THE KHAN VARIATIONS FOR SOLO MARIMBA BY ALEJANDRO VIÑAO:
MUSICAL ANALYSIS AND PERFORMANCE PRACTICE

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The *Khan Variations* is the first work for solo marimba by Argentinean composer Alejandro Viñao (b.1951). Since publication in 2001, *Khan Variations* has been performed at many international percussion festivals and is often a repertoire choice for performers in the final round of numerous marimba competitions. This thesis and accompanying lecture recital provide a supplemental guide to Alejandro Viñao’s *Khan Variations*, focusing on analytical and structural theory, as well as performance practice, thus filling the void of information on this piece in the percussion community.

*Khan Variations* was jointly commissioned by twelve of the world’s prominent marimba performers and educators, including: Michael Burritt, Jack Van Geem, William Moersch, Robert Van Sice, and Nancy Zeltsman. The project organizer of the *Khan Variations* commission was Nancy Zeltsman, Chair of the Percussion Department at the Boston Conservatory and a leader in the field of commissioning new marimba works. Utilizing William Moersch’s organization New Music Marimba as the financial conduit, Zeltsman and her group issued this commission in 1999.

Alejandro Viñao studied composition with the Russian composer Jacobo Ficher in Buenos Aires, and Viñao later went on to complete his doctorate in composition from City University in London. His works span the genres of opera, choir, orchestra, electroacoustic chamber music, and more than twenty film scores. Viñao’s composing style is influenced by Mexican-American composer Conlon Nancarrow and Islamic religious music known as
Qawwali. Alejandro Viñao’s works typically contain complex rhythmic structures and use rhythm as the main element for musical form and development.

The impetus for this thesis is to provide a musical analysis and performance guide for The Khan Variations by Alejandro Viñao. This thesis also illuminates the significance of the joint commission led by Nancy Zeltsman, and highlights the influences and inspirations of Alejandro Viñao as a rising composer of international renown.
ACKNOWLEDGEMENTS

My appreciation goes to my committee members Mark Ford, Christopher Deane, and Eugene Migliaro Corporon for all of their support and guidance. I also extend a special thank you to Alejandro Viñao who graciously offered his musical insight and assistance. Finally, I offer my sincerest appreciation to my mother and father, Albert and Frances Roberts, for their ever-present love, support and guidance.
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CHAPTER 1

INTRODUCTION

The Khan Variations is the first work for solo marimba by Argentinean composer Alejandro Viñao (b.1951). Since publication nine years ago in 2001, Viñao’s work has been performed at many major percussion festivals, and it also has been included on numerous marimba contest lists. The Khan Variations was jointly commissioned by some of the world’s top marimba virtuosi, organized and led by Nancy Zeltsman.

Nancy Zeltsman, Chair of the Percussion Department at the Boston Conservatory, is a leader in the field of commissioning new marimba works. While the procurement of grants was the primary vehicle for new percussion works in the 1970s and 1980s, Zeltsman noted that the process was arduous, and had become increasingly cumbersome. As a result of a conversation with marimbist Robert van Sice, she decided to experiment with the concept of a joint commission for a solo marimba work by Alejandro Viñao. With the help of twelve professional marimba performers and educators from around the world, and using William Moersch’s organization New Music Marimba as the financial conduit, Zeltsman and her group issued this commission in 1999.1 Table 1 lists the twelve commission members.

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1 Nancy Zeltsman, interview by author, 28 August 2009, telephone conversation.
Table 1. *Khan Variations* joint commission members

<table>
<thead>
<tr>
<th>The Khan Variations Joint Commission Members</th>
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<tr>
<td>Bogdan Bacanu</td>
</tr>
<tr>
<td>Michael Burritt</td>
</tr>
<tr>
<td>Ricardo Gallardo</td>
</tr>
<tr>
<td>Eduardo Leandro</td>
</tr>
</tbody>
</table>

Zeltsman made the use of the joint-commission process more wide-spread. The *Khan Variations* project is significant because it ushered in a new and prolific era for creating percussion music.

The commission members knew of Viñao’s style and emerging status as a composer through public concerts and radio. Alejandro Viñao studied composition with Russian composer Jacobo Ficher in Buenos Aires, and Viñao later went on to complete a doctorate in composition from City University in London. His music has been performed at the Tanglewood Festival, the Warsaw Autumn Festival, and the London PROMS. Viñao received honors for his music at the Prix Ars Electronica Festival in 1992 and at the Unesco World Music Council in 1984. Viñao is currently an Artist in Residence at Cambridge University. His works span the genres of opera, choir, orchestra, electro-acoustic chamber music, and film-scores. A small portion of Viñao’s catalogue includes percussion music such as *Tumblers* (1989-violin, marimba, and computer), *Concerto* (1993-marimba solo, with chamber orchestra), and *Arabesco Infinto* (2006-marimba and vibraphone duet).
Viñao’s works typically contain complex rhythmic structures and use rhythm as the main element for musical form and development.² Viñao’s composing style is influenced by his native South-American heritage and also by Mexican-American composer Conlon Nancarrow (1912-1997). Viñao met Nancarrow in the mid-1980s at the Almeida Festival in London. Nancarrow’s research on multi-temporality in music was similar to the musical processes that Viñao used in his compositions.

During his career, Nancarrow composed more than fifty works for the player piano. By cutting holes in the player piano paper-roll by hand, Nancarrow experimented with rhythm as the primary element in his compositions. Nancarrow is known for his extensive development of rhythmic devices such as ostinato, isorhythm, and canon.³ Viñao carries on the legacy of Conlon Nancarrow by exploring rhythm and form in Khan Variations.

In addition to the influences of Conlon Nancarrow and Latin-American music, Khan Variations specifically derives its inspiration from Pakistani singer Nusrat Fateh Ali Kahn, who popularized the genre of Islamic religious music known as Qawwali. As with much of the music from the Middle East, the concepts of form and structure are central to the performance of the music. It is common for certain Qawwali compositions to be very long, lasting up to an hour in some cases, with a hierarchy of large and small formal structures used to organize the music. Khan Variations is organized by similarly large formal structures of rhythm. The form of Khan Variations is created by combining

and developing rhythmic structures, much in the same way that Ali Kahn did in his performance of Islamic religious music.

The purpose of this thesis is to provide a musical analysis and performance guide for The Khan Variations by Alejandro Viñao. This thesis also illuminates the significance of the joint commission led by Nancy Zeltsman. The Khan Variations has been programmed numerous times at international percussion festivals and marimba competitions. It has been and performed by such noted artists as Michael Burritt, Jack Van Geem, and Robert Van Sice. This composition requires great virtuosity. It contains intricate poly-rhythms which present a unique challenge to the marimba performer. In most cases, it requires an in-depth analysis and study. An explanation of Viñao’s rhythmic elements, formal structure, and technical challenges offers information for interpretation and performance of the music. This dissertation and accompanying lecture recital provides a supplemental guide to Alejandro Viñao’s Khan Variations, focusing on analytical music theory, as well as performance considerations, thus filling the void of information on this unique marimba solo.
CHAPTER 2

THE NEW MUSIC MARIMBA JOINT COMMISSION PROJECT

The marimba has been used as a solo instrument for approximately one hundred years, and the five-octave marimba evolved in Japan only as recently as the 1980s. Since a majority of early solo marimba literature consisted of transcriptions, performers soon realized that new works composed for the marimba were needed to advance the status of the instrument.

The commissioning process was the primary method used for acquiring new compositions. In 1940, Frederique Petrides commissioned composer Paul Creston to write the *Concertino for Marimba and Orchestra*. Creston was known primarily as an orchestral composer. Petrides’ commission was important in that it was one of the earliest attempts to engage a composer outside of the percussion community.

