Kháos for Percussion Solo and Quartet: A Journey Through and Inside the Five Grand Impermanences

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UNIVERSITY OF MIAMI

KHÁOS FOR PERCUSSION SOLO AND QUARTET: A JOURNEY THROUGH AND INSIDE THE FIVE GRAND IMPERMANENCES

By

Rodrigo Bussad Cesar

A THESIS

Submitted to the Faculty of the University of Miami in partial fulfillment of the requirements for the degree of Master of Music

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the requirements for the degree of
Master of Music

KHÁOS FOR PERCUSSION SOLO AND QUARTET: A JOURNEY THROUGH AND INSIDE THE FIVE GRAND IMPERMANENCES

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*KHÁOS* for Percussion Solo and Quartet: A Journey Through and Inside the Five Grand Impermanences  
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*KHÁOS* is a large-scale percussion piece for solo percussion and quartet. It is divided into two grand parts that contain five movements in total. The impulse behind writing this piece is based on the seasonal cycle and its relations to the *Book of Changes*. From my earliest memories, my thoughts were directed towards the East. To this day I recall the overwhelming reaction I had when first introduced to the I Ching. Shortly thereafter, I was introduced to the concept of the active silence or *Ma* through the Music of Toru Takemitsu and his compositional journals. It was only natural to include this new pallet of “colors” in my compositional process and how I and connect those worlds. From its very inception, *KHÁOS* is an attempt to merge Western craft and tradition with Eastern philosophies and numerological symbolism as found in the I Ching. This paper provides an historical context and information about the methodology of the I Ching, as well an analysis of the piece. The analysis provides insight into macro and microstructures, compositional techniques and their correlation to the extra musical sources.
I must create a system or be enslaved by another man; I will not reason and compare: my business is to create.

– William Blake

For my beloved Elza and Paula.
To whom I dedicate this work, fruit of my Soul and Heart.

–
One taught me courage…the other kindness;
And that shall not be forgotten.
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First I would like to thank my father Joao, my mother Najla, my grandmother Olidia and my brother Luis Gustavo. Without your endless support this would never have gotten this far, this accomplishment is truly ours. My special and dearest gratitude goes to my aunt Elza, who was my first mentor, supporter and the one responsible for my passion for books and the arts. Other very special part of my family that I own immeasurable gratitude is to my relatives Ana Paula (in memoriam), Guilherme, Henrique and Camila. You always gave me support and strength through various difficult and turbulent moments of my life, I love you all. To my sweetheart Marcia, who assisted and took care of me with great care, kindness, wisdom and love throughout this challenging year. I am the luckiest man indeed, and I love you. I would like to immensely thank Professor McLoskey for those three years of tutoring and friendship, a journey that started at the mountains of Italy. My enormous gratitude to Professor Stinson, who I had the pleasure to start working with in the past year, your guidance is both human warm-heartedness and inspiring. To my dear friend Svet, a “one of a kind” artist who envisioned this collaboration with the purest idea in mind: make something meaningful and everlasting; this work is dedicated to you and to our adventure! May it be only the first of many! To my gēgē (爺爺) and former teacher André, who encourage me since the beginning to find my own voice and was the responsible for all my tutoring in the craft of composition and guidance throughout the I Ching for many years; I do not know anyone that have greater overall knowledge or read more books than you. You are truly one of my greatest inspirations in life and this piece is homage to you. To my dearest sifu Thomaz Hon Kit Chan, you are the wisest and most human man I know; you taught me to be the man I am
today, above all to be kind, humble and restrained. My friend Marcus Alves, a heart of the size of the world! You are the only super hero I know. Marcelo and Cindy, without you anything of this would be possible; to call you brother and sister would be still little. You are my very family, and have my loyalty and friendship forever (and welcome Sara!). To my dear friends Yuri and Cristina, for everything that our friendship means, we grow together indeed. To dear Kimberly, who embraced my project with such enthusiasm and for your inspiring patience, my infinite thank you for making this thesis so much better! I made a new friend out of this, and that's (indeed) priceless! To my friend Roberta, the craziest and most outstanding artist I know, who with the greatest care showed me all the beautiful colors that only a true genius can see; our friendship is incommensurable to me. To my friends Giuliano (half-brother), Andre, Camilo, Cibele, Isis, Monica, Daniel, Tadeu, Rodrigo, Allison, Eliot, Maria, Hsien-Fang, Dmitri, Chia-Li, Masha, Masafume, Emiri, Emilio, Jeffrey, Gleb, Nathanael, Thomas, Alessandra, Ricardo, Denise, Hugo (shisho), Roberta, Sid (Viking brother), Ricardo, Sarah, Andrei, Thiago, Andres, Felipe and Lasse. I met you between my early years in childhood until not so long ago; but each one of you has a very special spot in my heart and I keep a very particular souvenir in my memories from each one of you. Through victories and defeats you always have supported me with your friendship, being for many times my pillars! You are the best friends one could hopefully deserve, my love and best wishes to you all!
PREFACE

It is with great honor that I accept the invitation from Rodrigo Bussad to write some words about his dissertation. As I consider Rodrigo’s work exceptional for its strong ideas and cultural experiences. But, to speak of these qualities I must go back in time...

I first met Rodrigo in 2004, when he was studying composition in São Paulo (Brazil). At the time I was coursing my last year of my undergrad as a composer, in the same school he was a freshman. Since that time I could see his great commitment to the composition craft, and especially search for a unique musical style. Soon, after I graduated; Rodrigo was accepted into the University of Campinas, one of the Ivy League Universities in Brazil.

For a time, we had no news of each other, until we met again at the conclusion of my Master's degree in composition at the same university where he was studying. Once more we crossed paths at a special moment of my career. Since this reunion we remain friends, sharing our personal artistic paths. Throughout this period I can only say with great conviction that Rodrigo is a unique composer, by his musical personality and ideas. The desire that we both keep for the Orient aesthetics also strengthened our friendship. I self-taught, for a long time, Chinese culture and the I Ching, and manage to work with those inputs in my music; which became my PhD dissertation later. But, I remember this particular occasion where, in a rainy autumn afternoon in São Paulo, I had forgotten to prepare the material for his composition lesson, so I improvised: —today we see something lighter to rest your mind a little bit, I said. And so that day he was introduced
to the I Ching. I must confess it was a happy decision of mine, which resulted in the musical piece that will be presented here.

The artistic qualities in this work are the result of a constant process of growth, developing a strong compositional style that reveals a central question about composers today: why do compose music? The work I have in hands is the trace of his personal path that led to the answer for this question. Here we may notice a fantastic effort to unite two distinct traditions in a sole compositional synthesis: on one hand the musical and philosophical cultures of the Far East (China and Japan); the other, a long history of European concert music tradition that permeates the major changes in the twentieth century music. Inspired by the I Ching like myself; Rodrigo introduce us the central images of his musical process, and invites us to a fantastic universe composed by subjectivity as an indivisible part of the music composition process.

The result is a massive and sumptuous piece for percussion, *KHÁOS*, which I am proud to present here. As a teacher and friend, I only have reasons to be proud and feel represented in his musical productions. I am quite sure of the significance of his achievements for the new generations of composers to come.

– André Ribeiro
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Chapter 1

Introduction

When first approached by Svet Stoyanov, Director of the Percussion Department at the Frost School of Music (University of Miami), to write a percussion quintet, many ideas started to fill my head. As the ideas started to develop, from an abstract stage to something more solid, the correlation between those ideas and the numeral five grew stronger. Finally, the musical ideas arrived. The concept to write a cycle of pieces that would be related to each other in the same way a hot and humid day at the shore is related to the storm clouds that slowly crawl from the ocean's horizon. I became aware that the perfect element is found not in action or reaction, but right at the moment in between. It is therefore a subtle glimpse; most of time invisible to our eyes. The challenge of seeking and representing this moment in a piece inspired me.

Many master composers before me entered a personal quest of interrelating cultures. John Cage introduced this concept in the American continent with his studies in Zen Buddhism and Asian philosophy in the 1940s. Finally, he included in his compositional process the I Ching during the 1950s, a device that he internalize in his pieces through the rest of his life. However these very well known subjects in Europe, especially in France after the first Exposition Universelle in Paris (1889), where Claude Debussy and Maurice Ravel had contact with the Javanese Gamelan for the first time. This cross-cultural manifesto was indeed a two-way street. In essence, Western European composers like Per Nørgard and Olivier Messiaen incorporated Eastern philosophy and techniques in their works while the Japanese composer Toru Takemitsu was reflecting his Asian musical background in his Western composition techniques.
It was through Takemitsu’s music and compositional journals that I came to know the concept of true silence, which is represented by the Japanese term *Ma*. This concept had a significant impact on my compositional process indeed, and with it, the impetus to merge it within.

The perfect element is the bridge between the immutable silence and the everlasting mutation.

In this essay, I do not intend to offer anything new, except my own inner responses and reflections, which culminated in my work, named *KHÁOS*. Whereas crossing cultures in a unique way is emancipated through music, I, rather like the secular Chinese scholars, align myself with this ancient lineage.

**Method**

This Essay is dived into two major parts. The first one will cover the non-musical concepts and ideas that I seek in my research over the years on far-East culture and philosophy. The emphasis will be given more to Chinese culture specifically the divination book I Ching: The Book of Mutation. I hope with this first part to introduce and make it as intelligible as possible to the reader the very basic concepts and historical facts that surrounds this book in particular. I am only covering the facts and concepts that are necessary for the understanding of my musical process for this piece. After this part is covered the essay will follow to the second part.

The second part of the essay is the musical analysis of the piece itself. It is divided into two parts: the first is a chart with the overall form of the piece, with the main points of each movement (five in total) and its relation to the imagery background that I...

---

1 Khaos is a divine primordial condition, it may represent infinite space, or formless matter”.
visualized based on the I Ching. The second is a more detail analysis of each of the five movements, where each chapter has its subdivisions Background Images and Concept, where I describe in detail the relations of the movement with the concepts presented in the first part of the essay and Material and Techniques, where a more musical headed analysis is covered, with the analyses tools and techniques I judge necessary so.
Chapter 2

Culture Background and Influences of East Philosophy

Japan: The *Ma*, About Sound and Silence

FIGURE 2.1: *Ma* Ideogram²

“Only silence flows into the stream of eternal life” - Pierre Reverdy

Introduction: A Rich Silence

It seems to me that in the Western tradition of music, very little is mentioned about the absence of sound.

I ask myself why that is so? The answer can vary considerably, but the main answer can rely on the association of silence to death.

Death, usually seen as the opposite of life, and life is seem as an action, or better, a succession of actions, choices, moves that lead us in a certain path of reactions. To be dead is to be still, no action, reaction or motion.

