Singa Nebah: Adapting a Javanese Gamelan Composition for a Western Percussion Ensemble

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Abstract

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It has become increasingly common for Western musicians to arrange and adapt music of other cultures for their ensembles. This is especially true for the percussion ensemble where Afro-Cuban, Brazilian, Indian, and other traditions are well represented. Many of these styles of music are well suited to performance by a Western ensemble due to their heavy reliance on drumming and their shared scale systems. The music of Java, specifically the gamelan however, has not seen the same amount of interest. Many students are exposed to Javanese music through college or high school music classes, but they are usually limited to listening to recordings as most institutions do not have the resources to own a gamelan.

The purpose of this study is to create a framework for the composer who wishes to arrange gamelan music for Western percussion instruments. Discussed within are issues such as: instrument selection, tuning, improvisation, and authenticity. These questions are approached carefully so as to represent the original source as accurately and authentically as possible.

Singa Nebah was chosen because it is a widely popular, well known composition in Java. Gamelan music is often mostly improvised and therefore two performances of the same piece may be wildly different. Choosing a composition such as this allows the greatest amount of source material to draw from, as well as a tacit acknowledgement that there is flexibility inherent in the performance practice of the tradition.

The resulting nine minute arrangement attempts to adapt the concepts of performance practice in Javanese gamelan to the Western tradition. While it is impossible or unrealistic to accurately recreate some aspects of the music such as tuning or instruments such as the tuned gongs, decisions on this arrangement are made from the standpoint of practicality and availability of instruments common to a high-school or university. When certain aspects are not practical to reproduce verbatim, they are adapted in such a way that the theoretical concept remains intact while remaining idiomatic to the Western ensemble.

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Overview of percussion ensemble music in the 21st century

The percussion ensemble is a relatively new phenomenon when considered next to other chamber ensembles such as the string quartet or symphony orchestra. While the European symphony orchestra has existed since the 16th century, the percussion ensemble is largely a product of the 20th century. Orchestra's today, then have almost five hundred years' worth of repertoire, including works being written at present. The percussion ensemble however, has only around seventy to eighty years of repertoire composed specifically for it. As such, it's relatively small body of literature has been built quickly, and in parallel with the changing tides of 20th century music. The revolution that was occurring on the concert stages of the Western world was also easily found in the percussion works of composers such as Varese, Cage, Cowell, and Hovhaness.

Many would agree that Varese's *Ionisation* (1931) was the first landmark piece written exclusively for percussion instruments. At the time, this piece was considered an avant-garde masterpiece and is still programmed often today. It is scored for traditional instruments such as drums, cymbals, gongs, and wood blocks, along with some unique additions like the lion's roar and siren. John Cage also found the percussion ensemble extremely important in the early stages of his development as a composer. While working at the Cornish School in Seattle (1939-1940)[1] he began writing music to accompany dancers and at the same time carrying out sound

[1] Williams, Barry M. *The Early Percussion Music of John Cage 1935-1943.* 1990. Michigan State University.

experiments that would inform his later works. He was particularly fond of metallic sounds and the use of found objects as instruments, often exploring junk yards for old automobile parts.

Much of the percussion ensemble repertoire can be said to have followed in the footsteps of composers such as Cage and Varese. Both of these composers helped to develop an appetite for unique timbres among percussionists, and Cage was especially interested in cyclical rhythmic devices which formed the basis for much of his work. These two composers along with Hovhaness, and Harrison set the stage for the establishment of the percussion ensemble as a permanent addition to the concert stage.

In 1939, Lou Harrison heard a live Balinese gamelan at the Golden Gate Exposition for the first time.[2] This would turn out to be a very important influence on him and his music throughout his life. Harrison eventually built his own set of gamelan instruments which he termed his, "American gamelan," on which to perform his compositions in the style. This music is the closest that gamelan music has come to being incorporated into Western percussion repertoire. Unfortunately however, since his compositions were written to be performed on the specific set of instruments he built, they are not widely performed.

[2] Miller, Leta E. Lieberman, F. *Lou Harrison: Composing a World.* (New York, New York: Oxford University Press, 1998) 20.

Purpose

The latter half of the 20th century saw a great rise in interest by Western musicians of music of other cultures. In many colleges and universities the study of "World Music"[3] is required. This is usually a one semester or one quarter class that typically covers the music of the Middle East, India, Southeast Asia, and possibly Eastern Europe with some variation. Universities have increasingly added faculty who specialize in world music. This has led to the formation of many collegiate performance groups dedicated to playing music of certain cultures. A broadened awareness for previously unfamiliar music should be viewed as a positive change for musicians, as it can provide new creative avenues to explore.

The college percussion ensemble is another group picking up the trend of world music, especially from countries like India or regions of Africa which rely heavily on drumming traditions. However, the melodic music which may accompany drumming is often ignored if it does not fit into the Western tuning system. Javanese gamelan is one example of an ensemble which is usually entirely played on percussion instruments, yet is largely ignored by those attempting to adapt world music for Western instruments. There are many reasons for this and while it would never be possible to make an arrangement sound completely authentic, it is possible to create a composition through which the principles of Javanese gamelan can be explored.

While the goal here is to create a piece of music which blends the style of one culture with the instruments of another, it is important to note that the parts orchestrated in this

[3] In quotations here to illustrate the point that this is an over-broad, although widely used definition to describe any music which falls outside of Western culture.

arrangement are not strictly following the norms of gamelan performance. A fully notated piece for instruments which cannot even sound the correct pitches, and performed out of context would only serve to devalue a rich tradition and culture. Instead, this arrangement is best viewed as a creative blending of styles.

In this arrangement many choices have been made to make the music accessible to Western performers, while still trying to retain the concepts of Javanese performance. For instance, in a traditional gamelan the melody is played in the lower registers, and is often not the main focus. This is a contrast from what performers and listeners are accustomed to in the Western classical tradition, where melody is often placed in the highest range with the accompaniment scored below. Until one is used to listening to the lowest pitches for melody, it can be quite difficult to understand what is happening in the music. If the goal is to introduce an audience or performers to the concepts of Javanese music with a limited amount of time to study it, then some compromises must be made in order to make it more easily understood.

The study of gamelan is a vastly rich, yet complex endeavor. Each topic discussed here is deserving of many more pages than is practical or applicable. Since many of these topics are often the subject of heated debate, only the absolute essentials as they apply to this arrangement are included. Readers wishing for more information regarding any of the topics discussed within may refer to the bibliography for more detailed investigation.

Chapter 2: Karawitan—The Classical Music of Central Java

Karawitan is the Javanese word used to define the classical music of central Java which includes gamelan along with other genres. It is a relatively modern term used by Javanese musicians to distinguish their classical music from the traditions of Western classical music.[4] In the European tradition the word, "classical," implies a certain element of tradition, and historical validity. This is not always the case however, when it comes to the music of Java. Since written records and notation only date back to the nineteenth century, musicians are largely constrained by what has been passed down orally through the generations. Additionally, performance practices between courts, cities, villages, and teachers can vary greatly due to the fact that many of these exist in relative isolation from one another. This implication for anyone wishing to study this music is that they may be told one thing by one teacher, only to be taught the opposite by another. This is important to keep in mind, as it reflects a certain element of fluidity within karawitan. As in any teaching moment, there can even be differences found in what a teacher might say, and what they do in practice.[5]

We must keep in mind that when studying at a culture foreign to our own, it is our natural tendency to view it as a static environment, but this is not the case. This is as true for

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[4] Pickvance, Richard, *A Gamelan Manual: A Player's Guide to the Central Javanese Gamelan.* (London, Jaman Mas Books, 2005), 2.

[5] This is important to keep in mind when studying karawitan and is illustrated by a story in Perlman's book, *Unplayed Melodies.* Perlman tells a story of being taught to dampen the gendér on the beat when playing ascending, and after the beat when descending. After being asked about this practice by another musician, he went back to his teacher Sumarsam and observed him play. It turns out that Sumarsam himself did not follow this convention. When confronted, Sumarsam replied that he did indeed dampen this way. Only after he played again did he realize that Perlman was in fact correct. Sumarsam eventually realized that he had learned to play from an early age, but had learned how to teach at the conservatory and had used that pedagogical method to teach Perlman.

Java as it is for any other place in the world, including the United States. Things that are condoned as culturally significant for one generation may be tossed aside for the next. At any time, we are only standing at one end of a long history and thus our view is constrained to what we can observe or glean from written records. It is also worth remembering that "Javanese" may be just as broad a term as "American," since the ethnic make-up of Java has evolved through the centuries to include Javanese, Europeans, Indo-Europeans, Chinese, Arabs, Indians, and Malay.[6]

Another major influence on the development of Javanese culture comes from the import of religion in the forms of Hindu and Islam. The Hindu influence on Javanese culture can be traced to around the 1st century A.D., however the earliest written records pertaining to music come from the 8th-11th centuries A.D.[7] Around the beginning of the 15th century A.D. Islamic influences began to enter Java in the form of Muslim traders. This along with the decline in power of the Hindu Javanese monarchs would eventually lead to something of a cultural shift. Hinduism in Java never ceased to exist, but its influence was greatly diminished by the rising power of Islam. Today both Islam and Hindu exist in Java, as does Christianity along with any religions practiced by various ethnic groups. These are all influences that have played a role in the development of karawitan at one point, and continue to do so today. Perhaps due to the prevalence of the Hindu philosophy of reincarnation, karawitan is organized in a cyclical fashion. Melodies and cycles of metric organization are repeated throughout a composition, and elaborative parts are filled in with improvisation. This is in contrast to most Western

[6] Sumarsam, *Historical Contexts and Theories of Javanese Music.* Cornell University, 1992, 3.
[7] Ibid, 30.

practices where musicians have written notes with a strictly defined beginning and ending to the piece.

When people speak of Javanese gamelan, they are usually referring to the styles that emanate from the cities of Surakarta (Solo) and Yogyakarta (Yogya). These two cities are widely regarded as the standard for performance practice and their influence spreads outwards geographically. In general, Solo is known for its soft style of playing, while Yogya is known for its loud style. The two traditions certainly share a great deal, however there are certain aspects which vary greatly from one to the other. These can include both differences in playing styles, as well as instrument construction, and even different versions of the same compositions.

Court and Social Function

As stated above, gamelan music can be found in many different settings. One of the most prestigious forms of performance is at court, where musicians are called upon to play for dignitaries and royal occasions. These performances are typically reserved for musicians of the highest achievement, and represent the most ideal or refined level of the art form. Each court has variations on certain performance practices and even specific repertoire that belongs to it.

Wayang Kulit

Another popular setting for gamelan music is the *wayang kulit,* or shadow play. During one of these plays, the *dhalang,* or puppet master, will narrate while manipulating the puppets from behind a screen. Below is a picture of the *Five Pandava Brothers of the Mahabharata.*

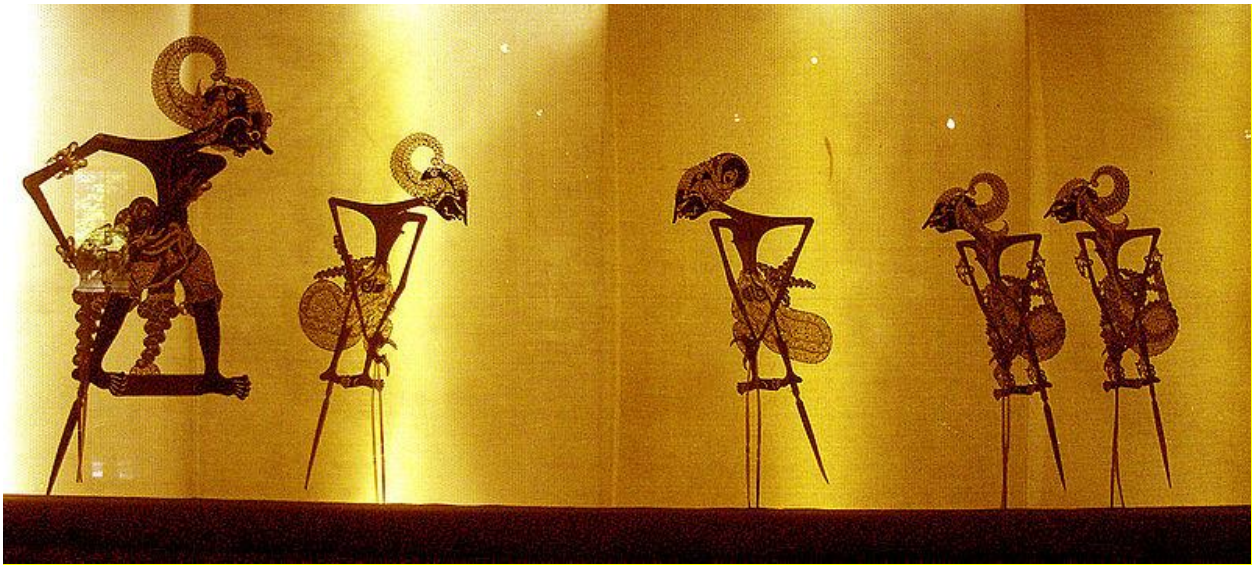


Figure 2. 1

8

A wayang performance typically relies on a story line from the Indian epics, the Ramayana, the Mahabharata, or in some instances the Islamic text, the Serat Ménak.[9] These often begin in the evening and the dhalang must control the pacing of the performance so that it comes to a conclusion before dawn. The puppet master controls the evening through the use

[8] Photograph courtesy of Gunawan Kartapranata. http://en.wikipedia.org/wiki/File:Wayang_Pandawa.jpg#file (Accessed February, 2014).
[9] Sumarsam, *Historical Contexts and Theories of Javanese Music.* Cornell University, 1992. 54

of signals, which tell the musicians which pieces to play and when. These can come in the form of an auditory or visual signal, so the musicians must be vigilant at all times.

Mass Media

As previously discussed, one of the reasons for the abundance of contradictory information regarding karawitan is the historical lack of interconnectedness between large groups of musicians. In the 20th century however, the advent of mass media helped to codify certain elements of performance and repertoire. Cassette tapes allowed musicians to record, trade, and disseminate recordings amongst one another, as did the establishment of the conservatories and academies in the 1950's and 1960's. The first generation of teachers in these institutions were mostly former court musicians and aristocrats with a background in the arts.[10] The period following the establishment of these schools has been one of great productivity, the result of which has been a number of texts and collections of repertoire which were in danger of being lost to time. No doubt much music has already been forgotten, but the conservatories are continuing to preserve and codify this music for future generations.

Perhaps the most influential (if only because of its reach) medium in the 20th century is the radio. Radio Republik Indonesia Surakarta (RRI) is a radio station which is part of a larger network set up after Indonesia won independence in 1945.[11] The station permanently houses a gamelan and performance venue for the general public, and hosts regular music broadcasts for

[10] Brinner, 151.
[11] Brinner, 17.

various events. One important difference between RRI and the courts is that there is a much greater freedom when performing at the RRI auditorium since deference to court practice and tradition is not required. While the radio station employs a regular staff of musicians, amateurs and visiting groups are often heard giving concerts as well.

The popularity of radio broadcasts has also increased the performances of klenéngan, a gamelan performance for the sake of performance, without any accompanying artistic function. Tourism in Java makes for an increasing percentage of income and gamelan is one of the common art forms marketed to this segment. Instead of attending an eight or nine hour wayang performance tourists can take in an hour long concert, though the wayang performance would certainly be more illustrative of Javanese culture.

Chapter 3: Javanese Gamelan

Gamelan music holds an esteemed, yet complicated place in Javanese culture. Just as American jazz is performed in different settings, giving it different context, so too is gamelan music. It may be played for a range of functions such as entertainment, ritual, meditation, celebration, or to mark special occasions.[12] The relationship between the performer, music, and audience is a revolving framework through which the music can be understood. It is important to note that gamelan music is almost never performed solely for the sake of making music. As stated by the British scholar Richard Pickvance, "It has been said that gamelan performances not accompanying dance or drama are the exception, not the rule in Java."[13]

A gamelan, though similar in concept to a symphony orchestra, is an incredibly unique and individual ensemble. Each gamelan is built and handed down through the generations as a complete unit. Even if it were possible to interchange instruments from one ensemble to another, it would not be acceptable to Javanese musicians as each complete set is thought to hold great spiritual power, and is treated as an heirloom.[14] Since all the parts of a gamelan must remain together, Javanese musicians do not typically own their own instruments, but perform on whatever set is provided for a certain function.[15]

[12] Benjamin Brinner, *Music in Central Java.* (New York, New York: Oxford University Press, 2008), 4.
[13] Pickvance, 8.
[14] Brinner, 8.
[15] Brinner, 4.

Overview of instruments

The Javanese gamelan consists of metallophones, membranophones, chordophones, and sometimes a vocalist. The most important instruments in the ensemble are idiophones—the tuned gongs and instruments with metal keys. The most plentiful instruments in a gamelan are the keyed metallophones which are generally responsible for the melody and the elaborative parts. Below is a list of the instruments in a gamelan with pictures for each:

Gong Ageng: These are the largest gongs in the ensemble. They are used to punctuate major colotomic structures. The gong ageng is especially revered as the master of the gamelan. Compositions often begin and end with a stroke of this instrument.

Figure 3. 1

Gong Suwuk: Smaller than the gong ageng, these are used to mark smaller divisions in the colotomic structure. The gong suwuk hanging on the bottom row, furthest to the right in the picture below.

Figure 3. 2

[16]

Kempul: These are a set of tuned gongs which play a melodic role in the ensemble. There would typically be two sets of kempul, one for each scale.

Figure 3. 3

[17]

[16] Gong Suwuk. National Music Museum, University of South Dakota.
[17] Kempul. National Music Museum, University of South Dakota.

Kethuk and Kempyang: The Kethuk is a single kettle shaped horizontal gong, while the Kempyang may consist of one or two gongs. They are both used to punctuate smaller divisions in a composition. The flat topped gong on the left is the kethuk. On the right is the kempyang with the angled top.

Figure 3. 4

[18]

Kenong: These are also a punctuating instrument. The performer would dampen the gongs by hand so that only one pitch is heard at a time.

Figure 3. 5

[19]

[18] Kethuk and Kempyang. National Music Museum. University of South Dakota.
[19] Kenong. National Music Museum, University of South Dakota.

Bonang: These are a tuned kettle shaped gong, played with a cord wrapped wooden mallet. The performer uses two mallets, one to strike a note, and the other to dampen the previously struck gong. There are two sizes, the bonang barung and bonang panerus. Pictured below is the bonang barung.

 [20]

Figure 3. 6

Saron (Demung, Saron, Peking): These are the most important melodic instruments in the ensemble as they play the most basic form of the melody. The demung is the lowest sounding, the saron sounds one octave above, and the peking one more octave above. The peking often plays more elaborate parts based on the balungan. Pictured below is the demung.

Figure 3. 7

[21]

[20] Bonang. National Music Museum, University of South Dakota.
[21] Demung. National Music Museum, University of South Dakota.

Slenthem: This instrument is also very low sounding and often plays the same part as the demung, but sometimes has an independent function.

 [22]

Figure 3. 8

Gendér: This instrument plays an elaborative role based on the melody. It frequently has a range of more than an octave.

Figure 3. 9

[23]

[22] Slenthem. National Music Museum, University of South Dakota.
[23] Gendér. National Music Museum, University of South Dakota.

Kendhang—Drums

The drummer in a gamelan is usually a mature musician and is the de facto leader of the ensemble. He is in control of the tempo and gives various cues to the musicians.[24] Unlike other ensembles, the drummer does not have sole control of the group, but he must have a thorough understanding of the music and practices of each instrument.

The kendhang is usually hand carved from jackfruit with a wider section in the middle and two heads of unequal size. They are exclusively played with the hands and come in three main sizes (largest to smallest): kendhang gendhing, ciblon, and ketipung. The large head on each drum is usually tuned at least a 5^{th} lower than the higher head and drummers often attempt to match this pitch (approximately) with the tuning of the gamelan.

Since these drums are played with the hands, they are capable of producing many different sounds depending on how they are struck. Each drum has its own set of special sounds and strokes, but most are commonly shared between the three. In Java, they are expressed in a system of vocal notation, although they can be written down also. Performing a drum part in gamelan requires knowledge of a number of pre-determined patterns that each serve a different function in the music. Most of these are considered an outline or skeleton, capable of being filled in with extra strokes.

[24] The drummer in a gamelan is almost always male, even in a female group. Gender dynamics play a large role in karawitan and Javanese culture at large. For further reading on this topic see Sunardi's article: *Negotiating Authority and Articulating Gender: Performer Interaction in Malang, East Java.* Ethnomusicology, Vol. 55, No. 1, (Winter 2011) pp. 32-54.

In a typical lancaran composition, an introduction is played by a single melodic instrument. The drummer will join in at a predetermined point so that the last drum note is played with the gong, signaling the other musicians to enter. To ensure that the tempo is clear, the drummer may play a simple repetition of the beat on one drum head for the first cycle, and then play another pattern once the ensemble is locked together rhythmically.

Below is a sample of the main pattern for a composition in lancaran form:

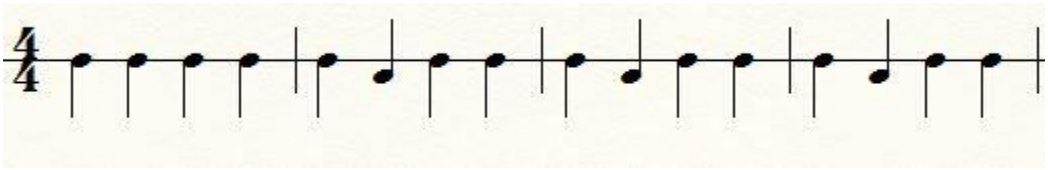


Figure 3. 10

To end the larger melodic cycle, the drummer may play a Salahan pattern, shown below:

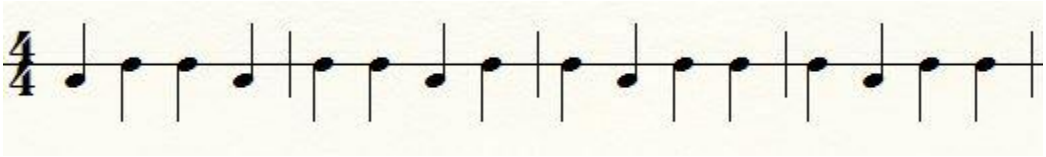


Figure 3. 11

Above is a sampling of instruments commonly found in a gamelan, however each ensemble is different and may contain more or fewer instruments. The important thing is that each instruments function is represented, no matter the instrumentation. There must always be at least one colotomic instrument, one melody instrument, and one elaborating instrument.

In addition to the instruments above, there might be a male vocalist, a female vocalist (Pesindhén), rebab (bowed lute), gambang (xylophone), or other homemade bamboo inventions.

Composition and Notation

Gamelan compositions are mostly improvised using specific guidelines and techniques, and are based on the basic melody. Musicians often learn and memorize the basic melody, or balungan, by rote. There is a system of shorthand used by some Javanese, but mostly it is reserved for foreigners who come to study. It consists of a system of numbers which designate pitch, and symbols above or below each number designating which gong should be struck with that pitch. Unlike in many other traditions, the melody is played in the lower registers, while the elaborations are played in the higher ranges. The melody is usually the only part which might be notated and is written out as a series of numbers which stand for each pitch. Below is a sample of cipher notation for Singa Nebah:[25]

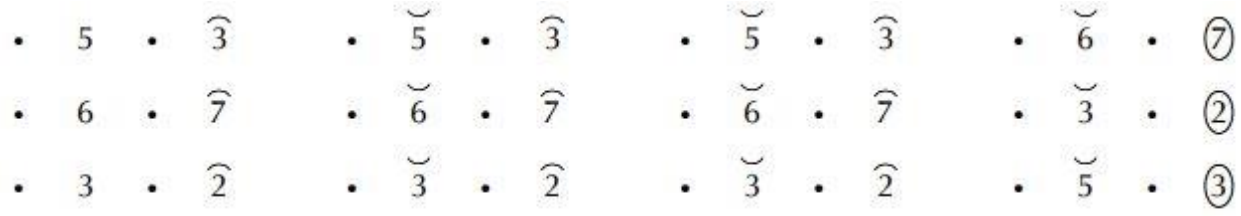


Figure 3. 12

[25] http://www.gamelanbvg.com/gendhing/pdf/p7/Singanebah.pdf

One of the first things that stands out is that the numbers fall on in the second and fourth places in each set of four characters. This would lead us to believe that each note is actually on either an offbeat or the second and fourth count of a measure. This is problematic because firstly, this music is not organized by measure, and each melody note is felt as being on a strong beat. This leads us back to our previous discussion of the cyclical nature of karawitan. Perhaps because of this cyclical nature, this music is end-weighted. This means that emphasis falls on the last note of each cycle or phrase, not the beginning. Though this is an important aspect of karawitan, we can still use Western conventions of notation and achieve the same effect.

Bentuk—Form

For a Western orchestra, there are many different yet readily identifiable forms. Attending a concert, one may see titles such as, “Symphony No. 4,” or “Piano Concerto No. 2,” and have a reasonable idea as to what to expect in terms of form. Depending on the era from which the compositions come, the symphony might have four movements and the concerto three, and the listener can expect that each movement will be in a different style and be based on yet a smaller sub-form. The same is true for a karawitan, and although this subject could be the subject of a dissertation in itself, we will briefly discuss the forms available to a gamelan.

Form in karawitan is largely based on the pattern of gong strokes played on the punctuating, or colotomic instruments such as the gongs. The form of Singa Nebah is lancaran and for our purposes it is important to know that lancaran form is a cycle of sixteen beats. Since

this composition consists of 48 beats, each melodic cycle covers three cycles of the lancaran form.[26]

The other bentuk commonly identified by Javanese musicians are as follows: Ketawang, Langgam, Ladrang, Gangsaran, Gendhing, and numerous editable forms. These forms, like many other aspects of karawitan can be the subject of heated debate. Forms may vary according to geography, or may even be recognized as completely different things. For more information on bentuk, readers may refer to Richard Pickvance's book, *A Gamelan Manual.*

Laras and Pathet—Tuning and Mode

Javanese music has two scales—Pélog and Sléndro—each having 7 and 5 pitches respectively. The word laras is used to describe which scale performers are using. While many musical traditions are accustomed to a universal tuning system based on a standard pitch, the Javanese scales will vary from one ensemble to the next. This system is not based on a concept such as A=440, but rather the ear and preference of each instrument builder.[27] Just as there is not a standardized pitch from which to build a scale, the interval between pitches may be different between two sets of instruments.

Each gamelan is usually built by one person or a small group of builders as a set. This means that instruments are not interchangeable between ensembles. This may seem like a disadvantage, however a careful builder will tune the instruments to each other while

[26] In this arrangement the melody has been notated in 4/4, so that one cycle takes the span of twelve measures when played in half notes. When the irama changes, the melody is compressed into six measures

[27] It should be noted that many tuners attempt to copy gamelan which are revered for their sound, particularly instruments from the royal courts.

maintaining the natural tendencies and characteristics of the hand forged bronze from which they are built.

In the diatonic system, the pitches can be arranged into a system of modes: Ionian, Dorian, Phrygian, Lydian, Mixolydian, Aeolian, and Locrian. Most of the music which falls into the classical tradition is written in either the Ionian or Dorian mode. The two scales of karawitan can also be further divided into modes, or Pathet. Caution is needed here as this is one of many terms which is not well served in translation to English. Within karawitan, pathet is the subject of much debate and is beyond the scope of this study. What can be known with certainty is that pathet refers to range, preference for certain notes, different acts within wayang performances, and mood of a composition.[28] There are six pathet in karawitan, three for each scale. In sléndro the three modes are: nem, sanga, and manyura. In pélog they are: lima, nem, and barang. Various version of Singa Nebah exist, but the one used for this arrangement uses pathet barang.

Time—Irama

Javanese music differs from many other traditions in that it is conceptually cyclical. Compositions are usually based on a number of steady beats, where each basic melody note is one beat. Colotomic structure is the word used to describe the temporal landmarks which frame a composition and it is the main function of the gongs to keep this foundation.

[28] Pickvance, 52.

In a typical performance the irama will change for any number of reasons, and performance practice may change with it. This is part of the reason that our concept of tempo is not synonymous with the Javanese time structure. It is more akin to pace than anything. There are four levels of irama:

Irama Level	Irama Name	Ratio of beat to fastest pulse
1/2	lancar	1:2
1	tanggung	1:4
2	dados	1:8
3	wiled	1:16
4	rangkep	1:32

Figure 3. 13

Chapter 4: Procedures for this adaptation

Instrumentation

The instruments used for this arrangement were selected because they are all commonly available to a university or high school ensemble.

They are as follows:

crotales
glockenspiel
vibraphone
chimes
marimba I (shared with player II)
marimba II (shared with player I)
congas
timpani (D2 – G3)

All instruments are melodic except for the use of two conga drums. Since the instruments of a gamelan are so different in sound and tuning, it was decided to use all Western instruments so as to maintain uniformity of sound, and not include any of the gongs which are so characteristic of Javanese gamelan. While gongs and tam-tams are commonly found in most institutions, finding an instrument with the suitable pitch would be an obstacle to performing this piece. The argument could be made that it is not authentic to play Javanese melodies on instruments in a tuning scheme that is so radically different. This is true, and there are some ways of altering pitch on percussion instruments, but this could never come anywhere near approximating the tuning of a gamelan. In keeping with the goal of blending concepts of karawitan with western instrumentation, all instruments are tuned in the equal temperament system. By accepting and even embracing the differences between the two

traditions, it is more likely that we uphold the integrity of the Javanese concepts as well as the Western instruments on which they are performed.

The arrangement uses glockenspiel, crotales, marimba, chimes, and timpani for melodic and colotomic purposes. One of the hardest things (beyond tuning) to imitate, is the shimmering sound of the metallophones in the gamelan. This effect is achieved through the use of octave stretching, and by the way the bars of each instrument are tuned. Most gamelan instruments are tuned only to the fundamental pitch, and no effort is made to tune the upper overtones.[29] The use of crotales is intended to recreate the shimmering sound of a gamelan being slightly out of tune with itself (e.g. octave stretching). The glockenspiel will sound very high partials (overtones) that are out of tune with the fundamental note. This is because undercutting the bar to tune the overtones is neglected since the human ear doesn't perceive them very well. However, when they mix with the out of tune overtones of the crotales, it produces a very pronounced shimmering effect. The chimes, while they do not have a melodic function, also contribute to the effect because of their strong octave tuning, and weakly tuned overtones.[30] It is also interesting to note that while the timpani are also not primarily a melodic instrument, their sound consists of a complex combination of overtones in which the fundamental pitch is almost non-existent, yet clearly discernible to the ear.[31] In addition, the timpani are an instrument that produces a tone that changes (usually gets brighter due to the prominence of higher overtones in the later modes of vibration) naturally as it decays.[32] In a typical ensemble such as a band or orchestra, each of these instruments distinctive sound has a

[29] Rossing, Shepherd, 3
[30] Rossing, 64, 74, 102.
[31] Rossing, 102.
[32] Schweizer, 5-7.

way of blending with other instruments[33], but in combination with each other, the effect is multiplied and is one of the most important features of the arrangement.

Tuning and Scale

With instrumentation decided, the second most important decision is how best to represent the sound of Javanese melodies. After many hearings, much thought and experimentation, the conclusion was arrived at to approximately recreate the space between the notes, paying special attention to important scalar functions and tendencies (much like the tendency of the leading tone to move to tonic in the diatonic scale).

In one analysis the comparison between pélog and Western scales is described as follows[34]:

Western Major Scale: Where (x) represents number of half steps between each tone.

C (1) D (1) E (1/2) F (1) G (1) A (1) B (1/2) C
Figure 4. 1

Javanese Pélog Scale: Where (x) represents approximately the number of half steps between each tone.