Decades after the *Concertino for Marimba* in the 1960s and 1970s, marimbist Keiko Abe commissioned new works from Japanese composers. After Keiko Abe’s success with commissions in Japan, marimbists in the United States began a similar campaign. Two leaders in commissioning new marimba works in the United States are William Moersch and Nancy Zeltsman.

William Moersch, professor of percussion at the University of Illinois and a major figure in the commissioning process for percussion music, is the founder of the
non-profit organization New Music Marimba. He has actively commissioned new marimba solos by distinguished composers for the past 20 years. As co-author of a National Endowment for the Arts (N.E.A.) grant in 1986, Moersch secured new works from composers outside the percussion community, commissioning works by American composers Jacob Druckman, Roger Reynolds, and Joseph Schwantner. He also started the New Music Marimba Foundation, a non-profit organization formed to distribute money being donated by other marimba artists who shared his vision.4

Near the same time, prominent American marimba artist, Nancy Zeltsman was commissioning new works for marimba through her duo, Marimolin. Zeltsman formed the duo with violinist Sharan Leventhal in 1985. By the time of their disbandment in 1996, they had premiered 79 chamber works and inspired many more. After Zeltsman was introduced to Alejandro Viñao’s music by a Boston public radio producer and mutual friend, Zeltsman and Leventhal commissioned him to compose Tumblers (1989) for Marimolin.5 After the success of Tumblers, marimbist Robert Van Sice became very interested in Viñao’s music and commissioned a marimba concerto from Viñao. Subsequently, Van Sice suggested to Zeltsman the prospect of a solo marimba piece by Viñao that could be commissioned jointly by a group of soloists. Zeltsman and Van Sice wanted Viñao to write a marimba composition, because as a non-marimbist, Viñao could view the instrument from a unique perspective and would ignore many limitations seen by marimbists. Zeltsman noted that the commissioning process had become difficult and time-consuming due to the many steps involved in grant-writing. She proposed an

alternate method of a joint commission to make the project more feasible. As project organizer, Zeltsman formed a group of twelve marimba artists to jointly fund the commission. William Moersch volunteered that New Music Marimba could act as the financial conduit for the project. *Khan Variations* was created through this joint commission in 1999, a relatively uncommon process to procure new works.

After the *Khan Variations* joint-commission, other marimba artists have adopted this model for creating new works by composers outside of the percussion field. The *Khan Variations* project acted as a prototype for Zeltsman’s current work, the *Intermediate Masterworks for Marimba*. Between 2006-2009, Zeltsman worked with this model on a much larger scale, fostering the creation of 24 new works that form this collection published by the C.F. Peters Corporation. By 2006, this joint-commission model included over 200 contributors. This resulted in new, quality works for the marimba, thus filling a void in the solo marimba literature.6

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6 Nancy Zeltsman, interview by author, 28 August 2009, telephone conversation.
CHAPTER 3
BIOGRAPHY OF ALEJANDRO VIÑAO

Alejandro Viñao (b.1951) began his music career by studying guitar and conducting in Buenos Aires, Argentina. After studying composition with Russian composer Jacobo Ficher, Viñao moved to London England to advance his training at the Royal Conservatory College of Music. In 1988, he went on to complete a doctorate in composition from City University in London.

His works have been globally acclaimed, receiving awards such as the Golden Nica from the Prix Ars Electronica festival (1992) and the Unesco World Music Council (1984). In addition to winning first prize at many international composition festivals, Viñao has been commissioned by prestigious institutions such as the Institut de Recherche et Coordination Acoustique/Musique (I.R.C.A.M.) in Paris and the Massachusetts Institute of Technology (M.I.T.) in the United States. One of Viñao’s most distinguished honors occurred in 1995 when he was awarded the Guggenheim Fellowship in composition. The Guggenheim was awarded to him for his work, Apocryphal Dances, which was premiered by the BBC Symphony Orchestra in London in 1997. Viñao’s music has been performed at the Tanglewood Festival, the Warsaw Autumn Festival, and the London Promenade Music Festival.
Viñao is known in the music field as a rising composer of rhythmically focused music and has composed over thirty compositions spanning the genres of opera, choir, orchestra, and electro-acoustic chamber music, and more than twenty film scores.

Table 2 lists Viñao’s works:

Table 2. The compositions of Alejandro Viñao

<table>
<thead>
<tr>
<th>Genre</th>
<th>Title</th>
<th>Year</th>
<th>Instrumentation and Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>THE BAGHDAD MONOLOGUE</td>
<td>2007</td>
<td>Music theatre piece for soprano and computer.</td>
</tr>
<tr>
<td><strong>Symphony Orchestra</strong></td>
<td>APOCRYPHAL DANCES</td>
<td>1996/97</td>
<td>For symphony orchestra and computer.</td>
</tr>
<tr>
<td><strong>Chamber Orchestra</strong></td>
<td>MARIMBA CONCERTO</td>
<td>1993</td>
<td>For solo marimba and chamber orchestra. -Fl.- Ob.- Cl.- B.- 2 Cor.- Tr.- Trb.- Timp.- Pf.- Vl.1 - Vl.2 - Vlc.- Vc. - Cb. (24 players min.)</td>
</tr>
<tr>
<td><strong>Choir</strong></td>
<td>EPITAFIOS</td>
<td>1999</td>
<td>For mixed choir and computer. Choir size: 40 singers.</td>
</tr>
<tr>
<td></td>
<td>LA TRAMA</td>
<td>2002/03</td>
<td>For mixed choir and computer. Preferred choir size: 36/40 singers.</td>
</tr>
<tr>
<td><strong>Large Chamber Ensemble</strong></td>
<td>ALGEBRA ON FIRE</td>
<td>1988/91</td>
<td>19 players and computer - Fl.- Ob.- Cl.- B.- 2 Cor.- Tr.- Trb.- Mba.- Timp.- Pf.- 3 Vlns.- 2 Vlc.- 2 Vc.- Cb.</td>
</tr>
<tr>
<td><strong>Small Chamber Ensemble</strong></td>
<td>COLISIÓN Y MOMENTO</td>
<td>2002/05</td>
<td>For 7 players with or without conductor. Fl.- Cl.- Pf.- Vln.1 - Vln. 2 - Vla.- Vc.</td>
</tr>
<tr>
<td>(up to 10 players)</td>
<td>CUADERNO DEL RITMO</td>
<td>2000/01</td>
<td>For 9 players and conductor. Fl.- Cl.- Pf.- Perc.- Vln.1 - Vln. 2 - Vla.- Vc.- Cb.</td>
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<tr>
<td></td>
<td>PHRASE &amp; FICTION</td>
<td>1994/95</td>
<td>For string quartet and computer.</td>
</tr>
<tr>
<td></td>
<td>SON ENTERO</td>
<td>1985/88</td>
<td>For 4 singers, S.A.T.B., and computer.</td>
</tr>
<tr>
<td></td>
<td>TOCCATA DEL MAGO</td>
<td>1986/87</td>
<td>For 8 strings: -4 vlns, 2 vlas, 1 cello, 1 doublebass- and computer.</td>
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<tr>
<td></td>
<td>TRIPLE CONCERTO</td>
<td>1984</td>
<td>For flute, cello, piano and computer.</td>
</tr>
<tr>
<td></td>
<td>TUMBLERS</td>
<td>1989</td>
<td>For violin, marimba and computer.</td>
</tr>
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<td></td>
<td>RIFF</td>
<td>2006</td>
<td>For marimba &amp; piano.</td>
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<td>FORMAS DEL VIENTO</td>
<td>2008 version 1</td>
<td>For flute &amp; 1 percussion player vib. &amp; mba. played by one player.</td>
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<td></td>
<td>FORMAS DEL VIENTO</td>
<td>2009 version 2</td>
<td>For flute &amp; 2 percussion players vib. &amp; mba. played by 2 players.</td>
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Table 2. Continued