Silence is the blank canvas of nature, the primordial naked state of all natural things, so why one would defy this primordial state with something so meaningful as sound?

This dark fear of death hunts us since primordial times. This very social phenomena that later become the art form of organizing the sounds that we call music is

nothing else but one of our many attempts to stand against death, against of this lack of motion. By standing our ground through sound we can shape our very existence and drive us apart from silence.

But can life exist without death? Can sound exist without silence?

One svelte into the culture of the East can reveal a dialogue with silence. Instead of defying the natural silent state of things, the Eastern culture such as the Japanese, Korean, Chinese and Indian seeks to return to the natural state of being, embrace the dark realm of silence.

Understanding this silence is not an easy task for one who was molded by the Western culture of serial organization of things. Next, I intend to discuss the Japanese concept of emptiness, called ma.

**Concept of ma**

*Ma* is a Japanese word for space and time. It is a very common word indeed, used daily by the Japanese. But this world also has a special meaning. On a more conceptual level, *ma* is a very special type of spacial or temporal phenomena. It is a space, where silence can exist.

In the feudal Japan, *ma* was the religious act of building a four-wall structure in order to create an empty space inside and wait, so *kami* (Japanese divine entity) could enter this empty space and fill it with a divine meaning. This silence which is generated in an empty room (space) and the action of waiting (time) generates an action, a silence that precedes something meaningful to be summoned, an active silence, this is *ma*.

In Japanese music, *ma* can be present as the intense silence that precedes an meaningful unique sound, as the powerful stroke of the *Biwa* (Japanese lute.) or the
sound of the wind-blown thought the *Shakuhachi* (Japanese flute. *Shakuhachi* are usually made from the root end of a bamboo culm), between these two powerful elements of nature, sound and silence, there is an invisible bridge that connects everything in a molecular level that the Japanese call *hashi*.

Toru Takemitsu, one of the leading post-war Japanese composers once wrote:

“In its complexity and its integrity this single sound can stand alone. To the sensitive Japanese listener who appreciates this refined sound, the unique idea of ma-the unsounded part of this experience- has at the same time a deep, powerful, and rich resonance that can stand up to the sound and removes it from its position of primacy. So it is that sound, confronting the silence of ma, yields supremacy in the final expression.”

This generates a type of music that does not rely on a serial sequence of sounds, but in sound objects that can stand-alone against this silence. But there are spaces, connections need to be made between these little sound worlds.

In music, as in another forms of art the *ma* works as this powerful silence, that resides in space and invites the attentions listener to fill up this room with one’s rich imagination, a color that is not in the canvas, a melody that wasn’t played, but still resonates inside ones being.

Of course this active listening is not easy to achieve, and not will be accomplished by every listener, but one must not give in on those limitations. That I believe is the responsibility of a new piece of music doesn’t rely only on the shoulders of the composer, a piece can only come to life in its full colors with the efforts of composer, performer and listener, composition, for me, is indeed an act of intimal collaboration.

---

Zen Buddhism and Nature in Japanese culture and art

According to Sir Charles Eliot, “Zen has been a great power in the artistic, intellectual, and even the political life of the Far East. To a certain extent it has molded the Japanese character, but is also the expression of that character. No other form of Buddhism is so thoroughly Japanese.” To talk about Japanese culture is to talk about religious values that are close tied with elements of Nature. Japanese history is heavily influenced by Zen Buddhism* (Buddhism arrived at Japan in the Kofun period 200 a.C to 538 a.C), and that is something to consider indeed. I could write a whole essay dedicated to the Zen in Japanese culture and at the mind of its people. Instead of that I will focus on the most basic Zen exercise which is to meditate, the Zazen (Zazen is a meditative discipline practitioners perform to calm the body and the mind, and be able to concentrate enough to experience insight into the nature of existence and thereby gain enlightenment). The Zen is to be at the present at all times, through meditation the student can focus its mind more and more into the constant time. When achieved in its full success time disappears, with everything else. This practice leads to the pure state of contemplation, of sound and silence in nature and in the self.

This state of contemplation lead Japanese composers to seek for this unique moment where sound can emerge from ma. This sound it’s comes from Nature, and natural object that moves outside and towards silence again.

This contemplation of nature can also be seeing in the discrepancy between Western Instruments and Japanese ones.

---

For Toru Takemitsu, the sound of the Violin as an example, is unnatural, it doesn’t have any relationship with a sound found in nature, its detached, an abstract sound conceived by us. Its construction is made in order to last extremely disturbances of climate order and still resist. Japanese instruments, for him, are built in order to be a reflection of natural elements and sounds. The *Shakuhachi* is a fragile instrument that suffers for the lack of humidity outside the island of Japan. The *Shakuhachi* master is the one can become and unity with the sound of the wind.

For the composer, if Nature is the core, the Western culture heads towards abstraction, towards the outside and the Japanese heads towards a concrete natural sound that moves towards its core.

**China: The *Yi Jing* I (I Ching): The Book of Changes**

FIGURE 2.2: *Yi Jing* Ideogram

---

The Meaning of the word Yi Jing

Maybe the closest translation of the term Yi Jing, known in the West as the I Ching, is “Classic of the Mutations”. The ideogram Yi Jing was written in the book accompanying the Marquis Dai (B.C.168) in his grave.

We can divide the ideogram into two singular parts:

Yi

This single syllable can be divided into two parts: the top one represents the sun and the bottom one the rain. Sun and Rain (and vice-versa), the changes in the weather, the passage through the states, the transformation of nature are symbolized in this first part of the ideogram.

Searching more deeply for the meaning of this ideogram one can find two other meanings: the first signifies the essential quality of mutation that is life’s fluctuation itself. The second, is the meaning beyond stability, fixation. These meanings present quite a paradox. Combining both we can reach the answer that resolves the message behind the Yi Jing: the only thing stable in the universe is constant change. Mutation is our only true reference of stability.

Jing

This is the general name given to the old literary “master-pieces” of China. As said before Yi Jing means “Classic of the Mutations”.

Chapter 3
Analysis of the Book of Changes

The “Golden Legend” of the Yi Jing

FIGURE 3.1: The Great Wheel (64 Hexagrams) ⁶

One of the most traditional and famous legends about the origins of the chings ⁷ was created surrounding one of its legendary figures, the first (mythological) emperor of China, Fu Hsi (or Fu Xi). Fu Hsi was an exceptional observer and not an inventor, as all Chinese legendary characters and historical persona; so the legend says that he visualized the pa kua ⁸ at the back of a turtle’s shell as it was coming out of the Yellow River. He is

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⁶ “64 Hexagrams Figure.” Pelulamu.net accessed September 19, 2014, http://www.pelulamu.net/binmyst.

⁷ The Chings are the five classic books that compose the origins of Chinese culture

⁸ View Chapter 3, Trigrams Arrangements for Pa Kua
considered one of three sages from Chinese mythology for his mastery in recognizing and organizing the signs of “chance”.

FIGURE 3.2: The First Emperor *Fu Hsi*  

After this period, king *Wen Wang* was captured in a battle with the tyrant *Chou Hsin*. During his years in captivity the king spent his time reflecting on *Fu Hsi* trigrams and organizing them by piling them two by two, that was the birth of the hexagrams. Together with the now 64-formed hexagrams he also wrote a commentary for each one of them known as “The Judgments”. Followed by his son, king *Wu Wang*, advanced in the study of the I Ching and wrote an explanation on each of the six lines of the hexagrams compounding 384 short comments entitled: “The Lines”. Finally, some centuries after, the philosopher *Confucius* wrote the famous “The Great Commentary” where he comments about the first two hexagrams of the I Ching.

With these four-legendary/historical characters the I Ching was assembled in its primordial format, that is carried through the centuries until now days.

---

Fu Hsi is a legendary character, and needless to say, to prove his existence is a shot in the dark (although the other three did exist according to documentation from that period). But, what is really interesting and unique about the legend behind this oracle is that it doesn’t associate facts to divine creatures or gods. No elemental being or celestial entity comes down from the heavens to whisper in Fu Hsi’s head the recodification of the universe through out 64 symbols. The I Ching, has not been claimed nor does it have an author. It is part of Chinese society and belongs to its culture as it is.

Chinese Theory related of Yi Jing

FIGURE 3.3: Yin/Yang Ideogram ¹⁰

About the Yin/Yang

Rising and falling constantly, the lasting
And changing lines enclosed by a law. It
Is change that is at work here¹¹.

---

Introduction

The *Yi Jing* is not the only example of a group of symbols that attempts to describe the infinite aspects and situations of the universe; but yet, it is probably one that uses the most abstract semiology. Differently from the figures from the gipsy tarot or the ancient astrological Greek creatures of hybrid nature beasts, the *Yi Jing* only bases itself on a binary concept of two complementary forces that alternate within themselves in a non-stop cycle, the *yin* and the *yang*.

It is important for one to notice that the I Ching is a system that operates on a binary code associated with a set of representative images of the states of nature, thus demonstrating its functionality as a device for understanding reality. Therefore, it is an immanent ontological system where each individual has access to the unfolding of reality in its entire process. One can thus make the necessary decisions to better adapt to constant change.

The Chinese were indeed very clever to work with a simple binary structure embodied by the 64 Hexagrams. By placing this system at the very center of the oracle, the Chinese projected the very conceptual basis of the *Yi Jing* in a universal language—one doesn’t need to be educated in Chinese to obtain a superficial understanding to be able to distinguish 1 from 2, or an entire line from a bi-parted one.

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12 View Hexagram description at Chapter 3, The “Golden Legend” of the I Ching

13 Of course the depths of the *Yi Ching* are aligned with the depths of Chinese culture itself, so for one to grasp the whole picture of what this oracle represents he or she would have to spend years studying the canonical texts, judgments, commentaries and the history of China itself. Not a easy task for sure since the texts that are the closes to “the source” are all written in ancient Mandarin.
Before going into the description of the lines that compose the whole Yi Jing system, it is necessary to have a deeper understanding of the very nature that composes the yin/yang forces.

**Yin/Yang**

One cannot approach the yin/yang concept as things or forces made of matter. Neither are adequate, rather one must visualize that yin/yang cannot exist apart as the Chinese describes, “the luminous part and the shade one of the same mountain”, or the bright and the dark side of the same moon. They are two possibilities of a same reality. For that reason, it is inaccurate to even split them by putting the article “the” in front of each one.

As the French Yi Jing scholar Cyrille Javary describes the yin/yang:

*Yang is this special moment when the clouds start to dissipate, and the sun appears: the air gets warmer and lighter, the skies rises, and the clouds fade away.*

*The right side of yin is made of two signs. The first, gives an idea of latent presence, and the second, is the character for cloud(s). This is yang’s complementary movement: the rain clouds gather, the sun is hidden, the sky appears lower, and the air becomes darker and colder.*

Yin/yang represents balance but also the constant mutation of the same energy that is at one moment cold or hot; low or high; in or out. Yang will be yin and yin will be yang in an everlasting spin of a wheel. It is the endless state of becoming.