C (4/5) D (1 1/4) E (3/5) F (3/4) G (1 1/3) A (7/10) B (1/2) C
Figure 4. 2

As you can see, not only are the spaces between the notes of the pélog scale different than that of the diatonic scale, the *increments at which they differ are also inconsistent*. This

[33] Johnston, 156-172.
[34] Gaetano, 4

problem is for all intents and purposes insolvable with percussion instruments. While it is possible to bend the pitch on marimba and vibraphone using extended techniques, physical limitations of the instruments and performers would preclude such efforts. The scale that best approximates the Javanese pélog tuning is best characterized as an Eb mixolydian, or a G locrian scale, depending on whether G or Eb is heard as the tonic.

Eb mixolydian scale:

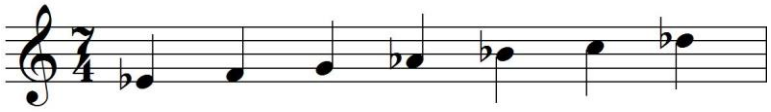


Figure 4. 3

Below is the basic melody of Singa Nebah[35] in Javanese notation:

5 3 5 3 6 5 6 7 6 7 6 7 6 5 3 2 3 2 3 2 5 6 5 3

Figure 4. 4

[35] The pathet of Singa Nebah is barang. It should also be noted that numerous melodic variations of Singa Nebah can be found in practice. This melody was taken from Brinner, 43.

Adaptation into equal temperament:

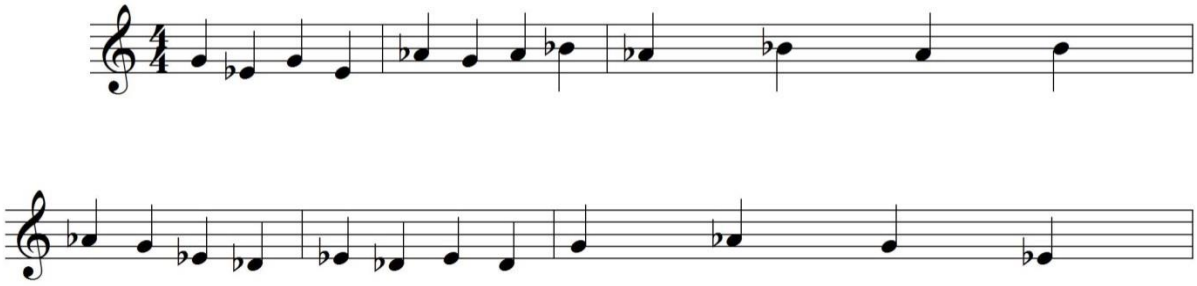


Figure 4. 5

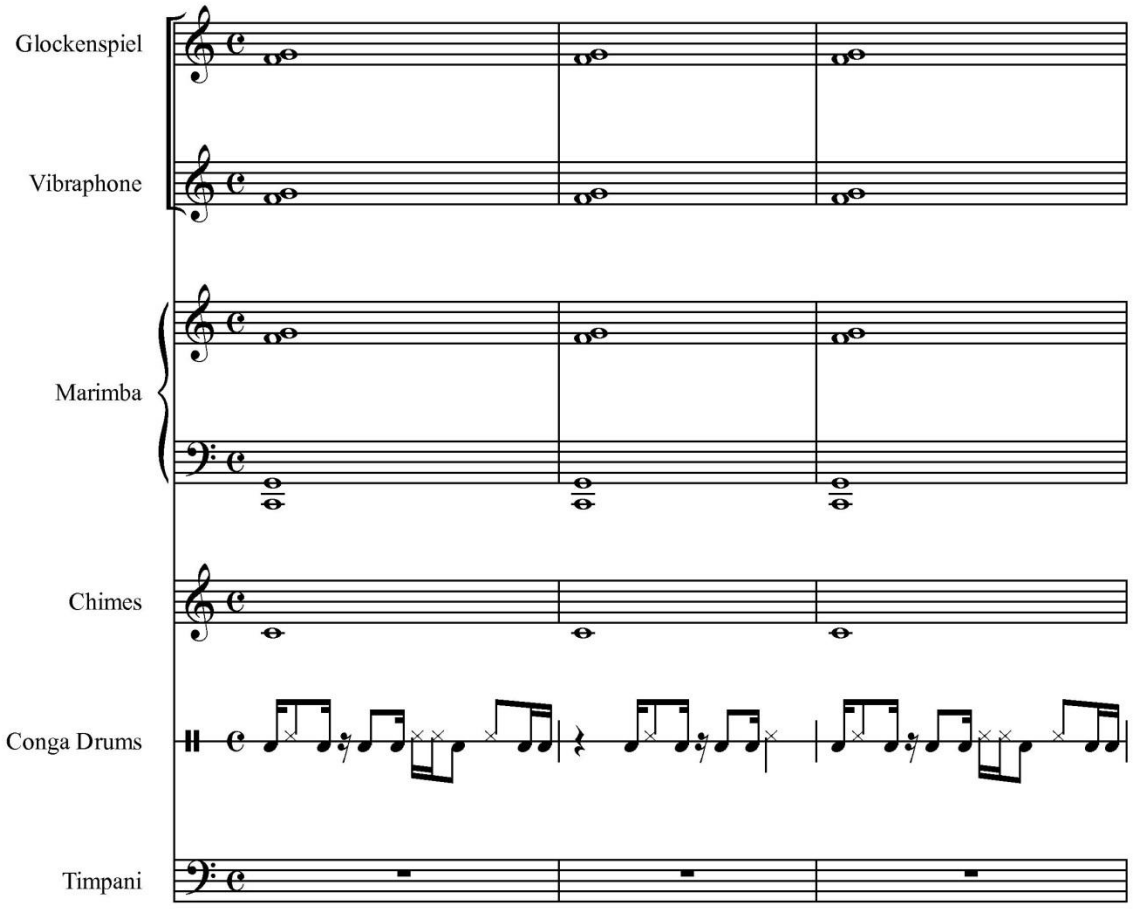
The melody when played on gamelan or Western instruments, sounds almost diatonic, until you reach the movement from scale degree 3 to 2. Aurally, this suggests that even though the melody does not rest on Eb (or 3 in Javanese notation), it is implied that this is the tonal center of the piece. Therefore, our scale would look like this: Eb F G Ab Bb C Db (Eb), with the tone F (again, 4 in Javanese notation) never being used.[36]

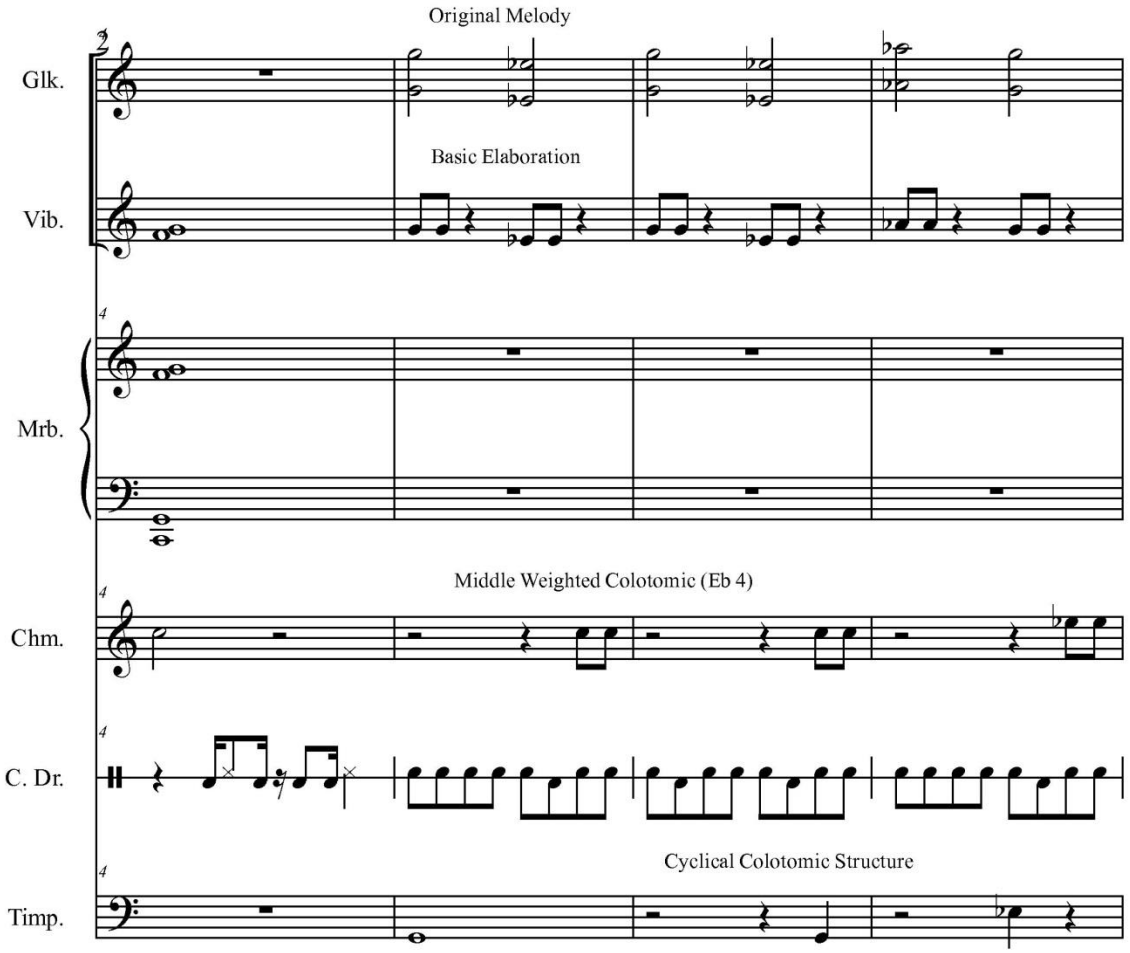
[36] While this note never occurs in the melody, it is frequently used in the marimba and vibraphone parts. This is used to add variety of implied harmony and color. Traditionally, these are parts that would be improvised on gamelan instruments, and notes outside the pathet would be commonly used.

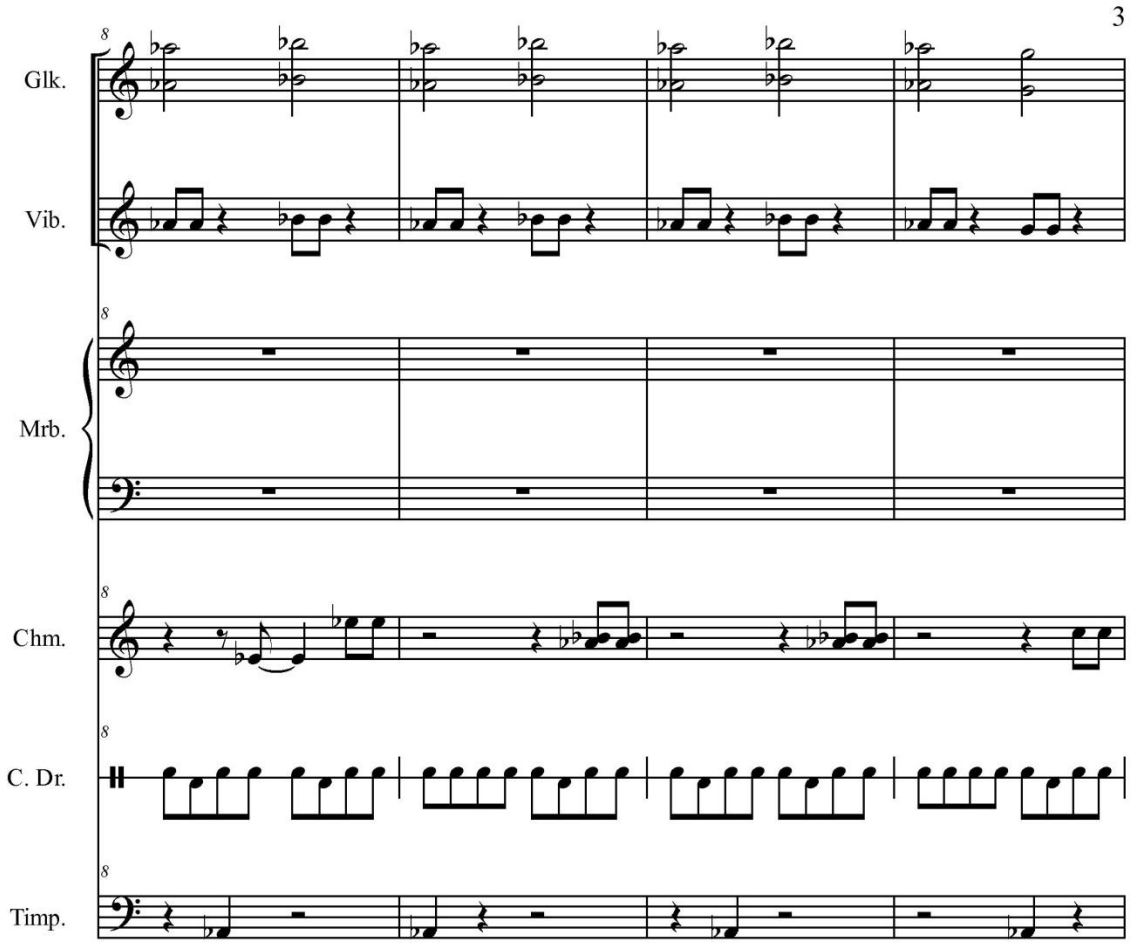
Lancaran Singa Nebah Pélog

Traditional Javanese

arr. Brian Pfeifer




Original Melody
Glk.
Basic Elaboration
Vib.
Mrb.
Middle Weighted Colotomic (Eb 4)
Chm.
C. Dr.
Cyclical Colotomic Structure
Timp.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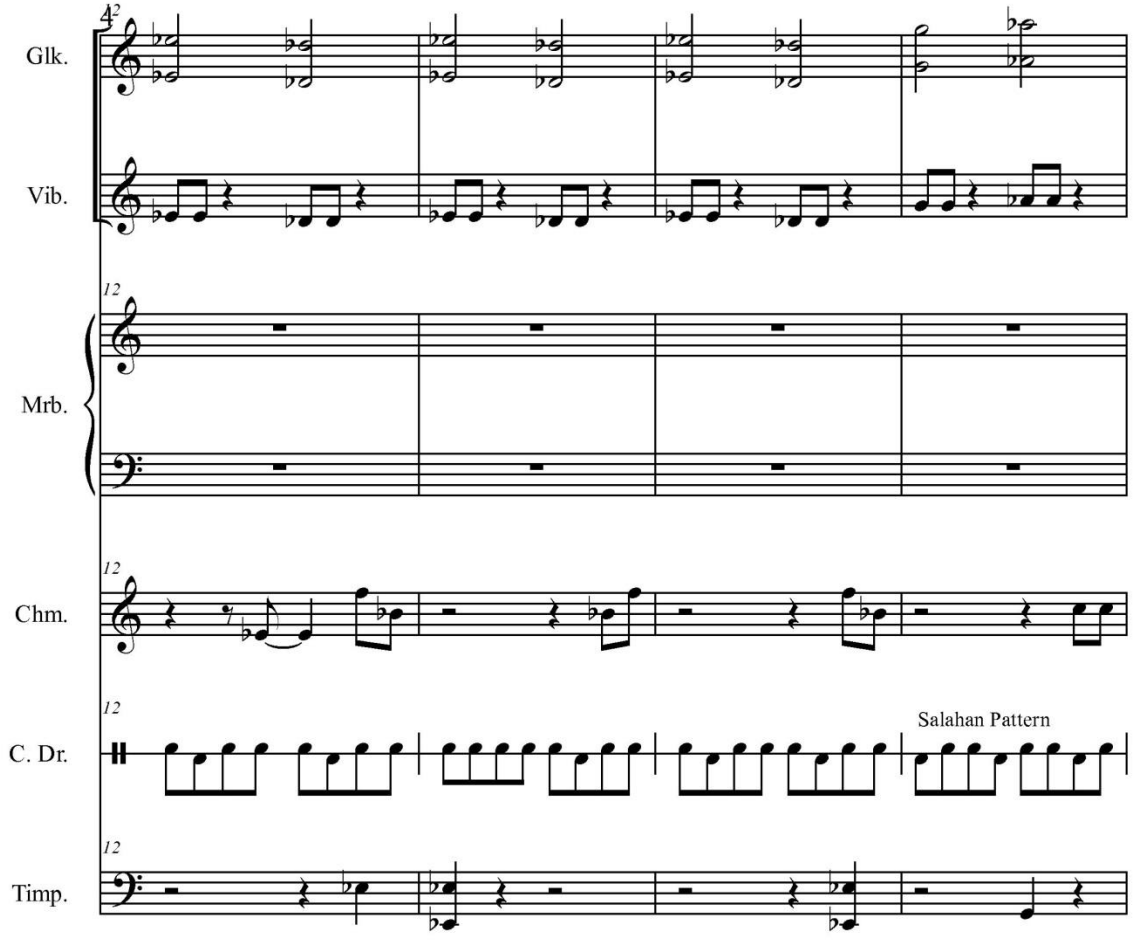
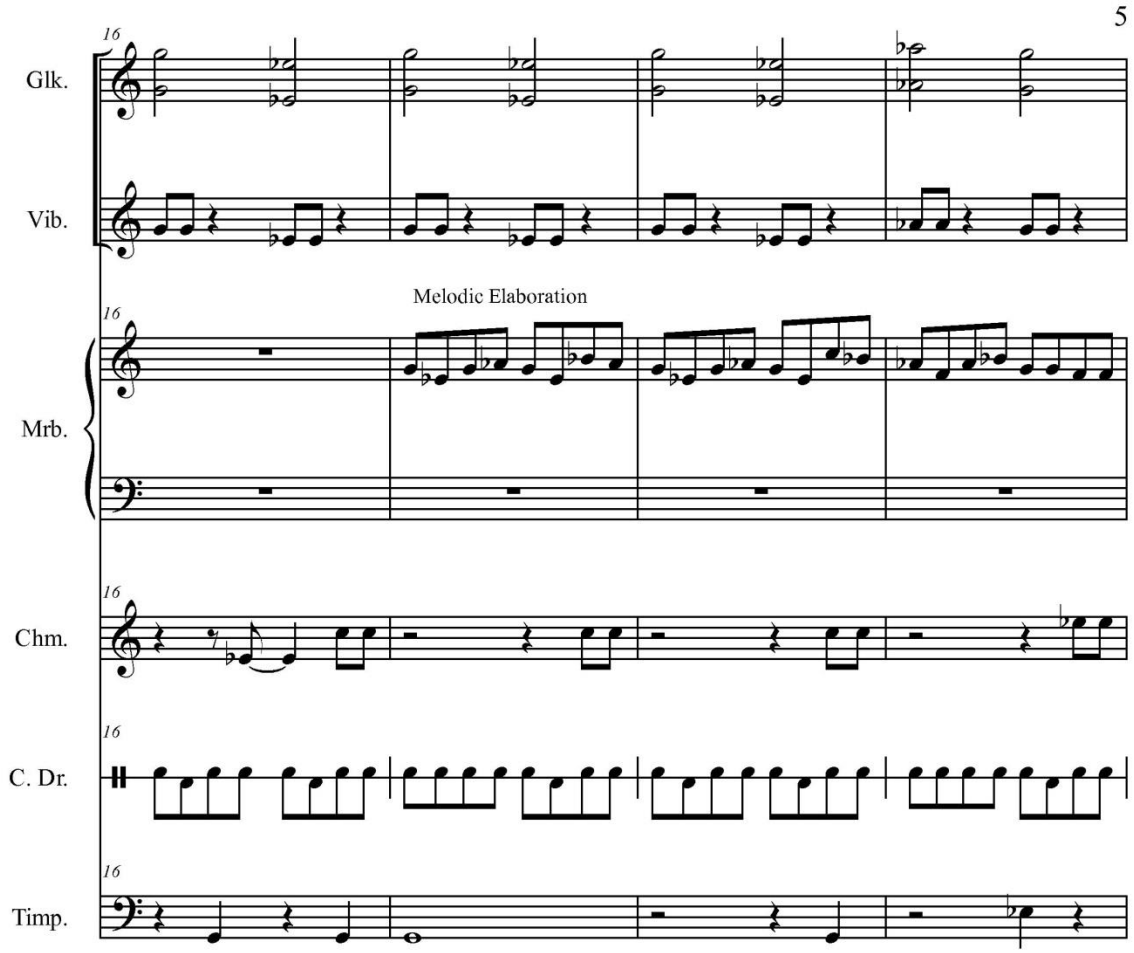
Glk.
Vib.
Mrb.
Chm.
C. Dr.
Timp.


42
Glk.
Vib.
12
Mrb.
12
Chm.
12
C. Dr.
Salahan Pattern
12
Timp.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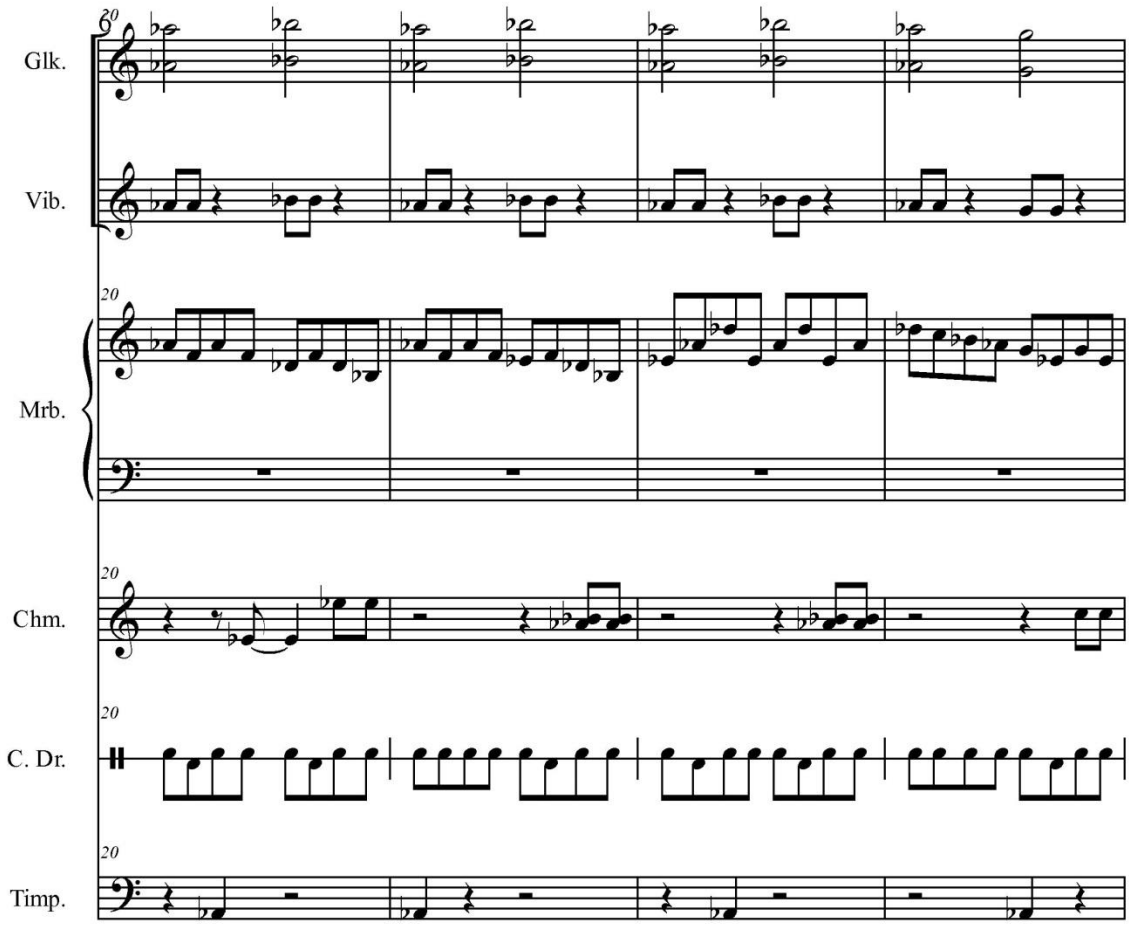
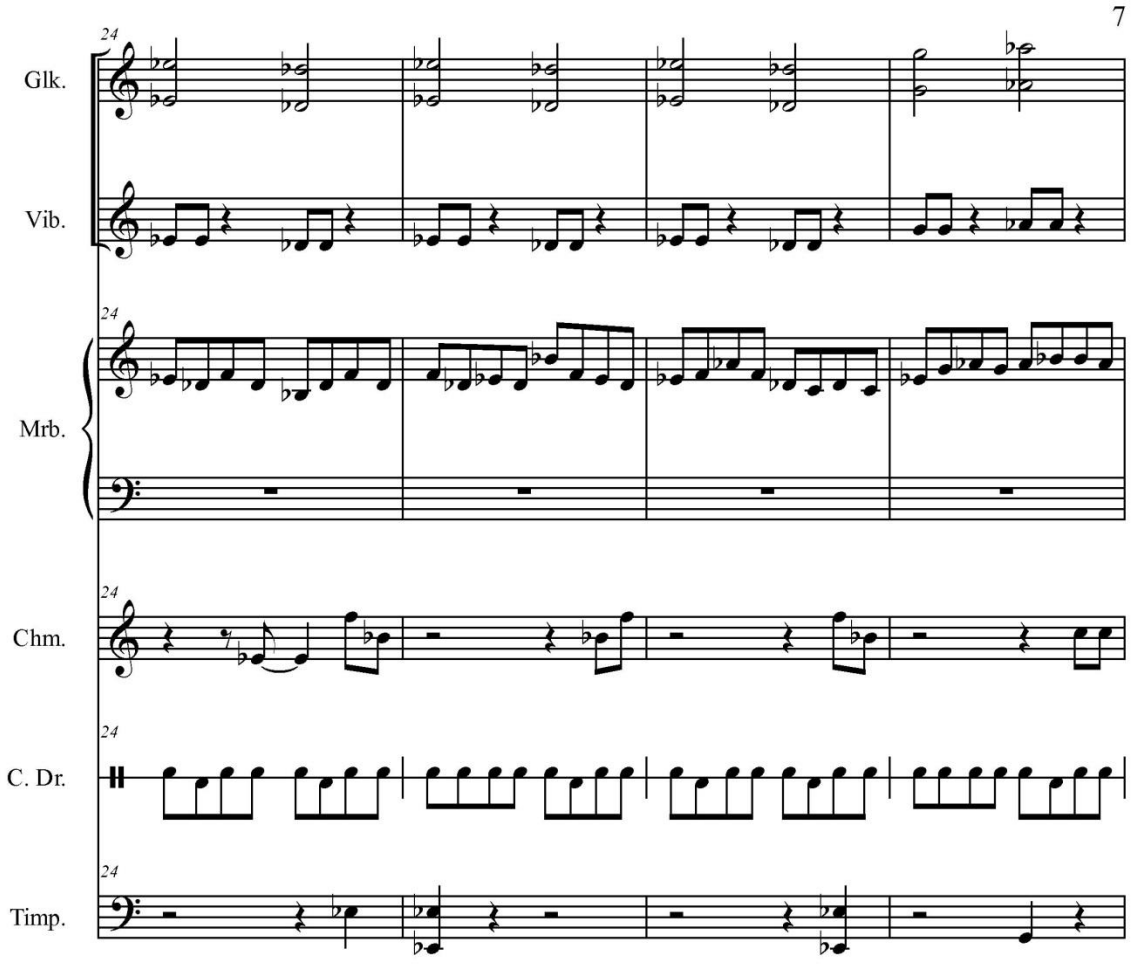
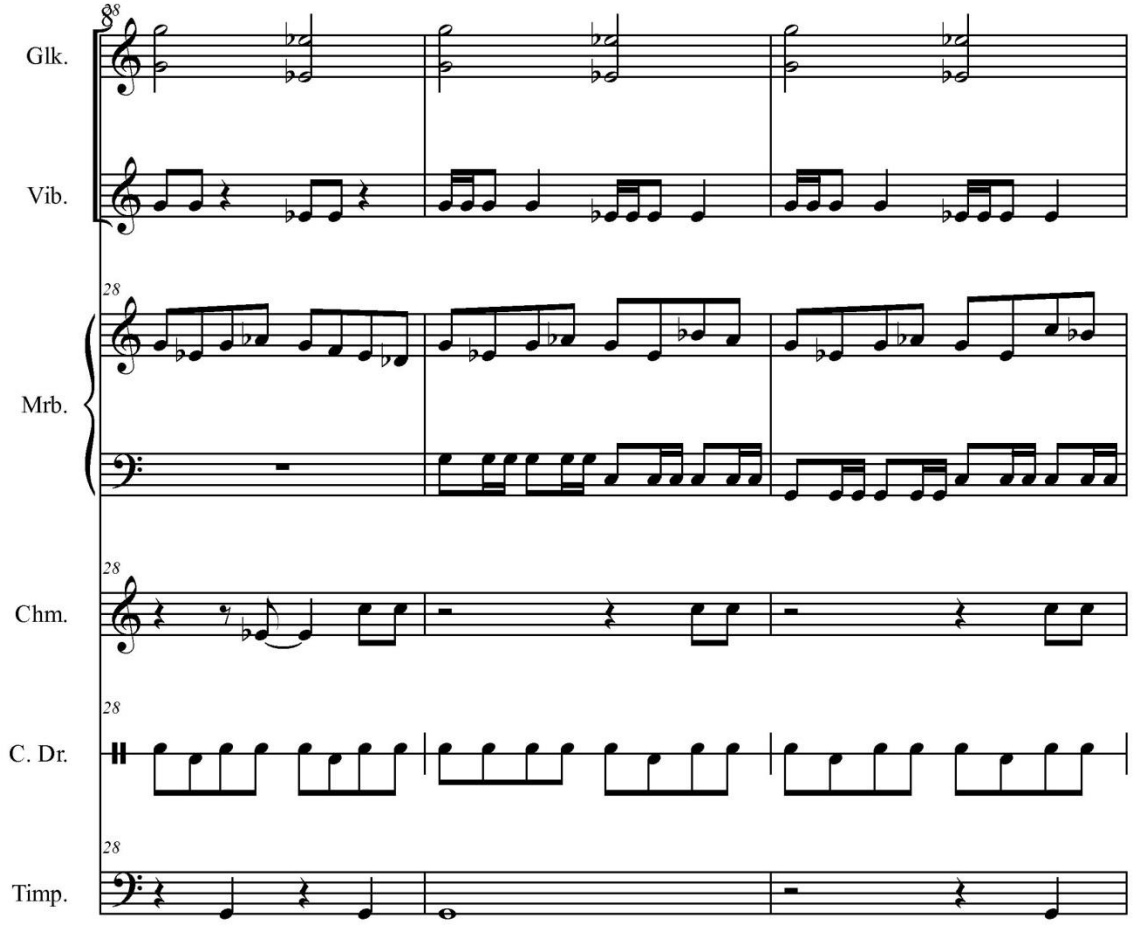
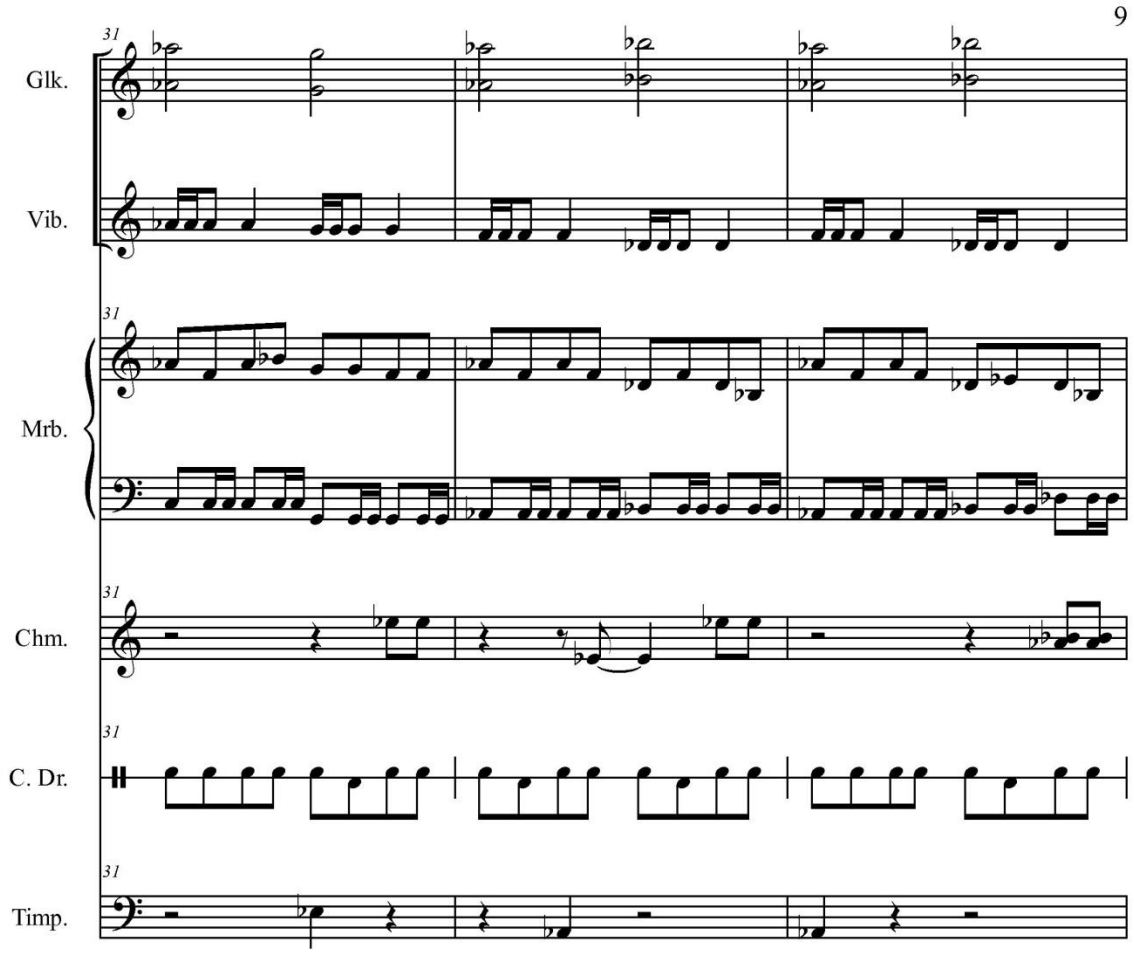
Glk.
Vib.
Melodic Elaboration
Mrb.
Chm.
C. Dr.
Timp.


