An Examination of Lukas Ligeti’s Thinking Songs: An Analysis of Compositional Techniques for Ligeti’s Contemporary Solo Marimba Composition

Caitlin Jones

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AN EXAMINATION OF LUKAS LIGETI’S *THINKING SONGS*: AN ANALYSIS OF COMPOSITIONAL TECHNIQUES FOR LIGETI’S CONTEMPORARY SOLO MARIMBA COMPOSITION

by

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DEDICATION

In honor of my parents, Chip and Catherine, for always being my biggest supporters. Also, to my music teachers, from childhood piano lessons to doctoral study, for inspiring me and being a source of encouragement.
ACKNOWLEDGEMENTS

I would like to thank the members of my committee, Dr. Scott Herring, Dr. J. Daniel Jenkins, Dr. Kunio Hara, and Dr. Tonya Mitchell for their support and guidance throughout the dissertation writing process. Thank you to my major professor, Dr. Scott Herring, for your encouragement over the course of this degree and for your guidance over the course of all my recitals, comprehensive exams, and final document. Thank you to Dr. J. Daniel Jenkins for all of your help with editing and proofreading, as well as serving on a number of my committees in recitals and comprehensive exams. To Dr. Kunio Hara, thank you for all of your guidance with editing and encouragement throughout both the document and comprehensive exams. To Dr. Tonya Mitchell, thank you for all of your support over the past year in both my playing and writing.

Thank you to Lukas Ligeti for taking the time to participate in phone interviews, converse through email, and allowing me to explore Thinking Songs.

Finally, thank you to my friends and family who have been a constant source of support over the course of this degree.
ABSTRACT

Thinking Songs by Lukas Ligeti is a contemporary solo five-octave marimba work containing five movements. Thinking Songs is expansive in terms of length, content, and marimba technique. This study explores compositional influences throughout the piece and unveils influences in both Western Classical music and African music. This document contains seven chapters and a bibliography. Each movement unveils unique compositional influences that will be explored. Movement One, “Dance,” reveals the music of the Chopi people and timbila xylophones to be a compositional influence. The standard lamento bass line, as well as György Kurtág are stylistic influences in movement II, “Lamento.” Movement III, “Four-Part Invention,” finds its influence in the inventions and fugues of J.S. Bach. Movement IV, “Scherzo,” utilizes a prepared marimba and is influenced by a waltz in the third movement of Mahler’s Symphony No. 7. The final movement, “Two-Part Invention,” is influenced by amadinda music merging with the American music trend of the second half of the 20th century, minimalism. Lukas Ligeti merges styles from African music and traditional Western Classical music, as well as styles from different eras of music to the present to create an expansive solo five-octave marimba work.
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CHAPTER ONE

INTRODUCTION

The history of the marimba and the marimba’s exact origin are partially unknown to today’s musicologists and performers. The marimba gradually made its way into the United States in the early twentieth century by marimba bands consisting of marimbas primarily from Guatemala.\(^1\) J.C. Deagan and U.G. Leedy, working in the United States, made alterations to the Guatemalan marimba, increasing its range from three octaves to four octaves in the early 1920s.\(^2\) The new instrument consisted of wooden bars with metal resonators underneath that supported the sound, much like marimbas of today. Marimba orchestras (as large as 150-member groups) were found throughout the country, and the marimba was gradually seen as a solo instrument with the first concerto by Paul Creston in 1940.\(^3\) Solo marimba repertoire launched to a new level with pioneers such as, the Japanese musician, Keiko Abe leading the commission and solo marimbist movement. The instrument gradually became larger as well, increasing from four octaves to the new standard (still held today) of the five-octave marimba.

As the five-octave marimba became the new standard, marimba literature gradually expanded. However, with just under a century of solo pieces in existence, the repertoire for both four and five-octave marimba solos is far from expansive. What are

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considered “classics” or “masterworks” for the instrument have primarily been written in the last fifty years. The repertoire only contains a handful of standards while some other instruments have hundreds of masterworks in their literature.

1.1 Purpose of the Study

Thinking Songs by Lukas Ligeti is a five-movement solo marimba work that was commissioned by sixteen prominent marimbists (Joe Bergen, Gwen Dease, Eric Cha-Beach, Edward Choi, Kevin Clarke, Haruka Fujii, Barrett Hipes, Laura Jorda, Ji Hye Jung, Ayano Kataoka, Eduardo Leandro, Peter Martin, Todd Meehan, Doug Perkins, William Moersch, and Greg Zuber) and was composed from 2005 to 2015. The piece was performed at the 2016 Percussive Arts Society International Convention in Indianapolis, Indiana by Eric Cha-Beach (movement I, “Dance”), Todd Meehan (movement II, “Lamento”), Ji Hye Jung (movement III, “Four-Part Invention”), Doug Perkins (movement IV, “Scherzo”), and Ayano Kataoka (movement V, “Two-Part Invention”). Currently, Ji Hye Jung, professor of percussion at Vanderbilt University, is the only person to have played the worked in its entirety.

Thinking Songs is expansive in terms of length, content, and marimba technique. The purpose of this study is to examine the work through analysis and performance. The piece was written by a percussionist who focuses a large portion of his time composing and creating new sounds and ideas previously unemployed in marimba literature and other instrumental genres. While research will unveil many themes that can be applied to Thinking Songs, interviews with Lukas Ligeti will potentially display new ideas and

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4 Lukas Ligeti, Thinking Songs (Brooklyn: Lukas Ligeti Productions, LLC, 2015).
processes that are currently sparse in solo marimba literature. This will lead to informed interpretive decisions for the performer.

*Thinking Songs* is far from the norm of what is currently in the solo marimba repertoire and this only adds to the need for it to be explored, performed, and shared.

### 1.2 Need for Study

Currently, there are no published writings on *Thinking Songs* and very few writings on Lukas Ligeti. Lukas Ligeti was born in Austria in 1965 to György and Vera Ligeti. He began his musical career by learning percussion and studying composition at the University of Music and Performing Arts in Vienna, Austria. He moved to New York City in 1998 and began traveling back and forth to Ghana, Uganda, and South Africa. Ligeti’s travels have yielded a unique synthesis of styles in his works, what Ligeti has coined as “experimental intercultural collaboration.” This blending of styles can be found throughout *Thinking Songs* and will be investigated throughout this document. Ligeti is currently an assistant professor of music at University of California, Irvine.

The material that can be found on Ligeti is sparse. He has several interviews with magazines and newspapers, such as an interview with Vivien Schweitzer of *The New York Times*, “A Son Composes His Own Path.” This interview examines Ligeti’s youth and how life with a notable composer as a father pushed him to find his own voice within

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8 Ibid.
9 Ibid.
music. He has written several articles himself, but none specifically related to his compositions or composing styles for solo marimba. A topic Ligeti often presents on or writes about is electronic music blending with African music. His article, “Beta Foly: Experiments with Tradition and Technology in West Africa” is a representative example. Kurt Dahike, a “German electronics expert,” and Ligeti formed a group, “Beta Foly,” that composed and improvised music with German electronics and West African traditional instruments. In addition to writing on this blending of elements, Ligeti presented at the Unyazi Electronic Music Festival in Johannesburg, South Africa on “The Burkina Electric Project.” This group featured two musicians, two dancers, electronics, and drums to blend electronics with traditional music of Africa. A summary of the presentation can be found in Ligeti’s journal article, “The Burkina Electric Project and Some Thoughts About Electronic Music in Africa.”

Many contemporary marimba works are written by active marimbists, and they often compose “at the instrument.” In the case of Thinking Songs, the composer is writing “away from the instrument.” It is possible that this will add new insights to the realm of solo marimba literature and will lead to passages that are not idiomatic to the instrument. With this likely comes new theoretical ideas and furthers the advancement of marimba literature as well as what is expected of the contemporary performer. This study provides an opportunity to test these hypotheses.

11 Ibid.
13 Ibid.
15 Ibid.
16 Ibid.
Lukas Ligeti has coined the term “experimental intercultural collaboration” to describe his composition style.\textsuperscript{17} This comes from his travels to South Africa, Ghana, Egypt, life in New York City, and birth in Austria. This blending of styles lends itself to “complex polymetric structures” which are found throughout \textit{Thinking Songs} and many of Ligeti’s works.\textsuperscript{18} Deciphering how this blending of styles is used throughout the piece will lend more insight not only to the work specifically, but to Ligeti’s compositional process and writing style in general.

1.3 Related Literature

Email communication and phone calls with Lukas Ligeti will be a significant resource to the examination of this piece. The lack of sources on Lukas Ligeti in general, and about \textit{Thinking Songs} specifically, however, pose a limitation. Additionally, there is no professional recording of the piece, which necessitates performing and analyzing the work. The analysis can be guided by studying precursors of \textit{Thinking Songs} and gathering influences from Lukas Ligeti.

Gerhard Kubik is an ethnomusicologist who is noted for his extensive research in African music. Kubik has spent time across the continent exploring the instruments, styles, and genres of African music including but not limited to timbila xylophones of the Chopi people of Mozambique and amadinda playing in southern Uganda. Kubik has published several papers on these topics and has compiled them into two volumes, \textit{Theory of African Music} Volumes I\textsuperscript{19} and II.\textsuperscript{20} Kubik’s detailed descriptions, photos, and

\textsuperscript{17} Ligeti, “Biography.”
\textsuperscript{18} Ibid.
first-hand accounts offer detailed insight into these styles and genres and were recommended by Ligeti.  

John M. Chernoff offers insight into the rhythmic structure of African music in his journal article “The Rhythmic Medium in African Music.” Chernoff is also an ethnomusicologist who has extensively studied African music, particularly in regions of West Africa. His journal article highlights many standard patterns of African rhythms in Western 12/8 meter and will be examined in Chapter Two.

Ellen Rosand, musicologist and professor at Yale University, has a journal article, “The Descending Tetrachord: An Emblem of Lament,” and an entry in Grove Music Online, “Lamento,” that highlight the common trends in the lamento genre. These two articles highlight specific composers who often wrote in the genre, such as Monteverdi, and the common trends that occur in the genre, such as “the descending minor tetrachord” often found in lamentos. Peter Williams, ethnomusicologist and organist, also explores the lamento bass line in his text The Chromatic Fourth During Four Centuries. Williams cites specifics characteristics of the descending tetrachord and reveals that different variations can occur within the four note pattern. Rosand’s and Williams’ findings serve as a basis in the examination of movement II, “Lamento,” which can be found in Chapter Three.

21 Lukas Ligeti, phone interview by author, October 22, 2018.
26 Peter Williams, The Chromatic Fourth During Four Centuries of Music (New York: Oxford University Press, 1997.)
In addition to the common descending tetrachord found throughout the lamento genre, Ligeti notes György Kurtág as an influence in “Lamento.” Bálint András Varga is a musicologist who has transcripts of his interviews with Kurtág. This document utilized two chapters of Varga’s text, *György Kurtág*, “A Brief Biography of György Kurtág,” and “Mementos of a Friendship: György Kurtág on György Ligeti.” The biography goes into Kurtág’s early musical life and how his style gradually developed. Kurtág and György Ligeti’s friendship is outlined through two speeches by Kurtág, one to Ligeti in 1993, and one in Ligeti’s memory in 2007. These speeches are outlined in Varga’s text and Varga notes they are the only pieces of writing that exist by Kurtág “apart from his short preface to the piano series *Játékok*.” Varga’s text provide detail into Kurtág life and can be applied to movement II of *Thinking Songs*.

Movement III, “Four-Part Invention,” resembles the inventions of J.S. Bach. Two texts uncover Bach’s style patterns in his inventions and were utilized in this document. The first by Laurence Dreyfus, *Bach and the Patterns of Invention*, begins by uncovering what an invention is (although as Dreyfus notes, there is no set definition of the term, but style characteristics can lead to an invention being formed), and uses specific inventions from J.S. Bach to help unveil what can fall under the term invention. In addition to Dreyfus’ text, Leon Stein, composer and music analyst, focuses on typical formal structures of different musical forms in his text, *Anthology of Musical Forms – Structure*.

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27 Lukas Ligeti, phone interview by author, January 26, 2019.
30 Ibid, 89.
and Style: The Study and Analysis of Musical Forms. Stein’s text reveals several traits that are characteristic of many forms including the invention and the fugue, which will be used to survey movement III of Thinking Songs.

Steve Reich, composer and one of the leading figures in American minimalist music, offers a tool that can be valuable to performers when learning “Four-Part Invention,” phasing. His book, Writings on Music, 1965–2000, analyzes his own compositional processes. A valuable resource on performing the music of Reich is Russell Hartenberger’s book, Performance Practice in the Music of Steve Reich. Hartenberger, a percussionist himself, gives a detailed look at the “anatomy of a phase” and uses several music models of Reich’s that can potentially serve as models in “Four-Part Invention.” Hartenberger provides detailed descriptions of the several different thought-processes a musician can utilize when performing a phase.

Minimalist trends can be found throughout movement V, “Two-Part Invention.” In addition to Reich’s writings, Timothy A. Johnson, professor at Ithaca College, discusses what the term “minimalism” implies in his journal article, “Minimalism: Aesthetic, Style, or Technique?” Johnson outlines several characteristics that can be found within minimalist pieces and will be examined in Chapter Six.

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CHAPTER TWO

MOVEMENT I, “DANCE”

The merging of African music and Western Classical music, mainly rhythmic motives from timbila xylophones of the Chopi people, and Western melodies and phrasing can be found throughout movement I of *Thinking Songs*, “Dance.” Ligeti calls for “normal” marimba mallets as well as “headless” marimba mallets. With four-mallet technique, the inner two mallets or voices, are played with the headless mallets and the outer two voices are played with normal marimba mallets. This can be seen in m. 1–64 and m. 117 to the end of the movement. The middle of the movement, m. 64–116, are played with four normal marimba mallets.