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Indeed, the Western mind has a linear view to understand the point of mutation between two dots; Henri Bergson\textsuperscript{15} explained that in his book, *The Creative Mind* where we would rather see the points of departure and arrival itself:

*We think about movement as if it were made up of immobility…. Our mind can only remember it as a series of positions: first one point, then another, the another one. If one objects that there must be something between two points, it inserts new positions between them, and does so indefinitely. It looks away from the transitions. Our mind can only conceive of or express movement according to immobility.*

*We can understand that static concepts may be derived by our mind from a reality in movement; but there is no way to reconstruct the mobility of reality with this static concepts…As a result, our mind is incapable of truly understanding life, which is uninterrupted creation, a continuous flow.*\textsuperscript{16}

\textsuperscript{15} Henri-Louis Bergson (18 October 1859 – 4 January 1941) was a leading intellectual force in the early years of this century. His ideas were common currency, in the academic as well as fashionable societies throughout Europe and North America. Mary Ann. Gillies, *Henri Bergson and British Modernism*. Montreal, Que: McGill-Queen's University Press, 1996.

The lines (linear structure of the mutation)

The Chinese came up with a very simple graphic way to notate this state of constant mutation, which is through two types of lines: one is entire the other parted.

Although visually the lines look different from each other, they are not. As described earlier in the chapter they represent one entity. For that reason, one can notice that those lines are actually moving either out or in.

The yang line moves out, with its clear nature of expansion and growth, and at some point of this movement it divides itself into two. The now bi-parted line moves inwards seeking to be one again.

The yin/yang amalgamates the pure Chinese thinking on its most primordial level. Majestically resuming the whole scheme of action and its reaction in a visual morphing

---

format. Chinese thinking and philosophy have been based on this concept since ancient times.

**Theory of the Five Phases: The Wuxin**

**The Concept of the five Phases**

The “five” for the Chinese represent the number of "elements" found in nature, which is different from the Egyptian or Tibetan four primordial elements (fire, water, air and dust). The Chinese elements do not represent a property or fundamental state of matter, but phases of the same energy source— the qi\(^\text{18}\). This energy formed during the “Grand Inception” transforms and develops over time, and created the boundaries between two states of matter after forming the primordial elements. Those elements (phases in Chinese thinking) are wood, fire, earth, metal and water; in their cosmological order they are known as the wuxin.

This order is very important because it belongs to, or is part of, the same mutation process as the “Later Heaven Arrangement”\(^\text{19}\) and it can be seem as the Chinese version of the Western Alchemy.

Chinese scholars studied the behaviors of those materials over the centuries, correlating them with the phases of the I Ching, their conclusion was that those materials originated from a same source, qi. Inserting them as not just a scientific study of the

\(^{18}\) When Heaven and Earth were yet unformed, all was ascending and flying, diving and delving. Thus it was called the Tao began in the nebulous void. The nebulous void produced spacetime; spacetime produced qi. Qi had a boundary [lit. a ‘shoreline’]. That which was pure and bright spread out to form Heaven; the heavy and turbid congealed to form Earth. It is easy for that which is pure and subtle to coalesce, but difficult for the heavy and turbid to congeal. Therefore Heaven was completed first, and Earth established afterwards. John S. Major, *Chinese Texts and Philosophical Contexts* (La Salle: Open Court Publishing Company, 1991), 68-69.

\(^{19}\) See Chapter 3 Trigrams Arrangements, for “Later Heaven Arrangement.”
universal harmony with nature, but rather as an element of organization in society, as the I Ching also is. This system serves multiple areas, from architecture (Feng Shui) to medicine (acupuncture).

As said above the five elements are actual phases of the same energy source that convolutes one to the other over time. This is known as the “Generation Cycle”, which is the same that reins the *pa kua*\(^{20}\) in the *King Wen’s Arrangement*, yet as everything in nature has its counterpoint, the *wuxin* also has a “Destruction Cycle”. Here, the Western mind will automatically divide those cycles into different entities, where if something goes “wrong” with the “Generation Cycle” the inverse will happen, in other words the destruction of the elements. This is surely what is not happening here.

To envision the *wuxin* cycle, one has to immerge in a complex five dimensional real-time reality. For one to grasp the concept of how this multi-layered structure works, here is a citation that I consider very useful an gives a very clear image of what is happening inside the *wuxin*.

*When wood is in its prime, water is old, fire is born, metal is paralyzed, and earth is dead.*

*When fire is in its prime, wood is old, earth is born, water is paralyzed, and metal is dead.*

*When earth is in its prime, fire is old, metal is born, wood is paralyzed, and water is dead.*

*When metal is in its prime, earth is old, water is born, fire is paralyzed, and wood is dead.*

*When water is in its prime, metal is old, wood is born, earth is paralyzed, and fire is dead.*\(^{21}\)

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\(^{20}\) See Chapter 3 Trigram Arrangements, for *Pa Kua*

The Figure 3.6 portrays this as a visual concept:

**FIGURE 3.6: The Wuxin Multiple Cycles**

![Wuxin Multiple Cycles Diagram]

I heavily used the *wuxin* to organize the piece *KHÁOS*, having its concept in mind throughout the whole process of composition:

**Instrumentation**

I divided the instrumentation list of the piece according to the five phases, having the soloist (Percussion one) being the fifth element, earth, which conducts and interacts with all the others. For that reason, the soloist is always placed in the middle of the set up, going from south to north, young to old, summer to winter; as the Figure 3.7 portrays:
Percussion 2-5 follows the logic of the remaining phases, as listed below on Table 3.1.
TABLE 3.1: LIST OF INSTRUMENTATION ACCORDING TO THE WUXIN

<table>
<thead>
<tr>
<th>Percussion 2</th>
<th>Percussion 3</th>
<th>Percussion 4</th>
<th>Percussion 5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood table</td>
<td>Wood table</td>
<td>Metal Plates</td>
<td>Bongos</td>
</tr>
<tr>
<td>Wood Blocks</td>
<td>Timpani</td>
<td>Crotales</td>
<td>Congas</td>
</tr>
<tr>
<td>Marimba</td>
<td>Vibraphone</td>
<td>Metal Pipes</td>
<td>Surdo-Drum</td>
</tr>
<tr>
<td></td>
<td>Water bucket</td>
<td>Nipple Gongs</td>
<td>Toms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Tam-Tam</td>
<td>Maracas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Chinese Opera G.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Break Drum</td>
<td>Shakers</td>
</tr>
</tbody>
</table>

**Gestures and musical objects**

The idea of having the interaction of the elements in the microstructure was also present in my head while composing the piece.

The goal is not to have only combinations of instruments that represent a certain phase but also the direction and character that a particular musical gesture or idea possesses. These are examples: marimba (wood) + nipple gongs (metal) in a descending melodic line with tremolos = (water); vibraphone (water) + woodblocks (wood) in a straight horizontal line formed by repeated notes = (metal); maracas (fire) + bass drum (earth) with a bag of seed on it = (wood) and so on.
These combinations are present throughout the whole piece, and it can be seen clearly in the 4th movement\textsuperscript{22}, where the structural concept of the same is based on those relations.

### Trigrams Arrangements

FIGURE 3.8: The Trigrams

![Trigrams Arrangements](image)

### Historical background

As mentioned in the beginning of this chapter, the “Golden Legend of the I Ching”, the first emperor \textit{Fu Hsi} conceptualized the trigrams while king Wen Wang envisioned the hexagrams. One can see that a pair of three lines, the trigrams, forms the hexagrams. The concept of the trigrams as are known today was only included in the I

\textsuperscript{22} View 4th Movement at Chapter 4, page 62.
Ching centuries later, in the *Han dynasty*\(^{23}\). The reason for this was that the Confucians\(^{24}\) needed to grow the function of the book as a social organization mechanism apart from the mystical oracular aspect of it. The goal was to bring the divinatory aspect of the book under a logical and even pedagogical approach.

Before the *Han* dynasty the hexagrams were never seen as a set of two groups of triadic lines, but with the Confucians the hexagrams were now bi-parted into two different situations, natural images (i.e. thunder over water) that formed the situation described in the hexagrams. One can see that these scholars inverted the hierarchical logic of examining the hexagrams; they were now not a collection of 64 situations but yet, 8 pre-phases that when inter-combined formed a set of numerical (64) resultants. A new set of commentaries were added to the I Ching, under the name of “The Images”, by the Confucian scholars, and the I Ching finally reached its final format as it comes to us since the *Han* era.

This often appears to be obvious to the Western mind, but it really is not. What happened was the complete inversion of values, where the lineage of thinking based on a 64 figure oracle was shifted upside down, resulting in not a indivisible unity but a product of two (trigrams).

**The Arrangements**

The most accepted Chinese cosmological conception of the creation of the universe, where a distinction of a primordial energy was made in two interdependent

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\(^{24}\) Confucian: An adherent of the teachings of Confucius
forces or energies: Qian (Heaven) and Kun (Earth). When those two forces met, they generated the first manifestations on the world, and shaped the early stages of a process creating an unchangeable reality. The sequence of the Pa kua (Pa=eight, Kua=symbols) represents these initial stages. To substantiate later theories that marked the period of the Han Dynasty, the birth of the eight trigrams has been linked to the formation of the Yi Jing, which confronts the legend that says the 64 Hexagrams came first, as we saw in the beginning of this chapter. Through the substantiality concept where the Earth (Kun) seeking Heaven (Qian), generates the first three children named “the three sons”: Thunder (Léi), Water (Kǎn) and Mountain (Gèn). When the Heaven searches Earth, it generates three more children named “the three daughters”: Wind (Xùn), Fire (Lí) and Lake (Duì). Since its inception, this process has been explained by the relationship between Yin/Yang. The combination of two primordial trigrams (Heaven and Earth) with and “the three daughters and sons”, makes Pa kua.

Later, the cycle of the Pa kua was arranged by the direction and placement of the trigrams. There are two main trigrams arrangements: the Fu Hsi Arrangement or “Early Heaven Sequence” and the King Wen Arrangement or the “Later Heaven Sequence”. The Fu Hsi Arrangement is based on the trigrams Qian and Kun, which are positioned south and north respectively. Whereas the King Wen Arrangement is based on the trigrams Fire and Water in the same position as south and north, and the one that represents the passage of seasons.