<table>
<thead>
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<th>Genre</th>
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<th>Instrumentation and Description</th>
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</thead>
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<tr>
<td><strong>Solo (with or without electronics)</strong></td>
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<td></td>
<td></td>
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<td></td>
<td>BORGES Y EL ESPEJO</td>
<td>1992</td>
<td>For soprano and computer.</td>
</tr>
<tr>
<td></td>
<td>CHANT D'AILLEURS</td>
<td>1991</td>
<td>For soprano and computer.</td>
</tr>
<tr>
<td></td>
<td>HILDEGARD'S DREAM</td>
<td>1994</td>
<td>For soprano and computer.</td>
</tr>
<tr>
<td></td>
<td>MASAGOS CONFESSION</td>
<td>1996</td>
<td>For soprano and computer. Libretto by Craig Raine.</td>
</tr>
<tr>
<td></td>
<td>KHAN VARIATIONS</td>
<td>2001</td>
<td>For solo marimba.</td>
</tr>
<tr>
<td><strong>Percussion</strong></td>
<td>ESTUDIOS DE FRONTERA</td>
<td>2004</td>
<td>For 5 or 6 percussion players: 2 marimbas (5 octaves, C1 to C6), 1 marimba (A1 to C6), xylophone,</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>vibraphone, glockenspiel, tubular bells (2 octaves), bongos, congas, 4 tom-toms, gran cassa, 2</td>
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<td></td>
<td></td>
<td></td>
<td>whistles, claves, guiro, vibraslap, medium size cymbal, large cymbal.</td>
</tr>
<tr>
<td></td>
<td>ARABESCO INFINTO</td>
<td>2006</td>
<td>For vibraphone &amp; marimba.</td>
</tr>
<tr>
<td><strong>Electroacoustic and Multimedia</strong></td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>GO</td>
<td>1981</td>
<td>8 channel Electroacoustic composition.</td>
</tr>
<tr>
<td></td>
<td>HENDRIX HAZE</td>
<td>1983</td>
<td>4 channel Electroacoustic composition.</td>
</tr>
<tr>
<td></td>
<td>THE WORLD WE KNOW</td>
<td>2003</td>
<td>Electroacoustic composition in 5.1 format.</td>
</tr>
<tr>
<td></td>
<td>UNA ORQUESTA IMAGINARIA</td>
<td>1979</td>
<td>4 channel Electroacoustic composition.</td>
</tr>
<tr>
<td></td>
<td>HAVE I SPOKEN OUT OF TURN?</td>
<td>2005</td>
<td>5.1 composition</td>
</tr>
<tr>
<td></td>
<td>CONVERSATION IS NOT COMPULSORY</td>
<td>2008</td>
<td>Part of the Omega Centari Project.</td>
</tr>
<tr>
<td></td>
<td>WHAT I AM TRYING TO SAY</td>
<td>2009</td>
<td>5.1 composition</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Part of the Omega Centari Project.</td>
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Although Viñao’s compositions rely extensively on rhythm and the manipulation of time, only a small percentage of his works contain percussion instruments. Viñao’s compositions typically use rhythmic devices to develop the form of his music. The goal of Viñao’s music could be understood as the use of rhythm in a methodical and systematic way to create dramatic depth. His works are broadcast and performed world-
wide by many eminent musicians and ensembles such as Michael Burritt (marimba), Francis Lynch (soprano), Alan Chow (piano), and the Boston Symphony Orchestra. As of 2009, approximately 300 copies of *Khan Variations* have been sold. This is evidence that *Khan Variations* is rising in popularity in marimba competitions, festivals, and other venues.\(^7\)

\(^7\)All information in this chapter is paraphrased from: Alejandro Viñao, interview by author, 21 February 2010, electronic mail.
CHAPTER 4

INFLUENCES AND INSPIRATIONS IN KHAN VARIATIONS

The Influence of Conlon Nancarrow on Khan Variations

Conlon Nancarrow was born in Arkansas in 1912, but became a Mexican citizen in 1940. Nancarrow wrote rhythmically complex etudes for the player-piano by punching piano rolls manually and incorporating mathematic proportions. After studying with Roger Sessions, Walter Piston, and Nicolas Slonimsky, Nancarrow’s focus on rhythm was pervasive in his works, including his most well-known Estudio No. 37.

After hearing his music and meeting Nancarrow at the Almeida Music Festival in the mid-1980s, Viñao became interested in his music. Viñao realized that Nancarrow’s research on multi-temporality paralleled his own interest in composing poly-rhythms. Nancarrow had devised a system that mapped the relationships between many different tempi in music. Viñao noticed this systematic organization led to an almost deterministic approach. Nancarrow would compose music using a very specific set of rules for each layer in his canons. He followed the compositional processes and rules regardless of aural result. Viñao saw this as a problem because there was no way to guarantee the composition would contain musical elements such as periodic tension and release (cadences). Viñao’s vision was to create music containing multi-temporality and
deterministic rule sets, but reserved the right to alter the sonic result to include dramatic musical elements such as cadences.

Alejandro Viñao’s outstanding work for solo marimba, the *Khan Variations*, is a continuation of Nancarrow’s rhythmically complex composition style and influences.\(^8\) Example 1 highlights Nancarrow’s use of canon and multi-temporality.

Example 1. *Estudio No. 37* for player piano by Conlon Nancarrow.

In this example, *Estudio No. 37* for player piano, each staff of music represents a layer in the canon. The tempo of each layer is slightly different in each instance. Viñao uses similar devices in *Khan Variations*, Variation 3, where the right-hand layer accelerates against the left hand by progressing from eighth-notes to dotted eighth-notes.


![Example 2](image)

Although Examples 1 and 2 differ in notation, the rhythmic device of multi-temporality is similar. The next example demonstrates Nancarrow’s use of canonic imitation. The left-hand part enters one beat after the first layer.


![Example 3](image)
Viñao uses a similar canonic technique in the Seventh variation of *Khan Variations*. The accented notes have a distinct pattern that develops from the ostinato in the left-hand part beginning on beat two of measure 212. The right-hand part enters with the same pattern, delayed by one beat.


The influence of Conlon Nancarrow is evidenced in Viñao’s composition style. *Khan Variations* explores new rhythmic possibilities for the four-mallet marimba technique, much in the way Nancarrow sought new combinations of rhythms and meter in his player piano works. Viñao has adopted Nancarrow’s concepts of poly-rhythm and
multi-temporality and crafted them in his own music. *Khan Variations* is a continuation of Nancarrow’s research in musical time and an example of Viñao’s mastery of his craft.

**The Inspiration of Ali Kahn in *Khan Variations***

The specific inspiration for the theme of *Khan Variations* is based on a melody from Qawwali music made famous by Pakistani singer Nusrat Fateh Ali Kahn. Qawwali music is a form of Sufi devotional music prevalent in Muslim Southeast Asia, especially Pakistan. Within the Islamic religion, there are several varying paths of focus. The path of Sufism deals with one’s personal connection to the spiritual inner mysticism. Music, poetry and dance are central to the Sufi sect of the Muslim religion.

Nusrat Fateh Ali Kahn was born in Pakistan (b.1948 – d.1997). In the year of his death, Kahn was nominated for a Grammy. Kahn is credited with becoming one of the first artists to commercially produce Qawwali music. His vast body of work has been produced in several types of media, thus bringing the Islamic religious music to global audiences. A majority of Kahn’s music contains text from Pakistani poets and religious sonnets which are sung by Kahn himself, and accompanied by the harmonium (an instrument that sounds similar to an accordion) and various Middle Eastern percussion instruments.

