodies one at a time constantly referencing the tenor voice—tracking the intervals that form between the countermelodies and the tenor. What creates forward motion in the counterpoint is when perfect intervals—and one’s goal should be to reach a final cadence on a perfect interval—follow imperfect intervals.

In most cases, one should approach perfect intervals in contrary motion—Example 5 below shows how one can approach a perfect octave, perfect unison, and a perfect fifth in contrary motion:

Example 5. Sample Progressions by Lucy E. Cross found in Guillaume de Machaut, Messe de Nostre Dame: mixed voices. New York: C.F. Peters Corporation, 2011, pg.ii

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10 Machaut, Messe de Nostre Dame, i.

11 Ibid, iii.
Example 5 demonstrates the following: 1. major sixths resolve outward to a perfect octave; 2. minor thirds resolve inward to a unison; 3. perfect fifths resolve outward to a perfect octave; 4. major thirds resolve to perfect fifths. In the instance where the tenor and an upper voice form a minor third and the tenor leaps down a perfect fourth, similar motion is recommended in order to reach a perfect interval—the countermelody above the tenor should move down by step in order to resolve the minor third to a perfect fifth.

I do not adhere to these guidelines strictly in Missa, but they form the impetus behind the counterpoint of my surface canons. Example 6, is an excerpt from Missa's Agnus Dei. It clearly shows my loose interpretation of imperfect-to-perfect progressions. This excerpt is a simple, homorhythmic, round. The symbols listed in between the staves refer to the intervals formed in relation to the tenor voice—the bottom voice in this case. It is clear in Example 6 that my approach to imperfect-to-perfect progressions is flexible especially in the last measure highlighted in yellow—where the top voice and the tenor form a major ninth creating a quintal sonority between all three voices.

Example 6. Rendition of Counterpoint in the Agnus Dei's Homorhythmic Round
While experimenting with the imperfect-to-perfect progressions method, I found that it naturally lent itself to weaving quartal and quintal sonorities into the musical texture. Quartal and quintal harmony is colorful due to the juxtaposition of perfect fourths and/or fifths. Throughout Missa, I reserve these colorful sonorities for cadences—highlighting these moments of arrival with a sound that mildly contrasts the music that precedes it. The example below shows the last cadence of the Gloria movement, which ends the piece on a quintal sonority.

Example 7. Measures 47-51 of Missa della Grande Transizione’s Ite Missa Est

Example 7 shows the last cadence of the Ite Missa Est movement, which ends the piece on a quartal/quintal sonority—the bottom voice forms a perfect fifth with the top voice while the middle voice forms a perfect fourth with the top voice.

The application of imperfect-to-perfect progressions within my truly contrapuntal surface canons required a staggered rather than through-composed approach to imperfect-to-perfect progressions. As mentioned above, Machaut composed his tenor voices all the way through and then composed countermelodies against his tenors. To address the problem of only having one voice and copies of that voice to work with, I had to compose my tenor voice and countermelodies simultaneously. Example 8 is an excerpt from Missa’s Agnus Dei surface canon.
The excerpt shows the counterpoint that results from measures twenty-eight through thirty-four of this surface canon at the unison—built on a three-beat delay.

Example 8. Rendition of Counterpoint in the Agnus Dei’s Surface Canon

In the figure above, each colored segment serves as the cantus firmus for the segment that follows. For example, the yellow segment is the cantus firmus for the following blue segment; the blue segment is the cantus firmus for the following red segment. The imperfect-to-perfect progressions technique guided, although not strictly, the composition of the cantus firmi and their respective countermelodies.

In addition to the counterpoint, performances of *Messe de Nostre Dame* have had an impact on the vocal writing in *Missa*. Although a controversial rendition, Ensemble Organum’s 1996 recording of *Messe* is my favorite performance of the work. Ensemble Organum performs *Messe* in a Middle Eastern vocal style that makes use of belting and microtonal embellishments.

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12 Guillaume de Machaut, *La Messe de Nostre Dame: Ensemble Organum*. Marcel Pérès, director. Harmonia mundi HMC 901590 [CD], 1996.
I make use of similar techniques in Missa’s Credo and Agnus Dei movements and will discuss these techniques in greater detail in Chapter 3.

The Composite Text

In the Chapter 1, I mentioned my reasons for incorporating excerpts from Petrarca’s Canzoniere into Missa. The text of the Mass Ordinary commemorates the works of Christ and invokes God’s mercy, but Petrarca’s words serve to address the human side of this wedding Mass by exploring various emotions and states-of-mind. In my search for text, I explored the love poetry of various artists. My search focused on finding text that would speak to the emotional complexities of love yet demonstrate spirituality—Petrarca’s Canzoniere fits this criteria. Petrarca’s spirituality allowed for excerpts of the Canzoniere to weave in and out of the Mass Ordinary naturally. Works from classical Greece and Rome, and writings by St. Augustine and Dante inform the style of the Canzoniere. Dante’s Vita nuova, love poetry referenced in the Canzoniere, is seemingly a better candidate for weaving into Missa on the surface. Dante’s Vita nuova contains highly religious love poetry. Dante’s beloved in Vita nuova, Beatrice, is “Christ-like” in her “divine wisdom and eloquence.” However, I found that Dante’s verses lack the inclusion of everyday human experiences in regards to love.

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14 Ibid, xiv.

15 Ibid, xiv.
Petrarca in his verses about Laura—his beloved, who often shared divine traits with Beatrice, also focused on her “natural beauty” and on his burning desire for her.\textsuperscript{17}

_Canzoniere_ No. 62 exemplifies the spiritual and humanist writings of Petrarca which, when woven into the Mass Ordinary, help to evoke the reverent yet emotional character of _Missa della Grande Transizione_:

62. 'Padre del ciel, dopo i percuti giorni,'

Heavenly Father, after the lost days,  
after the nights spent wandering,  
with that fierce desire that burned in my heart,  
gazing on limbs adorned to do me harm,

now may it please you by Your light I turn  
to the greater life and the sweeter work,  
so that my harsh adversary having cast  
his nets in vain, may be discredited.

Now, my Lord, the eleventh year revolves  
since I was bowed under that pitiless yoke,  
which to those most subject to it is most fierce.

Have pity on my unworthy suffering:  
lead back my wandering thoughts to a better place;  
remind them how you hung, today, upon the cross.\textsuperscript{18}

The charts that follow contain translations of the Mass Ordinary supplemented by Petrarca’s _Canzoniere_. Below each chart I discuss my text-selection and how the text serves to create the sought-after characteristics of each movement.

\textsuperscript{16} Ibid, xviii.

\textsuperscript{17} Ibid, xiv, xviii.

Table 1. Translation of the Kyrie Text

<table>
<thead>
<tr>
<th>Kyrie</th>
<th>Lord, have mercy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kyrie eleison</td>
<td>Christ, have mercy</td>
</tr>
<tr>
<td>Christe eleison</td>
<td>Lord, have mercy</td>
</tr>
<tr>
<td>Kyrie eleison</td>
<td></td>
</tr>
</tbody>
</table>

*pleading to God and one’s beloved for mercy in the face of uncertainty*

| Io non fù d’amar voi lassato unquancho né sarò mentre ch’io viva; Però, s’un cor pien d’amorosa fede può contentarve piacciavi omai di questo aver mercede.¹⁹ | Of loving you I am not tired, never, not as long as I’m alive; So if a heart that’s full of faithful love can make you glad, then let it please you now to show it mercy.²⁰ |

Missa’s Kyrie is a composite of the Mass Ordinary’s Kyrie and the third verse of Canzoniere No. 82. Both texts are pleas for mercy; the Mass Ordinary invokes God’s mercy and the Petrarca invokes the mercy of one’s beloved. A wedding, although a joyful event, can also symbolize a daunting transition—a time full of fear and doubt. I found it appropriate for the vocalist to turn to God and then to the beloved, via an invocation for mercy, for reassurance during the depicted wedding opening-procession in Missa’s Kyrie.