The movement opens with an uneasy, quiet roll using headless mallets that gradually grows in volume, as if to signal the work is starting. The headless mallets offer a unique timbre for the instrument. They have a thin, staccato sound in comparison to the rich, full sound of a normal yarn mallet. The movement then locks into a brisk tempo with constant sixteenth notes driving forward, and two voices begin to emerge, notated as one in the right hand and one in the left hand. The voices alternate between a pair of sixteenth notes and are never struck together throughout the introduction. Although the rhythm stays constant as well as the pairs of sixteenth notes, the voices move independently of one another. An A-flat major scale is gradually formed with an arrival point at rehearsal A on Eb4. The pitches gradually close in to reach this pitch, which
becomes a common trend at arrival points throughout the movement. One of the first signs of African influence can be found at letter A. Ligeti notes, “After spending a lot of time in Burkina Faso and working with traditional musicians there, I have discovered a rhythm called waraba. You can write this rhythm as an eighth note followed by four sixteenth notes.”  

This can be seen at letter A (figure 2.1)

Figure 2.1 waraba rhythm, Letter A, m. 21, Mvt. I

The waraba rhythm, like many rhythms of African cultures, can be manipulated and transformed. Ligeti adds, “The question now, is where do you put the beat?” This will be a common question throughout the movement.

Burkina Faso is a land locked country in the Northwestern region of Africa. Ligeti, as mentioned previously, has spent time in Burkina Faso and explored the native music of the region. A topic Ligeti occasionally presents on or writes about is electronic music blending with African music. His article, “Beta Foly: Experiments with Tradition

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36 Lukas Ligeti, phone interview by author, October 22, 2018.
37 Ibid.
and Technology in West Africa” is a representative example.  
Kurt Dahike, a “German electronics expert,” and Ligeti, formed a group, “Beta Foly,” that composed and improvised music with German electronics and West African traditional instruments. 

In addition to writing on this blending of elements, Ligeti presented at the Unyazi Electronic Music Festival in Johannesburg, South Africa on “The Burkina Electric Project.”  
This group featured two musicians, two dancers, electronics, and drums to blend electronics with traditional music of Africa.  
A summary of the presentation can be found in Ligeti’s journal article, “The Burkina Electric Project and Some Thoughts About Electronic Music in Africa.”  

Letter A starts with a clear down beat of an eighth note, followed by four sixteenth notes. In Western notation, the 12/8 meter can be broken into four distinct units each with three eighth note pulses per unit. As letter A progresses, it becomes apparent the division of 12/8 meter will not be constant. Measure 23 divides the bar into six units with two eighth note pulses each (figure 2.2).  

Figure 2.2 waraba rhythm transformed, m. 23, Mvt. I  

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40 Ibid.  
42 Ibid.  
43 Ibid.
This change creates a sense of rhythmic ambiguity. The division of bar further adds to the indistinguishable time signature and sense of beat. Ligeti, however, makes it clear the unawareness of time is, in fact, the goal. John M. Chernoff, ethnomusicologist and author of *African Rhythm and African Sensibility*, further adds to Ligeti’s ideals in his journal article, “The Rhythmic Medium in African Music,” “the inability to distinguish a rhythmic foundation results in alienation evidenced as the experience of monotony or its complement, the experience of cacophony. Even without variation, a simple rhythm can be potentially disorienting, and African music exploits this ambiguity of perspective.”

Letter A further signals a transition in the movement—the introduction is now being developed through new pitch and rhythmic content. The pitch E-flat gradually tapers away as an unexpected pitch D is brought into the lower voice. The *waraba* rhythm continues to be manipulated throughout these seven measures, as the two voices gradually move outwards in contrary motion to pitch A.

The idea of avoiding a down-beat becomes a common occurrence in many African cultures. John M. Chernoff further adds the “main pulse” or “downbeat is often unsounded.” Letter B further continues the disassociation of time by avoidance of downbeats and emphasis on different partials of groups of inner notes. Here, the introduction seems to reach its arrival. Oscillating eighth notes form the foundation of this section, with A being the central pitch. The measure before letter B signifies a change as the lower voice uses a normal mallet for the first time in the work. The inner

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44 Lukas Ligeti, phone interview by author, October 22, 2018.
46 Ibid, 1098.
voices remain on pitch A and repeat their respective patterns every two measures while the outer voices form broken triads and sound irregularly. The notation used is modeled after John M. Chernoff’s where “X” indicates a struck note and “.” indicates a space or rest. In 12/8 meter with two complete measures, there will be twenty-four units (twelve eighth notes per measure). The inner voice of the right hand, A4, is labeled “M3” for mallet three, and the inner voice of the left hand, A3, is labeled “M2” for mallet two (table 2.1).

Table 2.1 Inner voice rhythms, Letter B, Mvt. I

|-----|---------------------------------------|

With the exception of one eighth rest, if the lower voice line is shifted to the left one unit, or the upper voice is shifted to the right one unit, the voices then align (table 2.2).

Table 2.2 Manipulation of rhythm, Letter B, Mvt. I

|-----|---------------------------------------|

It is clear the lines are in this way related, yet by offsetting them one eighth note, rhythmic ambiguity is created. The outer voices further add to this, by using pieces of broken triads and placing them within seemingly arbitrary areas of time. The triads move in contrary motion towards each other in the outer voices. The high voice displays two

triads, one consisting of G♯5, E5, and C♯5, and the other consisting of A5, F5, and D5. The lower voice also displays two triads, one consisting of pitches B♭2, D3, and F3, and the other consisting of A2, C♯3, and E2 (figure 2.3).

Figure 2.3 Contrary motion of outer voices, mm. 38–43, Mvt. I

These triads move independently as they gradually pull towards each other without lining up until just before another arrival in m. 55 (figure 2.4).

Figure 2.4 Contrary motion leading to arrival point in m. 55, Mvt. I
Ligeti notes, “I wanted to work with accelerations, expansions, and contractions throughout letter B of the first movement. There is an implied accelerando occurring in the notes played with the normal sides of the mallets. They begin to arise more often as the section progresses.” The triads finally line up in the latter half of m. 54, before all voices reach pitch A at a fortissimo dynamic, signifying the climax of this material. Ligeti further continues the disorienting eighth note rhythmic structure throughout the first five measures of letter C that seem to offer a moment of reflection, yet fervor as new material must soon be emerging. The voices continue to use pitch-A as a reference point, and gradually move inwards to the leading tone in the upper voice (pitch G-sharp) and lowered second in the lower voice (pitch B-flat).

A remnant of letter B makes a brief statement at letter G. Letter G, however, offers no repetition of an inner voice, mainly pitch A, for the first three measures. Letter G is also played with four normal mallets, as opposed to two normal mallets and two headless mallets throughout letter B. At letter G, in contrast to letter B, the triads start together, and gradually offset, leading to two independent lines each playing the two triads they established in letter B (figure 2.5).

Figure 2.5 Voices pulling apart rhythmically, Letter G, Mvt. I

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48 Lukas Ligeti, phone interview by author, October 22, 2018.
The triads seem to lead to alignment at the downbeat of m. 111, and m. 111 to beat three of m. 114 offers closely related material from letter B. Pitch A is reintroduced in the inner voice as the two outer voices never realign their broken, inward, triadic motion (figure 2.6).

Figure 2.6 Restatement of Letter B beginning in m. 111, Mvt. I

2.1 Time Reference Levels

Measure 62 signals further change is coming by laying the foundation for a three over four Western classical polyrhythm. However, the concept behind m. 62–69 is vastly different than a classical polyrhythm. Here, a double-elementary pulse line is introduced.

As mentioned, Ligeti bridges the gap between Western musical notation and African “rhythms” throughout Thinking Songs. For a Western classically trained musician, a time unit such as eighth notes, sixteenth notes, triplets, etc. often signify the subdivision of a larger beat. To use an example from earlier in the movement, the fast moving sixteenth notes in letter A in common time represent four units of a quarter note that will most likely be counted as “1 e + a 2 e + a,” etc. This idea of finding the bigger beat first and subdividing it into smaller beats is not one that will transfer to many African cultures. In fact, the opposite will be seen - the smaller beat will often be found first or internalized first. A person born into an African culture will have a vastly
different concept of pulse than a European musician. Gerhard Kubik explains African concepts of time in his book, *Theory of African Music*, Volume II, but first reveals one of the main dilemmas that musicians who immerse themselves into African music might face. “‘Rhythm’ is, of course, not an emic category in Africa. No term has been isolated in any African language whose semantic field would be congruent with the Western notion of ‘rhythm.’” 49 This issue of language and cultural divide is one Kubik addresses head on. Many of the approaches that are applied to African music throughout Kubik’s two volume book are seen to be a blending of Western and African, while trying to be as true to the African music and culture as possible (i.e. someone that learned Western music, rhythms, tonal systems, structures, before African music). 50

The introduction of “Dance” (m. 5), as mentioned previously, contains driving sixteenth notes. By taking the notes away, and solely focusing on the rhythm, this can be viewed as a representation of an elementary pulsation. Gerhard Kubik defines elementary pulsation as, “…a fast, infinite string of pulse-units considerably faster than anyone’s heartbeat which can be better compared to the gross pulse. In fact, the elementary pulses constitute the smallest time-units ( = shortest distance between action-units) that serve musicians as a subjective reference-line in performance.” 51

At a tempo of quarter note equal to 170 beats per minute, sixteenth notes can be viewed as the elementary pulse line for listeners and performers. Kubik notes, “In many genres of African music it [elementary pulse line] runs at a speed of between 500 and

50 Ibid, 4–5.
51 Ibid, 31.
A simple calculation reveals the ratio of quarter note at 170 beats per minute is equivalent to 680 sixteenth notes per minute, therefore yielding an elementary pulse line even faster than what is common in many traditions of African music. In Western classical musical language, it becomes almost impossible to find any measure of a “down beat” within the elementary pulse line as the units morph into an almost steady sound stream. Kubik further adds, “the elementary pulse-line is unaccented and isomorphous. It need not be struck on an instrument; it can be totally silent, and merely present as a subjective awareness.”

Ligeti notes, “the first movement is strongly influenced by the timbila music of the Chopi people of Mozambique.” The Chopi people reside in Southern Mozambique, a country just south of Tanzania and north of South Africa on the coast of the Indian Ocean. Like many countries in Africa, struck keyboard instruments are widely utilized by the Chopi people, specifically, the timbila xylophone. Brian Hogan, ethnomusicologist, notes in his article “Locating the Chopi Xylophone Ensembles of Southern Mozambique,” “this tradition unlike most others studied in Africa to this date, consists of large orchestras of xylophones that perform extended pieces divided into programmatic works.” The construction of the timbila xylophones bears the same principles of construction as Western xylophones and marimbas. Ruth Stone, ethnomusicologist, notes on the construction of the timbils, “the slats are fixed to the

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52 Ibid, 32
53 Ibid.
54 Lukas Ligeti, phone interview by author, October 22, 2018.
framework, each with a resonator attached below it. Originally the resonators were gourds, each being matched to resonate best with the slat to which it was attached.”

Chopi people specifically utilize a double-elementary pulse line on the timbila xylophones. Kubik further confirms, “some African and African-American musical genres seem to accommodate a double-elementary pulse-line. This is the case, for example, in some xylophone traditions of Mozambique, among the Chopi…” A double-elementary pulse-line utilizes two different elementary pulse lines that are occurring between two players simultaneously. The speeds of the lines will be different. Ligeti, however, utilizes a double elementary pulse-line for one player. The elementary pulse line in the left hand and the right hand differ. To conceptualize this in non-Western notation, Kubik notates this with periods, similar to the elementary pulse line graphic notation. Kubik further adds, “There are two possible relationships within a double elementary pulse-line: 3 against 4 and 6 against 4, usually doubled to form 6 against 8 and 12 against 8, respectively.” To envision each elementary pulse line, these two distinct lines would infinitely keep going, until the end of the piece. The lines would create what a Western classical musician would call a polyrhythm. For a Chopi musician, however, they would solely focus on their own line. As these fast lines continue to move, Chopi musicians will often try to group the pulses, opposite of the Western musician who might find the large beat first and then subdivide it. Each

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58 Kubik, Volume 2, 34.
59 Ibid.
60 Ibid.
61 Kubik, Volume II, 36.
individual player could create a larger unit with their elementary pulse line, known as a “reference beat.”\textsuperscript{62}

The elementary pulse is one of “three reference levels with regard to timing” that Kubik has found.\textsuperscript{63} All three reference levels can be found in “Dance.” Elementary pulse demonstrates the smallest level of time for a musician. The second level is known as the “reference beat.”\textsuperscript{64} Kubik notes, “the next level of subjective timing is the reference beat, or gross-pulse. It usually combines 2, 3, or 4, more rarely 5, units of the elementary pulsation to form larger units of reference that may serve dancers to find their steps, or a bass drum to mark the beat.”\textsuperscript{65} Kubik further adds the misconceptions people rooted in Western classical music often have, “Western observers inexperienced in African music sometimes cannot find the beat…the concept of a reference beat in African music is different from the stress-incorporating beat concept in Western classical music.”\textsuperscript{66} Kubik notes there are five possible ways of organizing the elementary pulse to find the reference beat.\textsuperscript{67}

An example that could lead to the case of confusion among Western classical musicians would be the case of having a musical score. Clear beats are often notated throughout the score and in the case of an ensemble, this is most likely the same for everyone. In the case of reference beat in African music, it is simply an attempt among the individual or group of musicians (yet remains internal, might not be heard) to create some sense of organization among the extremely fast elementary pulse line.\textsuperscript{68}

\textsuperscript{62} Ibid, 35.
\textsuperscript{63} Ibid, 31.
\textsuperscript{64} Ibid, 35.
\textsuperscript{65} Ibid.
\textsuperscript{66} Ibid.
\textsuperscript{67} Ibid, 36.
\textsuperscript{68} Ibid, 36.
The third and final reference level of time within African music is the cycle. Kubik notes the cycle is “one round of constantly repeating structure; a recurrent series of notes or combination of patterns. It can also be defined as an entity created by the stringing together of elementary pulse-units, in combination with recurrent reference point forming the beat or gross-pulse, over the length of the basic theme of a musical piece.”\(^{69}\) The cycle is the largest in scope on the reference scale, but can certainly be a small cycle and not one that takes up a large section of the piece.