I am going to focus on the King Wen Arrangement because that’s the sequence I based the form and progression of trigrams in the piece. I will describe the details of how this particular sequence inspired the piece itself in chapter 4: Musical analysis of KHÁOS.
The “Later Heaven Sequence” and mutations of the trigrams

FIGURE 3.9: Later Heaven Sequence

This Diagram shows the path, where energy (yin/yang), in the form of the trigrams, completes a full circle that also corresponds to the four seasons. King Wen set the placement of the trigrams. And obeys a very strict order of images that illustrates the mutation from one trigram (phase) to the other.

This clockwise cycle is also known as the “Generation Cycle”, and is based on the simple idea that each of the trigrams are in constant motion, and than reach a point of mutation towards the next trigram and so on. This cycle is represented by a series of images that has a deep pedagogical agenda and was created by the Confucians during the Han dynasty.

Thunder, the storm, is the birth of energy, the primordial strike, and it causes the germination of spring which leads to the Wind where the exposition of life happens.

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leading its unbridled growth that will reach its peak in Summer. From there, energy has to retreat to Earth, and it stays until the cycle reaches its second half. The start of the Fall comes with the joy of passage where the fruits collected during the first half of the circle are celebrated, and those two trigrams are the central point. But energy follows its path down and finally reaches the opposite position of summer, and winter comes both with darkness and the hope of the new light. As with light, darkness cannot stay forever, and mutation acts once more when energy suddenly reaches a peak over the darkness below.

The Mountain trigram comes to announce the beginning of a new Spring.

One should keep in mind that element earth (dust) which is represented by the number five, transports mutation from one phase to the other.

The diagrams below show how the King Wen Arrangement works with the number 5 in the center.
FIGURE 3.10: Later Heaven Arrangement with the Number Five in the Center

FIGURE 3.11: Numerical Representation Of The Later Heaven Arrangement

<table>
<thead>
<tr>
<th></th>
<th>spring 4 (wind) wood</th>
<th>summer 9 (fire) S</th>
<th>transition 2 (earth) earth</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3 (thunder) wood</td>
<td>5 (centre) earth</td>
<td>autumn 7 (marsh) metal</td>
</tr>
<tr>
<td></td>
<td>transition 8 (mountain) earth</td>
<td>winter 1 (water) N</td>
<td>autumn 6 (heaven) metal</td>
</tr>
</tbody>
</table>


**Numerology of the Yi Jing**

Chinese numbers: the quinary system, serves to evoke a set of images related to social life aspects in the following subjects: in regards to moral conduct, the physical qualities of the phenomena, architecture and topography, military protocol, psychological factors, and so on. The main concern of the ancient Chinese in employing a set of numeric emblems was to organize and control social life and the events that follow with it, giving some “power of animation” (movement) to the numbers facing the maintenance of social and collective consciousness, which also include all forms of art. Which means that the very numerological purpose of the I Ching is to organize the society as a whole and unified organism. The term “organize” here means to categorize those phenomena (in the 64 hexagrams), yet one can erroneously approach this catalog as a “set in stone” table, this whole system is truly a method of observation of real events, instead of an abstract concept of it. In other words, the primordial purpose of the I Ching is to understand these universal phenomena and its mutations (from the macro to micro), observing the universe as a malleable and concrete wheel of qualities and elements, truly working as a mechanism (device) of reality’s functions and its implications upon society, instead of a mystical divination oracle.

**The Pa kua**

The Chinese are very practical people, so instead of carrying a document that contains all of the information from the 64 Hexagrams cycle, the scholars from the
Shang Dynasty \(^28\) developed a numerical system that syncretizes this entire catalog. This catalog compounds all of China’s social organization: cardinal directions, seasons, elements in nature (wuxin), color, geometric shapes, climate, medicine (acupuncture), natural development directions, moral qualities, phases of energy (yin/yang), passage of time, and other organizational constructs. A diagram made of 8 (pa) divinatory symbols (kua) represents this numerical system. Those symbols are known as trigrams and a number also represents each trigram.

According to the Sinologist Marcel Granet\(^29\), the numbers in the ancient Chinese concepts also served to evoke a set of relationships and interrelationships between things in ordinary life, acting as a cataloging system. In such a system the number is the sign of a vast set of relations to be studied by those who are dedicated to understanding life.


\(^{29}\) Marcel Granet (February 29, 1884 – November 25, 1940) was a French sociologist, ethnologist and Sinologist.
With the advent of the *pa kua* (Figure 3.12), a scholar could access (like one does in present day when accessing a hard drive from a computer) from his brain a whole repertoire of knowledge by only observing this diagram. Once the numerous meanings of the symbols are revealed the whole idea of motion (power of animation) is intelligible.

**Revealing the *pa kua***

The following Table 3.2 categorizes each of the trigrams by its various representations.

---

TABLE 3.2: Revealing The *Pa Kua*

<table>
<thead>
<tr>
<th>Trigram</th>
<th>1</th>
<th>8</th>
<th>3</th>
<th>4</th>
<th>9</th>
<th>2</th>
<th>7</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number</td>
<td>1</td>
<td>8</td>
<td>3</td>
<td>4</td>
<td>9</td>
<td>2</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Cardinal Direction</td>
<td>North</td>
<td>North-east</td>
<td>East</td>
<td>South-east</td>
<td>South</td>
<td>South-west</td>
<td>West</td>
<td>North-west</td>
</tr>
<tr>
<td>Season</td>
<td>Winter</td>
<td>Starting of spring</td>
<td>Spring</td>
<td>Starting of summer</td>
<td>Summer</td>
<td>Starting of fall</td>
<td>Fall</td>
<td>Starting of winter</td>
</tr>
<tr>
<td>Wuxia</td>
<td>Water</td>
<td>Earth</td>
<td>Wood</td>
<td>Wood</td>
<td>Fire</td>
<td>Earth</td>
<td>Metal</td>
<td>Metal</td>
</tr>
<tr>
<td>Natures Image</td>
<td>Water</td>
<td>Mountain</td>
<td>Thunder</td>
<td>Wind</td>
<td>Fire</td>
<td>Earth</td>
<td>Lake</td>
<td>Heaven</td>
</tr>
<tr>
<td>Color</td>
<td>Black</td>
<td>Brown</td>
<td>Green</td>
<td>Green</td>
<td>Red</td>
<td>Yellow</td>
<td>White</td>
<td>Blue Grey</td>
</tr>
<tr>
<td>Organ</td>
<td>Kidney Bladder</td>
<td>Spleen Stomach</td>
<td>Pericardium</td>
<td>Liver Gallbladder</td>
<td>Heart Small Intestine</td>
<td>Lungs Large Intestine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Time</td>
<td>12 a.m.</td>
<td>3 a.m.</td>
<td>6 a.m.</td>
<td>9 a.m.</td>
<td>12 p.m.</td>
<td>3 p.m.</td>
<td>6 p.m.</td>
<td>9 p.m.</td>
</tr>
<tr>
<td>Moral Quality</td>
<td>Wisdom</td>
<td>Sanicity</td>
<td>Kindness</td>
<td>Conciliation</td>
<td>Exuberance</td>
<td>Sanicity</td>
<td>Integrity</td>
<td>Equity</td>
</tr>
<tr>
<td>Direction and Natural phenomena</td>
<td>Descending</td>
<td>Stillness</td>
<td>Expansive</td>
<td>Expansive</td>
<td>Ascending</td>
<td>Stabilizing</td>
<td>Contracting</td>
<td>Contracting</td>
</tr>
<tr>
<td>Geometric Shape</td>
<td>Undulating</td>
<td>Square</td>
<td>Rectangular</td>
<td>Undulating</td>
<td>Angular</td>
<td>Square</td>
<td>Round</td>
<td>Round</td>
</tr>
</tbody>
</table>
Now, after a close study of the *pa kua*, the previous diagram can be seen as in Figure 3.13:

**FIGURE 3.13: The Complete *Pa kua***

One can notice that the numbers in the table go from 1 to 9 skipping the number 5. The reason is due to fact the Chinese have a very special relationship with this number.

**Five as the Center**

Similar to the Pythagorean Tetrakis (\(1 + 2 + 3 + 4 = 10\)) the number 5 in the *Yi Jing* has a symbolic meaning that comes from the sum of 2 (earth) plus 3 (heaven), thus

---

representing all life forms on Earth. According to a formula entered in the *Tao Te Ching*:
The *Tao* generates one, one generates two, two generates three, and three generates ten thousand things\(^{32}\).

The Chinese consider the number 5 as synonymous of centralization. It is represented by the element of earth (notice that here 5 means earth as matter and not the Earth represented by the number 2 which is a pre-state or either a conceptual phase). Its location in the *pa kua* is right at the center of the diagram, where the *yin/yang* symbol is located. That is because 5 is the number that represents the center of everlasting mutation, the endless movement of energy within each of the phases. One can confirm that through the use of numerology when given two equivalent alternatives for breaking up the number 5: 2+3=5 and 3+2=5. Those two mirrored and complementary ways to see the number 5 give the perspective of the endless rotation of the *yin/yang*, where sometimes *yin*=2 +*yang*=3 is 5 and *yin*=3 +*yang*=2 is also 5. This idea of the *yin/yang* can be found also in the center of the hexagrams, where it represents the very core of mutation (nuclear lines\(^{33}\)) leading the shift that will generate the next hexagram. The number 5 also explains the mutation from one phase of the *pa kua* to the other, organizing all the concrete situations listed in Table 3.2 above through the binominal numbers as the following Figure 3.14 shows:

---

\(^{32}\) The *Tao Te Ching*, was one of the five Ching (Classic Books) together with the I Ching.

\(^{33}\) The nuclear lines are the lines number 3 and 4 of each hexagram.
This next figure (Figure 3.15) demonstrates quite well the moment where the *Grand Inception* occurs and generates mankind and the natural world, and where fire and water are opposites phases of the *qi*.

FIGURE 3.15: The *Grand Inception*  

The following Table 3.3 is also a demonstration of the numerological relationship, by subtraction, between 5 and the numbers:

---

TABLE 3.3: The Numerical Pa Kua

\[
\begin{array}{ccc}
6 & 5 & 1 \\
8 & 5 & 3 \\
4 & 5 & 9 \\
2 & 5 & 7 \\
\end{array}
\]

As explained above, the number 5 is a constant permutation of yin/yang, though invisible, is present between the trigrams realizing the movement between them.

The Chinese developed a numerical diagram (Figure 3.16) to represent the pa kua system with centralization (which is hidden in the traditional diagram) of the number 5.

FIGURE 3.16: The Magic Square

\[
\begin{array}{ccc}
4 & 9 & 2 \\
3 & 5 & 7 \\
8 & 1 & 6 \\
\end{array}
\]

This systematic numerical arrangement will also be used to demonstrate the phenomena of phase mutation between the 5 elements (wuxin) and their adjacent states. This arrangement was better explained in the previous chapter.