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²⁰ Petrarca, *Canzoniere*, transl. Musa, 137.
Table 2. Translation of the Gloria Text

<table>
<thead>
<tr>
<th>Gloria</th>
<th>Gloria in excelsis Deo!</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I’ benedico il loco e’il tempo et l’ora che si alto miraron gli occhi mei.</td>
</tr>
<tr>
<td></td>
<td>Anima, assai ringratiai déi che fosti a tanto honor degnata allora.</td>
</tr>
<tr>
<td></td>
<td>Amen.</td>
</tr>
</tbody>
</table>

| Glory to God in the highest! | I bless the place, the time and hour… that my eyes aimed their sights at such a height |
|                             | “My soul, you must be very grateful that you were found worthy of such great honor.” |
|                             | Amen.                                                                                   |

Missa’s Gloria uses only the incipit from the Ordinary and one verse from Canzoniere No. 13. Both texts articulate words of praise and fit together to depict a scene where the vocalist shows gratitude to God and the beloved for bringing love into his/her life. In contrast to the dark and solemn Kyrie movement, the Gloria exhibits a celebratory character, representing the joyous aspects of weddings.

---


Table 3. Translation of the Credo Text

**Credo**

*finding comfort in the Lord’s suffering and resurrection in the face of uncertainty*

<table>
<thead>
<tr>
<th>Patrem Omnipotetem,</th>
<th>Omnipotent Father,</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amor……</td>
<td>Love……</td>
</tr>
<tr>
<td>assecura et sparenta, arde et agghiaccia, gradisce et sdegna, a sè mi chiama et scaccia, or mi tene in speranza et or in pena.</td>
<td>frightens and reassures, freezes and burns, is kind and rude; he calls me, throws me out; with hope he holds me now and then with grief.</td>
</tr>
<tr>
<td>Miserere del mio non degno affanno; reduci i pensier’ vaghi a milior luogo; ramenta lor come…fusti in croce.</td>
<td>Have mercy on my pain that is unworthy, lead to a better place my thoughts that wander, remind them you were crucified.</td>
</tr>
<tr>
<td>et resurrexit tertia die secundum scripturas.</td>
<td>and resurrected on the third day according to scripture.</td>
</tr>
</tbody>
</table>

*Missa*s Credo, the emotional climax of the work, is a composite of the Ordinary’s incipit and closing lines and excerpts from *Canzoniere* Nos. 62 and 178.

In contrast to the Gloria, but like the Kyrie, the text in this movement reflects fear and doubt in the face of the transition represented in wedding ceremonies.

---


26 Ibid, 99.
The opening “Patrem Omnipotetem” from the Mass Ordinary and the following stanza from *Canzoniere* No. 178, work together to depict a scene where the vocalist complains about Love’s misdeeds to God. This scene serves to represent the conflict one fears and, unfortunately, expects to experience in a marriage. The following stanza transitions the Credo from a fearful character to a hopeful character—a hope that is derived from overcoming fear through faith. Using a stanza from *Canzoniere* No. 62, the vocalist asks God to quell his/her suffering—to put his/her suffering into perspective.

The following stanza uses a snippet from the Mass Ordinary’s Credo to depict a moment where the vocalist asks God to remind him/her of the resurrection in order to gain strength from its contention that all hardships are survivable.

<table>
<thead>
<tr>
<th>Table 4. Translation of the Sanctus Text</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sanctus</strong></td>
</tr>
<tr>
<td><strong>praising God and one’s beloved for giving one love</strong></td>
</tr>
<tr>
<td>Sanctus! Sanctus! Sanctus!</td>
</tr>
<tr>
<td>Osanna in excelsis!</td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

---


The composite text of Missa’s Sanctus foils the severe character of the Credo’s text. It opens with the Mass Ordinary’s joyful “Holy, Holy, Holy!” and then presents the first verse of Canzoniere No. 61—a jovial blessing of moments relating to one’s beloved. Missa’s Sanctus ends with the Mass Ordinary’s “Hosanna in the highest!”

Table 5. Translation of the Agnus Dei Text

<table>
<thead>
<tr>
<th>Agnus Dei</th>
<th>Lamb of God</th>
</tr>
</thead>
</table>
| *solemnly pleading to God for mercy in the face of uncertainty* | *

<table>
<thead>
<tr>
<th>Agnus Dei qui tolis peccata mundi, miserere d’un cor...humile.</th>
<th>Lamb of God who takes away the sins of the world, have pity on a...humble heart.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agnus Dei qui tolis peccata mundi, miserere nobis.</td>
<td>Lamb of God who takes away the sins of the world, have mercy on us.</td>
</tr>
<tr>
<td>Agnus Dei qui tolis peccata mundi, dona nobis pacem.</td>
<td>Lamb of God who takes away the sins of the world, grant us peace.</td>
</tr>
</tbody>
</table>

Unlike previous movements, the text of Missa’s Agnus Dei is taken almost exclusively from the Agnus Dei of the Mass Ordinary. I wanted the Agnus Dei to contrast with the light character of the Sanctus. Given the solemn and reverent nature of the Agnus Dei text, it did not need to be supplemented with Petrarca in order to achieve the sought-after character.

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29 Petrarca, Canzoniere, ed. Mondadori, 1416.

30 Petrarca, Canzoniere, transl. Musa, 517.
However, as mentioned before, the Mass Ordinary does not reference the emotions of individuals and thus I added a line from *Canzoniere* No. 366—“have pity on a…humble heart.” Poem No. 366 is the last poem of the *Canzoniere*; it is addressed to the Virgin Mary. Here, Petrarca asks for forgiveness for having spent his life pining for his beloved. When woven into the Mass Ordinary’s Agnus Dei, this line from poem No. 366 turns a communal plea for mercy into a more personal invocation.

Table 6. Translation of the Ite Missa Est Text

<table>
<thead>
<tr>
<th>Ite Missa Est</th>
<th>Ite Missa Est.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>resigning oneself to have faith in love</strong></td>
<td>Da me son fatti I miei pensier’ diversi… né quella prego che pero mi scioglia… et nos s’aspira al glorioso regno certo in più salda nave.</td>
</tr>
<tr>
<td></td>
<td>Per le cose dubbiose altri s’avanza, et come spesso indarno si sospira.</td>
</tr>
<tr>
<td></td>
<td>Deo gratias.</td>
</tr>
<tr>
<td></td>
<td>Go set forth the message.</td>
</tr>
<tr>
<td></td>
<td>My own thoughts struggle against me… yet I do not pray for freedom… since there is no safer ship in which to aspire to the glorious kingdom.</td>
</tr>
<tr>
<td></td>
<td>Through uncertain things we advance and we often sigh to no real purpose.</td>
</tr>
<tr>
<td></td>
<td>Thanks be to God.</td>
</tr>
</tbody>
</table>

*Missa’s* Ite Missa Est is a composite of the concluding words of the Mass—*Ite missa est, Deo gratias*—and excerpts from *Canzoniere* No. 29 and *Canzoniere* No. 32.

