“Metric Structure of the compositions by Miles Okazaki”

~ an analysis of the pieces from album Mirror ~

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## Table of Content

Introduction.................................................................................................................. 2

Chapter 1: An Analysis of “Theme I”.............................................................................. 3
  1.1 Rhythmic Analysis of “Theme I” ........................................................................... 3
  1.2 Harmonic Analysis of “Theme I” .......................................................................... 5

Chapter 2: An Analysis of “Howl”................................................................................. 6
  2.1 An Analysis of “Howl” Theme A ........................................................................... 6
    2.1.1 Rhythmic Analysis ......................................................................................... 6
    2.1.2 Harmonic Analysis ....................................................................................... 8
  2.2 An Analysis of “Howl” Theme B ........................................................................... 8
    2.2.1 Rhythmic Analysis ......................................................................................... 8
    2.2.2 Harmonic Analysis ....................................................................................... 9
  2.3 The Relationship between Theme A and B ......................................................... 11

Chapter 3: Other Compositions in Album Mirror .......................................................... 11
  3.1 An Analysis of “Spiral” ....................................................................................... 12
  3.2 An Analysis of “Mirror I” ................................................................................... 13
  3.3 An Analysis of “Volcano” ................................................................................... 13
  3.4 About “Invention” .............................................................................................. 15

Chapter 4: Mixture of Jazz and Classical Music ............................................................. 15

Chapter 5: Summary ..................................................................................................... 17

Appendix.......................................................................................................................... 19

Bibliography .................................................................................................................... 20
Introduction

From the late 19th century, composers/performers have been trying to find a new way of expression through the music in both jazz and classical world. Some have cooperated pre-exist style with newer idea or idea from ethnic music. Others have been experimented to discover a new concept of harmony, rhythm, and timbre such as Schoenberg, Elliot Carter, and John Cage. It seems that all the innovations ended up with free jazz and serial music since music after those are more mixture of a variety of musical styles. Because the concept of harmony is maximally expanded in both free jazz and serial music, there is only few space to experiment. Thus, contemporary composers more focus on the rhythm and timbre. American jazz guitarist/composer, Miles Okazaki released the revolutionary debut album *Mirror* in 2006, which he described as “my goal in writing the music for this album was to offer the listener a selection of rhythmic compositions that attempt to imitate the blending of formal order and organic beauty of form found in nature.” On this paper, I will provide the analysis of “Theme I” and “Howl” from album *Mirror* to present how he utilizes mirror concept in rhythm and harmony as a structure of the piece to create a unique sound. Then focus on rhythm as a structure in other pieces.

Miles Okazaki is an American musician based in New York City. He is known for his technical command of the guitar, his rhythmic approach to improvisation and composition, and his work in contemporary music theory. Okazaki was born in 1974 and grew up with artistic family, his mother was a painter and his father was a photography professor at Washington State University. He started playing classical guitar at age 7 then start gigging regularly with electric guitar at age 14. He had been attended several jazz workshops but never officially trained it before he enrolled Manhattan School of Music, New York, as his Master’s degree in 1997. While

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1 Miles Okazaki, liner Notes, “Mirror”, Self Produced, 2006
2 Miles Okazaki, “about”, website; http://www.milesokazaki.com/biography/
3 Ibid
he was earning his bachelor’s degree at Harvard University, “he was interested in math and physics.” After he finished the Julliard, Okazaki spent four years on the road with vocalist Jane Monheit, while also writing and rehearsing the music for his first album. He placed 2nd in the Thelonious Monk International Guitar Competition in 2005. Okazaki currently teaches guitar at the University of Michigan and released his first book *Fundamentals of Guitar* in 2015. He has been studied wide variety styles of music including traditional/contemporary jazz, classical music, North and South Indian, African, Middle Eastern and Brazilian music. It is shown in his albums, which are each loosely tied to a musical concept *Mirror* (2006) as a story of rhythm, *Generations* (2009) as a story of harmony and *Figurations* (2012) as a story of melody. Okazaki recently released a new album *Trickster* in March 2017.