Upon hearing the composition “Allah Mohammad Chaar Yaar Haji Khawaza Kutab Farid” from the album *Shahen-Shah* by Ali Kahn, Viñao was inspired to compose his *Khan Variations*. Viñao noticed as the phrases enter, they are seemingly unrelated and isolated from each other in time. Viñao stated that he was “taken by the melismatic
playful spirit of his music, its incessant change and variation.” According to Viñao, Ali Kahn would never sing the same phrase twice, reinforcing the notion of variation. In composing *Khan Variations*, Viñao acknowledges that some parts of the marimba solo are more incidental, meaning that the segments are loosely based on Ali Kahn’s music and not in an exact form as the theme was implemented. Although Viñao acknowledges that some parts of *Khan Variations* are generally based Kahn’s style and Arabic music, the theme of the *Khan Variations* has a very specific point of origin from Ali Kahn’s work, “Allah Mohammad Chaar Yaar Haji Khawaza Kutab Farid.”

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CHAPTER 5

ANALYSIS OF KHAN VARIATIONS

Introduction

Viñao casts this marimba composition in a theme and variation framework. The brief three-measure theme is followed by eight variations. Like most of Viñao’s compositions, rhythm is central to the character and development of the piece. In the foreword to the score of *Khan Variations*, Viñao summarizes the essence of his work:

The player may recognize a range of influences from Conlon Nanacarrow and Latin-American music to my own previous pieces for marimba. All these influences have one thing in common: the articulation of pulse or multiple simultaneous pulses to create a dramatic musical discourse.\(^\text{10}\)

The individual character of each variation is created by developing rhythmic and tonal aspects of the theme. Each variation contains rhythmic devices such as ostinato, polyrhythm, and hemiola. These rhythmic devices are then organized into larger segments by using compositional processes such as developing variation, canon, and isorhythm. The following chapter presents details and insights about Alejandro Viñao’s *Khan Variations*.

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Methods

Because of the complex and innovative nature of *Khan Variations*, a creative and non-traditional methodology is used to analyze the piece. Viñao uses a combination of rhythmic devices and compositional processes to create what he termed “a dramatic musical discourse.” The rhetorical structures in the piece create energy and emotion. Conversely, the complex combination and seamless blending of elements makes a meaningful harmonic and melodic analysis of *Khan Variations* difficult. The goal of this analysis is to present the individual elements of the piece in an efficient and logical method.

The larger ideas (macro-formal) will be identified using analytical facts and statistics about the piece. The data and descriptions presented in the macro-formal analysis are termed *metrics* because they measure or quantify elements of music that are typically subjective or non-specific. An example of a metric is the time-study presented later in this chapter (Figure 1). This data is useful to the performer and listener to quickly identify key facts about the work as a whole. By looking at the piece in a summative and comprehensive way, essential information about the piece is brought to the forefront and the essence of the music is illuminated.

After establishing a comprehensive view of the work through metrics, the analysis will focus on smaller elements that comprise the individual variations (micro-formal elements). Viñao uses specific rhythmic devices to characterize each variation. He then combines these smaller elements by using compositional processes such as stretto, canon, and elision to develop each variation.
The hierarchy of organization in *Khan Variations* is as follows:

Element → Rhythmic device → Compositional process → Form of the variation → Form of the work

Due to the sophisticated combination of elements and processes, it is useful to separate and look at them individually to give the listener and performer insights and greater knowledge about *Khan Variations*.

**Macro-formal Analysis**

The *Khan Variations* is 358 measures in length. Table 3 lists each of the nine sections of the piece and the length in measure numbers. This figure also summarizes the beginning and ending measure numbers for each variation, providing a concise reference for opening and closing gestures for each section in the piece.

Table 3. Form and Length of Sections in the *Khan Variations*

<table>
<thead>
<tr>
<th>Section</th>
<th>Measure Numbers</th>
<th>Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme</td>
<td>mm.1-3</td>
<td>3 measures total</td>
</tr>
<tr>
<td>Variation I</td>
<td>mm.4-12</td>
<td>9 meas.</td>
</tr>
<tr>
<td>Variation II</td>
<td>mm.13-25</td>
<td>13 meas.</td>
</tr>
<tr>
<td>Variation III</td>
<td>mm.26-64</td>
<td>39 meas.</td>
</tr>
<tr>
<td>Variation IV</td>
<td>mm.65-116</td>
<td>52 meas.</td>
</tr>
<tr>
<td>Variation V</td>
<td>mm.117-164</td>
<td>48 meas.</td>
</tr>
<tr>
<td>Variation VI</td>
<td>mm.165-208</td>
<td>44 meas.</td>
</tr>
<tr>
<td>Variation VII</td>
<td>mm.209-273</td>
<td>65 meas.</td>
</tr>
<tr>
<td>Variation VIII</td>
<td>mm.274-358</td>
<td>85 meas.</td>
</tr>
</tbody>
</table>
Given the many time signature changes, tempo changes, and the brevity of some measures and sections, Table 3 does not completely represent the performance time of each section. A variation with a small number of measures may contain 5/4 and 6/4 meters, resulting in a much longer performance time than another section with many measures written in 3/16 time signatures. Because of this, a study of the actual clock time for each section provides greater insight than the data presented in Table 3. The data in Figure 1 reflects the nine sections of the *Khan Variations* measured in minutes and seconds. The MIDI (musical instrument digital interface) recording of the piece provided by Viñao on the training CD (compact disc) spans 9 minutes and 45 seconds. Viñao states in the preface to the score the performance duration is estimated at 10 minutes. Supporting this time estimate are the recorded performances by Eduardo Leandro, Svet Stoyanov, and other marimbists\(^{11}\) which are all approximately 10 minutes in length. Following the table in Figure 1, a pie chart depicts the theme and eight variations according to proportional values of the entire composition.

\(^{11}\) Estimates based on audio and video recorded performances of *Khan Variations* from <http://www.youtube.com>.
Figure 1. Time Study of *Khan Variations*

<table>
<thead>
<tr>
<th>Section Title</th>
<th>Actual Time in Performance on CD*</th>
<th>Length in Minutes and Seconds**</th>
<th>Percentage of the Total Composition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theme</td>
<td>0:00 – 0:07</td>
<td>0:07 (7 seconds)</td>
<td>1.19658%</td>
</tr>
<tr>
<td>Variation I</td>
<td>0:07 – 0:21</td>
<td>0:14 (14 seconds)</td>
<td>2.39316%</td>
</tr>
<tr>
<td>Variation II</td>
<td>0:21 – 0:40</td>
<td>0:19 (19 seconds)</td>
<td>3.24786%</td>
</tr>
<tr>
<td>Variation III</td>
<td>0:44 – 1:33</td>
<td>0:53 (53 seconds)</td>
<td>9.05982%</td>
</tr>
<tr>
<td>Variation IV</td>
<td>1:33 – 2:49</td>
<td>1:16 (76 seconds)</td>
<td>12.99145%</td>
</tr>
<tr>
<td>Variation V</td>
<td>2:49 – 5:10</td>
<td>2:21 (141 seconds)</td>
<td>24.10256%</td>
</tr>
<tr>
<td>Variation VI</td>
<td>5:10 – 6:21</td>
<td>1:11 (71 seconds)</td>
<td>12.13675%</td>
</tr>
<tr>
<td>Variation VII</td>
<td>6:21 – 8:00</td>
<td>1:39 (99 seconds)</td>
<td>16.92307%</td>
</tr>
<tr>
<td>Variation VIII</td>
<td>8:00 – 9:45</td>
<td>1:45 (105 seconds)</td>
<td>17.94871%</td>
</tr>
<tr>
<td>Total = 9 sections</td>
<td>Total = 9:45</td>
<td>Total = 585 seconds</td>
<td>Total = 100%</td>
</tr>
</tbody>
</table>

*The findings in Figure 1 are based on the MIDI recording of *Khan Variations* provided by the composer

**minutes and seconds are notated in Figure 2 as 0:00 (min.:sec.)

<table>
<thead>
<tr>
<th>Theme</th>
<th>1.19%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variation 1</td>
<td>2.39%</td>
</tr>
<tr>
<td>Variation 2</td>
<td>3.24%</td>
</tr>
<tr>
<td>Variation 3</td>
<td>9.05%</td>
</tr>
<tr>
<td>Variation 4</td>
<td>12.99%</td>
</tr>
<tr>
<td>Variation 5</td>
<td>24.10%</td>
</tr>
<tr>
<td>Variation 6</td>
<td>12.13%</td>
</tr>
<tr>
<td>Variation 7</td>
<td>16.92%</td>
</tr>
<tr>
<td>Variation 8</td>
<td>17.94%</td>
</tr>
</tbody>
</table>
The information in Figure 1 highlights the brevity of the original theme and the extensive development in creating the eight variations. According to the chart in Figure 1, the theme comprises 1% of the complete work. Viñao used a minimal amount of material (3 measures) as the seed to create a multitude of masterfully crafted architectures. The *Khan Variations* stands as a shining example of Alejandro Viñao’s refined compositional style.