In regards to the double elementary pulse-line, a cycle is formed and can be seen in “Dance.” Kubik adds, “some musical genres have a double-elementary pulse line, in which two lines continually meet and depart from each other. This infinite meet-and-depart pattern also establishes a pattern. The shortest cycles are congruent with metrical schemes; the larger ones are compounded. Usually the meeting point coincides with the starting point, a point ONE, followed by 2, 3 and 4.”\(^{70}\) A cycle in this case, could be seen as every measure, as the reference beats will align four times within one measure. Based on harmonic material, a cycle could also be larger. This will be explored in “Dance.”

One large issue arises within this section of “Dance,” mm. 62–69, the use of Western notation. No matter what, the conceptual ideas of African music will be slightly altered when placed in a vastly different notational system, specifically Western notation. To further this, someone that is not deeply rooted in African styles, particularly the music of the Chopi people, may never fully understand the concepts behind these principles. However, Ligeti does an excellent job of demonstrating these ideas in Western notation.

With Western notation, the three levels of reference timing can be seen. In this section of

\(^{69}\) Ibid, 41.
\(^{70}\) Ibid, 42.
“Dance,” a 12/8 is still being used. Ligeti continues to utilize rhythmic ambiguity as the listeners begin the section hearing four groups of three units, and end the section hearing four groups of four units. Instead of creating a clear Western, stressed sense of beat, Ligeti creates a landscape where a sense of time is almost nonexistent to the listener. Western classical notation yields to twelve eighth notes per bar in 12/8 meter in the upper line, and sixteen sixteenth notes per bar in the lower line. If this were further isolated, it is clear the pattern is in fact, three notes against four notes per dotted quarter note in 12/8 meter. This creates another issue, also brought about by Western Classical notation, the polyrhythm. The rhythmic ambiguity continues on as downbeats are often not heard in this section and different partials remain silent, creating a sense of uneasiness rhythmically (figure 2.7).

From the performer’s standpoint, Western notation can create a sense of stability rhythmically. As shown previously, a double elementary pulse-line creating a sense of three against four is being employed in this section. Each line represents the first level of reference timing. To hold true to the ideals of the Chopi people, each line would function
completely independently, and the performers would not cross reference to the other line. To demonstrate the second level of reference timing, each performer would find a reference beat in their mind. The upper voice can be broken into reference beats consisting of three pulses, and the lower voice can be broken into reference beats of four pulses. As mentioned, the performers would not cross reference their lines, they would remain independent. However, as a soloist, complete independence of line is extremely difficult, if not impossible. In the performer’s mind, and through the use of Western notation, a polyrhythm of three against four can be envisioned. Although this contradicts the principles of the Chopi people, this can stay in line with the ideas of the Chopi people by demonstrating the second and third levels of reference timing, the reference beat and the cycle. The dotted quarter note serves as the stressed beat in this case, and yields four groups of three notes and four groups of four notes, moving at different speeds, but each lining up on the first partial. In the Western style, each realignment can be viewed as a reference beat. With four reference beats to the measure and unchanging harmonic material in this section, this can be viewed as one cycle.

The rhythmic motives that are found in the upper voice and lower voice occur again beginning in the latter half of m. 114 and continues on through m. 119 (figure 2.8).

Figure 2.8 Double elementary pulse line returns, m. 117, Mvt. I
Here, a direct inverse of the rhythmic material applies. The four-note groupings come in first as opposed to the three note groupings in m. 62. Therefore, the elementary pulse line that is faster (in Western notation, comprised of sixteenth notes in the score), occurs first in this section. The beginning of the motive is shifted two beats earlier in a bar, resulting a start on beat three for the four note groupings. The three note groupings begin on beat one in m. 117 resulting in the elementary pulse lines coming in contact on beat one, as opposed to beat three in m. 64. Because the pulse lines each have “partials,” to use Western terminology, missing, different patterns emerge.

Letter H marks the first development of the double elementary pulse line (figure 2.9).

![Figure 2.9 Double elementary pulse line letter H, Mvt. I](image)

The *poco ritardando* marked at H begins to pull these fast lines apart, allowing time to seemingly stretch and further adding to the rhythmic ambiguity that has been established within these sections. The exact rhythmic motives in each voice continue on. Letter H takes a part of both section one and section two to further form new patterns. Although the patterns in each voice remain the same over two bars, the resultant rhythm between the sections is different in each section based on where the two lines first align.
Harmonically, new material is also added at letter H. A harmonic shift is
introduced within the double elementary pulse line. Prior to letter H, each elementary
pulse line has stayed on a set bichord for each section. The first four measures of letter H
remain harmonically stagnant, with each elementary pulse line repeating twice. This can
be viewed as two cycles with each cycle containing two measures. The upper voice
utilizes an elementary pulse line with reference beats of three, or in Western Classical
notation four groupings of three eighth notes in twelve-eight meter, while the lower voice
utilizes an elementary pulse line with reference beat every four pulses, or four groupings
of four sixteenth notes in 12/8 meter. At m. 125, the harmonic material changes, and the
elementary pulse lines switch as well (figure 2.10).

![Figure 2.10 Double elementary pulse line changes, m. 125, Mvt. I](image)

The higher voice now presents four groupings of four sixteenth notes while the
lower voice presents three groupings of four eighth notes. The outer mallets at letter H
remain regular mallets while the inner mallets use headless mallets. The outer mallets
speak with a higher volume and deeper sound than the headless mallets, directing the
listener to primarily hear one central pitch in each elementary pulse line. Measures 125–
An eight-bar period is formed consisting of two cycles (phrases) remaining in one tonal area, while the next two cycles (phrases) both shift.

By keeping the first two cycles different rhythmically and harmonically, no such progression can be formed. The voices pull away from each other then move closer together in contrary motion with an unexpected result, a raised pitch A in the lower voice and a lowered pitch D in the higher voice. Cycle three and four foreshadow the elementary pulse line at letter I that is grounded between the pitches G and A in the lower voice.

2.2 Western Tonality and Phrasing

Letter D brings new rhythmic as well as harmonic motives to the movement. Descending triads present a melodic line while major and minor sevenths and seconds dominate the accompaniment (figure 2.11).

Figure 2.11 Descending triadic motion, Letter D, Mvt. I

Ligeti notes, “the Chopi people have a very special kind of melody that closely resembles broken triads.” This has already been seen throughout the movement. Measures 70–80 are comprised of three unique phrases (mm. 70–72, mm. 73–5, and mm. 71 Lukas Ligeti, phone interview by author, October 22, 2018.
Each phrase closes with the same melodic and rhythmic content. The varying time signatures as well as the non-Western harmonic motion continue the sense of rhythmic ambiguity and lack of clarity about an exact tonal center.

One of the problems that can be encountered is the notion of tuning. The tuning of many instruments throughout Africa, such as the timbila xylophone, do not match the “pitches” used in Western classical music. Andrew Tracey, ethnomusicologist, notes in his transcriptions the specific tuning the timbila xylophone uses, “the special clef symbol means that all notes sound in Chopi equi-spaced heptatonic timbila tuning. You can test the movement patterns on any heptatonic xylophone…but the sound will induce the false impression of Western tonal relationships.”

A five-octave marimba, as the piece calls for, is tuned in equal temperament. The physical nature of the instrument makes this permanent, as a marimba does not change pitch (today’s resonators can help to alter the pitch slightly, but an “A” will remain an “A”). Composing for an instrument that is tuned in equal temperament tuning and seeking inspiration from an instrument that is equi-heptatonic will lead to unique challenges as the pitches simply are not the same. Ligeti, however, does a wonderful job of creating harmonies that do not conform to traditional Western classical music. The bichord accompaniment throughout letter D, for example, rarely offers non-clashing intervals. The first measure of D, m. 70, offers a bichord consisting of a minor seventh, followed by a bichord of a major seventh, followed by a bichord consisting of a second, and concluding with a bichord comprised of a second. This certainly offers a unique contrast to the smooth, falling broken triads and ascending

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broken bichords that form the melodic line. These four chords comprise almost all of the accompaniment of letter E and fragments of letter D (figure 2.12).

Figure 2.12 Accompaniment m. 81, Mvt. I

The accompaniment also mirrors letter D and provides a non-Western approach to the tonal melodic line. Rhythmically, the accompaniment demonstrates a two-bar repetition that holds the framework for the melody to independently move atop of. However, this repetition does not lead to stability as the bichords continue to primarily be composed of sevenths and seconds, and fall on varying partials of four three note groupings within a twelve eight meter. The melodic line offers a more Western traditional format. Three phrases can be seen in letter E. Phrase one occurs in m. 81–83. Here, the melodic material is introduced and is exactly repeated in phrase two, m. 84–86. A link is added to the end of phrase 2 (m. 87) and phrase three begins on the second partial of the last four note grouping (pitch G) in m. 87. The third phrase once again repeats the main melodic material but alters the ending to offer closure to the section. A period consisting of three phrases is certainly unique in Western classical music. This can further add to the instability of time in the work.

Letter F, similar to letter E, offers three phrases. Phrase 1, mm. 92–96, certainly has Western tonal implications in the melodic line. The structure of mm. 92–93 is
exactly the same rhythmically, and offers only slight variation melodically. The same

exactly the same rhythmically, and offers only slight variation melodically. The same
can be said of mm. 94–95, except for what can appear as a slight sequence and closing
with the dominant, C3, leading into phrase two beginning in m. 96 on F3. The presence
of pitch classes B♭, C, and the leading tone, E, pulling to F offers the Western listener a
brief moment of tonality. However, the accompaniment slightly alters this as a minor
seventh (pitch A and pitch G) and a major ninth (pitch G and pitch A) alternate back and
forth. This remains constant and offers no harmonic motion.

Phrase two (mm. 96–99) offers a wider variation in range, but has the same
rhythm as phrase one. Phrase three offers the widest variety, and begins to stray the
listener’s ear from tonality as seconds and sevenths begin to be seen in the melodic line,
as well as B♭ as opposed to pitch B♭3. Phrase three closes this section of broken triads
and bichords, as well as brief moments of tonality, that can be seen through letter D to
letter F.

Letter I offers the exact same melodic pitch content as letter E, except for one
alteration in the last two notes of the section (m. 139), that alters C5 to C#. This section
is expanded. The elementary pulse line that can be conceptualized as groups of three
notes continues throughout the accompaniment. And once again, it keeps the same
rhythmic content (certain partials missing). Similarly to the accompaniment in letter F,
the accompaniment in letter I consists of two bichords, one that is A2 and E3, and one
that is G2 and D3. Grace notes with headless mallets lead for the emphasis to be on A2
and pitch G2. Pitch A has been the tonal center for a large portion of this work, and
continues to do so here, with a flat seventh pulling back to A and away from A. The
inner voice as well as the accompaniment offer the expansion rhythmically. Pitch A and
pitch G can also be found in the inner voice throughout this section. The two pitches always align in both hands except for the third grouping of three notes in every other bar, where the upper voice is slightly ahead of the lower voice, adding to the rhythmic ambiguity that has encompassed the piece.

Letter J, the closing section of the movement, offers a contrast to the opening. The opening calls the work to action, whereas letter J gradually pulls the work apart. Rhythms ebb and flow out of one another and fragments of broken triads that were introduced all the way back at letter B come in and out of the section. Everything continues to oscillate around pitch A, but pitch A can be found in fragments of all the voices, as opposed to just the inner two. The range is at its widest in the section, covering a large amount of the five-octave marimba. This also adds contrast to the rest of the movement and can signal parts moving out into space–the movement has come to a close. To add, the tempo continuously pulls apart as measure by measure the performer decelerates. The lingering pitch G-sharp over A center leaves a longing in the listener for finality, yet, it is clear the movement is done.
CHAPTER THREE

MOVEMENT II, “LAMENTO”

“Lamento” serves as a contrast to the deeply rooted African rhythms and textures seen throughout movement I, “Dance,” and as will later be examined, movement V, “Two-Part Invention.” “Lamento” is short in length, yet decidedly expressive. The movement finds its roots in European classical music, and György Kurtág’s influence can be seen.73

3.1 The European Lamento

The lamento can be categorized as a genre within the European classical music tradition. Ellen Rosand, ethnomusicologist and opera critic, has written several articles on this genre, including “The Descending Tetrachord: An Emblem of Lament.”74 She defines the *lamento* as “usually, a vocal piece based on a mournful text, often built over a descending tetrachord ostinato and common in cantatas and operas of the Baroque period.”75 The falling motion of a tetrachord can be seen throughout “Lamento.” Ligeti adds variety to this by incorporating not only descending motion but ascending motion, chromaticism, and tetrachords in all four voices.

The opening motive, mm. 1–3, is a recurring motive that is expanded and transformed. This opening statement begins with chromaticism in the bass voice and

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73 Lukas Ligeti, phone interview by author, January 26, 2019
tenor voice. The upper two voices, however, represent the common lamento descending
tetrachord in m. 2 and 3 (figure 3.1).