With that being said, one can say that the number 5 is rooted in the Chinese culture for being related to the earthly arrangements while the number 6 (number of lines of the hexagrams) coordinates the heavenly arrangements. In the piece I dedicate the 4\textsuperscript{th}

\[35 \text{“The Magic Square.” Wikipedia: Flying Star Feng Shui, accessed October 20, 2014} \]

movement to this relationship between 5 and 6, its sums (5+5=10/6+6=12) and multiplications, reaching a numerical structure that will reign over all the musical ideas within the movement\textsuperscript{36}.

\textsuperscript{36} For a more detailed explanation on the numerological form of the 4\textsuperscript{th} Movement see chapter 4, page 62.
Chapter 4

Musical Analysis of KHÁOS

General Formal Analysis Of The Piece Regarding The Trigrams

Two grand parts, named as Gaea Biblos (the Book of Earth) and Kosmos Biblos (the Book of Heaven), divide KHÁOS. The first part contains three movements and the second two.

This chapter is a macro view of the overall form of the piece, where I condense and present the main points of each movement. The following chapters contain a very detailed analysis of all five movements. On Figure 4.1 the Gaea Biblos is illustrated by its trigram, and details each of the three movements (ēōs, Kratos, Gē) and the passage between 2nd and 3rd movement (Aiōlus) with its trigram figures, the number that represents each trigram (with the resultant 5 provided by the subtraction between Aiōlus and Gē), their the main qualities and compositional agenda.
FIGURE 4.1: Gaea Biblos Form

Gaea Biblos

On Figure 4.2 the Kosmos Biblos is also illustrated by its trigram, and details each of the two movements (Aiônios and Buthos) and the passage between 4th and 5th movement (Metallon) with its trigram figures, the number that represents each trigram (with the resultant 5 provided by the subtraction between Metallon and Buthos), their the main qualities and compositional agenda.
FIGURE 4.2: Kosmos Biblos

Kosmos Biblos

Aiónios

Metallon
(transition)

Buthos

Lake:
- two co-existent dimensions
- harmony structure leded on marimba (surface)
- cycle of the 12
- pattern structure based on the I ching numerology(bottom)
- combination of the elements

Water:
- Marimba solo
- swells
- 4 sound materials
- fire x wood (metal instruments)
- macro/micro tempo structures
- gesture combinations (ensemble inputs)
Analysis (Background And Images, Material And Techniques) From Each Movement

Movement 1: Ėōs

FIGURE 4.3: Thunder Ideogram

Background Images for composition:

This opening movement of the piece is based on the trigram that represents the element "Thunder". This trigram has the yang line on the bottom followed by two lines of yin. That represents the most primordial state of the yang, the moment where energy incites movement, (in the piece I will incite the movement of air to provoke thunder with the first bass drum attack). As mentioned, this trigram has two yin lines above the yang line, which promotes room, almost in a tempting way from the yang line to evolve upwards. Once the movement is started, energy will flow without interruption. In the “Later Heaven Arrangement” this is the first trigram, the youngest son of yang.

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http://fengshui-harmony.net.
Material and Techniques:

**Formal structure of the piece**

This movement is built upon proportional notation it has no measure numbers, instead it is divided by rehearsal letter markings, as outlined in Table 4.1:

<table>
<thead>
<tr>
<th>Section</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>A’ + B’</th>
<th>B”(D)</th>
<th>C’</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rehearsal letter</td>
<td>A</td>
<td>B</td>
<td>C</td>
<td>D</td>
<td>E</td>
<td>F</td>
</tr>
</tbody>
</table>

**Scratching skin**

To create the sound world, one that can produce the amount of "active silence", the amount of the *Yin* state of being so that the following primordial sound of the Bass Drum can emerge with its full color, I decided to use skin instruments in a very raw yet naive way, like a child exploring the surface of a tree (wood) with bare hands. With that in mind I seek to create a gesture that approaches and produces sound on an instrument by scratching its skin. Through the idea seems to be simple, I search for a wide range of color possibilities that one can obtain by using different types of mallets, in various combinations.

Figure 4.4 shows a passage that demonstrates these combinations. The soloist is brushing the bass drum with three different mallet combinations and different patterns on the drumhead.
FIGURE 4.4: Examples Of Different Types And Combination Of Mallets at First Movement, Rehearsal letter A.

Instruments

Bass Drum:

The soloist remains on the Bass Drum (large) station through this whole section. As said on the lines above it will scratch the surface of the instrument. To be successful on the sounds and complexity of texture I am trying to reach, the percussionist will have to change actively and constantly the mallets, pressure (by dynamic markings), region and even how (direction) to scratch the skin of the instrument. Figure 4.5 contrasts a simple circular pattern with a pattern where the performer is moving freely across the drumhead.

FIGURE 4.5: Applying Complexity To The Gesture

a) \( p \rightarrow f \)  

b) \( w/ \text{ plastic brush + stick} \)

Even when the Bass Drum starts its movement I proceed with the gesture of scratching different surfaces with different mallets and beaters.
Wood Board:

With the physical aspect of this section in mind, I developed gestures that will require performers to engage a very physical manner.

An example of this is when percussion 2 and percussion 3 strike sand blocks on the top of a wood board (Figure 4.6). The players are instructed to perform a series of accent patterns (5+3+4, 3+5+4, 4+3+5) while playing; this will produce not only the sound of sawing wood, but also requires a physicality that is visually apparent to the audience.

FIGURE 4.6: Patterns

Other skin instruments:

Percussion 4 and percussion 5 scratch other skin instruments, representing smaller versions of the Bass Drum.

Percussion 4 scratches two bongos with coins placed between the fingers in various patterns similar to figure 4.5.

Percussion 5 scratches the surface of the Surdo Drum (percussion 1 also will scratch the Bass Drum alternating between "sound and silence") and two toms.
FIGURE 4.7: Surdo Drum, Tom-Tom And Bongos

All these gestures keep the texture of white noise—Ma—alive and present as a background layer to the piece.

Tempo:

The reason for different tempo markings for each player is to create a atmosphere of impermanence, and a non-synchronization of time. Even when percussion 1 introduces a clear sense of pulse on the large Bass Drum, which this "tempi polyphony" is retained in the other layer, thus maintain temporal inconstancy. The introduction of the Bass Drum pulse represents the beginning of time (the first thunder, the call for the Spring). With the progression of time, these layers start to lose their battle against the power of the bass drum pulse. This represents the yang line ascending through the first yin line. Nevertheless, an unified tempo will only occur at the second movement when the yang line finally achieves its position at the middle of the trigram.

Bass Drum:

The Bass Drum is the focus of the “Book of Earth”. In Ėōs it has the part curly important functions of providing a sense of time and to drawing borders in space by orienting the ensemble through powerful attacks. Although the rhythmic lines are quite simple in this section, due to the conceptual aspect of the trigram, there is complexity in the attacks. For example, on which region to strike the surface of the instrument, and with which hand. This is prompted by the conceptual of the thunder trigram.
Confronting Silence:

The first strike of the soloist on the Bass Drum (Figure 4.8) it is of most importance. It is when all the active silence (*Ma*) carefully prepared for this moment, is confronted by the deep and powerful sound of the bass drum. From this moment there is no turning back. It is indeed a defining moment, where energy starts to roll, a new cycle is set in motion; A new spring is beginning, with the sound of the first thunder.

\[ \text{FIGURE 4.8: Bass Drum Primary Sound} \]

\[ \begin{array}{c}
R \\
\text{f}
\end{array} \]

The Shattered Thunder:

To enhance, dissipates, fractured and also create different types of envelopes from the primordial sound of the Bass Drum's first attack, a series of gestures in the rest of the ensemble is developed on the line of time. Some of these are described in the following examples.

Timpani:

The Timpani has an very important roll in this stage of the piece. I divide the sounds of this instrument into two distinct gestures, as in Figure 4.9 and 4.10.

\[ \text{FIGURE 4.9: Brushes on Timpano} \]

\[ \begin{array}{c}
\text{Timpano} \\
\text{mf}
\end{array} \]
This gesture is divided into three parts:

First the percussionist strikes the center of the timpani with a hard timpani mallet. Immediately following the attack happens a rapid horizontal scratchy motion with a plastic brush will start at the resonant "sweet" spot. While rapidly scratching this spot the percussionist will use the tuning pedal following a graphic diagram in the score (Figure 4.10).

FIGURE 4.10: Pedal-Marking Diagram

The combination of techniques as in the previous figures creates a complex envelope of decay from the thunder sound, making it almost 3D.

The other sound produced by the timpani is obtained by rubbing a super-ball on the surface of the drum (Figure 4.11). The impetus for this was my desire to stretch the attack of the bass drum.

FIGURE 4.11: Superball on Timpano

Birth of Chaos

The last part of the material is a rhythmic division of prime gesture. Using the same instruments that once were being scratched, few by few they gain life through its the real ordinary application in the world, which is to be attacked to produce sound.
One by one the instruments start to crawl to the first layer of sound out of the void of nothingness, gaining more complexity in its patterns and arrangements, as if to confront its own generator illustrated on Figure 4.12.

**FIGURE 4.12: Rhythmic Sound Material, Rehearsal Letter E “Birth of Chaos”**

Birth of Thunder

At rehearsal letter C (Example 4.1) is where the ensemble finally aligns for the first time with the soloist, to form a full block of sound. That shatters over time and once again decent into chaos.
Movement 2: *Kratos*

Background and Images:

*What is dark clings to what is light and so enhances the brightness of the latter.*

*A luminous thing giving out light must have within itself something that perseveres; otherwise it will in time burn itself out. Everything that gives light is dependent on something to which it clings, in order that it may continue to shine. Thus the sun and moon cling to heaven, and grain, grass, and trees cling to the earth. So too the twofold clarity of the dedicated man clings to what is right and thereby can shape the world. Human life on earth is conditioned and*

---

unfree, and when man recognizes this limitation and makes himself dependent upon the harmonious and beneficent forces of the cosmos, he achieves success. The cow is the symbol of extreme docility. By cultivating in himself an attitude of compliance and voluntary dependence, man acquires clarity without sharpness and finds his place in the world- I Ching, Richard Wilhelm

This trigram is located on the southern part of the “Later Heaven Arrangement” it represents midday (12 noon) and the season of summer. The yang line is situated below and above the only yin line (middle), it representing yang-overcoming yin. The energy created and defused during the previous movement will now reach its peak. This trigram represents fire; the burning, unbalanced force which spreads motion in all directions. As opposed to the pre-conceptual state of thunder, this is a concrete phase.

This is the movement when sound finally overcomes silence. The presence of elements wood and earth are complete and presented in their most raw shapes.

To bring this brutal and raw persona to my composition I researched the ancient Japanese drumming technique of the Taiko drum.