In addition, the pie chart in Figure 1 reveals additional insights about the construction of the piece. Variation V is 25% of *Khan Variations* and is given significant weight in the piece. This section occurs in the middle of the piece, dividing the work into three large units. Of all the segments in the piece, this variation uses the largest number of simultaneous layers (originally scored for three staves) and is the location of Viñao’s most complex writing. With the weight and length of the nine sections defined in Figure 1, the performer and listener can more clearly understand the pacing of Variation V and the work as a whole.

One final observation regarding the length of *Khan Variations* is evidenced in the pie chart of Figure 1. After the presentation of the theme, the length of each section grows successively larger. This trend continues through Variation V. Of more interest though, is the rate at which each section grows. The percentages of each section from the theme to Variation VI are: 1, 2, 3, 9, 13, and 25. Each section of *Khan Variations* grows successively larger by doubling in length, and then becomes longer by approximately 30%. This pattern culminates and ends in Variation V. Essentially, the theme and each variation grow proportionally larger for the first half of *Khan Variations*. 
The information presented in Figure 1 aids the performer and listener in delineating individual sections of the music. The extensive phrasal elision makes it difficult to define each separate section of the piece. A specific example of this difficulty is found upon newly listening or playing the theme, Variation I, and Variation II of the piece. Without a guide, it is difficult to define the end of the theme and the beginning of Variation I. The same scenario occurs between Variations I and II, as well as other sections in the piece. The performer and listener can use the data in Table 3 and Figure 1 to outline and navigate the nine sections of the *Khan Variations*.

Micro-formal Analysis

The macro-formal analysis provided general facts regarding the larger aspects of the piece such as form and length. A comprehensive view of the piece is useful as a concise reference, but does not address the full complexity of the work. The *Khan Variations* uses very small elements and rhythmic devices to develop each of its nine sections. Viñao combines these small (micro) elements using numerous compositional techniques. The micro-formal analysis separates and identifies these smaller elements that are used to form the nine sections of the *Khan Variations*. A reverse-version of the flowchart given earlier illustrates this process:

*Form of the work ➔ Form of the variation ➔ Compositional process ➔ Rhythmic device ➔ Element.*

Of equal use to the performer and listener, the micro-formal analysis identifies a specific element and illuminates how each element is incorporated in the architecture of *Khan Variations*. 
Theme

The three-measure theme is based on a melody from the religious music of Islam. The devotional songs of Islam are shaped by the rich history of the Arabic traditions. One of the most important concepts of traditional Arabic music is maqâm, which is defined as the organizational framework which connects melody, mode, and rhythm. The concept of maqâm is pervasive in Ali Kahn’s music, consisting of a specific tonal mode and a distinct rhythm pattern. Because Viñao based the Khan Variations on Ali Kahn’s music, the maqâm framework is indirectly part of Khan Variations. Viñao incorporates elements from Ali Kahn’s music throughout the composition. Each of these elements is detailed in this chapter.

Ali Kahn follows the hijâz mode from traditional Arabic music and Viñao incorporates some of Kahn’s harmonies in the Khan Variations. The hijâz mode resembles the harmonic and natural minor scales typically found in Western music, with the exception of the lowered second scale degree which is found in the Phrygian mode. The pitches used in the theme of the Khan Variations are based on a transposition of the hijâz mode. The next figure shows the pitches used in the mode.

Figure 2. The traditional Arabic scale hijâz

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13 Information about Arabic music and all terms are cited from:
   <http://trumpet.sdsu.edu/M151/Arab_Music1.html>, author Ali Jihad Racy, Ph.D.
14 Ibid.
The transposed pitches used in the theme of the *Khan Variations* are introduced in the order illustrated in Figure 3:

Figure 3. Order of pitch presentation in the theme of *Khan Variations*

The next figure (Figure 4) lists the pitches as members of the *hijâz* mode. The “x” below certain notes indicates that they are not used in the opening theme, but are part of the mode and are used later in the work.

Figure 4. Theme pitches as members of the *hijâz* mode

The *hijâz* mode shapes the melody in the theme and also influences the harmonies of the variations later in the piece.

The next element of the *maqâm* framework connects rhythm to the melody and harmony of the *Khan Variations* theme. The rhythm in measures 1-3 of the *Khan*

---

Variations is syncopated and has tenuto markings to show emphasis on each grouping. The rhythms in the theme are based on the Samâ‘i Thaqîl pattern. Samâ‘i Thaqîl means heavy samâ‘i and is commonly heard in both Ottoman and Arab classical music. It consists of a ten-beat pattern usually transcribed as 10/8. Figure 5 illustrates the counts in the rhythmic mode.

Figure 5. The Samâ‘i Thaqîl Rhythm Pattern

\[
\text{dum} \quad \text{tak} \quad \text{dum} \quad \text{dum} \quad \text{tak}
\]

The previous figures (Figures 4-6) illustrate the elements used to create the maqâm framework for the melody. The hijâz mode and the samâ‘i thaqîl rhythm pattern are blended to create the specific theme in the Khan Variations. Below, example 5 presents the culmination of these many elements in the main theme from the Khan Variations. Numbers have been assigned to the pitches to aid in identifying them later in the piece.

Example 5. Khan Variations mm. 1-3

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16<http://www.ethnomusic.ucla.edu/ensembles/worldmusic/neareast/Modes.htm>, Web page created by Jack Logan, Ph.D.
**Variation I**

In Variation I, the thematic material is extended rhythmically on the second beat of measures four and seven. A key element of this extension is the triplet figure that leads into the next pitch of the theme. These techniques of extension and embellishment are a reference to the style of the original music used for the *Khan Variations*. The closing of Variation I introduces an echo effect by off-setting two voices by one eighth-note. The texture also expands harmonically in measure twelve visually to a grand staff, and aurally to a four-part texture. Example 6 highlights the dramatic expansion from one voice to the full four-part texture. Viñao uses the typical vocal distinctions of soprano, alto, tenor, and bass in the score to identify the various parts of the texture in *Khan Variations*. Additionally, Viñao uses phrasal elision to transition seamlessly from Variation I to Variation II. Measure twelve functions as a quasi-cadential figure for Variation I, while simultaneously becoming the anacrusis for Variation II. The textural expansion in measure 12 to four parts is continued in the next variation.

Example 6. *Khan Variations* mm. 10-12
**Variation II**

At thirteen measures in length, Variation II continues the macro-formal concept of pattern lengthening in the larger sections of *Khan Variations*: the theme being the shortest (three measures in length), Variation I at 30% longer (nine measures), and Variation II at 30% again longer than Variation I (thirteen measures). Not only does Viñao add length to Variation II, he also expands the number of voices and range as well.

One of the most prominent features of the second variation is the addition of an ostinato in the bass voice. Viñao introduces the ostinato in the bass voice beginning in measure sixteen. Example 7 shows the addition of the bass pattern and Viñao’s instructions on style and articulation in the left hand part.