Figure 3.1 Lamento tetrachord in upper voices, m. 2 and 3, Mvt. II

There are several ways of defining a lamento tetrachord. As will be seen, not all
tetrachords are the same and many differing characteristics may be present and fall under
the lamento genre. Peter Williams, ethnomusicologist and organist, defines several key
characteristics among the lamento bass line in his book *The Chromatic Fourth During
Four Centuries*:

• a falling non-chromatic fourth (for example, a bass D C B♭ A)
• a falling chromatic fourth (for example, D C♯ C ♯ B B♭ A)
• either of them repeated straightforwardly (ostinato)
• either of them brought back now and then in the course of an area
  (partial ostinato, one type of ritornello)
• a chromatic or non-chromatic fourth to which is added a cadential
  phrase, thus making a self-contained theme (four, six, eight bars)\(^\text{76}\)

For the purposes of Ligeti’s “Lamento,” all four voices will be examined, and it will be seen that many of the items Williams notes occurs in movement II of *Thinking Songs*.

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\(^{76}\) Peter Williams, *The Chromatic Fourth During Four Centuries of Music* (New York: Oxford University Press, 1997), 65.
A falling non-chromatic fourth occurs in the soprano and alto voice in m. 2 and 3 (figure 3.1). The exact restatement of this material occurs again in m. 11 and 12.

A falling chromatic fourth (Db 5 to Ab 4) occurs in the soprano voice as the soprano voice sounds alone in m. 15 and 16 (figure 3.2).

Figure 3.2 Falling chromatic fourth in soprano voice, m. 15 and 16, Mvt. II

The chromaticism in the soprano voice offers the first moment of the soprano speaking in isolation without the accompaniment of the alto voice.

“Lamento,” following closely to the lamento genre, offers no formal structure and is short in length. This further adds to the contrast “Lamento” provides between movement I and movement III of Thinking Songs. However, motives are repeated which Williams mentions is another “key characteristic” of the lamento bass line. Measure 1–3 is repeated exactly in mm. 10–12. The falling non-chromatic fourth found in the alto and soprano voice (figure 3.1) once again appears. A manipulation of this theme found in the first three bars occurs in mm. 24–26 (figure 3.3).

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77 Ibid.
Here, the fourth is altered in the soprano and alto voice. The soprano voice falls non-chromatically from pitch B to pitch F, which creates an augmented fourth instead of a perfect fourth. The alto falls from pitch G-sharp to pitch D-flat which enharmonically creates a perfect fifth. Therefore, both the soprano and alto voices expand past the traditional falling perfect fourth within the *lamento* genre.

When looking at enharmonic relationships, the sound of the tenor and alto voice can represent the descending non-chromatic perfect fourth. Moving from pitch A-sharp, enharmonic pitch B-flat, to pitch F in the tenor voice creates the sound of a perfect fourth. The same occurs within the bass voice with motion from pitch F-sharp to pitch D-flat, or enharmonic pitch C-sharp.

The final point Williams cites, creating a self-contained theme, occurs within the opening of the movement, mm. 1–8. The opening three measures are repeated, and an extension is added in m. 7 (figure 3.4).
Rolls on the marimba between two to four pitches offer moments of sustain or moments away from the descending chromatic and sometimes non-chromatic motion that is displayed throughout the movement. The descending fourth can be traced back to the *lamento* genre as shown by Williams and Rosend. Ligeti offers a new take on these ideas by using ascending chromatic motion in addition to descending motion, and using falling fourths not only in the bass line, but in all four voices.
3.2 György Kurtág

Ligeti notes György Kurtág as an influence in “Lamento” and how this movement, in particular throughout *Thinking Songs*, offers a different atmosphere entirely to the piece as a whole:

My music often focuses on structure, rhythmic relationships, symmetry, and geometry. I wanted “Lamento” to be an interlude that serves as something completely different to my normal compositional style. My piece does not sound like Kurtág at all, but I was thinking of him as a person who is able to be very succinct to express emotions.\(^{78}\)

György Kurtág, a living composer and pianist, was born in Romania in 1926.\(^{79}\) Kurtág, in fact, was close to the Ligeti family. Bálint András Varga, musicologist who has published interviews with composers such as Iannis Xenakis and Kurtág, notes, “in September 1945, Kurtág sat for an entrance examination at the Budapest Academy of Music–it was on that occasion that he made the acquaintance of György Ligeti who was to remain his friend until the latter’s death in 2006.”\(^{80}\) In his text, *György Kurtag*, Varga devotes an entire chapter to the friendship between Kurtág and G. Ligeti, and unveils two speeches, one presented by Kurtág with G. Ligeti in attendance in 1993, and one presented in memoriam of G. Ligeti in 2007, that recounts the influence the two had on one another and their friendship.\(^{81}\) Varga recounts a speech Kurtag made in 1993, “there is still so much left to tell—our youth was so rich—our paths crossed again and again—and I

\(^{78}\) Lukas Ligeti, phone interview by author, January 26, 2019.


\(^{80}\) Ibid.

thank him so much that I got to know only through him—Weöres, Kafka, Webern, Stockhausen, Frescobaldi, Boulez...”

Kurtág’s style is highly rooted in the Second Viennese School. Although “Lamento” cannot find its rooting in the Second Viennese School, Kurtág’s later works can be seen as stylistic influences. Kurtág has expressed that Ligeti was an influence for beginning to write his collection of short piano pieces, Játékok. Ligeti recalls:

When I was a child, my family had the Brockhaus Encyclopedia. My father was in the encyclopedia, as he was already well known as a new music composer. I enjoyed reading the encyclopedia and it inspired me to write my own. When I was about three or four years old, I made up my own country and planet. A few years later, this became the source of inspiration for my encyclopedia, and I included other countries, people, and history. Kurtág came to visit when I was about seven years old and read my encyclopedia. He was quite impressed, and Kurtág has conveyed this became an influence in writing his short piano pieces for children, Játékok. This turned out to be a breakthrough piece for Kurtág. At the time, his music was highly influenced by Western European music from the 1950s and 60s. Játékok served as a return to music that was simple and childlike, yet visceral and emotional.

Játékok, which translates to Games, are short piano pieces that “have formed a constant backcloth to all his compositional activity.” The pieces, although short in length, offer emotional undertones. Tom Service, music reviewer of The Guardian, states in his review of Játékok, “it’s a compositional journey that has often involved reducing music to the level of the fragment, the moment, with individual pieces or movements lasting mere seconds, or a minute, perhaps two.” Service goes on to say,

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82 Ibid., 100.
83 Lukas Ligeti, phone interview by author, January 26, 2019.
84 Lukas Ligeti, phone interview by author, January 26, 2019.
85 Lukas Ligeti, phone interview by author, January 26, 2019.
86 Lukas Ligeti, phone interview by author, January 26, 2019.
88 Ibid.
“despite their brevity, these tiny pieces are not incomplete as experiences.”

Rachel Beckles Willison, author and musician, further confirms this in her short biography of Kurtág, that Kurtág “found himself able to work through events in his life by treating Játékok pieces as a musical diary, with the result that many titles reflect the death of friends and colleagues.”

Thus, Ligei sought his inspiration for “Lamento.” This is a short, expressive movement not dictated by formal structure, but by descending motion that helps prescribe the movement to the genre lamento and serves as a contrast to the other four movements of Thinking Songs. “Lamento” is the shortest of the movements in Thinking Songs, and seeks to create an emotive atmosphere through the lamento characteristics described.

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90 Ibid.
CHAPTER FOUR

MOVEMENT III, “FOUR-PART INVENTION”

Four independent voices are used throughout movement III of Thinking Songs. I will label these voices as bass, tenor, alto, and soprano for clarity of examples. Often throughout the movement, each voice will establish a scalar pattern, whether diatonic or chromatic, and continually repeat their individual motive. Based on where subsequent voices emerge, parallel motion does not remain a constant, and contrary motion between voices begins to be seen. This all results in different harmonies being formed and heard. This becomes a common trend throughout the movement and as the movement progresses, rhythm adds to the complexity of structure. Ligeti blends old and new throughout this movement, from church modes and homophony to four-part polyrhythms, to create a unique merging of seemingly unrelatable styles.

4.1 The Invention

Invention, as a musical form, is often associated with the compositions of J.S. Bach. Although the term was used by other composers prior to Bach, namely G.B. Vitali and Bonporti “as a synonym for suite,” Bach’s use of the term in composition gave way to how it is viewed today.91 Laurence Dreyfus, musicologist, penned the book Bach and the Patterns of Invention, a text that aims to study the inventions of Bach and to find out

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what the term “invention” denotes in a composition. Dreyfus opens the text with Bach’s inscription in his BWV 772 – 786:

Straightforward instruction, in which amateurs of the keyboard, and especially the eager ones, are shown a clear way not only (1) of learning to play cleanly in two voices, but also, after further progress, (2) of dealing correctly and satisfactorily with three obbligato parts; at the same time not only getting good inventions, but developing the same satisfactorily, and above all arriving at a cantabile manner in playing, all while acquiring a strong foretaste of composition.92

Bach’s definition of the term seems to direct his attention towards the student gaining knowledge in various styles of keyboard playing that will aid their overall performance and understanding of the instrument and music as a function, as well as understanding the intricacies behind a composition. Leon Stein, celebrated composer and music analyst, penned the text *Anthology of Musical Forms – Structure and Style: The Study and Analysis of Musical Forms*. Within this text, Stein speaks on the typical parts that will lead to an invention, “as used by Bach, the invention is an imitative instrumental form for two or more parts. Its motive (or subject) is from one-half measure to four measures in length. The form is sectional.”93 Stein begins to unravel some of the key elements that can be seen in an invention.

Although the form of an invention can be labeled as sectional and certain elements often exist within an invention, Dreyfus argues there is no set form for many works of the Baroque period, including the invention:

In the early eighteenth century, form was seen instead as an occasional feature of a genre, and not the general theoretical category subsuming the genres that it later became. The anachronistic reversal of properties, which sees individual genres as illustrations of larger forms, is what sends analysts searching for Bach’s “forms”

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in the mistaken idea that Bach and his contemporaries chose their compositional strategies on this basis.\textsuperscript{94}

The distinction of form is not one that Bach seemingly prescribed to, although often in recent years it has been a way of categorizing music. Works such as the invention show this could lead to problems.

Stein, however, notes there are several ways of identifying an invention. As mentioned previously, the form is sectional.\textsuperscript{95} Stein goes on to follow some of the terms that can be found in other genres of the Baroque and Classical Eras, such as in sonata form and concerto form, “in the first section, termed the exposition, the motive appears at least once in each of the parts…the number, length, and modulatory scheme of the sections after the exposition is optional.”\textsuperscript{96} Stein contributes to Dreyfus’ view that there is no fixed form, but commonalities between inventions can lead to general notions of an invention. Stein leaves one last note that on the material in an invention, “the basic techniques used are imitation, sequence, and double counterpoint.”\textsuperscript{97}

Thus far, many of these topics can be applied to “Four-Part Invention.” The movement opens with imitation in four voices and has sectional form with no clear formal structure to be ascribed to, much like the inventions of J.S. Bach. Here is where the blending of styles Ligeti is known for comes back into play. A blending of genres, most notably that of the invention and fugue, and a pairing with sonata-form, can lead to a formal plan for the analyst.

\textsuperscript{94} Dreyfus, \textit{Bach}, 28.
\textsuperscript{95} Stein, \textit{Anthology}, 130.
\textsuperscript{96} Ibid., 131.
\textsuperscript{97} Ibid.
4.2 Formal Considerations: The Bridge between Genres

In close relationship with the invention is the fugue. Bach also wrote numerous compositions in fugal style. Like the invention, the fugue uses imitation throughout, and divides the work into sections. For the purposes of this investigation, fugal terminology will be utilized, primarily the use of “subject” and “episodes,” as it will help show distinct sections throughout “Four-Part Invention.” This merging of styles between invention and fugue leads to the creation of a formal outline for the movement.

Upon discovering specific sections throughout “Four-Part Invention,” a bridge to sonata-form can also be implied. By clearly dividing each section, three larger sections emerge, which can translate to a 21st-century approach to an exposition, a development, and a recapitulation, or ABA’ form. The exposition begins in m. 1 and continues to m. 50. The exposition opens in Aeolian mode with pitch A being the primary climatic point as expressed in m. 15, and goes through a series of chromatic shifts that gradually overtake all four voices, before closing the section back on a final pitch A. The development, mm. 50–119, presents several new melodic, harmonic, and rhythmic motives that create a contrast to the opening and closing sections. The recapitulation, m. 120 to the end of the movement, presents the opening subject from the exposition and transforms it, thus closing the work. This synthesis of genres leads to a unique formal structure that bears elements that can be found in both the Baroque and Classical eras blending with elements from the 20th and 21st centuries (table 4.1).
4.3 Modes and Imitative Counterpoint with Expansion within the Exposition and Recapitulation

Imitative counterpoint with expansion encompasses the introduction of “Four-Part Invention.” Upon entering, each voice follows another voice and adds one note to its pattern, thus imitating a voice and establishing an expanded pattern. Imitation upon entrance follows closely to the principles of a canon. The voices emerge on different pitches, but as the final measure of the introduction, m. 15, shows, they all reach for a similar goal: pitch classes A or E. The strict rules of counterpoint do not apply, as voices emerge on dissonant intervals, and skips down to restart a line may be larger than a sixth, etc. However, the general idea of homophonic texture with imitation occurring with an expansion in each voice leads to a 21st century take on the traditional canon and formal parts of an invention.

The opening of “Four-Part Invention” is completely diatonic; all pitches are played on the “naturals” of the marimba. This leads to the harmonic and tonal language.
of the introduction being rooted in modal systems. The bass line begins the movement with a three-note subject that is expanded in each voice: E3, F3, and G3. This remains constant in the bass line until m. 9, when syncopation is introduced in the bass voice. The tenor line begins with a four-note motive on the second partial of its motive, and after the bass line has stated its motive in its entirety one time. The alto introduces a five-note motive after the tenor voice has stated its motive in entirety one time, and the soprano introduces a six-note motive after the alto voice has stated its motive in entirety one time. All voices move in stepwise motion, then continually restate their motive until m. 6 when the first sign of syncopation is introduced.

