UNIVERSITY OF CALIFORNIA, SAN DIEGO

Sonic Engraving

A Dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy

in

Music

by

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2017

The Dissertation of Yeung-ping Chen is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

Chair

University of California, San Diego

2017

DEDICATION

To Mom, Dad, and Sisi. Thanks for your constant love, encouragement, and support.

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ACKNOWLEDGEMENTS

I would like to take this opportunity to express my gratitude to the many individuals and organizations whose assistance and expertise facitilitated the creation and fruition of a series of my Sonic Engraving and teleamtic projects at UC San Diego: Mark Dresser and his bass ensmeble who premiered *Stretch of Light*; Steven Schick who commissioned *The Moon in La Jolla*; Asian Cultural Council, Hong Kong Jockey Club Music & Dance Fund, CASH Music Fund, and the Friends of International Center for several fellowships which sustained my studies as an international student; Yen-chun Yang (Splash), Jessica C. Flores and Josef Kucera, whose indefatigable resourcefulness made the realizaion of my artistic projects possible; Rand Steiger, who provided generous supports and superb facitlities; and lastly, Lei Liang, to whom I am especially in debted. Throughout my studies, his persistent and dedicated involvement with my musical ideas, has encouraged and assisted immeasurably in my development of a number of articulate means from which the beginnings of a peronal musical language have emerged.

Addtionally, I wish to express my thanks to several others who have been very important in the development of my life over the last seven years: Kyle Johnson and his family, Rev. Steven C. Chan and his family, Thomas Hagan, and Sisi Ye.

VITA

2006	Bachelor of Arts (Hons.), Hong Kong Baptist University
2008	Professional Diploma, Hong Kong Academy for Performing Arts
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2014-15	Thomas Nee Commission Award, La Jolla Symphoy & Chorus
2015	Associate Instructor, University of California, San Diego
2015-16	Project Coordinator (Orchestra), Hong Kong Baptist University
2017	Production Associate, University of California, San Diego
2017	Doctor of Philosophy, University of California, San Diego

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LIST OF SUPPLEMENTAL RECORDINGS

Track 1 *Stretch of Light* (2013-15)

Performer: UCSD Bass Ensemble (Mark Dresser, Matthew Kline, Kyle Motl, Thomas Babin, Timothy McNally)

Track 2 *Fugue of Distance* (2012-13)

Performer: JACK Quartet (Christopher Otto, Ari Streisfeld, John Pickford Richards, Kevin McFarland)

Recording Engineer: Josef Kucera

Track 3 *The Moon in La Jolla (2015)*

Performer: Christopher Rountree (conductor), Scott Paulson (UC San Diego Geisel Carillon), Red Fish Blue Fish, and La Jolla Symphony Orchestra

Recording Engineer: Josef Kucera

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Performer: Ran Duan

Recording Engineer: Nakul Tiruviluamala

ABSTRACT OF THE DISSERTATION

Sonic Engraving

By

Yeung-ping Chen

Doctor of Philosophy in Music

University of California, San Diego, 2017

Professor Lei Liang, Chair

Sonic Engraving is a compositional approach I have developed inspired by the practices of music transcription in European music culture as well as the Japanese print-painting form *Ukiyo-e*.

Ukiyo-e features a meticulous fabrication process which inspired a similarly meticulous layering compositional method that I employ in my Sonic Engraving model.

In every Sonic Engraving work, I begin by selecting a source work from which I collect a set of numerical data that characterizes the sonic behavioral patterns that are important to that adapted work. These generated data then serve as musical seeds for my own, new work. The new work is fresh in sonic nuance, timbre, texture, and musical expression, yet maintains strong ties to the adapted musical work.

This compositional approach was developed and evolved throughout a series of Sonic Engraving works that I composed at UC San Diego, including, *Fugue of Distances* (2012-13), contrabass quintet, *Stretch of Light* (2013-14), and piano solo piece, *The Celestial Threads* (2017).

The general principles of this compositional model and integrating strategies that I discovered within each of these Sonic Engraving works are discussed. Musical examples, analysis, and illustrations accompany the article throughout, which is followed by the complete scores of the three Sonic Engraving pieces and my telematic symphonic work, *The Moon in La Jolla* (2015).

SONIC ENGRAVING

Introduction

Sonic Engraving is a compositional approach I have developed that is inspired by the practices of music transcription in European music culture as well as the Japanese print-painting form *Ukiyo-e*. *Ukiyo-e* features a meticulous fabrication process which inspired a similarly layering compositional method that I employ in my Sonic Engraving model.

Under the supervision of Professor Lei Liang, I examine this compositional method through composing a series of compositions during my years at UC San Diego. It is also a major research project that I have investigated and developed before and after my Ph.D. qualifying exam in the summer of 2013.

In every Sonic Engraving work, I begin by selecting a source work from which I collect a set of numerical data which characterizes the sonic behavioral patterns that are important to that adapted work. These generated data then serve as musical seeds for my own, new work. The idea of the model is to compose a new musical work that is fresh in sonic nuance, timbre, texture, and musical expression, yet maintains strong ties to the adapted musical work.

In this writing, several important concepts of this compositional model and integrating strategies that I discovered within each of these Sonic Engraving works are discussed. I will also discuss how my Sonic Engraving technique developed over time, and how my other compositional projects which do not incorporate this technique have nonetheless been influenced by this personal compositional practice.

Year	Title and instrumentation	Special technique used
2017	*The Celestial Threads* for solo piano	Sonic Engraving
	Sonic Couplets for woodwind quintet	
2016	*Resonance* for violin, contrabass, narrator, and tape	
	Leaves of Light for narrator and tape	
2015	*The Moon in La Jolla* for carillon and orchestra with telematic technology	Telematic technology
2014	*I like…* for narrator/voice and contrabass	
	Stretch of Light for contrabass quintet	Sonic Engraving
2013	*Palindromic Study I* for saxophone quartet	
	Fugue of Distances for string quintet	Sonic Engraving
2012	*Stars and Moon. Cloud and You* for soprano, flute, clarinet, violin, cello, piano	
	Prelude of Light for contrabass quintet	Sonic Engraving
	Light and Tear for solo violin	
	Stillness in the Fragmentized Twirls for trumpet and string quartet	Video animation
2010-11	*Trace of Solar Luminosity* for violin, horn and contrabass	

Figure 1 List of my major compositions (from 2010-2017)

Figure 1 is the list of the major musical works I have composed from 2010-2017. It indicates whether any particular techniques were employed in that compositional project.

Three of these works were composed completely based on the Sonic Engraving model: *Fugue of Distances* (string quartet, 2012-13), *Stretch of Light* (contrabass quintet, 2013-14), and *The Celestial Threads* (piano solo, 2017). Since the first contrabass quintet, *Prelude of Light* (2012), was an initial and smaller version of *Stretch of Light*, and since both pieces apply the same technique to the same Sonic Engraving source material, J. S. Bach's *Cello Suite no.1 – Prelude*, my discussion will focus only on the later version.

As I have composed the series of Sonic Engraving projects my techniques and ideas have evolved. This newly invented compositional practice not only provides me with a personal and unique strategy to compose my original works, it also inspires in me ideas for other creative projects in which the model is not as thoroughly or specifically applied.

In this introductory article, I would like to first talk about the general concept of Sonic Engraving, and illustrate how the model was developed and modulated to accomplish different compositional and artistic goals in each of the Sonic Engraving projects. Then in the second part of the discussion, I use my large-scale telematic symphonic work, *The Moon in La Jolla* (2015) as an example of how my Sonic Engraving ideas and concepts have influenced and guided work that is not directly developed by Sonic Engraving.

General concept

Sonic Engraving is a personal compositional idea I began to develop in 2010. The initial idea was conceived based on the traditions of music transcription in western classical music including orchestration and arrangement. Figure 2 illustrates the procedure of this practice:

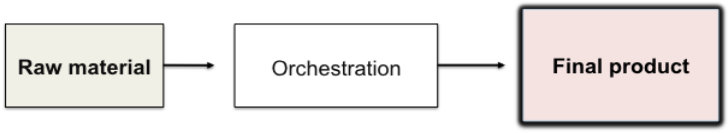


Figure 2 The procedure of traditional orchestration

Before orchestrating or making a transcription, composers or arrangers choose and adapt an existing musical work as the raw material for them to elaborate. This stage is represented by the left column (raw material) of the Figure 2. The raw material is usually in a simple form, so that the musical context can be elaborated and transcribed to another instrumentation setting in the second stage. This process of orchestration (or transcription) is represented by the middle column of the Figure. The final product, which is represented by the right column, is eventually manifested in a more elaborative form compared to the original appearance of its raw material stage. Therefore, the traditional practice of orchestrating or arranging a musical piece is a creative process of elaborating and variating the relatively simple, raw material, while at the same time it could be regarded as a technical process of transferring the musical materials from the

original instrumentation to another. The instrumental transition or the orchestration process is usually from a simpler set up to a more complex and rich instrumental configuration.

The raw material, in general, is a piano piece or a piano reduction score. It provides the basic musical information, such as pitch and rhythm, that a composer needs for the orchestration process. I also call the raw material the "musical archetype," as it provides the essential musical data that is needed for the musical transformation process. Another reason to refer to it as a "musical archetype" is that the raw material underlines the fundamental *temporal structure* of the original work. The temporal structure remains unchanged even when the surface of its musical details is elaborated after the source material has been transcribed or orchestrated. The concept of temporal structure is an important component of my Sonic Engraving model that will be discussed later in the aritcle. Meanwhile, I call the raw data "sonic seed," since it is the simplest form that carries the undeveloped sonic potentials that can be grown in a more complex from. In a traditional musical transcription practices, the pitch and rhythm are the sonic seeds of the adapted work, the musical archetype.

The concepts of "musical archetypes" and "sonic seeds" drawn from traditional musical transcription practices play a significant role in my Sonic Engraving model, but they are reinterpreted with *extended* meaning and function. In my model, I modify the traditional practice by adding an extra integrated process on a musical archetype while expanding the definition of "sonic seed."

Sonic Engraving, to me, is a new way to compose musical works by innovatively transcribing (or arranging, or orchestrating) an existing musical work. In this way, the technique encourages a strong link between the new piece and the old.

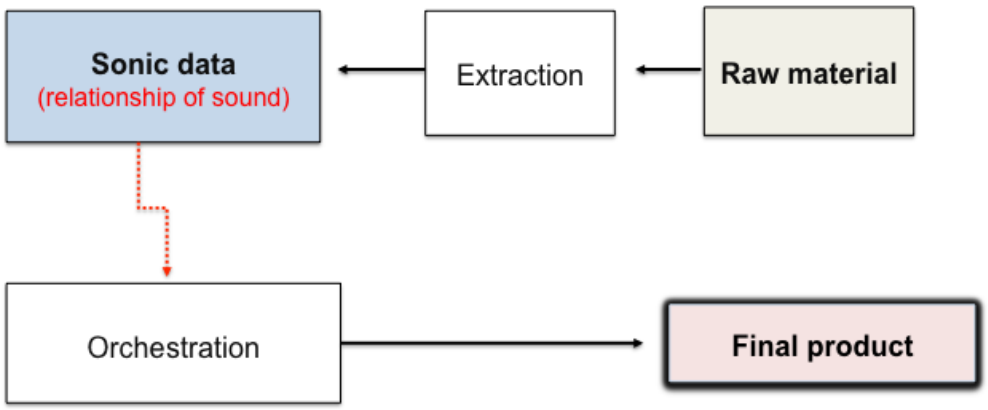


Figure 3 The procedure of Sonic Engraving model

Figure 3 illustrates the general procedure of my Sonic Engraving model. Compared with Figure 2, there are two extra steps: an extra creative process which I call the extraction, and an extra morphological stage of the musical material, the sonic data. These procedural changes in the model are made via a set of integrated ideas and techniques I employ.

As mentioned before, in a traditional transcription practice, the raw material exists in its most basic format. The data that composers or transcribers used were pitch and rhythm. In cases like this, the required basic materials are all directly provided in the original score and no analytical processes are necessary.

In my own transcriptional process however, I introduce an additional extraction process after selecting the raw material and before I orchestrate (transcribing the music into another form). The extraction process is an algorithmic process for capturing or filtering sonic information of the original source. The sonic and musical data of the original source are converted first into numerical sequences, and then the sequences are rendered graphically.

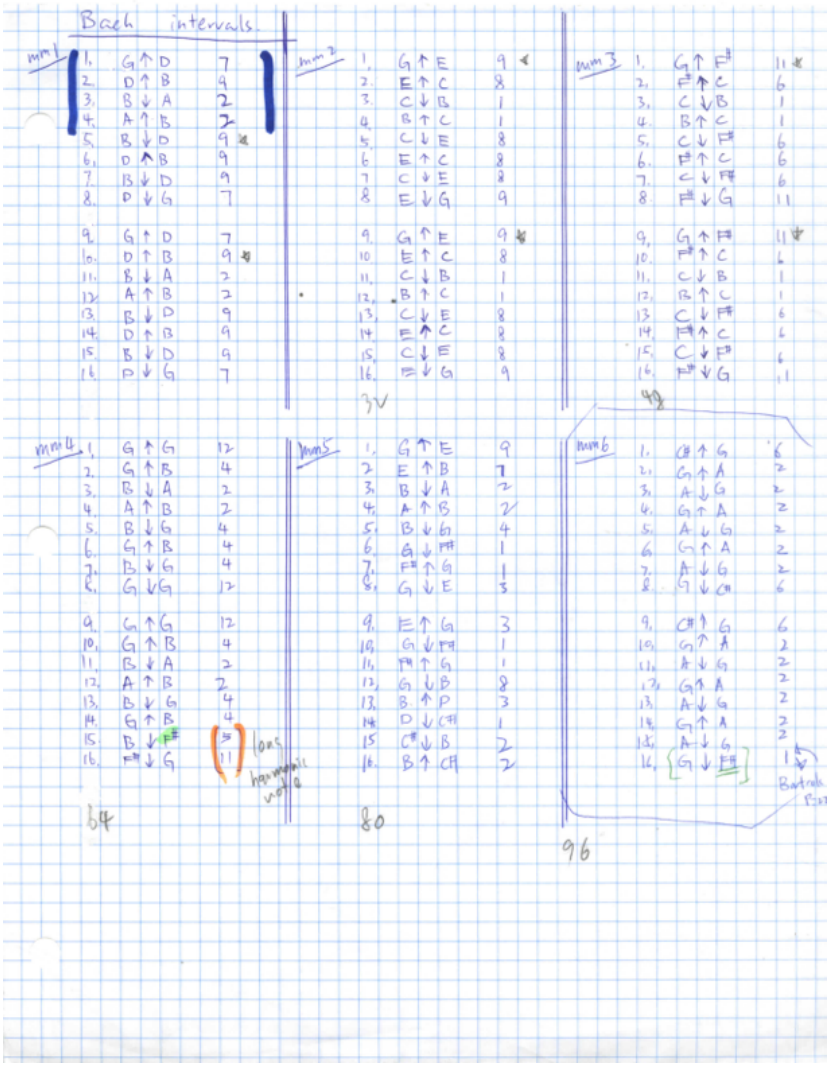


Figure 4a Sonic data of the Sonic Engraving model (numerical sequence)

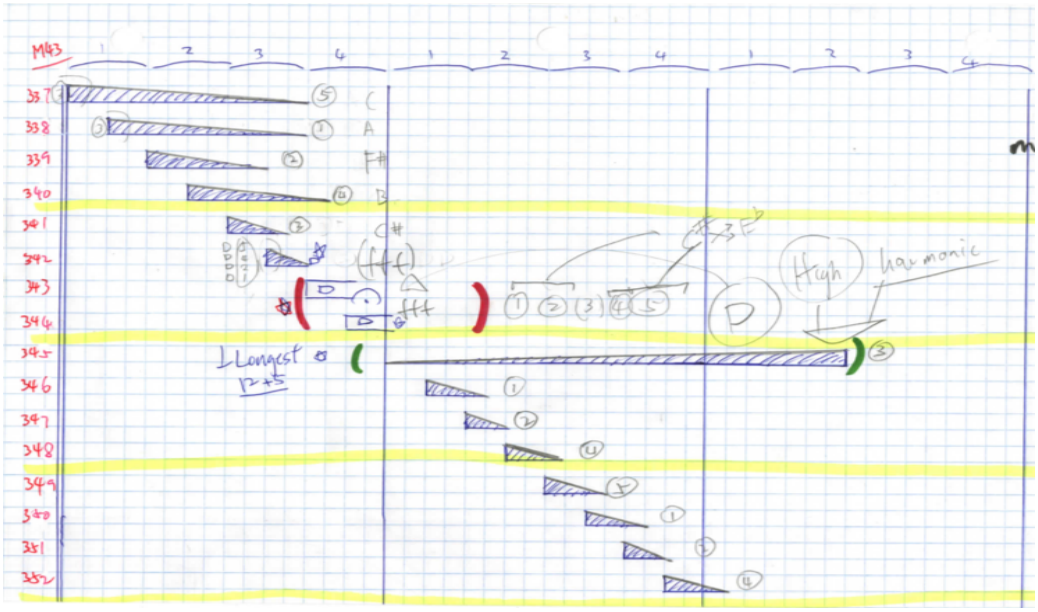


Figure 4b Sonic data of the Sonic Engraving model (graphical format)

Figures 4a and 4b are examples of sonic data extracted from J. S. Bach's *Cello Suite no.1 – Prelude*. These sonic data were used for my second Sonic Engraving work, the contrabass quintet, *Stretch of Light*, which I will discuss further in an upcoming section. In Figure 4a, each number represents the interval of two adjacent notes of the melody of the cello solo work. That means the sonic data I get through the extraction process is not the musical material directly provided by the raw material such as pitch and rhythm but is instead the *relationship* between every pair of two pitches. In other words, the intervals from the original melody of the cello work are what my extraction process prioritized.

After going through the extraction process, the raw material has been transformed from pitch and rhythm into a set of numbers. It is the sonic seed derived from the surface musical materials.

Graphic rendition is another critical part of the extraction process as it is a step of reestablishing the *temporal structure* of the original work after extracting the intervalistic data. Figure 4b is a sample of a graphical representation of the sonic data in numerical sequence. Each triangular symbol represents an intervallic value from the numerical sequence. A longer shaped symbol represents a larger melodic interval from the numerical sequence and vice versa. Though the length of the symbol is varied, the graphical symbols are arrayed evenly because the rhythmic value of the original source of *Stretch of Light*, J. S. Bach's *Cello Suite no.1 – Prelude* is a nearly constant sixteenth. Referring to this data in a graphical format is a useful way for me to unfold and replicate the temporal structure of the musical archetype which is important to me because maintaining the temporal structure is an important artistic feature in the traditional practices of musical transcription.

The purpose of illustrating the differences between traditional transcriptional practices and my Sonic Engraving model is to reveal the key ideas and features of this personal compositional approach. The goal of my model is to *transcribe the sonic relationships* from the source work instead of the surface musical materials. Furthermore, the characteristic extraction and reconstruction processes of Sonic Engraving enable me to compose original music that integrates with the traditional transcriptional practice that interest me, while at the same time retaining creative space and freedom to transform the musical experience that gripped me in the adapted original work. I create new, fresh musical experiences using my own musical language and sonic lexicon that remain tied to the rich tradition of musical transcription.

The relationship with *Ukiyo-e*

Theoretically speaking, Sonic Engraving can be seen as a hyper-transcriptional approach because of the close procedural relationship between traditional practice and my new way of defining each step of the processes. Maintaining the original temporal structure of the selected source work is the shared fundamental idea of both methods, though the strategies of manifesting the musical data are drastically different.

The fascinating and meticulous fabrication process of the Japanese print-making form *Ukiyo-e* inspired me of a multi-layering transformative process of my Sonic Engraving approach. Shared temporal and structural features between my new work and the source work are created through this *Ukiyo-e* inspired process.

The simple but bold graphical construction, the isolated but refined color control, the casual but articulated pictorial planning, and the direct but absorbing philosophical impact found in *Ukiyo-e* impress and influence me. The division of labor in the production, the way of outlining the image, the use of woodblock, and the layered colorization deeply connect to the key concepts of my Sonic Engraving model: materials extraction, sonic seed, musical archetype, and data reconstruction.

In this writing, I will not go further into the detailed studies of *Ukiyo-e* that I have done in my qualifying examination in 2013. But I will use two of my early Sonic Engraving compositions, *Stretch of Light* and *Fugue of Distances* as case studies to discuss the hyper-transcriptional strategies I have developed.

After that, I will focus on sharing my new explorations and experiences in applying the Sonic Engraving concepts and techniques to my recent compositional

projects, which are *The Celestial Threads* for solo piano and *The Moon in La Jolla* for carillon and orchestra with telematic technology.

Case study 1: *Stretch of Light*

The first work, *Stretch of Light*, is a composition for contrabass quintet. The work was composed in 2012 and its premiere was given in 2014. The selected adapted work is J. S. Bach's *Cello Suite no.1 – Prelude*. As mentioned before, this famous cello work consists of only one type of rhythmic value, the sixteenth note, see the Figure 5 below.

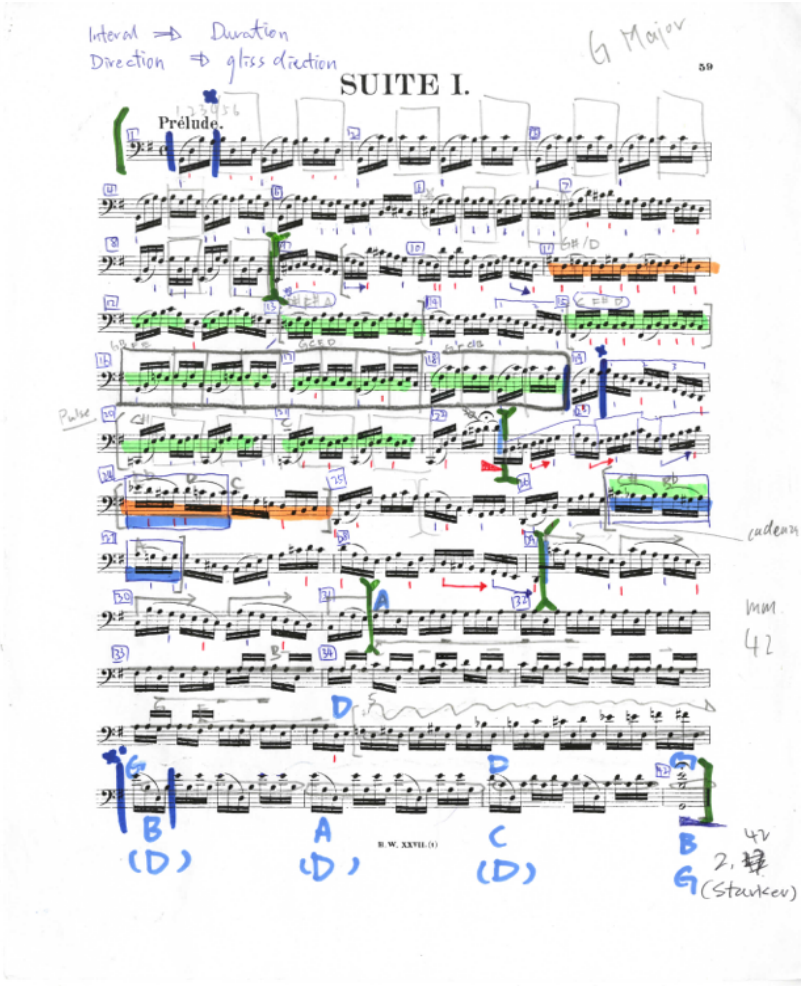


Figure 5 Analysis of J.S. Bach's *Cello Suite no.1 – Prelude*

Since the rhythmic variation of the solo melodic line is minimal, I selected this work in order to enable me to focus on only transcribing variations in pitch. It is the reason I adapted this solo work as my first Sonic Engraving project.

Transcribing solo source material for a quintet of contrabasses is the technical feature of this Sonic Engraving project. It was an interesting challenge and opportunity for me to transform the source work with the idea of converting intervals of a solo melodic line into an ensemble composition: using length of the musical materials of the bassists' parts to represent the original cello solo melody.

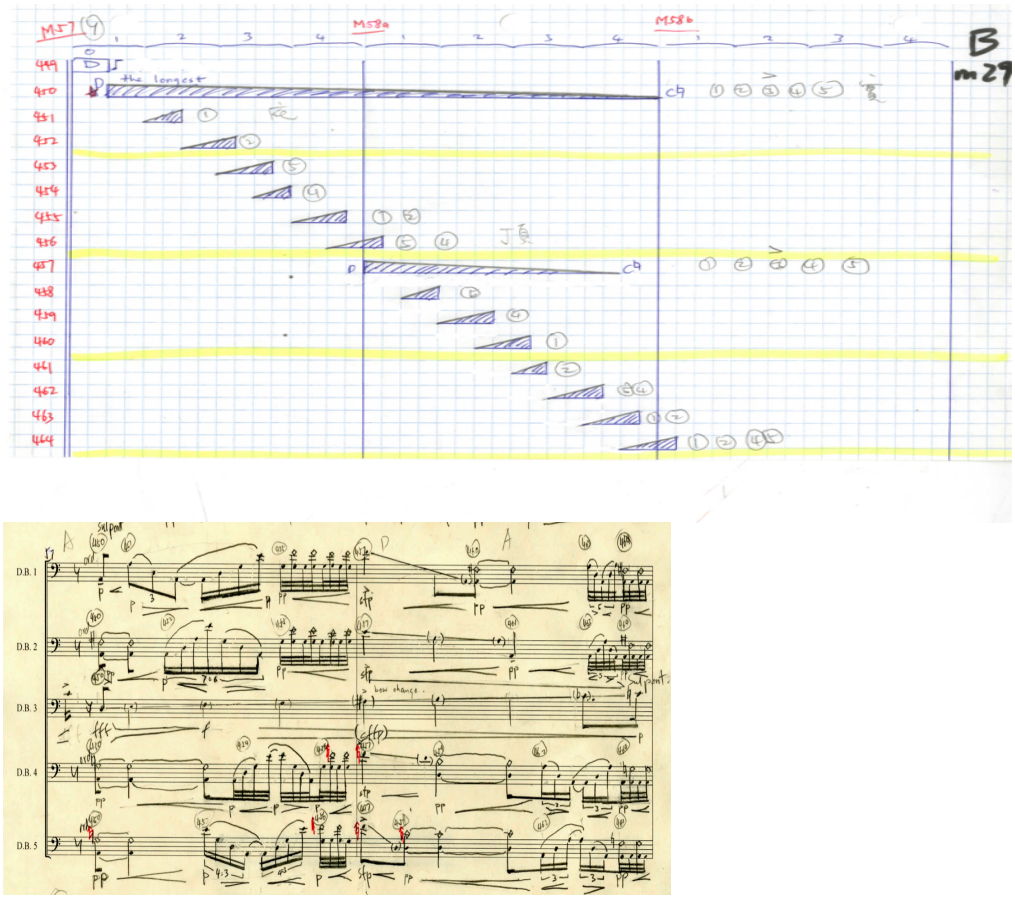


Figure 6 Vertical comparison of the sonic data and the passage of *Stretch of Light*

The image at the top of Figure 6 is sonic data of the Bach's cello solo represented graphically. Intervals and interval directions of the solo melody are shown by the shape of triangular symbols. The *length* of the symbols of the sonic data provides me with information which I use to determine the duration of each of musical event while the *direction* of the symbols provides me with information that informs other musical details for general ensemble writing of the new work such as dynamic, articulation, and paring of the voices.