The C#\(^2\) in the bass voice in measure sixteen is struck and held for five eighth-notes before being rearticulated\(^\text{17}\). This creates a steady rhythm pattern that continues until measure twenty-three. Although the bass ostinato occurs at regular intervals creating a steady pulse, it does not coincide with the music being played in the right-hand in Variation II. Figure 6 is a concise presentation of the ostinato played by the left hand:

Figure 6. Reduction of the bass ostinato, *Khan Variations* mm. 13-24

The upper voice in Variation II (played by the right hand) repeats fragments from the theme and continues with linear extensions of the rhythm in the context of various time signatures. The addition of the ostinato in the bass voice to the rhythmic music in the upper voice creates ambiguity in the listener’s sense of time. By combining two independent musical pulses, Viñao intends for the listener to question where the main pulse is in Variation II.

\(^{17}\) Viñao uses Scientific Pitch Notation to identify specific pitches on the marimba and in the score. “Middle C” is marked C4. The octave below C4 is labeled C3 and the octave above middle C is labeled C5. C#2 refers to the lowest C# on the modern five-octave marimba.
Variation III

Viñao’s musical influence from Conlon Nancarrow can be seen clearly in Variation III. According to Viñao, the essence of this variation is that one layer of music accelerates while the other remains at a constant speed. The accelerations and decelerations occur at various points and in various layers throughout Variation III. The layers are consistently divided into two parts in the score: the right hand in the treble clef (soprano and alto voices) and the left hand in the bass clef (tenor and bass voices). Layer accelerations are notated in the score by using common divisions and sub-divisions of each time signature. Example 8 shows the right-hand layer accelerating while the left-hand rhythm remains the same.

Example 8. *Khan Variations* mm. 26-29

Because Viñao notates the increase in speed of the top layer by using rhythms, the performer must maintain a steady tempo throughout Variation III to achieve the musical effect of the accelerando.
The musical form of Variation III is determined largely by the repetition of metric structures. Patterns of varying time signatures are combined and truncated in Variation III. These metric patterns are repeated throughout this section, creating parallel rhythmic structures that ultimately shape the musical form of Variation III. Table 4 outlines the pattern of time signatures used to create the repeating metric structures:

<table>
<thead>
<tr>
<th>Structure</th>
<th>Measure Numbers</th>
<th>Meter Sequence</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Structure</td>
<td>mm.31-35</td>
<td>3 3 5 9</td>
<td>Repeating two-beat pattern in the first two measures followed by a steady left-hand pattern; right-hand accelerates in the final measure</td>
</tr>
<tr>
<td>2nd Structure</td>
<td>mm.35-39</td>
<td>3 3 5 15</td>
<td>Right-hand acceleration continues in the first measure; original two-beat pattern is truncated and placed in the 5/4 measure; right-hand acceleration is extended in the final measure</td>
</tr>
<tr>
<td>3rd Structure</td>
<td>mm.44-48</td>
<td>3 3 5 15</td>
<td>Triplet embellishments (recalling the previous rhythmic device from Variation I) are added in the first three measures; right-hand acceleration continues but is transposed up in pitch to a higher range on the marimba</td>
</tr>
</tbody>
</table>

In addition to rhythmic acceleration and parallel metric structures, Viñao introduces one of the most complex rhythmic devices in the final six measures of Variation III. Measure 59 begins the six-measure build with a three-note pulse in the treble clef and a two-note pulse in the bass clef (3:2). The alto voice enters on the second eighth-note of count three in measure 60. Although the alto voice is at the same speed as the bass voice, it is rhythmically off-set by one eighth-note. Added to these three voices
is the soprano in measure 61, which is a rhythmically diminished form of the tenor voice. The culmination of these additions occurs in measures 63-64. When played together, the four voices create two super-imposed poly-rhythms. The left hand plays a 3:2 rhythm pattern while the right-hand layer plays the same pattern in rhythmic diminution. The ratio for the cumulative rhythm pattern at the end of Variation III is thus 4:3:2:1. Example 9 illustrates the super-imposed poly-rhythms.

Example 9. Khan Variations mm. 59-64

Variation III is comprised of three rhythmic devices (acceleration and parallel metric structures and polyrhythm) to create periodic states of musical tension and rest. Not only is Variation III more rhythmically active than the previous variations, but the use of dynamic inflections is increased as well. Measures 26 – 30 contain combined rhythmic activity with a soft dynamic to create a sense of quiet fervor in the music. In contrast, measure 40 uses incongruent rhythm patterns marked *Fortissimo* to create a sense of chaos for the listener. Viñao combines various rhythmic devices and dynamics to give the music alternating periods of agitation and rest in Variation III. The theme
through Variation III comprises only one-sixth of the complete Khan Variations. In exploring even this small portion of the music, Alejandro Viñao’s command of his artistry is evidenced in the innovative transformation of the original theme and the masterfully crafted musical gestures.

**Variation IV**

Variation IV begins with the return of the theme in measure 65. The theme is presented at the original pitch level with the addition of a circular ostinato in the left-hand layer. This version of the theme with rhythmic counterpoint in Measures 65-66 appeared previously in Variation II. After quoting the thematic motive again in measure 70, the music begins an extended development section. The music in Variation IV sounds radically different from the previous variations. Viñao’s technique of developing variation transforms the sonic texture into new directions in this section. Figure 7 below contains Viñao’s notes found in the preface to the score:
Viñao’s intent is for two layers of rhythm to converge and diverge around one tempo. To achieve this aural effect, the tempo alternates between 138 beats per minute and 108 beats per minute. These tempo changes are marked in measures 84, 88, 91, and 93. As stated above in Figure 8, the quarter-note at tempo 108 (beats per minute) is similar to a set of five quarter-note quintuplets at tempo 130 (beats per minute). The main reason for using metric modulation to achieve Viñao’s effect in Variation IV is to facilitate reading the music in the score.

Measure 86 in Variation IV presents a more liberal form of the rhythmic acceleration device. This appearance of the acceleration device is more developed than the original version in Variation III (Measures 27-29). Viñao includes a small measure of music above measure 86 to indicate the aural intent and effect of the rhythmic
acceleration. Example 10 illustrates the comparison of the notated acceleration with the aural intent.

Example 10. Khan Variations. m. 86.

Variation IV also contains a parallel rhythmic structure, much like the parallel metric structure found in Variation III. The parallel sections are found at the starting and ending points of Variation IV and have a similar rhythm and pitch scheme. The parallel rhythmic structure acts as a cohesive force in shaping the form of Variation IV. Because of their location and similarity, each rhythmic structure functions as an anchor for the listener. The table below compares the metric structure of the parallel segments in Variation IV.

Table 5. Parallel Rhythmic Structures in Variation IV. Khan Variations. mm. 69-117.

<table>
<thead>
<tr>
<th>Structure</th>
<th>Measure Numbers</th>
<th>Meter Sequence</th>
<th>Description of Rhythm</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Structure</td>
<td>mm.69-84</td>
<td>4 5 9 12 12 9 9 12 12 9 4 4 5 5 5 5 5 5</td>
<td>Right-hand ostinato with left-hand rhythmic motive; final measures use triplet embellishment.</td>
</tr>
<tr>
<td>2nd Structure</td>
<td>mm.100-117</td>
<td>4 2 9 12 15 15 9 9 3 6 2 4 2 6 2 3 2</td>
<td>Uses same rhythm, pitch scheme is the same, but transposed up one half-step; meter is different but motivic length remains the same.</td>
</tr>
</tbody>
</table>
Variation V

Variation V is the longest section of Khan Variations and comprises 25% of the entire work. Viñao expands the texture to include three layers of music, which creates the most complex poly-rhythms in Khan Variations. Although Variation V was originally scored in three separate staves, professional marimba player Nancy Zeltsman suggested that Viñao condense the layers into a more concise version. Example 11 compares Viñao’s first version of Variation V and the revised score printed in 2001.