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31 Ibid.


33 Ibid, 178.

This concludes the work with the optimistic contention that one should have faith in love in spite of all the struggles that accompany it, for it is through those struggles that one advances. Hence, the text of Missa’s Ite Missa Est strikes a truce between the fear (depicted in the Kyrie and Credo, and implied as a possibility in the Agnus Dei) and the joy (depicted in the Gloria and Sanctus) of marriage through faith in God and in love.
CHAPTER 3
CONSTRUCTING THE MUSIC

The following chapter is a discussion of the compositional and technological techniques used in Missa della Grande Tranzisione. My discussion will begin with Missa’s cyclic formation, and continue on to its melodic language, vocal techniques, surface canons, background bass pedals and descants, and the use of reverberation, granularization and filters.

The Cyclic Structure of Missa della Grande Transizione

Missa, as my other works, was composed with the ideal of economy-of-materials in mind. This ideal is apparent in that the vocalist is the only sound source in the work, but, more importantly, economy-of-materials is also apparent in the music itself. Economy in compositional materials results in a work that is cohesive and memorable to audiences. Igor Stravinsky articulated the virtues of economical composition in the second lesson of his Poetics of Music lecture. He stated “Music…gains strength in the measure that it does not succumb to the seductions of variety. What it loses in questionable riches it gains in true solidity.” I thoroughly agree with this contention.

In the spirit of compositional economy, musical materials in Missa are recycled between movements resulting in a cyclic Mass. The Kyrie’s surface canon foreshadows the canon in the Agnus Dei.

The Gloria and the Sanctus share the same canon melody—the melody is adapted to accommodate the different texts of the two movements. Finally, the “Deo gratias” canon in the Ite Missa Est is derived from the “anima” melodic fragment in the Gloria. Table 7 delineates the location of shared materials in the score.

<table>
<thead>
<tr>
<th>Kyrie measures 39-44</th>
<th>Agnus Dei measures 28-34</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloria measures 5-23</td>
<td>Sanctus measures 5-29</td>
</tr>
<tr>
<td>Gloria “anima” melodic fragment measures 41-42</td>
<td>Ite Missa Est “Deo gratias” measures 41-42</td>
</tr>
</tbody>
</table>

The scheme used to determine the placement of shared materials between movements was not decided arbitrarily. Materials are shared according to the movements’ characters. The Kyrie and Agnus Dei share materials because they are both *pleading* movements; the Gloria and the Sanctus share materials because they are both *praise* movements; the Ite Missa Est’s “Deo gratias” is derived from the Gloria’s “anima” melodic fragment in order to link back to the optimism of the Gloria and Sanctus. The only movement that does not share materials with the others is the Credo—the emotional climax of *Missa della Grande Transizione*, and the only chromatic movement in the entire work. The resultant structure of the work is a six-part arch form with the Ite Missa Est functioning as a coda. Table 8 delineates this structure.
Table 8. The Overall Structure of Missa della Grande Transizionone

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>B</th>
<th>A</th>
<th>Coda</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kyrie</td>
<td>Gloria</td>
<td>Credo</td>
<td>Sanctus</td>
<td>Agnus Dei</td>
<td>Ite Missa Est</td>
<td></td>
</tr>
</tbody>
</table>

The Melodic Language of Missa della Grande Transizionone

Although tonality is utilized—presenting common-practice major/minor relationships—most of the melodies in Missa are modal. This is to evoke a sense of timelessness and a ritual character appropriate for a nuptial Mass. As mentioned in the section before, chromaticism is reserved only for the Credo movement—the emotional climax of Missa—but even the Credo ends in Dorian mode. Table 9 breaks down the melodic language of each movement and how each movement transitions into the following movement. Although each movement is transposable to accommodate all voice types, Table 9 represents the music using the keys in the score.

Table 9. The Melodic Language of Missa della Grande Transizionone

<table>
<thead>
<tr>
<th>KYRIE</th>
<th>GLORIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening “Kyrie eleison” Declamation measures 1-13</td>
<td>Opening “Gloria in I’ benedico” Aria/Canon</td>
</tr>
<tr>
<td>“Io non fu’dam’ar” Aria measures 15-31</td>
<td>“Amen” Canon</td>
</tr>
<tr>
<td>Canon measures 32-51</td>
<td></td>
</tr>
<tr>
<td>D minor</td>
<td>“I’ benedico” Aria/Canon</td>
</tr>
<tr>
<td>m. 15-26: D minor</td>
<td>“Amen” Canon</td>
</tr>
<tr>
<td>m. 27-31: G minor</td>
<td></td>
</tr>
<tr>
<td>m. 32-38: G minor</td>
<td></td>
</tr>
<tr>
<td>m. 39-41: begins in G minor and ends in Bb major</td>
<td></td>
</tr>
<tr>
<td>m. 42-44: Bb major</td>
<td></td>
</tr>
<tr>
<td>m. 45-51: G minor</td>
<td></td>
</tr>
</tbody>
</table>

Transition Between Kyrie and Gloria

<table>
<thead>
<tr>
<th>Kyrie last note: G</th>
<th>M2 up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gloria first note: A</td>
<td></td>
</tr>
</tbody>
</table>

Table 9. The Melodic Language of Missa della Grande Transizionone
As one can see in Table 9, Missa’s melodies progress from one tonality or modality to another—modulation and modal mixture are time-tested techniques used to create colorful melodies.
What is not apparent in the chart is the naturalness and fluidity with which the melodies modulate and/or apply modal mixture—these shifts in Missa’s melodies, including between movements as shown in Table 9, always occur through pivot-tones left in the following manner: by unison, by step, by leap of a perfect fourth (Sol to Do), or by leap of a perfect fifth (Do to Sol). A transition utilizing a leap of a major sixth is used only once in the entire work in the Sanctus movement. The modulation and modal mixture of Missa’s melodies occur in those ways by design to accommodate vocalists with relative pitch. The vocalist is the source of all sounds in Missa, therefore, pitch cues are rarely generated in time to guide the vocalist into new tonics or modes—in essence, the vocalist in Missa is relying on his/her musical memory, as he/she would do in unaccompanied or atonal works, to stay on-pitch. Therefore, any changes of tonic or mode must occur via the small or facile intervals listed above—intervals that can be easily sung in tune by the vocalist from any starting note. The examples below exemplify Missa’s vocalist-friendly approach to modulation and modal mixture.

Example 9 shows measures twenty-eight through thirty-six of the Agnus Dei. This excerpt exemplifies a pivot occurring on a unison; the highlighted measures shows the pivot tone G used to modulate from C major, beginning in measure thirty-one, to G mixolydian, beginning in measure thirty-five.

Example 10. Measures 39-44 of Missa della Grande Transizione's Kyrie

36 Utilizing Movable Do Solfège.
Example 10, measures thirty-nine through forty-four from the Kyrie movement, shows a pivot occurring on an A left by step. The highlighted A functions as scale-degree two in G minor, between measures thirty-nine and forty-one. That same A is functioning as the leading tone of B-flat major—the tonality of the sub-phrase occurring between measures forty-two and forty-four.