In order to represent the behavioral pattern of the original, *Stretch of Light*'s sonic data follows the rhythmic pattern of the Bach's *Cello Suite* straightforwardly. In this way, both the original and the new work share the same temporal structure. This is the common characteristic of the traditional transcriptional practices and my Sonic Engraving model, a hyper-transcriptional method.

Case study 2: *Fugue of Distances*

The second work I will discuss in detail, *Fugue of Distances*, is a composition for string quartet. The work was composed and premiered in 2013. The selected source work was the last fugue of J. S. Bach's *The Art of Fugue*. Compared with *Stretch of Light*, in which the rhythmic variation of the adapted work is minimal, the main feature of this Sonic Engraving project was to transcribe multiple melodic lines and their melodic movements. The musical texture, the intertwining melodic lines is traditionally seen as the important feature of fugue writing, and it is that feature that I wanted to address in the second Sonic Engraving project.

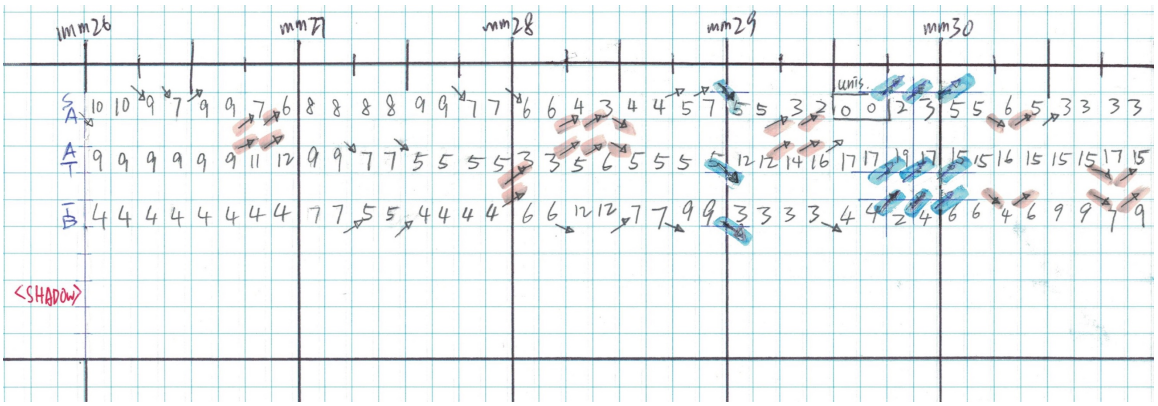


Figure 7 Sonic data of *Fugue of Distances*

Figure 7 is the sonic data I used for *Fugue of Distances*. Bach's original work consists of four melodic lines, and they are indicated as S (soprano voice), A (alto voice), T (tenor voice), and B (bass voice) in the sonic data chart.

Instead of taking the intervals between the two adjacent notes from the melody of the original work as I did in the previous project, the numbers in Figure 7 were extracted from the vertical intervallic distances between each pair of the two adjacent melodies - soprano and alto (indicated as SA), alto and tenor (indicated as AT), and tenor and bass (indicated as TB).

This is an evolution from my previous sonic engraving project because more sonic data from any given musical moment is acquired. Each set of the vertical sonic data (from the three voice pairs) is the aggregated value of all four melodic lines in each musical moment. On the other hand, the change between two horizontal sonic data numbers in the chart captures the individual movements of each melodic line. The

vertical and horizontal numerical patterns are used together as the sonic seeds for me to transcribe my own piece, the string quartet.

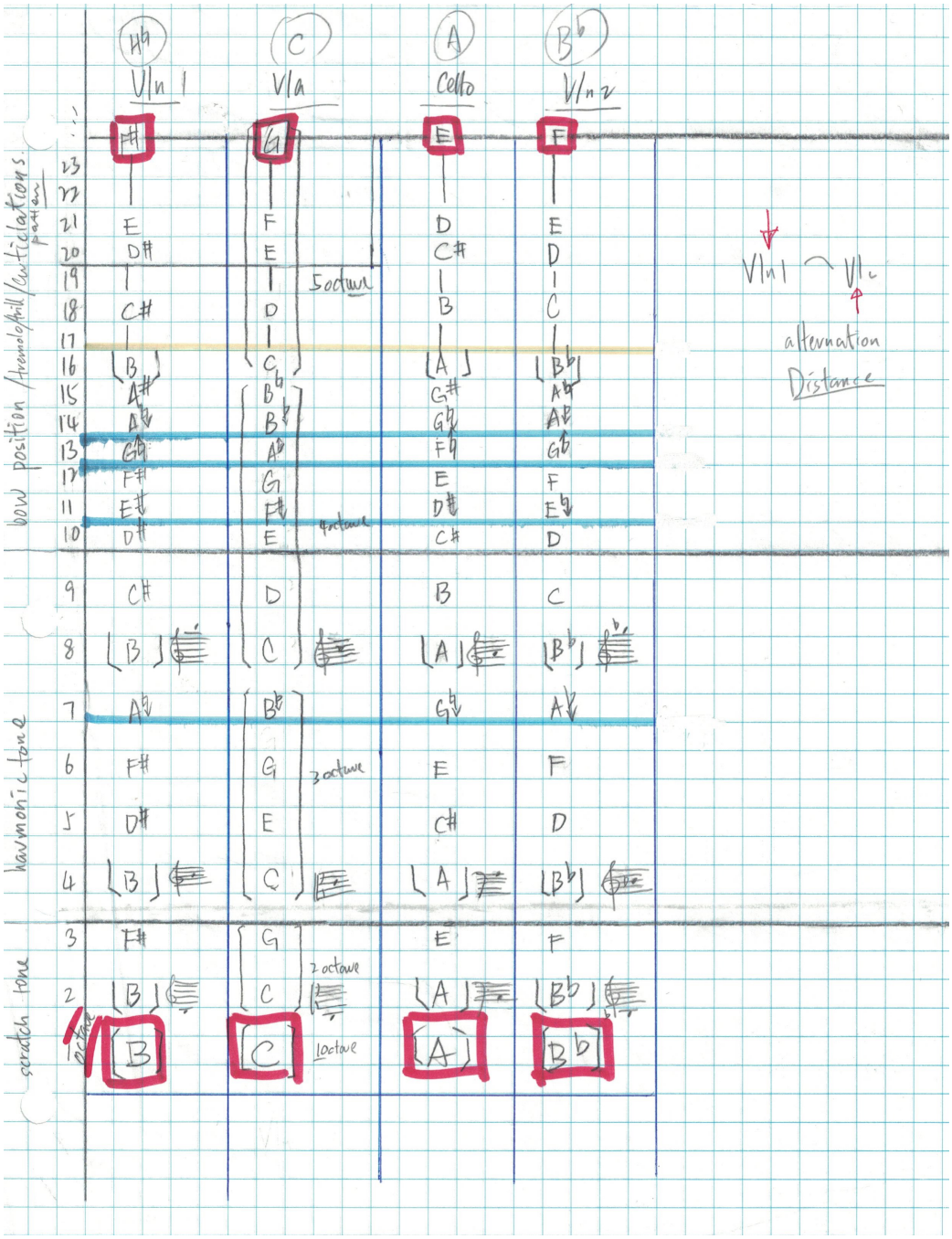


Figure 8 Pitch material of *Fugue of Distances*

Figure 8 represents the pitch materials found in *Fugue of Distances*. Four harmonic series based on the pitches of Bach's last name, B, C, A, and Bb are listed. The harmonic series are then assigned to four string instruments of the string quartet. The series of numbers marked on the left side indicates which pitch should be used based on the information from the sonic data chart (Figure 7).

My compositional goal for *Fugue of Distances* was to create a fugue of different sonic distances by using different string techniques. In this context, I think of sonic distance in terms of the audience's perception of distance to the string quartet sound. This metaphor of distance can be achieved convincingly on string instruments as the harmonic context of a tone from the string instruments can be controlled very subtly in different ways by the player. Additionally, gradual change of timbre can be made easily with the bow control and positions. Therefore, I decided in this sonic Engraving project that the original intertwined melodic movement of J. S. Bach's fugue should be transcribed into consistent changes of sonic distance produced by different string playing techniques.

Glissando is abundant in *Fugue of Distances* as I use it to always connect one transcribed pitch to the next. In addition to glissando, the sonic lexicon of the piece includes tremolo, natural harmonics, and different levels of bow-pressure and bowing position. Like the pitch choices in the composition, the technique which is used in each musical moment is prescribed by the numbers in the left column of the materials chart (Figure 8). Figure 9, the sample passage of *Fugue of Distances*, illustrates the way I create a fugue of perceptual distance between the four instruments.

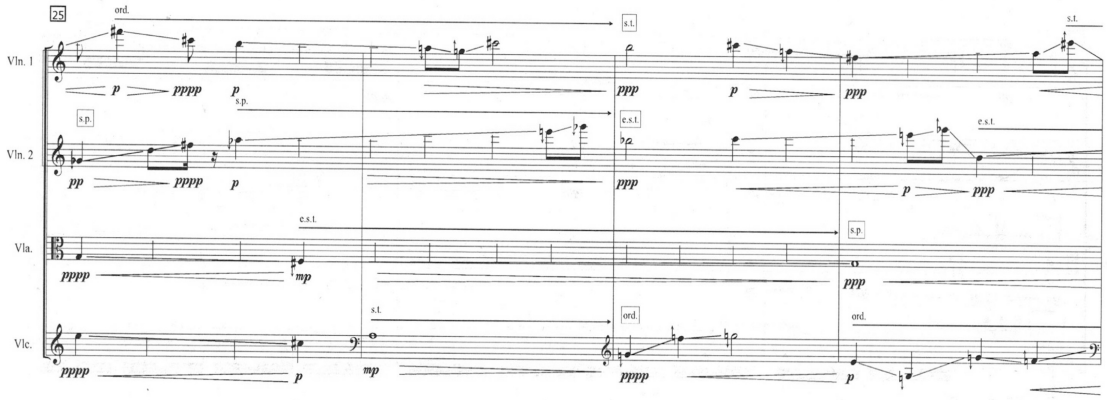


Figure 9 Selected passage of *Fugue of Distances* (mm.25-28)

Further development

After discussing the general application of my model and compositional procedure in two of my early Sonic Engraving works, I would like to share how my model is evolved in my recent piano solo work, *The Celestial Threads* (2017). This piano work reveals my new understanding of the Sonic Engraving model. In this project, I used similar Sonic Engraving concepts, but what I tried to transcribe is not only the musical notes of an adapted piece, but the multiple musical interpretations of different performers.

In the following section, not only the new perspective and technique of the model will be discussed, but also the way in which my Sonic Engraving as a compositional exercise changes my creative approach on other non-Sonic Engraving compositional projects as well as my strategy of integrating technology in my composition. I will use my large-scale telematic symphonic work, *The Moon in La Jolla* (2015) as an example

for demonstrating the musical influences I have from the years of practicing Sonic Engraving techniques.

Case 3: *The Celestial Threads* (2017)

The Celestial Threads is a 30-minute-long piano solo work and my latest Sonic Engraving composition. This music is based on the oldest surviving notated music in China, a guqin piece named *Jieshi Diao Youlan* (literally: "Secluded Orchid in *Jieshi* Mode"). Guqin is a plucked seven-string Chinese musical instrument of the zither family. It has a history of about 5,000 years, and is mentioned in Chinese writings dating back nearly 3,000 years.

The existing manuscript of this ancient music was written during the 7th century and notated in a special and old form of guqin notation, known as *wenzi pu* (literally: "written character notation").

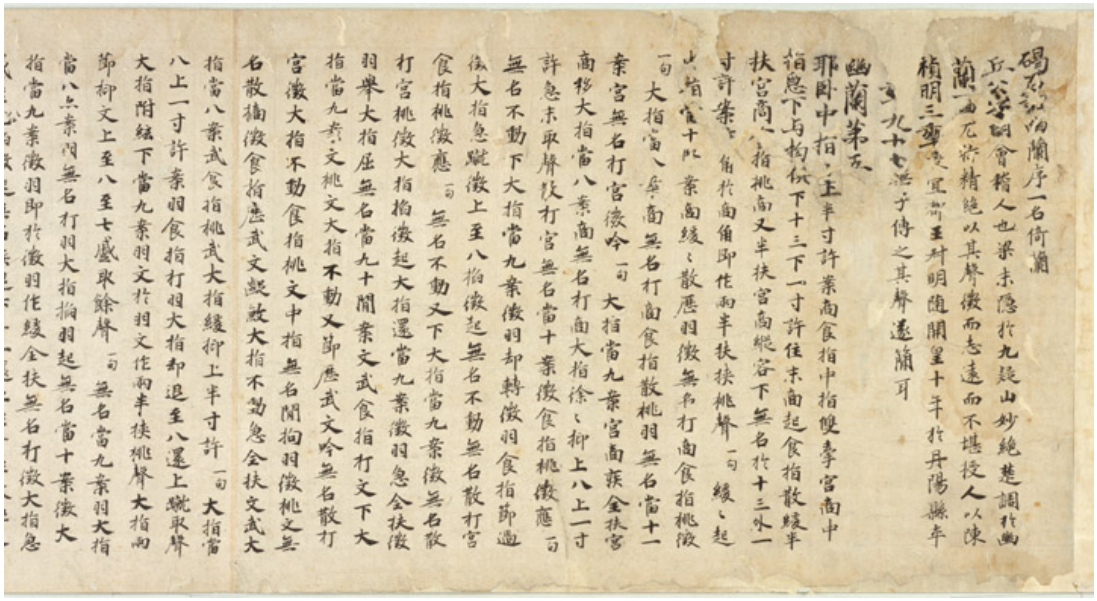


Figure 10 The original manuscript of *Jieshi Diao Youlan* (written character notation)

Figure 10 is the original manuscript, the *wenzi pu*, of *Jieshi Diao Youlan*. No musical symbols or notations are used *wenzi pu*, instead, only Chinese written characters are used for describing movement of the fingers, gesture of the hand, and their playing position. It usually takes several characters or even a few sentences to describe how to produce a specific tone.

Also, the pitch is not indicated explicitly in this type of notational system, but the detailed description can help the player or interpreter to figure out approximately what pitch should be played in each performance gesture. Nevertheless, the length of each musical event is not indicated or even clearly determined at all. In fact, *Jieshi Diao Youlan* is the only existing music notated in *wenzi pu*. As a result, *Jieshi Diao Youlan* was regarded for a long time as a piece that was incomprehensible and unable to be performed.

In the 60's, a group of quqin players and historians started to conduct research to decipher the ancient notation and investigate the proper way of performing this mysterious musical work. They were able to determine general idea of the pitch and phrasing of the work. But each of them had their own ideas and understanding of the local musical details, such as the choice of timbre, articulation, glissando, rhythm, and tempo. The variation of their interpretations is caused by the ambiguity of the *wenzi pu* as well as different scholastic backgrounds and schools of guqin playing of the interpreters.

As a result, there are different interpretations of the same piece today. Figure 11 is one of the modern transcriptions of *Jieshi Diao Youlan***,** transcribed by Guan Ping-hu. There are western staff notations as well as *jianzi pu* (literally "reduced notation",

compared with the *wenzi pu*, it is a relatively modern and prevailing *guqin* notation rdeveloped in Tang Dynasty, underneath each musical note.

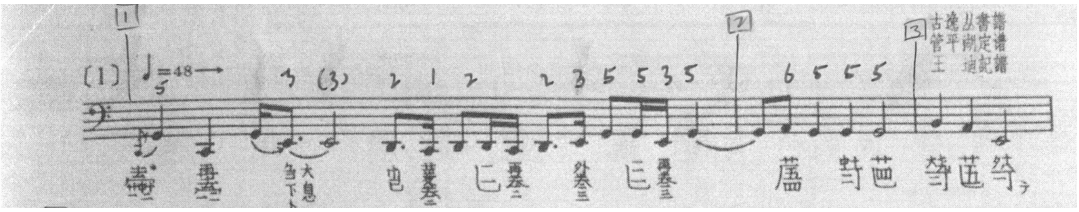


Figure 11 Guan Ping-hu's transcription of *Jieshi Diao Youlan*

Instead of focusing on the transcribing the musical notation of just one adapted work, the sonic data of my latest Sonic Engraving project, *The Celestial Threads*, is based upon four different transcriptions on *Jieshi Diao Youlan*. The four interpreters are Guan Ping-hu, Yao Bing-yin, Xu Li-sun, Wu Zhen-ping.

Because the adapted sources are four different versions of the same musical work, extracting sonic data from multiple interpretations of the same piece and transcribing this data into a piano solo piece are the core compositional challenges of *The Celestial Threads*.

Inspired by the experience of transcribing four-part music in my second Sonic Engraving project, *Fugue of Distances*, I developed a new way of transcribing multiple melodic lines for *The Celestial Threads*. I placed the all four interpreters' transcriptions together and aligned them vertically (see Figure 12). The goal of this parallel arrangement is to prepare the sonic data in a way that synthesizes all four interpretations and reveals the four different musical perspectives of the interpreters.

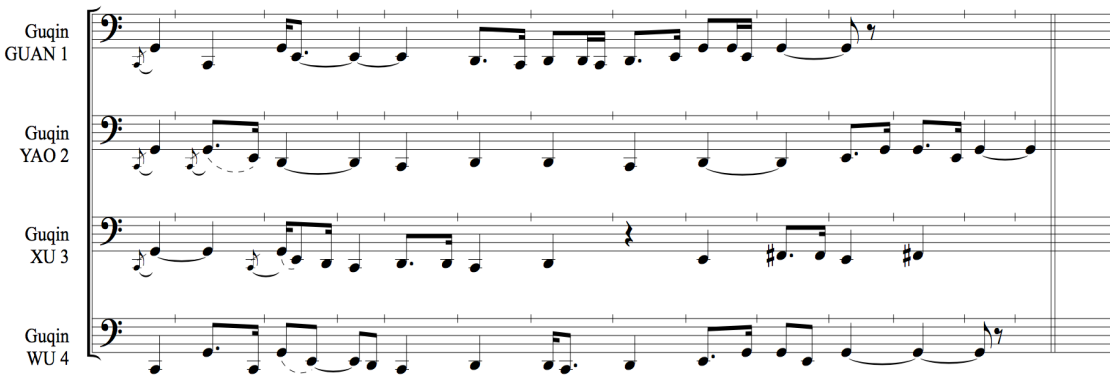


Figure 12 The vertical alignment of the four guqin players' transcriptions

Furthermore, my compositional goal is to introduce and explore two new technical aspects of Sonic Engraving through this project: First, to not generate the sonic data based on the intervals, which I did exclusively on my first two Sonic Engraving works. Second, to reveal the differences and subtle changes of the all four different interpreters' original transcriptions, by synthesizing the data of each melodic line.

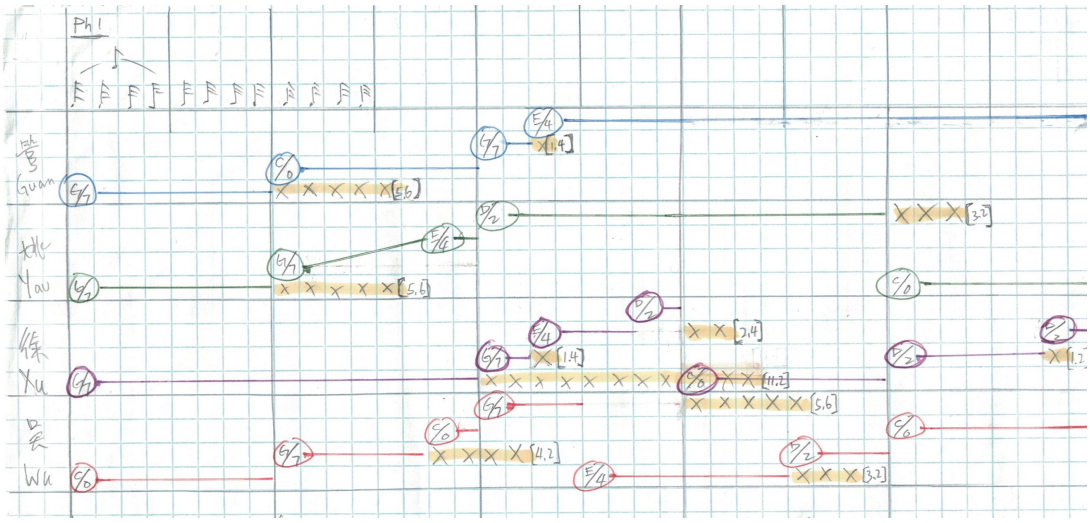


Figure 13a Sonic data of the four guqin players' interpretations

The general musical flow of *The Celestial Threads* is based on the change of every musical note of each original interpretation. Figure 13a displays the moment of change of every musical event of each original interpretation. The moments of change arrange in four separately trajectories. All four trajectories are in continuous upward motion, but they loop back to the bottom after a circle of the four-pitch-change. The intervallic value of the original source no longer plays a significant role like it did in my early Sonic Engraving works: In *Stretch of Light*, the intervallic context (horizontal) of Bach's *Cello Suite* determines the duration of each transcribed musical phrase. In *Fugue of Distances*, the intervallic context (vertical) of Bach's *The Art of Fugue* determines the pitch and which types of string technique are used.

However, the length of the transcribed musical gesture and phrase in *The Celestial Threads* is determined *collectively* by the original temporal structure and melodic movement of the four original interpreter's transcriptions. In Figure 13b, a vertical sonic data chart shows how I assign the pitch and choreography to the movement of the melodic pattern. The four lines, moving from top to bottom and from left to right are called "sonic threads", and they follow exactly the moment of change of the four original interpreter's transcriptions. The movement of the sonic threads is always even and one half-step higher each time when it changes.

Synthesizing the four original melodic lines is another new technique I explore in this Sonic Engraving project. My strategy is to design a default rhythmic pattern for grouping the sonic data of all four original interpreters' melodies. The default rhythmic pattern of *The Celestial Threads* is a four-sixteenth-note rhythmic motif (see Figure 14). The sonic data from Wu's interpretation is represented by the first sixteenth-note, and

Xu's interpretation is the second, Yao is the third, and Guan is the forth. By using this repetitive rhythmic pattern, sonic data from each of the interpreters can be revealed in every beat. Figure 14, the opening of *The Celestial Threads*, together with Figure 13b, illustrate the functional rhythmic pattern and concept of synthesizing the sonic data.

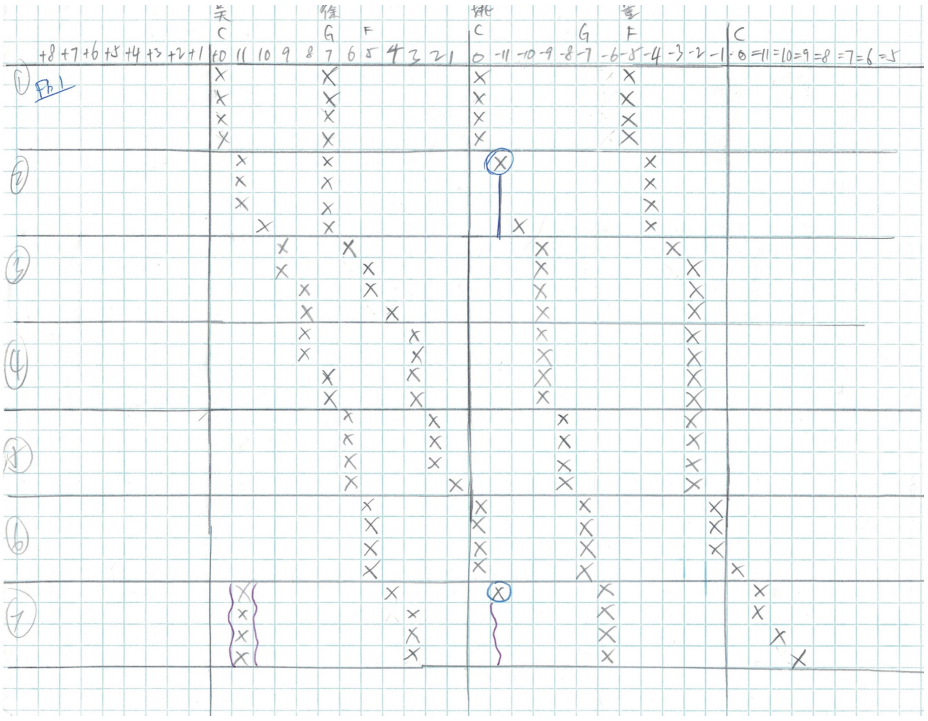


Figure 13b Pitch material and melodic movement of *The Celestial Threads*

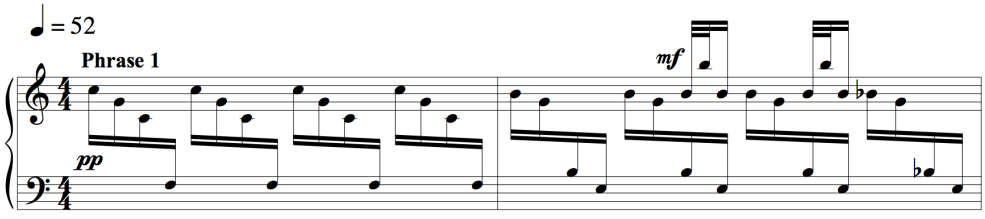


Figure 14 Selected passage of *The Celestial Threads* (mm.1-2)

Reflection

Stretch of Light was the first composition in which my Sonic Engraving technique is thoroughly employed. Since then, this compositional approach, has evolved in a fascinating way. For instance, after learning how to transcribe sonic behavioral patterns of J. S. Bach's compositions in my first two Sonic Engraving projects, I started to apply the technique to transcribe a work that is stylistically very different than Bach's, which is the famous ancient Chinese guqin work, *Jieshi Diao Youlan*. I also began to collect the sonic data from different musical parameters of the adapted original source. For *Stretch of Light*, the sonic data is generated from the horizontal intervallic context of the adapted work; for *Fugue of Distances*, the sonic data is generated from the vertical intervallic context of the adapted work. But for *The Celestial Threads*, the intervallic value of the original source is no longer the relevant musical parameter for the sonic data, instead I studied and extracted the moments of pitch change without considering the intervallic context.