Example 11. Khan Variations. mm. 117-121.

Original

![Original Variation V]

Revised Version

![Revised Variation V]

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The ostinato in Variation V is almost always played with the right hand, while the left hand interjects short rhythmic fragments. The three layers alternate between fast and slow rhythmic pulses while maintaining a slow, but steady pace of 70 beats per minute. Viñao continues the tempo acceleration/deceleration device from Variation IV by using three different divisions of the beat: the eighth-note, eighth-note triplets, and eighth-note quintuplets. The non-repetitive sequencing of the three rhythm divisions creates a feeling of unrest and unpredictability. Viñao has created ambiguity in the pulse for the listener with aural effect of seemingly abstract and random shifts in time.

Variation VI

Viñao brings a greater sense of control and organization to the music in Variation VI by borrowing a compositional procedure from the motets of medieval music. The preface to Khan Variations contains Viñao’s own words about this Variation:

Figure 8. Preface to the Score. Khan Variations. Page 2.
In Variation VI, Viñao uses isorhythm to determine the character of the music. Isorhythm is both a rhythmic device and a compositional process which manipulates pitch and pulse. The two elements of an isorhythm are the color (a repeating pitch pattern) and the talea (a repeating rhythmic pattern). Although the color and talea are often played simultaneously, the individual length of the pitch or rhythm pattern usually differs, causing a lack of synchronization. It is important to note that while Viñao mentions Medieval music and Renaissance genres in the score preface, music of the Middle East and India also make use of overlapping rhythm and pitch patterns. Specifically the music performed by Pakistani singer Ali Kahn uses rhythm and pitch patterns that are unsynchronized. In music of India and traditional Arabic music, the equivalent of the color and talea determine the form and structure of compositions.

The application of the isorhythm technique in Variation VI is not strict, and thus the elements do not appear exactly as they would in a motet by John Dunstable in 1610. The pattern sequence is used in Variation VI is more of a guide for the original theme rather than an absolute system of rules. The result is a dance-like variation in which the theme emerges from active contrapuntal rhythmic and pitch structures.

Example 12 shows the introduction to Variation VI. Stickings, dynamics, and other markings have been deleted to facilitate the analysis.

Example 12. _Khan Variations_. mm. 165-170.

The _talea_ or rhythm pattern in Variation VI is seven eighth-notes in length and begins on beat one of measure 165. Figure 9 presents the _talea_ (rhythm sequence) in a metrically congruent form.

Figure 9. _Talea Pattern in Variation VI._

This seven-note rhythm sequence is repeated four times in the introduction to Variation VI, with a rhythmic interruption in measure 168.
The color or pitch pattern in Variation VI is taken from the theme of Khan Variations. Earlier in this chapter, Figure 4 presented the order of the pitches used from the Hijâz mode. The pitch order used in the theme is altered by placing the D at the beginning of the pitch sequence instead of the end. The remaining four pitches are in the exact order presented in Figure 4 shown earlier in the chapter. A concise version of the pitch order (Figure 10) illustrates the change to the theme.

Figure 10. Order of pitch in variation VI.

\[\text{\includegraphics[width=0.5\textwidth]{figure10.png}}\]

The pitch sequence is repeated five and one-half times in measures 165-170. Certain pitches are occasionally added in the short phrases to provide melodic interest. The pitch E and B are part of Hijâz tonal scheme and are added at various points in the repetitions of the talea and color.

Viñao manipulates fragments of the talea and color throughout the remainder of Variation VI. Short motives are presented, developed, and ultimately transformed into new ideas. The music quotes small fragments of the introduction to Variation VI in a seemingly random order. The concluding measures (207-208) recall the talea and color from the introduction to Variation VI. The C# is intentionally omitted to create expectation for the beginning of Variation VII.
Variation VII

The influence of Conlon Nancarrow on Viñao’s writing is prominent in Variation VII. Viñao states that Variation VII is “a canon of echos”, much like the rhythmic canons in Nancarrow’s player piano music. Viñao’s intention was to create a short delay in each note to emulate a computer-generated echo effect. However, because Viñao wanted more control in changing pitches in the canon echo, he explicitly notated the echo effect using combinations of dynamics, articulations, and repeated pitches. To execute the canon and its echos in Variation VII, the performer must make a clear distinction between accented and unaccented notes.

After an ostinato on C# in the left-hand part (mm.209-211), the imitative section based on the original theme begins in measure 212. The leader of the canon starts in the tenor and bass voices on beat two of measure 212, followed by the second part of the canon, which enters one octave higher on beat three.

The theme emerges in each hand by connecting the accented notes. Each voice in the cannon plays the theme as it appeared in measures 1-3 in the C⁴ and C⁵ octaves. The repetitions of the theme are separated by one quarter-note.

After presenting the echo canon at the octave in measures 212-217, Viñao uses rhythmic diminution to develop Variation VII. After a brief transition in measure in 218, the next imitative section begins with the thematic pitches rhythmically diminished from the eighth-note to the sixteenth-note. By doubling the rhythmic speed at measure 218, energy and motion are added to the music. Example 14 shows the second imitative section in Variation VII.


Following the rhythmically diminished canon, short motives from the original theme are repeated in all voices. At this point in the music, the theme fragments contain chromatic alterations of the original pitches. The motives based on the theme are not complete, and often digress to new rhythmic ideas after presenting one or two original pitches. The process of beginning many iterations of the theme in different voices without
literally repeating the original pattern is called *stretto*. This compositional device is typically associated with fugues, where the repeating entrances of the theme are at different pitch levels. Viñao uses an altered version of *stretto* in measures 220-221 to give the illusion of more than four voices simultaneously playing variations on the theme. The fast-paced fragments continue to transform, and the short motives are manipulated by changing the placement of articulations such as accents. Variation VII concludes with a rhythmically diminished and fragmented version of the pattern found at the introduction to the variation.

**Variation VIII**

Titled “A variation of variations”, the final section presents aspects of all previous variations to create a cumulative summary to the *Khan Variations*. Viñao uses the compositional process of *developing variation* in which motives are altered multiple times. Each development is based on the immediately-previous motive, resulting in a sequence of transformations (each based on the previous) that are vastly different from the original motive.

Typically, motives of simple construction (pitch and rhythm only) are used in the *developing variation* technique, but Viñao uses complex rhythmic devices and structures as motives in Variation VIII. In the closing of the *Khan Variations*, complex rhythmic
structures from previous variations are recalled, but serve now as the motive upon which Variation VIII is built. A table of the form illustrates the location and type of each element in Variation VIII.


<table>
<thead>
<tr>
<th>Section</th>
<th>Measure Numbers</th>
<th>Description</th>
</tr>
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| Theme         | 274-276         | Identical rhythmic and metric structure to mm.1-3  
                 |                  | Transposed down one octave from original                                                       |
| Variation I   | 277-285         | Uses triplet embellishment  
                 |                  | Rhythmic extension of C# from the theme  
                 |                  | Addition of bouncing echo technique                                                                    |
| Variation II  | 286-296         | Voices expand to a 2-octave range  
                 |                  | Mm.291-297 – right-hand acceleration returns                                              |
| Segment A     | 297-305         | Rhythmically active section creates tension  
                 |                  | Fast poly-rhythms written as one layer  
                 |                  | F# in the bass performs an ostinato  
                 |                  | Uses [C,D,F,F#] pitch set                                                                                |
| Segment A'    | 306-309         | Rhythmically parallel to previous segment A, but metrically different  
                 |                  | Uses transposed pitch set [A,Ab,F,G]                                                        |
| Transition    | 310-315         | Short transition with repetitive pitch and rhythm motives  
                 |                  | Similar to the closing of variation VII                                                      |
| Segment B     | 316-330         | Angular rhythmic and chord structure  
                 |                  | Influence of Stravinsky prominent                                                            |
| Segment B'    | 331-348         | Variation on Segment B  
                 |                  | Augmentation of theme in mm.337-343 with angular chordal accompaniment              |
| Coda          | 349-358         | Fast rhythms combined with a soft dynamic create tension  
                 |                  | Final statement of thematic pitches m.357                                                      |
Conclusion