20
Glk.
Vib.
20
Mrb.
20
Chm.
20
C. Dr.
20
Timp.


7
24
Glk.
Vib.
Mrb.
Chm.
C. Dr.
Timp.


Glk.
Vib.
Mrb.
Chm.
C. Dr.
Timp.
28


9
31
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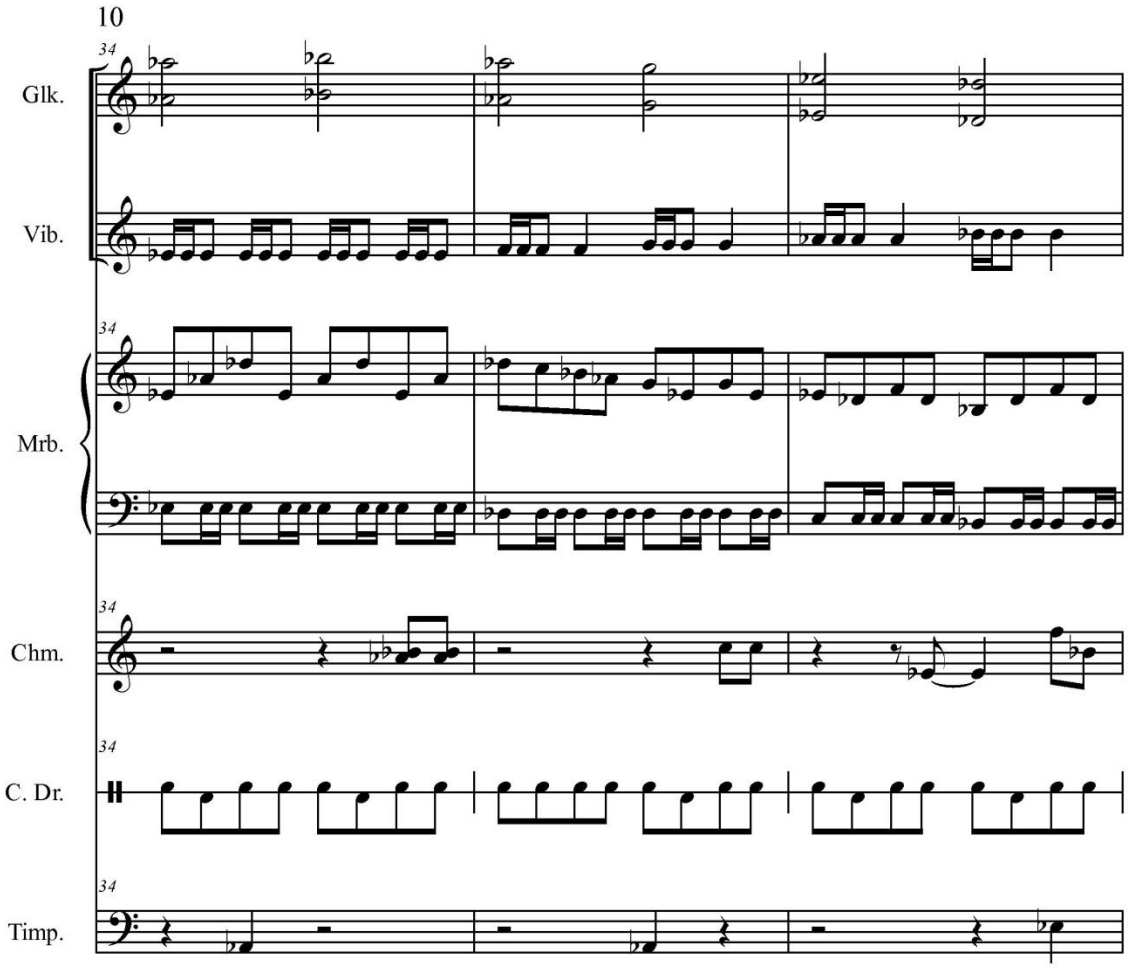
Vib.
31
Mrb.
31
Chm.
31
C. Dr.
31
Timp.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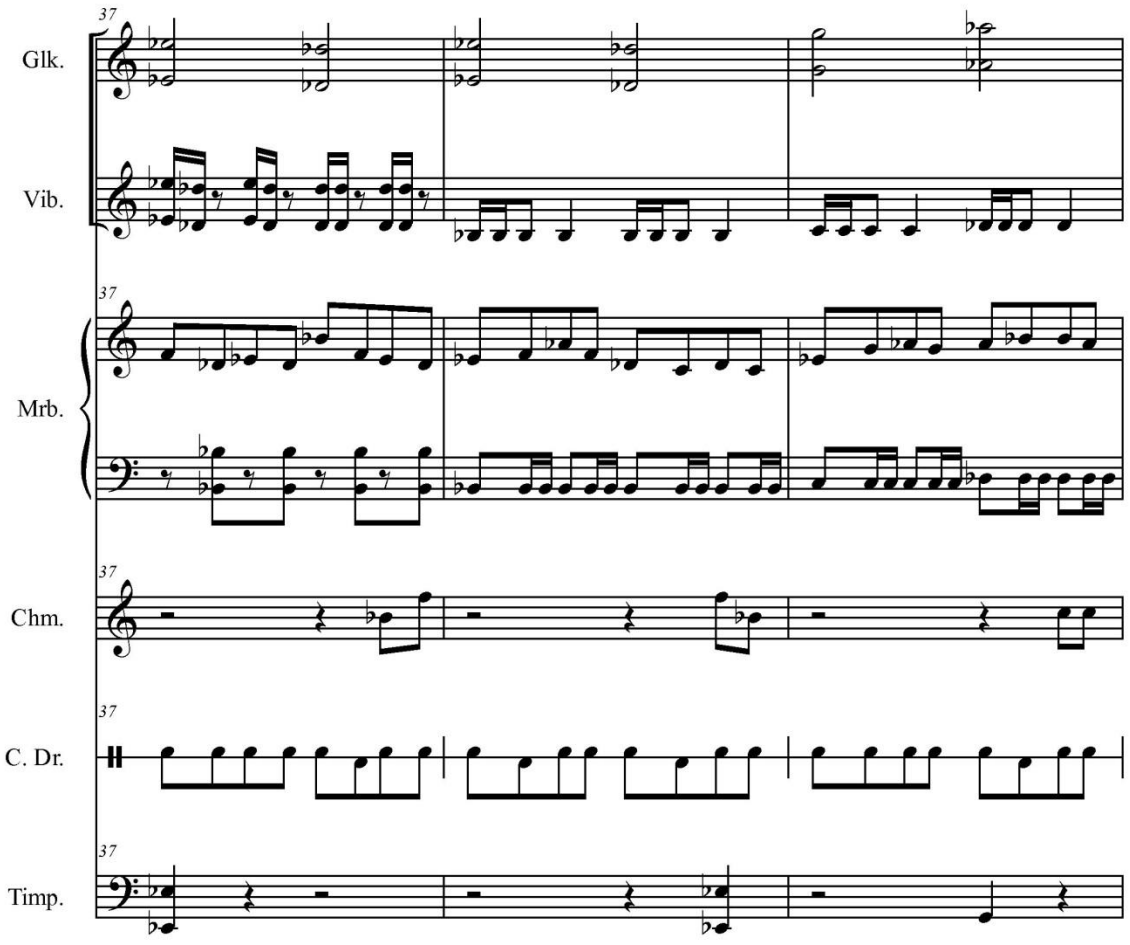
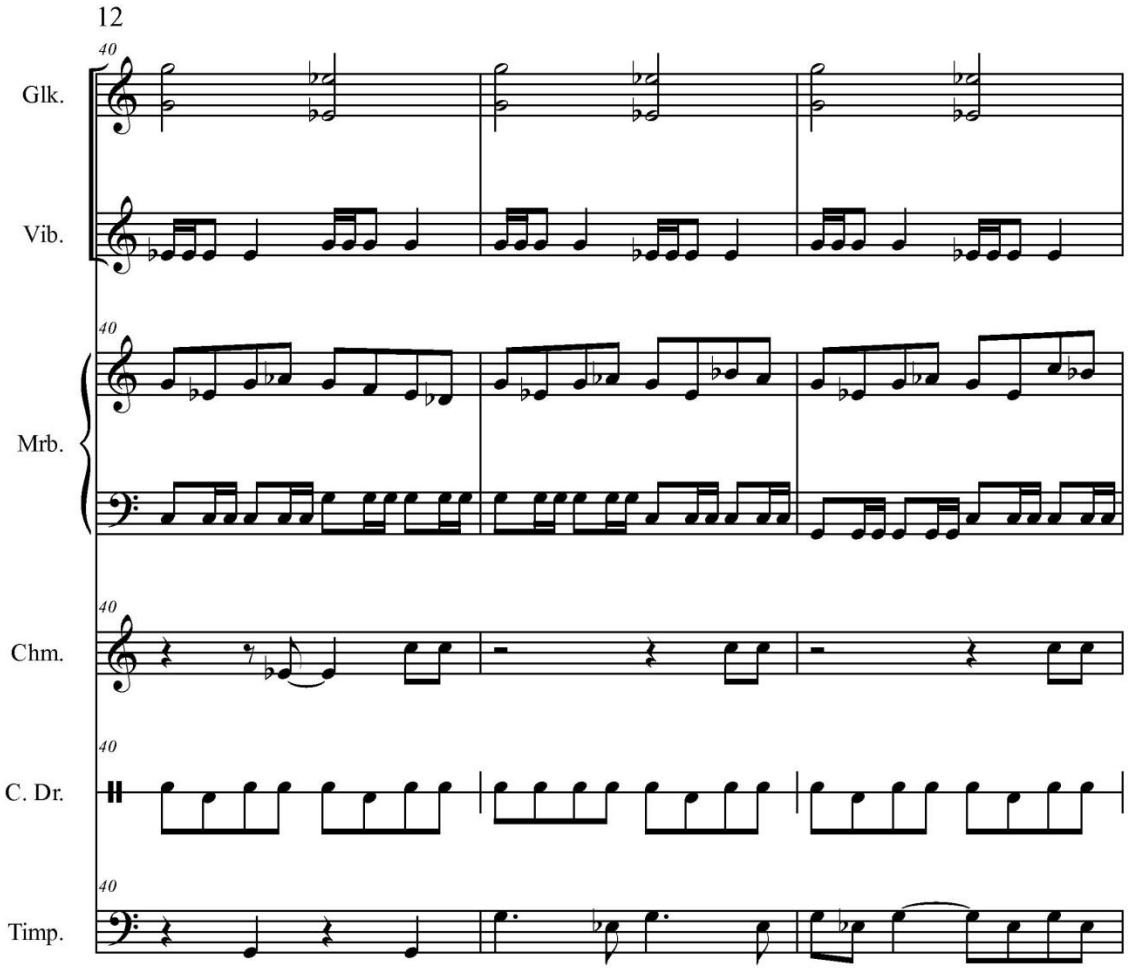
Glk.
Vib.
Mrb.
Chm.
C. Dr.
Timp.

11

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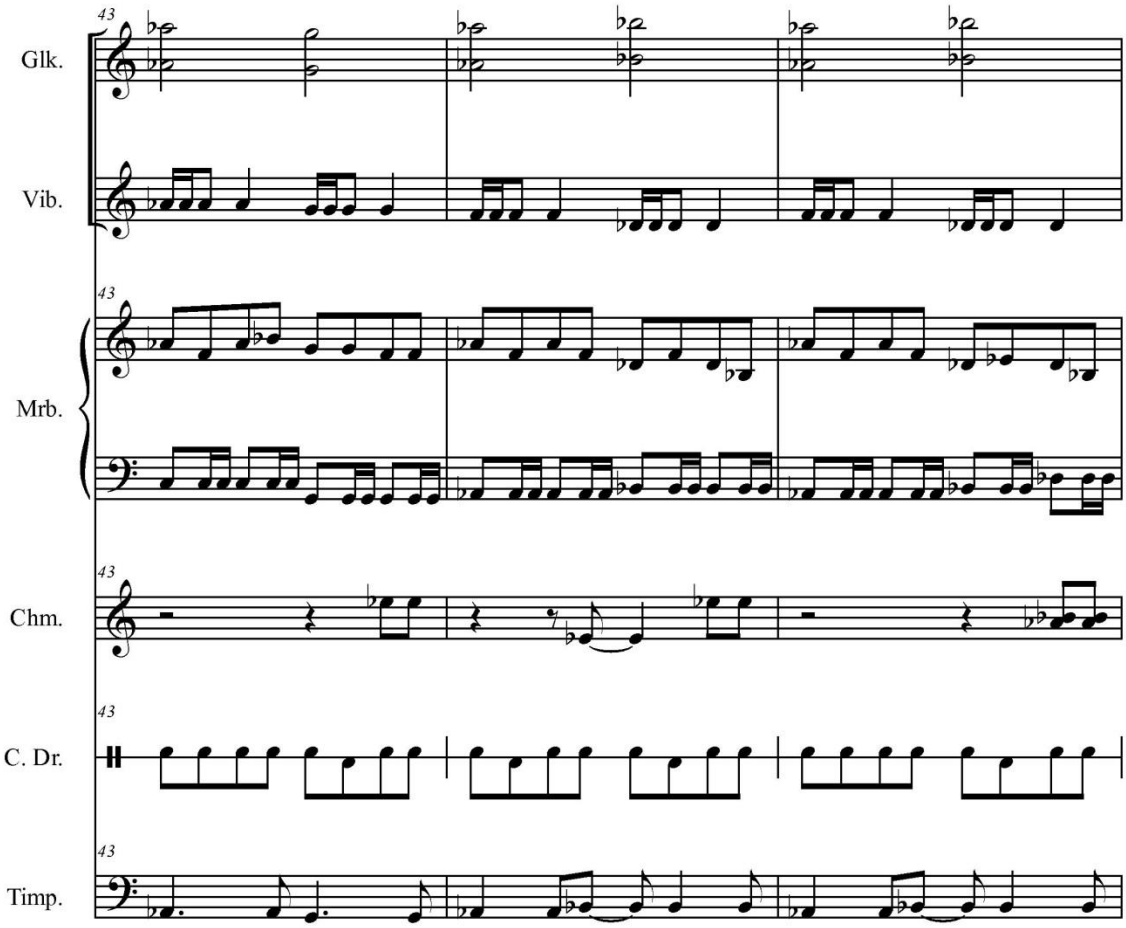
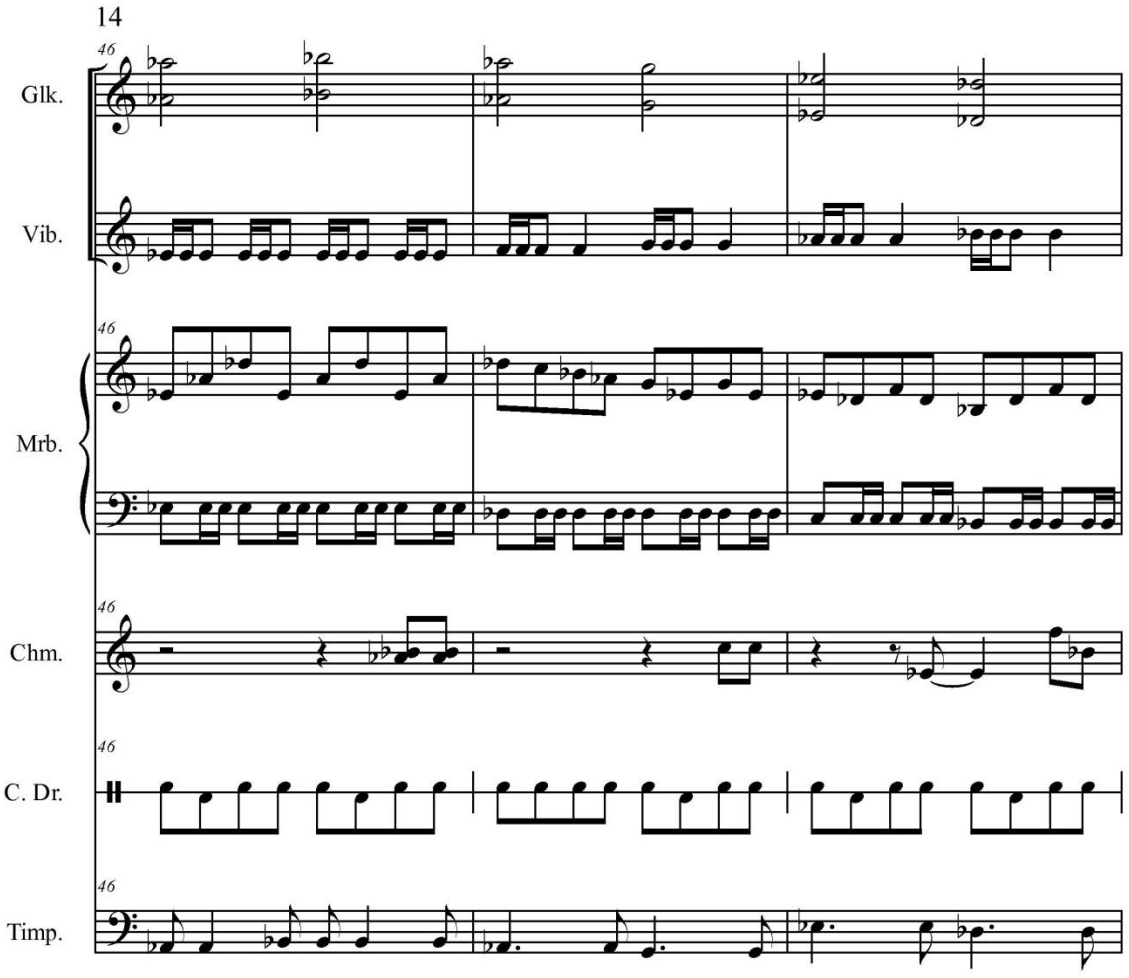
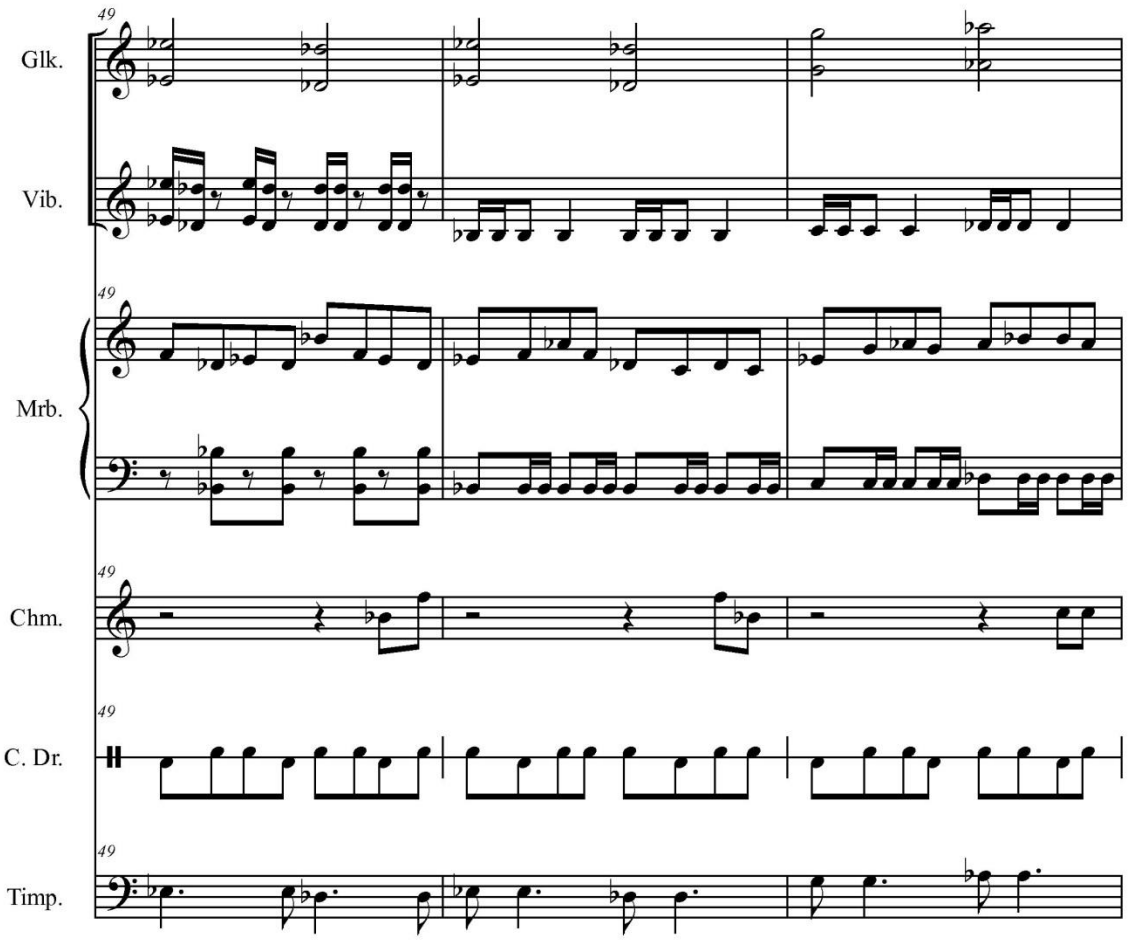
Glk.
Vib.
Mrb.
Chm.
C. Dr.
Timp.

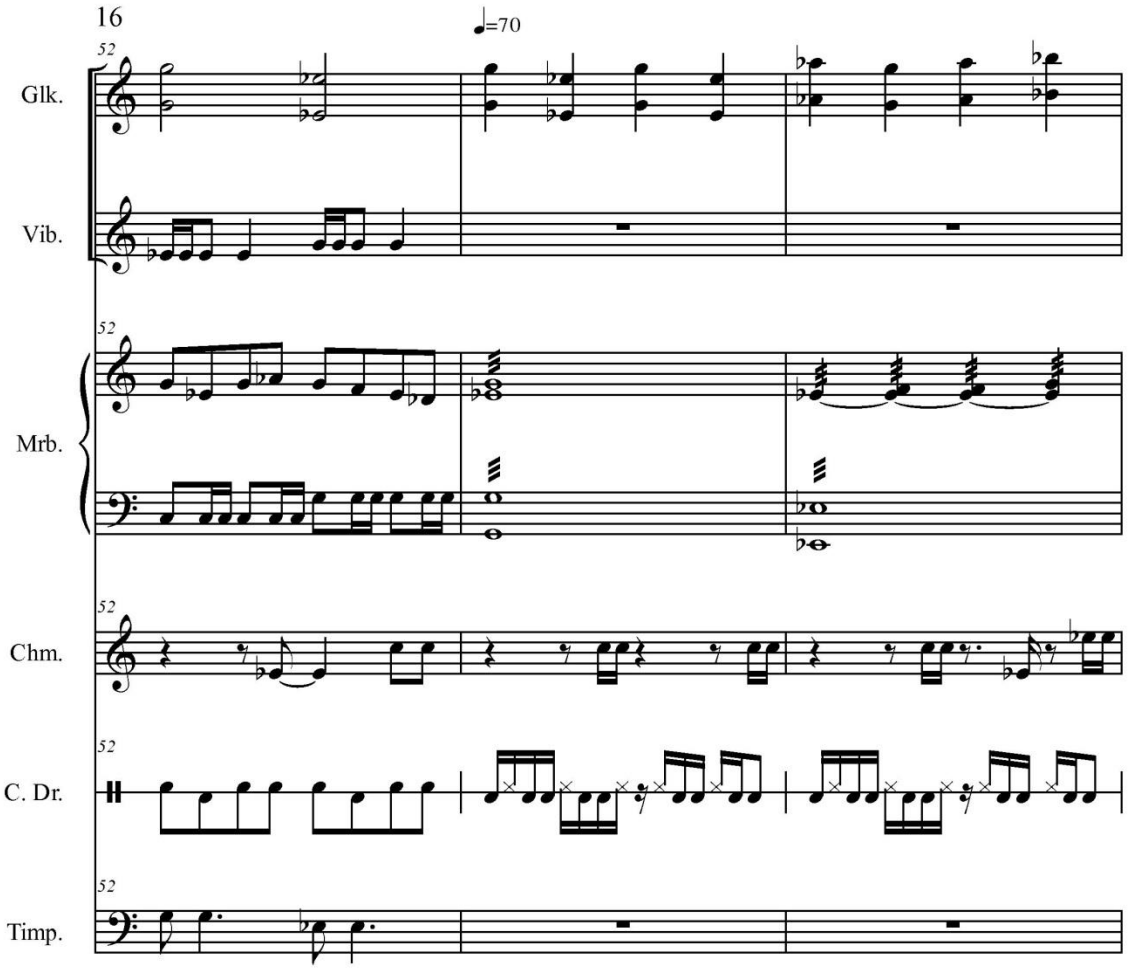
13



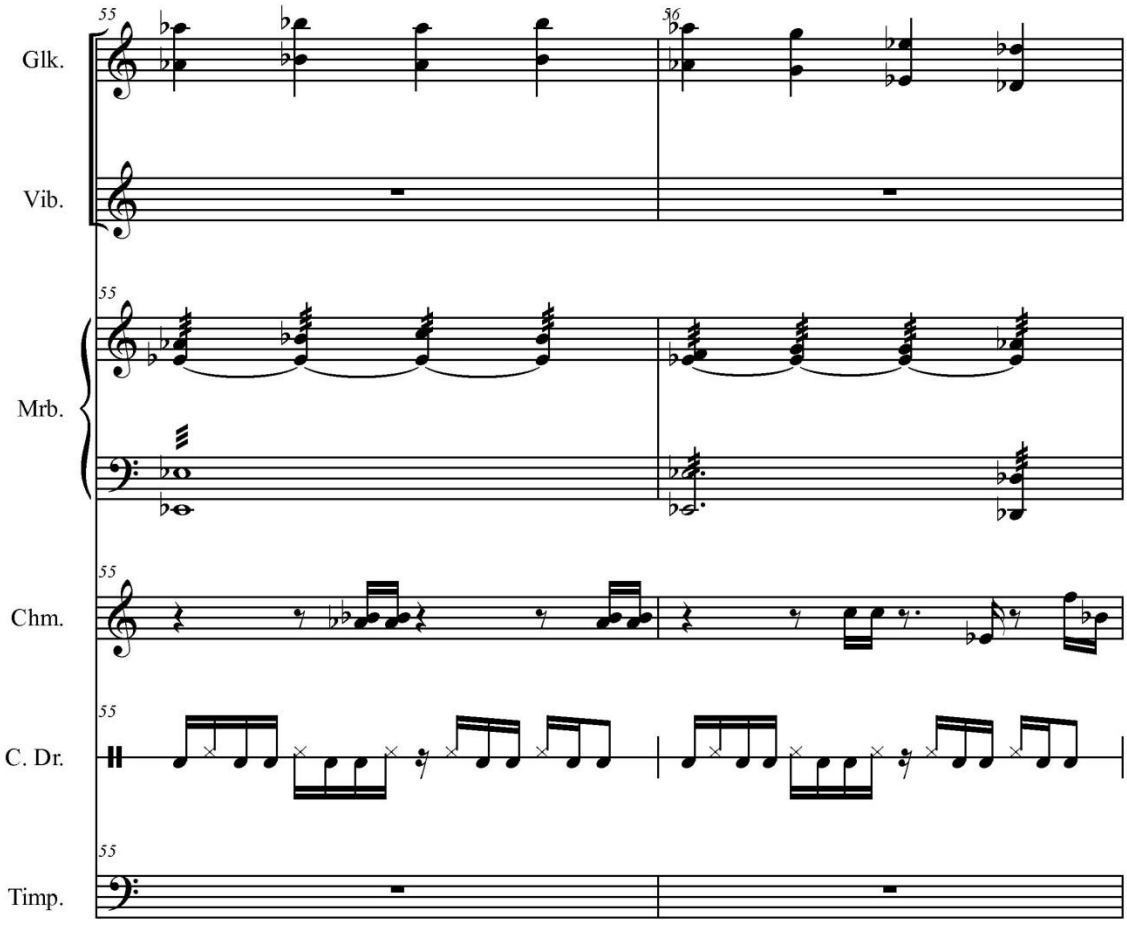

14
46
Glk.
Vib.
Mrb.
Chm.
C. Dr.
Timp.