Syncopation leads to additional pitches in upward scalar motion. The first sign of syncopation, beat four of m. 6, adds a seventh pitch to the soprano line, to stretch the line from F6 to G6. The soprano line continues to utilize seven pitches from m. 6–12. In m. 13, an eighth pitch is introduced, A6, resulting in the formation of a scale or mode. The tenor line in m. 8 undergoes a transformation through syncopation and stretches its line from four pitches to five pitches, A3 to E4. This line, as well as the soprano line, elude to the use of a modal system throughout the introduction. The bass voice undergoes syncopation in m. 9, resulting in a new four pitched line from E3 to A3. This line further confirms the use of church modes, as will be examined shortly. The alto voice sees its first glimpse of syncopation in m. 9 and stretches its line from five to six pitches, resulting in a line from D5 to B5. By the end of the introduction, the resultant scale of all four voices reaches from pitch classes E to A (figure 4.1).
The finality of the introduction in m. 15 confirms the use of modal harmonies. Peter Schubert, in his textbook *Modal Counterpoint, Renaissance Style*, displays various examples for students to learn and explore in their own writing, the use of counterpoint through modes. Schubert notes on the “criteria” for utilizing a mode, “the final note in a melodic line” is extremely important – it yields the mode itself.98 Three of the four voices in this section reach pitch A as a final note, and the odd voice, the tenor voice, reaches pitch E. 

Figure 4.2 Two modes can be seen in this section – Aeolian and Hypoaeolian (figure 4.2).

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Letter T, the start of the recapitulation, serves as a restatement of the introduction and use of Aeolian and Hypoaeolian mode. This, however, transforms as letter U emerges and will be examined. As mentioned previously, the work opens with a three-note subject that is expanded in each voice. In m. 120, the restatement of the first subject, the same expansion is found with a three-note subject in the bass voice, four notes in the tenor voice, five notes in the alto voice, and six notes in the soprano voice. Once again, as syncopation is introduced, the expansion continues, for example, in m. 121 the tenor line sees the first use of syncopation and expands its line from a four-note motive to a five-note motive (figure 4.3).
This continues on through letter T. In contrast to the exposition, once voices start reaching final pitch A or pitch E, they keep expanding.

Letter U offers variation to the exposition to close the movement. The lines keep expanding and begin to change how they expand, and syncopation leads to a four-part polyrhythm, denoted as six over three over two over four figure, that then leads to all voices moving in a variation of a sextuplet in m. 139 to beat three of m. 140, and beat two of m. 141 to the end (figure 4.4).
One of the first indicators in change among the expansion of lines is the bass voice. When syncopation is introduced in m. 131, the bass voice expands its pattern from four notes to five notes, then in m. 133 to six notes. In the last partial of the fourth beat of m. 133, for the first time, the bass line shifts down. Throughout the first statement (mm. 1–15), the voices have continuously moved up to meet pitch A or pitch E. Not only does the bass line then stretch down to pitch D (previous bottom note was pitch E), it then expands to nine notes, ending on pitch E over an octave higher. The bass voice then begins moving upwards with large expansions, offering a stark contrast to the three-note subject it once presented.

This trend gradually consumes all the voices as they move to the uppermost notes of the keyboard. The shift to all voices moving in a variation of a sextuplet in m. 139 and 140 garner speed towards the climactic ending. The shape of the upward lines continue, but now at a much faster rate. The movement has literally reached its limits as it closes on the highest pitch of the marimba, C7, in the soprano voice. A prolonged holding of pitch classes F and C in all four voices leads to the close of the movement (figure 4.5).

Figure 4.5 Closing of Mvt. III
This is an unexpected finish as the work presented the first subject in Aeolian or Hypoaeolian mode. The Lydian mode, however, continues the diatonic motion that has been presented in the main subject of “Four-Part Invention” to the very top note of the keyboard. This leads the performer to cover a wide range of the instrument and conclude at the ultimate top note – there is simply nothing left.

Letter U of “Four-Part Invention” also reveals invention qualities. The voices are moving in imitation of one another, but they are moving independently. Each line has a starting and stopping point and reaches and pulls from its goal final pitch unlike any other line. Lines gradually cross one another and hit their pivotal moments without influence from another line as their patterns remain intact. This creates a soundscape where listeners can latch onto something previously unheard upon each listening. For the performer it offers a unique challenge as voice crossing can lead to a wide possibility of sticking. Keeping four independent lines exactly in time and reaching their high and low points proves challenging and leads to a further recurring issue throughout the exposition, the four-part polyrhythm.

4.4 Four-Part Polyrhythms

Inventions in the era of J.S. Bach were typically written for two to three voices. Syncopation was often utilized to create new patterns and interplay between lines. Ligeti, however, takes this a step further while holding true to many of the ideals of the invention in the Baroque era. By creating an invention with four voices, the interplay among voices becomes quite fascinating as multiple pairings, trios, or the four parts altogether can be examined. Letter K marks the first significant change in the movement. In terms of melodic function, each voice establishes a diatonic pattern and a set rhythm
with the exception of the soprano line. Much like the opening, the bass line enters first, followed by the tenor line, alto line, and then soprano line, after they all complete one cycle of their respective motives. This continues with the invention and fugal principles of voices entering in imitation. Here, however, the imitation takes a drastic turn rhythmically. The soprano line offers a different melodic feature, as it begins to incorporate chromaticism and moves in a primarily downward stepping fashion while the other voices all move upwards diatonically.

Ligeti’s use of polyrhythms through Letter K provide a unique challenge for the solo performer. Often, polyrhythms can be traced to a common denominator that the performer can then recreate using a new metric scheme. For example, in two voices, a 3:4 polyrhythm can garner a composite rhythm of (in the “1 e + a” counting system) “1 a 2 + 3 e.” This composite rhythm can be found by creating a graph or table. Each square will represent a partial for each subsequent rhythm. Three note groupings will be marked with an X in every four squares as it sounds three times within one cycle, and four note groupings will be marked with an X in every three squares as it sounds four times within one cycle. On the twelfth square, the X will appear in both voices, noting the voices have realigned after one complete cycle, or beat. The composite rhythm can be found by using a rhythm that can easily be counted to combine the two separate figures. In this case, the “1 e + a” counting system using sixteenth notes is a likely fit (table 4.2).
This is a simple solution to finding most common polyrhythms. However, as will soon be examined, this is not the case for two sections, letter K and letter L, in “Four-Part Invention.”

Letter K marks the first instance of a four-part polyrhythm that will be examined. The first statement of complete polyrhythmic cycle between four voices occurs in m. 21. The lowest voice utilizes a line comprised of dotted eighth notes, the tenor line utilizes eighth notes, the alto line uses quartet note triplets, and the highest voice uses quarter note quintuplets. Here is where use of odd numbering versus even numbering and odd realignment among four voices makes a four-part polyrhythm uniquely challenging for the soloist. As can be seen on the downbeat of mm. 22–23, the lower voice, the dotted eighth note, is tied in both bars. Therefore, the cycle does not fully restart until it goes through three complete measures. The next point of realignment in all four voices occurs in m. 24 (figure 4.6).
To find the composite rhythm of a polyrhythm, graphic notation is often a great tool to use. Prior to that, the lowest common denominator must be found. To do this, the number of units per cycle (three measures at letter K) of each voice must be obtained (table 4.3).

Table 4.3 Number of units for each voice per one cycle at Letter K, Mvt. III

<table>
<thead>
<tr>
<th>Voice</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>soprano</td>
<td>15 units</td>
</tr>
<tr>
<td>alto</td>
<td>18 units</td>
</tr>
<tr>
<td>tenor</td>
<td>24 units</td>
</tr>
<tr>
<td>bass</td>
<td>16 units</td>
</tr>
</tbody>
</table>
The lowest common denominator of these four values is 720. Therefore, in graphic notation, 720 units must be made available per one cycle. The relative space between lines will be quite large as well (table 4.4).

Table 4.4 Breakdown of graphic notation in one complete cycle Letter K, Mvt. III

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>soprano</td>
<td>15 units</td>
<td>every 48 graphic units</td>
</tr>
<tr>
<td>alto</td>
<td>18 units</td>
<td>every 40 graphic units</td>
</tr>
<tr>
<td>tenor</td>
<td>24 units</td>
<td>every 30 graphic units</td>
</tr>
<tr>
<td>bass</td>
<td>16 units</td>
<td>every 45 graphic units</td>
</tr>
</tbody>
</table>

720 graphic units can transfer to an elementary pulse line as found in the writings of Gerhard Kubik and seen throughout Movement I, “Dance.” This extremely fast-moving line can be envisioned as 720 elementary pulses per cycle, which spans three bars. Ligeti notes on this section (letter K):

I have always been interested in polyrhythms, polytemps, and polymeters. One of the ways to write or play these complex structures is to have a string of very fast sixteenth notes. Exactly like the amadinda music mentioned in Kubik’s writings, there is an illusion of polymeter or polytempo created. In reality, however, it is just a very fast chain of steady notes that are being played. On the other side, there is the more conventional approach that you subdivide a beat into different numbers of subdivisions, and that is what is going on here. It is one way of writing a complicated four voice counterpoint. Essentially, each voice is playing a different tempo.

Either way of thinking, in regards to an elementary pulse line of 720 units or polytempo among four voices, offers a unique challenge for the solo performer. For

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100 Lukas Ligeti, phone interview by author, January 26, 2019.
example, with a tempo of quarter note equal to sixty-six to seventy beats per minute, that yields just under four seconds per measure, which in turn produces just under twelve seconds per cycle of polyrhythm at letter K. To execute the precise partial, for example, the 48th unit of 720 units, within twelve seconds seems quite daunting for the performer. This can yield for the performer to find alternative ways of thinking. One of the possible ways of re-thinking of this polyrhythm is through phasing.

4.5 Phasing

Steve Reich, notable composer still alive today, discovered “the phasing process by accident” when experimenting with two tapes.¹⁰¹ Reich notes:

I had two identical loops of Brother Walter saying ‘It’s gonna rain,’ and I was playing with two inexpensive tape recorders…I had intended to make a specific relationship: ‘It’s gonna’ on one loop against ‘rain’ on the other. Instead, the two machines happened to be lined up in unison and one of them gradually started to get ahead of the other.”¹⁰²

Thus, the musical phase was created. The phase did not stay with just electronics, it also was incorporated into many of Reich’s works, such as Drumming, Piano Phase, and Violin Phase. In Writing on Music: 1965 – 2000, Paul Hillier, conductor and vocalist, notes, “As Reich has said, phasing is essentially a form of canon using irrational numbers.”¹⁰³ This bears close resemble to Ligeti’s introduction in “Four-Part Invention” which uses melodic and rhythmic canonic imitation among four voices. This continues into the first episode, m. 16–49, which continues to use melodic canonic imitation among three voices (the highest voice begins to drift into chromaticism) but varying rhythmic patterns that ensue four-part polyrhythms.

¹⁰² Ibid., 20-21.
¹⁰³ Ibid., 5.
Reich, similarly to “Four-Part Invention,” notes the bridge between old and new in *Writings on Music: 1965–2000*:

In retrospect, I understand the process of gradually shifting phase relationships between two or more identical repeating patterns as an extension of this idea of infinite canon or round. Two or more identical melodies are played with one starting after the other, as in traditional rounds, but in the phase shifting process the melodies are usually much shorter repeating patterns, and the time interval between one melodic pattern and its imitation(s), instead of being fixed, is variable. Nevertheless, that this new process bears a close family resemblance to the thirteenth century musical idea of round seems to give it some depth. Good new ideas generally turn out to be old.\(^\text{104}\)

*Drumming* by Steve Reich has become a masterwork for the percussion ensemble. The piece uses phasing throughout. Russell Hartenberger, member of Nexus percussion ensemble, was one of the musicians on *Drumming*’s premiere in 1971.\(^\text{105}\) After working and performing closely with Reich for over four decades, in 2016, Hartenberger penned the book *Performance Practice in the Music of Steve Reich*, a performer’s guide to *Drumming* and *Music for 18 Musicians*.\(^\text{106}\) Hartenberger describes the musical phase Reich incorporates:

Phasing was a new performance technique and one that was counterintuitive. Musicians are trained to coordinate their parts with other players and increase or decrease their speed together. In phasing, one player maintains a steady tempo while a second player moves forward until reaching a point one beat ahead of the first player.\(^\text{107}\)

Thus far, all instances of phasing that have been discussed have involved two or more separate machines or performers. Reich often notates instructions in his music that yields phasing, as can be found throughout several musical examples such as *Melodica*

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\(^\text{104}\) Reich, *Writings*, 20.


\(^\text{107}\) Ibid., 16.
and Piano Phase in Writings on Music 1965–2000.\textsuperscript{108} In “Four-Part Invention,” this is not the case. Clear rhythmic lines are written among four voices that realign every three measures. The rhythms are meant to be played precisely as notated on the page. Based on one structure/cycle (three measures) being represented by 720 units in mm. 16–29 (letter K), phasing can be a likely option for the solo performer in interpreting the first episode of “Four-Part Invention.”

Referring back to table 4.4, one of the outliers in mm. 16 – 29 is the soprano line, which offers an odd number of repetitions per bar and per cycle. Another outlier is the bass line, which yields the cycle to be three measures long as it only lands on beat one every three measures. These two lines can be interpreted as a phase of one another.

The least common denominator for the soprano line (sounds fifteen times per cycle) and the bass line (sounds sixteen times per cycle) is 240. This is still a rather large number, but when calculating where each unit will be heard, it is clear this can be a simple musical phase. The soprano voice will sound every sixteenth unit, and the bass voice will sound every fifteenth unit. Therefore, after initial alignment, the bass voice will push slightly farther ahead of the soprano voice until they realign every third measure. This phase will last the entire three measure cycle.