Taiko have a mythological origin in Japanese folklore and appears to be a drumming style of Japanese origin. Historical writings documented young Japanese men being sent to Korea to study specially the drumming of kakko, a drum from Southern China. The drums are similar to the instruments found in Korea and China from shape to ornament. Is believed that Taiko have been introduced to Japan through Korean and Chinese cultural influence. Their function has varied through history, ranging from communication, military action, theatrical accompaniment, religious ceremonies, festival

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performances, and entertainment. In contemporary times, *taiko* drums have been the basis for certain social movements for minorities both within and outside Japan.

**Background Interest in the Taiko**

Sao Paulo (Brazil), which is the city that I was born, contains the largest Japanese diaspora in the world. Many of Japanese cultural influences have merged with Brazilian culture. The *Taiko* was brought to Brazil by the musician Tangue Setsuo in the 1970’s and ‘80’s, and quickly spread through the city and surrounding regions. Subsequently, the *Taiko* mixed with other Brazilian rhythms, such as *Samba*, which created a unique Brazilian *Taiko* fusion technique. I grew up attending to *Taiko* concerts this sound world, which is deeply rooted within me.

**The O-daiko**

In my research I focused mainly in one particular instrument of the *Taiko* set, which is the *O-Daiko* drum. *O-Daiko* simply means “Big Drum” and indeed is the largest drum in the Taiko set. It is usually placed on the very bottom of the stage and vertically placed high in the air, so the percussionist has to play it standing up with both arms raised. The Japanese believe that this drum represents of the primordial sound, or the sound that initiated all other sounds; and also represents the beating of a heartbeat.

**Material and Techniques:**

This movement is in a simple A-B-A form as the following Table 4.2 shows:

**TABLE 4.2: SECOND MOVEMENT FORMAL STRUCTURE**

<table>
<thead>
<tr>
<th>Intro:</th>
<th>A</th>
<th>B</th>
<th>A</th>
</tr>
</thead>
<tbody>
<tr>
<td>mm.1-18</td>
<td>mm.19-70</td>
<td>mm. 71-110</td>
<td>mm.111-145</td>
</tr>
</tbody>
</table>
Through my research on the *Taiko* I came to know the virtuoso performer Eitetsu Hayashi, and started to transcribe some of his *O-Daiko* solos for Bass Drum. I notice some very interesting patterns in his solos and decided to include them in my piece. The result was strong rhythmical lines, which are not necessarily complex in terms of tuplets and metrically speaking, yet are full of accents and changing hand positions which challenging for the performer.

The movement begins with an idiomatic rhythmic cell from the *O-Daiko* (Figure 4.14). This vertical sound object immediately draws the attention of the listener by its very powerful cognitive persona, similar to the effect of the opening motive from Beethoven’s Fifth Symphony. The gesture is the primary motive and propels motion throughout the movement.

**FIGURE 4.14: Second Movement Motive**

These are some examples of rhythmic lines influenced by *Taiko* transcriptions.

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40 Eitetsu Hayashi, taiko drum artist. Born 1952 in Hiroshima Prefecture. In high school he was inspired by the drumming of the Beatles’ Ringo Star and formed a rock band with friends. After moving to Tokyo in 1971 intent on becoming a graphic designer, Hayashi participated in the founding of the Sado Ondekoza taiko drum group. After participating in the formation of the taiko drum group Kodo, he commenced activities as a solo performer in 1982. Hayashi made his solo debut at Carnegie Hall (New York) in 1984. His career has involved numerous overseas tours and performances with orchestras. Beginning with *Manrei* (Man Ray) in 1998, Hayashi has composed and staged a series of concerts inspired by artists, also including Ito Jakuchu and Tsuguharu (Leonard) Foujita. In 2010 he staged and performed the concert *Gassan II*. He teaches as a visiting instructor at Senzoku Gakuen College of Music. Among his writings is the book *Ashita no Taiko-uchi e* (Toward Tomorrow’s Drumming), accessed October 4, 2014, [http://performingarts.jp/E/art_interview/1103/1.html](http://performingarts.jp/E/art_interview/1103/1.html).
EXAMPLE 4.2: Mov. 2, Hybrid Rhythmic Cells, mm.40-41 and mm.66-67

Percussion one to three play these lines showed above, while percussion four and five introduce metallic sounds for the first time. I use the word “insert” to describe exactly what happens on m. 68, when Perc. 4 and 5 start play a two voiced lines on metal pipes and plates (Example 4.3). This moment creates sense of sonic surprise, and represents fire over wood in relation to the wuxin.
EXAMPLE 4.3: Mov. 2, Fire Over Wood, m.55

After this material is presented I extract certain rhythmic values from each of the lines causing them to slowly collapse over time.

Movement 3: Gē

FIGURE 4.15: Earth Ideogram

Background images for composition:

This is the third and final movement of the “Book of Earth.” This trigram comprises only yin, which makes it unique. By doubling this trigram the hexagram K’un is formed. This trigram represents earth/dust for the Chinese, and in the Wuxin it

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42 The second Hexagram in the I Ching.
represents the return to the center before the change to the next trigram, Lake\textsuperscript{43}. The natural quality of this trigram, to be a receiver, depth, and also represents darkness.

To review the path of the piece so far:

– Impulse was created in trigram one \(☰☰☰\), Ėōs; it takes shape, develops and acquires body, emerging from total silence and stillness.

– This impulse turns into energy in trigram two \(☷☴\), Kratos, in the shape of pure sound, by the use of the skin instruments. Energy gathers, accumulates, and explodes.

This explosion, forces energy to retreat and recompose beneath the Earth, emerging as a new impulse; a more mature phase of the energy. This recall occurs in the middle of the cycle, and symbolizes a return.

The diagram (Figure 4.16) illustrates the form of the piece so far.

\textsuperscript{43} See next chapter for Trigram Lake.
Energy moves to the core before steps into the next half of the cycle, *Kosmos Biblos*.

**The Path of the Primordial Sound**

The central focus of this section is the bass drum solo. Clearly so far, the Bass Drum is the main instrument of this first half of the cycle. There are two Bass Drums in the setup, a large one, placed in the back and in upright position, and a medium sized drum, placed in the middle of the setup and in horizontal position. From movement one to three, the soloist travels from the large to the medium bass drum; this is a pre-conceptualized idea to demonstrate, physically, the path from trigrams one to three.

Moving through to a condensed and a diminished size of the instrument represents that the sound is focusing, along the accumulation of energy. When it reaches this point it is at its most concentrated state. The concentration of energy is manifested by the reduction of the setup to a smaller bass drum from which some gestures and previous materials are recapitulated, and than transformed by the soloist.
Material and Techniques:

The raw force of the bass drum:

This movement is in its concept experimentation with an instrument rarely used in a solo setting. It seemed only natural to me that after two movements focused mainly on this instrument that this section would culminate in a solo. This solo was conceived to express one thing: the rawness (dynamics and physical aspect) and richness of timbre of the bass drum.

My initial approach was to dissect the instrument into five parts, where one could extract five distinguish sounds from the drum. The next step was the choice of mallets and beaters, which are divided into two sections:

Mallets: percussion mallets were carefully chosen for each section and the location on the drum to be struck was specified.

Beaters: objects apart from the ordinary bass drum sticks; in this case the use of a splash cymbal, a chain, a bag full of seeds and the human voice as beaters on the skin of the drum. The performance techniques required when playing the bass drum empower the performer to amore intimal level with the instrument, compared to the conventional approach to the instrument.

Figure 4.17 illustrates the segmentation of the bass drum into five parts and the various mallets and beaters used and how those elements are notated, Figure 4.18.
Example 4.4 shows the three wood blocks that are placed beside the bass drum, as in *Kratos* this instrumental doubling between *rim* and *wood blocks* appears once more here:

**EXAMPLE 4.4: Mov. 3, Bass Drum + Wood Blocks, Rehearsal Letter B**
Mallets, Beaters and the Wuxin

Following the previous concept of assigning meaning to each instrumental combination based on the wuxin, and that this movement signifies conversion, the mallets and beaters to signifies different types of elemental combinations.

Table 4.3 describes these combinations:

TABLE 4.3: INSTRUMENTAL AND WUXIN COMBINATIONS

<table>
<thead>
<tr>
<th>Soft mallet + stick</th>
<th>Skin + wood and shell</th>
<th>Earth + fire</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stick + stick</td>
<td>Rim + wood block</td>
<td>Wood + wood</td>
</tr>
<tr>
<td>Soft mallet + superball</td>
<td>Skin + edge of skin</td>
<td>Earth + wood</td>
</tr>
<tr>
<td>Snare mallet + voice</td>
<td>Skin + cymbal</td>
<td>Metal + fire</td>
</tr>
<tr>
<td>Chain + cymbal</td>
<td>Skin + cymbal</td>
<td>Metal + metal</td>
</tr>
<tr>
<td>Seed</td>
<td>Skin</td>
<td>Wood + (wood)</td>
</tr>
</tbody>
</table>

Form

The formal arrangement of Gē is sonically very clear: A, B, A’, B”, C(A+B), D, coda. One can recognize the difference of rhythmic elements, mallet usage between the sections. Figure 4.19 bellow demonstrates the form of Gē as a whole:

FIGURE 4.19: Form of The Third Movement
Interventions

The interventions indicated at Figure the form diagram above represent the sections where percussion 2-5 enter the piece, producing a monothematic gesture each time. This produces a moment where another sound world emerges, as though generated by the resonance of the Bass Drum generates it.

Those sonic blocks can be of different instrumentation for each percussionist, and are based on material from previous movements.

Intervention A and A’:

The first time that perc. 2-5 enter the four players swing metal brushes in the air as loudly as they can in a distinct yet complementary rhythm patterns. At this initial entrance the bass drum is silent in order to enhance the perception of this quiet gesture. This gesture is interesting because there is a polarity between the physical energy required to produce the sound and the quiet amplitude of the sound itself. The second this intervention occurs (A’) the bass drum is playing. Examples 4.5 demonstrates both of these instances:

EXAMPLE 4.5: Mov. 3, Intervention A and A’, m. 27 and m. 46.
Intervention B:

This intervention occurs immediately before rehearsal letter F, at the beginning of section D illustrated on Figure 4.19 above. It generates richer timbre with the addition for the first of the tam-tam, cymbals and marimba. Dark but yet soft drones emerges: these drones continue into the coda.

Example 4.6 demonstrates how this intervention works:
EXAMPLE 4.6: Mov. 3, Intervention B, m. 47

Intervention C occurs during the coda explained below.

Coda

The coda functions to fulfill the needs for lyricism and a more human approach. After its most savage climax (mm.51-58), the soloist calmly takes a paper bag full of seeds. The soloist is instructed to take time so the audience can reflect upon the resonance built by Intervention B. The bag is simultaneously a new instrument and beater, and the soloist experiments with the emerging possibilities.