Example 11. Measures 1-12 from Missa della Grande Transizione's Gloria

Example 11 is an excerpt from the Gloria movement. In measure ten, the pivot tone B takes us from D Dorian to E Phrygian via a leap of a perfect fourth from E. The Do to Sol relationship between E and the highlighted B creates a strong and natural transition into E Phrygian. Unlike unisons, steps, and perfect fourths, transitions occurring through leaps of a perfect fifth occur only between movements in Missa. Again, it is important to note that Table 9 also shows that the transitions between movements occur using vocalist-friendly intervals. These facile transitions between movements allow the vocalist to be entirely self-reliant throughout Missa.
The Credo’s chromatic writing contrasts the tonal and/or modal melodies present in the rest of the Mass. The tonal instability caused by chromaticism helps to give the Credo it’s emotional character. To heighten the contrast further, the Credo’s melodies are angular whereas those of the other movements are legato-cantabile. The pairing of chromaticism and angularity can be a major challenge for vocalists; hence I reserved this challenge for the Credo—which was set-aside in advance to be the emotional climax of the entire work.

**Vocal Techniques in Missa della Grande Transizione**

It has always been my contention that the voice is the most expressive musical instrument. Few other instruments can change their tone and articulation as drastically as the voice can. Yet few composers—now with the richest musical pallet in history—utilize techniques outside of the Western common-practice singing tradition—including techniques from early Baroque music. A pivotal recording of Machaut’s *Messe de Nostre Dame* by Ensemble Organum opened my ears to new musical possibilities in regards to vocal writing.\(^\text{37}\) Rather than perform *Messe* utilizing the traditional straight-tone, nasal, and head-voice oriented sound associated with medieval and renaissance choral singing, Marcel Pérès, Ensemble Organum’s director, propounds a new theory with a belted *Messe* featuring Middle Eastern embellishments.\(^\text{38}\)

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\(^\text{38}\) Marcel Pérès, interview by Tom Moore, printed transcript, 1 May 1996, *Fanfare* vol. 19, Tenafly, New Jersey.
Unlike traditional renditions of Messe—such as those by the Hilliard Ensemble, Ensemble Organum’s Messe is earthy and emotional—qualities which I wanted to capture and use strategically in Missa. Since my exposure to Ensemble Organum’s Messe, my vocal works have stretched out beyond the boundaries of classical singing to include Middle Eastern belting and embellishments, Baroque throat ornaments, vocal effects used by modern expressionist composers, and technology—which enhances those techniques. In spite of the processing applied to the voice in Missa, all subtleties of the voice are exposed; the voice is vulnerable due to amplification but this vulnerability is desired for it is part of what gives Missa it’s expressive edge. Also, amplification helps the vocalist implement techniques outside of the classical tradition. For example, amplification can free a soprano from head voice and bolster her chest voice so that she can utilize her lower and weaker register effectively. Missa della Grande Transizione, drawing from a variety of techniques outside of Western common-practice vocal music and enhancing those techniques utilizing technology, is the culmination of my vocal explorations.

Vocal versatility is required in the performance of Missa. As mentioned before, the vocalist is the only sound source in the work, hence, the vocalist is responsible for generating all of the various sounds heard in Missa. The various singing techniques employed in Missa accommodate changes in texture—from monody to polyphony for example—and changes in mood and or expression. The following singing techniques are used in Missa: 1. variable vibrato, 2. extreme registers, and 3. throat articulations.

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The classical vocal aesthetic dictates that one maintain a consistent and relatively small and fast vibrato throughout the performance of a work. However, I have found that this one-dimensional use of vibrato can obscure melodies within a polyphonic texture and inhibit the expressive potential of a vocalist. I use a wide range of vibratos in Missa to accommodate changing musical textures and moods. Vibrato in this work ranges from senza vibrato—straight tone, to hyper vibrato—a wide and fast vibrato that inevitably obscures pitches. Regular practices in regards to vibrato are used in most of Missa’s designated arias. Senza vibrato is used in every surface canon so that each melody is heard clearly. It is also used expressively in the Credo to set the word “Patrem” within the summon “Patrem omnipotetem” — omnipotent father. The senza vibrato used in this plea to the omnipotent father gives the vocalist a humble and childlike tone. A transition from straight-tone to hyper vibrato is used in this phrase to turn this humble summon into an emotional plea.

Example 12. Straight tone to Hyper Vibrato in Credo

The symbol spanning the fourth beat of measure six through the first beat of measure eight is used to indicate a gradual change from straight tone to hyper vibrato. Vibrato is similarly varied in the Kyrie to achieve an expressive goal.
Modern composers, in spite of guidelines delineating idiomatic writing for the voice, have used extreme registers in their vocal writing to great effect. Penderecki opens his *Passion* with a high-pitched squeal sung by the boys’ choir on the word “ave”—hail.\(^{40}\) *Missa’s* Kyrie opens on an extremely high register in order to express fear and anxiety in a direct way. The word “Christe,” following the opening phrase, is screamed rather than sung on a high note to heighten the depicted fear and anxiety. As seen in the Example 13, the vocalist is instructed to select a transposition of the Kyrie that would place his/her voice in an extremely high register at the opening. The Credo similarly uses screaming on a high note to depict great fear and anxiety in measures eighteen and nineteen.

Example 14. Screaming in Credo

\(^{40}\) Krzysztof Penderecki, *Passio*, pgs. ix, 1
The two kinds of throat articulations used in Missa are trillo and ribattuta di gola—popular embellishments in early Italian-Baroque vocal music. To the composers of this region and era, the clear illustration of a text’s mood or meaning in vocal music was paramount. Hence, “ornamentation in early Baroque Italian music was inseparable from expression in general.”

The trillo, as described in Caccini’s Le nuove musiche—“the first publication containing solo madrigals” which included instructions on how to perform various vocal ornaments, is an accelerating tremolo on a single note produced in the throat. Example 15, from Le nuove musiche, depicts a trillo in musical notation.

Monteverdi associated the trillo with laughter whereas “Notari (E1613) described the trillo as ‘a kinde of sweetness in your voice’, and Herbst (I1642, 3/1658) called it a ‘charming buzz’ (‘liebliches sausen’).”

---


In the context of Missa’s Credo, the trillo—paired with the ribattuta di gola—is a harsh articulation setting the word “arde”—Italian for burning.

**Example 16. Trillo and Ribattuta di Gola in the Credo**

During the time of Caccini and Monteverdi, it was common practice to approach a trillo with a ribattuta di gola—a re-striking of a note using one’s throat. Example 17, from *Le Nuove Musiche*, depicts a ribattuta di gola in musical notation.


Like in the Italian-Baroque, these striking embellishments—effective tools that are not parts of the common practice pallet—are used in Missa to express emotional text. The common practice pallet of vocal music will always have a place in new music.

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44 Ibid.
However, the voice, naturally versatile in tone and articulation, can be utilized more expansively by contemporary composers through the exploration of other vocal traditions.

**Delay Effects in Missa della Grande Transizione**

Delay is an integral effect in Missa; it is used to generate the surface canons of each movement, highlight climactic moments in the live vocalist’s part and to thicken textures throughout the piece. Example 18 is an excerpt from Missa’s Kyrie; the score clearly shows where the three-voice surface canon at the unison begins. The numbers above the notes indicate the entrances of voices two and three.