Another possibility of phase could occur between the bass line, which speaks every sixteen units, and the alto line, which speaks every eighteen units. The least common denominator for these two voices is 144 units. The bass voice would speak every ninth unit of 144 and the alto voice would speak every eighth unit of 144. This leads to the alto voice slightly pulling ahead of the bass voice until realignment every third measure. Both of these options lead to the issue of there are still two other voices to

\textsuperscript{108} Reich, Writings, 23–25.
be considered in addition to the phase this creates. The performer will need to account
for the potential of multiple phases at once. As mentioned, phasing is simply another
way of interpreting an extremely complex four-part polyrhythm.

It is possible to also interpret a musical phase that lasts one measure. These will
be limited to combinations among the top three voices as these three realign every
measure. The soprano voice and the alto voice fall into this category. The soprano voice
sounds five times every measure and the alto voice sounds six times every measure. The
least common denominator of these two voices is thirty and will lead to the soprano voice
sounding every sixth unit and the alto voice sounding every fifth unit. Therefore, the alto
voice will move slightly farther ahead of the soprano voice until realignment on beat one
of every measure.

Hartenberger notes several types of phase within *Performance Practice in the
Music of Steve Reich*. One of the methods Hartenberger ascribes to throughout
*Drumming* is “interlocking mode and phasing mode,” which can apply to this particular
section of “Four-Part Invention:”

I have two mental attitudes when phasing: interlocking mode and phasing mode. When in interlocking mode, I stay solidly synchronized with the steady part and
then make a conscious decision to begin the phase. This way there is a clear
delineation between interlock mode and phase mode. When I begin to phase, I do
not begin to move out of synchronization immediately; I find it is better to think
about moving forward before I physically start changing my attack patterns.
When I do begin to phase, I try to move very gradually; I find that I sometimes
slip back into partial unison while I am beginning the phase, and that is fine. This
is the easiest part of the phase and I can draw it out more gradually than the other
segments. ¹⁰⁹

This method of phase would work well with a phase that lasts one entire cycle or three bars, such as the soprano line phasing with the bass line. Here, the lines gradually move apart from each other as Hartenberger mentions.

The eighth note line serves as a valuable anchor point for the performer. The eighth note line can make phase relationships amongst the other voices or distinct polyrhythms, such as a two over three between the tenor voice and the bass voice. Based on material that follows m. 16–29, the eighth notes can serve as a continuous point of reference.

Measure 31–49, letter L, offer a new four-part polyrhythm. The only rhythmic line that has changed is that of the dotted eighth note in measure sixteen to twenty-nine, which is transformed into quarter notes throughout letter L. The other three rhythmic lines remain the same but appear in different voices. The bass voice utilizes quarter notes, the tenor voice a quarter note quintuplet, the alto voice a quarter note triplet, and the soprano voice eighth notes (figure 4.7).

Figure 4.7 One cycle of polyrhythm, m. 34, Mvt. III
The eighth notes in the soprano realign with the quarter notes every two units and begin the section, resulting in the eighth note line as a valuable hinge for the performer. The eighth note is also the voice that speaks the most in both letter K and letter L, (that is, it has the lowest number of graphic units per cycle, meaning it sounds the most) offering a valuable reference point for the performer.

The least common denominator for letter L will be 120 graphic units. Based on the recurrence of each voice per measure, different phasing relationships can once again be made (table 4.5).

Table 4.5 Breakdown of graphic notation in one complete cycle, Letter L, Mvt. III

<table>
<thead>
<tr>
<th>Voice</th>
<th>Units</th>
<th>Cycle</th>
</tr>
</thead>
<tbody>
<tr>
<td>soprano</td>
<td>8</td>
<td>every 15 graphic units</td>
</tr>
<tr>
<td>alto</td>
<td>6</td>
<td>every 20 graphic units</td>
</tr>
<tr>
<td>tenor</td>
<td>5</td>
<td>every 24 graphic units</td>
</tr>
<tr>
<td>bass</td>
<td>4</td>
<td>every 30 graphic units</td>
</tr>
</tbody>
</table>

At letter L, it is clear the bass voice and soprano voice will sound together whenever the bass voice is struck. This results in another anchor point for the performer. The tenor voice and the alto voice can participate in the same phase relationship as the soprano voice and the alto voice of letter K, resulting in the quarter note triplets gradually pushing ahead of the quarter note quintuplet.

It is clear with such expansive four-part polyrhythms for the solo performer that phasing can be a viable option for interpretation. To make each part exactly precise, listening may serve as a valuable tool as well. By using technologies such as Finale or Sibelius to input each voice, precise four-part relationships may be heard.
4.6 Chromaticism and Independence within the Development

The Development offers a 21st century approach to the formal plan as it takes modal music to chromatic music and back again. As can be seen at letter K, the soprano voice gradually deviates from the Aeolian mode and begins to be chromatised. Letter L sees all voices undergo this shift before offering a final “cadence” of all voices on pitch A to signal the exposition is over.

Letter M opens with new rhythmic and harmonic motives. The two upper voices begin a half step away from the two lower voices but an octave apart (figure 4.8).

Different lines are brought out dynamically and each voice moves a whole step up or down often at the peak of their dynamic line. A sense of clarity is offered in m. 55, as the voices arrive on pitch classes C, F, and G, breaking the chromatic clusters (figure 4.9).
Syncopation is introduced at Letter N to the pitches presented in m. 58–64. Two groups move independently of the other, group one being the soprano and alto voice and group two being the tenor and bass voice. The voice pairings often move in contrary motion to reach a single pitch and move out in contrary motion to reach intervals as large as a ninth. Moments of imitation, homophonic rhythm, and independence of line all appear throughout letter N, keeping the principles of the invention intact (figure 4.10).
Letter O presents two distinct lines, one moving in sixteenth notes and one moving in triplets that then continues in Letter P (figure 4.11).

Figure 4.11 Letter O polyrhythm, Mvt. III

Here, a two-part polyrhythm is created. The same principles of graphic notation can be used to find a composite rhythm here. These lines repeat their motives over and over, and based on when they align, reach their peak, and restart, new harmonies are formed. Chromaticism reenters in m. 86 in the lowest voice. The lowest voice repeats its motive, but gradually moves up a half step every third cycle in the lowest sounding pitch (C3 m. 85, C♯3 m. 86, and D3 m. 88). Whenever one voice plays, it presents two sixteenth notes. The interlocking of the two parts results in continuously sounding sixteenth notes.

Letter Q through Letter T offers slight accelerandos and ritardandos through rhythmic manipulation. Letter R presents four distinct lines moving succinctly with each other to encompass four partials of a sextuplet. Accents are introduced on the highest point of the soprano (B5) and tenor line (A4) which creates a melody of sorts among the oscillating sextuplets. Chromaticism is introduced in m. 103 with Ab5 and B♭4 and leads
to chromaticism amongst all voices. Accents begin appearing in all four voices and continue to offer jarring melodic moments (figure 4.12).

Figure 4.12 Accents and rhythmic manipulation, mm. 104–106, Mvt. III

The section gradually pulls apart rhythmically and leads to the recapitulation at letter T. Ligeti once again merges styles throughout this movement of *Thinking Songs*. Modal music blends with chromaticism, offering a 21st century approach to the invention. Canons encompass the movement and a formal scheme based on fugue, invention, and sonata form can be found. Unique four-part polyrhythms can offer difficulty for the solo performer, and phasing can serve as a helpful tool.
CHAPTER FIVE

MOVEMENT IV, “SCHERZO”

Movement IV, “Scherzo” serves as a contrast to the surrounding movements and to the piece as a whole. The movement calls for a prepared marimba and features a quote of Mahler’s Symphony No. 7, movement III, “Scherzo.” This movement of Thinking Songs offers a new timbre to the piece as a whole and presents a theatrical, unique perspective to the performer.

5.1 The Traditional Scherzo

Tilden A. Russell, professor emeritus of Southern Connecticut State University, and Hugh Macdonald, musicologist, define the scherzo as “any movement that takes the place of a minuet in a sonata cycle, and it has also been used to indicate a comic or ironically comic composition, usually fast-moving and often one movement within a larger work.” The term is derived from “the German Scherz and scherzen” which translates to “to joke.”

Movement IV of Thinking Songs, “Scherzo,” falls into this category. Ligeti remarks on the movement, “in creating ‘Scherzo,’ I wanted to contrast the very serious mood of the third movement. I sought to create a movement that was playful, amusing, and theatrical.”

111 Ibid.
112 Lukas Ligeti, phone interview by author, January 26, 2019.
“To joke,” as the term *scherzo* derives from, is clearly intended in Ligeti’s “Scherzo.” This movement of *Thinking Songs*, as can be seen throughout the work as a whole, does not strictly follow the principles of its “genre.” The *scherzo* here rarely mimics a minuet or dance suite as majority of the movement does not have any meter notated or fluctuates between different meters. However, there are two brief instances of meter notated in 3/4 time that occur in mm. 11–20 (figure 5.1) and mm. 68–77 (figure 5.2).

![Figure 5.1 Phrase in 3/4 resembling a waltz, mm. 11–20, Mvt. IV](image-url)
These two moments take on a waltz-like quality and are derived from Mahler. Ligeti remarks on his fondness of Mahler and how these moments (figure 5.1 and 5.2) are rooted in Mahler’s Symphony No. 7, movement III, “Scherzo: Schattenhaft,” “the short waltz moment that occurs twice is a quote from Mahler’s 7th Symphony, Movement III, ‘Scherzo: Schattenhaft.’ The term schattenhaft translates to ‘shadowy.’ This ‘Scherzo’ has a very evil undertone for me, and a very Viennese undertone. It’s a waltz, but it’s a macabre waltz.” Upon listening to Mahler’s “Scherzo” from Symphony No. 7, it is clear Ligeti is recalling one of the main themes stated by the violin.

The marimba embodies the entire orchestra at this point, in terms of harmony and melody to embellish the theme of the violin. The marimba also offers a shorter recollection of this both times, but the outline of the theme can be heard and felt upon

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113 Lukas Ligeti, phone interview by author, January 26, 2019.
hearing Mahler’s original “Scherzo.” The large leaps in the second half of the phrase as well as the falling glissandi are seen in both marimba and violin in the second half of the theme.

Ligeti closes his remarks on Mahler by noting the juxtaposition this quote adds to the movement as a whole, “to me, it’s a fun movement, but there’s also something slightly menacing about it. The Mahler 7th quote brings this tension and contrast in.”

This idea of aggression or a dark undertone is not one that belongs to Ligeti alone on Mahler’s “Scherzo” from Symphony No. 7. Jens Malte Fischer, who penned the text *Gustav Mahler*, notes on this particular movement, “a closer look at this central movement reveals nothing cheerful or humorous but only eeriness and ghostliness. The performance marking is ‘Schattenhaft’ (‘Shadowy’), and ghostlike figures flit past like shadows in the muted or pizzicato strings over timpani and horns.”

It appears as both Mahler and Ligeti offer a juxtaposed view of the genre scherzo, a genre that can appear light-hearted but can offer dark undertones. The overall tone of Ligeti’s “Scherzo” is further altered through the manipulation of the marimba’s timbre.

### 5.2 The Prepared Marimba

Ligeti further adds to the unique quality of his “Scherzo” by creating a prepared marimba. This unique timbre is one that is currently sparse in the percussion repertoire. Prepared vibraphone is gaining momentum in percussion literature, however, it is still a new idea that is being explored. Kevin Capacia, percussionist and composer, examined several prepared keyboard pieces such as the prepared vibraphone pieces *A Natural Regression* by Robert McClure and *Suit for Prepared Vibraphone* by Von Hansen, and

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114 Lukas Ligeti, phone interview by author, January 26, 2019.
the prepared marimba piece *Thousand Lights* by Juradej Setabundhu. His master’s thesis was completed in 2016, and thus includes the newest and most novel ideas of a prepared percussion keyboard instrument. In the percussion ensemble, composers such as Andy Akiho are also gradually introducing prepared vibraphones in such works as *To Walk or Run in West Harlem*.

The prepared vibraphone or marimba can find its origins in John Cage’s prepared piano. A prepared piano is defined as “a piano in which the pitches, timbres, and dynamic responses of individual notes have been altered by means of bolts, screws, mutes, rubber erasers, and/or other objects inserted at particular points between or place on the strings.” Cage first employed this idea in *Bacchanale* (1940) and in works such as *Sonatas and Interludes* (1946–8). Cage was very careful to indicate where specific items should be placed within the piano to create the desired timbre for every performance.

Ligeti expands on Cage’s prepared piano by creating a prepared marimba. However, the prepared marimba is altered by the performer throughout the performance as notated in the score. This changes the timbre throughout the piece. Whereas a normal marimba composition offers timbre changes primarily through mallet choice, Ligeti’s prepared marimba offers a completely new soundscape for the listener.

The movement begins with two “small Chinese cymbals” placed on specific regions of the keyboard (figure 5.4).

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118 Ibid.
119 Ibid.
As the performer plays, the Chinese cymbals offer a “clashing sound” on the marimba bars as opposed to the resonance of an unaltered marimba bar. As the work progresses, glissandi offer both of these sounds occurring one right after another, creating the unique timbre Ligeti is calling for. The Mahler quote is also encumbered by these Chinese cymbals, and adds to the element of sarcastically playful scherzo.

As the movement progresses, the cymbals are moved by the performer to alter the prepared marimba (figure 5.4).

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120 Lukas Ligeti, phone interview by author, January 26, 2019.
This changing prepared marimba creates a sense of the unknown – the prepared marimba is not permanent, it can and will be altered. A metal jingle is introduced in m. 64 to the wooden bar G5 on the marimba (figure 5.5).