The analysis provided in Chapter 4 details the musical complexity of *Khan Variations*. Viñao has organized elements of time in music into a hierarchy of intricate structures. By identifying the marco-formal qualities of *Khan Variations* such as the length of the work in clock time, the delineation of sections according to measures, and prominent rhythmic devices, a performer or listener can immediately gain a general summary of the composition. The micro-formal analysis is useful mainly to the performer and student for a more detailed view of the construction of *Khan Variations*. By understanding the rhythmic devices and compositional techniques which are used to create each variation, the performer will recreate the *Khan Variations* with a more informed aesthetic of the music.
Khan Variations is considered by many marimba artists to be one of the most
difficult compositions in the solo marimba genre. Viñao’s composition requires great
virtuosity and requires advanced knowledge of four-mallet technique on the five-octave
marimba. Chapter Five of this thesis presents an in-depth analysis and study of Viñao’s
rhythmic elements and formal structure. The intricate poly-rhythms and musical ideas in
Khan Variations present a unique challenge to the marimba performer. While the
information in Chapter Five is valuable to the performer, the practical application of the
analysis reveals new technical and musical challenges. This chapter highlights the
performance aspects of Khan Variations such as technical challenges, musical
interpretation.

The Compact Disc

A compact disc (CD) prepared by Viñao is provided with the score of The Khan
Variations. This CD is designed to aid the performer in learning the poly-rhythms of the
piece. The first selection on the practice CD is a MIDI (Musical Instrument Digital
Interface) recording of The Khan Variations using a sampled five-octave marimba sound.
This computer-generated reproduction of Khan Variations selection is performed at the
prescribed tempos in the score and closely mimics the quality of a rosewood marimba in
a concert hall setting. The remaining seven selections on the CD are computer-generated recordings of a unique metronome, commonly termed a “click track”. These selections are custom-made to allow for the various and numerous time signature changes in each variation. Each of the CD selections begin with a two-measure introduction and are approximately ten percent slower than the tempo marked in the score for each individual variation.

While this practice CD can be a pedagogical asset to the student with certain deficiencies, some collegiate-level experts say it can negatively affect a student’s creativity and interpretation of the work. The primary argument being that merely mimicking the CD will not result in an authentic performance or independent interpretation by the performer. However, understanding the rhythms in *Khan Variations* at an elemental and structural level will inform and foster the player’s individual musical voice. The CD’s contents demonstrate the complex beats and changing meters that are essential to the *Khan Variations* and are useful to performers of any ability level.

Percussionist Jack Van Geem premiered *Khan Variations* at Princeton University in 2001 and is the current Director of Percussion Studies at the San Francisco Conservatory of Music. Van Geem stated in an interview that he used the MIDI recording often as he learned *Khan Variations*. He noted that the MIDI version aided him in understanding the relationship between ostinati and syncopated rhythms in Variation Five especially. In contrast, marimbist Michael Burritt (Eastman School of Music) used the MIDI or the practice CD occasionally during the first stage of learning *Khan Variations*. Although the CD is helpful for understanding tempo relationships, Burritt stated, it lacks the
“flexibility” in interpretation of the rhythms, even in the early stages of learning the work.

Learning *Khan Variations*

Because *Khan Variations* is an advanced and challenging composition, learning to perform *Khan Variations* is a practical concern. Learning the music entails many things: decoding the music notation, memorizing sections, and interpreting musical ideas in *Khan Variations*. The task of learning the work is important for students and professionals.

*Khan Variations* is comprised of nine sections that vary greatly from each other in difficulty and length. The theme is three measures long and can be played with one mallet on the marimba. Variation Eight, in contrast, contains more than eighty measures and requires advanced knowledge of poly-rhythms and metric modulation. Because of the contrast in length and difficulty for each section, one strategy of practice is to learn each segment of *Khan Variations* in a different order than is presented in the form of the piece. Jack Van Geem, who premiered the work, began practicing *Khan Variations* at Variation Five. Van Geem cited that this was one of the more difficult segments and required more time to learn. He then progressed in this order: Variation Six, Variation Eight, and Variation Four. The remainder of the work, he stated, was learned working in reverse order. By learning the piece in this order, Van Geem approached the more difficult sections first, leaving less challenging variations for the end of the learning stage. Van Geem also noted that *Khan Variations* is comprised of what he calls “clever gestures”. This implies that Van Geem took into account the more abstract concept of
small musical phrases and ideas as opposed to the objective concept of stickings (fingerings) and technical mechanics.\textsuperscript{19}

After performing \textit{Khan Variations} many times in his career, marimbist Michael Burritt recorded Viñao’s work in 2009. Burritt’s suggestion of learning the \textit{Khan Variations} contrasts Van Geem’s method in many ways. Burritt recommends learning the piece from the beginning and progressing in order until the end of the work. Burritt’s argument is that many of the essential concepts for the entire work are presented in the theme, Variation One, and Variation Two. Because the piece evolves in a very natural way, Burritt states, and to understand Viñao’s technique of development, one must learn \textit{Khan Variations} in performance order.\textsuperscript{20}

How the \textit{Khan Variations} is learned is important for students and professionals. Students have the challenge of understanding the notation in the score, encountering new poly-rhythms, and developing technical solutions to the music. Professionals are usually faced with limited practice time and the responsibility of developing an informed interpretation. By comparing Jack Van Geem and Michael Burritt’s experiences on \textit{Khan Variations}, students and professionals can budget practice time and efficiently learn Viñao’s music in an informed way.

\textsuperscript{19} Jack Van Geem, interview by author, 20 February 2010, telephone conversation.
\textsuperscript{20} Michael Burritt, interview by author, 17 February 2010, electronic mail.
CHAPTER 7

CONCLUSION

Alejandro Viñao’s *Khan Variations* is a significant composition in the solo-marimba literature for multiple reasons. This work represents the accomplishment of the New Music Marimba commission consortium. As project organizer, Nancy Zeltsman is credited with finding a solution to the difficult process of grant writing and the high financial cost of commissions from talented composers. The *Khan Variations* joint-commission project ushered in a new popularity for this style of commission, and represents a practical approach to making new works financially feasible. This project has served as a model in the percussion community as a vehicle acquiring quality marimba literature.

Of equal significance, Viñao’s unique voice and composing style have been brought to the solo marimba in *Khan Variations*. His composition style combines rhythm and pulse in a method previously unexplored on the marimba. Other composers such as Iannis Xenakis have explored concepts of rhythm and time, but only in the solo multi-percussion genre and not on the marimba. Viñao uses the marimba in a new way by developing musical time and form with rhythmic devices. By crafting rhythmic gestures and devices, Viñao combines multi-temporality with dramatic depth in *Khan Variations*.
Further Research

The author has worked closely with Alejandro Viñao to provide an accurate and concise musical analysis and performance guide for *Khan Variations*. Initially, the intended audience for this thesis and performance of *Khan Variations* is college-level percussion students. However, the author believes that highlighting Alejandro Viñao and *Khan Variations* at concerts and other venues will illuminate the composer’s rising status to a broad audience of both musicians and non-musicians.

By making a musical analysis and performance guide of *Khan Variations* available to a wide base of percussion and music students, performers of Viñao’s work will have detailed information that may aid in learning, performing, and interpreting *Khan Variations*. The author’s hope for this dissertation and future work is to create more performances of the *Khan Variations*, more informed and complete program notes, and an efficient practice and learning schedule and timetable for students and professionals alike.
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