In addition, through extracting and transcribing sonic data for various instrumental combinations, different Sonic Engraving strategies are explored as well. For *Stretch of Light*, the melodic material of a cello solo is transcribed into an ensemble of five players (contrabass quintet). For *Fugue of Distances*, the material of four fugal melodic voices is transcribed into a quartet of string instruments, and different special instrumental techniques are used for outlining the constant change of sonic perspective and perceptual distances. For *The Celestial Threads*, the transformation of instrumental setting is a meaningful one. This piano work demonstrates the possibility of composing a solo Sonic Engraving piece by transcribing sonic data from multiple original sources.

Another milestone in the development of the Sonic Engraving model was the treatment of temporal structure. Retaining an intact temporal structure of the original source is a critical component of traditional musical transcription as well as a fundamental principal of my Sonic Engraving theory. My first two Sonic Engraving works strictly follow the original temporal structure of the adapted sources. This hyper-transcriptional concept helps create a strong musical and structural connection between the new and old. But for *The Celestial Threads*, I developed a method to synthesize multiple sonic data of four different adapted sources (the four transcriptions of the guqin scholars) with defaulting *sonic motif*. Hence, by using the repetitive motif, the temporal structures from the four adapted sources and the differences of them can also be manifested simultaneously.

Over the course of this series of experiments, the Sonic Engraving model became an open tool for me to create works using musical resources with diverse styles. The model is not merely for transcribing the sonic data from one single adapted composition, but also a powerful method of integrating multiple musical resources. Interesting musical dramas with different musical contexts and internal sonic dialogues can be also created organically within Sonic Engraving work.

Although only a few major compositions that I composed at UC San Diego are *directly related to* this technique (see Figure 1), Sonic Engraving provided me with vital personal artistic impact. The experience of handling the intriguing pre-compositional process and mediating sonic complexity through each Sonic Engraving project enables me to compose music with a larger musical form and structure. Throughout the course of investigating this transcriptional model, I developed a new outlook on the art of

traditional transcriptional practice, and discovered new potential from observing and capturing the sonic behavior of others' existing musical works.

Furthermore, Sonic Engraving has strengthened my skills in other areas of composition. I have mastered the ability to use unusal instrumental techniques through the process of trying different sonic materials and mediating the musical conflicts among the sonic data in different complex compositional designs. The lexicon of my musical language, concept of musical structure, awareness of sonic characters, and ability to integrate technology and spatial design have been enriched by this exceptional compositional practice.

The Moon in La Jolla, a telematic symphonic work that I composed in 2015 displays the influences I received from my Sonic Engraving studies. This work is not a sonic transcription, but the ways I identified, organized, and developed the acoustic dimension of the music and the performance venue reveal the artistic notions I have from my previous Sonic Engraving projects. The idea of the piece is to orchestrate the distances, and create a virtual platform where sound and image interact in different creative ways through the network technology. Some instrumental techniques that I learned from the previous Sonic Engraving projects are used in this orchestral composition as well, such as the string quartet section in the opening, and the string section from rehearsal letter P2 to U2.

In *The Moon in La Jolla*, a special orchestral distance is created by highlighting two sonically extremely different chamber groups, a string quartet and a percussion quartet, within the orchestra. The inherent nature of the string quartet is intimate, but its sound is made perceptually distant when it is surrounded by the entire orchestra.

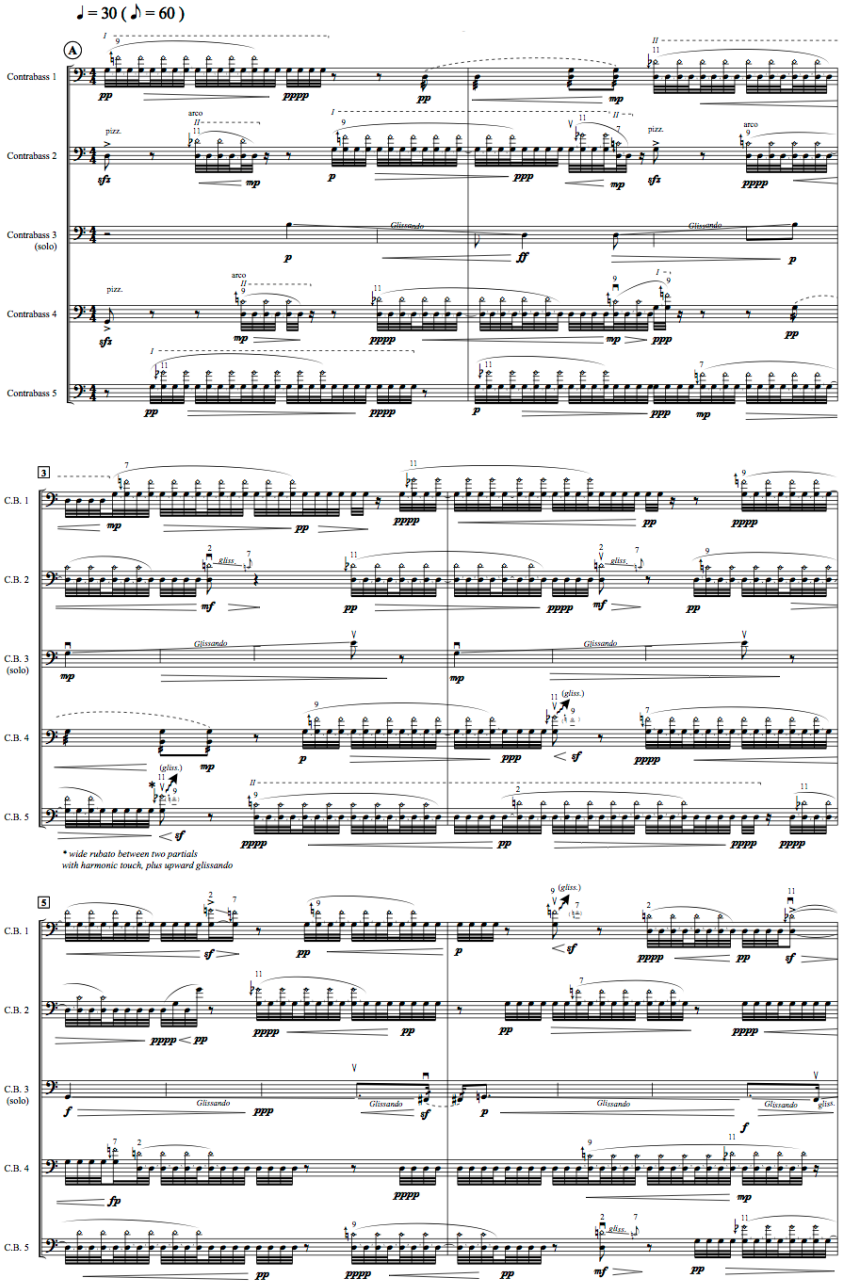
Meanwhile the percussion quartet tends to sound remote, but its sound becomes immersive when it is projected through speakers in the auditorium. With these two kinds of surrealistic sonorities, subtle musical dialogue between the individual and its environment is created.

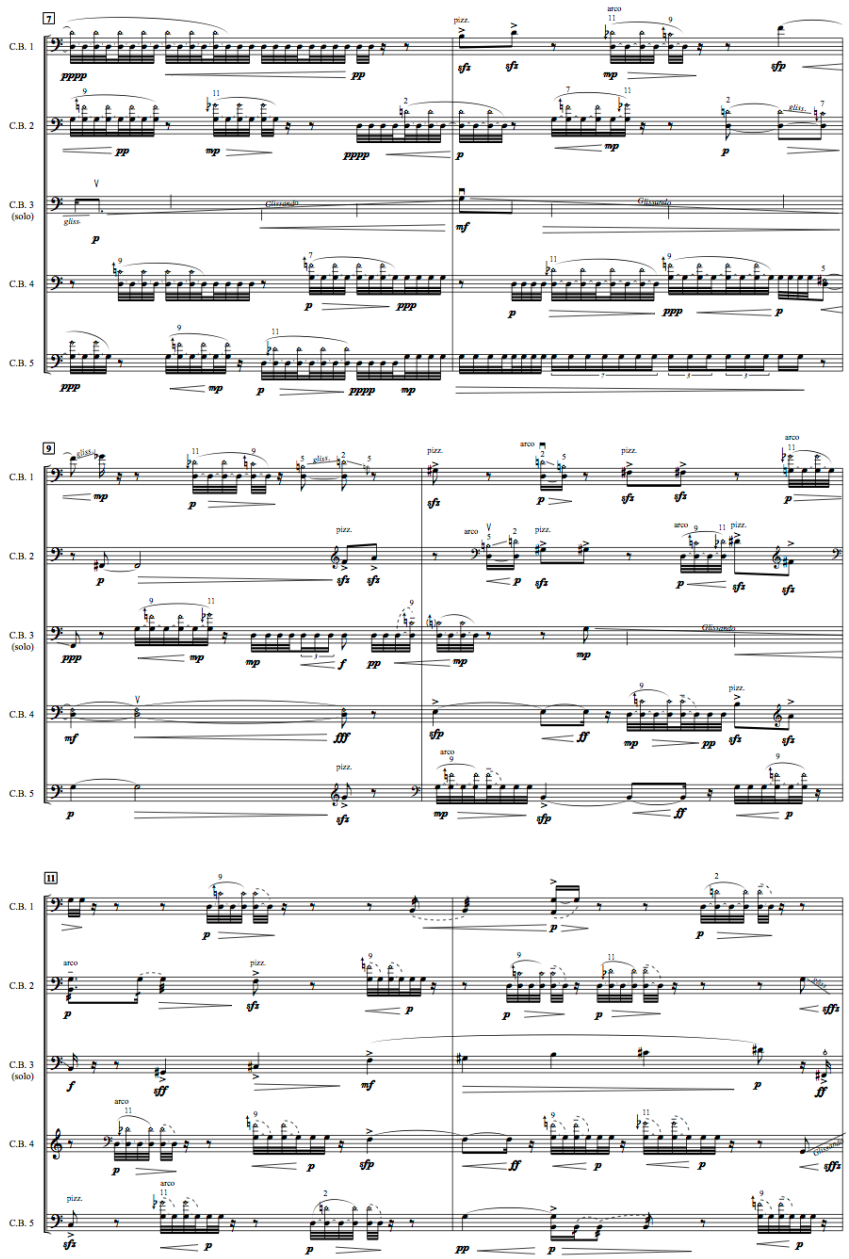
In addition, the percussion is spatialized quadraphonically while the carillon sound of the library is transmitted telematically through the speakers on the auditorium ceiling so that the architectural design of the spectacular UCSD Geisel Library building is sonically "transcribed."

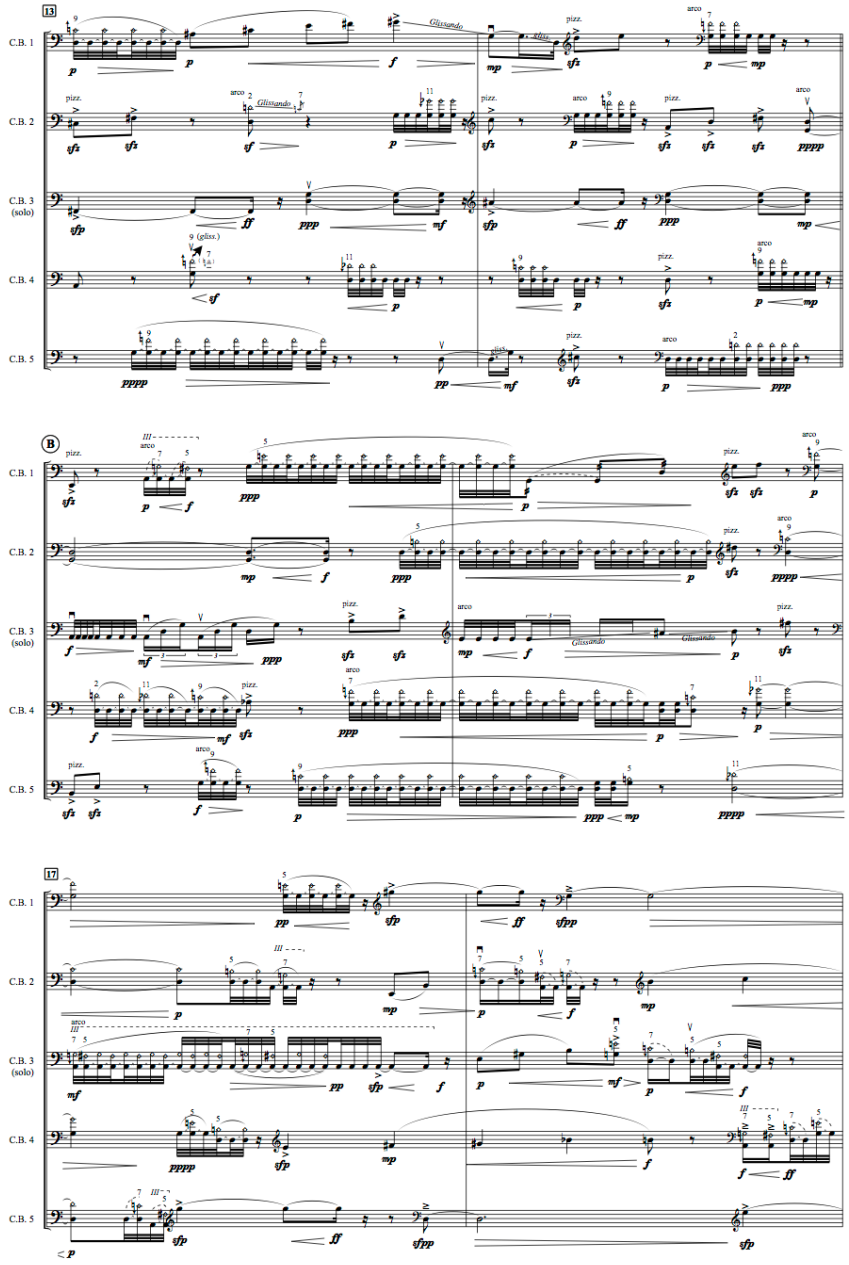
Figure 15 is an image from the rehearsal of *The Moon in La Jolla* (2015). Together with video projection, sonic spatialization, and local audio amplification control, the concert hall (Mandeville Auditorium) was virtually infused with the distinctive architectural feature of the Library building while an immersive multimedia experience was created.

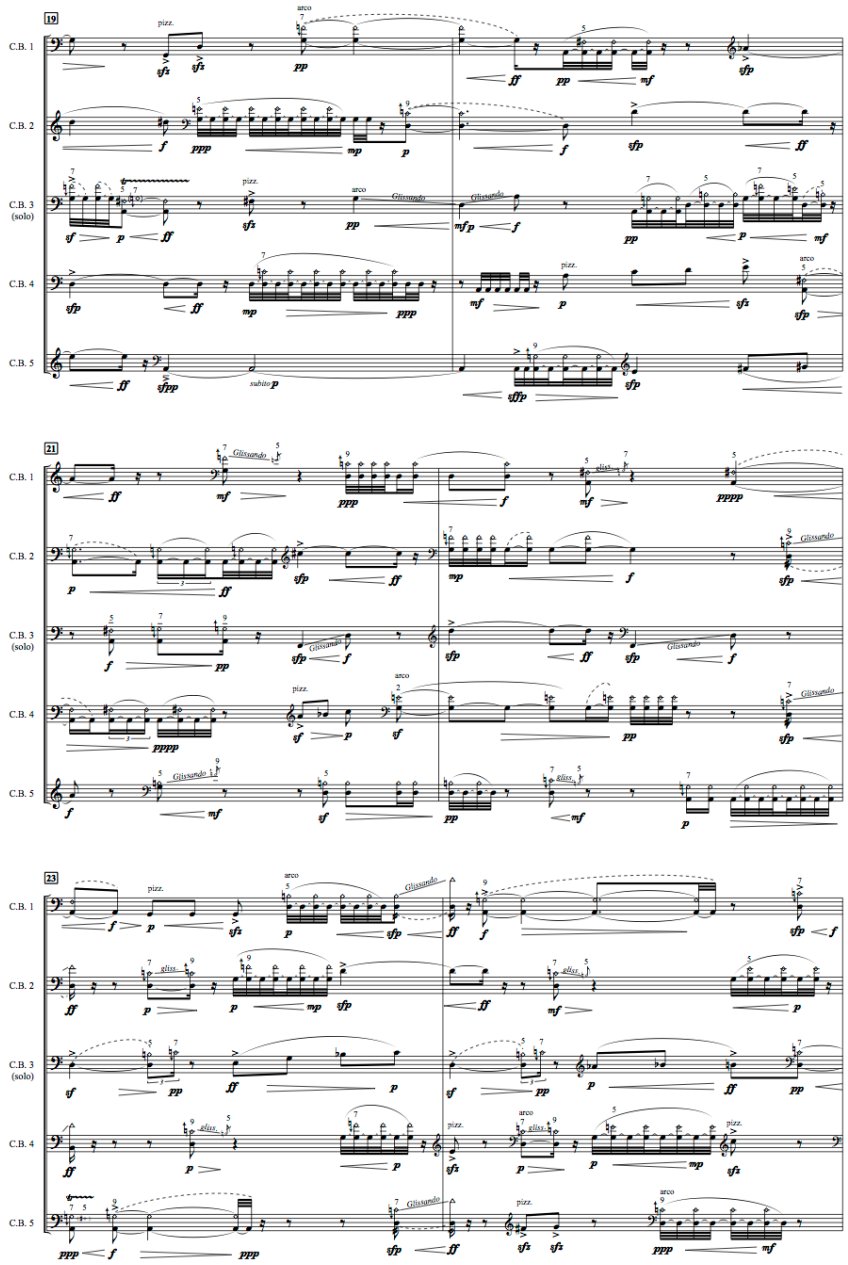
Figure 15 Image from the rehearsal of *The Moon in La Jolla* (2015)

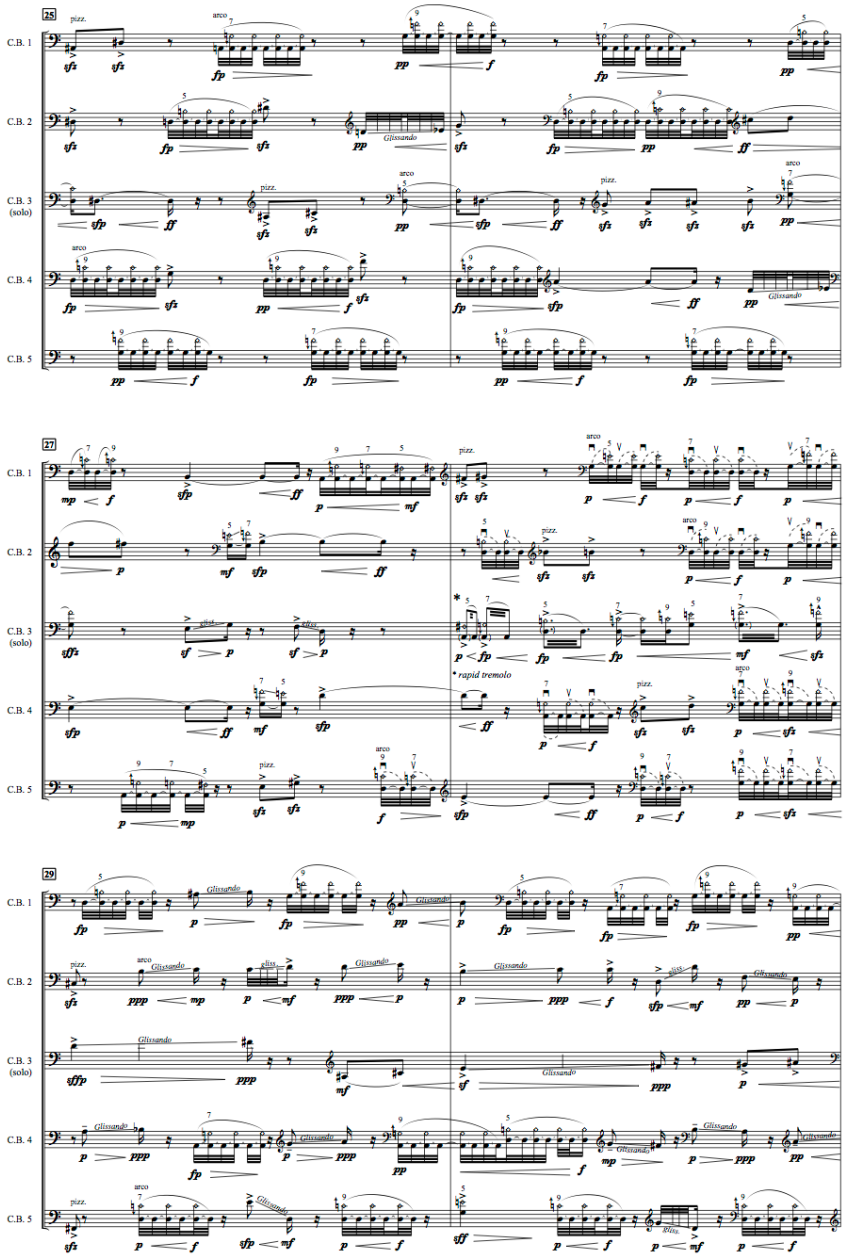
MUSIC SCORE 1: *STRETCH OF LIGHT*

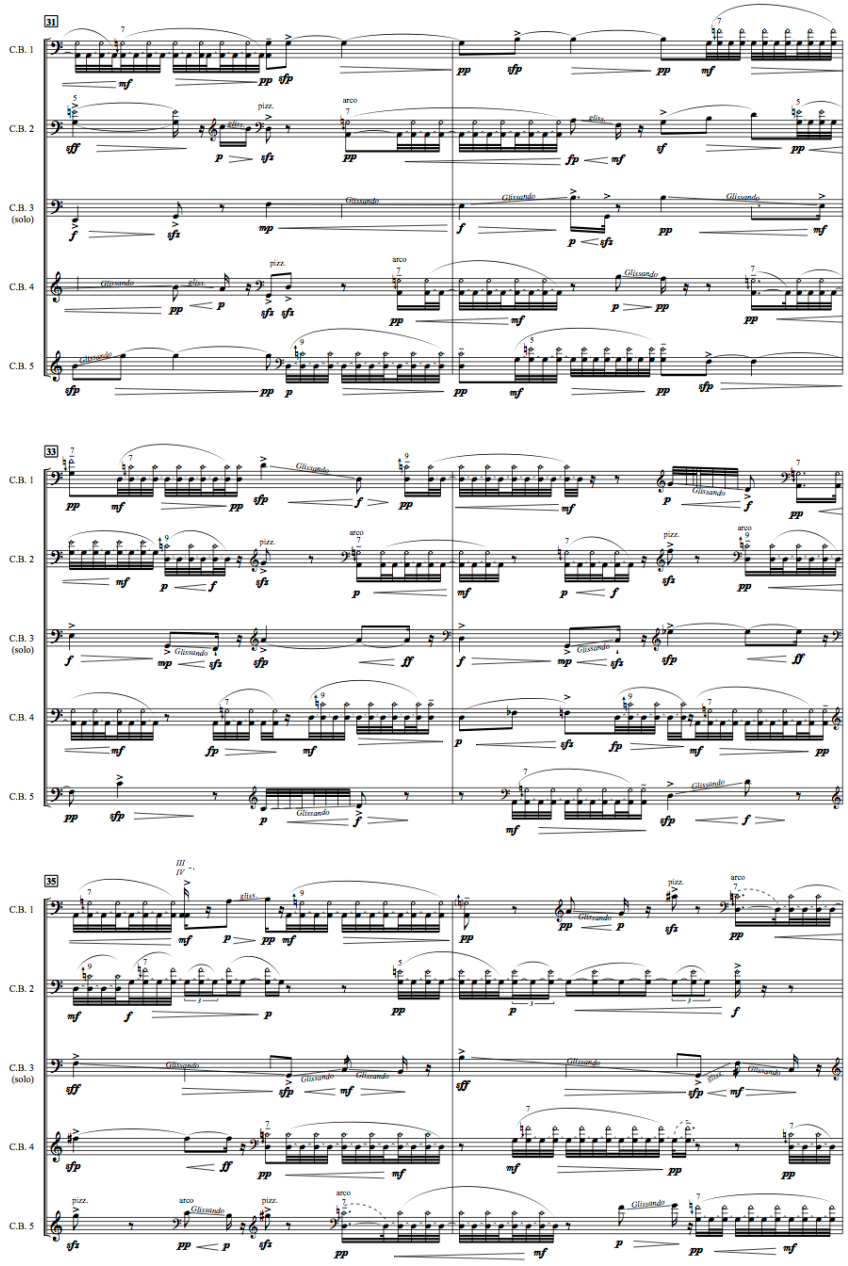

♩ = 30 (♪ = 60)
Contrabass 1
Contrabass 2
Contrabass 3 (solo)
Contrabass 4
Contrabass 5
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
* wide rubato between two partials with harmonic touch, plus upward glissando