Throughout “Scherzo,” the elements used to create a prepared marimba are Chinese cymbals, metal jingle, rubber mallets striking the keyboard, and the backside of marimba mallets to play glissandi. These all together create a revolutionary soundscape
for the listener. Ligeti notes by this point in *Thinking Songs*, the listener is used to the timbre of the marimba, and it is a welcome change to alter the overall sound of the instrument. These new timbres create a different environment for the performer and the listener, and serve as a contrast to the other movements of *Thinking Songs*.

Ligeti once again creates a blending of styles in “Scherzo.” The movement seeks inspiration from Mahler’s Symphony No. 7 and the juxtaposition of the traditional *scherzo* paired with dark undertones. Ligeti employs new sounds on the marimba by creating a prepared marimba, which can link closely back to the prepared pianos of John Cage in the first half of the 20th century.

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121 Lukas Ligeti, phone interview by author, January 26, 2019.
CHAPTER SIX

MOVEMENT V, “TWO-PART INVENTION”

Although the title may suggest heavy influence from European classical music, the last movement of Thinking Songs can primarily be traced through two compositional ideas. In “Two-Part Invention,” Ligeti once again seeks inspiration from African music, most notably the amadinda music of Southern Uganda. The intricate compositional and playing styles of amadinda musicians can be seen throughout the movement, as well as one of the American trends of the second half of the 20th century, minimalist music.

6.1 Minimalist Music

Minimalism was a trend in art and music that gained popularity in America in the 1960s and 70s and is still a compositional tool used today. Keith Potter, researcher of contemporary music, defines minimalism as “a term borrowed from the visual arts to describe a style of composition characterized by an intentionally simplified rhythmic, melodic, and harmonic vocabulary.”[122]

Like many trends in culture, minimalist music and minimalist art ran in conjunction with one another and both served as reactions to the previous generation of influencers in their perspective medium. In the textbook A History of Western Music, Burkholder notes:

In parallel with minimalist art, minimalist composers were reacting against the complexity, density, and sheer difficulty of recent modernist music, from the

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chance music of John Cage to the serialist music of Babbitt, Stockhausen, and Boulez and the virtuoso works of Carter and Berio. Instead of overwhelming the listener with unfamiliar content and a rapidly changing musical surface, minimalist composers reduced the amount of material and the pace of change to a minimum and invited listeners to focus on the small changes that do occur.123

Steve Reich, whose concept of phasing may prove beneficial in performing movement III of *Thinking Songs* for the use of phasing, was one of the leading minimalist composers along with Terry Riley, La Monte Young, and Philip Glass.124

Minimalist music can also be seen as a reaction against Western tonal music in addition to the styles Burkholder describes. Timothy A. Johnson, music theory professor at Ithaca College, examines the different definitions of minimalism in music in his article “Minimalism: Aesthetic, Style, or Technique?”125 In his analysis of minimalist technique, Johnson describes five characteristics that are often present, “a continuous formal structure, an even rhythmic texture and bright tone, a simple harmonic palette, a lack of extended melodic lines, and repetitive rhythmic patterns.”126 Many of these characteristics can be found in Ligeti’s “Two-Part Invention.”

The formal structure of “Two-Part Invention” can be seen as three distinctive sections: Section 1, mm. 1–68; Section 2, mm. 69–76; and Section 3, mm. 77–141. Although the movement is not entirely continuous, within each of these sections there is gradual motion from one central pattern or motive. For example, small movement is utilized to gradually grow a once small fragment of an idea. This can be seen in the very opening of the movement (figure 6.1).

124 Potter, “Minimalism (USA).”
126 Ibid, 751.
In the opening of “Two-Part Invention,” a rhythmic pattern is set and accents and pitches gradually change. Accents play a large role in the overall structure of section 1 and how the motive moves. The accents in m. 1 are played every two sixteenth notes. In m. 2, the accents are played every three sixteenth notes. In m. 3 the accent is played every four sixteenth notes, in m. 4 every five sixteenth notes, etc. until an accent is played every 8 sixteenth notes in mm. 12–14 (figure 6.2).
In m. 15, the process is then reversed – the spacing between the accents begin to contract until they reach every three sixteenth notes in m. 25 and in m. 26 all notes are played at one dynamic level (figure 6.3).

The harmonic content of the opening mm. 1–25 is similar to the accents in that each voice (upper and lower) slowly expands. For example, in the first six measures
(figure 6.1), the upper voice and lower voice have both only expanded by a third. This continues through the first 25 measures.

In m. 26, the upper and lower voices each establish a pattern and begin and end in different points of the pattern, thereby changing the overall composite pattern. Beginning on D♭4 on the third sixteenth note partial of beat 3 in m. 25, the lower voice establishes a five-note pattern. Beginning on D♭4 as well on the fourth sixteenth note partial of beat 4 in m. 25, the upper voice establishes a seven-note pattern. These patterns begin to interlock at different points, creating new textures for the listener and the performer. This pattern changes in m. 29 to have both voices beginning on pitch E♭4 (figure 6.4).

![Figure 6.4 New pattern beginning on E♭4, m. 29, Mvt. V](image)

Here, the lower voice begins on E♭4 on the second sixteenth note partial of beat 2 in m. 29 and establishes a new five-note pattern. The upper voice begins on E♭4 on the last sixteenth note partial of beat 2 in m. 29 and establishes an eight-note pattern. The patterns reach another moment of change in m. 34 and gradually extend to utilize a greater range of the marimba. Accents are reintroduced and in m. 45, two contrasting
patterns once again emerge to create continuously changing yet interlocking ideas (figure 6.5).

Figure 6.5 New interlocking patterns beginning m. 45, Mvt. V

Here, the lower voice establishes a four-note pattern that moves from one octave to another and the upper voice establishes a six-note pattern that moves from one octave to another.

As Johnson mentions in his characteristics, the rhythm here has not changed and the harmonic palette is simple. By creating two different patterns in each voice that have different lengths, a composite texture is created that will continuously morph. The trends of minimalism can be seen to hold true throughout Ligeti’s “Two-Part Invention” in the first section.

In the second section, m. 69–76, the performer covers the entire range of the five-octave marimba in a rather virtuosic accelerando and crescendo to the highest and lowest note of the keyboard. Once again, the only rhythm played is sixteenth notes, and no accents are used. The upper voice pattern holds at five notes but gradually moves up in chromatic step wise motion (figure 6.6). The lower voice gradually increases its pattern
to move down the keyboard from a six-note pattern (figure 6.6) to a ten-note pattern in m.
76 (figure 6.7).

Figure 6.6 Expanding chromatic motion, mm. 69–70, Mvt. V

Figure 6.7 Expansion to highest and lowest notes of marimba, mm. 75–76, Mvt. V

Section 3 continues with the characteristics Johnson mentions. Each voice establishes a pattern and slightly expands upon it which in turn creates new composite textures. In Section 3, and in the movement as a whole, amadinda music can be seen as a heavy influence.
6.2 Amadinda Music and the Inherent Pattern Effect

Gerhard Kubik, renowned musicologist and examiner of African music, provides detailed personal accounts of xylophone playing in Uganda. There are two main types of xylophones utilized in these regions, the amadinda, a 12-note keyboard, and the akadinda, a 17-note keyboard.\textsuperscript{127} Kubik provides a detailed description on the construction of these keyboards, “xylophones in southern Uganda belong to a category known as log xylophones. The base of the instrument consists of two fresh banana stems. A series of sticks is pushed into the soft stems. Then the keys are placed between. No resonator vessels are employed.”\textsuperscript{128}

Typically, three players will play on one instrument while seated, with two on one side and one on the other.\textsuperscript{129} Two players will play interlocking patterns while the third will highlight the two lowest pitches (but at the highest end of the keyboard) of the overall pattern.\textsuperscript{130} This certainly contrasts the typical usage of the Western five-octave marimba as it is generally played as a solo instrument. In Ligeti’s “Two-Part Invention,” the solo performer covers two distinct parts of the amadinda performers and the resultant rhythms can be perceived in different ways by the listener.

Amadinda music is structured to create two individual parts. For labeling, they can be called part A and part B as Kubik will use. These two parts almost never play together. Kubik notes:

Those musicians who are sitting opposite each other (A and B) strike more or less the same keys of the instruments, each one at his own end. They strike, however, alternately, one being in the act of striking, and the other at the end of the stroke.

\textsuperscript{128} Ibid, 53.
\textsuperscript{129} Ibid, 60.
\textsuperscript{130} Ibid, 69.
Thus the patterns of each of the two opposite musicians fall in between each other...these basic patterns are always isorhythmic, each consisting of a series of equal-spaced notes. They combine like cog-wheels.\textsuperscript{131}

Through Western notation, Ligeti has employed these exact concepts. Referring again to the opening, the upper and lower voices strike the same key but never at the same time. They gradually begin to expand their range but never play together. Each line is independent of the other, yet they each use the same rhythm (eighth notes) but strike at different times. Ligeti continues this throughout the movement as a whole. The end of section one offers several measures where the voices play together, however, this can be perceived as the close of the section, or that the virtuosic section two is about to begin.

To hold true to the performance aspects of amadinda players, each player would think of their own independent line, that is, syncopation is not a tool to be used.\textsuperscript{132} In “Two-Part Invention,” however, the role of solo performer creates one continuous internal rhythm, that is, to refer again to Kubik in movement 1, “Dance,” an elementary pulse line that in Western notation consists of sixteenth notes. This is quite less problematic than if the movement was intended for two players. Further holding true to the ideals of amadinda music, the tempo is markedly fast, meaning the act of “splitting” the parts would be quite challenging. Kubik notes that the ability of the amadinda players to find their spot within any pattern and hold true to it is quite impressive and a musical ability that appears in almost all keyboard playing of southern Uganda.\textsuperscript{133}

Kubik regards the listener as another component of amadinda playing. From personal experience, Kubik describes hearing patterns that no one had actually played, “I

\footnotesize
\begin{itemize}
\item \textsuperscript{131} Ibid, 61.
\item \textsuperscript{132} Ibid, 76.
\item \textsuperscript{133} Ibid.
\end{itemize}
noticed to my surprise that our individual parts would disappear in the recordings we were making. Instead, there would emerge a puzzle of melodic-rhythmic lines, crisscrossing one another, which we had not played.”\textsuperscript{134} Kubik describes these as “inherent patterns.”\textsuperscript{135} These inherent patterns blend well with the concepts of minimalism. Out of the total picture, the listener can hear new ideas that an individual player may not be playing, but that comes out of the total context of the piece. Kubik notes in order for a listener to discover inherent patterns, “the total pattern must be repeated again and again…repetition is therefore indispensable in this kind of African music, because only thus can the inherent melodic-rhythmic patterns emerge to consciousness.”\textsuperscript{136} The listener needs time to absorb the relationships of the two voices and create a pattern they are perceiving. The listener’s perception may change from person to person as well. For example, in hearing the displaced accents in Section 1, one listener may perceive these as polyrhythmic. It is clear for the performer, however, that they are playing one continuous line of sixteenth notes (relating back to the elementary pulse line) and simply playing an accent where Ligeti places one. Another listener may try to group pitches together that only emerge out of the total context of the piece, thereby merging the two lines.

Kubik’s concepts of listening to amadinda music fall almost exactly with the concepts of minimalist aesthetic Johnson describes. Johnson finds minimalist music to be contrasting traditional Western classical music in the act of listening through examining Wim Mertens text \textit{American Minimal Music: La Monte Young, Terry Riley, Steve Reich, Philip Glass}, “According to Mertens, the teleological nature of most

\begin{footnotes}
\footnote{Kubik, Volume II, 108.}
\footnote{Ibid.}
\footnote{Kubik, Volume I, 78.}
\end{footnotes}
Western music – in which goals are established, the music progresses toward these goals, and the listener travels on a journey among and between different musical areas – is absent from minimal music.”\textsuperscript{137} In examining European Classical music horizontally, the process of minimalism will certainly be missed and it will appear the work will be lacking any goals or progression. Through repetition, it is clear the processes play an important role in the progression of the work. Kubik describes similar concepts in amadinda music:

Listening to African music demands different abilities from the listener than European music. It demands also a different direction of attention. In European concerts one’s attention is normally more directed to what will happen in the horizontal development of the composition. In African instrumental music this way of listening is certainly not absent, but it is less emphasized. A listener to African music has to direct his attention more to the inner dimensions of the compositions, which are so manifold that they cannot be perceived all at once in a split second. The listener has to change his own “position” gradually, just in the same way that one looks at an object from different sides.\textsuperscript{138}

Here, it is apparent minimalist music and amadinda music have similar concepts and ideas. When focused only on the traditional sense of progression through horizontal motion, the listener will miss out on the intricate processes minimalist composers and amadinda composers and performers are creating.

Ligeti blends minimalist music with the amadinda style of composition and performance in “Two-Part Invention.” Traditionally, two amadinda players play two separate, interlocking lines while a third player emphasizes certain elements of both. Here, the solo performer plays the two interlocking lines throughout the entire movement. The tempo of the movement, “prestissimo,” further falls in line with the fast tempos of amadinda music. In each section of “Two-Part Invention,” motives are gradually

\textsuperscript{137} Johnson, 744.
\textsuperscript{138} Kubik, Volume 1, 79.
expanded or contracted, falling in line with the compositional processes of minimalist music. Ligeti’s blending of styles is once again seen in this final movement of *Thinking Songs*. 
CHAPTER SEVEN

CONCLUSION

Thinking Songs by Lukas Ligeti is an expansive solo five-octave marimba work. Through discussions with Ligeti, several influences have been revealed. Movement I, “Dance,” is heavily influenced by the Chopi people of Mozambique and timbila xylophones. African reference time levels can be seen throughout this movement as discussed in Gerhard Kubik’s two volume collection, Theory of African Music.