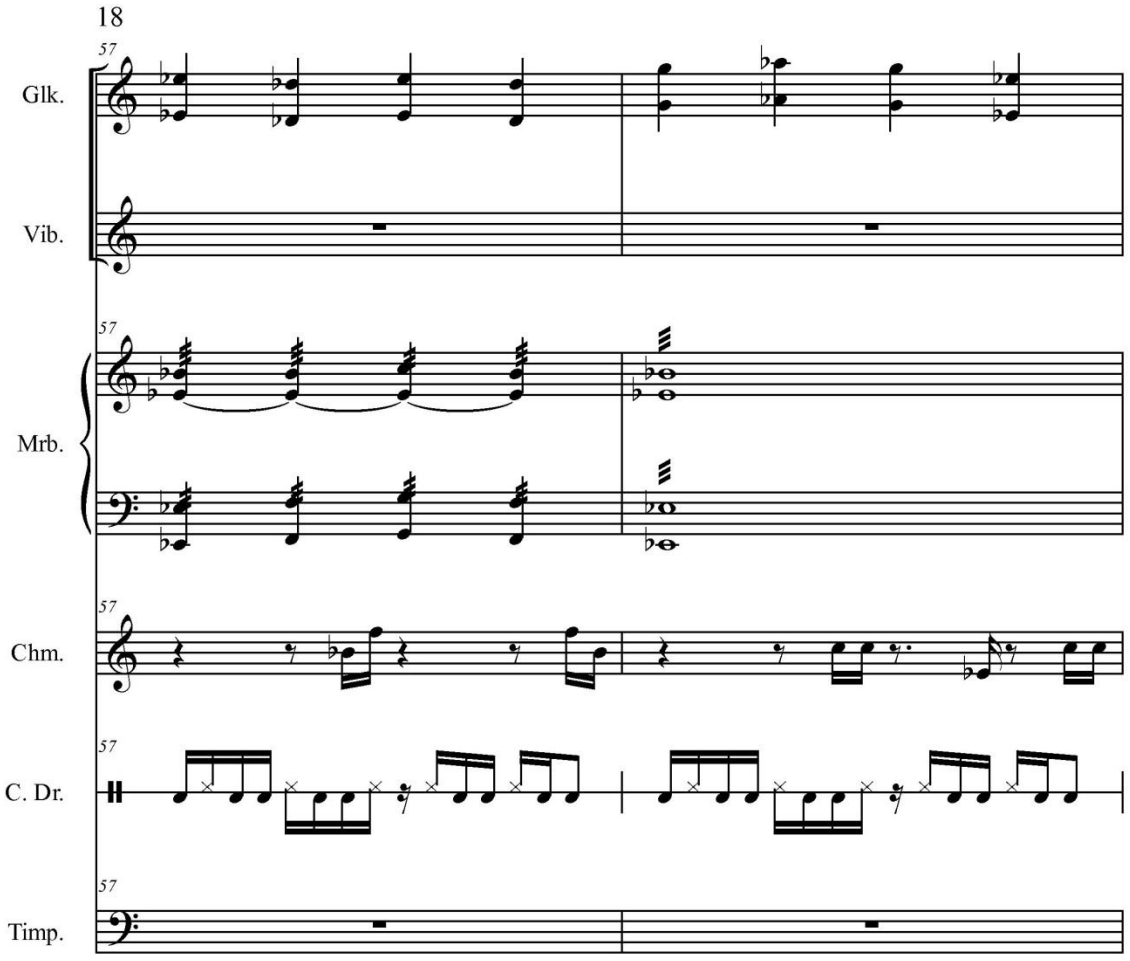
15



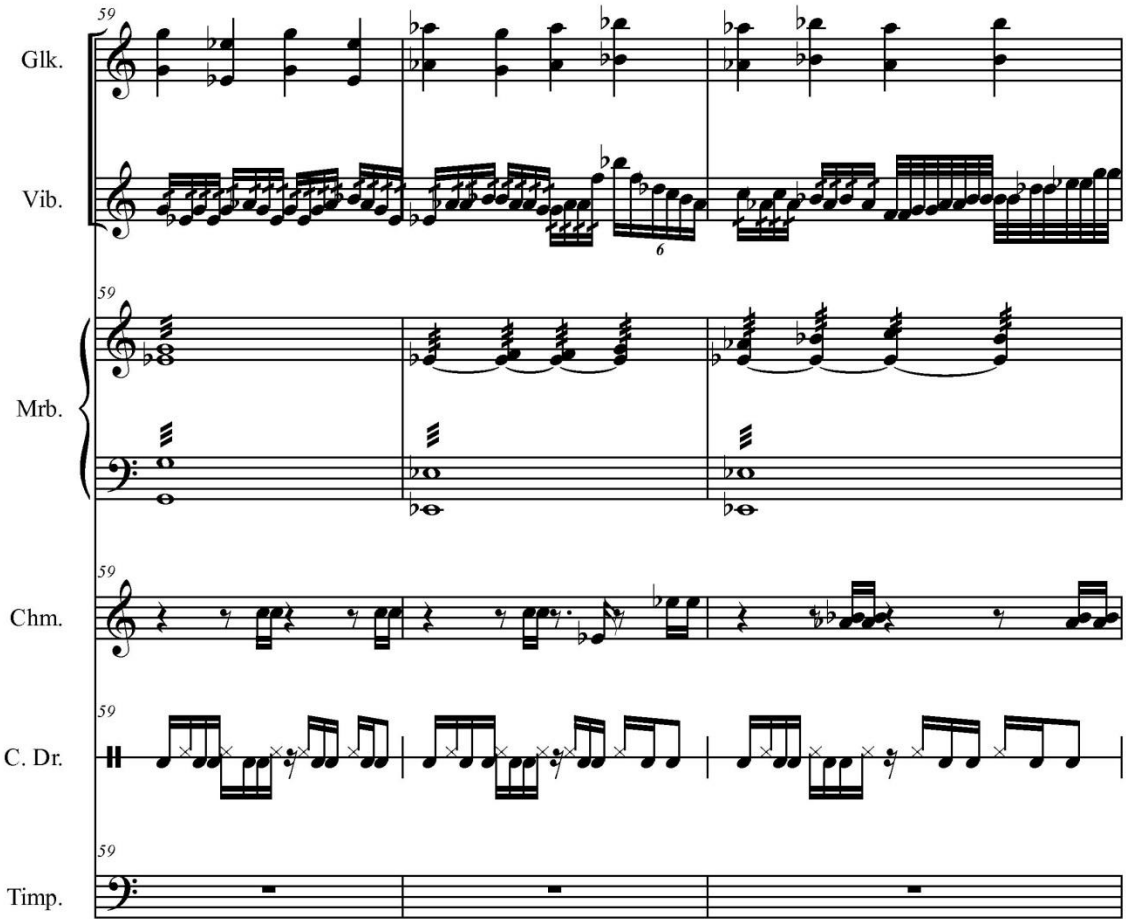

16
♩=70
52
Glk.
Vib.
Mrb.
Chm.
C. Dr.
Timp.

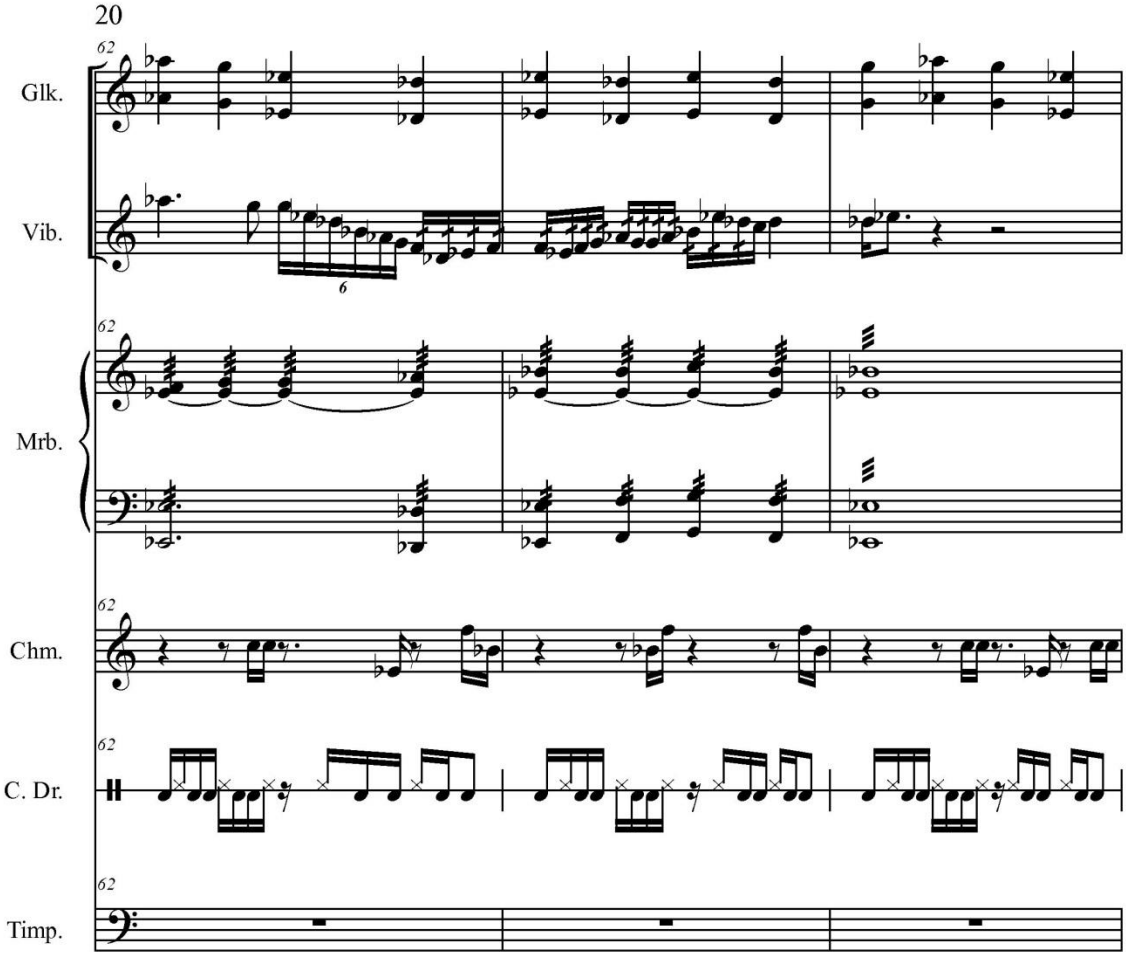
17

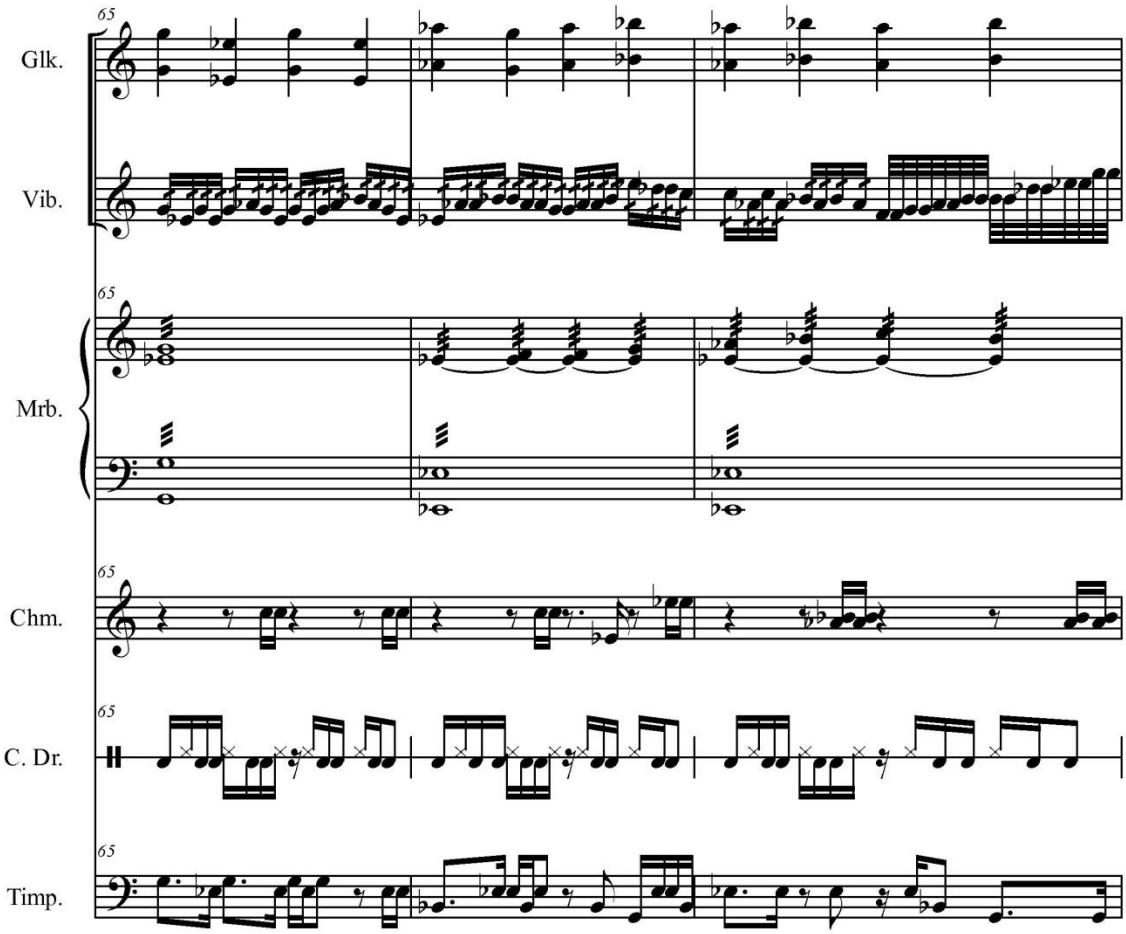



18
57
Glk.
Vib.
57
Mrb.
57
Chm.
57
C. Dr.
57
Timp.

19




20
Glk.
Vib.
Mrb.
Chm.
C. Dr.
Timp.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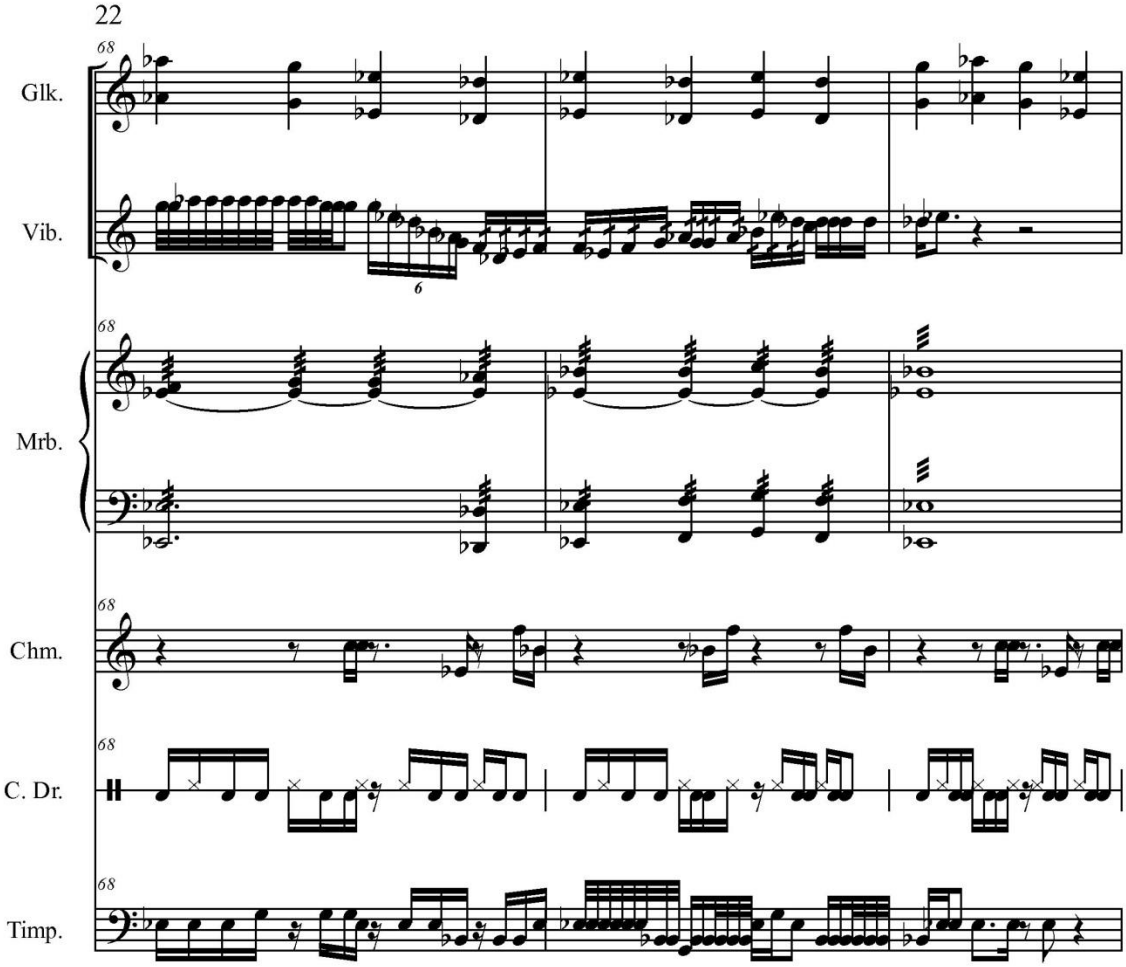
Vib.
Mrb.
Chm.
C. Dr.
Timp.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Glk.
Vib.
6
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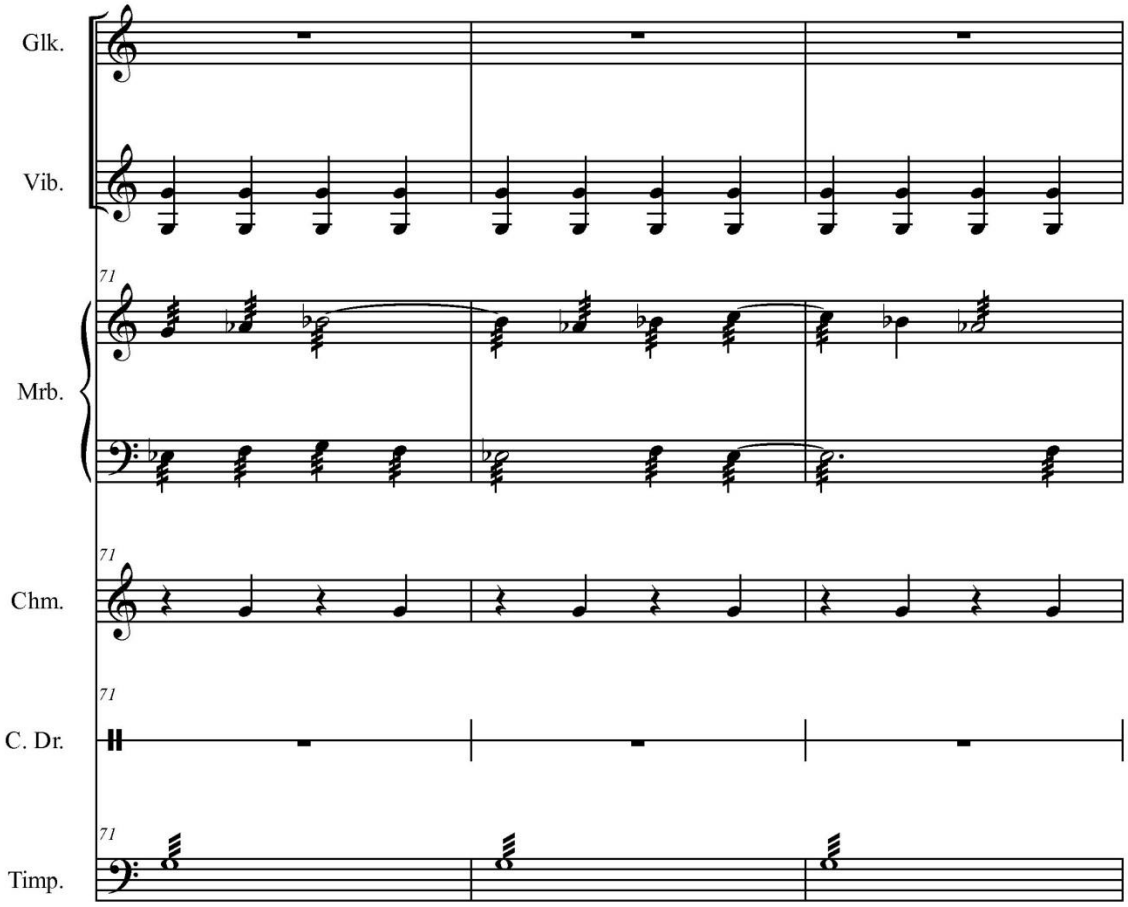
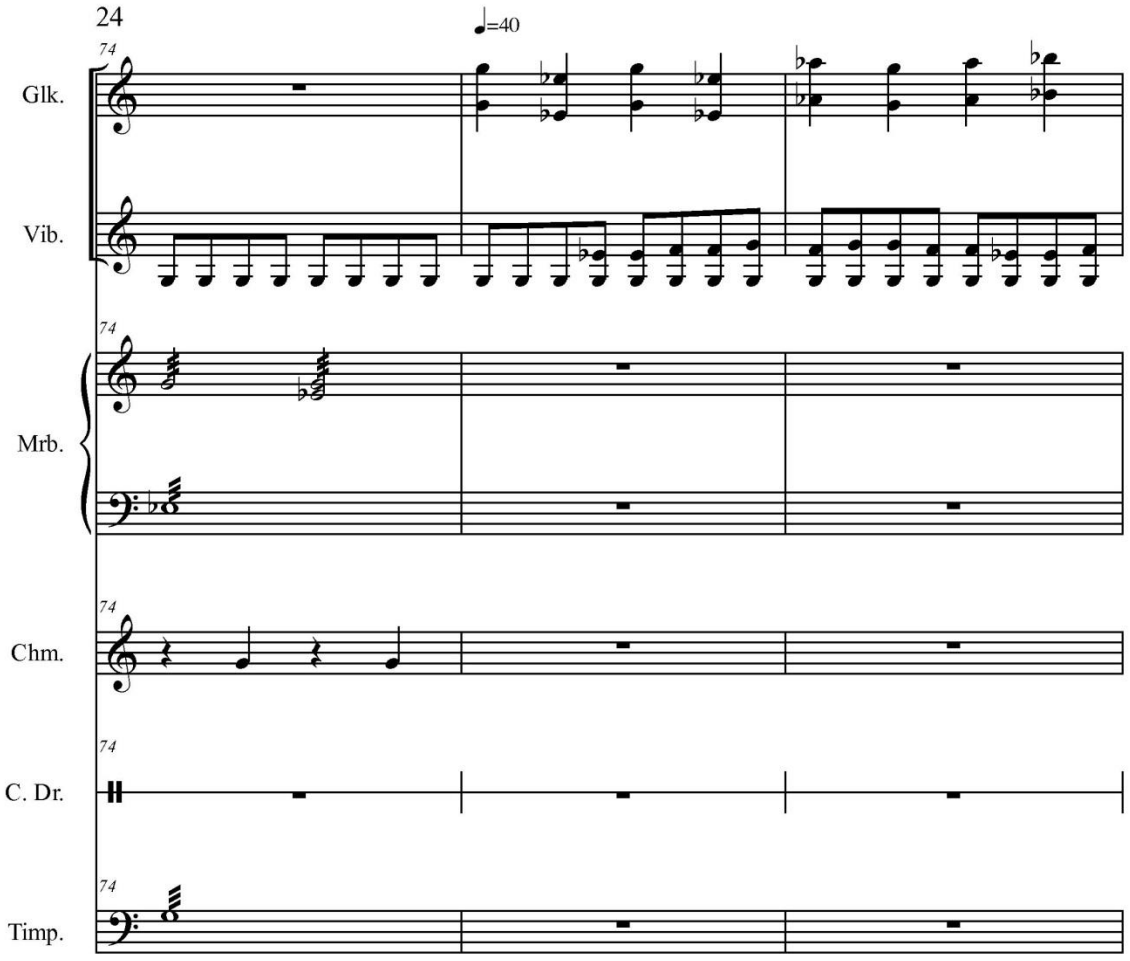
Mrb.
68
Chm.
68
C. Dr.
68
Timp.