**Chapter 1: An Analysis of “Theme I”**

**1.1 Rhythmic Analysis of “Theme I”**

As Okazaki described rhythm as "All of the music is pretty rhythmic. The question is whether the rhythm is focused on rhythm or if the rhythm is more focused on some other element. Rhythm is my primary preoccupation." In addition to this, album *Mirror* draws sonic and technical inspiration from Brazilian popular music, Indian classical and bebop, among many others such as math and architecture. The album *Mirror*, which contains fifteen songs, is a large-scale structure of three “suites,” each beginning with a version of the “Theme” and progressing through four more compositions that relate to the direction of that theme.

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6 Ibid
7 Ibid
8 Ibid
9 Ibid
Album *Mirror* starts “Theme I,” which shares a basic idea with “Theme II” and “Theme III.” After the count off in various languages, accompaniment guitar and bass drum are introduced. Bass drum keeps quarter note throughout the song, while accompaniment guitar, bass clarinet 1 and bass clarinet 2 are added on each repeat. Even though metric cycle is written in four measures of 4/4, rhythm pattern of these accompaniment parts consists three 9/8 plus one 5/8 (Figure 1). Accompaniment 9/8 parts can be divided 5/8 and 4/8 (Figure 1 and 2). Since all of the rhythmic grouping is highly syncopated, it is hard to feel common time without hearing quarter-note played by bass drum. Finally, syncopated melody is introduced by guitar. This melody seems not to have any pattern at first glance, but as Okazaki mentioned in the liner notes, it is palindrome axis between the second and third measure (Figure 3). This syncopated palindrome melody seems not to relate with other accompaniment parts, but it is. Alternation of 5/8 and 4/8 is making metrical symmetry on 4/8 in the middle and it matches with palindrome melody (Figure 4).

![Figure 1 9/8 + 9/8 + 9/8 + 5/8 in Theme I](image)

- 5/8 highlighted on red in Figure 4 (ignored compounded pitch “D”)

![Figure 2 Internal Grouping in 9/8 accompaniment in “Theme I”](image)

- 4/8 highlighted on green in Figure 4 (ignored compounded pitch “Db”)
1.2 Harmonic Analysis of “Theme I”

Harmonically “Theme I” is based on the descending three major triads (D, Bb, and Gb), which apart interval of a major third. Since those major triads outlined on the augmented triad, the primary structure of the song is same as Coltrane’s “Giant Steps.” The difference between “Giant Steps” and “Theme I” is that triads are overlapping each other and Gb major triad bridges over the bar lines, then other two chords fill in the gap in “Theme I” (Figure 5). The other difference is that Okazaki puts a major pentatonic scale on each major triad, which gives four sets of total 15 notes patterns, but since each major pentatonic scale overlaps one note (D, Bb, and G), it establishes four twelve-tone rows. Thus, the first half of the melody presents row 1 and row 2 in prime order, and the second half presents row 2 and row 1 in retrograde (Figure 6). The all pivot pitch between the chord change is root and third of each chord to emphasize the harmonic difference (Figure 6).
Even Okazaki combines contemporary classical techniques such as twelve-tone rows and palindrome as well as an odd grouping in the accompaniment part, song does not lose the cohesiveness because melodic, harmonic, and rhythmic structure are all based on mirror form on top of four measure of 4/4 time. Steady quarter note played by bass drum also unites each part and support the cohesiveness.

Chapter 2: An Analysis of “Howl”