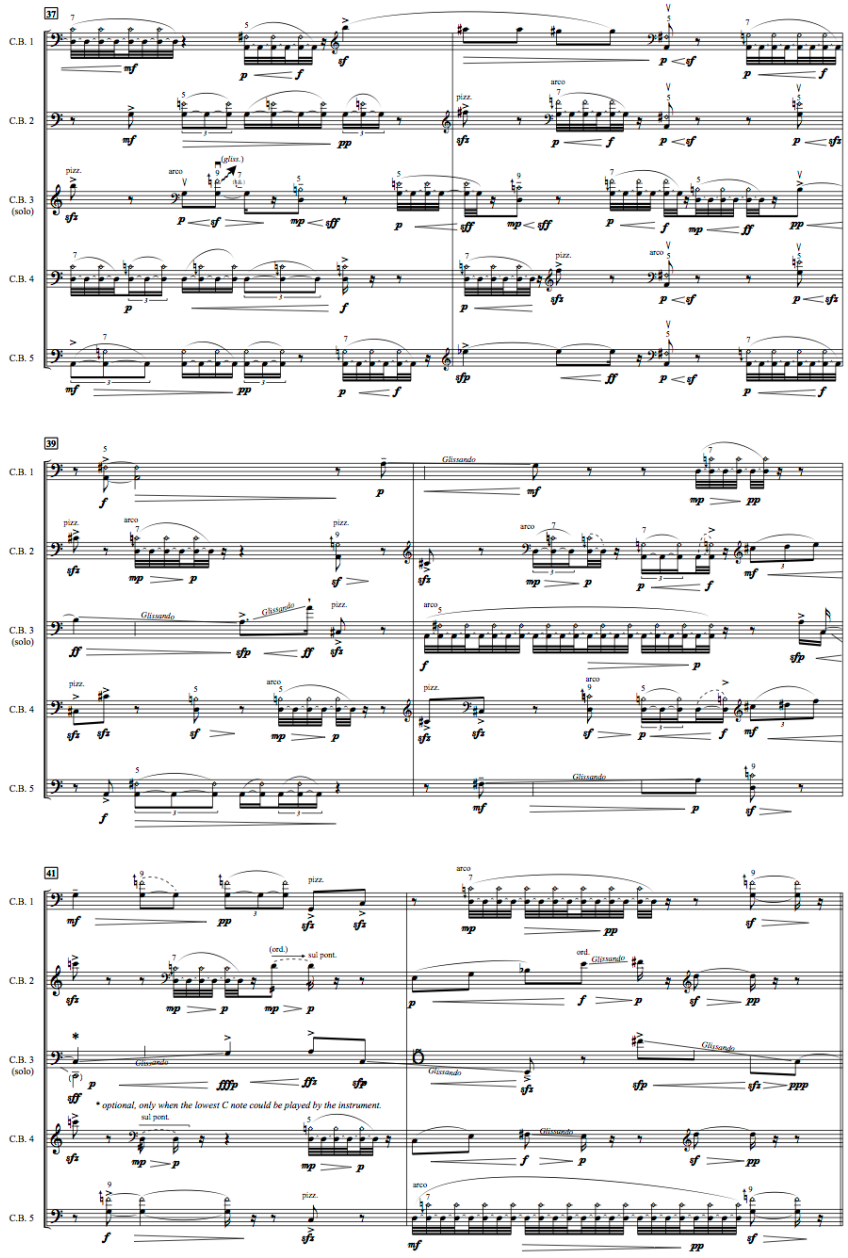

7
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
pizz.
arco
gliss.
Glissando
9
11

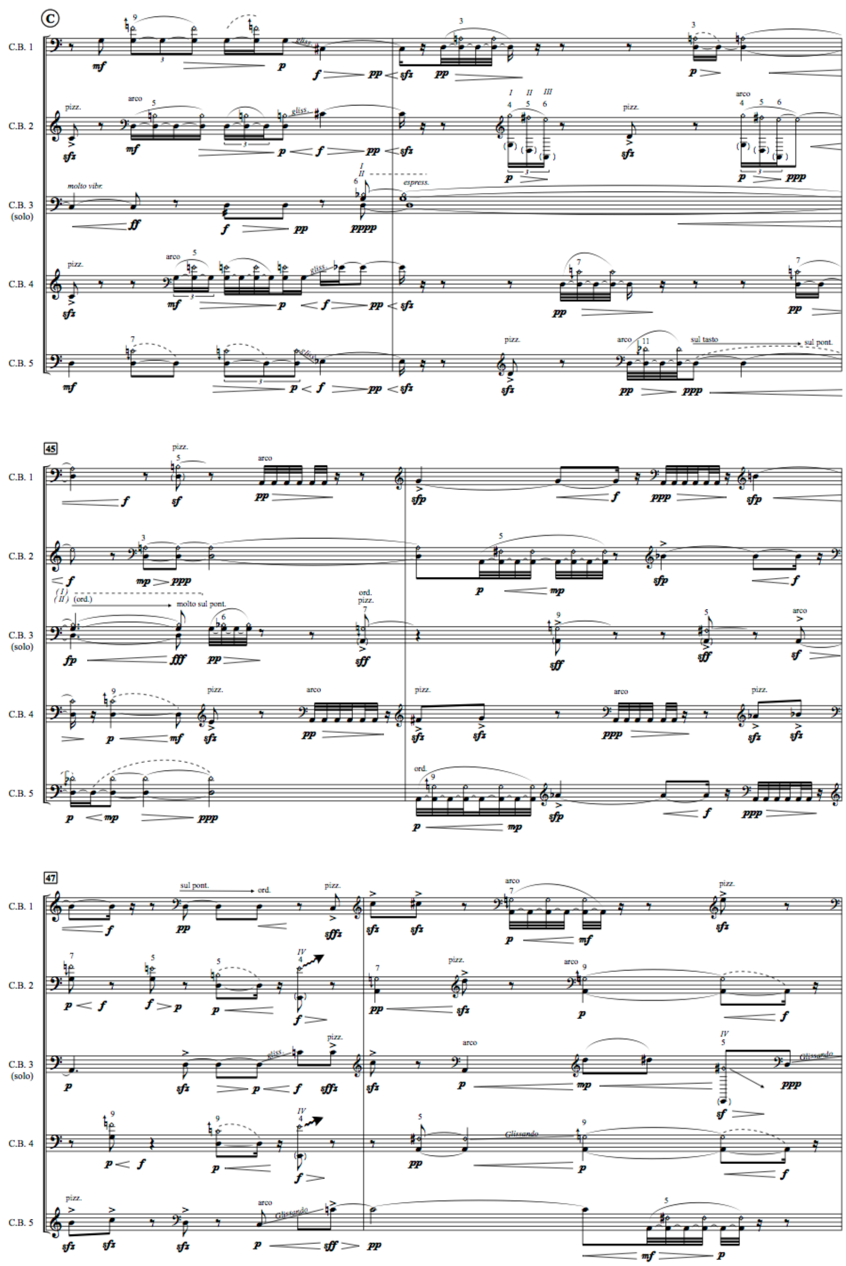

13
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
Glissando
pizz.
arco
B
17

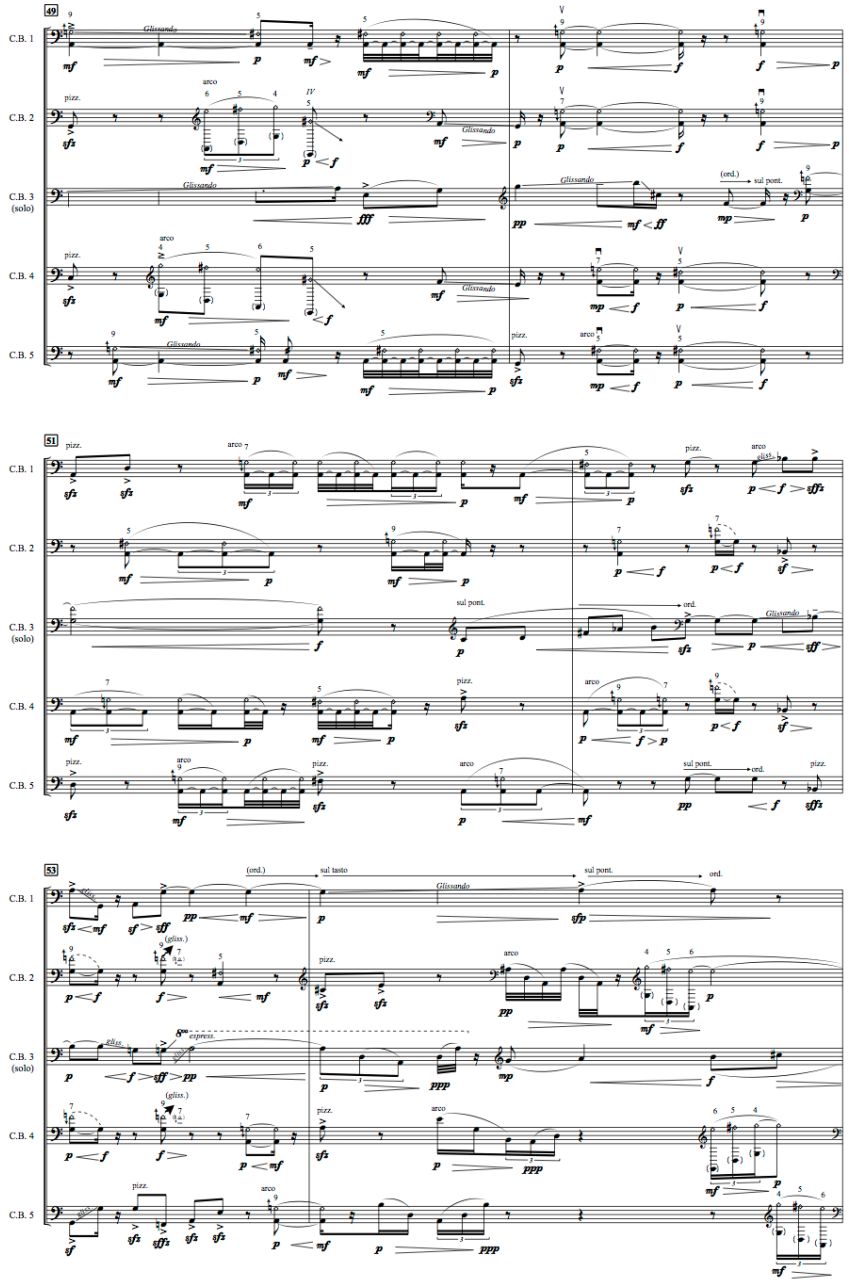

19
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
pizz.
arco
Glissando
subito p
21
23

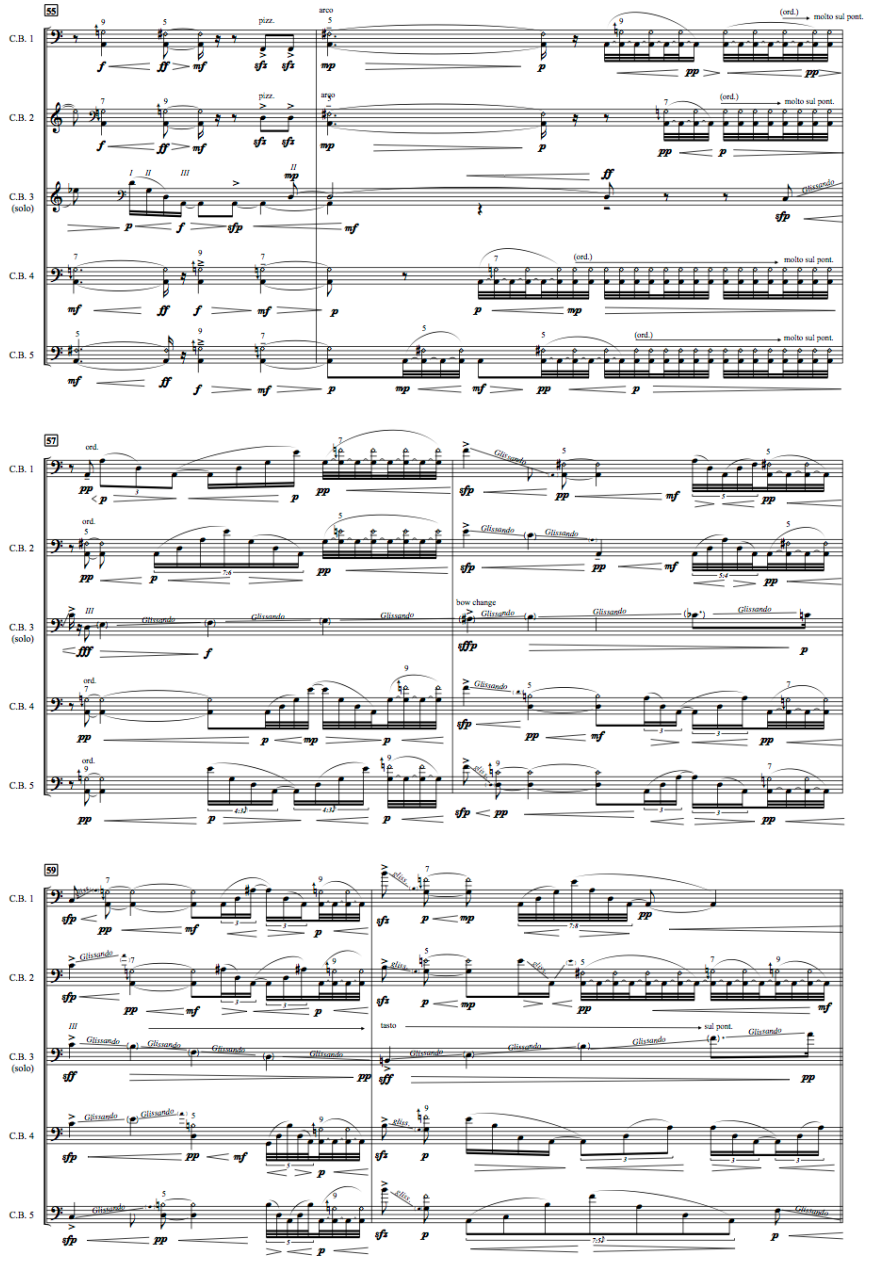

25
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
pizz.
arco
Glissando
27
* rapid tremolo
29

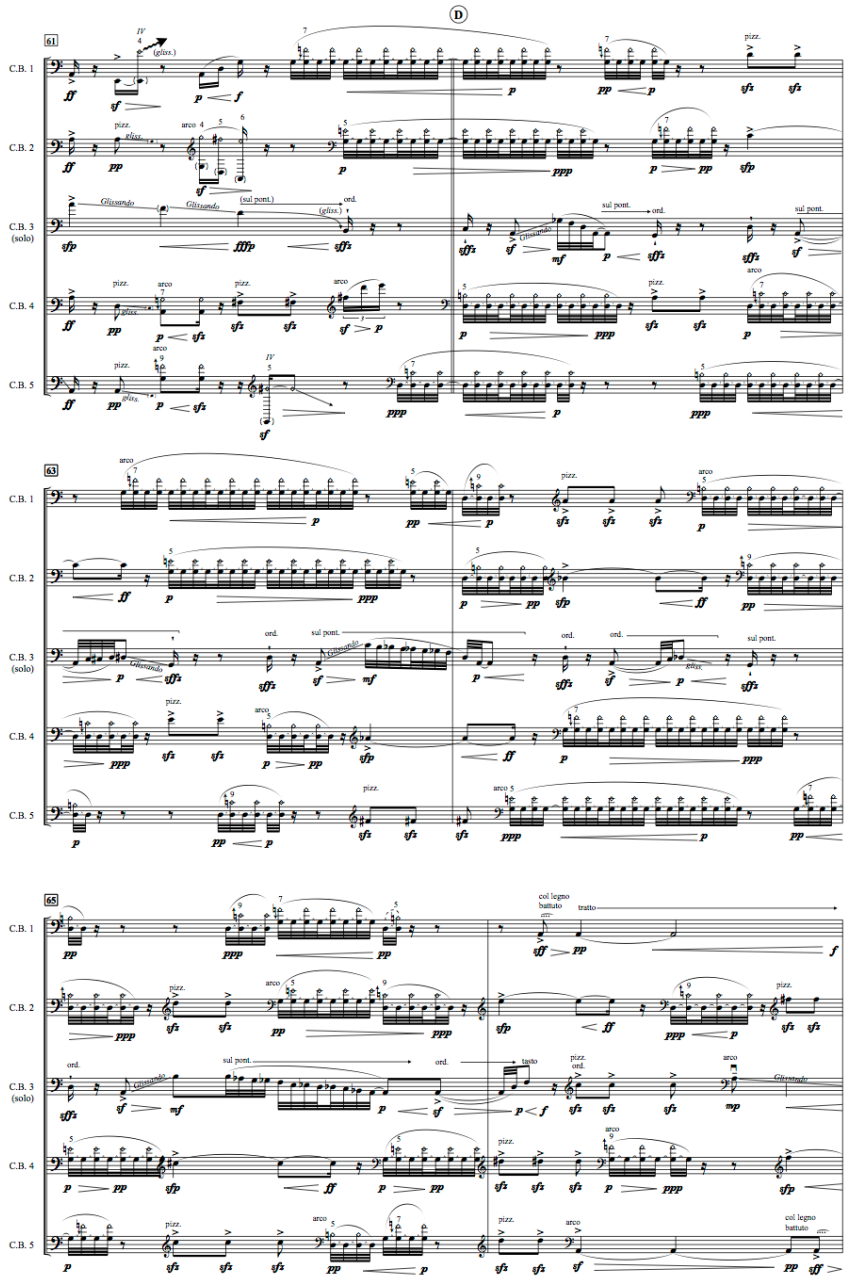

31
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
33
35

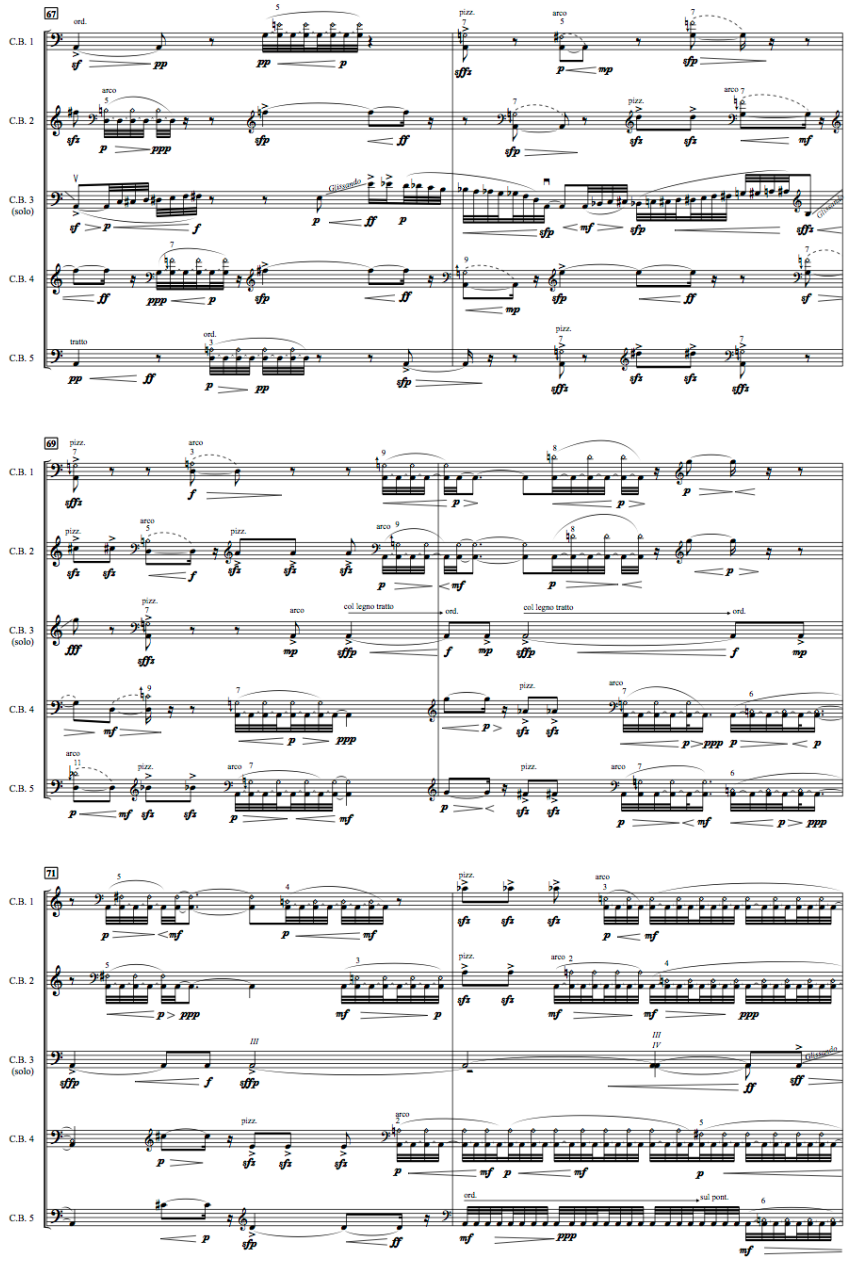

37
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
pizz.
arco
(slide)
39
Glissando
41
(ord.)
sul pont.
ord.
* optional, only when the lowest C note could be played by the instrument.

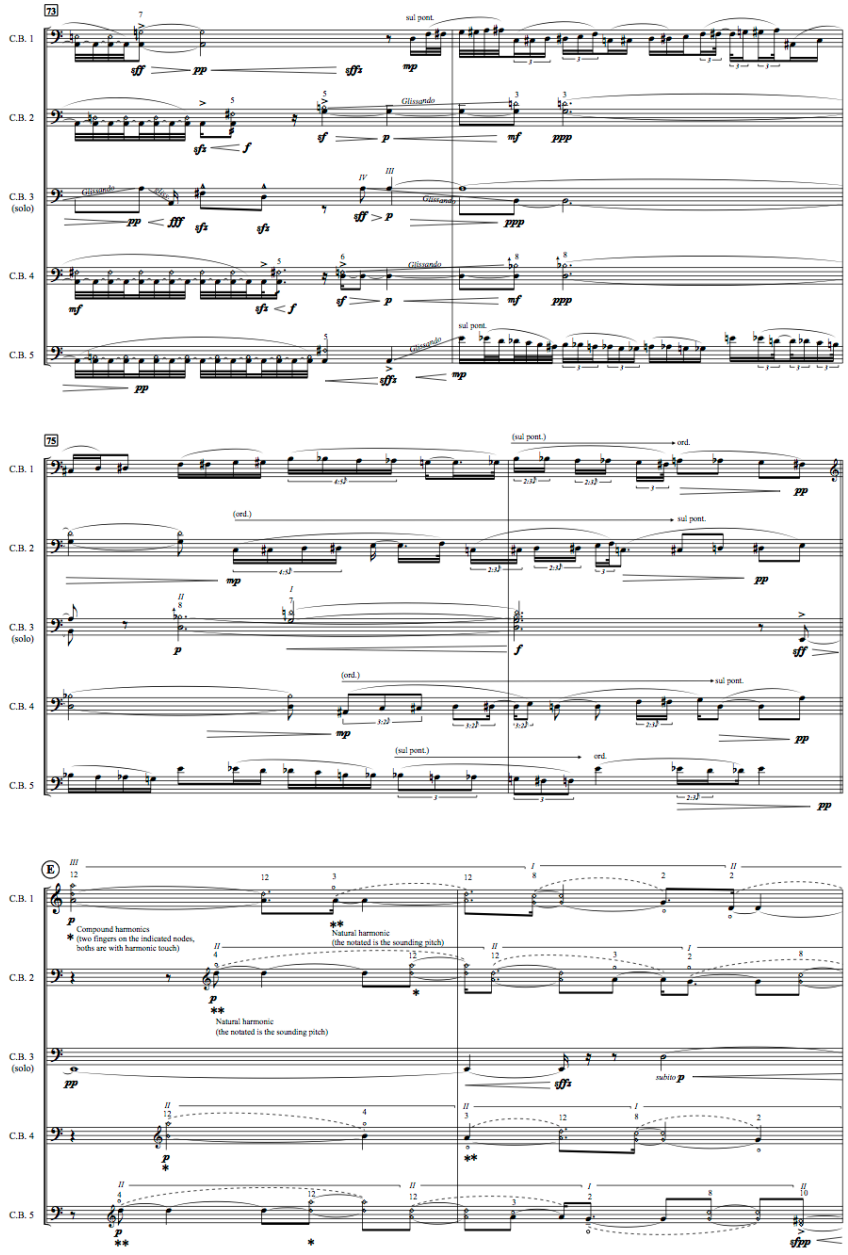

C
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
pizz.
arco
gliss.
molto vibr.
espress.
sul tasto
sul pont.
45
(ord.)
molto sul pont.
ord.
47
Glissando

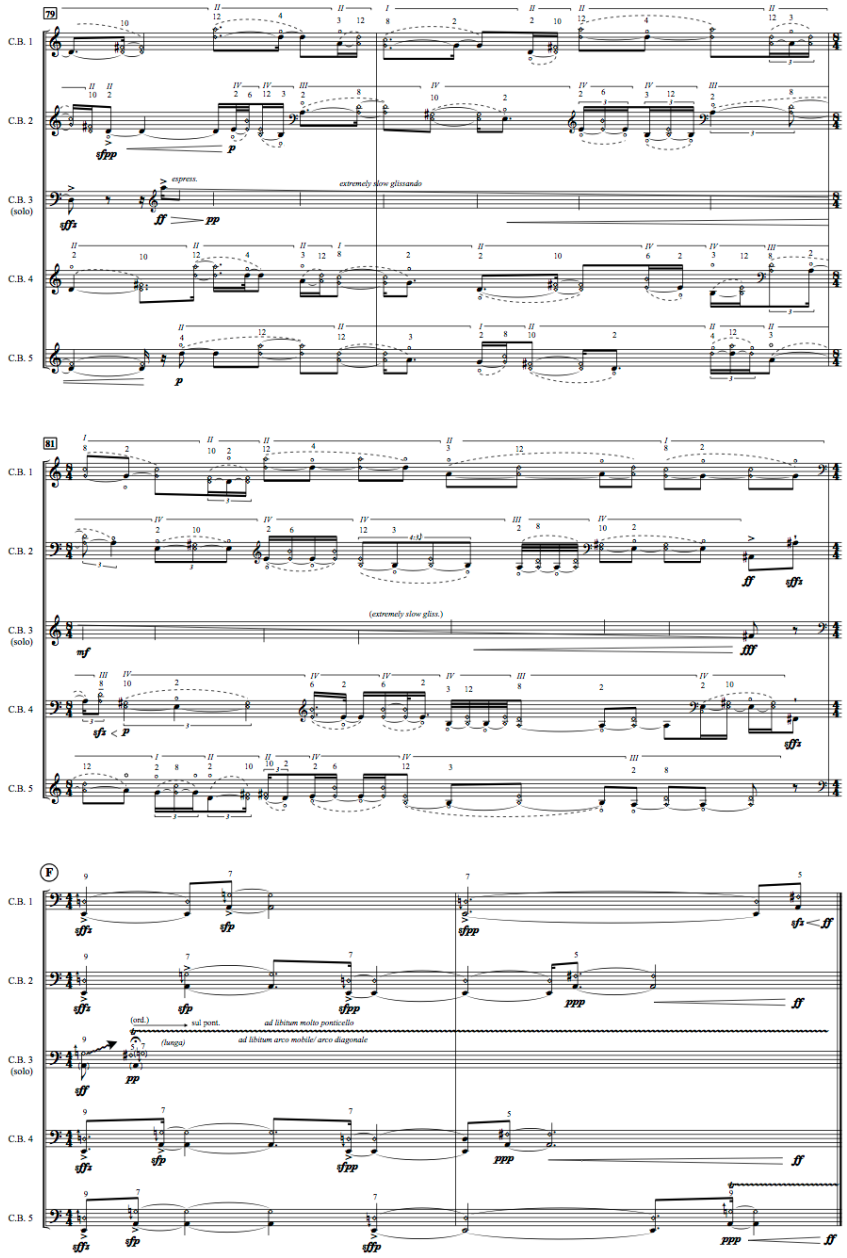

49
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
Glissando
pizz.
arco
(ord.)
sul pont.
51
ord.
53
sul tasto
(gliss.)
espress.


55
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
pizz.
arco
(ord.)
molto sul pont.
57
ord.
Glissando
bow change
59
tasto
sul pont.