23

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♩=40
74
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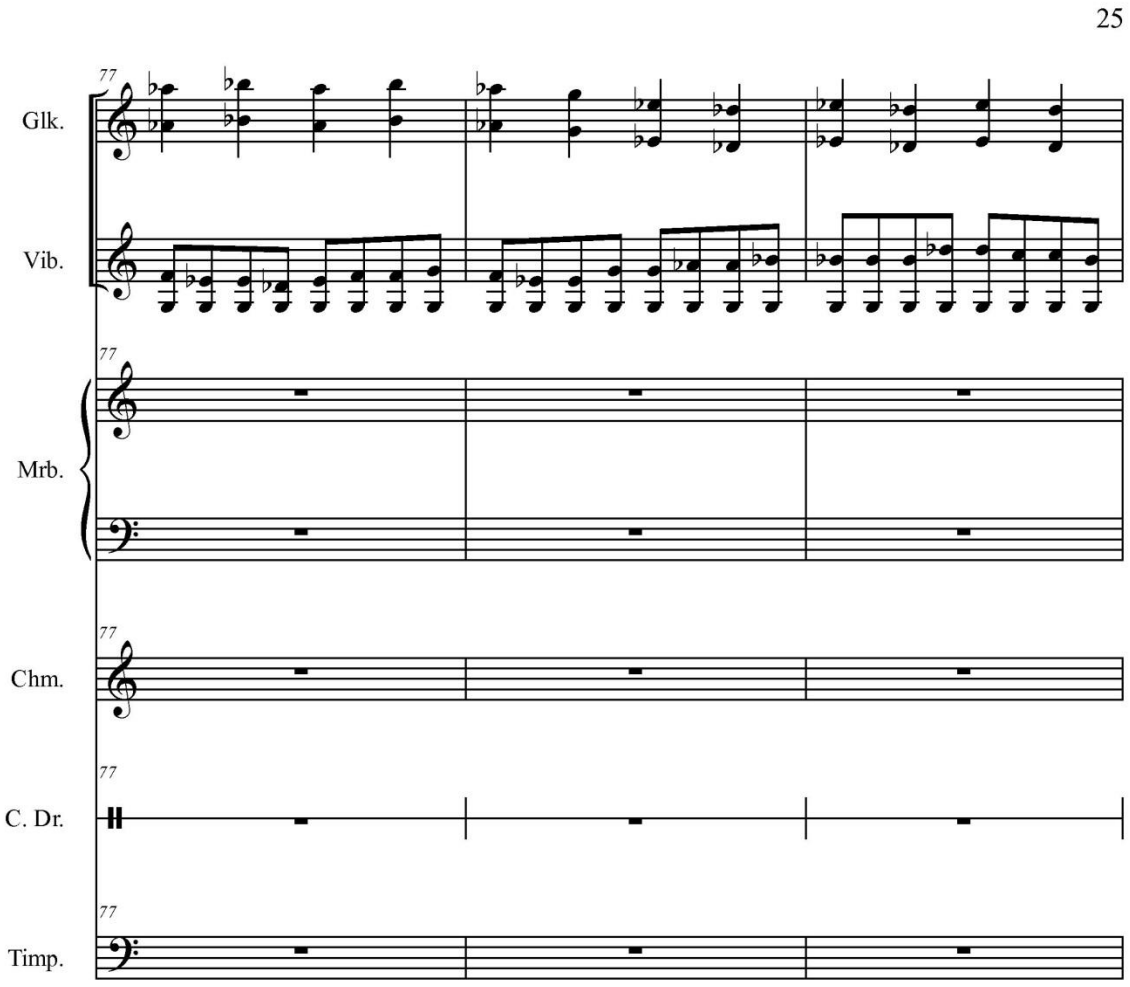
Vib.
Mrb.
Chm.
C. Dr.
Timp.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Vib.
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Chm.
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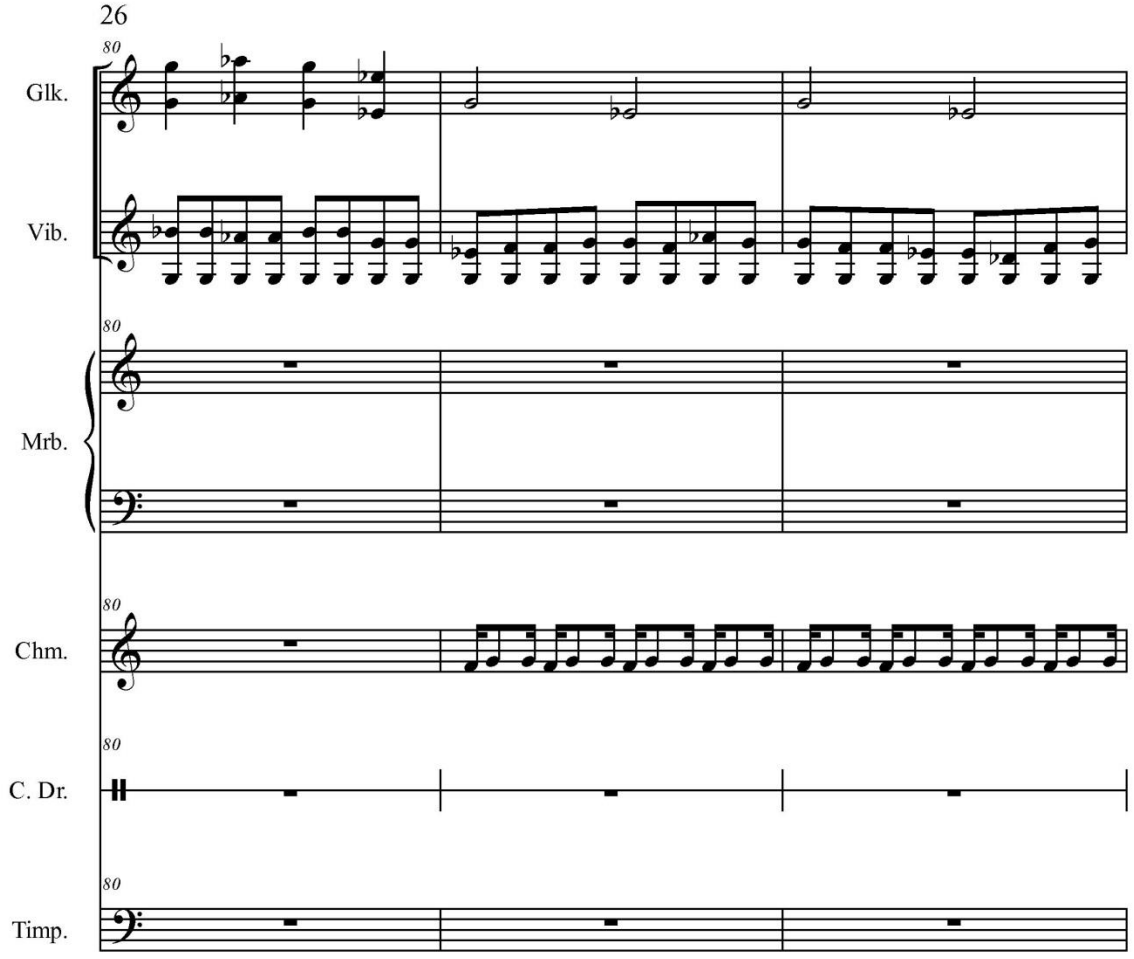
C. Dr.
77
Timp.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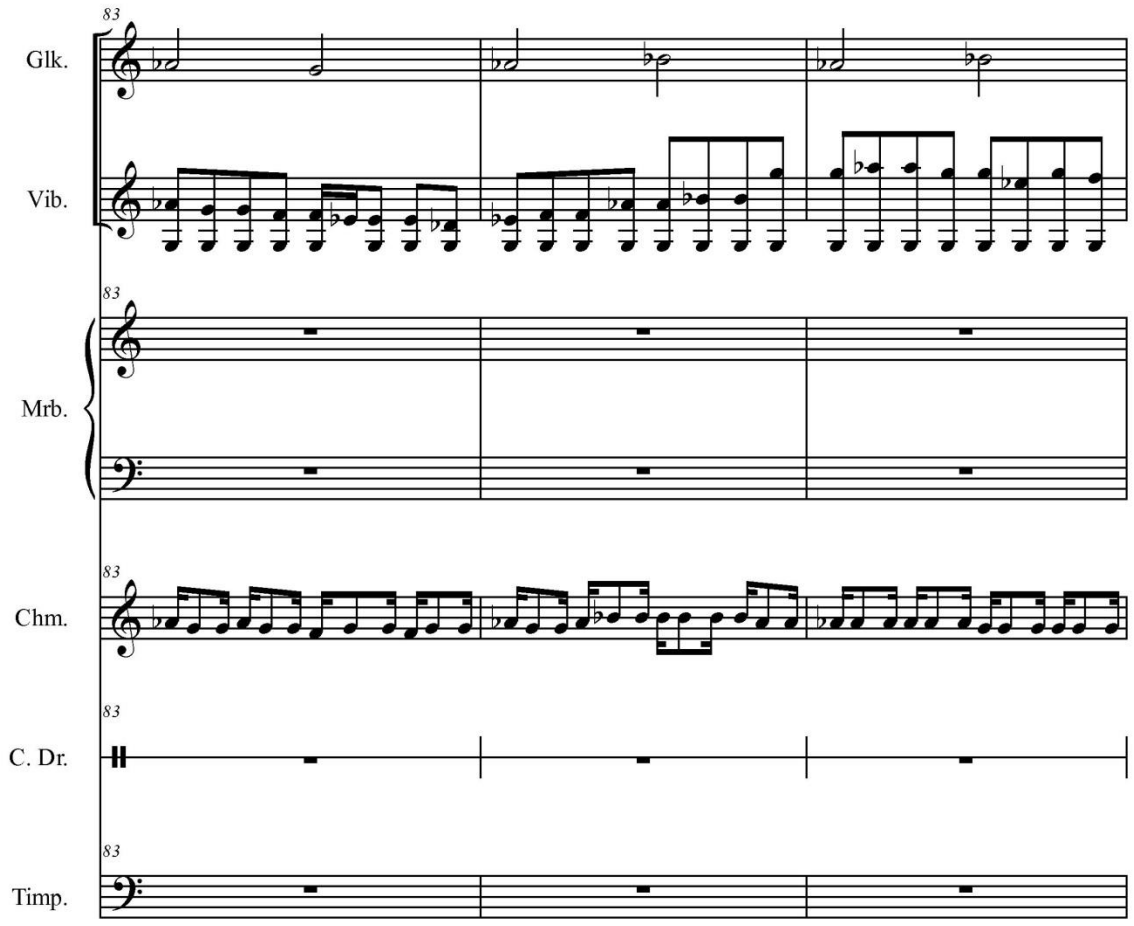
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Vib.
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Mrb.
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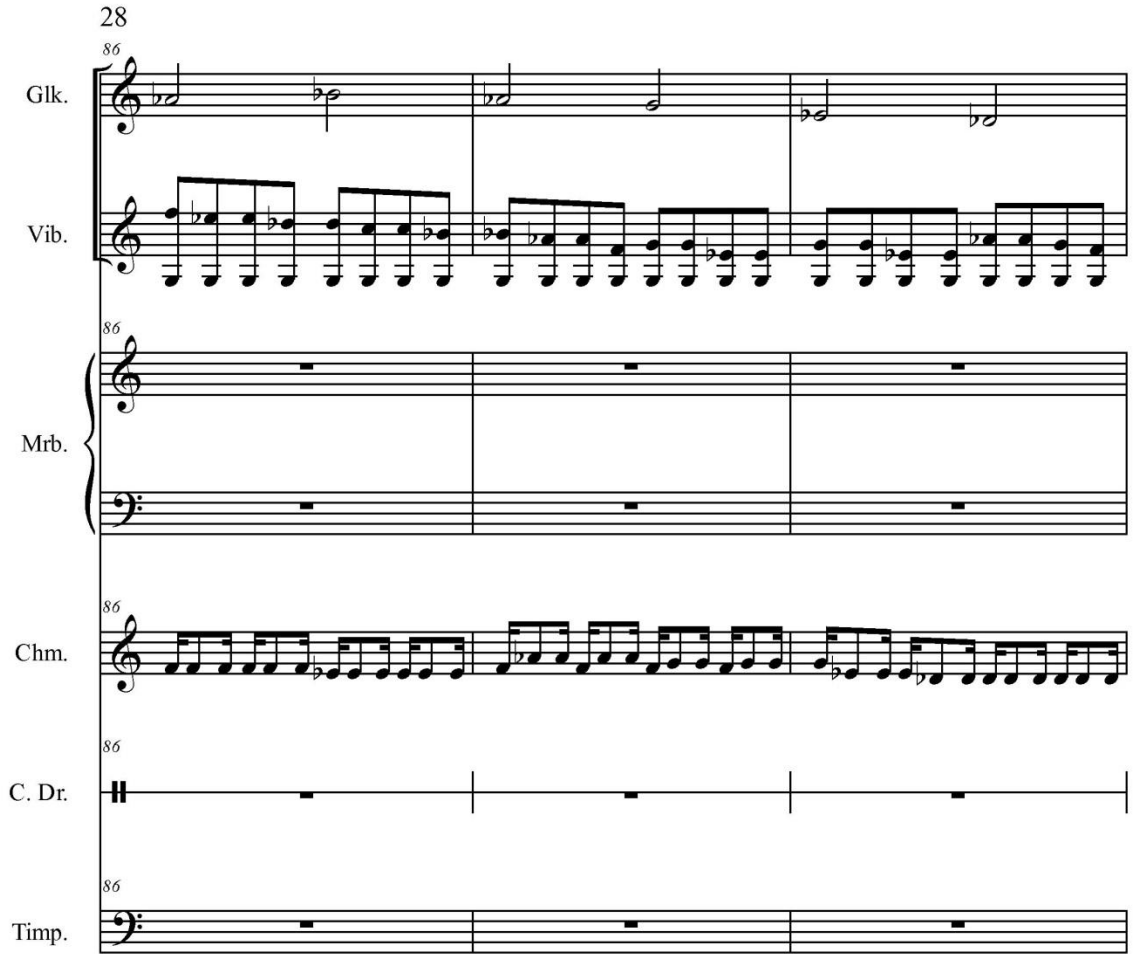
Chm.
83
C. Dr.
83
Timp.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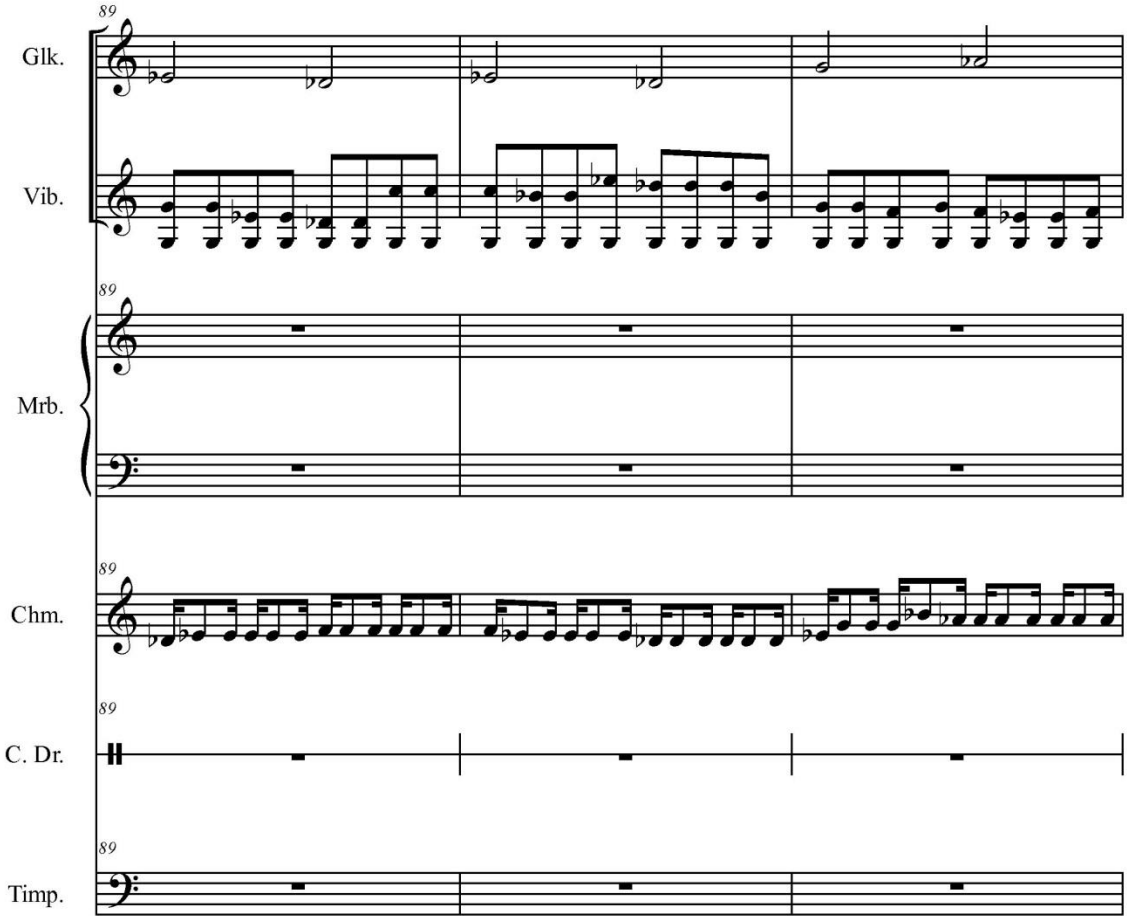
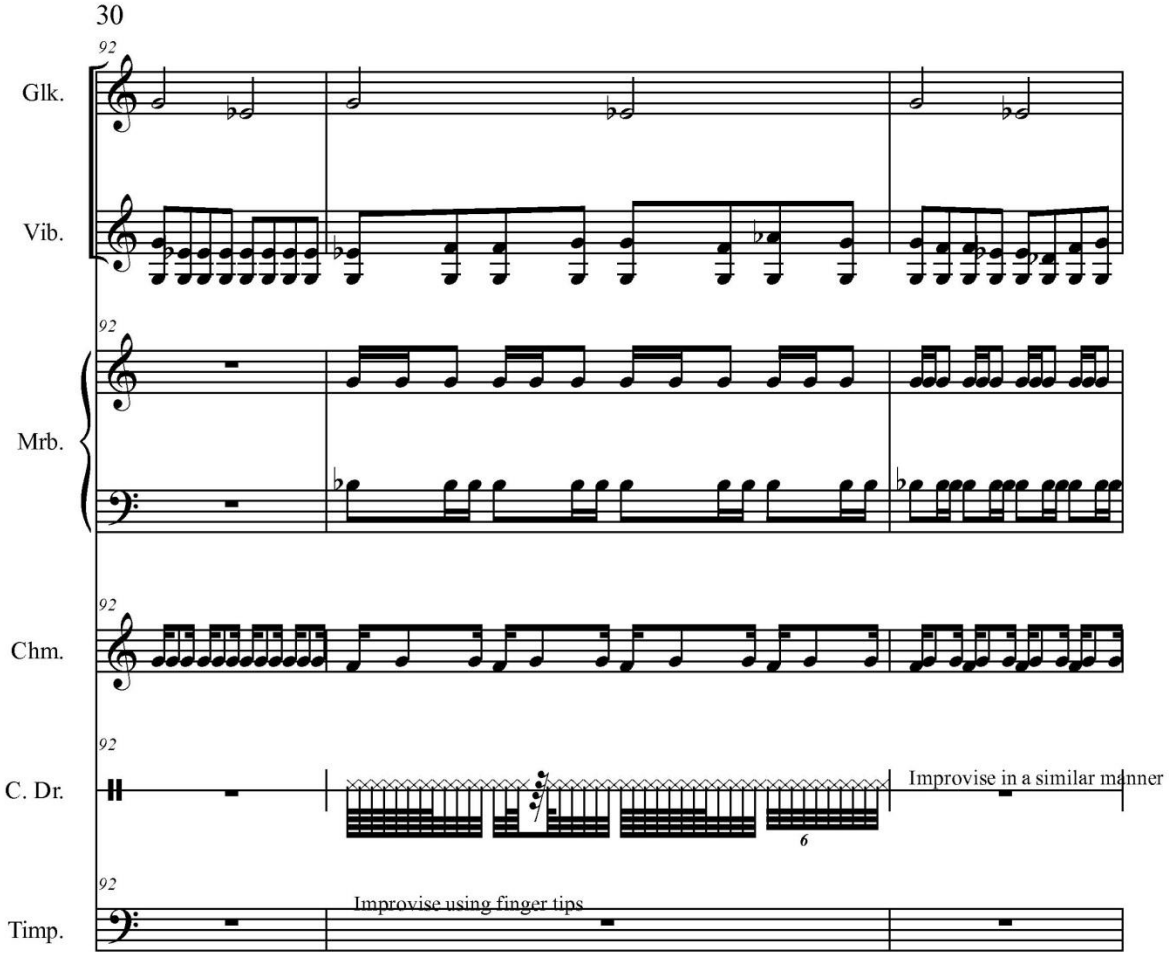
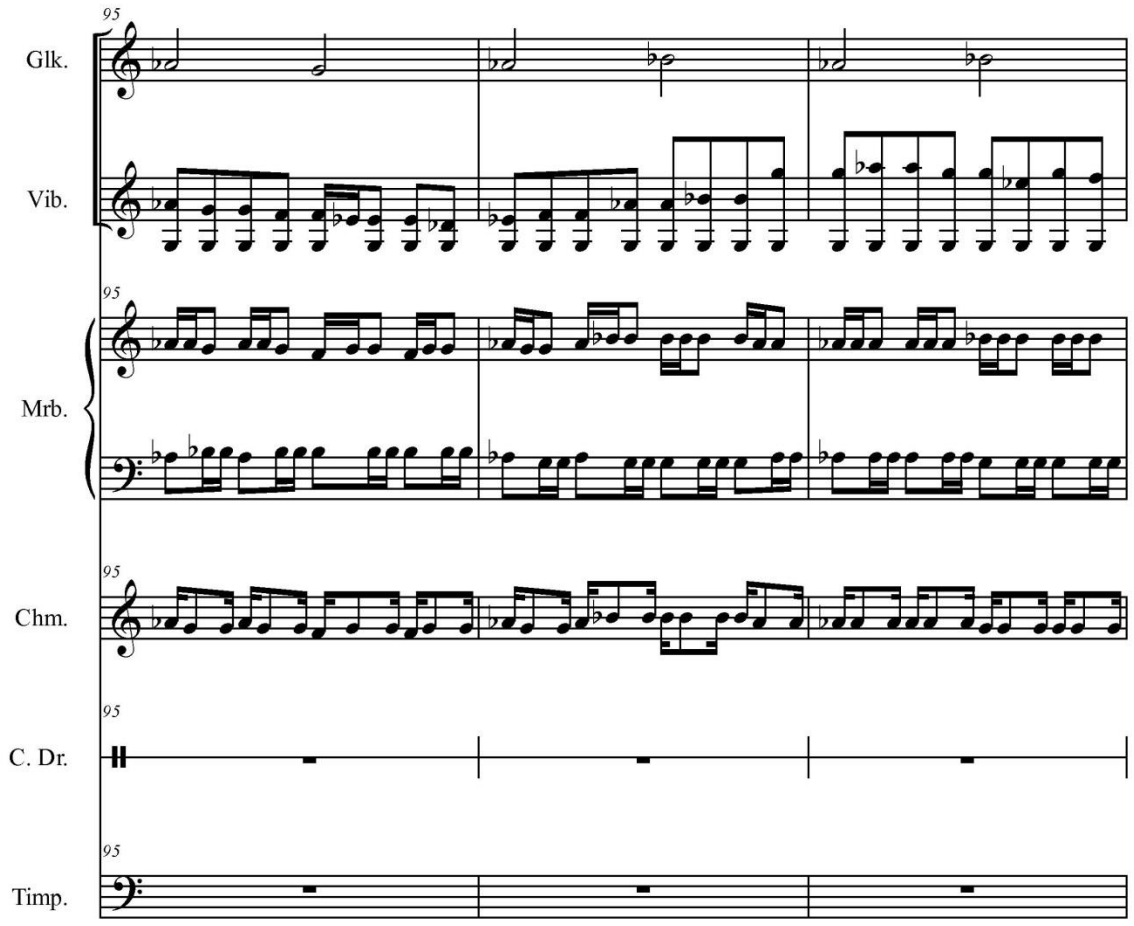
Vib.
86
Mrb.
86
Chm.
86
C. Dr.
86
Timp.

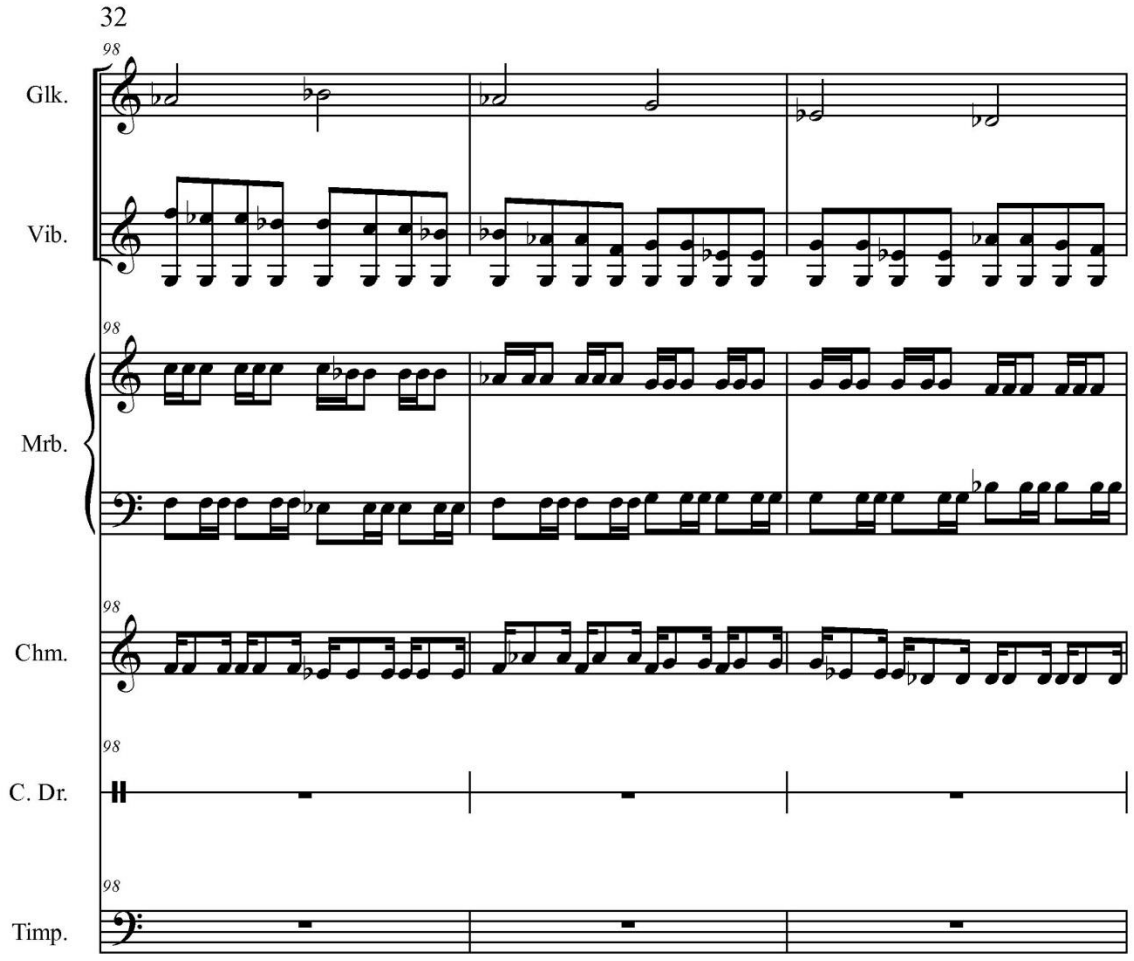
29




30
92
Glk.
Vib.
92
Mrb.
92
Chm.
92
C. Dr.
Improvise in a similar manner
6
92
Timp.
Improvise using finger tips

31

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98
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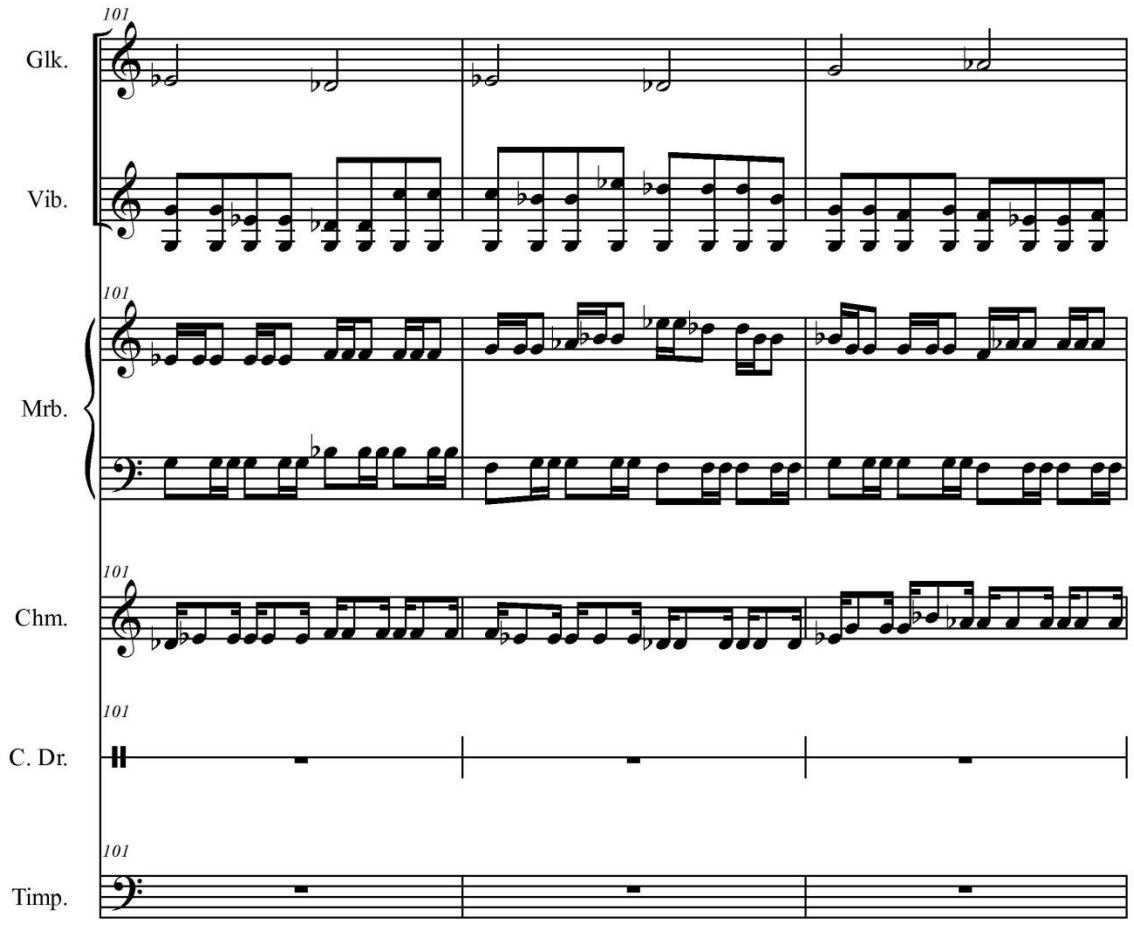
Vib.
Mrb.
Chm.
C. Dr.
Timp.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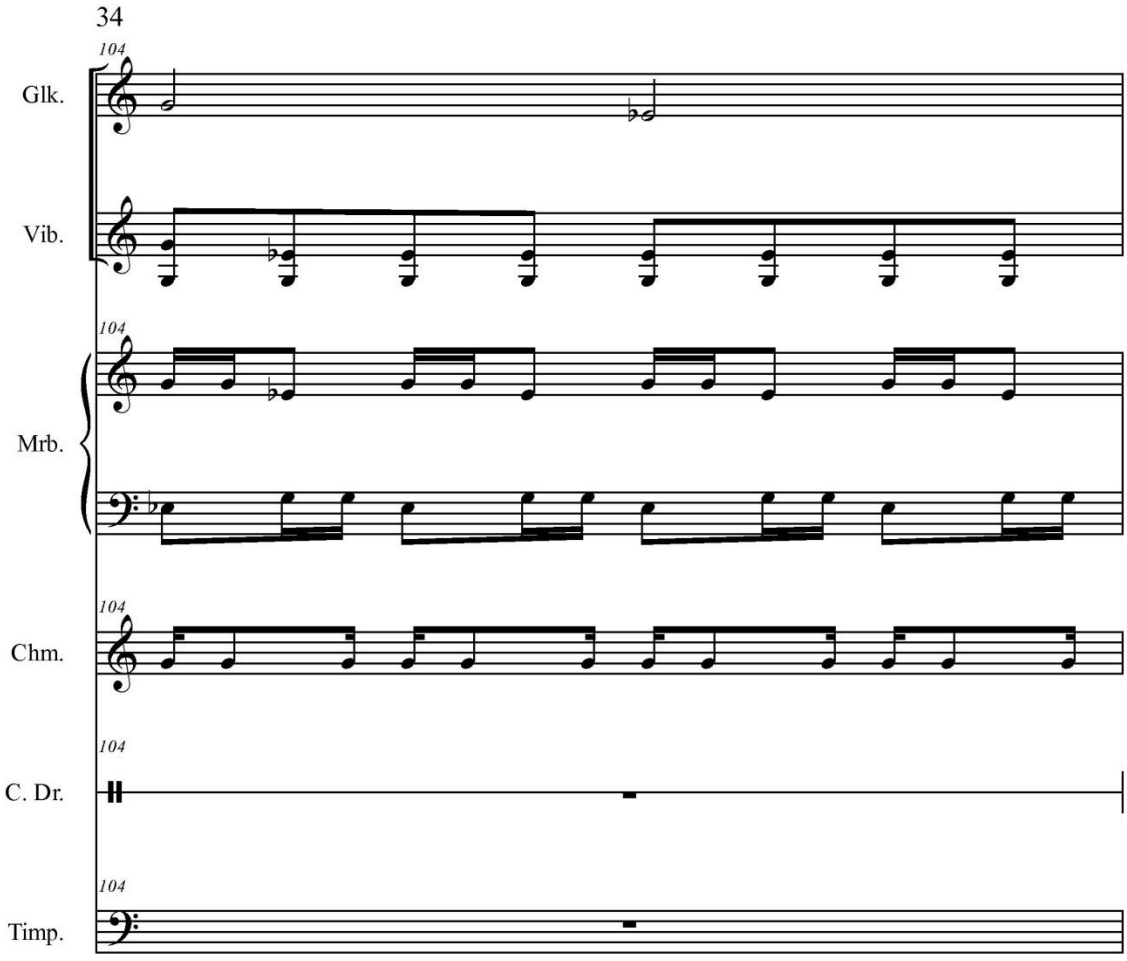
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Vib.
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Chm.
104
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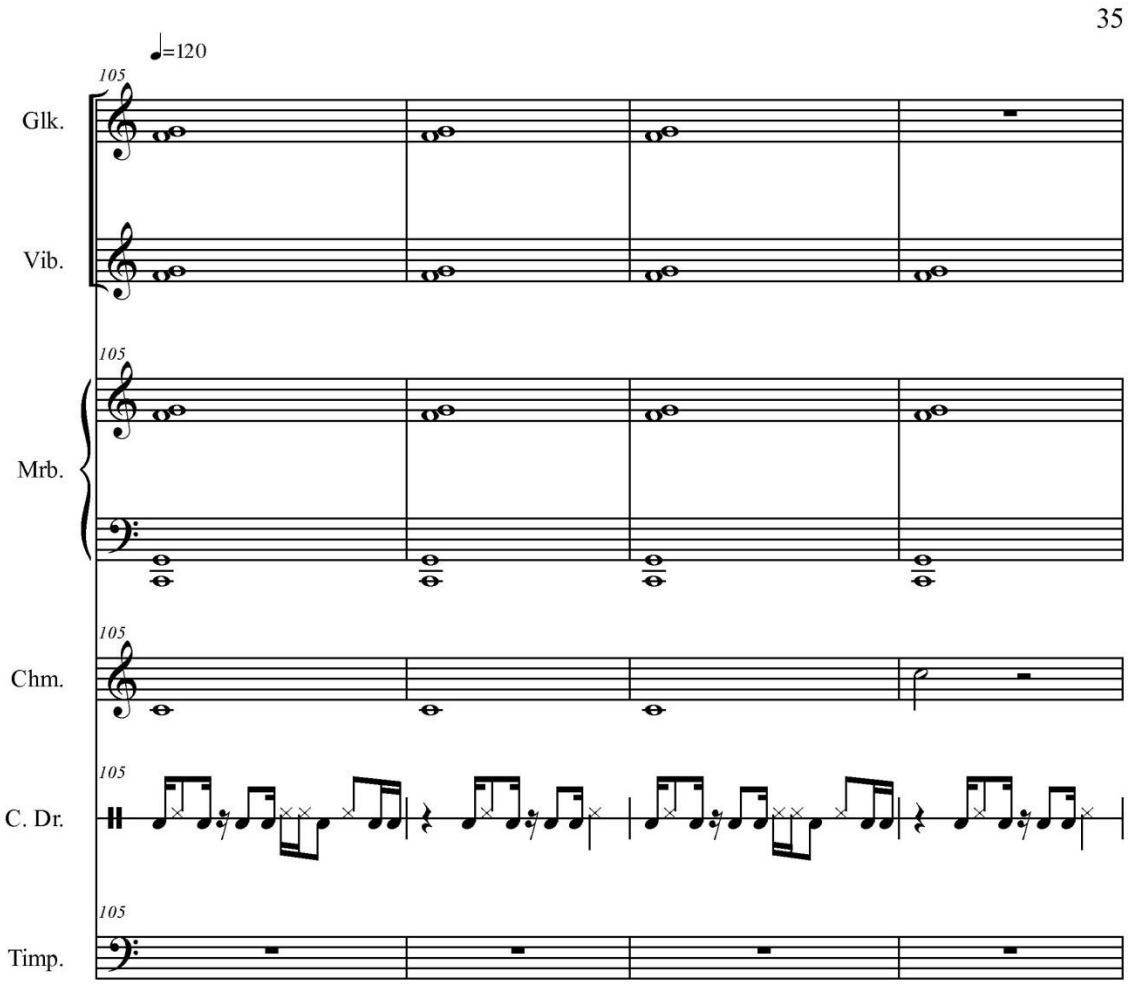
104
Timp.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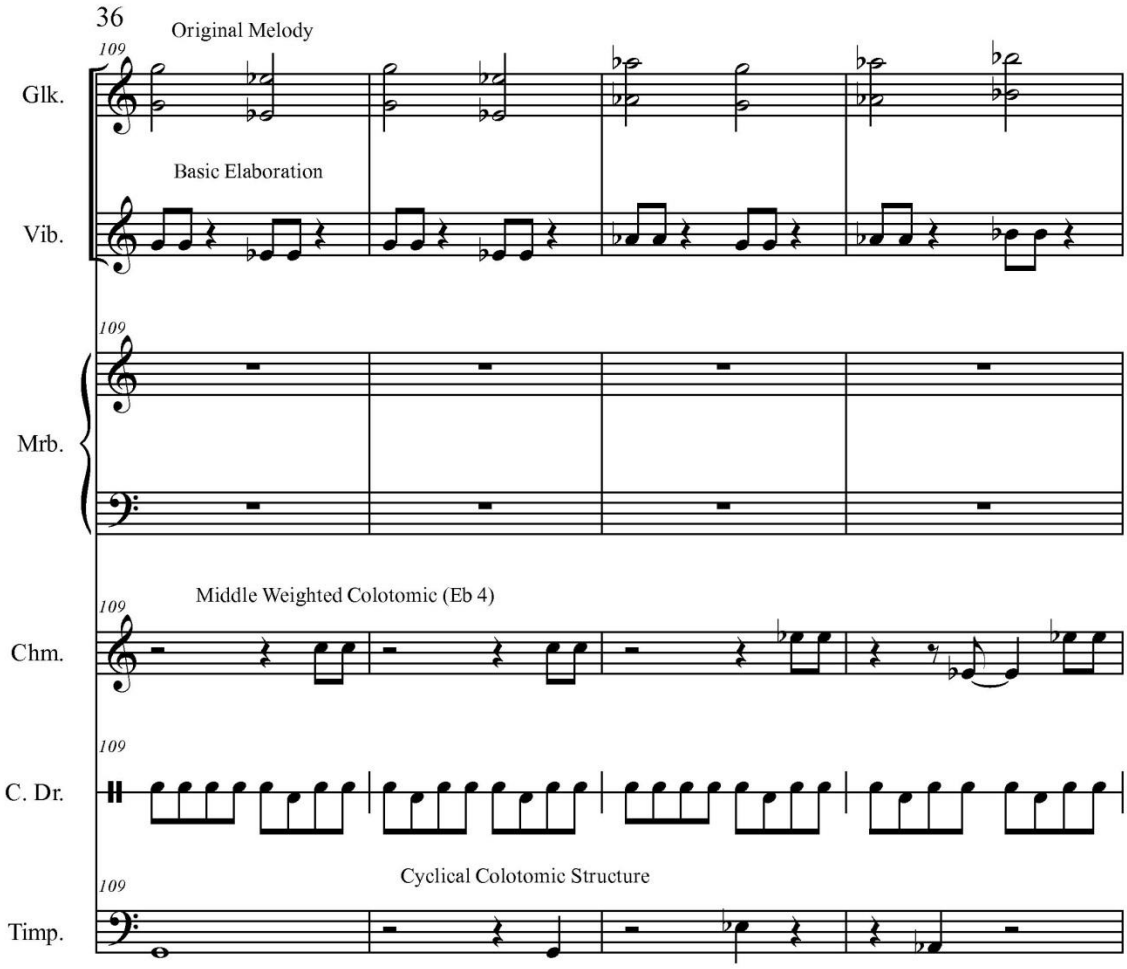
Vib.
Mrb.
Chm.
C. Dr.
Timp.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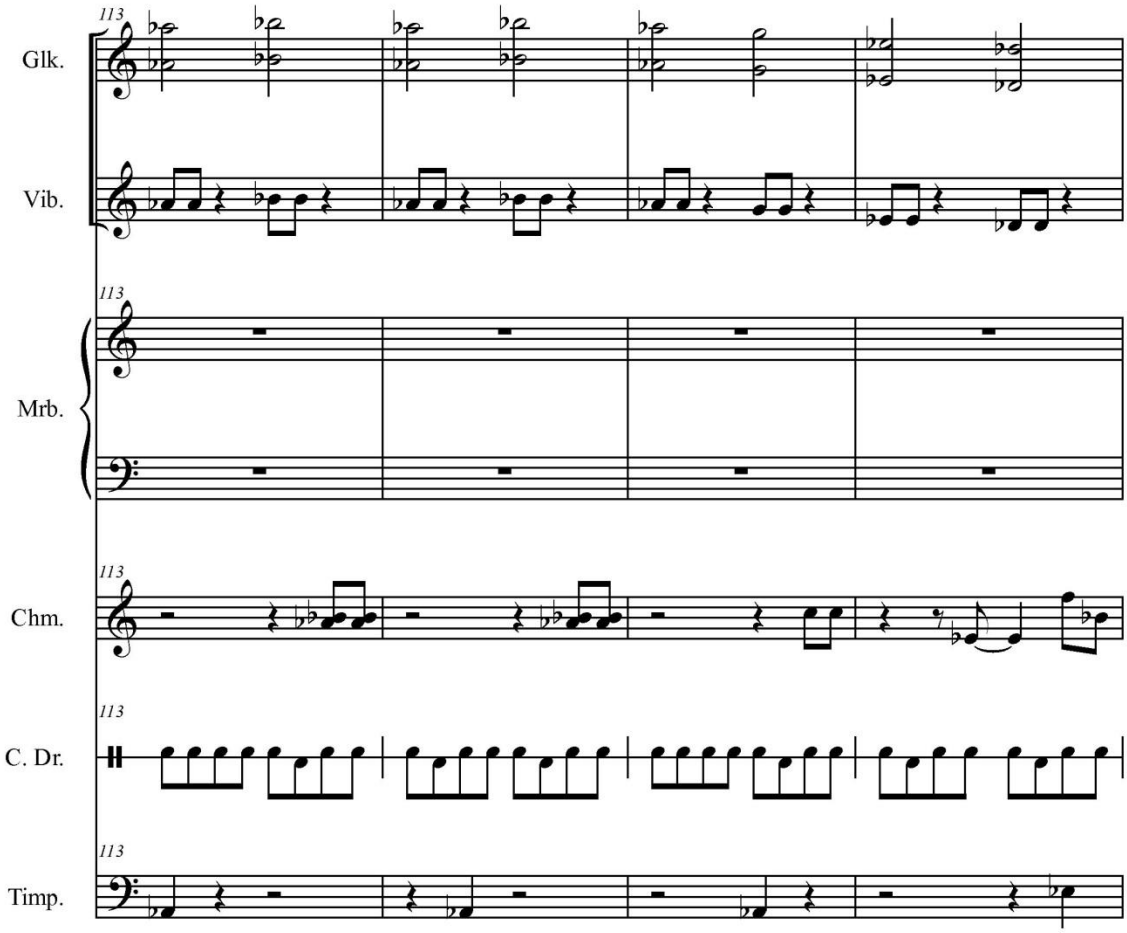
Original Melody
109
Glk.
Basic Elaboration
Vib.
109
Mrb.
Middle Weighted Colotomic (Eb 4)
109
Chm.
109
C. Dr.
Cyclical Colotomic Structure
109
Timp.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Mrb.
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Chm.
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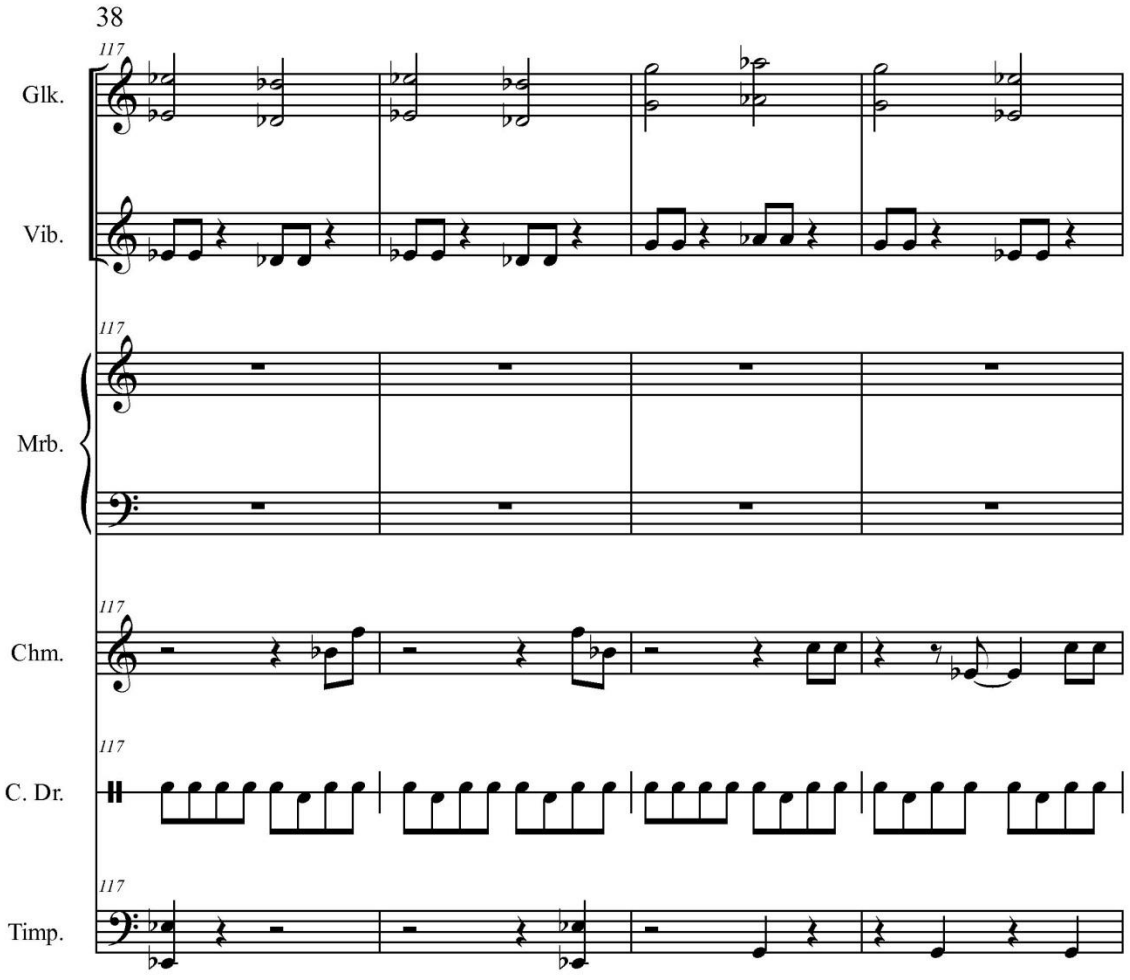
C. Dr.
113
Timp.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Mrb.
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Chm.
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C. Dr.
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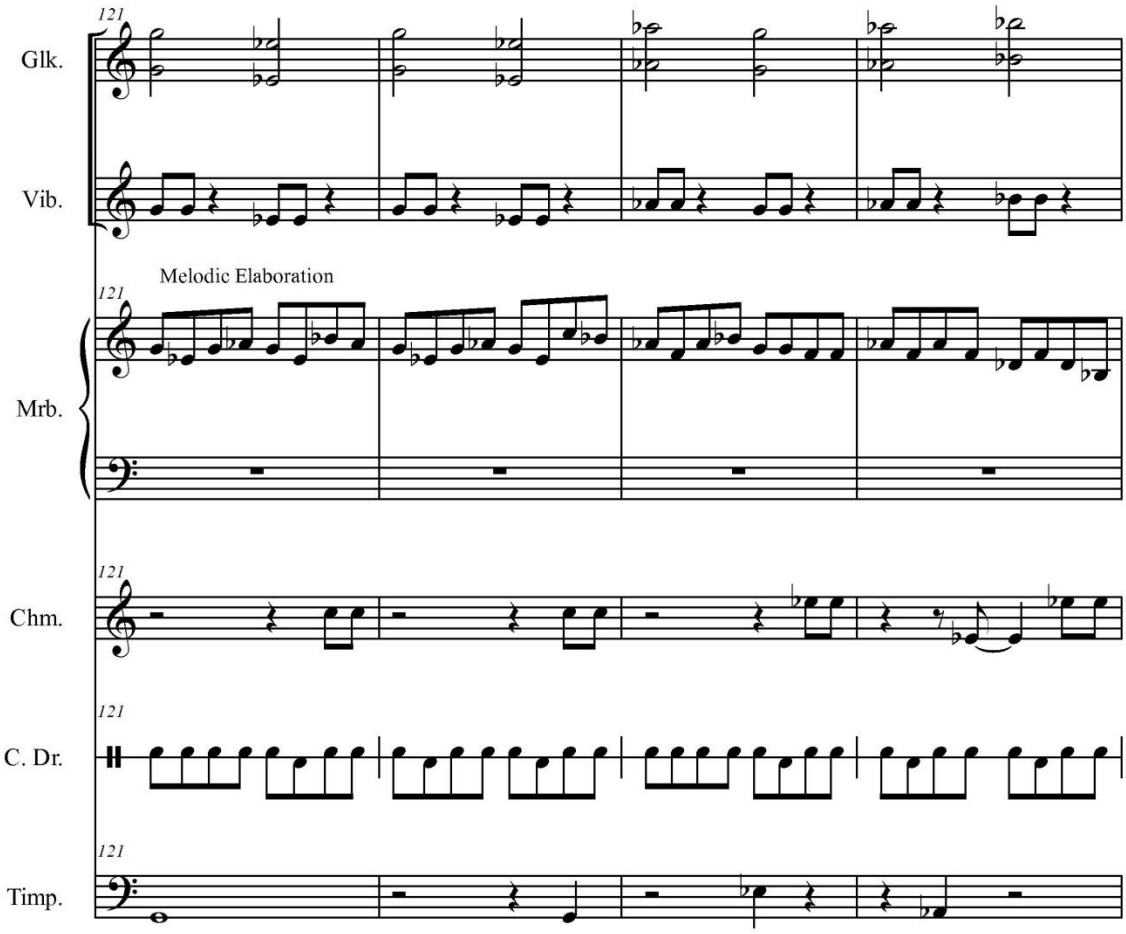
Timp.