2.1 An Analysis of “Howl” Theme A

2.1.1 Rhythmic Analysis

The fourth song “Howl” represents the mirror concept of the “Theme I” in both rhythmic and harmonic context. There are two sections in this song: theme A and B. Theme A intro starts
with funky guitar riff on combination meters: \(8/8 + 7/8 + 6/8 + 5/8 + 4/8 + 5/8 + 6/8 + 7/8\). The bass drum accent on the first beat of each measure with quarter-note hi hat is added on the second cycle. These grouping of notes pattern shows symmetry around 8/8 and 4/8 (Figure 7). This total 48 eighth-note cycle is transformed into six measures of 4/4, then eventually converted into four measures of 12/8 (Figure 7). The Alto and soprano saxophones are introduced for the third time on the second line, which helps the modulation smoother because three beat cycles on 4/4 become two dotted quarter notes in 12/8: \(\underline{\underline{\text{d}}}=\text{d}\). (Figure 8). Since this song has funk feel, drummer keeps backbeat on beat 3 in 4/4 and big beat 2 and 4 on 12/8 (more like shuffle). This backbeat ties symmetrical rhythmic structure as well as the metric modulation from 4/4 to 12/8. Thus, even though eighth-note stays exactly same, the audience feels 12/8 part 4/3 times faster than 4/4 because of the proportional change of the backbeat. 12/8 part of the theme A also serves sort of cadential point because it is only part of the music based on standard four measure cycle with a clear melody played by saxophones.

**Figure 7** “Howl” theme A - Rhythm structure
2.1.2 Harmonic Analysis

Harmonically theme A is based on slash chord theory. The bass notes are placed at the beginning of the rhythm cycle then two voices of the upper triad move half or whole steps to next chord with one common tone. An upper chord progression is also based on the descending and ascending circle of 5th besides Bb to Db. Interestingly, Okazaki puts lowest and highest note of the bassline matching with the axes of rhythmic grouping. It creates nice arch shape as it shown in Figure 9.

![Figure 9 “Howl” Theme A - Harmonic Structure](image)

2.2 An Analysis of “Howl” Theme B

2.2.1 Rhythmic Analysis

The rhythmic structure of theme B (intro) is shared with the same mirror concept with theme A (Figure 10). The groups of the note increase then decrease in theme B (intro), which
axes around 6/8 and 10/8 measure: 6/8 + 7/8 + 8/8 + 9/8 + 10/8 + 9/8 + 8/8 + 7/8. This is opposite of theme A, which the groups of note decrease first then increase. Same as theme A, theme B (intro) is transformed into 4/4, but since the total numbers of eighth-note in each cycle are 64, it turns into eight measures of 4/4 in this case (Figure 10).

![Figure 10 “Howl” Theme B - Rhythmic Structure](image)

2.2.2 Harmonic Analysis

The harmonic structure of theme B also based on the mirror concept. Same as “Theme I,” harmony is the axis around the Gaug/C and Gaug/E. Both bassline and upper chords are mirroring around 6/8 and 10/8 rhythmic grouping (Figure 11). While upper chord alternating G augment and G major triad, the bass line indicates another harmonic structure. Bass notes presents three minor triads (Cmin, Abmin and Emin with pitch “G” from upper chord) Each bass line minor triad is major third apart same as “Theme I” (Figure 12).

This piece also is a good example of how composer is taking advantage of using slash chord. As you can see in Figure 13, most of the slash chords contain half-step conflicts between
bass and upper triad, which allows creating unconventional harmonies including dissonances. Even though Okazaki utilizes unconventional harmonies using slash chord, it still keeps cohesiveness as a chord progression because he follows the rule of keeping at least one common tone to next chord. (In this case, there are two common tones)

Figure 4 “Howl” theme B - Harmonic Structure 1

(G is borrowed from upper chord)

Figure 5 “Howl” theme B - Harmonic Structure 2

Figure 13 Half-Step Conflict Between Bass and Upper Triad
2.3 The Relationship between Theme A and B

It does not seem to have any relationship between the theme A and B since those melodies are presented in completely different musical context, including the meter, number of the measures and harmonic progression. But theme B is an actual representation of theme A. Both melodies are consisted by twenty-two notes and have relatively similar melodic shape (Figure 14). It also has similar transposed duration and fits in the measures in same matter. This seems to be another compositional technique to maintain the unity of the work.

![Comparison of Melodies “Howl” Theme A and B](image)

Chapter 3: Other Compositions in Album Mirror

As it quoted previously, this album is a presentation of the rhythmic compositions. Okazaki explains his idea of this album as:

*Mirror* was born out of a series of rhythmic investigations that I began some years ago which began taking the form of a group of rhythmic studies, disguised as tunes. In planning this recording, I wanted to create a highly structured piece of music that would have some sort of internal logic.\(^\text{11}\)

This idea is well presented throughout the album. Though his harmonic language is unique, I will focus on analyzing how he utilizes the rhythm as a structure in the other pieces in the album.