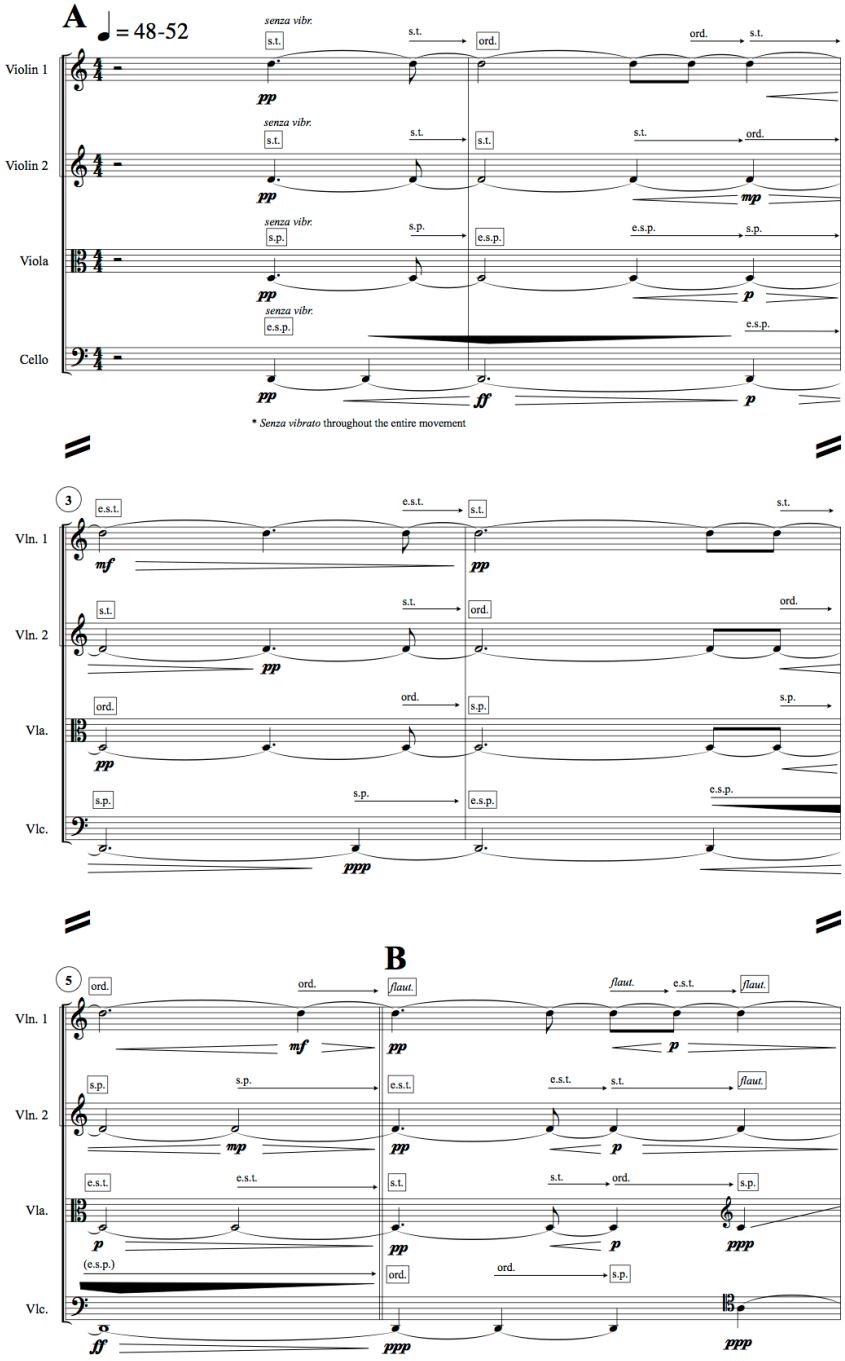

D
61
63
65
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
Glissando
(sul pont.)
ord.
sul pont.
pizz.
arco
col legno battuto
tratto

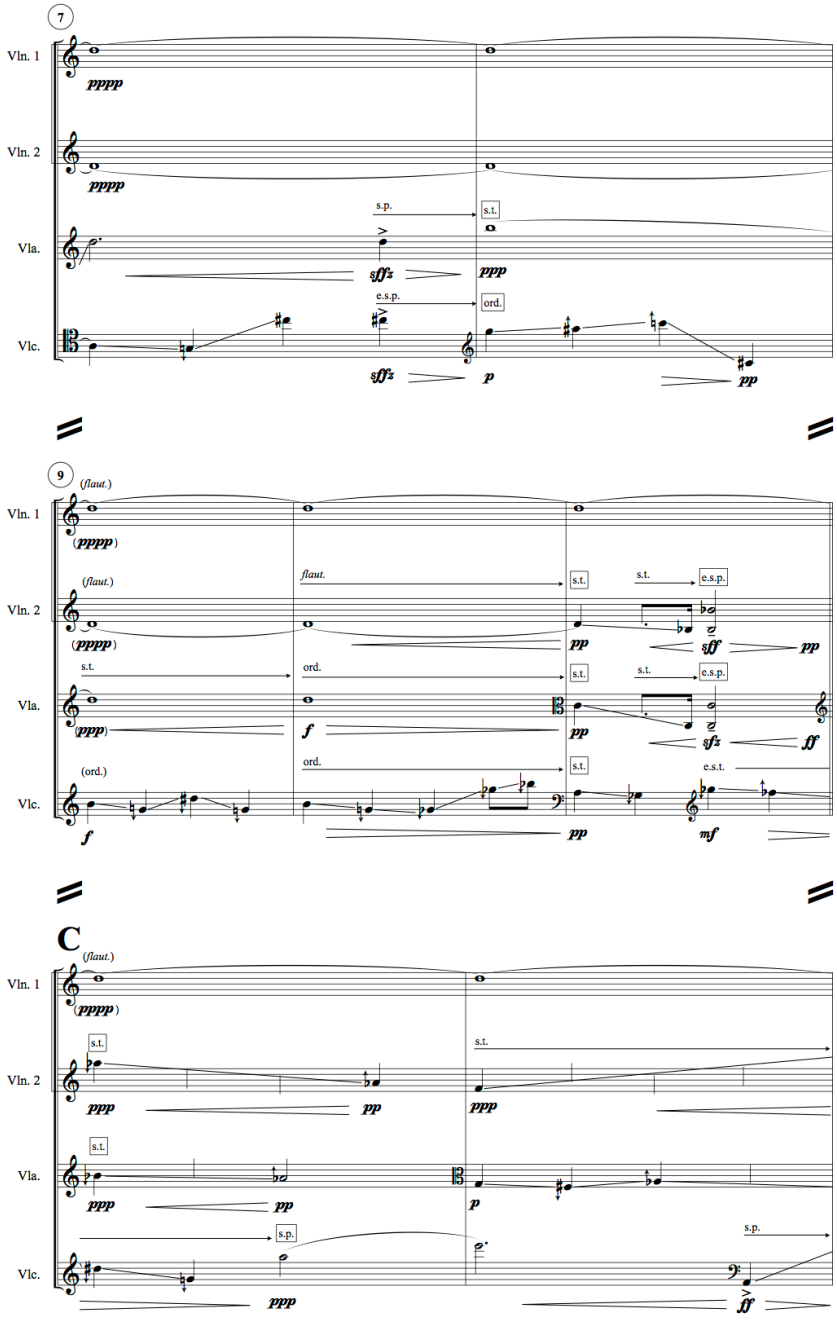

67
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
ord.
arco
pizz.
tratto
Glissando
69
col legno tratto
71
sul pont.

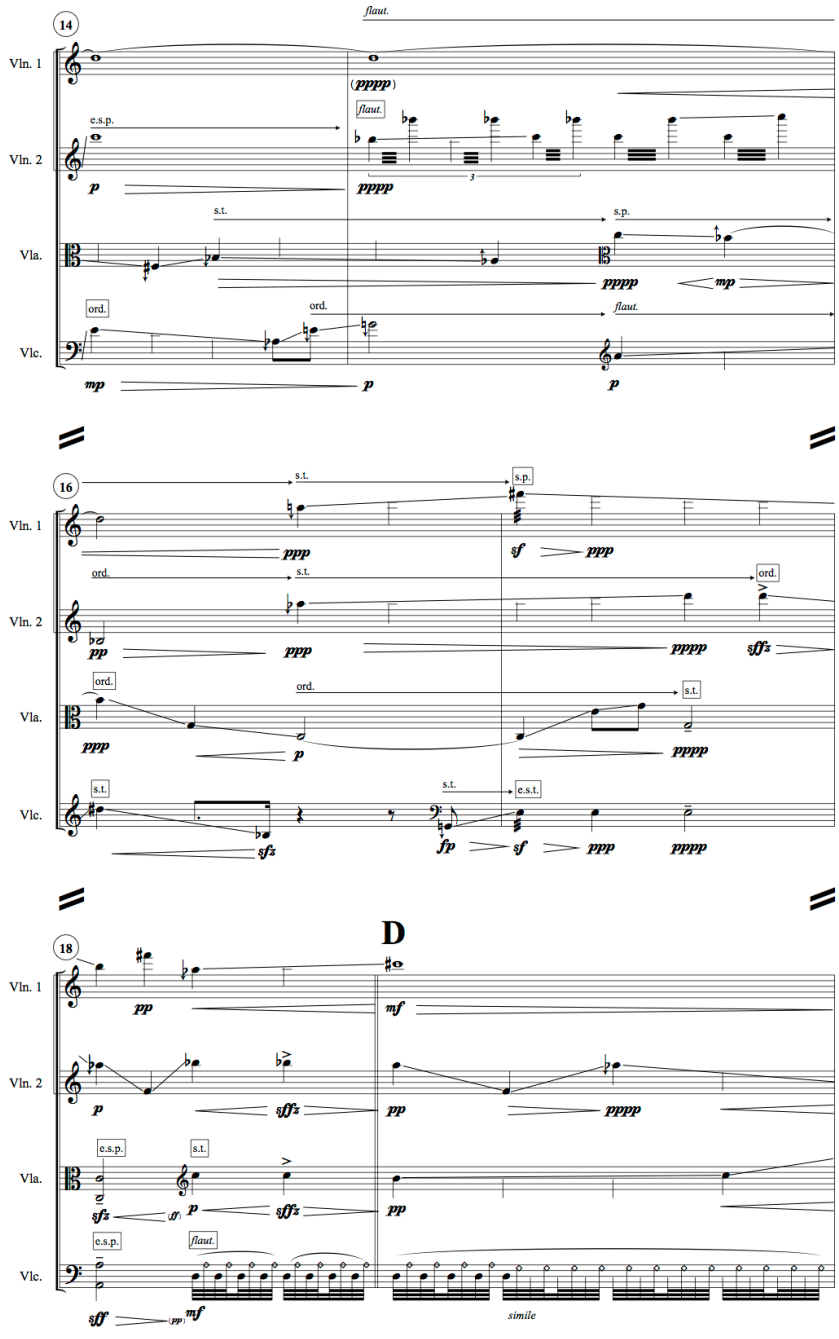

73
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
sul pont.
Glissando
75
(sul pont.)
ord.
(ord.)
E
Compound harmonics
(two fingers on the indicated nodes, both are with harmonic touch)
Natural harmonic
(the notated is the sounding pitch)
subito p

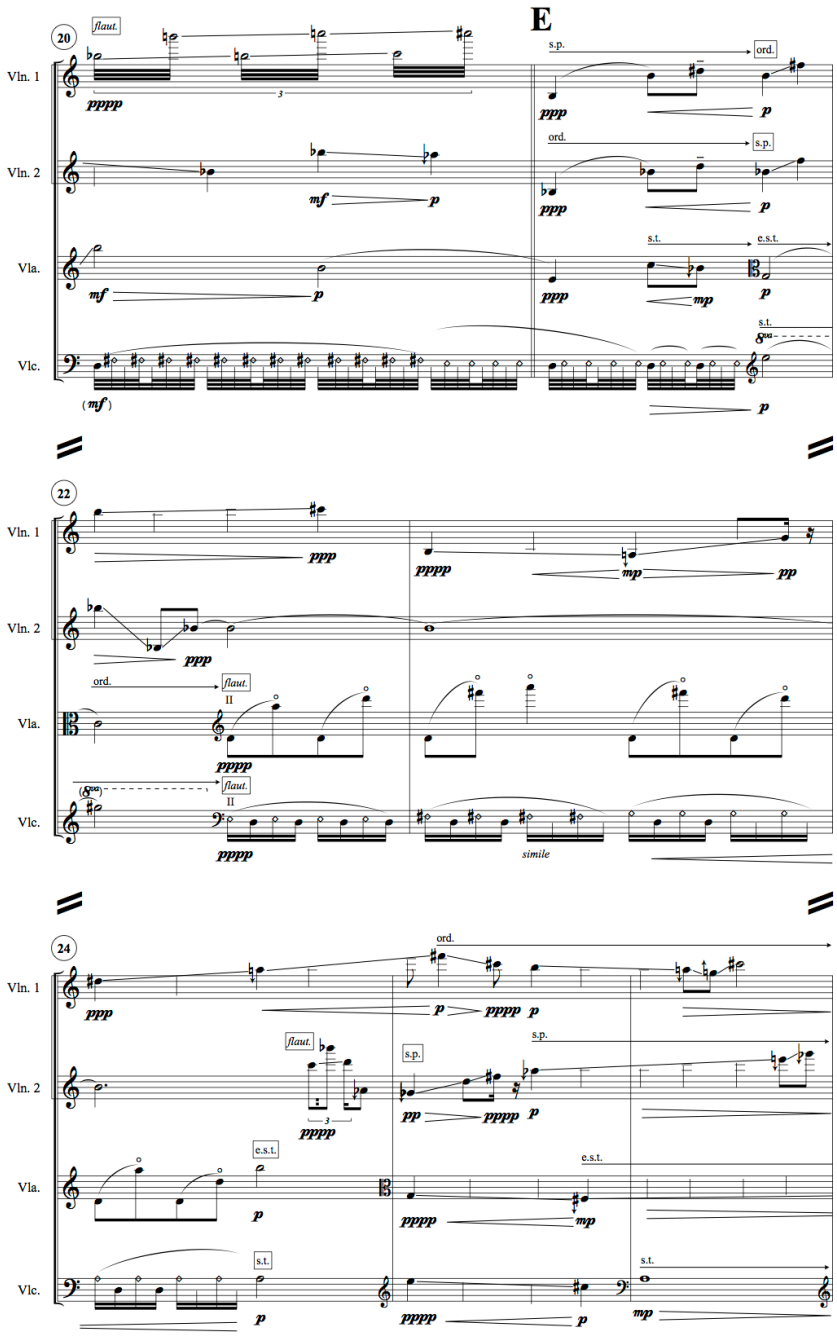

79
C.B. 1
C.B. 2
C.B. 3 (solo)
C.B. 4
C.B. 5
express.
extremely slow glissando
81
(extremely slow gliss.)
F
(ord.)
sul pont.
(lunga)
ad libitum molto ponticello
ad libitum arco mobile/ arco diagonale

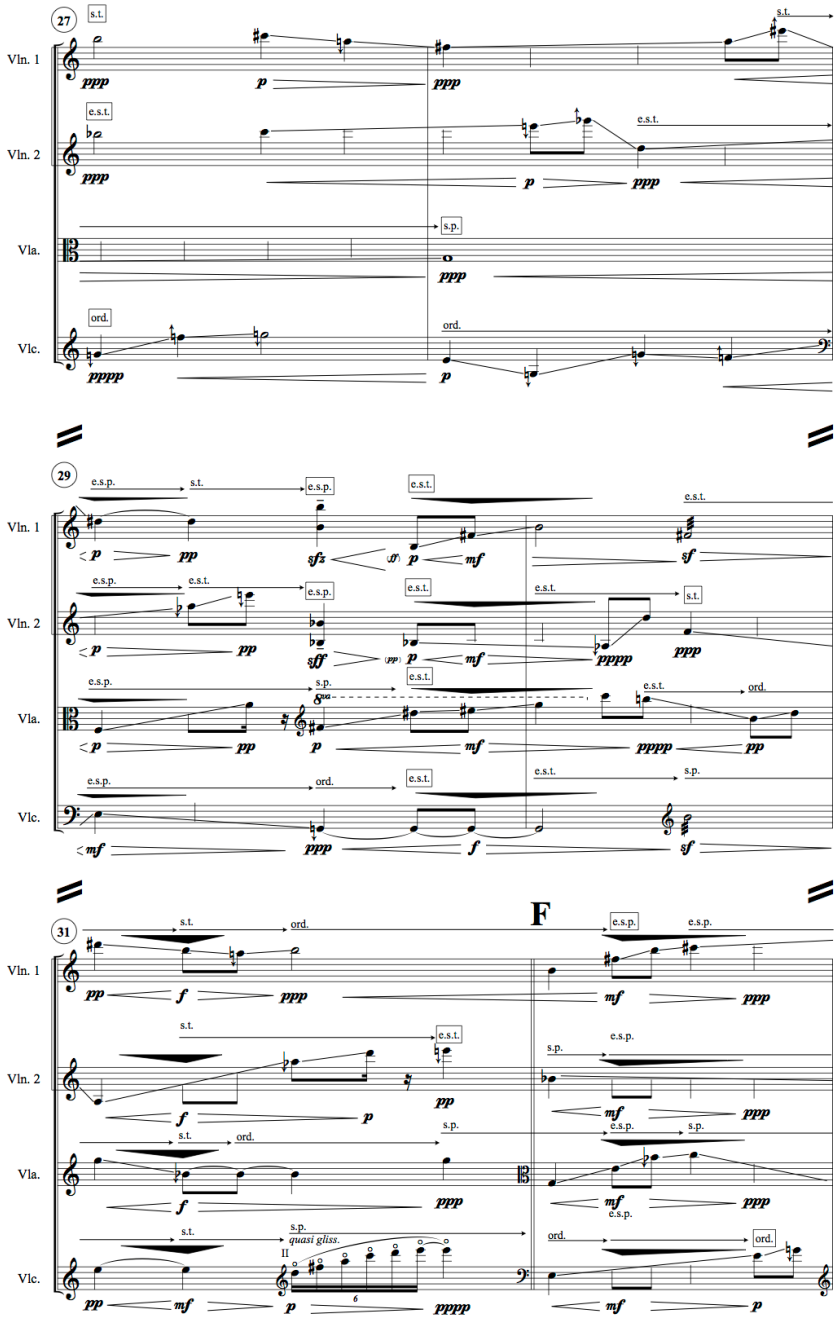
MUSIC SCORE 2: *FUGUE OF DISTANCES*

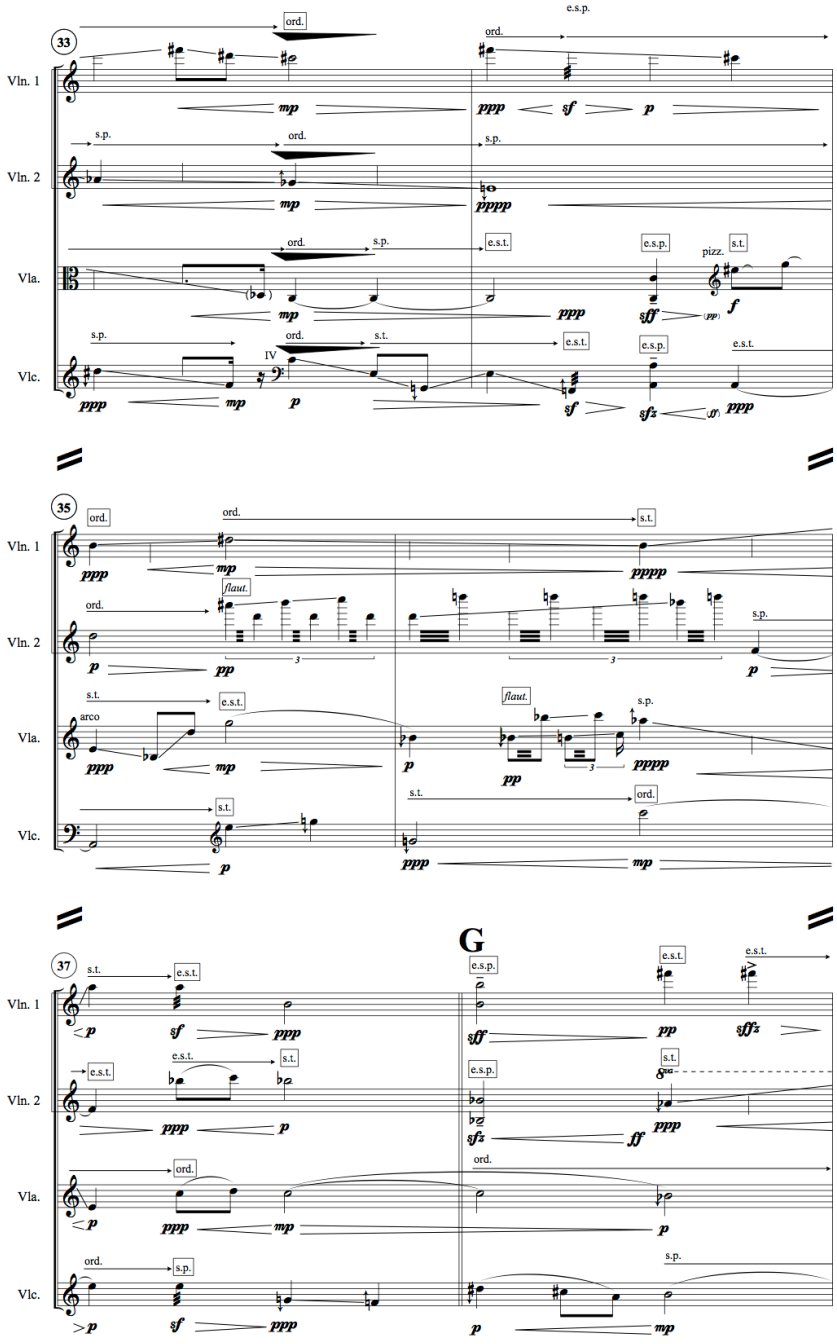

A
= 48-52
Violin 1
Violin 2
Viola
Cello
senza vibr.
* Senza vibrato throughout the entire movement
Vln. 1
Vln. 2
Vla.
Vlc.
B
flaut.

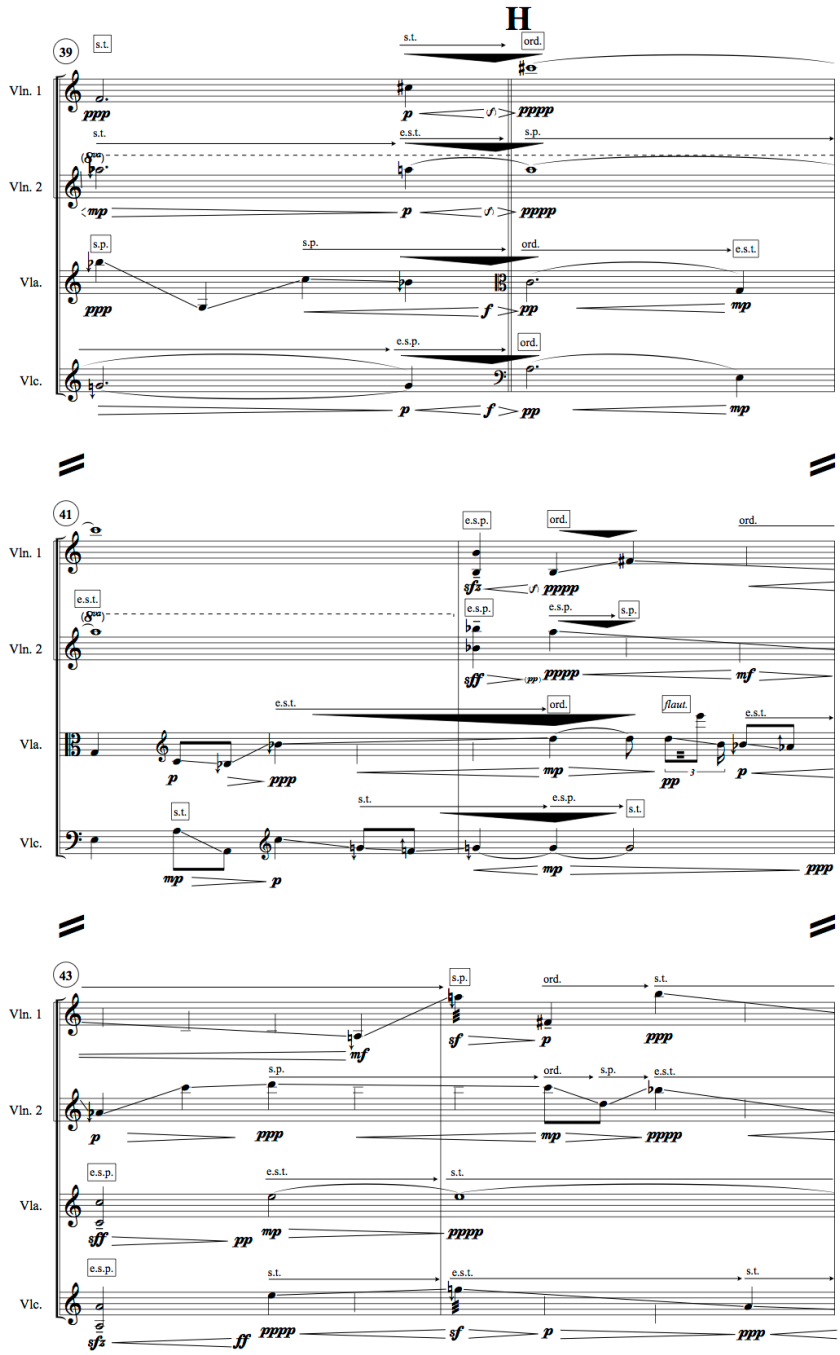

7
Vln. 1
Vln. 2
Vla.
Vlc.
pppp
pppp
s.p.
s.t.
sfz
ppp
e.s.p.
ord.
sfz
p
pp
9
(flaut.)
(pppp)
flaut.
s.t.
e.s.p.
pp
sff
(ppp)
ord.
f
sfz
ff
(ord.)
e.s.t.
mf
C
ppp
pp
p
s.p.
fff