39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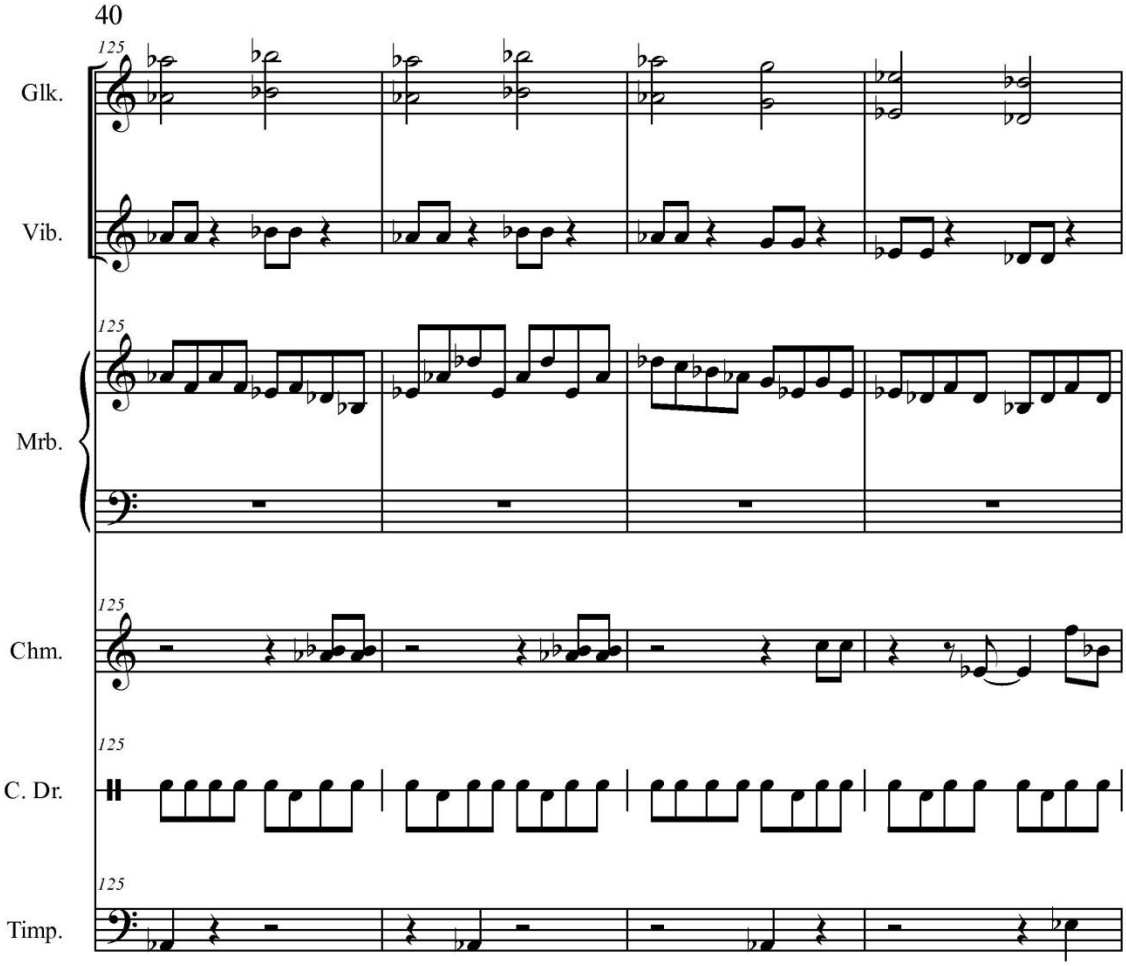
Glk.
Vib.
Melodic Elaboration
121
Mrb.
121
Chm.
121
C. Dr.
121
Timp.


40
125
Glk.
Vib.
Mrb.
Chm.
C. Dr.
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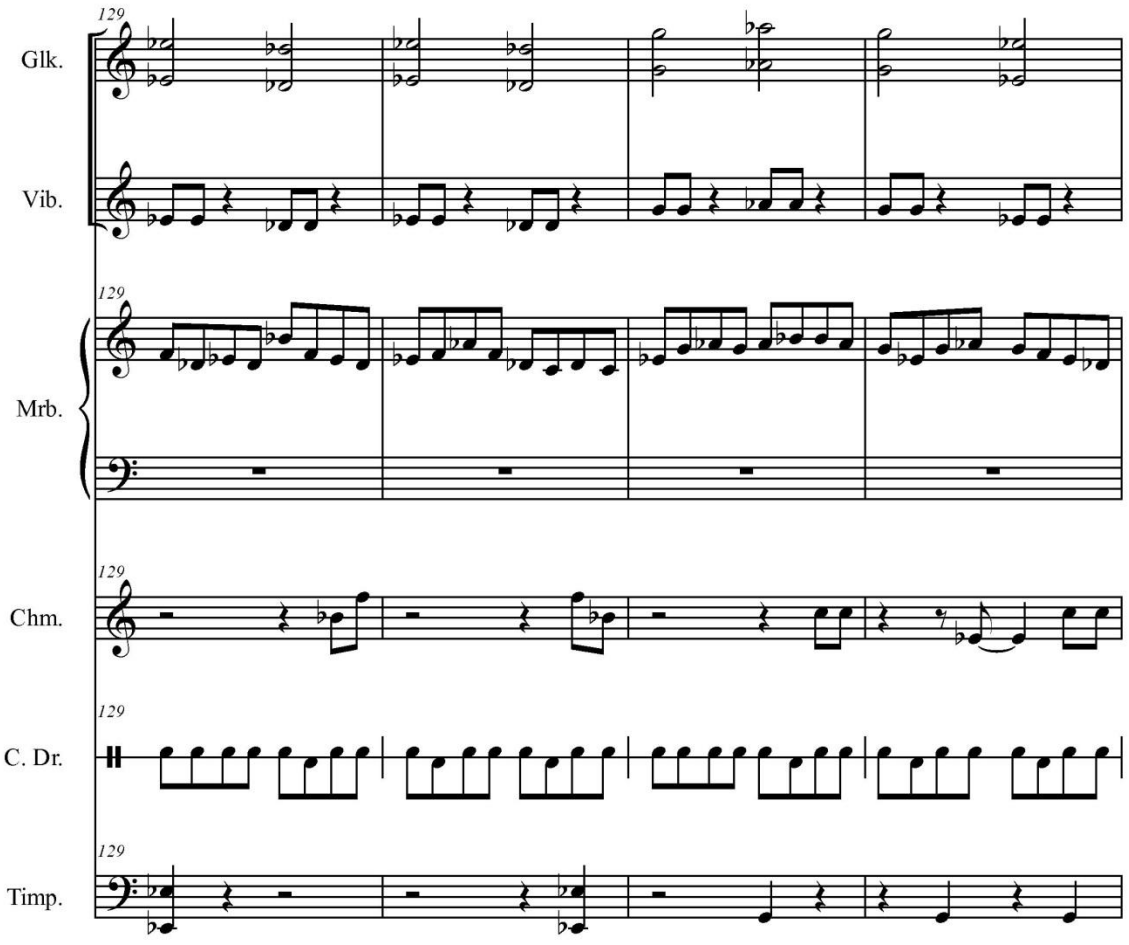
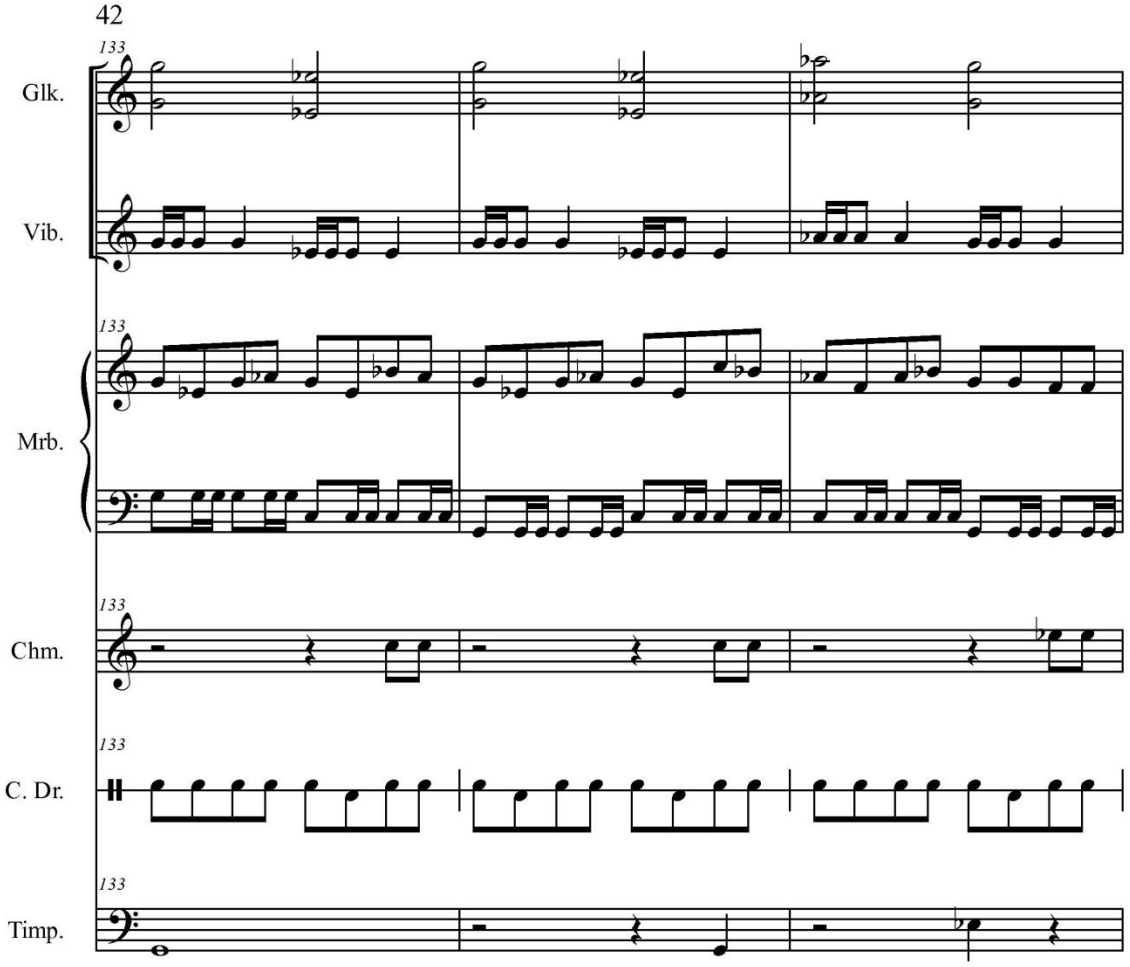
41

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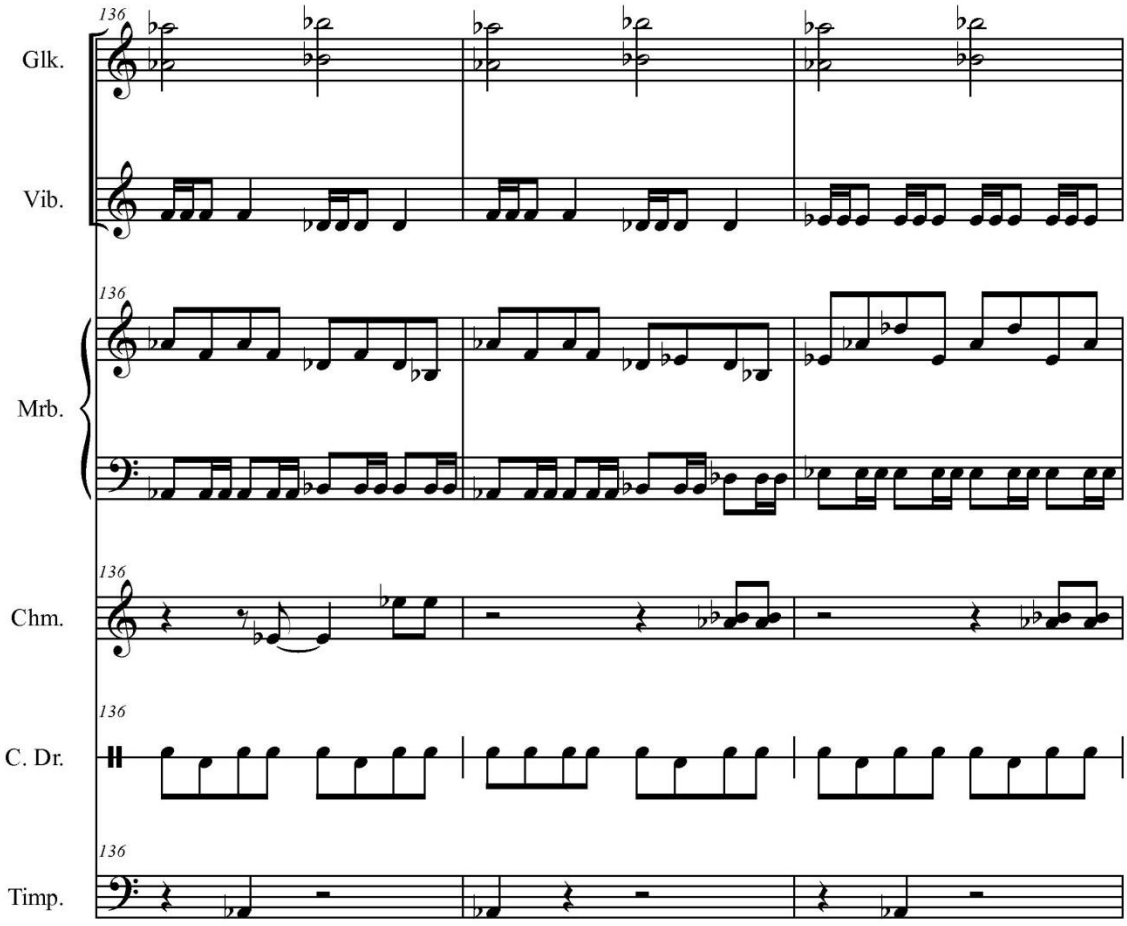
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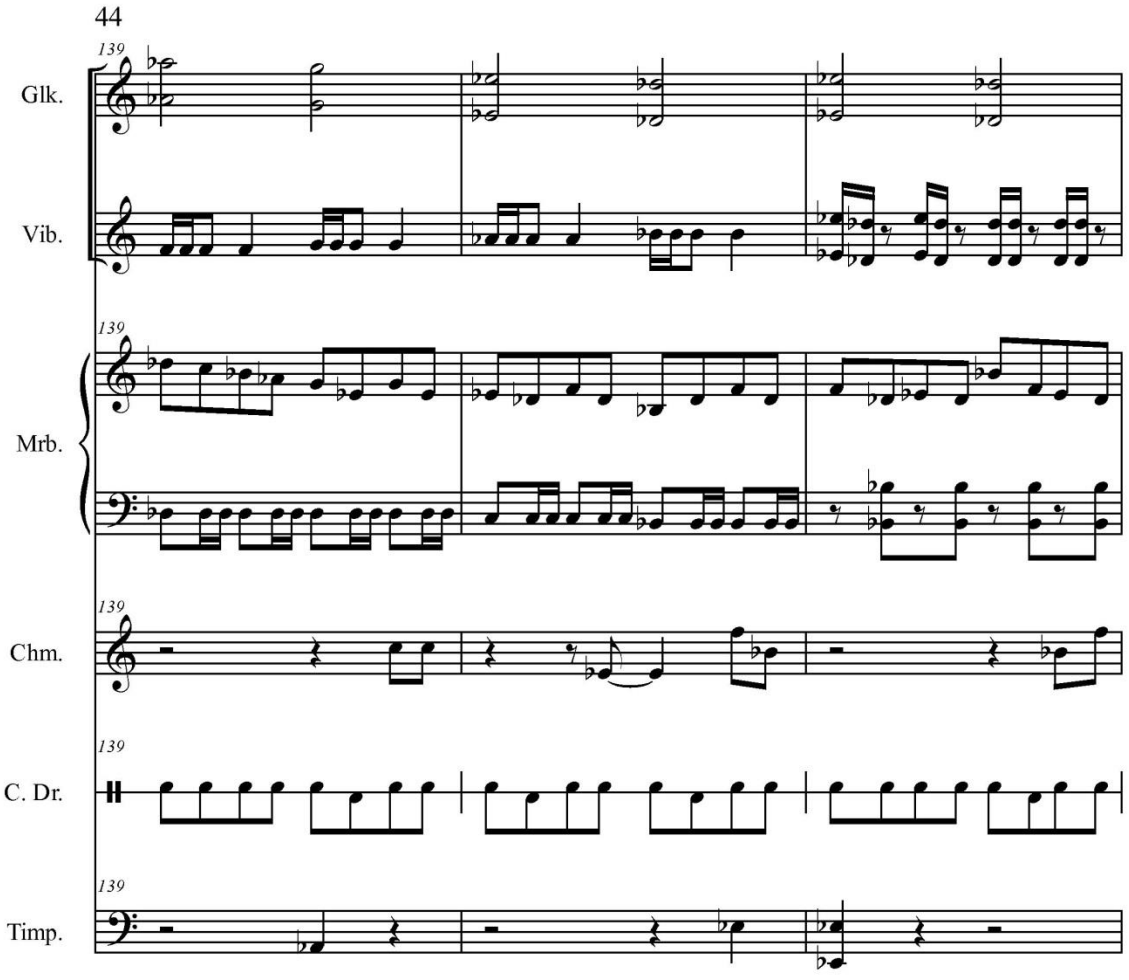
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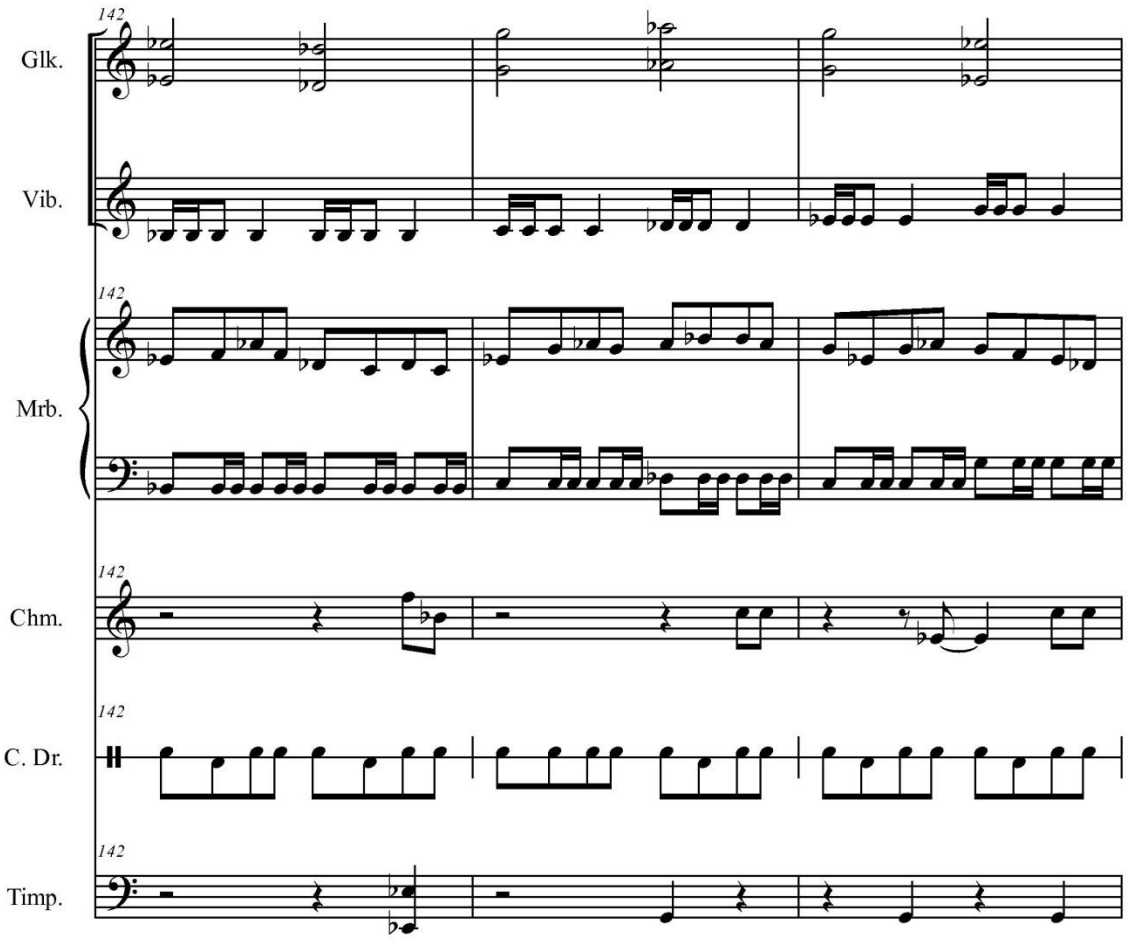