Example 18. Measures 32-35 of Missa della Grande Transizione's Kyrie

The meticulously planned surface canons are generated using the module shown below in Figure 4.
Figure 4. Delay Module from Missa's Max/MSP Applications

This module makes use of five Max/MSP objects—adc~, dac~, toggle, tapin~ and tapout~. The toggle boxes turn on the adc~ and dac~ objects. Adc~, Max/MSP’s analogue-to-digital converter, captures the performance of the live vocalist and converts it into a digital signal. If one double-clicks on the adc~ object, one can select the audio interface one is using to capture the vocalist’s performance. The digital signal of the vocalist then enters two other objects: dac~ and tapin~. Dac~, Max/MSP’s digital-to-analogue converter, takes the raw digital signal from adc~ and converts it to an analogue signal that can be translated into sound by speakers. The signal that moves directly from adc~ into dac~ in the module represents voice one in the canons. Voices two and three are produced via the delay created by Max/Msp’s tapin~ and tapout~ objects. The tapin~ object continuously samples the vocalist at the interval one sets after the tilde sign—the interval must be set in milliseconds. The tapin~ object is then connected to a tapout~ object that accesses the tapin~ samples.
After accessing the signal from tapin~, tapout~ regurgitates it at the interval one sets after the tilde sign. The output from the tapout~ object then enters the dac~ object so that it can be translated into sound by speakers.

The module in Figure 4 is used in the Kyrie movement, whose tempo is sixty beats-per-minute. In order to create the surface canons of the five other movements of Missa, whose tempo is not sixty beats-per-minute, I used the following proportion to determine the correct argument following the tilde signs in tapin~ and tapout~: 1 Beat/ X Beats-Per-Minute = N Beats/ 60 Beats-Per-Minute (see Table 10). My goal was to find the value of N—the value of a beat outside of sixty beats-per-minute in seconds. To find the value of N, one must divide sixty beats-per-minute by X beats-per-minute. Then, in order to accommodate Max/MSP, one must convert the value of N, which is in seconds, into milliseconds via multiplying N by 1000. Once one has the value of N * 1000, one must multiply that product by the duration of the desired delay. For example, if one wants tapin~ and tapout~ to produce a three beat delay, then one must multiply the product of N and 1000 by three—this product would then yield the correct arguments for tapin~ and tapout~ for a three-beat-delay. The entire process is depicted in the table below.

Table 10. Formula for Determining the Delay Argument for Tapin~ and Tapout~

<table>
<thead>
<tr>
<th>Part 1</th>
<th>Part 2</th>
<th>Part 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Beat/ X Beats-Per-Minute = N Beats/ 60 Beats-Per-Minute</td>
<td>(N * 1000) D Beats</td>
<td>tapin~ (N * 1000) D Beats tapout~ (N * 1000) D Beats</td>
</tr>
<tr>
<td>Example Realization of Part 1</td>
<td>Example Realization of Part 2</td>
<td>Example Realization of Part 3</td>
</tr>
<tr>
<td>1 Beat/70 Beats-Per-Minute = 0.86 Beats/ 60 Beats-Per-Minute</td>
<td>(0.86 * 1000) 3 Beats</td>
<td>tapin<del>2580 tapout</del>2580</td>
</tr>
</tbody>
</table>

MSP Tutorial 27: Delay Lines.
To create the surface canons of *Missa*, relatively large values were entered as arguments for the tapin~ and tapout~ objects. However, tapin~ and tapout~ arguments smaller than 1000 were applied to delay modules used to highlight climactic moments in the live vocalist’s part and to thicken textures throughout the piece. Figure 5 shows a delay module, paired with a filter, from the *Ite Missa Est* application used to thicken and lengthen a climactic note in the live vocal line. Displayed below Figure 5, is the section in the score where the delay effect comes into play.

![Diagram of delay module paired with Pfft~ Pitch-Shifter](image)

**Figure 5. Delay Module Paired with Pfft~ Pitch-Shifter**

**Example 19. Measure 31-33 from Ite Missa Est**
The vocalist performs the high note setting “ra” in “sospira” for three seconds and then rests for two seconds before performing the next phrase. The delay comes into play on the second beat of the vocalist’s high note overlapping with the vocalist in order to thicken the voice. While the vocalist is resting, the delay module reiterates and extends the vocalist’s high note for another half-second heightening the drama of that cadence.

**Background Bass Pedals and Descants in Missa**

Earlier in this paper, I discussed the construction of the surface canons, however, imitation also occurs in the background in Missa. The bass pedals heard in the background of each movement are, respectively, augmented and transposed samples of their opening material. Similar compositional processes are not restricted to electro-acoustic music. Machaut famously generated the tenor voice of *Messe de Nostre Dame’s* Kyrie by rhythmically augmenting *Kyrie condictotens genitor Deus*—the tenth-century chant from Gregorian Mass IV (found in the *Liber Usualis*, 25) that is used in its original form to open *Messe’s* Kyrie.


Top: Kyrie Cunctipotens genitor; Bottom: Kyrie Tenor

---

The rhythmic augmentation in Missa is much more dramatic, and the augmentation is paired with transposition (usually down an octave or two) generating a slow moving imitation of the original sampled melody—this slow moving imitation sounds like a bass pedal. Figure 6 shows the Max/MSP module that is used to generate these bass pedals.

![Figure 6. Bass pedal and Descant Module](image)

The bass pedal module is comprised of three primary objects: record~, buffer~, and groove~. The record~ object accepts signals from adc~ and records them into buffer~. In order to assign record~ a storage buffer, one must label the record~ object and then assign the same label to the buffer~ one wants to use. Following the label on the buffer~ object is a numeric argument that dictates the size of the buffer in milliseconds. Groove~ is used to process and loop the sample within buffer~.
One important auxiliary object, sig~, works with groove~ to process the samples in buffer~. Sig~ accepts messages that execute rhythmic augmentation and transposition at the same time. The message “1” is used to return a sample to its original form. The message “0.25” rhythmically augments a sample and transposes it down two octaves. The minus sign in front of 0.25 indicates that the signal is also being reversed. Groove~’s outlet connects to dac~, which converts digital signals into analogue signals that can be translated into sound by speakers.

The bass pedal module—implementing rhythmic augmentation, transposition, and sometimes reversal—is used to create the descant voice in the Gloria movement. Here, the opening material is rhythmically augmented to a lesser degree, reversed and transposed down a perfect fourth—executed by a -0.74 message—to create what sounds like an independent solo chant over the Gloria surface canon.

**Reverb, Filters, and Granularization in Missa**

Reverberation—reverb—is heard throughout Missa, however, it is not used as a global effect—it is not applied to the entire Mass uniformly. Rather, reverb in Missa is progressive—it changes over time to reflect the different characters and textures within each movement. For example, the reverb changes from medium to large in the Credo and Ite Missa Est. Both of these movements open with a medium-sized room reverb. With this reverb, one can clearly hear the opening arias, sung with common-practice vibrato, and the processed effects occurring in the background. Both also close with a cathedral-like reverb to heighten the references to medieval music in the closing canons.
The module used to create Missa’s reverb effects is Max/MSP’s “yafr2” patch, which can be found in the application’s “effects” subfolder. Yafr2 is shown in Figure 7.