Movement II, “Lamento,” draws on the European lamento genre and Ligeti notes György Kurtág’s later works as an expressive, stylistic influence. Movement III, “Four-Part Invention,” relates to the inventions and fugues of J.S. Bach. Movement IV, “Scherzo,” serves as a contrast to the work by incorporating a prepared marimba. Currently, the prepared marimba is rarely used which adds a unique element to the piece as a whole.

Mahler’s Symphony No. 7 is quoted in “Scherzo,” blending the traditional symphony with a still avant-garde instrument, the prepared marimba. The final movement, “Two-Part Invention,” has minimalist music qualities and is further influenced by amadinda playing of Southern Uganda. It is clear Ligeti is blending African music with Western classical music throughout Thinking Songs to create a unique solo five-octave marimba work.
REFERENCES


APPENDIX A

RECITAL PROGRAMS

UNIVERSITY OF SOUTH CAROLINA
School of Music

presents
CAITLIN JONES, percussion

in
DOCTORAL CANDIDACY RECITAL
Saturday, March 18, 2017
7:30 PM • Recital Hall

Blues for Gilbert
Mark Glenworth
(b. 1960)

Domino III
Philippe Boivin
(b. 1954)

Beneath the Canopy
I. The Forest Beckons
Philip Parker
(b. 1953)

III. Exotic Birds of Paradise
V. Python Dance
Miguel Hijar, flute

Prim
Áskell Másson
(b. 1953)

From My Little Island
I. Theme
Robert Livingston Aldridge
(b. 1954)

II. Tango
III. Dance of Passion
IV. Sad Song
V. Hymn
VI. Sweet Song
VII. Folk Song

Ms. Jones is a student of Dr. Scott Herring. This recital is presented in partial fulfillment of the requirements for the Doctor of Musical Arts degree in Performance.
presents

CAITLIN JONES, percussion

in

DOCTORAL RECITAL

Christopher Amick, vibraphone

Friday, November 3, 2017
6:00 PM Recital Hall

Jade Circles
I. Prologue
V. Chorale Fantasia
II. Dance

David Skidmore (b. 1982)

Christopher Amick, vibraphone

March

Elliott Carter (1908 - 2012)

Four Dances for Marimba
I. A Lullaby Dancing
II. Song
III. Waltz

Gordon Stout (b. 1952)

unchained melody

David Lang (b. 1957)

Blackbird

Paul McCartney (b. 1942)
(arr. Ed Smith)

bounce!

Anthony M. Di Bartolo (b. 1987)

Ms. Jones is a student of Dr. Scott Herring.
This recital is presented in partial fulfillment of the requirements for the Doctor of Musical Arts degree in Performance.
presents

CAITLIN JONES, percussion

in

DOCTORAL CHAMBER RECITAL

Sunday, April 8, 2018
5:00 PM • Recital Hall

Spine

Michael Laurello
(b. 1981)

Aaron Buck, percussion; Michael Calamas, piano
Noah O’Cain, percussion

Palmetto Moon

Andy Harnsberger
(b. 1967)

Aaron Buck, Will Newton, & Jake Patrick, percussion

Siete Canciones Populares Españolas
I. El Paño Moruno
II. Seguidilla Murciana
III. Asturiana
IV. Jota
V. Nana
VI. Canción
VII. Polo

Manuel de Falla
(1876 - 1946)
Arr. Scott Herring

Rebecca Loar, soprano

Valencia: Iberian Musings
On the Edge
Prayer and Lament with Interjections
Please Refrain

David Keochley
(b. 1947)

Andrew Hutchens, alto saxophone; Alli Johnson, baritone saxophone
Trevor McLaine, tenor saxophone; Yi-Chia Tu, soprano saxophone

Ms. Jones is a student of Dr. Scott Herring.
This recital is presented in partial fulfillment of the requirements for the Doctor of Musical Arts degree in Performance.
presents

CAITLIN JONES, percussion

in

DOCTORAL RECITAL

Thursday, September 27, 2018
7:30 PM • Recital Hall

Dark Passenger
Andy Harnsberger
(b. 1967)

Peter Grubisich & Joe Jones, percussion

Thinking Songs
I. Dance
V. Two – Part Invention

Lukas Ligeti
(b. 1965)

Bolero for Ed
Chip Webster

Concerto for Marimba and Orchestra
Roumen Boyadjiev, Jr.
I
II

Karen Kai Yuan Yong, piano

Ms. Jones is a student of Dr. Scott Herring.
This recital is presented in partial fulfillment of the requirements for the Doctor of Musical Arts degree in Performance.
CAITLIN JONES, percussion

in

DOCTORAL SOLO RECITAL

Monday, March 18, 2019
6:00 PM • Recital Hall

From Nine-French American Rudimental Solos
IV
IX

Joseph Tompkins
(b. 1970)

Thinking Songs
II. Lamento
III. Four-Part Invention

Lukas Ligeti
(b. 1965)

The Final Precipice

Jeffrey Peyton
(b. 1962)

Deux mélodies hébraïques
Kaddisch
L’énigme éternelle

Maurice Ravel
(1875 – 1937)
arr. Caitlin Jones

Rebecca Loar, soprano

Girlfriends Medley

arr. Bob Becker
(b. 1947)

Michael Calamas, Peter Grubisich, Joe Jones, Chase Cunningham
marimba ensemble

Caitlin Jones is a student of Dr. Scott Herring. This recital is given in partial fulfillment of the requirements for the Doctor of Musical Arts degree in Percussion Performance.
APPENDIX B

PERMISSIONS

JONES, CAITLIN
Sat, 4/6, 9:08 PM
Lukas Ligeti <q@lukasligeti.com>

Hi Mr. Ligeti,

I have used figures from "Thinking Songs" as well as quotes from our two phone interviews throughout my dissertation. I have compiled these in two word documents that are attached to this email. Do I have your permission to use these figures and quotes?

Lukas Ligeti <q@lukasligeti.com>
Yesterday, 11:23 PM

dear ms. jones,

yes, you have my permission.
Hi Trudy,

About a year ago I reached out in regards to purchasing the sheet music for "Thinking Songs" by Lukas Ligeti. I was really blown away by this piece after seeing it at PASIC and decided to perform the piece and focus my dissertation on it.

Now, a year later, I am a few days away from my dissertation defense at University of South Carolina! In emailing with Lukas, I had two specific questions about permissions that he suggested I send your way.

1) I have attached a word document of figures I am using in the document. I asked Lukas if it was ok to use these and he said yes! He also suggested I reach out to you just to make sure it is ok to use these figures. If it is ok to use these, the university is fine with attaching a screenshot of the email permission to the document.

2) In citing "Thinking Songs," is there an address for "Image of Two Ears," or is there another "publishing" title/address I should use? Lukas mentioned creating "Image of Two Ears" was primarily for ASCAP, and that you might have further info!

Trudy Chan <tc@blackteamusic.com>
Fri 4/5, 12:05 PM

Hi Caitlin,

Thanks so much for your email again. This actually is pretty straightforward, since Lukas retains 100% of the rights for this piece. If he has given you consent to include these figures, then you are pretty much good to go. For the publisher's address, you can use the following:

Image of Two Ears
c/o Lukas Ligeti Productions, LLC
P.O. Box 370614
Brooklyn, NY 11237-0614
FIGURES FROM *THINKING SONGS FOR CAITLIN JONES* DOCUMENT

Figure 2.1 m. 21, Mvt. I
Figure 2.2 m. 23, Mvt. I
Figure 2.3 mm. 38–43, Mvt. I
Figure 2.4 mm. 53–56, Mvt. I
Figure 2.5 mm. 108–110, Mvt. I
Figure 2.6 mm. 111–113 Mvt. I
Figure 2.7 m. 65, Mvt. I
Figure 2.8 m. 117, Mvt. I
Figure 2.9 mm. 121 – 122, Mvt. I
Figure 2.10 m. 125, Mvt. I
Figure 2.11 mm. 70–72, Mvt. I
Figure 2.12 m. 81, Mvt. I
Figure 3.1 mm. 2 – 3, Mvt. II
Figure 3.2 mm. 15–16, Mvt. II
Figure 3.3 mm. 24–26, Mvt. II
Figure 3.4 mm. 1–8, Mvt. II
Figure 4.2 mm. 14–15, Mvt. III
Figure 4.3 mm. 120–122, Mvt. III
Figure 4.4 m. 132, Mvt. III
Figure 4.5 m. 142, Mvt. III
Figure 4.6 mm. 21–23, Mvt. III
Figure 4.7 m. 34, Mvt. III
Figure 4.8 mm. 50–51, Mvt. III
Figure 4.9 m. 55, Mvt. III
Figure 4.10 mm. 67–68, Mvt. III
Figure 4.11 mm. 78–79, Mvt. III
Figure 4.12 mm. 104–106, Mvt. III
Figure 5.1 mm. 11–21, Mvt. IV
Figure 5.2 mm. 68–77, Mvt. IV
Figure 5.3 m. 30, Mvt. IV
Figure 5.4 m. 45, Mvt. IV
Figure 5.5 mm. 64–65, Mvt. IV
Figure 6.1 mm. 1–6, Mvt. V
Figure 6.2 mm. 11–14, Mvt. V
Figure 6.3 mm. 25–26, Mvt. V
Figure 6.4 mm. 29–30, Mvt. V
Figure 6.5 mm. 45–46, Mvt. V
Figure 6.6 mm. 69–70, Mvt. V
Figure 6.7 mm. 75–76, Mvt. V
LUKAS LIGETI QUOTES FOR CAITLIN JONES DOCUMENT

Corresponding chapters in document are listed as well as page numbers

CHAPTER ONE

Page 6
Kubik’s detailed descriptions, photos, and first-hand accounts offer detailed insight into these styles and genres and were recommended by Ligeti.

Page 7
In addition to the common descending tetrachord found throughout the lamento genre, Ligeti notes György Kurtág as an influence in “Lamento.”

CHAPTER TWO

Page 10
“After spending a lot of time in Burkina Faso and working with traditional musicians there, I have discovered a rhythm called waraba. You can write this rhythm as an eighth note followed by four sixteenth notes.”

The waraba rhythm, like many rhythms of African cultures, can be manipulated and transformed. Ligeti adds, “The question now, is where do you put the beat?”

Page 12
Ligeti, however, makes it clear the unawareness of time is, in fact, the goal.

Page 15
Ligeti notes, “I wanted to work with accelerations, expansions, and contractions throughout letter B of the first movement. There is an implied accelerando occurring in the notes played with the normal side of the mallet. They begin to arise more often as the section progresses.”

Page 18
Ligeti notes, “the first movement is strongly influenced by the timbula music of the Chopi people of Mozambique.”

Page 26
Ligeti notes, “the Chopi people have a special kind of melody that closely resembles broken triads.”
CHAPTER THREE

Page 31
The movement finds its roots in European classical music, and György Kurtág’s influence can be seen.

Page 36
“My music often focuses on structure, rhythmic relationships, symmetry, and geometry. I wanted ‘Lamento’ to be an interlude that serves as something completely different to my normal compositional style. My piece does not sound like Kurtág at all, but I was thinking of him as a person who is able to be very succinct to express emotions.”

Page 37
Kurtág’s style is highly rooted in the Second Viennese School. Although “Lamento” cannot find its rooting in the Second Viennese School, Kurtág’s short piano work, Játékok, can be seen as a direct influence. Ligeti, in fact, was Kurtág’s influence to write Játékok. Ligeti recalls, “when I was a child, my family had the Brockhaus Encyclopedia. My father was in the encyclopedia, as he was already well known as a new music composer. I enjoyed reading the encyclopedia and it inspired me to write my own. When I was about six years old, I made up my own country and planet. This became the source of inspiration for my encyclopedia, and I included other countries, people, and history. When I was about seven years old, Kurtág came to visit and he read my encyclopedia. He was quite impressed, and it gave him the idea to write piano pieces for children called Játékok. This turned out to be a breakthrough piece for Kurtág. At the time, his music was highly influenced by Western European music from the 1950’s and 60’s. Játékok served as a return to music that was simple and childlike, yet visceral and emotional.”

CHAPTER FOUR

Page 53
“I have always been interested in polyrhythms, polytempos, and polymeters. One of the ways to write or play these complex structures is to have a string of very fast sixteenth notes. Exactly like the amadinda music mentioned in Kubik’s writings, there is an illusion of polymeter or polytempo created. In reality, however, it is just a very fast chain of steady notes that are being played. On the other side, there is the more conventional approach that you subdivide a beat into different numbers of subdivisions, and that is what is going on here. It is one way of writing a complicated four voice counterpoint. Essentially, each voice is playing a different tempo.”
(speaking on letter K, movement III)
CHAPTER FIVE

Page 64
Ligeti remarks on the movement, “in creating ‘Scherzo,’ I wanted to contrast the very serious mood of the third movement. I sought to create a movement that was playful, amusing, and theatrical.

Page 66
“The short waltz moment that occurs twice is a quote from Mahler’s 7th Symphony, Movement III, ‘Scherzo: Schattennhaft.’ The term schattennhaft translates to ‘shadowy.’ This ‘Scherzo’ has a very evil undertone for me, and a very Viennese undertone. It’s a waltz, but it’s a macabre waltz.”

Page 67
Ligeti closes his remarks on Mahler by noting the juxtaposition this quote adds to the movement as a whole, “to me, it’s a fun movement, but there’s also something slightly menacing about it. The Mahler 7th quote brings this tension and contrast in.”

Page 69
As the performer plays, the Chinese cymbals offer a “clashing sound” on the marimba bars as opposed to the resonance of an unaltered marimba bar.

Page 71
Ligeti notes by this point in *Thinking Songs*, the listener is used to the timbre of the marimba, and it is a welcome change to alter the overall sound of the instrument.