\(^{11}\) Okazaki, Liner Notes, “Mirror”, self produced, 2006
3.1 An Analysis of “Spiral”

Okazaki uses at least a few methods to create the rhythmic structure. The first one is the architectural math and the second one is North and South Indian tala. The second song “Spiral” is the most experimental song on the album. It is a mixture of the math and Indian beat cycle concept into the various subdivisions, such as sixteenth-note, quintuplet, sixteenth-note-triplet, and seven-triplet. Okazaki mentions about this piece that “we were never able to perform live because it was just too difficult. It was basically a studio creation.” Even though it is made for experimentation and studio use, this incredibly complex form of music presents some of his thought. The drummer keeps backbeat on the second and fourth beat while he plays memorable motivic figure, three hi-hats following after two bass drum, with a ridiculous grouping of notes in various subdivisions. Since they play in tempo, subdivision change by drummer makes the music feeling speeding up or slowing down because main motif pattern is compressing or stretching depending on the subdivisions. The backbeat throughout the work is the only stable part and it seems that he tries to have some obvious unity to organized the incredibly complex music not to lose some catchiness.

12 Okazaki, Liner Notes, “Mirror”, self produced, 2006

“Spiral” is composed entirely from a rhythmic theme of 5 strokes, heard in the drums and percussion as “low low high high high.” This pulse is continuous throughout, but expands and contracts and moves through many variations. The basic expansion of 5 strokes into 6,7,8 and 9 is done by adding spaces in the pattern: 5=(x x x x x), 6=(x x – x x x), 7=(x – x – x x x), 8=(x x – x – x – x). The structure in the first section outlines the basic expansion of 5 strokes into 6,7,8 and 9 units, with three of each type followed by an ending (5,4,5,4,5). The structure on the bridge is inspired by a type of rhythmic composition found in South Indian music called “Korvai,” where an identical rhythmic composition is played in several speeds and is calculated to finish at the end of the rhythmic cycle, in this case 32 cycles of 4 beats. Here the rhythmic composition is 210 units long, which divides into 5,6, and 7 subdivisions per beat. The triple repetition of 5,6,7,8,9 is continued, and reduced to double, and then single before moving on to the next speed. It is followed by a short three-part ending. The structure of the ending is (7,7,6,5,5,2,2,2) in three descending speeds. The last speed serves as a rhythmic modulation, returning to the top of the form, slightly faster. The melody, played by soprano saxophone and guitar, outlines the basic structure of the rhythmic composition with five different types of phrases, corresponding to the five rhythmic expansions. The phrases get closer together and eventually join into a continuous line. The beginning of each phrase is accented by the crash cymbal. The constant underlying pulse in 4/4 can be heard in the backbeat played by the snare drum and electric guitar. The entire form could be endlessly repeated, accelerating each time through rhythmic modulation, as there is no real beginning or end. The harmony of the piece is closely related to “Mirror,” which follows.

13 Lehner, “Miles Okazaki: Cleaning the Mirror” interview by author, all about jazz, Published: August 28, 2012
3.2 An Analysis of “Mirror I”

“Mirror I” continues with the rhythmic feel of “Spiral,” using a continuous cycle of 5,7,9. It means that song is written in 21/8, but its inner grouping is 5/8 + 7/8 + 9/8. It is based on grouping of 5,7, and 9 eighth-notes, but it is specifically consisted by 2,3 + 2,2,3 + 2,2,2,3. (Arabic numerals indicate the number of eighth-notes as a group) Each time one “2” is added (Figure 15). Brad Walseth mentioned that "Mirror I" has South American-influence in his review, but it is more close to Afro-Cuban style. 2,3 + 2,2,3 part is exactly same as 2-3 clave in Afro-Cuban 6/8 pattern. This total twenty-one eighth-notes pattern can be divided into 12/8 + 9/8, which is based on four dotted-quarter notes plus three dotted-quarter notes (Figure 15). Two measure of 21/8 pattern is fundamental structure of this piece and chord is placed on the first “2” of grouping 5,7, and 9. This structure is maintained throughout beside the coda, which modulates to the combination of the duple meter.