A mixture of traditional notation to measure the attacks in tempo plus an additional staff of graphic notation instructing of how and where to activate the seed bag. Figure 4.20 illustrates the graphic notation used:
FIGURE 4.20: Seed Bag Notation

At the end of the movement, the soloist tears the seed bag and pours its content on the skin of the instrument, a random sound will emerge from this action; a new instrument (bass drum + seeds).

Intervention C is a recall of the wood trigram that is located right between the movements Ėōs and Kratos. As the intervention A and A’ a very physical gesture.

Example 4.7 demonstrates how this intervention works:

EXAMPLE 4.7: Mov. 3, Intervention C, coda

This is a very special moment in the piece, where all five percussionists finally gather around at the bass Drum, creating which also can be seem as a five point circle. This diagram (FIGURE 4.21) shows how all elements converge to a circle having the wood on top of each trigram, creating than the KHÁOS.
Movement 4: Aiónios

FIGURE 4.22: Lake Ideogram

Background Images for composition:

Joy & Woe are woven fine
A Clothing for the soul divine
Under every grief & pine
Runs a joy with silken twine
Joy & Woe are woven fine


45 William Blake, Auguries of Innocence
This is a transitory moment where the yin line is at the uppermost level of the trigram, and when the two luminous yang lines are pushing the weak bi-parted line downwards.

When perfection is reached in a state of placid grace, this is a reflective moment of the cycle even if perfection is transitory. Therefore, this becomes an ambiguous moment all of sudden, where the thin line between light and darkness, young and old, yin/yang brings beauty and perfection to its most ephemeral state. This phase occurs in between Gē (bass drum solo) and Buthos (marimba solo), and represents the rite of passage. A new phase is initiated in the piece and does not flow attacca from the previous movement, as has been the case so far. This silence between movements symbolizes the change between two very contrasting phases of the trigrams cycle.

As mentioned in Chapter 3 p.21 the soloist follows a path from the most primordial sound to a most complex state. The dense exploration of the bass drum as the sole sound demanded a turning point where pitch material finally emerges. The introduction of the marimba reveals new possibilities of sounds and colors. The combination of silence between the movements, and the introduction of pitched sounds act to delineate this as an important structural moment.

The image of this trigram inspired me to build a series of repeating patterns, based on the numerology of the Yi Jing.

Conceptual form of the trigram and patterns:

To obtain the image of this trigram the soloist represents the fragile yin line, where the marimba develops a series of fifteen tetra-chords over time. To provoke instability in the progression, tremolos are added to the whole line from beginning to end.
To each tetra-chord a microphysical movement is added, which creates an internal layer of counterpoint through voice leadings.

The rest of the ensemble represents the stability of the two yang lines, and is achieved through a series of patterns that occurs on a specific order based on the Yi Jing numerology that was previously chosen and arranged when the structural form of this movement was conceived. These six patterns are a unique sound body within itself. Each one of them has its own tempo, which is based on one of the overall tempo markings of the piece. The instrumental body of the gesture can be based on one instrument or two, and it corresponds to the elements of the wuxin, as demonstrated in Figure 4.23.
FIGURE 4.23: Patterns And Relations With The Wuxin

- **Wood:** marimba
- **Metal:** hard horizontal line
  - 3/4 always... for this gesture
  - hard mallets
- **Water:** vibraphone + tremolos
- **Wood:** melodic ascending intervals
- **Earth:** five times lowest gong
  - Large tom
  - Break Drum

- **Earth:** bass drum
  - B.D. (large)
  - L.R.

- **Metal:** tam-tam
- **Earth:** primordial sound
  - 1/2 tam-tam mallet
  - Tam-tam

- **Fire:** tom tom
  - Metal pipes w/ metallic sticks
  - Surdo drum/break drum

- **Metal:** hard horizontal line
As shown above, those patterns will appear on specific bar numbers based on the numerological conception of the *Yin Jing* used in the movement.

Material and Techniques:

Numerological Structure:

In order to achieve *equilibrium*, this movement is heavily based on a numerological idea that controls the structure of the piece as a whole.

Tempo:

\[ t = (48) + 12 = t + 12 \]

By dividing it into three tempi layers that coexist, the tempo will be the agent that pushes motion forward in a 3D sense of direction in the following layers: 1) Guide layer—this layer is the one that conducts and threads together all other layers of the tempi which the soloist guides. It starts at \( \text{e} = 48 \) and at m.60 changes to \( \text{e} = 60 \) \((48 + 12 = 60)\), and this equation goes on until reaches the mark of \( \text{e} = 108 \). That means the piece never settles in a tempo for too long, but always accelerates in a predictable way. 2) Patterns layer—each of the patterns has its own tempo based on one of the tempo markings from the “guide layer” \((48; 60; 72; 84; 96; 108)\). Regardless of what is happening around, the pattern will always maintain the primary tempo that was set. Some of the gestures can also copy the tempo of the “guide layer” \((p. 66)\). This will cause a disturbance on the overall sense of tempo in this movement, which will generate the third layer of tempo. 3) Overall layer—this layer is the convergence of the two previous layers. It will generate instability, which pushes the motion forward while breaking the stillness, symmetry and predictability of the patterns.
The number of measures in the movement also matches 108, which is 9 (number of musical elements that compose this movement) x 12 (number that represents perfection for the Chinese).

**TABLE 4.4: FOURTH MOVEMENT FORMAL STRUCTURE**

<table>
<thead>
<tr>
<th>mm6-58</th>
<th>m.59</th>
<th>mm.60-70</th>
<th>m.71</th>
<th>mm.72-82</th>
<th>m.83</th>
<th>mm.84-94</th>
<th>m.95</th>
<th>mm.96-106</th>
<th>m.107</th>
<th>m.108</th>
</tr>
</thead>
<tbody>
<tr>
<td>⏳ 48</td>
<td>Accel.</td>
<td>⏳ 50</td>
<td>Accel.</td>
<td>⏳ 72</td>
<td>Accel.</td>
<td>⏳ 84</td>
<td>Accel.</td>
<td>⏳ 96</td>
<td>Accel.</td>
<td>⏳ 108</td>
</tr>
</tbody>
</table>

Patterns:

The patterns keep coming and going in a very organized structure. The occurrence A numeric/equation chart (Table 4.5 and 4.6) dictates the occurrence of the measures that patterns appear.

Magic Square:

**TABLE 4.5: THE MAGIC SQUARE**

<table>
<thead>
<tr>
<th>8</th>
<th>5</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>6</td>
<td>5</td>
<td>1</td>
</tr>
</tbody>
</table>
TABLE 4.6: NUMERICAL STRUCTURE OF THE PATTERNS

<table>
<thead>
<tr>
<th>Percussion 2:</th>
<th>(Wood+metal) [3/9/(3+9)=12/7/(7+9)=16/1/(7+1)=8]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percussion 4:</td>
<td>(water+wood+earth) [8/(8)+4=12/(12)+4=16/(8)+16=24/(8)+24=32]</td>
</tr>
<tr>
<td></td>
<td>(metal+earth)[12/(12)+12=24]</td>
</tr>
<tr>
<td>Percussion 5:</td>
<td>(earth) [{5}/20/(20)-10=10]</td>
</tr>
<tr>
<td>Percussion 4/5:</td>
<td>(fire+metal) [9/7/3{3}*]</td>
</tr>
<tr>
<td></td>
<td>(metal+fire) [15/(15)+15=30]</td>
</tr>
</tbody>
</table>

This order is kept until m.108 is reached. Naturally, some patterns will not finish their complete cycles more than one time, yet this is expected to happen.

Harmonic Material of the Marimba:

Figure 4.24 illustrates the roll of fifteen tetra-chords, which also illustrates the voice leading for each one of them (except for VI and XIV).
Notice that chord “VI” is at the center of the diagram. This is because it is placed on mm.53-54, which is the exactly the middle of the piece. It is marked by a melodic movement at the marimba to sonically reinforce that the piece is moving to its second half.

The third percussionist enhances the voice leading of the marimba by reproducing it on the vibraphone. Soft mallets and motor on are asked from the player so that the timbre blends organically with the marimba. This blend will generate a wood + water motion that is the sound body that leads to the next trigram, water.
Movement 5: Buthos

FIGURE 4.25: Water Ideogram

In this trigram, the lines form an opposite ideogram from Fire. Based on this visual analysis, one can assume this figure represents the very opposite, the element water.

Here the yang line is surrounded by darkness (composed by two yin lines); the vectors point towards the inside, and it is a representation of the state of melancholy, reflection, and inner search. It is unpredictable, so no wonder this moment is the menace of winter for the Chinese. For Western psychologists, it can symbolize the subconscious or the abyss of the mind. This trigram represents the second son of Earth (kūn), and the trigram is the closest in relation to it. Therefore, it shares the quality of penetration of its predecessor trigram, and it is located at the very north region of the Wuxin King Wen Pa Kua. That means that it corresponds to the moment where maturity is at its most advanced stage; for those reasons, I judged this as the perfect moment for the soloist to perform a marimba solo.

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Unlike Earth, which is penetration, stillness and concentration, water for having the unique yang line hided in the middle has the active capacity of malleability. The ability to bend, adapt and change vector directions with a organic nature combining penetration with malleability this element reaches the capability of flow. Flow and malleability reaches the quality of endless movement. Endless movement and malleability is shapeless, a flowing river underneath the ground.

The famous Sino-American movie star from the 1960’s, Bruce Lee, has an anthological quote about the water.

*Be like water making its way through cracks. Do not be assertive, but adjust to the object, and you shall find a way around or through it. If nothing within you stays rigid, outward things will disclose themselves.*

*Empty your mind, be formless. Shapeless, like water. If you put water into a cup, it becomes the cup. You put water into a bottle and it becomes the bottle. You put it in a teapot, it becomes the teapot. Now, water can flow or it can crash. Be water, my friend.*

Background images for composition:

To bring the philosophical concept of this complex trigram to the sonic world, four gestures were crafted to represent the nature of water.

**Gesture I**

The piece starts with an opening gesture, which is too small to be called a “theme” by Western Classical analysis standards. It is built by two triton intervals. This interval was intentionally chosen because of its unique quality of being in the center of the twelve-tone role. This sonically centered-verticalization gives a sense of both hardness,
and stillness to this prime gesture; which evokes the need for compensation (movement) by the following material.

In an analysis through the lens of the *Yi Jing*, this gesture (Example 4.8) represents the middle line between the two elemental trigrams heaven ䷀ and earth ䷁, for it contains the verticalization of the first and the centralization of the second.