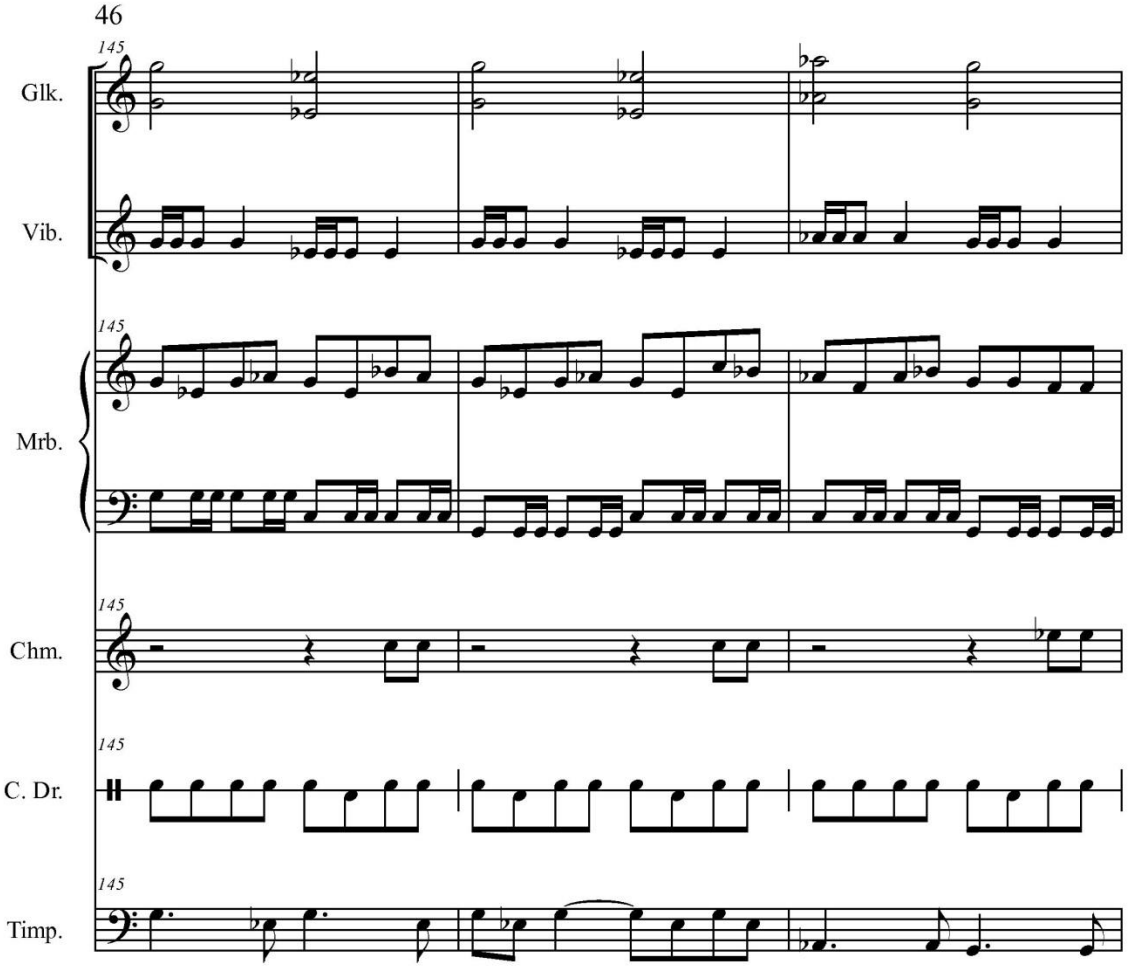
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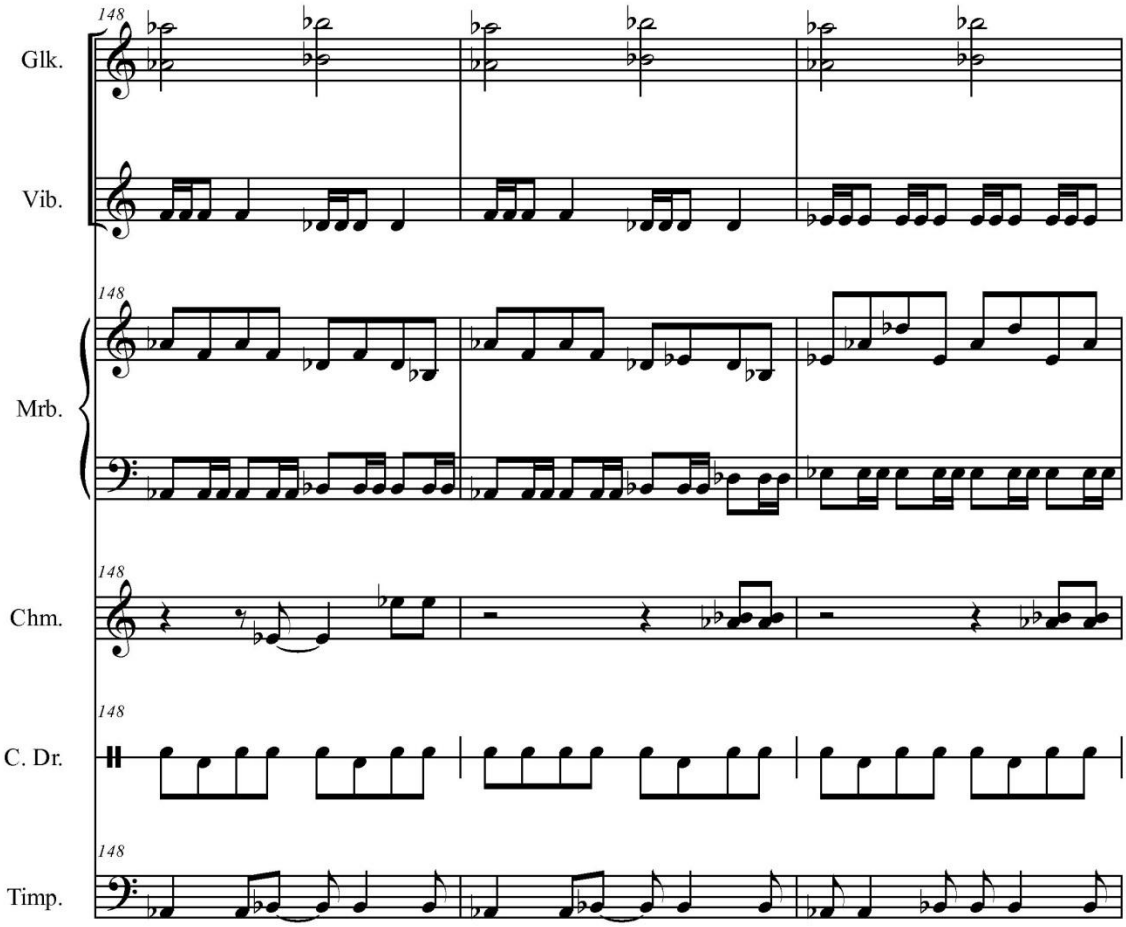

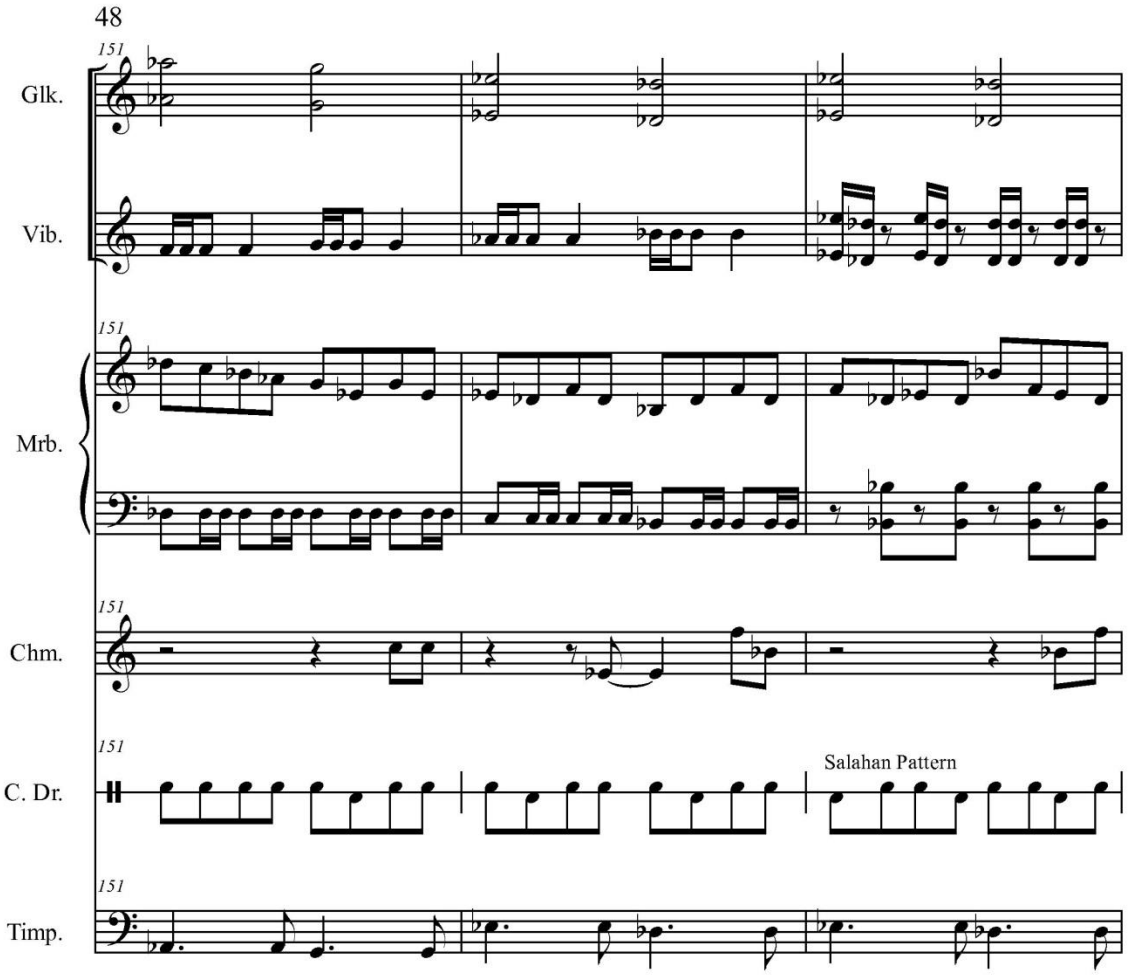
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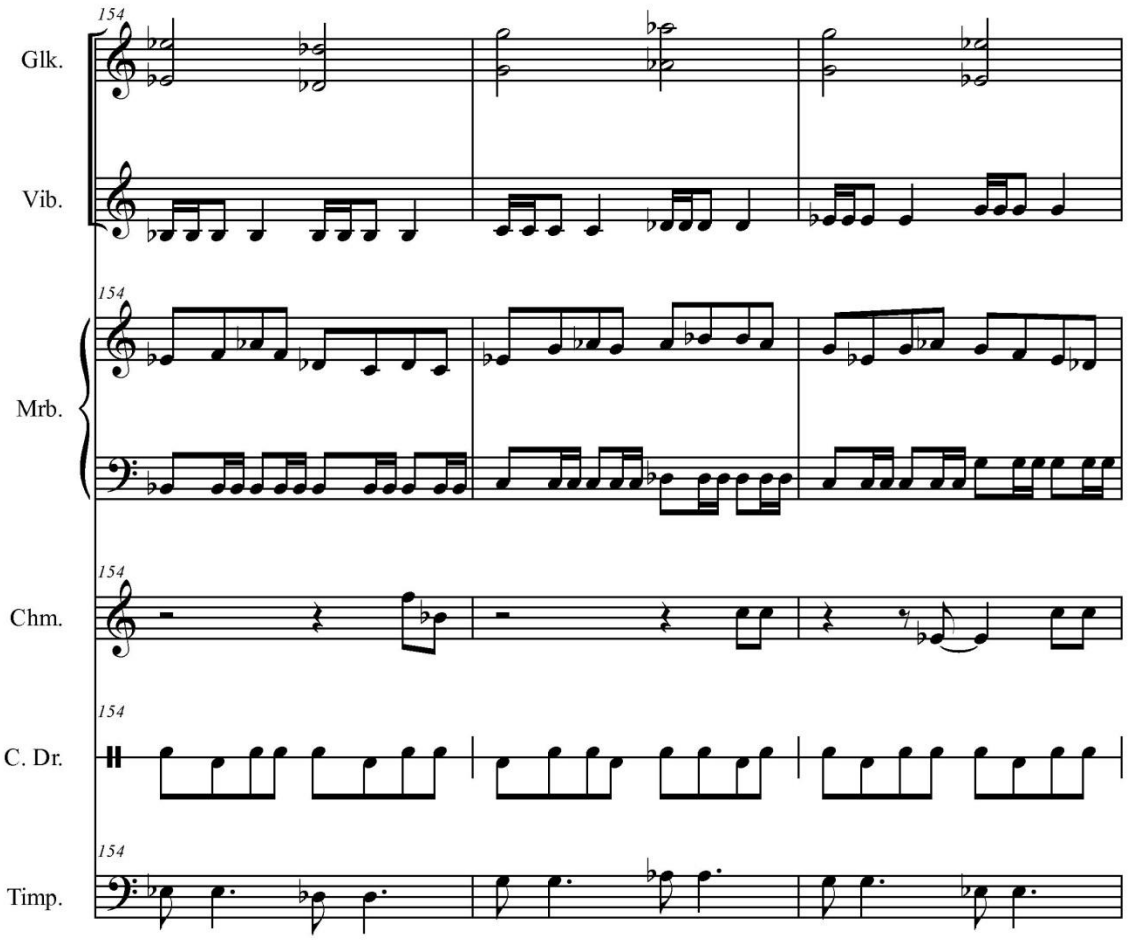
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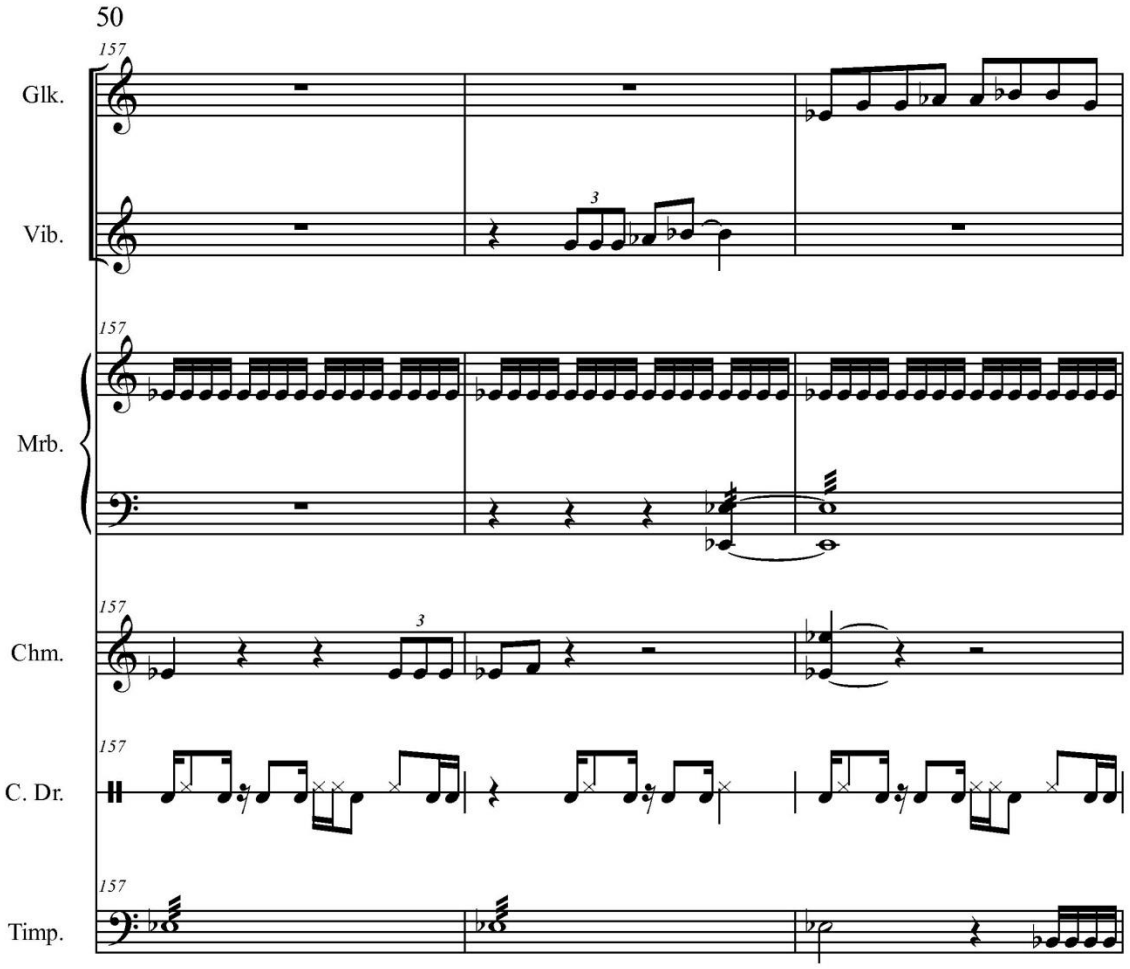
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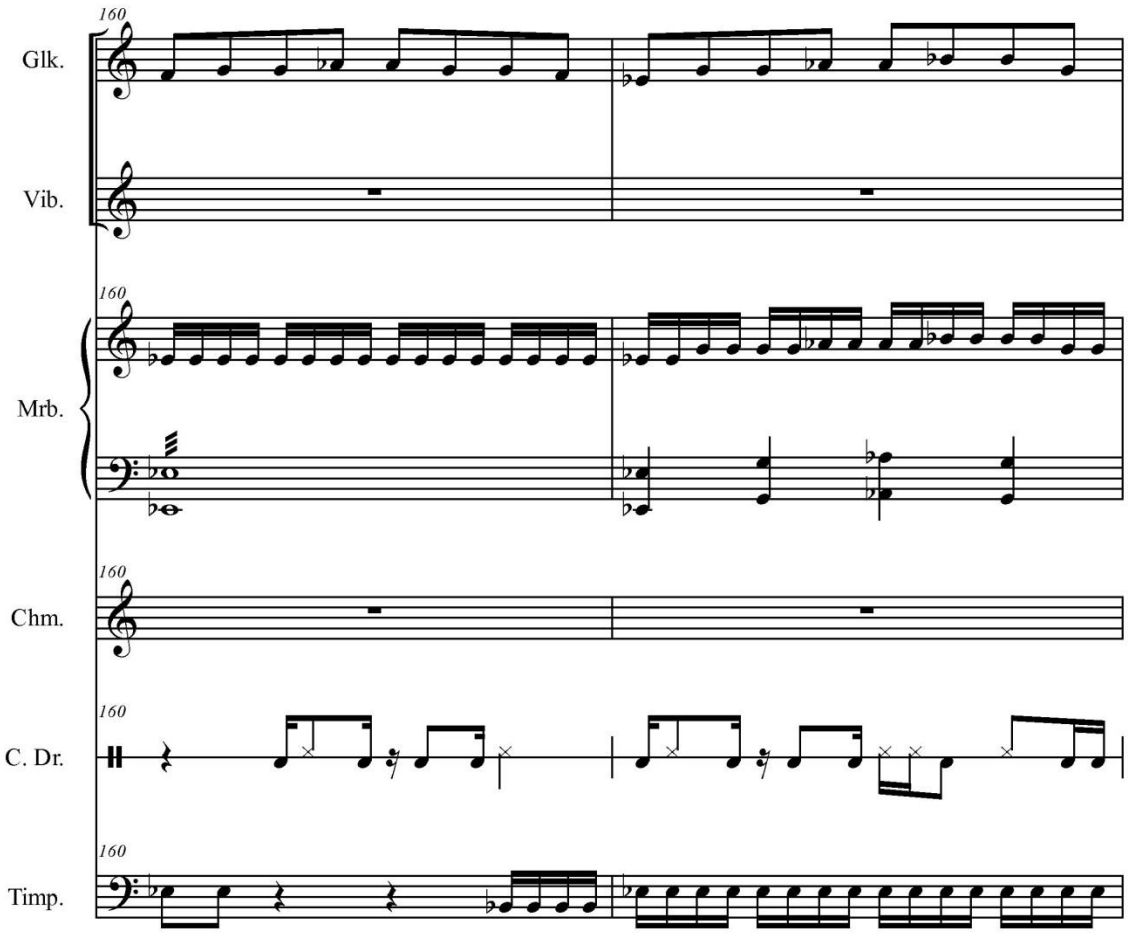
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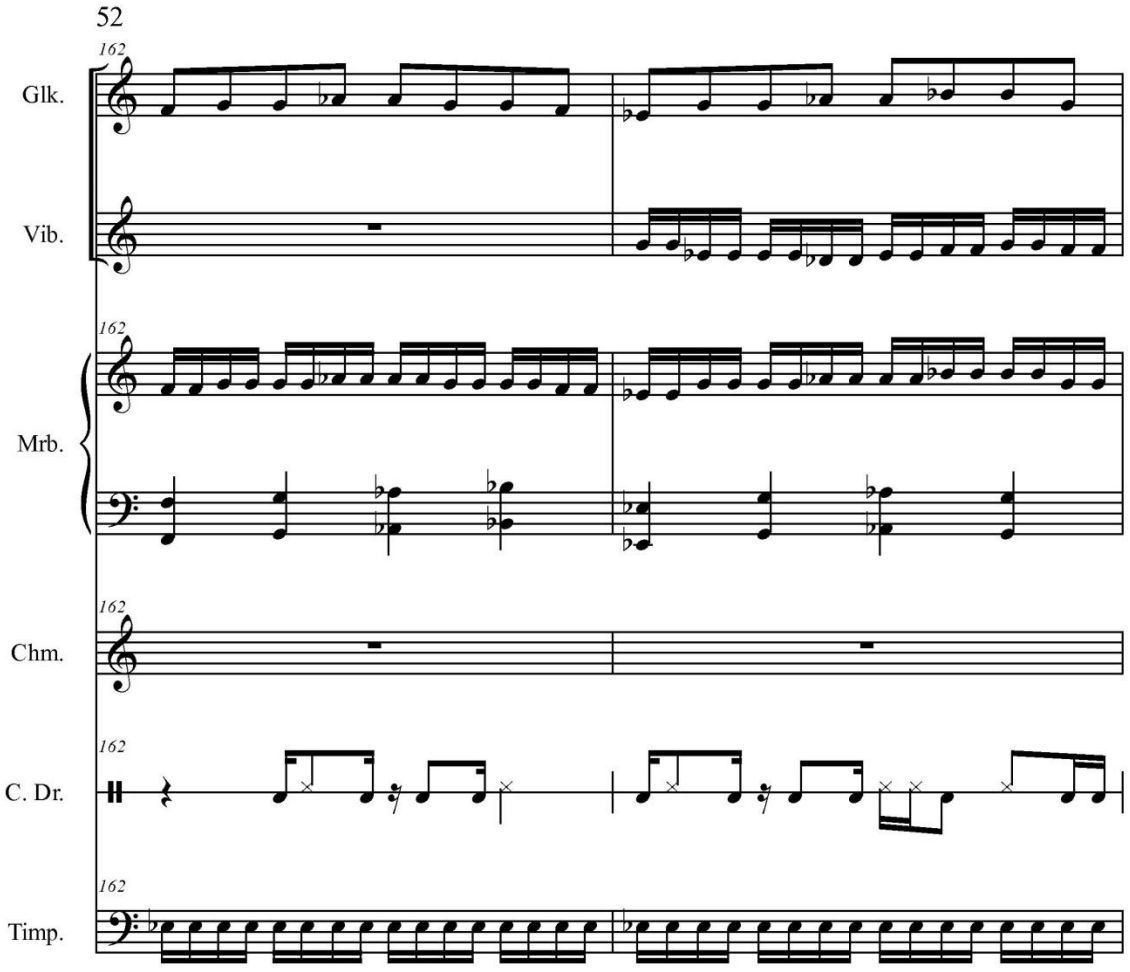
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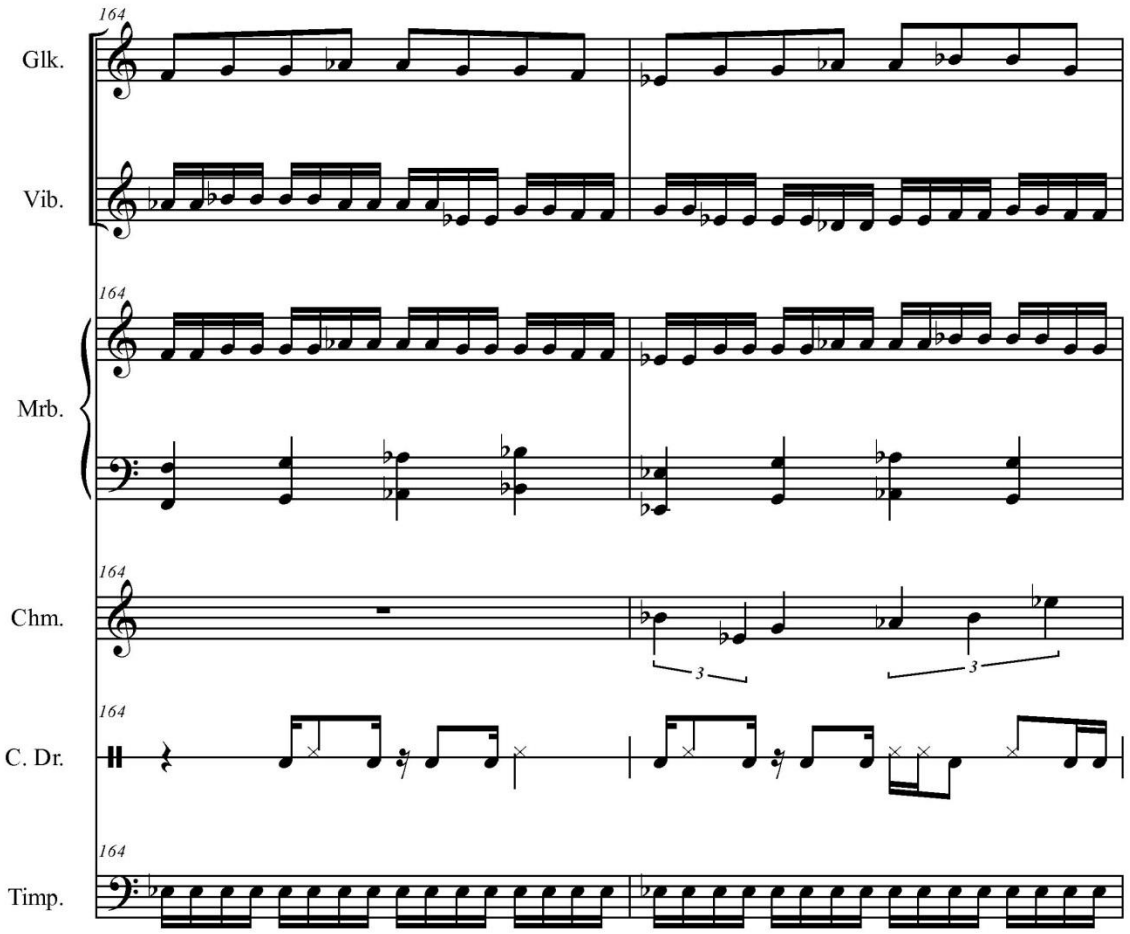