![Figure 15 “Mirror” Rhythmic Structure (2,3 + 2,2,3 + 2,2,2,3)](image)

3.3 An Analysis of “Volcano”

Contrasted with “Mirror I,” which is based on the idea of increasing the number 5,7,9, “Volcano” builds on the idea of decreasing the number. Okazaki describes that “Volcano” is a cycle of three threes [3/2, 3/4, 3/8] (Figure 16), which gradually builds to an explosive level of volume and density. While bass maintaining [3/2, 3/4, 3/8] pattern throughout, Okazaki puts a melody based on 6 sixteenth-notes. This melodic motif is doubled and tripled when it is repeated

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14 Lehner, “Miles Okazaki: Cleaning the Mirror” interview by author, all about jazz, Published: August 28, 2012
15 Brad Walseth, review of “Miles Okazaki “Mirror””, Jazz Chicago.net, http://www.jazzchicago.net/reviews/mirror.html
to create a theme A (Figure 17). In theme B and C, a basic grouping of the sixteenth-note in the melody is doubled and tripled to 12 and 18. Thus, the length of the primary rhythm cycle [3/2, 3/4, 3/8] is double and tripled, too (Figure 17). This melodic structure presents contrary rhythmic motion between primary rhythm cycle because primary rhythm cycle [3/2, 3/4, 3/8] is reducing the duration, but the melody is increasing the value.

Interestingly both “Mirror I” and “Volcano” is placed on the third song of the first and the third suite and it is based on 21 eighth-notes per cycle. “Volcano” also connects to the next song of the album “Mirror II,” which is also based on 21 eighth-notes per cycle. This evidence seems to be Okazaki’s intention to keep compositional cohesiveness throughout the album.

![Figure 16 “Volcano” BassPattern](image16)

![Figure 17 “Volcano” Rhythm Cycle of Melody](image17)
3.4 About “Invention”

The first suite is concluded by “Invention.” This piece shows Okazaki’s keen interest in mathematics and music. The entire piece is based on “Fibonacci series.” It starts with 1 beat motif plus 1 beat rest, 2 beats plus 1 beat rest, 3 beats plus 2 beats rest to 55 beats plus 34 beats rest. (1:1, 2:1, 3:2, 5:3, 8:5, 13:8, 21:13, 34:21, 55:34) 2 eighth-note motif, presented at the beginning, exists throughout the sequence but it keeps developing with growing beat proportion. It finally turns into tabla solo when golden ratio proportion gets 89:55.

Chapter 4: Mixture of Jazz and Classical Music

As Okazaki mentioned above album Mirror is a representation of rhythm, but it seems that there is a secondary theme, which is the mixture of jazz and classical music as an album. There were many experiments to collaborate jazz and classics such as Third Stream and postmodern jazz, but it was not successful in most cases. His intention of fusion of the styles can be seen in the liner notes of the album: “the beginnings and endings of each section of the record are loosely based references to John Coltrane and J.S. Bach.16

Improvisation is one of the prominent jazz elements, but unlike traditional fashion, Okazaki puts improvisation solo over the relatively intricate structure. Ten out of fifteen songs have solos. Other five songs, which include “Theme I, II, and III,” are all through-composed. Interestingly he orders a theme and solos traditionally most of the time. This seems the very important aspect of the compositions because since his music are complicated and if a musical order presented in unusual style, music will lose common sense. Okazaki talks about the improvisation in the liner notes of Mirror.

I am an improvising musician, and have to make material with some freedom for movement. Therefore, as the performance progresses the listener will find that all

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16 Okazaki, Liner Notes, “Mirror”, self produced, 2006
composed material is balanced by improvisational sections, although not always in a very traditional or expected order.\textsuperscript{17}

His great respects to the John Coltrane reflect the song “Improvisation,” which is based on the Coltrane’s “Countdown” and only song Okazaki directly quoted. The album title “Mirror” is come from Coltrane’s message “cleaning the mirror.”