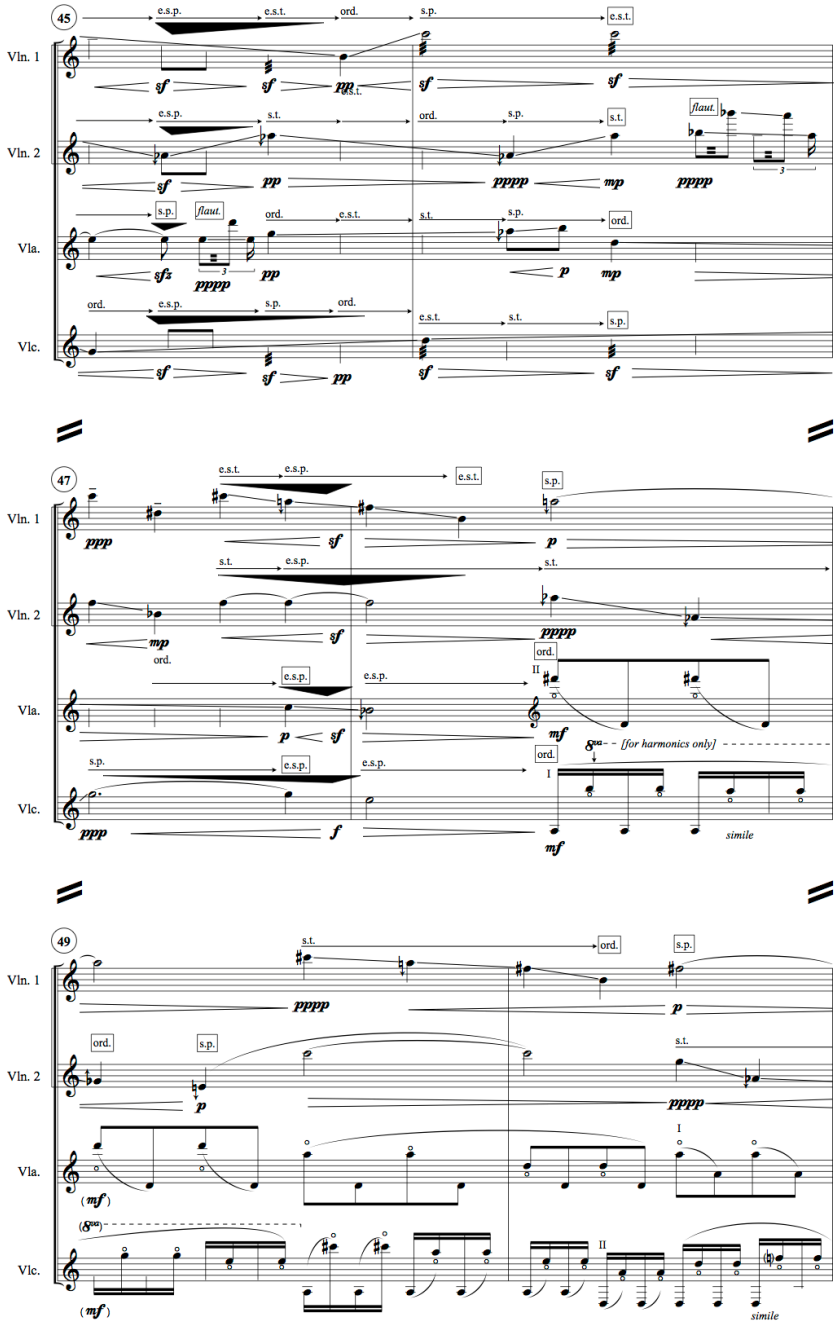

14
flaut.
Vln. 1
Vln. 2
Vla.
Vlc.
(pppp)
flaut.
e.s.p.
p
pppp
3
s.t.
s.p.
pppp
mp
ord.
ord.
flaut.
mp
p
p
16
s.t.
s.p.
ppp
sf
ppp
ord.
s.t.
ord.
pp
ppp
pppp
sffz
ord.
ord.
s.t.
ppp
p
pppp
s.t.
s.t.
e.s.t.
sfz
fp
sf
ppp
pppp
D
18
pp
mf
p
sffz
pp
pppp
e.s.p.
s.t.
sfz
p
sffz
pp
e.s.p.
flaut.
sff
pp
mf
simile

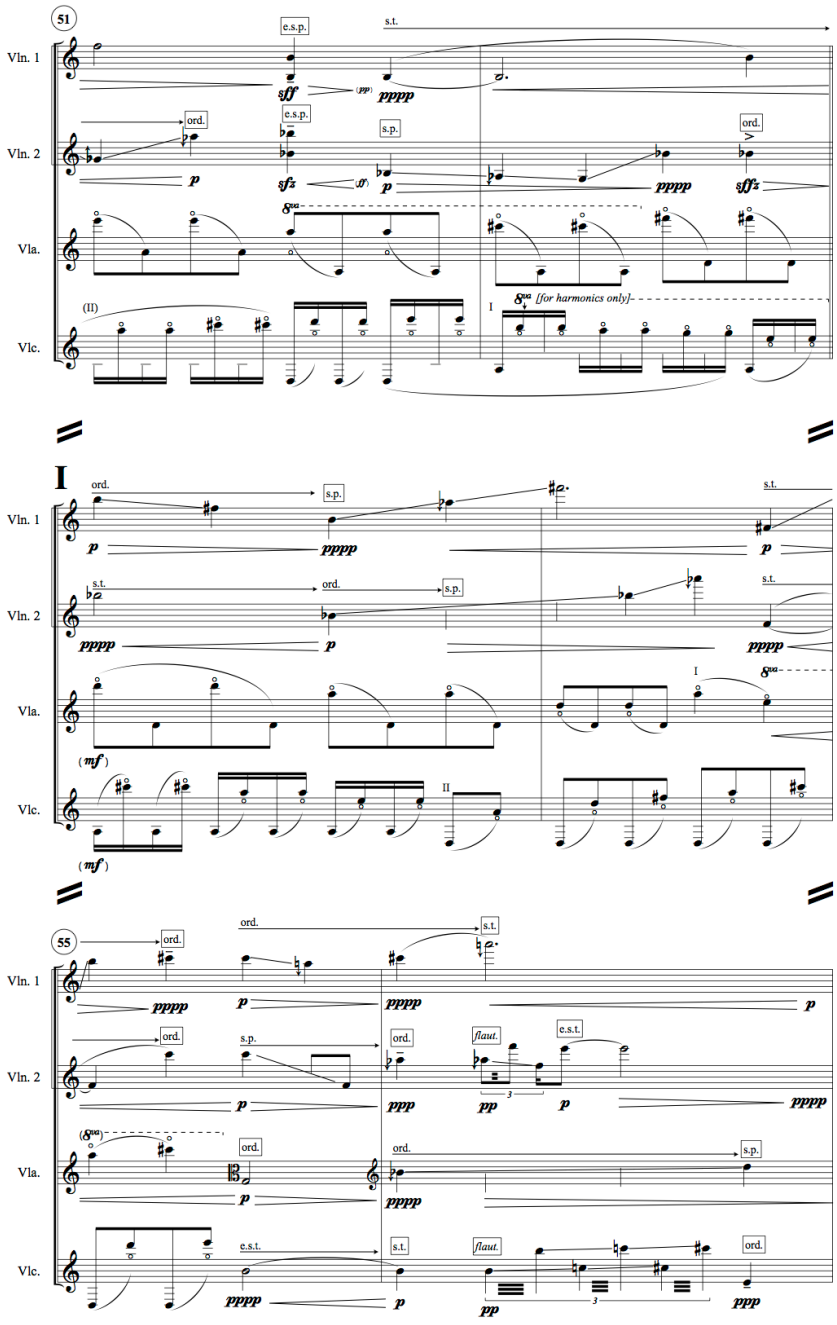

E
20
22
24
Vln. 1
Vln. 2
Vla.
Vlc.
flaut.
ord.
s.p.
s.t.
e.s.t.
simile

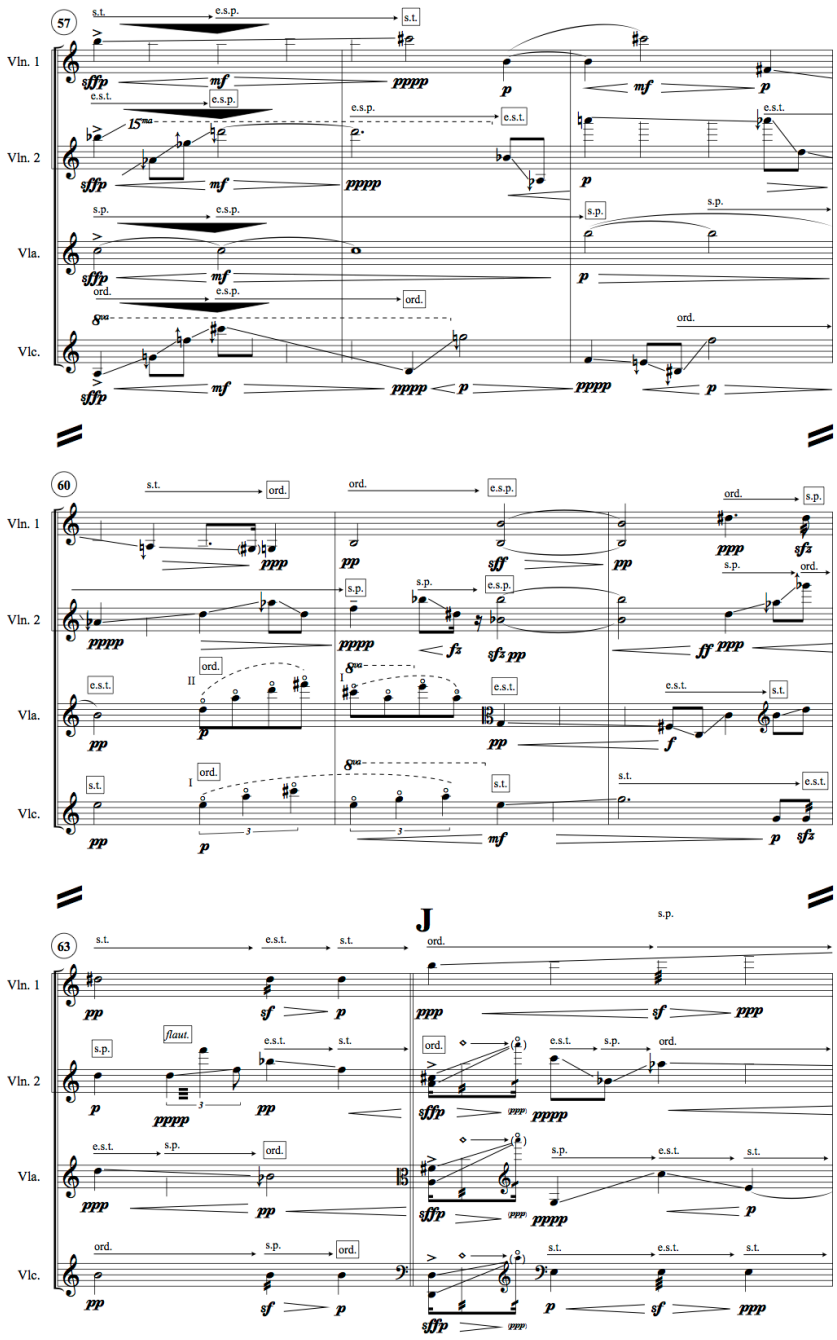

27
29
31
F
Vln. 1
Vln. 2
Vla.
Vlc.
s.t.
e.s.t.
s.p.
ord.
e.s.p.
quasi gliss.

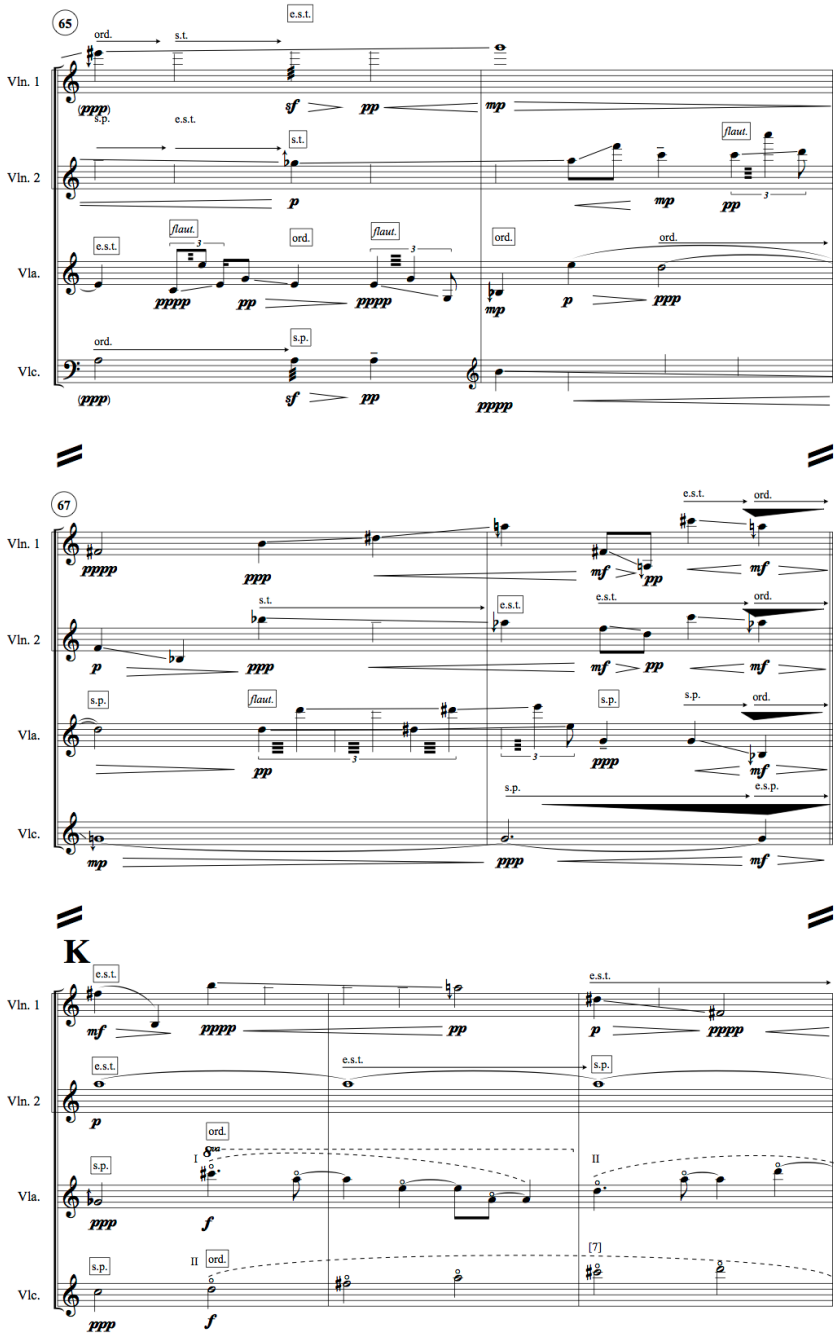

33
35
37
G
Vln. 1
Vln. 2
Vla.
Vlc.
ord.
s.p.
e.s.t.
e.s.p.
s.t.
pizz.
IV
flaut.
arco

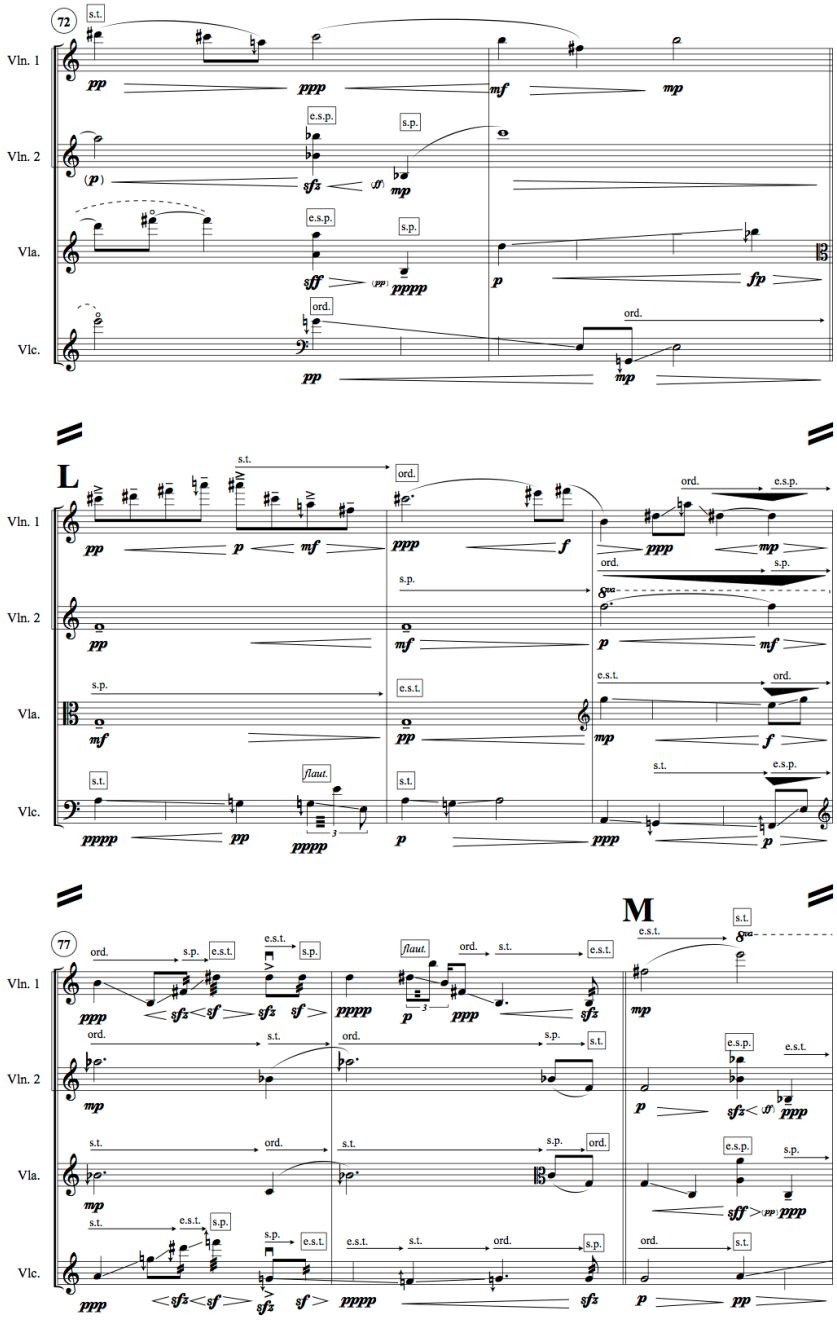

H
39
41
43
Vln. 1
Vln. 2
Vla.
Vlc.
s.t.
ord.
e.s.t.
s.p.
e.s.p.
flaut.