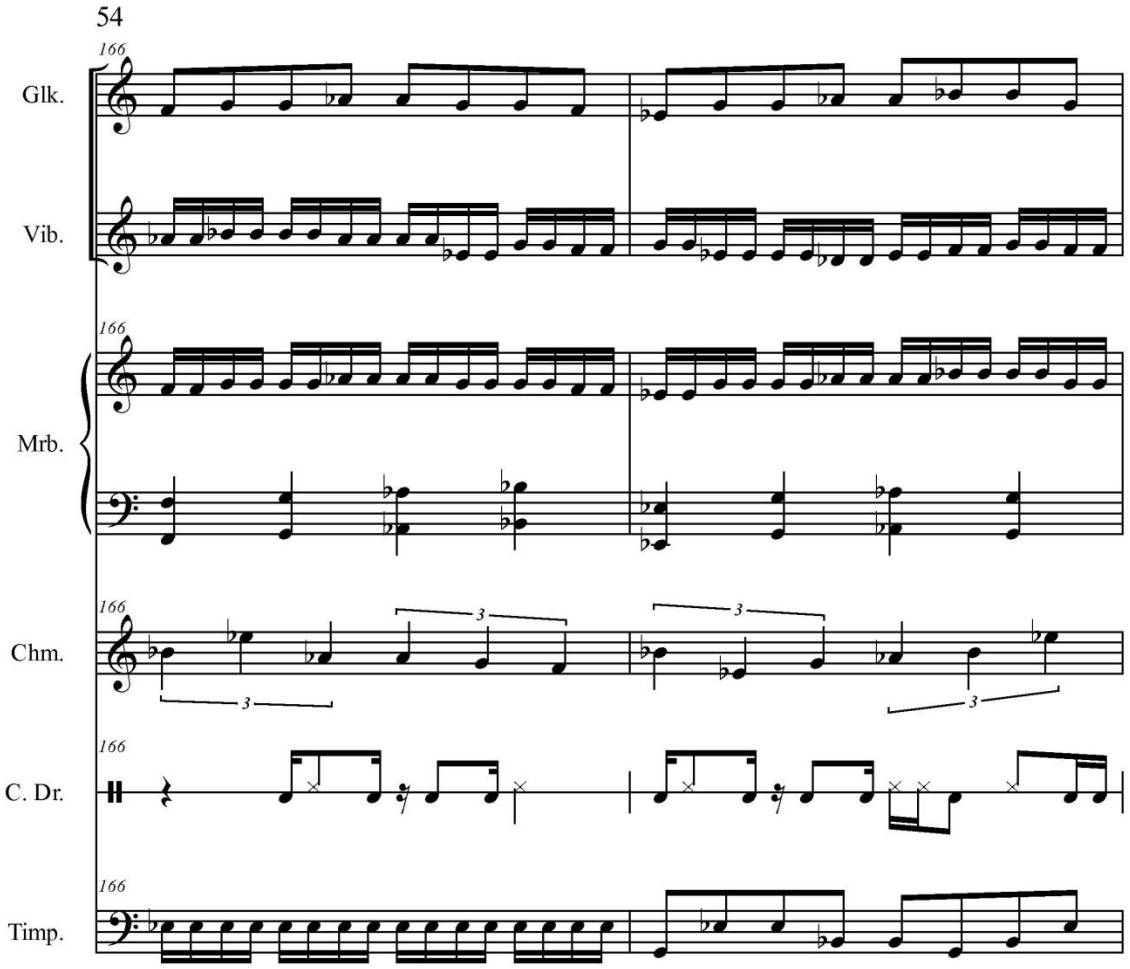
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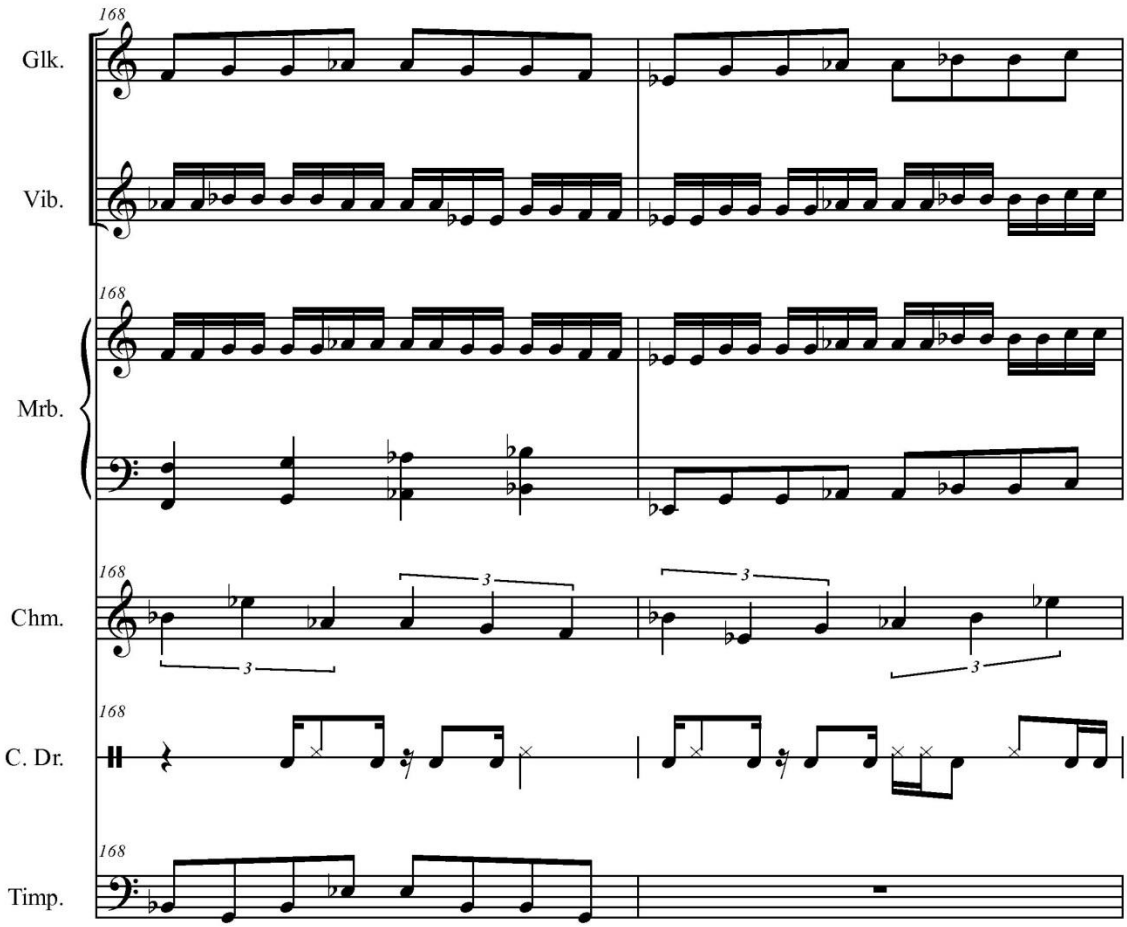

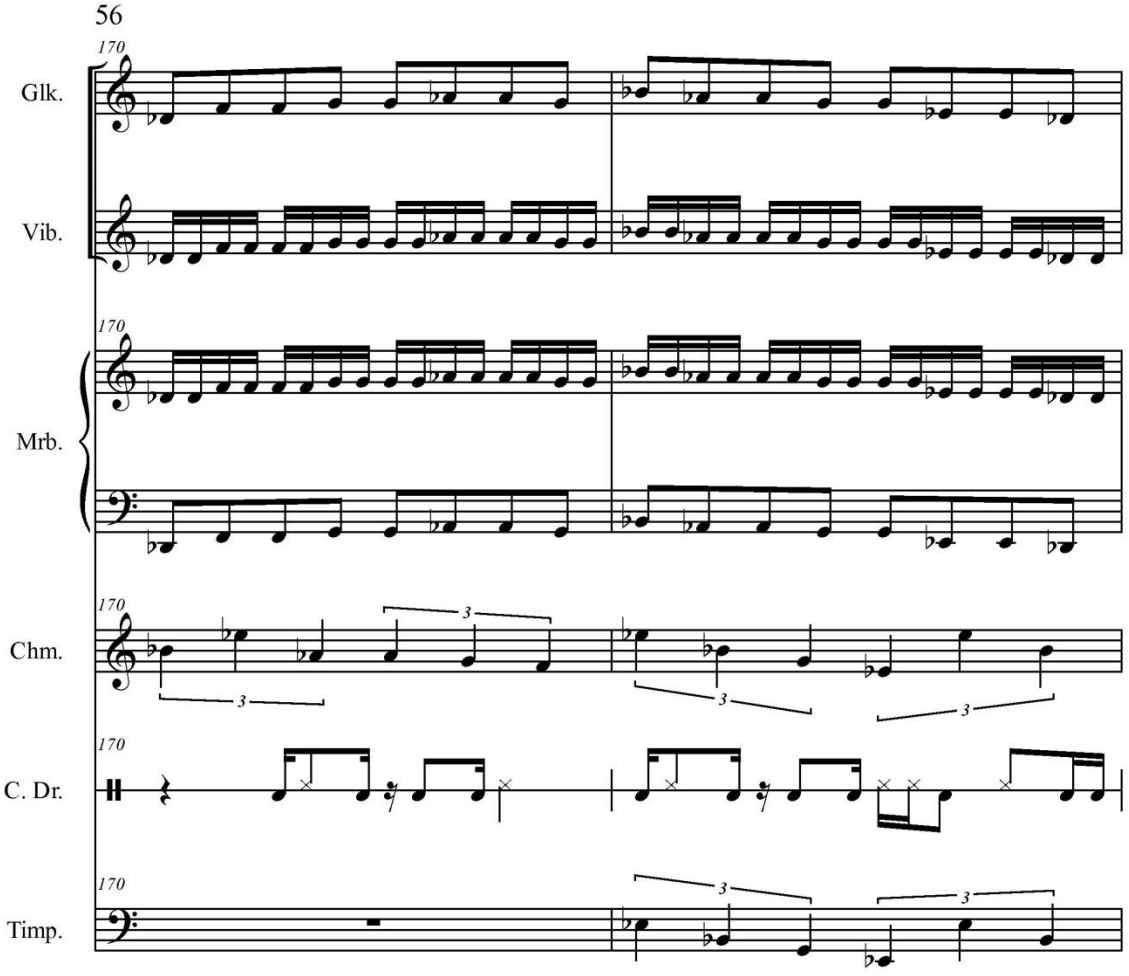
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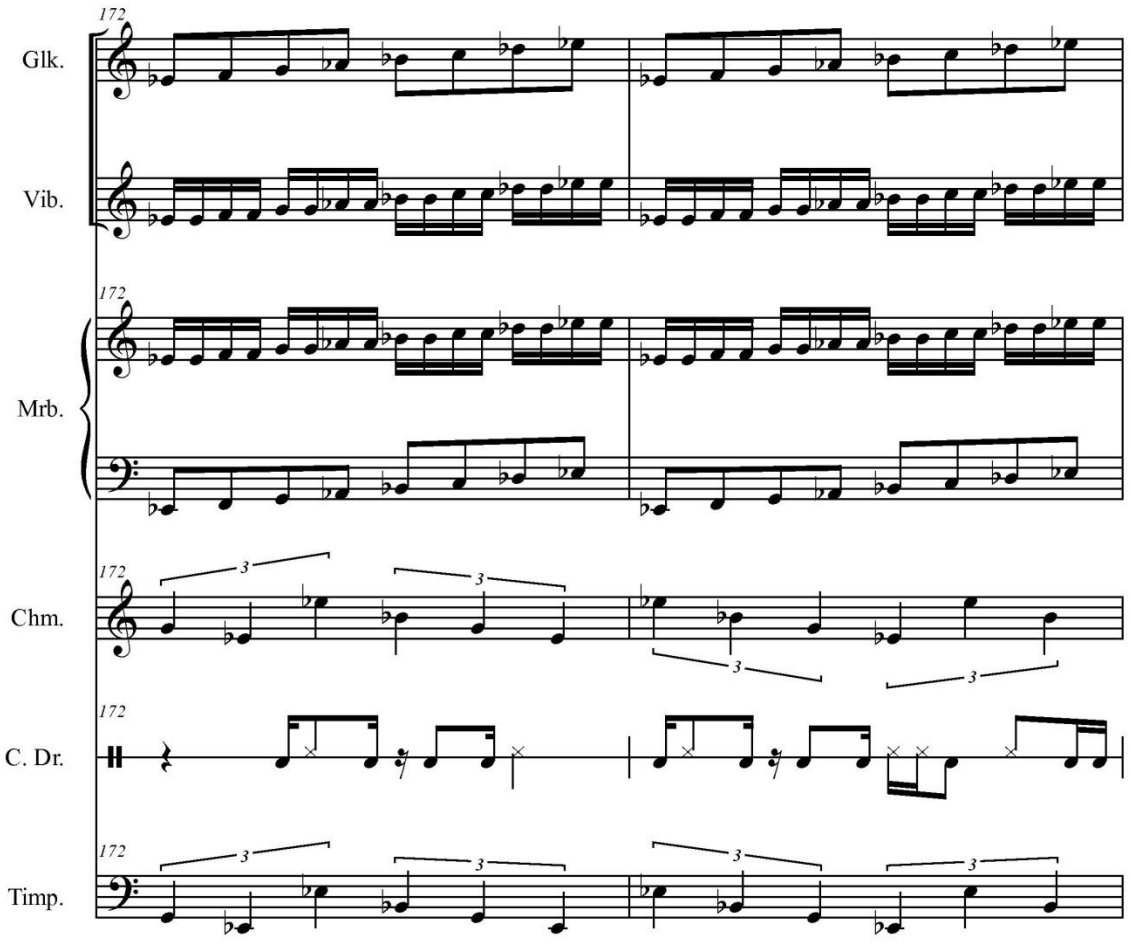

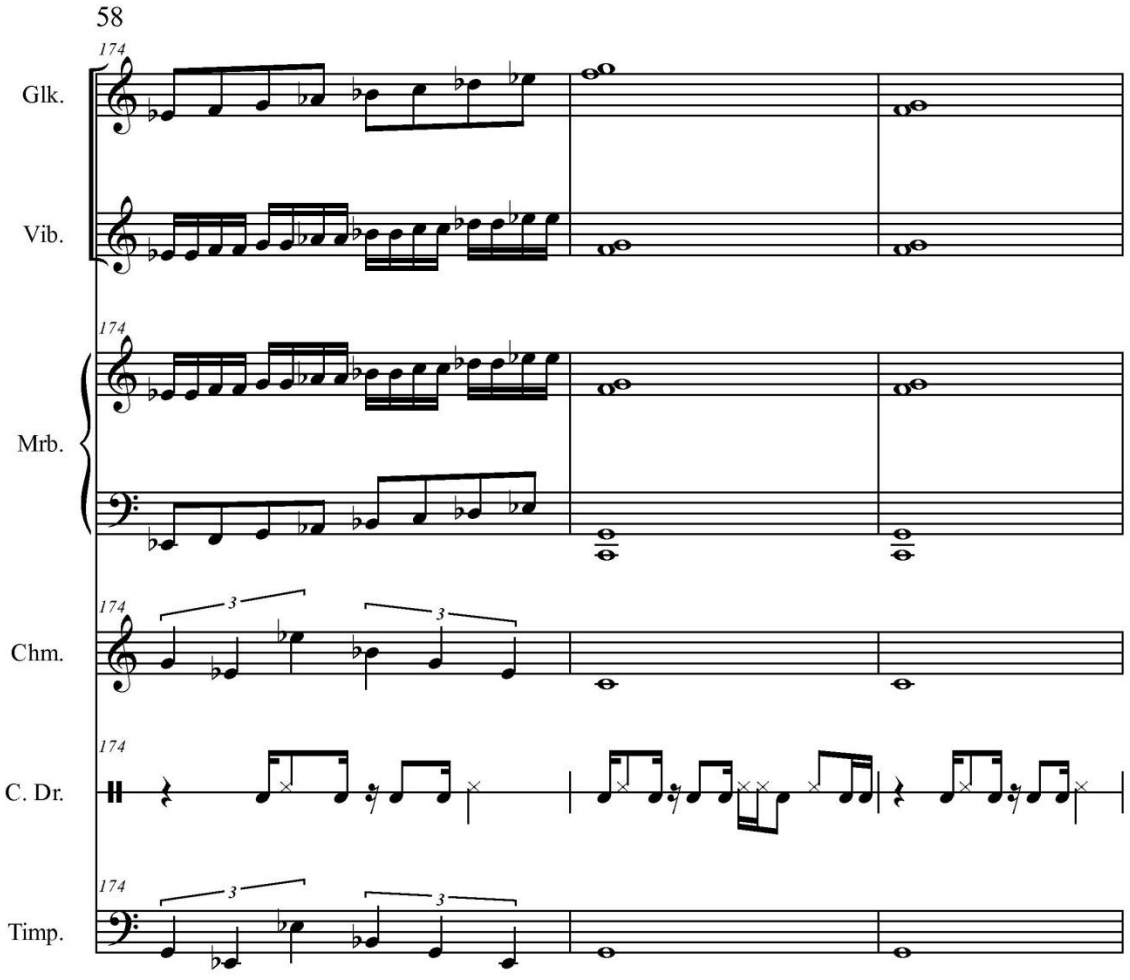
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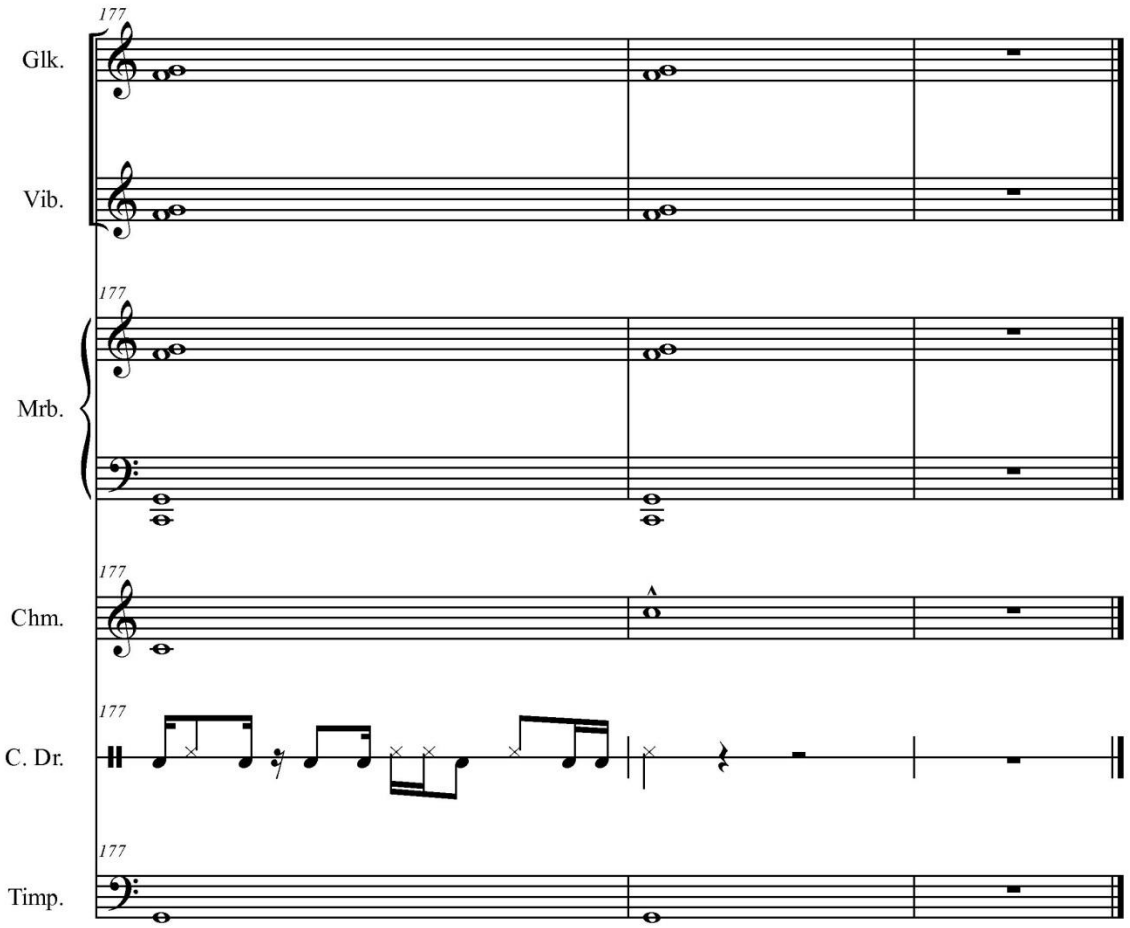

Discussion

One of the important concepts to keep in mind about gamelan is that each instrument has a very specifically defined role, and typically fulfills only that function. This convention is mostly followed throughout, but there is at least one notable instance of role reversals. This again is simply an artistic choice made to keep the music interesting. It should also be noted that each of the instruments is responsible for fulfilling a general role as compared to the function of a family or group of instruments in a gamelan. Where the gendér and gambang both play different elaborations based on the inner melody, the marimba also plays elaborations but does not follow precisely follow conventions of a specific counterpart from a gamelan. Below, the instruments are listed with their respective roles:

Instrument Functions:

Crotales: Basic melody

Glockenspiel: Basic melody

Vibraphone: Elaboration (basic/combined)

Marimba: Elaboration (complex/basic/combined)

Chimes: Colotomic

Timpani: Colotomic/Elaboration

Congas: Rhythmic

The crotales and glockenspiel are responsible for the melody throughout. Unlike a gamelan where the melody is typically played by instruments in a lower tessitura, it is kept in a higher range where they are more likely to be heard. This is due to our ears perception of bass-treble polarity and the tendency to hear the highest voice as the melody. One important distinction to make here is that the instruments responsible for the balungan would usually be played with the right hand, while the left hand dampens the previous note. Both the crotales and glockenspiel play in octaves throughout to create a more full sound. This is important due to the size of the ensemble the arrangement is scored for, and also helps to create a shimmering quality to the sound.

The vibraphone is playing elaborations on the basic melody. The table above shows that it plays what can be called basic elaborations, and combined elaborations. The basic elaborations are simply two eighth notes for every half note in the melody. We will see how this forms combined elaborations when we get to the marimba. The first marimba part forms the most active lines, and the most elaborate. While there may be some incidental harmonies which occur in this voice, they are not intended as functional tonality. This voice is mainly responsible for adding excitement and motion to the texture. The second marimba voice in combination with the vibraphone forms the combined elaborations. This is also an important concept in Javanese music as the many independent elaborative parts come together in an almost endless number of melodies. In a gamelan, these elaborations are always based off of the "inner melody" or "conceptual melody".[37] All of the elaborative parts in this arrangement

[37] Brinner, 60-61.

were based off my concept of the inner melody of Singa Nebah, and all elaborations which occur after the first statement of the marimba voice are based on that.

The chimes are the closest approximation of tuned gongs that are commonly found in a college or high school ensemble. They have perhaps the simplest, but most important function in the ensemble, as they are demarcating important time points throughout the composition. The gongs are traditionally revered as very powerful instruments in the gamelan ensemble and this concentration of power is important to recognize and maintain in the arrangement. The timpani are also serving as a colotomic instrument, however they have a completely separate rhythmic structure than the chimes, although both parts are constructed so as to complement each other, almost like rhythmic counterpoint. The departure from this comes at the last time through the melody when the timpani plays its own elaborations of the melody.

The piece starts off with a four measure introduction which is similar to how a piece in lancaran form may be played in Java. There, typically a melodic instrument will play a predetermined introductory melody along with the drummer to cue the beginning of a composition. The beginning to this arrangement is signaled by the interval of a major second (F and G) shared by the melodic instruments on each downbeat is measures 1 through 4. This is underpinned by an open fifth (C and G) in the marimba, and a C in the chimes. The drums have a syncopated introductory pattern which helps to create motion since the other melodic instruments are only playing whole notes on the downbeat to each measure.

Measures 5 through 16 contain the first statement of the balungan by the glockenspiel and crotales, played in octaves. This will remain constant throughout the piece until the ending

sequence. It is important to note here the function of the two colotomic instruments. The chimes begin their sequence in measure 5 and consist of a four measure pattern in which the last two eight notes of each measure are played. The fourth measure of the pattern is slightly different so as to signify the end of the cycle. This can be seen in measure 8. Here the chimes play on the offbeat of 2 in addition to the last two eighth notes of the measure. Below is a sample of this cycle:

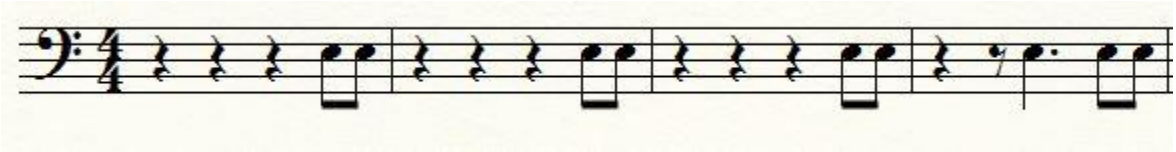

Figure D. 1

The timpani have a longer rhythmic cycle which spans a total of eight measures. This can be seen in measures 5 through 8. The cycle begins with a whole note on the downbeat, and then continues reversing itself by playing a quarter note on the 4 of the next measure, then beat 3, 2, 1, 2, 3, and 4. This gives a feeling of speeding up and slowing down to the timpani part. It is notated below:

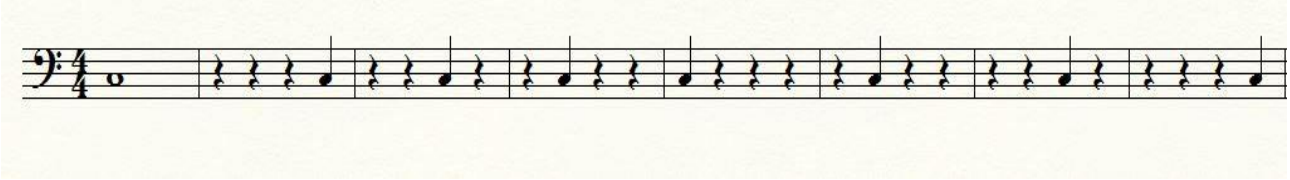

Figure D. 2

In measure 17, the marimba I enters for the first time playing the elaborative part which is not based solely on the balungan. It consists mainly of eighth notes and while there is not any functional harmony in the traditional sense, it does try to follow certain tendencies of the melody. Even though the melody does not necessarily imply harmony, it divides up into three sections of scale. The first is centered around G and Eb and is seen in measures 5 through 7. The next harmonic area is centered around Ab and Bb which can be seen in measures 8 through 10. The final harmonic area is found when the melody descends to Eb and Db in measures 12 through 14. Measures 15 and 16 return to the G and Eb. The marimba part then attempts to support these harmonic areas by incorporating corresponding pitches from each section.

Marimba II enters in measure 29, and this entrance is accompanied by a change in the vibraphone part. These two parts combine to form an interlocking pattern of 16th notes which fill up the measure. It looks like this:

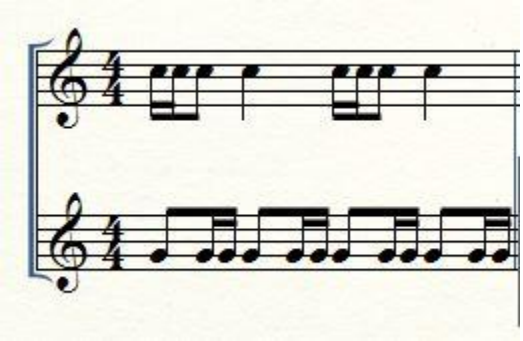

Figure D. 3

The end of the first section is marked by a ritardando which is led by the drummer in measures 49 through 52. Here the drums use the salahan pattern described above. In the second section the tempo slows down to quarter note = 72, however the melody changes to playing quarter notes instead of half notes. Mostly this is a notational convention which makes the transition to the next section more easily read. Here the melody is kept going while the marimba plays rolled chords underneath. After one repetition of the melody, the vibraphone enters with a soloistic line reminiscent of the improvised rebab.[38] This section is ended with another ritardando in measures 71 through 74 and leads to the slowest part of the arrangement at quarter note = 40.

The third section is again featuring the vibraphone set against the continuing melody of the glockenspiel and crotales. The vibraphone plays its own melody in eighth notes over a pedal G for the first melodic cycle. Then instruments are added one at a time to build up rhythmic intensity. This occurs beginning with the chimes in measure 81 and marimba I and II in measure 93. This slow section is interrupted in measure 105 by the 4 measure introduction from the beginning of the piece and marks the return to the opening section.

This last section of music builds itself layer by layer in the same way as the first. This eventually leads to the ending sequence of the piece in measure 157. This marks the first time that the balungan is not present in the music and perhaps the largest departure from karawitan. Here the glockenspiel moves to a role of melodic elaboration, playing lines which are meant to sound similar to what marimba I plays in the first section. There marimba then is

[38] The rebab is best described as a bowed lute. It has been mostly left out due to the fact that it isn't considered a foundational instrument in the gamelan. A performance may or may not include one.

playing this same line at twice the speed, or two sixteenth notes for every eighth note of the glockenspiel. The drums return to their opening pattern which again is highly syncopated and adds intensity and rhythmic tension. The chimes begin a quarter note triplet figure in measure 165 and continue to measure 170. In measure 170 they play a descending quarter note triplet figure comprised of 4 pitches. This figure goes over the bar line and creates further rhythmic tension. At measure 172 the glockenspiel, crotales, and marimba all converge on an ascending figure which leads back to the four measure sequence from the opening and ends the piece.

Above I have described the important functional aspects of the piece as they relate to the practices of karawitan. There are a few instances of deviations from this and they are found mostly in the timpani. This was done solely to create variety in the arrangement and give the timpani player something to do besides play quarter notes. This can be seen any time the timpani plays something other than the rhythmic cycle outlined above.

Authenticity

The question of authenticity is one which comes up often whenever music or art is taken out of its original context. In this instance, we are dealing with a musical tradition which dates back centuries. As such, it has deep ties to many aspects of Javanese culture including religion, history, and social contexts. Since as stated above, this music is almost always performed within one of these situations we must ask if it is appropriate to remove it and then make further changes so as to perform it on Western instruments.

It is perhaps best to view the idea of authenticity as a spectrum, or sliding scale since even in the European classical tradition it is “normal” to hear a Bach cantata performed on the

concert stage removed from its connection to the liturgy. This is certainly a departure from what Bach intended and furthermore most musicians are not playing on period instruments, although there are some orchestras devoted to this practice. Still even in these instances, there are variables which remain mostly constant such as tuning, scale, rhythm, notation, and as much as possible, performance practice. So using our Bach cantata as an example, we've removed it from its intended context and performed it on instruments which can be markedly different from when he wrote it. Is this authentic? Musicologists may argue this point indefinitely, however to the concert going public it would appear that nothing is amiss. When presented this way, most would probably agree even though it's considered normal practice, it isn't completely authentic.

With this in mind we can examine this issue of authenticity in this adaptation of Singa Nebah. The goal was to create a piece of music based on the concepts of karawitan, to be played on Western instruments and my opinion is that this arrangement fulfills that goal. The other aim was to do it in such a way as to retain as much integrity of Javanese music as possible. To some it may seem like this is an impossible thing to do since there are so many differences between the two systems, but by learning the concepts which guide performance of karawitan, it would give a student a better jumping off point if they decided to pursue the study of gamelan. I also believe that by embracing the differences between the two traditions, they are better preserved. No attempt has been made to alter the tuning of the instruments, because to do so would only amount to an example of exoticism. There are other pieces for percussion ensemble which try to relate to the Javanese and Balinese traditions, but their attempts are superficial in that they use an exotic sounding scale and gongs, but without any of

the performance or compositional practices found in karawitan. These pieces still generally follow general Western concepts of rhythm, melody, and harmony. In this arrangement, I have striven to keep the boundaries which separate the two traditions clear so that it is easy to see where each aspect of the music comes from. My opinion is that there is no other way to honestly represent karawitan in this format.

The question still remains. Is this authentic, and more importantly if it is not, is that acceptable? My answer to the first question is that no, it is not entirely authentic. It falls somewhere on the scale between travelling to Java to witness a wayang kulit performance, and a percussion piece that uses a 5 note scale and multiple gongs. I believe that the only way to approach and deal with this issue is by being forthright about which aspects of the composition attempt to be authentic, and which do not. This brings us to the question of whether or not it is acceptable to present a piece that does not completely accurately represent the culture from which it comes. This project is certainly not the first to attempt the melding of two distinct traditions, and hopefully it would inspire some further interest. The benefits are that a student who performs this would be exposed to a new musical tradition, along with the experience of performing (hopefully) a good piece of literature. So, my answer to the question of whether or not it is acceptable would be yes. Again, as long as we are honest and not trying to pass it off as an accurate performance of karawitan we only stand to gain from exposure to new musical ideas.

One of the major obstacles that I have encountered while studying gamelan, is that nothing is written in stone. As was noted above, performance practice and even the melody of

the same piece can vary from place to place in Java. One of the few things that remains constant however, is the fact that most of the elaborative instruments—including the drums—are improvising their parts on the spot. Therefore fully notating a piece such as I have done here may seem to some like writing out parts for a jazz combo to play verbatim. Again, here is an issue which can fall into the authenticity debate. My goal in writing out elaborative parts for the marimba and vibraphone was to give the performer something to start with, but there is possibility for improvisation. The music will sound correct if the written parts are performed, however once the players have a sense of how it should sound they could be encouraged to improvise their parts. This all depends on their own conception of the inner melody which will take some time to develop. I would suggest that players learn the written parts and get comfortable playing them through by memory before attempting any improvisation. They are written specifically to be easily performed by the average college student so that they can be learned and internalized quickly. Once they can do this they are encouraged to deviate from the written music, perhaps little by little using their ear and sense of inner melody.

Performance Notes

I leave mallet and stick choice up to the performers and directors, however a few suggestions will aid in achieving the desired effects. The crotales and glockenspiel should be played with either hard plastic or brass mallets. The shimmering effect which is characteristic of gamelan music will come through with either, but some people have a strong preference for or against these choices and in many cases it may depend on the instrument at hand. The vibraphone will likely benefit from using a medium-hard or hard mallet to help it cut through the ensemble and remain articulate. Marimba I should also likely use a medium-hard mallet so that it can cut through, especially where it has a very melodic role. Mallet choice for marimba II is obviously limited by the range in which it plays, so a medium-soft mallet is a likely choice. Again, depending on the instruments and personal preference these are suggestions and subject to change. For the timpanist, I would strongly suggest a very hard mallet, possibly wood. This will help them cut through the ensemble where they have strong rhythmic parts. If a soft mallet is used, these parts will not be articulated well and only muddy the sound of the ensemble. Finally, the drummer is encouraged to improvise in a similar manner to the written part.

Ideally, this piece would be performed without a conductor. It could easily be counted off by one of the ensemble members, or the drummer could bring the group in with a predetermined phrase. All of the changes in tempo can be led by the drummer as well, so long as the group works that out beforehand. Any other musical decisions not specified, I leave to you.

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