![Figure 7. Reverb Module](image)

The first inlet in the reverb module shown above receives signals from adc~; the second, third, fourth and fifth inlets receive numeric messages which dictate the size of the reverb. Inlet two determines the room-size; inlet three determines decay-time; inlet four determines dampening, and inlet five determines diffusion. The outlets towards the bottom of the module output a left and right audio signal. In order to apply changing reverbs in a single movement, one must have multiple reverb modules within a patch. I placed multiple reverb modules into a single patch using the “bpatcher” object. Bpatchers allow one to embed subpatches into the main patch.
Figure 8, from the Agnus Dei application, represents the most dynamic reverb effects in the entire Mass. These dynamic effects are made possible due to series of bpatchers containing reverb modules.

![Figure 8. Four Reverb Modules and their Corresponding Automated Faders](image)

Each of the reverb modules within the bpatchers are receiving different sets of numeric messages. Respectively, each reverb module is outputting to a different pair of faders. The faders are automated to fade-in and fade-out of the different reverbs, hence, cleanly transitioning from one reverb setting to another. One reverb module cannot receive more than one message per inlet. Triggering multiple messages per inlet on a single reverb module would cause a resampling of the input, hence causing an unwanted click in the audio as the original sampling is interrupted.

Because the voice is the only sound source in Missa, filters play an important role at certain points to transform the voice and introduce new sounds to the work’s sonic pallet. Whereas no filters other than reverb are applied in the Kyrie and Agnus Dei, and moderately applied in the Credo and Ite Missa Est, filters are applied heavily to the live voice and background material in the Gloria and Sanctus.

The filters used in Missa’s patches are Max/MSP’s reso~ and pitchshifting objects. Reso~ is a resonant band pass filter—a bandpass filter that works like a timbre envelope.
A bandpass filter is “a filter that attenuates frequencies in a specified region and passes frequencies both above and below that region.” Reson~ has four inlets: the first receives audio input, the second receives a numeric value for gain, the third receives a numeric value or a line of numeric values for the central frequency, and the fourth receives a numeric value for the Q—resonance. Reson~ is used in Missa to progressively change the timbre of the voice—the module below shows reson~ as it is used in the Gloria and Sanctus. In the Sanctus and Gloria, reso~ is automated to create timbre undulations in the live and sampled voice—the swells take the voice from being unprocessed, to attenuating the voice’s lower frequencies, to returning the voice to its original quality.

Pitch-shifting is an important transformative effect in Missa. It is achieved using two different modules throughout the work. The core object in one pitch-shifting module is Max/MSP’s pfft~; see Figure 5. Pfft~ is paired with delay to create a sparkling upward glissando used to highlight important moments in the Mass. This effect is applied most prominently in the Gloria’s incipit phrase (measures one through four), and in the Ite Missa Est Aria (see Figure 5 and Example 19). The second pitch-shifting module utilizes the transposer patch, which can be found in Max/MSP’s “effects” subfolder. This module is used to harmonize the live voice and its samples.


48 Max/MSP 6 Documentation: reson~ Reference.
The transposer patch, which is shown below, has two usable inlets: the first accepts audio input from adc~, and the second accepts a numeric message representing midi-cents.

![Transposer Module Diagram](image)

**Figure 10. Transposer Module**

The midi-cents message determines the interval of transposition. The interval of transposition must be represented by the number of half-steps multiplied by 100; for example: an ascending minor third is set by the number 300. For a descending interval, one must place a minus sign in front of the desired midi-cent interval number.

One of the most dramatic effects used in *Missa* is granularization. Granularization, or granular synthesis, is “the use of a large number of grains [, small fragments of a sound,] to synthesize [a new] sound.”

---

Missa’s granularization module, which is shown in Figure 11, samples the live voice and breaks it up into relatively large grains—ranging from one second to eight seconds in length. A number of the grains are looped, pinched or stretched, reversed, transposed and multiplied using delay. The resulting effect is that of a choir of murmuring voices.

Figure 11. Granularization Module

*Missa’s* granularization module is comprised of three small modules. The primary module—built using the record~, buffer~, and play~ objects—samples and processes the live voice. The live input is recorded by record~ and the recording is stored in buffer~. Play~ then loops and processes what is stored in buffer~. Notice that record~, buffer~ and play~ are all labeled with the word “granulize.”
The matching label allows for these objects to record into or draw from the same buffer. Connected to each play~ object are two messages—“start” followed by three numeric arguments, representing durations in milliseconds, and “loop $1.” The “start” message dictates how a sample is played back. The first argument determines where play~ begins playing the sample. The second argument determines where play~ stops the playback of a sample. One can play a sample in reverse if the first argument is larger than the second argument. The third argument, which can be used to create time and pitch shifting, determines how fast a sample is played back. If the third argument is smaller than the difference between arguments one and two, then the sample will play back at a higher pitch and a faster rate than the original. Conversely, if the third argument is larger than the difference between arguments one and two, then the sample will play back at a lower pitch and a slower rate than the original.

The primary module, represented by objects in green, is automated by a secondary module, which is comprised of the yellow objects in Figure 11. The secondary module is comprised of a metronome, counter and select object. This module is designed to count seconds and send out a signal every ten seconds that either activates record~ or turns it off. This allows for the live input to be sampled periodically, hence preventing the granularization to get stagnant—granularizing the same sample throughout a movement. The output of the primary module is received by two pfft~ objects paired with delay objects—this module was discussed in the paragraphs above and is shown in Figure 5. These pfft~ modules are used to create a sparkling upward glissando in the granularized sounds.
Review of the Ite Missa Est

In the sections above I deconstruct the music of Missa della Grande Transizione exposing its compositional methods and technological components. The following section reviews the composition of the Ite Missa Est. This review will show how compositional techniques and technology come together to produce the music of this Mass. I chose the Ite Missa Est for this task because it is the pinnacle movement of Missa—every compositional and technological device, with the exception of the reson~ module, is utilized in this movement.

The Ite Missa Est commences with a monotonous chant of the incipit that is sampled, processed and looped to create an ostinato that commences in measure eight, and is used to accompany the “Dame son fatti…” aria that commences in measure nine.

Example 21. Measures 1-12 of the Ite Missa Est

[Musical notation image]
The module used to sample, process and loop the incipit is shown in Figure 6. The looped monotone incipit (the ostinato)—represented in the score by the blue track—consistently reiterates scale-degree one in the background supporting the vocalist in his/her performance of the aria, which shifts between Aeolian mode and Phrygian mode on the same tonic. In measure fourteen, and then in measure nineteen, the same module used to create the ostinato is employed to generate two bass pedals.

Example 22. Measures 13-24 of the Ite Missa Est

These bass pedals, represented by track two and track four in the score (Example 22), serve to thicken and broaden the range of the aria’s accompaniment. The bass pedals are created by processing the opening incipit sample. The sample is reversed, time-stretched and transposed down a perfect fourth (in the case of track two) and transposed down two octaves (in the case of track four) to create constant pedals on scale degree five and scale degree one.
In measure seventeen, also shown in Example 22, the transposer module—represented in Figure 10—is used to harmonize the ostinato. The resulting effect is that of an ensemble of three voices reiterating the ostinato as a quintal sonority. The harmonized ostinato is represented by track three in the score. The aria ends on measure thirty-three, in which the pfft~ module, shown in Figure 5, is applied to highlight the word “sospira” with an upward sparkling glissando.