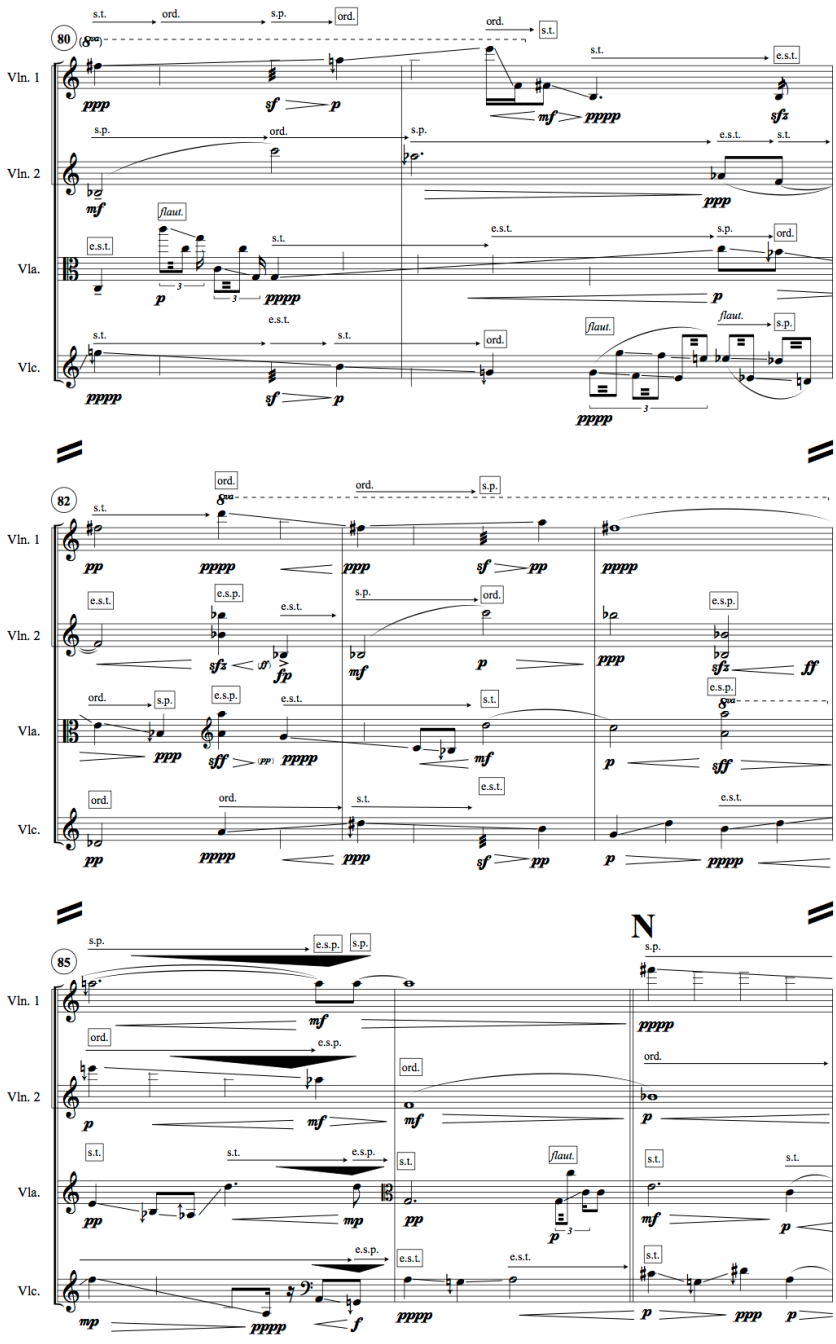

45
Vln. 1
Vln. 2
Vla.
Vlc.
e.s.p.
e.s.t.
ord.
s.p.
s.t.
flaut.
47
[for harmonics only]
simile
49

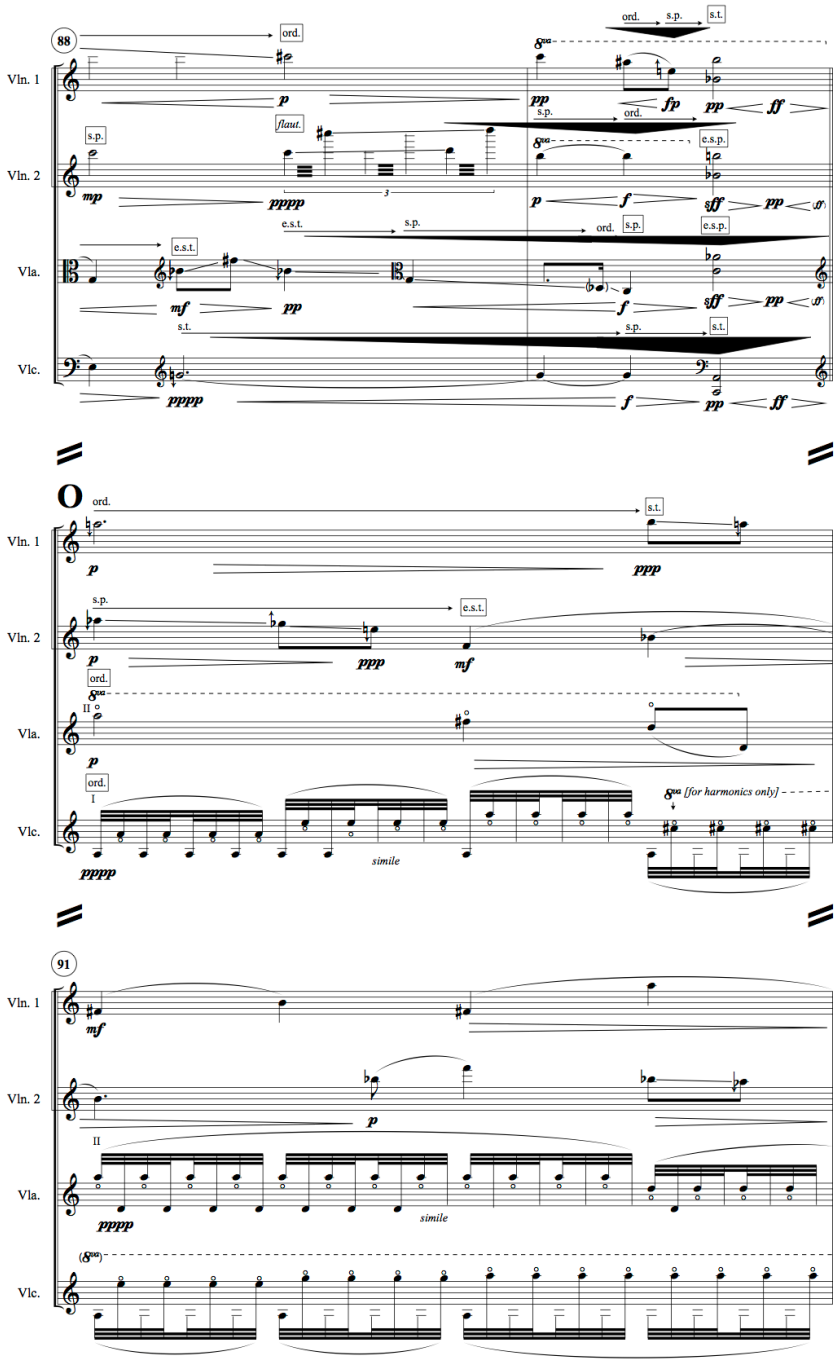

51
Vln. 1
Vln. 2
Vla.
Vlc.
e.s.p.
s.t.
ord.
s.p.
[for harmonics only]
I
II
55
e.s.t.
flaut.

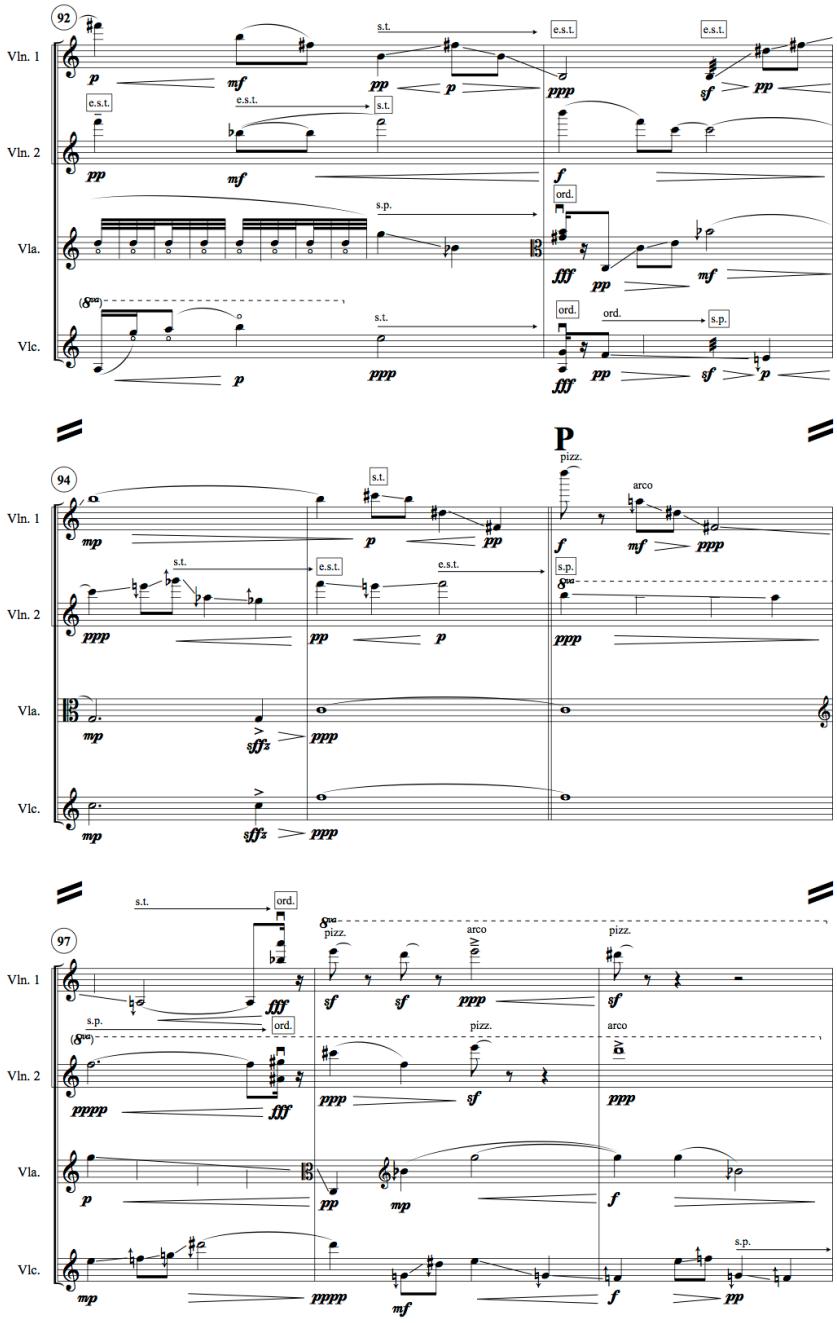

57
Vln. 1
Vln. 2
Vla.
Vlc.
s.t.
e.s.p.
e.s.t.
s.p.
ord.
60
63
J
flaut.

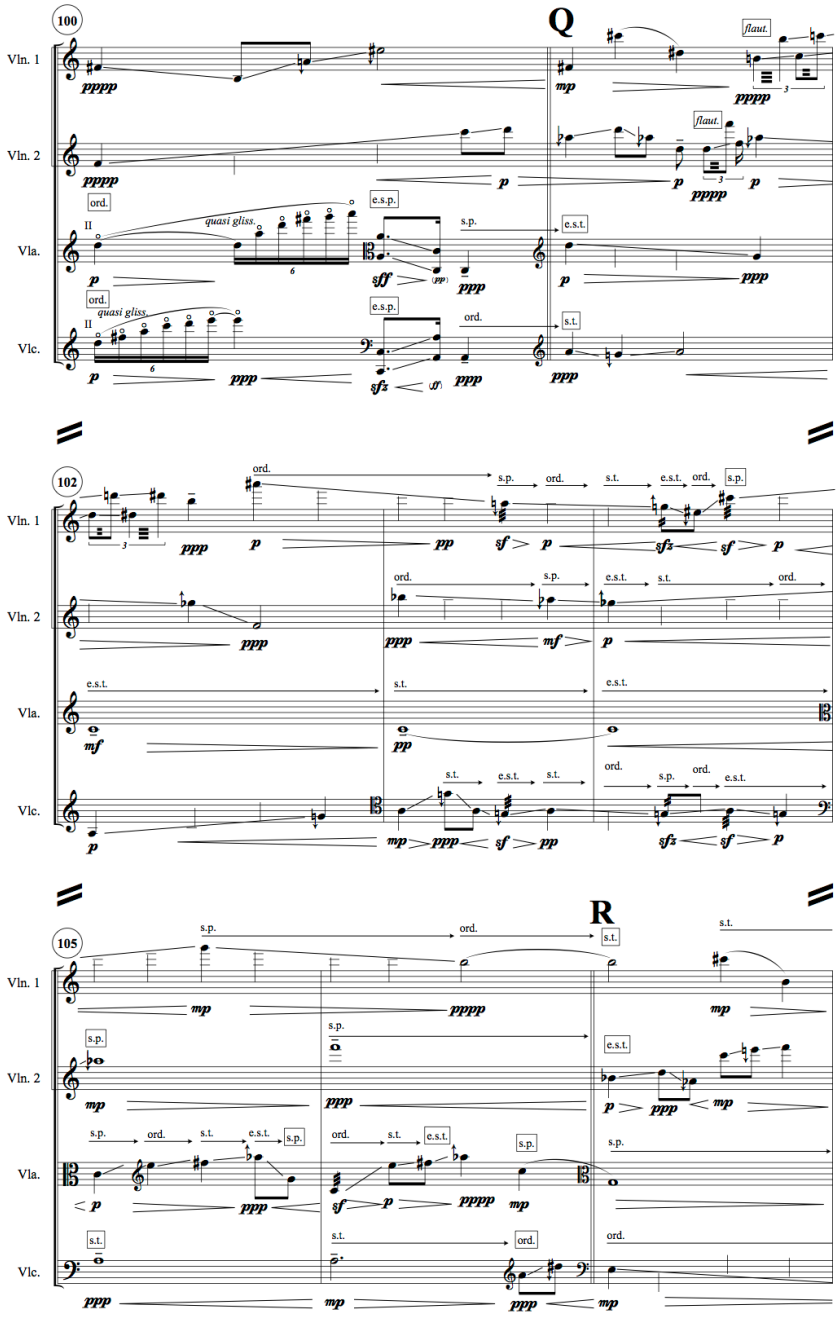

65
ord.
s.t.
e.s.t.
Vln. 1
Vln. 2
Vla.
Vlc.
s.p.
flaut.
67
K
[7]

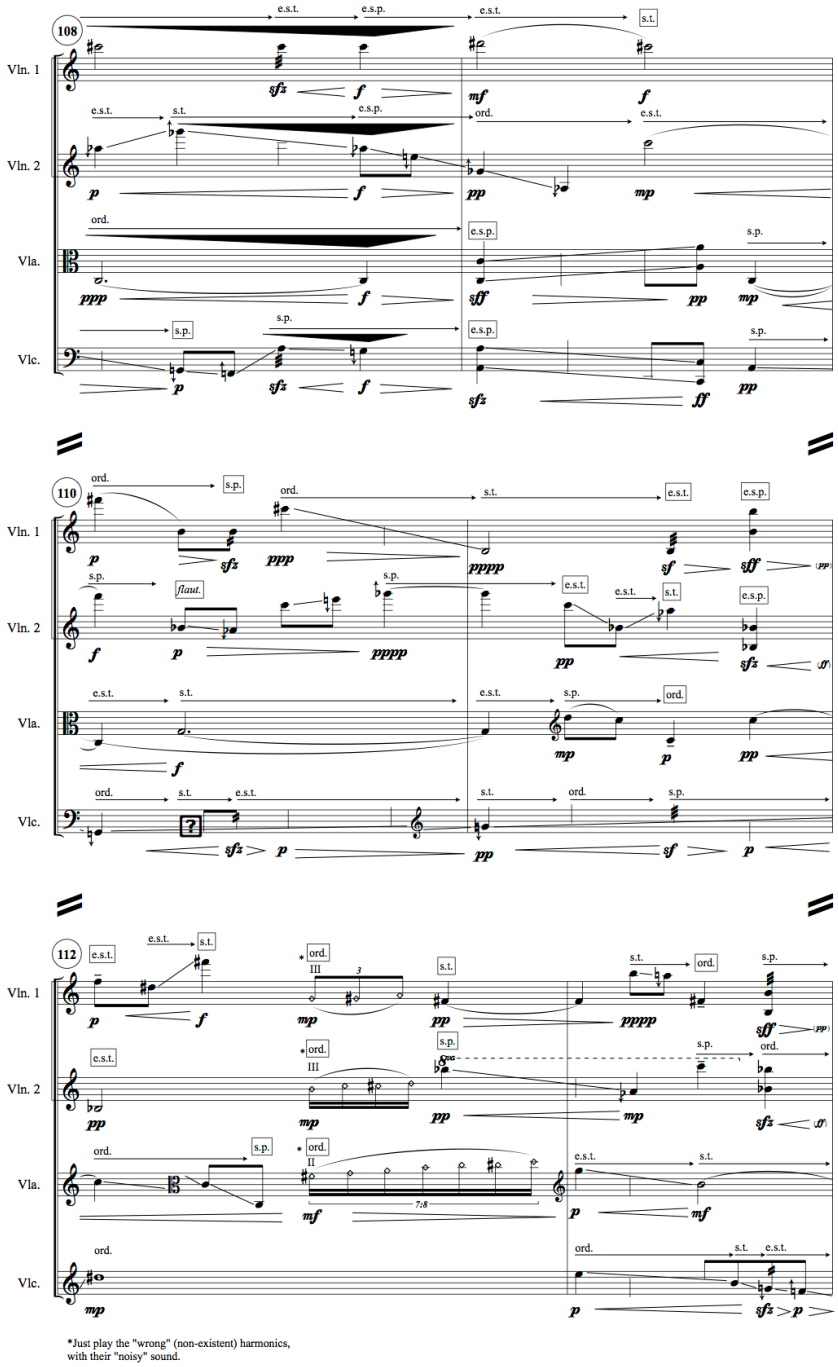

72
Vln. 1
Vln. 2
Vla.
Vlc.
L
M
77
s.t.
ord.
e.s.p.
s.p.
e.s.t.
flaut.

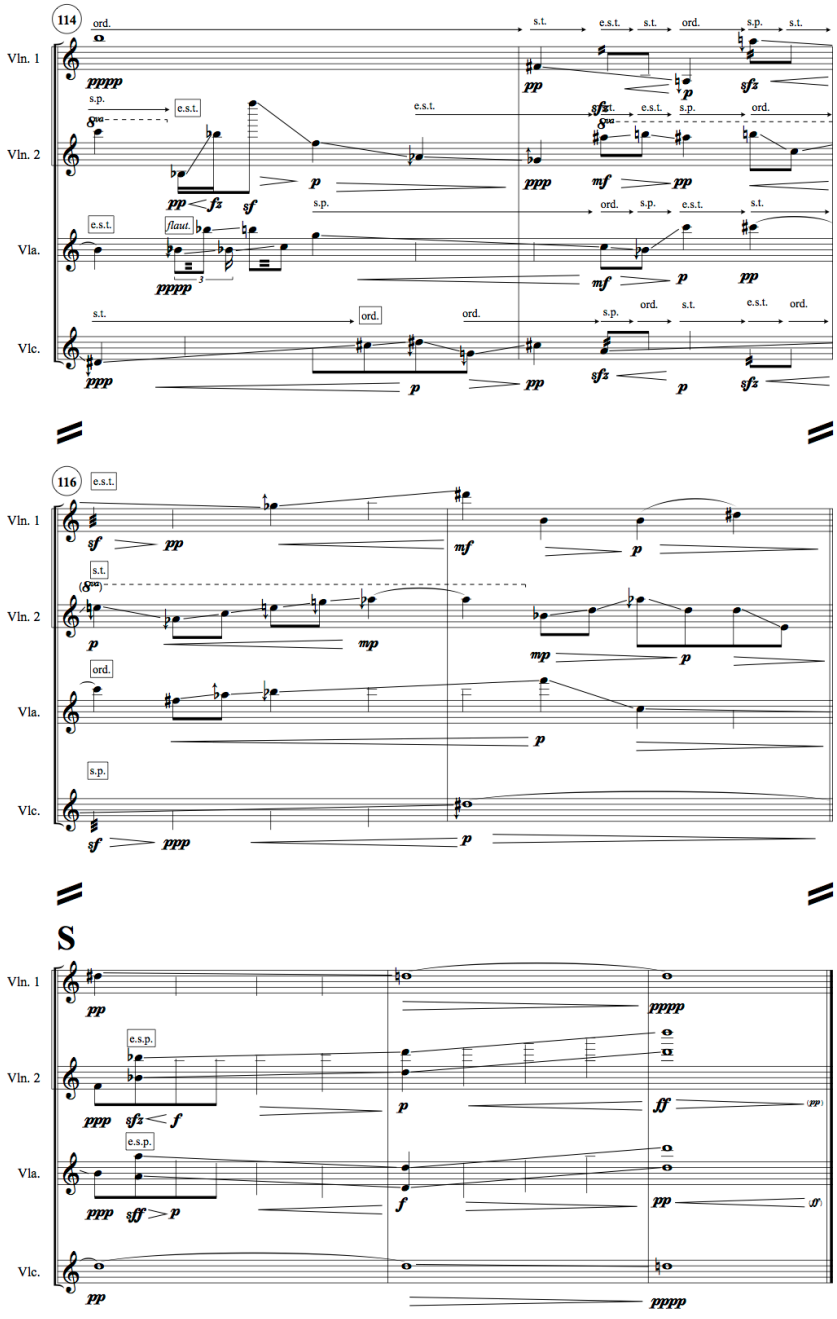

80
Vln. 1
Vln. 2
Vla.
Vlc.
s.t.
ord.
s.p.
e.s.t.
flaut.
82
e.s.p.
85
N


88
Vln. 1
Vln. 2
Vla.
Vlc.
ord.
s.p.
s.t.
flaut.
e.s.t.
e.s.p.
91
simile
[for harmonics only]

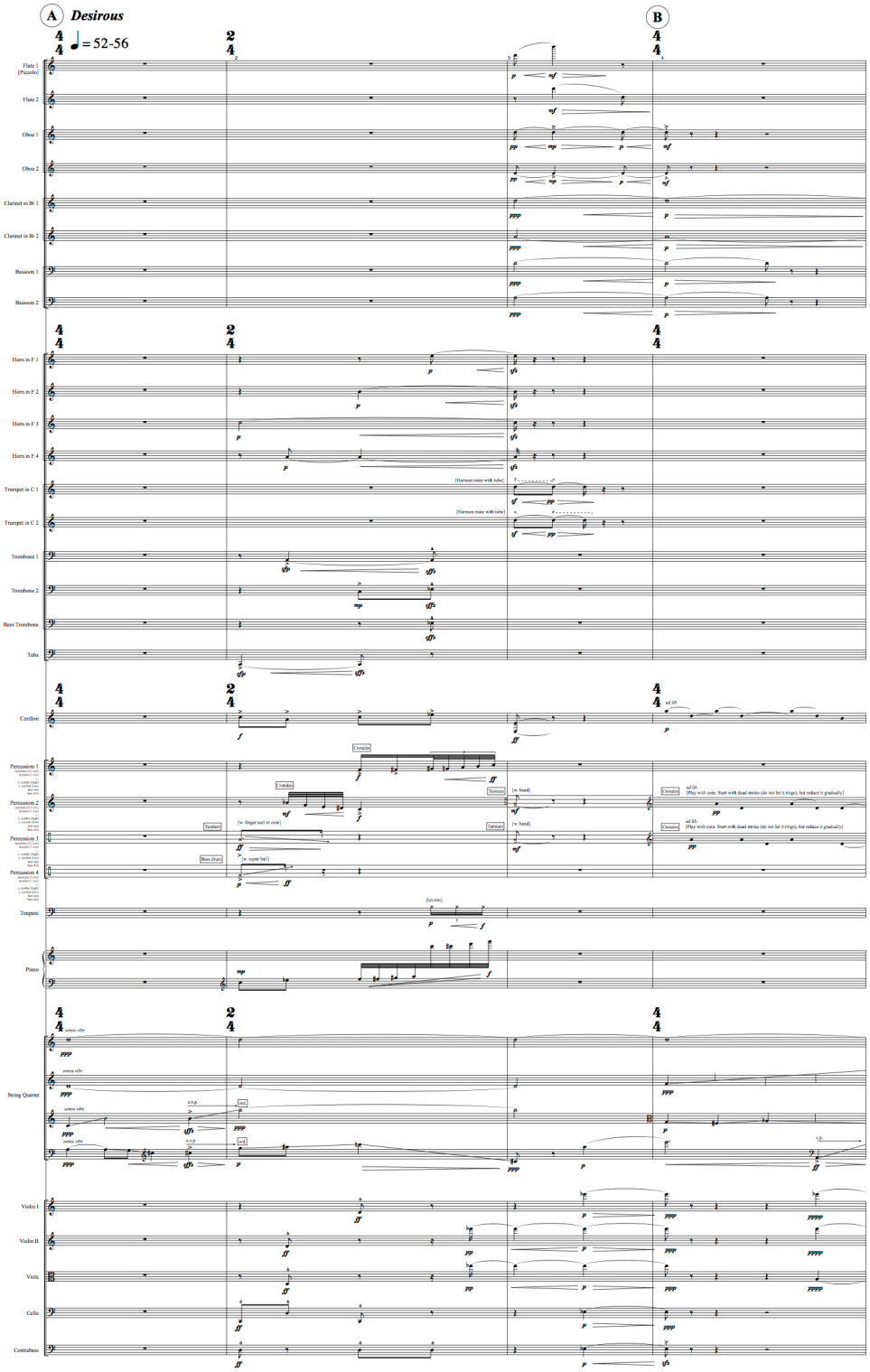

92
Vln. 1
Vln. 2
Vla.
Vlc.
s.t.
e.s.t.
s.p.
ord.
P
pizz.
arco
94
97

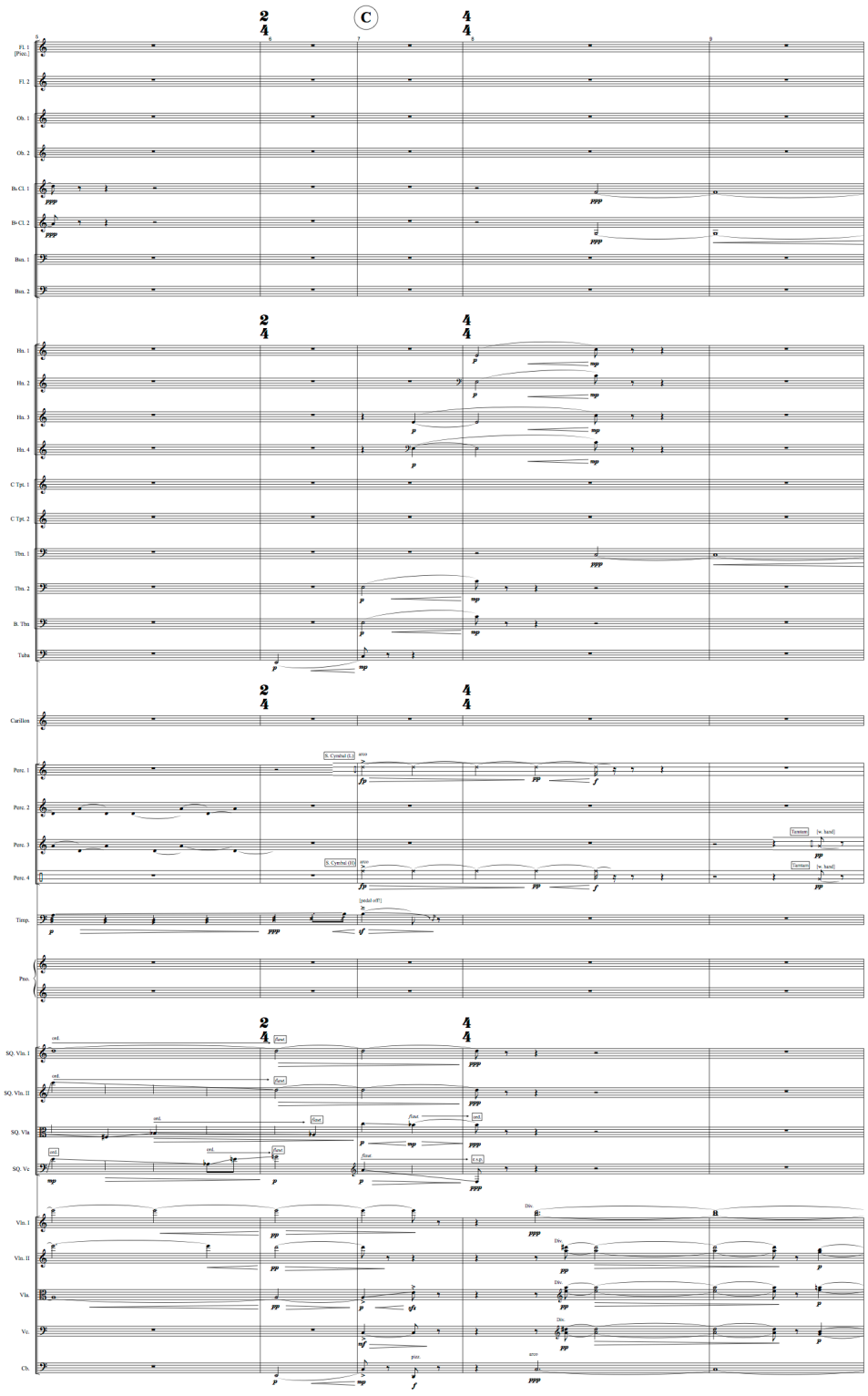

100
Q
flaut.
Vln. 1
Vln. 2
Vla.
Vlc.
ord.
quasi gliss.
e.s.p.
s.p.
e.s.t.
s.t.
102
105
R

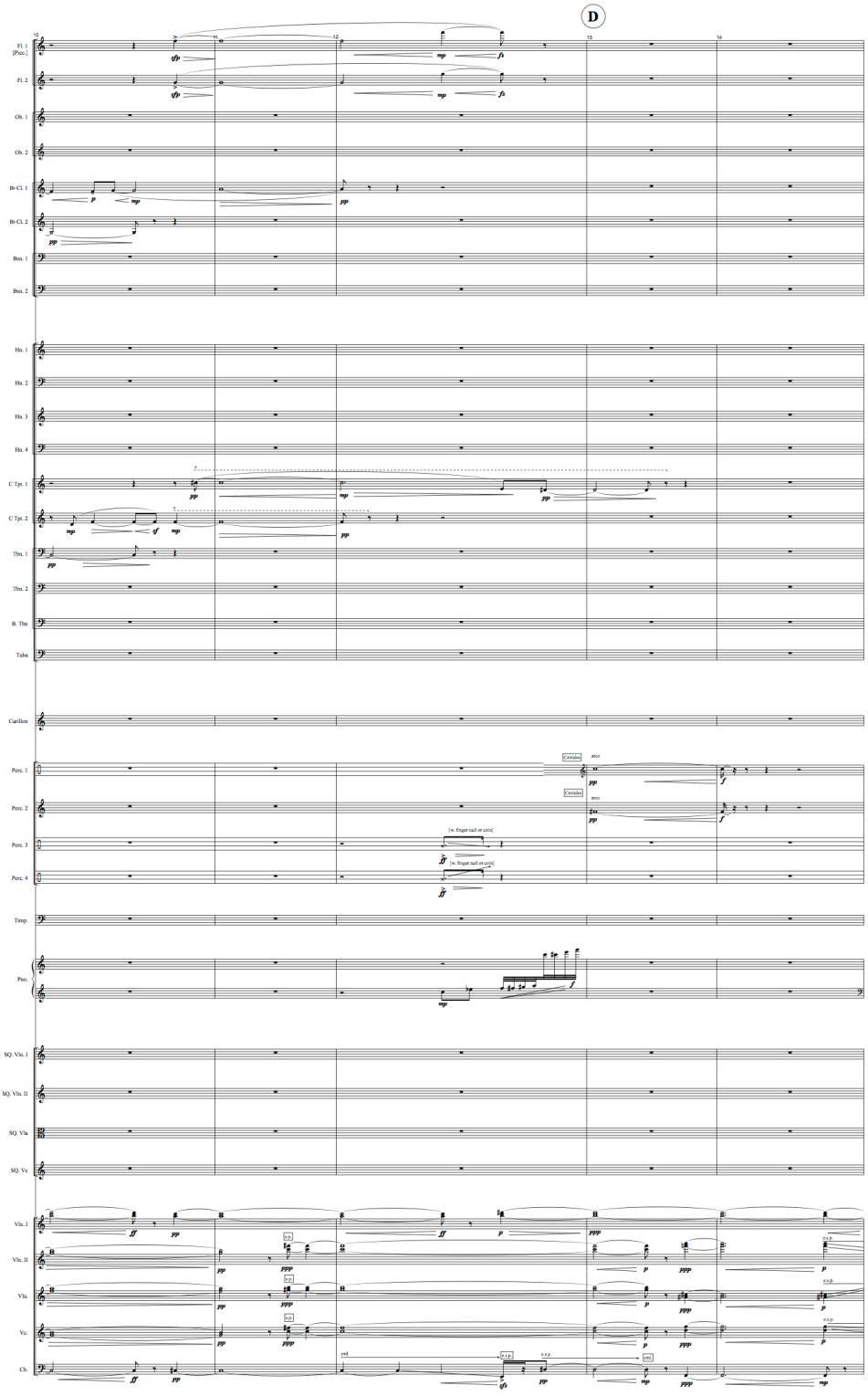

108
110
112
Vln. 1
Vln. 2
Vla.
Vlc.
e.s.t.
e.s.p.
s.t.
s.p.
ord.
flaut.
*Just play the "wrong" (non-existent) harmonics,
with their "noisy" sound.