**EXAMPLE 4.8: Mov. 4, Gesture 1, m.1**

Gesture 2

It represents the *yang* line of the water trigram ䷆. It is a visually horizontal vector and sonically agitated by its uneven pulsed rhythm that evokes the *yang* impulse toward creation as illustrated in Example 4.9.

**EXAMPLE 4.9: Mov. 4, Gesture 2, mm.4-7**

Gesture 3

In Example 4.10, tremolos enhance this melodic line composed by dyads, which is a sonic metaphor representing the flow of water.
Finally, Example 4.11 illustrates this fourth idea, which is also based on a melodic line, yet the vector always goes downward. This gesture represents the motion and penetrative power from the element water.

EXAMPLE 4.11: Mov. 4, Gesture 4, mm.10-11

Another way I found to represent this trigram is to use the tempo markings to create small oscillations that are required from the soloist through out the piece.

Tempo Markings:

The tempo mark of the piece starts at $\text{\textit{q}}=84$ (7x12 like in the previous movement), after eight bars, it drops twelve points in the metronome scale to $\text{\textit{q}}=72$, and again after eight bars. The tempo is dropped to $\text{\textit{q}}=60$ to create the image of the water’s slow descent into the earth.

Inner oscillations:

To give a sense of freedom and randomness to the sonic perception of this movement, a series of small and not measured tempo oscillations are required from the
performer. The soloist has to interact with the score while bringing their own perception of time revealing the true purpose of this movement.

Space is created for the unpredictable to happen, but in small portions, and without breaking the macro-flow of the piece. A bracket is used to cover the expected length of notes that they will cover those oscillations as illustrated in Figure 4.26.

**FIGURE 4.26: Excerpts of Oscillations**

![Excerpts of Oscillations](image)

The surrounding *yin* lines:

In the third movement Earth, the ensemble (perc.2-5) is inserted over/around the bass drum solo as fragments of soundscapes that are placed on pre-determined “sweet spots”. Although interventions by the ensemble are also made in the marimba solo, I used a different approach this time.

In this trigram, as mentioned above, the two *yin* lines encompass the inner *yang* line and covering it with shade, hazing its borders, and are represented by the ensemble. Perc. 2-5 enhances the sonic richness of the marimba by hazing its own borders with *ostinato* and punctuations on key points of the solo.

The instruments that compose the set are tam-tam, nipple gong, vibraphone and two buckets full of water.
The large tam-tam (m.1-) and nipple gongs + medium tam-tam (m.9/ mm.13-16/mm.31-36/ mm.54-57) are borrowing the sound objects previously used on the interlude Heaven. Given the continuity of the atmosphere previously formed, the vibraphone (mm.13-15) builds the sonic bridge from metal to water. The choice is made to have the concrete sound of water applied to the texture, and perc.2 and 3 are asked to blow into a bucket of water (m.29-) with a large straw in order to achieve a bisbigliando-type of texture.

EXAMPLE 4.12: Mov. 4, Water Bucket, m.29

<table>
<thead>
<tr>
<th>Percussion 2/3 Water Bucket</th>
</tr>
</thead>
<tbody>
<tr>
<td>*with a straw, blow air into the water bucket with a sense of bisbigliando</td>
</tr>
</tbody>
</table>

Materials and Techniques:

These 4 gestures are presented in this order: Gesture 1 (mm.1-2), gesture 2 (mm.4-7), gesture 3 (mm.8-9) and gesture 4 (m.11). Those are the main materials of the piece, which will be developed and combined through the line of time.

The developments and combinations applied to the gestures are:

- Interval augmentation and contraction
- Melodic augmentation and contraction
- Rhythmic augmentation, contraction and permutation
Combinations:
The following Table 4.7 will map the gesture combinations used and how they formalize the piece as a whole.

**TABLE 4.7: Map Of The Gesture Combinations With The Wuxin**

<table>
<thead>
<tr>
<th>MM.</th>
<th>Gesture#&amp;Combinations</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>II+III</td>
</tr>
<tr>
<td>11</td>
<td>IV</td>
</tr>
<tr>
<td>15</td>
<td>IV (treble staff)</td>
</tr>
<tr>
<td></td>
<td>I+III (bass staff)</td>
</tr>
<tr>
<td>24-26</td>
<td>II+III</td>
</tr>
<tr>
<td>28</td>
<td>III+IV</td>
</tr>
<tr>
<td>41-44</td>
<td>I+III</td>
</tr>
<tr>
<td>44</td>
<td>III+IV</td>
</tr>
<tr>
<td>45</td>
<td>II+III+IIV</td>
</tr>
<tr>
<td>46</td>
<td>II+III</td>
</tr>
<tr>
<td>49</td>
<td>I+III</td>
</tr>
<tr>
<td>50</td>
<td>III+IV</td>
</tr>
<tr>
<td>56</td>
<td>II+III</td>
</tr>
</tbody>
</table>
Conclusion

Yet the content is indeed challenging for someone that is not familiar with it, I hope that the reader had a pleasant and revealing journey through this essay like I certainly did.

Immersing in the project of \textit{KHÁOS}, indeed the most audacious composition of my life so far, I found myself many times in total darkness, but relying on my instincts I found new techniques within myself to overcome my obstacles and insecurities.

Mutation is in everything, is the only permanence in nature, the \textit{Book of Changes} revealed this reality to me, but then again it existed prior to the book. In the end, one can find many doors that lead to the same insight, maybe through other names and conceptions. What is important to me is how my external influences and references from the Far East to the West impact the way I organize Sound.

Silence is the true state of nature, it is deep in the void that reality emerges, a white canvas with no emotion, no face. I seek this perfect element in communion, connecting Heaven, Earth and the Human Soul through music, my art, my craft, my passion and my course... and this is my only intent.
APPENDIX A
FULL SCORE

Rodrigo Bussad (b. 1985)

KHÁOS
For Percussion Solo and Quartet

Duration: ca. 27min

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Rodrigo Bussad

KHAÓS

For Percussion solo and Quartet
KHÁOS (Gaea Biblos) Performance Notes
Movement 1 - Êôs

Inventory:

Percussion 1: Bass Drum (Large)
Percussion 2: Sand block on wood board, wood block (2), ten-ton (shared from Perc. 4 set)
Percussion 3: Sand block on wood board (different size), tam-tam.
Percussion 4: Bongos (2), tam-tam (4).
Percussion 5: Tom-tom (shared from Perc. 4 set), sanda drum

Score is coda parte
the listed numbers are related to the same numbers on the score

1. The players will play mostly by proportional notation in this section of the piece. Players 2-5 will follow
Player 1 to trigger most of events; dotted arrows will indicate when events start or stop and the order in
space that they happen.

2. Each player should keep its own tempo independent of the others unless some tempo is given to multiple players.

3. The thick lines indicate that player should keep repeating the previous gesture until the beginning of a
new one or its complete stop (indicate by a vertical line.)

4. The player should follow the shape and direction of the round arrows on skin of indicate instrument.
Sometimes a rhythmic value will be added inside the circle. Marks will be indicated also.

5. With both hands, hold the the sand-paper block and scratch it over a wood board (the wood board should
be at least 1 inch thick and suspended by other wood material.)

6. The player should chose one of the given patterns (but also can shift to another) if will during the time
that the given gesture is lasting) to accentuate the 8th or 16th notes figures.

7. To realize the envisioned gesture, Player 3 will use a metal brush on a spot that is found between the rim
and beginning of the skin of the Timpani. With a finger of the opposing hand, attack the center of the
timpani while at the same time start brushing the region said rapidly while applying pedal in a free and
frenetic way.

8. On rehearsal letter C, players 2-5 should attack the rim of the previous instrument played while
producing a hissing sound with mouth (sax) *Player 5 continues on center of sanda drum.

9. Percussion 2 slowly slides a hard superfine on skin of the timpani following the dynamic indicated.
Movement II – Kratos

Inventory:

Percussion 1: Bass Drum (Medium)
Percussion 2: Bass Drum (shared with Perc 1), wood block (3)
Percussion 3: Bass Drum (shared with Perc 1 and 2)
Percussion 4: Metal Plates (4)
Percussion 5: Metal Pipes (6)

Perc 1-3 share same Bass Drum

Note-heads:

Bass Drum

Movement III – Gē

Score is off paper. The lined numbers are related to the same numbers on the score.

Inventory:

Percussion 1: Bass Drum (Medium), wood block (3), small crash cymbal
(Mallets): Bass drum beater, snare sticks, plastic brush, metal brush, chop stick, small chain and a seed
(paper)
Percussion 2: Marimbas, brushes in the air, bass drum (shared with Perc. 1, chop sticks on rim)
Percussion 3: Cymbals (shared from Perc. 4 set), brushes in the air, bass drum (shared with Perc. 1, chop
sticks on rim)
Percussion 4: Large Tam-tam, brushes in the air, bass drum (shared with Perc. 1, chop sticks on rim)
Percussion 5: Bass Drum (Large), brushes in the air, bass drum (shared with Perc. 1, chop sticks on rim)

Note-heads:

Bass Drum

Seed bag:

1. The upper arrows indicate that Player 1 should apply pressure with the free hand at center of skin, the
   following bracket indicates for how long.
2. Players 2-5 gathers around Player one with metal brushes, swinging it in the air at the rhythm and
dynamic as marked.
3. Players 2-5 gathers around Bass drum (medium) attacking the rim of instrument at the rhythm and
dynamic as marked.
KHÁOS (Kosmos Biblos) Performance Notes

Movement IV - Aiônios

Inventory:

Percussion 1: Marimba
Percussion 2: Marimba, Wood Block (2)
Percussion 3: Vibraphone
Percussion 4: Metal Plates, Nipple Gongs (?), tam-tam (large), Crotales
Percussion 5: Bass Drum (Large), Surdo Drum, Bebek Drum, Tom-tom (3)

This movement is consisted by a mainline (Percussion 1), which sets tempo. The tempos will suffer several accelerando/accelerando alterations during the section (bar 60, bar 72, etc.) Each one of them will set a new tempo. Percussion 2-5 will play in tempo but also in other tempi when asked. This other tempi will be represented in the score in the following fashion:

The box represents the total length of the gesture to be considered. The small note heads indicate that this is a "off tempo" gesture. The tempo mark (ex. 2\textsuperscript{\textdegree}4\textdegree) indicates that this particular gesture has to be always played in this tempo throughout the piece, unless a new box with a new tempo is established.

- Normal sized note heads indicate that player should play in tempo with Percussion 1.

Movement V - Buthos

Inventory:

Percussion 1: Marimba
Percussion 2: Marimba, Wood Block (2), and Water Bucket
Percussion 3: Vibraphone, and Water Bucket
Percussion 4: Nipple-Gongs, Tam-Tam
Percussion 5: Timpani, Ride Cymbal
Metallon

V
Buthos
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