Example 23. Measure 31-46 of the Ite Missa Est

All tracks, except for track four—the bass pedal on scale degree one, fade out in measure thirty-four to lighten the texture in order to accommodate a rhythmic reading between measures thirty-five and thirty-nine (see Example 23).
The “Deo gratias” canon, composed using the “anima” melodic excerpt from the Gloria (see measures thirteen through fifteen of the Gloria’s score), follows the rhythmic reading. The “Deo gratias” canon—a three-voiced canon at the unison—is built on a three beat delay. The canon is constructed utilizing the staggered method, loosely applying the imperfect-to-perfect contrapuntal technique, depicted in Example 8. Technologically, the canon is generated using the delay module shown in Figure 4. The Ite Missa Est ends on a quintal sonority, produced by three voices, setting the word “gratias” to music. The three voices are transposed copies of the live voice—the transposer module, shown in Figure 10, is employed here again to create this effect.

Two reverb modules are used in the Ite Missa Est. The first module is set to imitate the reverberation of a Cathedral. The Cathedral reverb fades out in measure eight and is supplanted by the reverb of a small hall—this reverb is used to help the clear dissemination of the aria. This reverb is used until the entrance of the “Deo gratias” canon. The small hall reverb fades-out while the Cathedral reverb enters in measure forty to give the “Deo gratias” the desired medieval ambiance. (Please refer to Figures 7 and 8 to see how the reverb modules work).

As one can see, composition and technology successfully integrate to create the music of Missa della Grande Transizione. The experience of this work is heightened with its stereographic video that visually places the listener in a nuptial Mass. The following chapter will delineate how Missa’s stereographic video was constructed.
CHAPTER 4
CONSTRUCTING THE VIDEO

Missa’s videos, as mentioned before, were constructed from stereograms taken at my grandparents’ wedding. My late great uncle Fermin Seigido, a technology enthusiast, photographed my grandparents wedding using a stereo camera and then mounted the positives for viewing through a stereoscope. Figure 12 shows one of my uncle’s stereo pairs mounted for a stereoscope.

After my father, Roberto Seigido, digitally scanned and archived these stereograms, they can now be printed and viewed with the naked eye/without the aid of a stereoscope utilizing the “Parallel Technique.”
This technique “involves making the lines of sight of the left and right eyes nearly parallel as if looking at something far away.”

Figure 13. Stereogram from my Grandparents’ Wedding

Two approaches to the parallel technique are clearly delineated in the authoritative *Super Stereogram*—a 1994 compendium of “stereo pairs,” “random dot stereograms,” and “stereo wallpaper” by leading 3D artists containing a forward by David Burder—lecturer on “stereoscopic perception,” president of the Stereoscopic Society and “British-based multimedia 3D artist”—on the origins of 3D art:

The Parallel Technique: Approach A

Focus on an object in the distance. Maintaining that focal point, insert the [image] between your eyes and a distant object. The image in the book will be blurry, but that’s all right. Try to stare blankly, without actually “looking” at anything. Move the [image] forward and backward. When you reach the right spot, your eyes will focus on their own and the image will come into view.


51 Ibid, 4, 5, 94.
The Parallel Technique: Approach B

As in Approach A, start by focusing on a distant object. Without losing that focal point, hold the [image] flat up against your face. Don’t try to bring the blurred image into focus. Move the book slowly away from your face. Move the book slowly away from your face. The tree-dimensional image will come into focus automatically.  

The parallel method is impractical for video art, therefore for Missa’s videos, my grandparents’ stereograms are integrated into one image for viewing through red-blue 3D glasses, which are available inexpensively in mass quantities online.

Figure 14. Red-Blue 3D Glasses (top); Red-Blue Composite (right)

Missa’s videos—one per movement—are constructed with layers of these red-blue composites created from my grandparents’ stereograms. In line with the idea of compositional economy, these composites are the only source materials for Missa’s videos—in which the red-blue composites are processed and animated to match with the character of the music.

52 Ibid, 10.
The first part in this process was to create the stereographic video files—each of my grandparents’ stereographic stills were converted into video tracks, processed individually, integrated and then exported as stereographic video files. The second part was layering the video files together to produce each movements’ video backdrop. This second step is essentially the creative aspect of the videos’ construction—compositing the multiple videos and applying effects and movements to taste.

The music served as the guiding force for the length, character and form of the final videos. Each task was completed using two applications from the Adobe Premier Pro CS 5 software suite—Adobe Premier Pro, a video editor, and Adobe After Effects, a video compositor. The procedures below outline how each task was completed.

### Part One: Creating Stereographic Video Files for Layering in the Final Videos

1. Import a left-side image and its corresponding right-side image into Adobe Premier Pro. Then, place the left-side image into the top video track; place the right-side image into the bottom video track.

![Figure 15. Placing Images into Adobe Premier Pro Timeline](image)
2. Apply effects and movements to the left video track, then, apply the same processes to the right video track. The canvas window displays one’s effects settings. Refer to the information in the canvas window to reproduce the effects in the left video track to the right video track.

3. After effects and movements have been applied equally to both tracks, export the left track into a video file and then export the right track into a video file. Open the left video and the right video in Adobe Premier After Effects for integration.

4. Drag the left and the right videos into the timeline towards the bottom of the screen. Select “3D Glasses” in the “Perspectives” folder under the “Fx and Presets” tab towards the right side of the screen. Drag-and-drop the “3D Glasses” effect onto the left video track in the timeline.
5. Click on the effects control tab on the left side of the screen. In the “Left View” pull-down menu, select the left-side video. In the “Right View” pull-down menu, select the right-side video. Now one has a preliminary integration that must be adjusted for a more optimal integration—these adjustments must accommodate changes in perspective due to the processing that was applied to the left and right videos in Adobe Premier Pro.

6. View the preliminary integration through red-blue 3D glasses. Adjust the “scene convergence” and the “vertical alignment” settings in the effects control tab as the video’s perspective changes to produce the optimal integration.

7. Render and then export the integrated videos into a single video track.

**Part Two: Creating the Final Videos**

1. Open the desired integrated videos in Adobe Premier Pro. Before placing videos onto the timeline, I had to decide which video(s) would appear in the forefront and which videos would appear in the background—the topmost track in the timeline will display the foreground images in the video.

2. Before continuing to work, I imported an audio file—a sample performance of one of Missa’s movements—that corresponded to the video I was working on. The audio files dictated the lengths and characters of each video. The audio file was placed in an audio track in the timeline, which lies beneath the first video track in the timeline.

3. To apply effects and movements to a video track, drag that video track into the canvas window. To apply an effect to a video track, drag-and-drop the selected effect from the “effects” folder, on the left side of the screen, to the video track. Then adjust the effect to taste in the effect’s controls in the canvas window. The chart below shows the effects that were used in the composition of Missa’s videos; Adobe Premier Pro was the only software used to apply effects to the videos. The left column lists the effects categories; the right column lists the specific effects within those categories.

<table>
<thead>
<tr>
<th>Perspective</th>
<th>Motion, Basic 3D, Magnify</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Distortion</td>
<td>Solarize, Transform, Compound Blur, Turbulent Displace,</td>
</tr>
<tr>
<td>Opacity</td>
<td>Opacity</td>
</tr>
</tbody>
</table>
4. Render and then export the final video, without the sample audio, to a video file that can be read by a standard DVD creator such as iDVD, DVD Studio Pro, or Encore—which is part of the Adobe Premier Pro CS 5 software suite. *Missa*’s videos are in HD widescreen format; the videos were rendered at 720 X 480—video quality and size.