‘There is never any end. There are always new sounds to imagine, new feelings to get at. And always, there is the need to keep purifying these feelings and sounds so that we can really see what we've discovered in its pure state. So that we can see more and more clearly what we are. In that way, we can give, to those who listen, the essence, the best of what we are. But to do that at each stage, we have to keep on cleaning the mirror.’\textsuperscript{18}

His respect to Coltrane is also shown in the “Theme,” which is the beginning of each suite. Okazaki took the structure of Coltrane’s “Giant Steps,” which is based on the outlined augmented triad, into his compositions. This use of augmented triad may represent Coltrane’s “There is never any end” idea because augmented triad structure shows “never end cycle.” This “never end cycle,” which is also related to Indian cycle idea, can be seen in the largest structure of the album; “the last song “Chorale” ends on a D major triad, the same chord that began the record.”\textsuperscript{19}

“Invention”, “Canon”, and “Chorale”, which are placed the end of each suite, clearly indicate his classical influences. Okazaki explains “Canon” “as “The melody is a version of a “Crab Canon,” a type of composition by J.S. Bach where the melody is played forward and then backward on top of itself to create symmetrical counterpoint.”\textsuperscript{20} With these direct influences

\textsuperscript{17} Okazaki, Liner Notes, “Mirror”, self produced, 2006
\textsuperscript{18} Lehner, “Miles Okazaki: Cleaning the Mirror” interview by author, all about jazz, Published: August 28, 2012
\textsuperscript{19} Okazaki, Liner Notes, “Mirror”, self produced, 2006
\textsuperscript{20} Ibid
from Bach, his use of nylon guitar and 12 tone-row usages make his work “chamber-like compositions.”

Chapter 5: Summary

After analyzing Okazaki’s works, a question comes up. “Why do his compositions seem to be successful compared to some other experimental music, even he also uses twelve-tone technique and mathematically calculated rhythms?” The first reason should be “common sense,” which includes steady beat and recognizable form. Since ensemble always plays in a steady beat, audiences are always able to feel referential time. It also helps that drummer often keeps the backbeat to reinforce the common meter over the mirror rhythmic grouping and harmonic structure such you can see in “Spiral” and “Howl.” Okazaki also incorporate the traditional theme and solo form to make a listener to be able to recognize the form of the song, even musical materials are relatively complicated. The other reason is that he treats all compositional techniques as a part of a structure. Most of the serial composers use serialized rows and rhythm as a piece of a puzzle, which is united few together but not consistently. In the other word, “rests” are ignored as a part of a structure. Okazaki contrastingly utilizes all compositional techniques as a structure as shown above, which is necessary to improvise over. Thus, his works always have internal cohesiveness, which he explains, “I wanted to create a highly structured piece of music that would have some sort of internal logic.”

As Okazaki mentioned himself, the concept of the album is rhythm, which is presented by a couple of different ways such as mirror concept, math, architecture and Indian rhythm cycles. All of these rhythmic concepts are functioned as a primary structure of a piece along with interesting harmony including such as twelve-tone row and slash chord progressions. These

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21 Milkowski, Bill, review of “Miles Okazaki “Mirror””, Jazz Times, July/ August 2007
http://jazztimes.com/articles/19487-mirror-miles-okazaki

22 Okazaki, Liner Notes, “Mirror”, self produced, 2006
uniformed structures give a space to improvise, which allows him to bridge jazz and classical music primarily because improvisation in the ensemble always needs to have structural form. Though his works are complicated, it maintains cohesiveness since it does not lose some “common sense,” which includes referential time and recognizable form. These internal logics tied with the cycle concept finally unite individual piece to the entire album together.
Appendix

All the score is available on Miles Okazaki’s web site:
http://www.milesokazaki.com/scores/mirror-2006-score/
Under the “Score,” *Mirror* (2006, score)
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