![Render and Export Settings for Missa’s Videos](image)

**Figure 18. Render and Export Settings for Missa’s Videos**

**Outlook for Missa della Grande Transizione**

Although fresh off the drawing board, *Missa* has been performed in part in Festival Miami 2012 and more performances are scheduled for the spring of 2013. To my delight, it, thus far, has been well received by lay audiences and musicians alike. The next step in the life of this work is professional documentation. A professional fixed rendition of *Missa* will allow it to be distributed more easily for the sake of soliciting performances worldwide.
Missa della Grande Transizione is my most ambitious contribution to the repertoire of electro-acoustic music thus far, and my compositional explorations in this work have given rise to numerous new projects that will feature live processing and stereographic video.
Missa della Grande Transizione
for live processed voice and stereographic video

music and videos by
Liza Seigido

©2012
INTERPRETING THE SCORE

ribattuta di gola: throat articulation

trillo: an accelerating tremolo on a single note produced in the throat

straight tone to regular vibrato

straight tone to hyper vibrato

The number boxes placed underneath each system correspond to the number boxes in the patches. These number boxes display the number of elapsed seconds.

The red number boxes underneath the last systems display the final second of each movement. The patches are programmed to shut off the audio on the final second. Do not close the patch in use until the final second is reached.
TECHNICAL SET-UP

1. The patches of Missa della Grande Transizione take input and output in stereo. You will need two performance-condenser microphones to sample the vocalist, and an audio interface with two inputs and two outputs. If you are having trouble with feedback, use dynamic microphones.

2. Make sure that the driver for your audio interface is compatible with your operating system.

3. The Missa applications are Mac and PC compatible. For Mac, use the applications in the “Missa Applications” folder. For PC, download Max/MSP Runtime 6 (Max/MSP Runtime is FREE) from cycling74.com and use the applications in the “Missa Patches” folder.

4. There is one Missa application per movement. You may not have more than one Missa application open at the same time. Open the correct application.

5. You do not need an external reverb effects box. The Missa applications have built in progressive reverbs.

6. Optional: Click on “open” to record your performance. You can save your performance as a .wav or as an aiff.

7. Click on adc~ to select your audio interface from a pull-down menu. Do not turn on the audio.

8. If you are performing with one of Missa’s stereographic videos, click on the red dot below “START” once the video has commenced.

9. Refer to the “Metro” and the ”TIMER IN SECONDS” to interpret the score.

10. The Missa applications do not automatically reset after being used. In order to reuse an application after it has been fully or partially run, you must close and reopen the application.
KYRIE
(transposable for any voice)

text by: Francesco Petrarca (1304-1374)

music by: Liza Seigido

Ky - rie - e - lei - son!

Chri-st-e e - lei - son!

Pe-ro s'um cor pien d(i) a-mo-no sa
fe de pu-co oon-te tar-ve
piu-ca-vi a-mai di ques-to a-ver mer-ce-do

Perform the ritardando naturally; the 30 second fade out at the end of the piece will compensate for this ritardando. Allow the final F# in this phrase to bleed into the upcoming 3 beat delay.

©2012
KYRIE

3 voice canons at the unison built on a 3 beat delay

ROUND 2: 38 second fade-out
GLORIA
(1304-1374)

Vocalist

Transposer patch from examples folder:
Middle Voice: 700 midi cents
Top Voice: 1400 midi cents

Track 1 REVERED 2 (See 3 sec!)

Sampling "Gloria in excelsis Deo." Sampling ends after 17 sec.

Live Pitch Shift: Top and Bottom Voices

Vocalist: Middle Voice

©2012 Liza Seigido
CREDO
(transposable for any voice)

text by: Francesco Petrarca (1304-1374)
music by: Liza Seigido

\[ \text{vocalist} \]

Track 1: Sampled Breath (14 sec.)
Sampling breath. Sampling ends after 8 sec.

Track 2: Stretched Sampled Breath (26 sec.)
Sample "Patrem Omnipotentem" (12 sec.)
Sampling ends after 25 sec.

Track 3: "Patrem Omnipotentem"
Stretched, Reversed, & Transposed Down a P4 — groove~ message: 0.75 (39 sec)

Track 4: "Patrem Omnipotentem" Stretched & Transposed Down 2 Octaves—
groove~ message: 0.25 (53 sec)

Track 5: Granularization of "Patrem Omnipotentem" & Live Input (110 sec.)

©2012
SANCTUS
(transposable for any voice)

text by: Francesco Petrarca (1304-1374)

music by: Liza Seigido

©2012
Vocalist and sampled vocalist tracks must synchronize. "Listen" in order to compensate for starting time.

Agnus Dei

non-Mass text by: Francesco Petrarcha (1304-1374)
music by: Liza Seigido

Vocalist

Sampled Vocalist

Sampled Vocalist

Sampling vocalist. Sampling ends after 28 sec.

Playback of original sample. Resampling vocalist for another 28 sec.

Playback of original sample and second sample.

©2012
Agnus Dei

Track 1: "Agnus Dei Sample 2" Reversed & Transposed Up a M3 groove: message: 1.2 (16 sec.)

Track 2: "Agnus Dei Sample 2" Reversed & Transposed Down a M2 groove: message: 1.2 (16 sec.)

Track 3: "Agnus Dei Sample 2" Reversed & Transposed Down a P4 groove: message: 1.2 (16 sec.)

Track 4: "Agnus Dei Original Sample" (ROUND 2: 171 sec.)

Track 5: "Agnus Dei Original Sample" Reversed & Transposed Down 2 Octaves groove: message: 1.2 (171 sec.)

Track 6: "Agnus Dei Original Sample" Reversed & Transposed Down 2 Octaves groove: message: 1.2 (171 sec.)

Live Processing After ROUND 2 5 min, 30 sec (Audio OFF)
ITE MISSA EST
(transposable for any voice)

text by: Francesco Petrarca (1304-1374)

music by: Liza Seigido

\( \text{\textcopyright2012} \)

\[ \text{\textfractionslash} = \text{60} \]
\( \text{\textit{p} senza vibrato} \)

Vocalist

Sampling "Ite missa est." Sampling ends after 42 sec.

Live Processing

\[ \text{\textfractionslash} = \text{40} \]
\( \text{mf espressivo con vibrato} \)

Track 1: Sampled "Ite missa est." (43 sec.)

Track 2: "Ite missa est" Stretched, Reversed & Transposed Down a 4ths & message: \( \text{E} 0.75 \) (63 sec.)

Track 3: Live Pitch Shift of Track 1
Top Voice: +700 midi cents (Up a 5ths)
Bottom Voice: -700 midi cents (Down a 5ths)

Track 4: "Ite missa est" Stretched, Reversed & Transposed Down 2 Octaves & message: \( \text{E} 0.25 \) (88 sec.)

Track 5: Live Pitch Shift of Track 1
Top Voice: +700 midi cents (Up a 5ths)
Bottom Voice: +700 midi cents (Up a 5ths)

\( \text{E} \) (88 sec.)

using transposer patch from examples folder
BIBLIOGRAPHY

Scores


Recordings


Books, Articles, and Concert Programs


**Software Information, References, and Tutorials**

Adobe After Effects CS5.5: Version 10.5.0.253

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Max/MSP 6: Version 6.0.5 (1741622)

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MSP Tutorial 27: Delay Lines