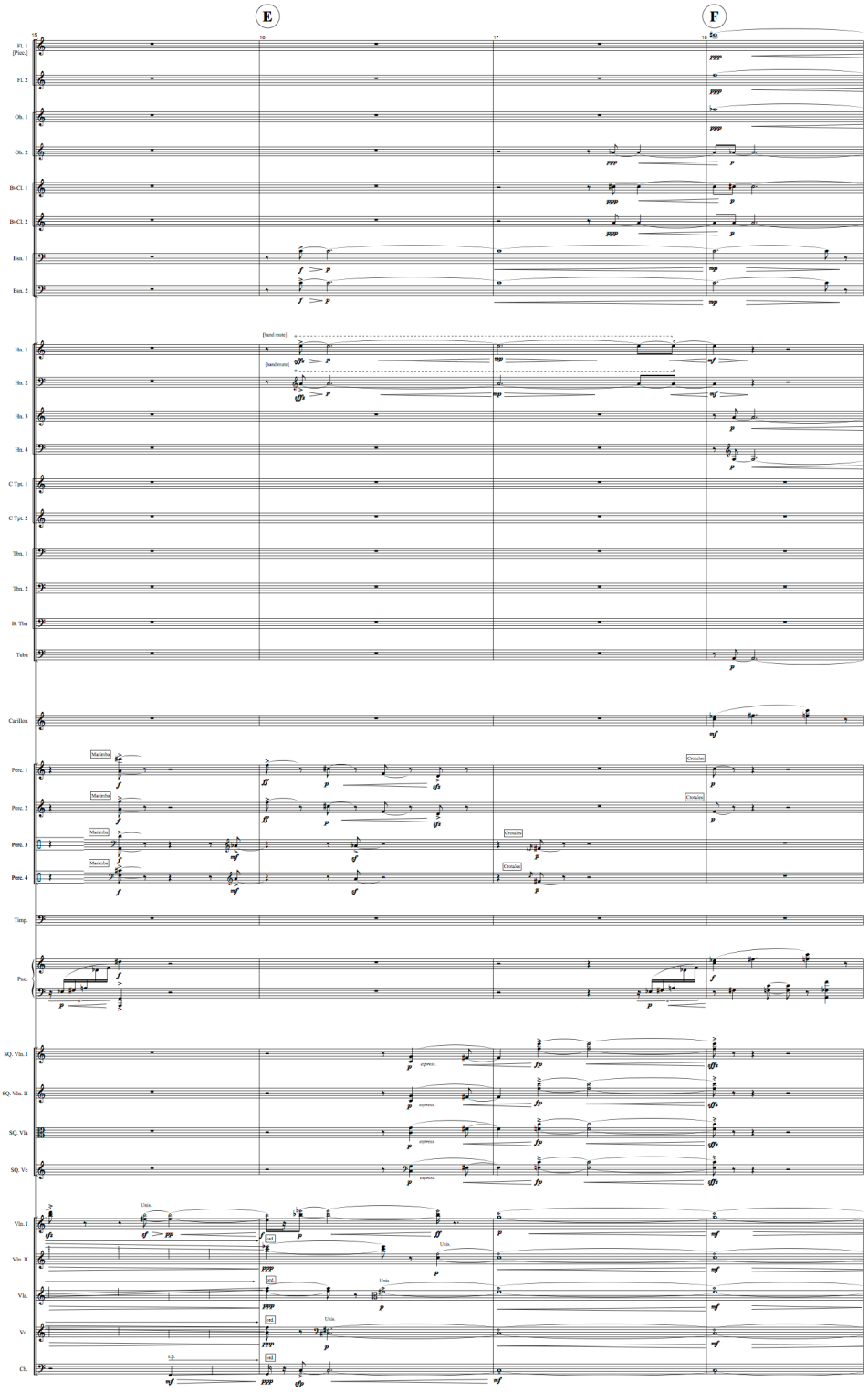

114
ord.
s.t.
e.s.t.
s.p.
Vln. 1
Vln. 2
Vla.
Vlc.
flaut.
116
S
e.s.p.

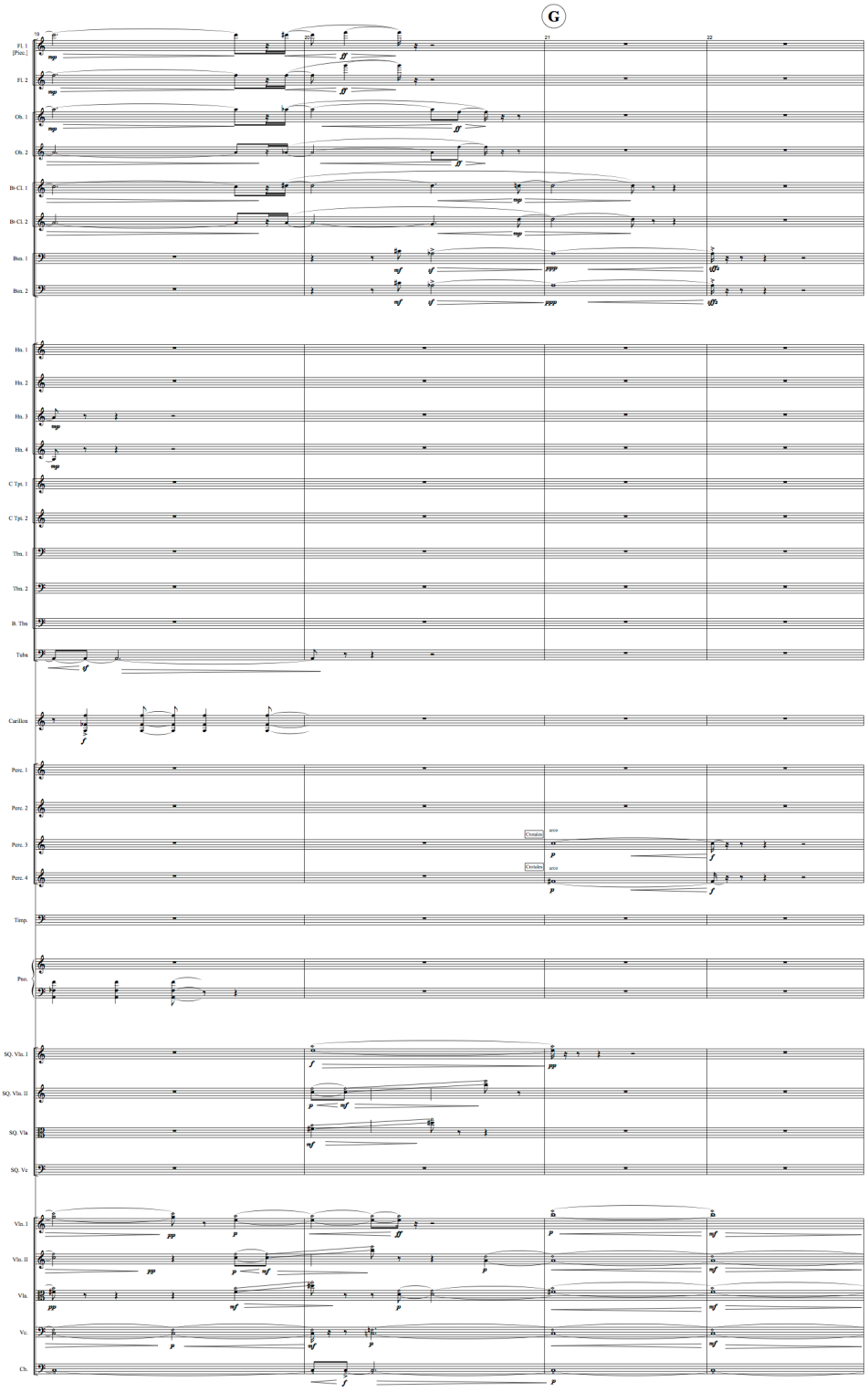
MUSIC SCORE 3: ***THE MOON IN LA JOLLA***

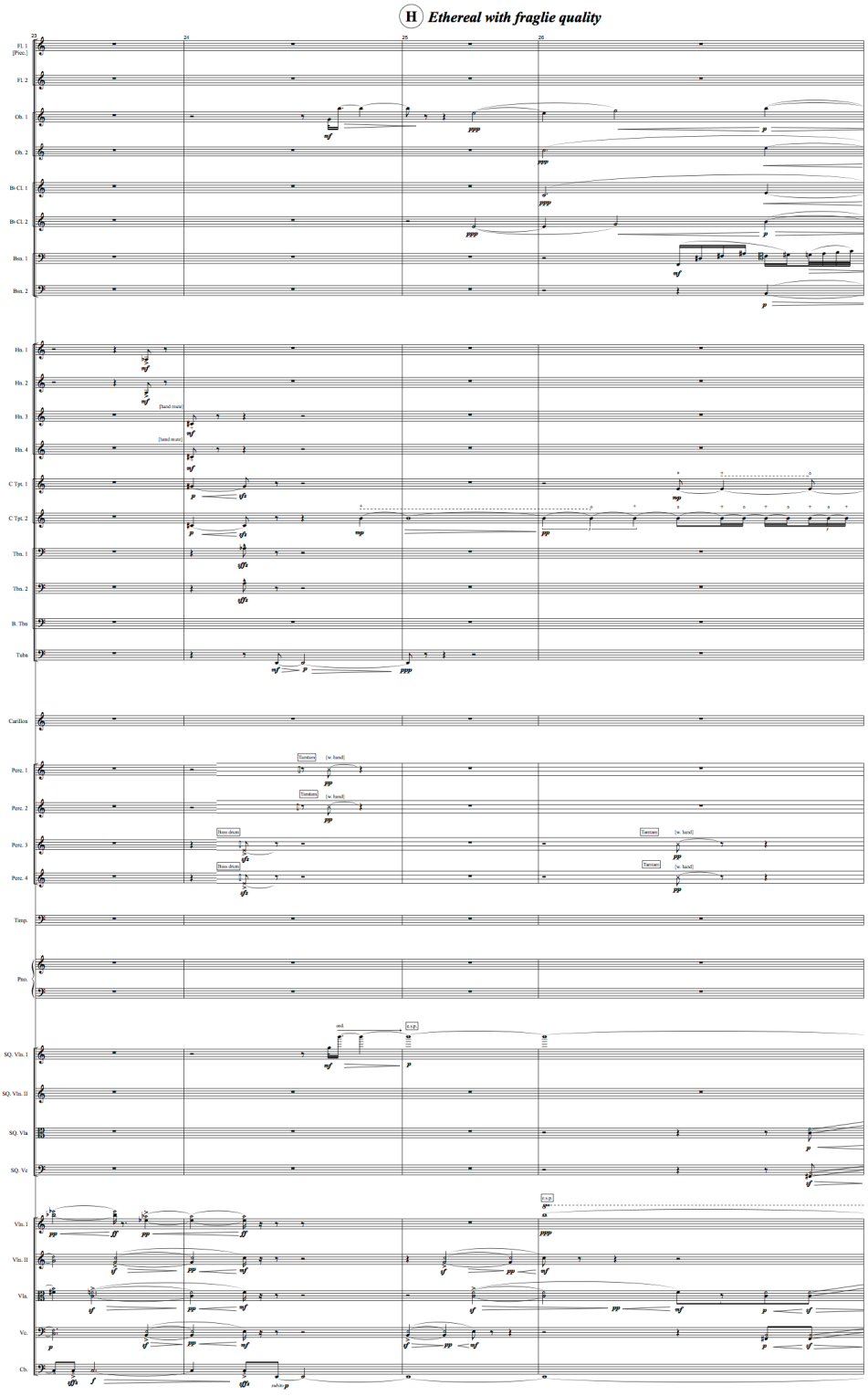

A
Desirous
B
= 52-56
Flute 1 (Piccolo)
Flute 2
Oboe 1
Oboe 2
Clarinet in B♭ 1
Clarinet in B♭ 2
Bassoon 1
Bassoon 2
Horn in F 1
Horn in F 2
Horn in F 3
Horn in F 4
Trumpet in C 1
Trumpet in C 2
Trombone 1
Trombone 2
Bass Trombone
Tuba
Carillon
Percussion 1
Percussion 2
Percussion 3
Percussion 4
Timpani
Piano
String Quartet
Violin I
Violin II
Viola
Cello
Contrabass

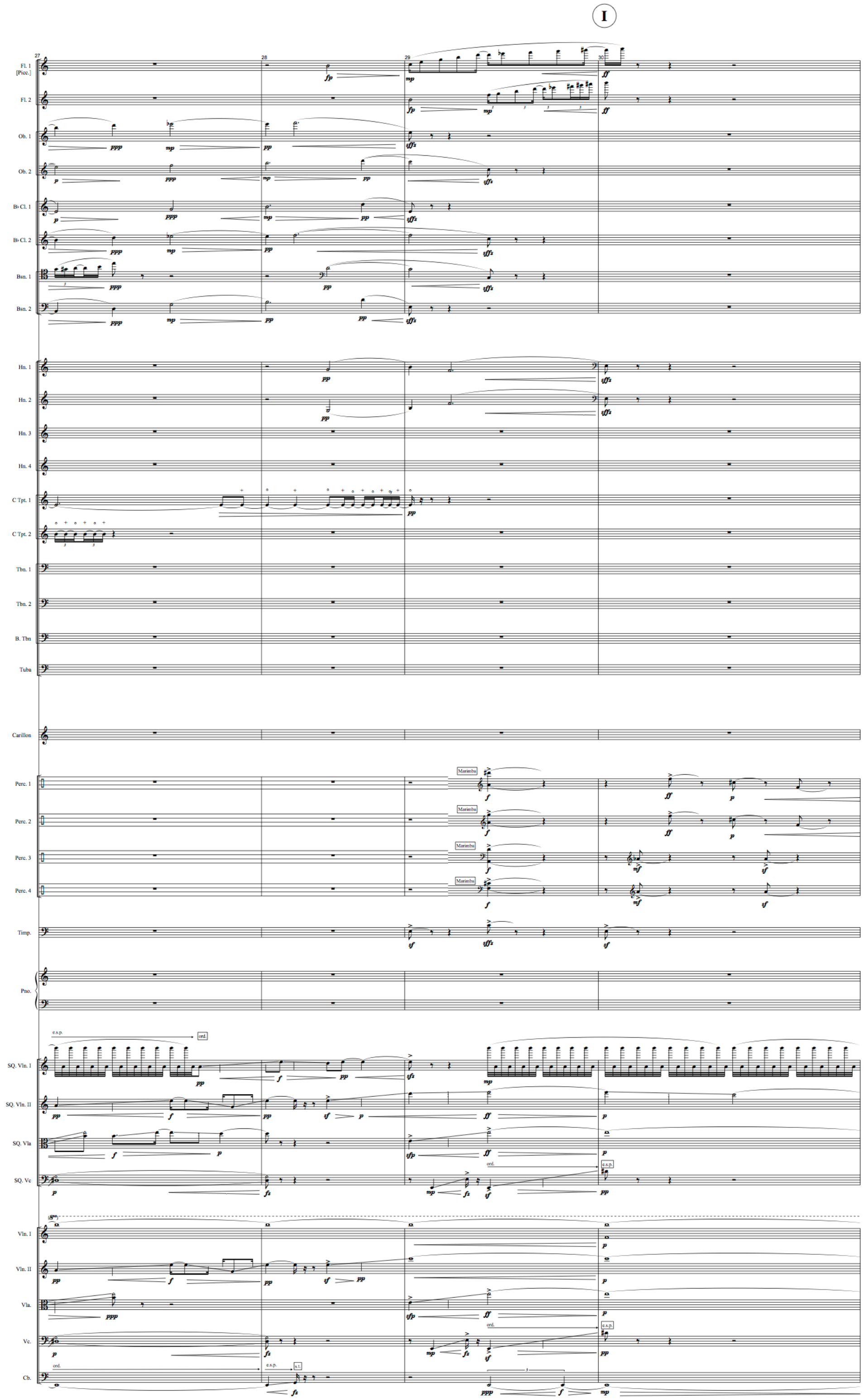

C
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
S. Cymbal (L)
arco
Perc. 1
Perc. 2
Perc. 3
S. Cymbal (H)
Perc. 4
Timp.
[pedal off]
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
ord.
float
Vln. I
Vln. II
Vla.
Vc.
Cb.
Div.
pizz.

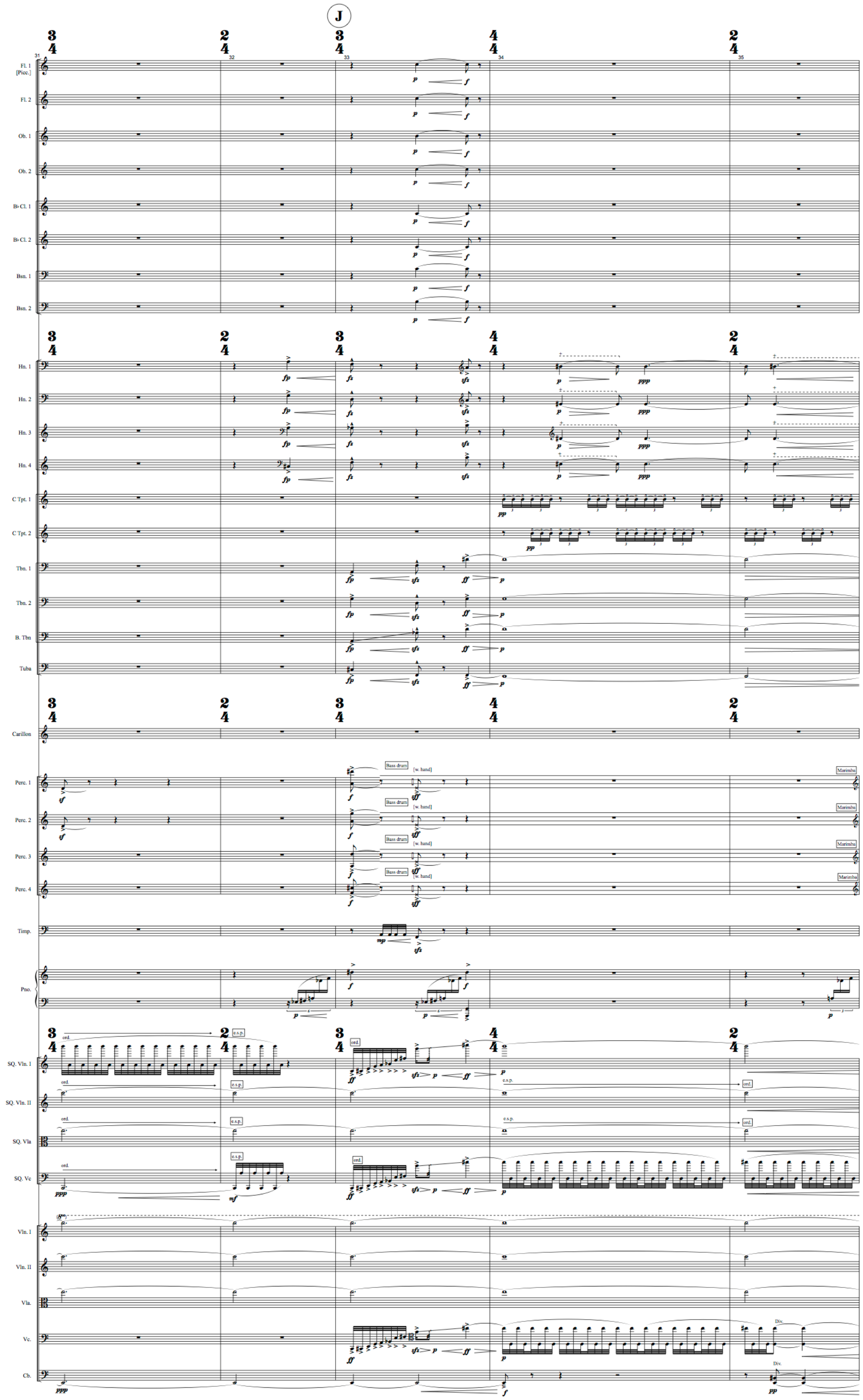

D
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Cymbales
Cymbales
[w. finger nail or coin]
[w. finger nail or coin]

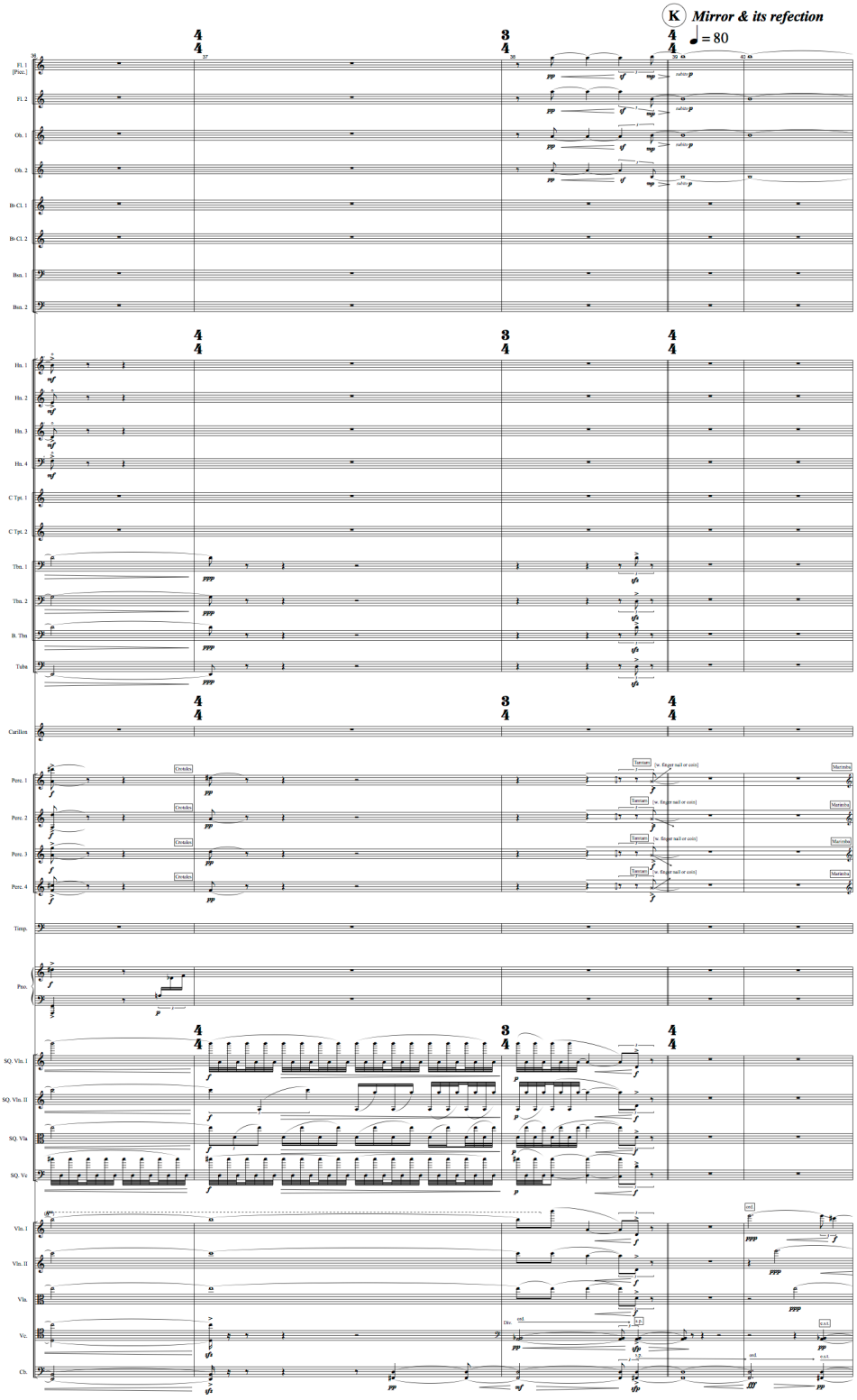

E
F
15
16
17
18
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
[hand mute]
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Marimba
Crotales
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
express.
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.
div.

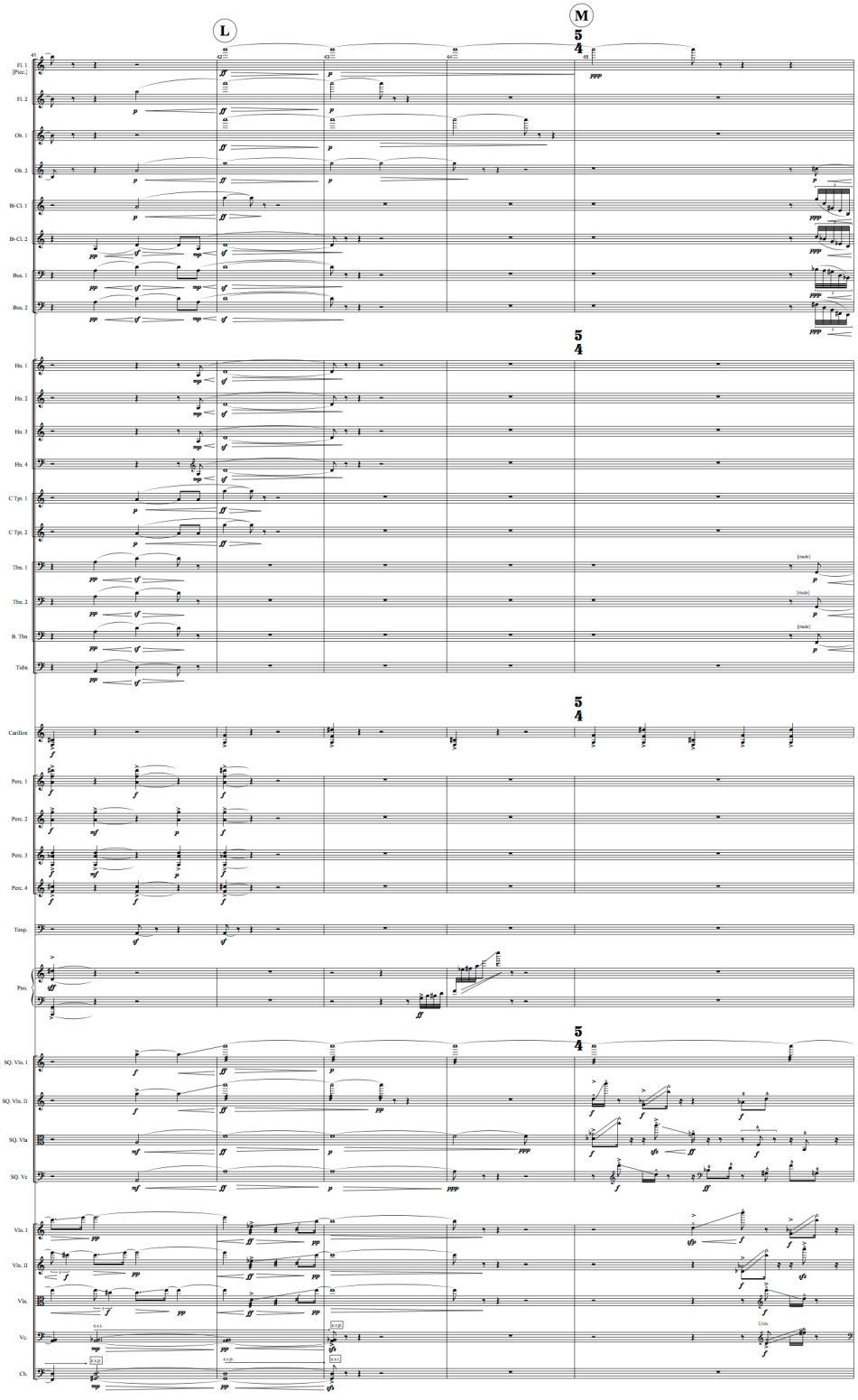

G
19
20
21
22
Fl. 1
[Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Crotales
Cymbals

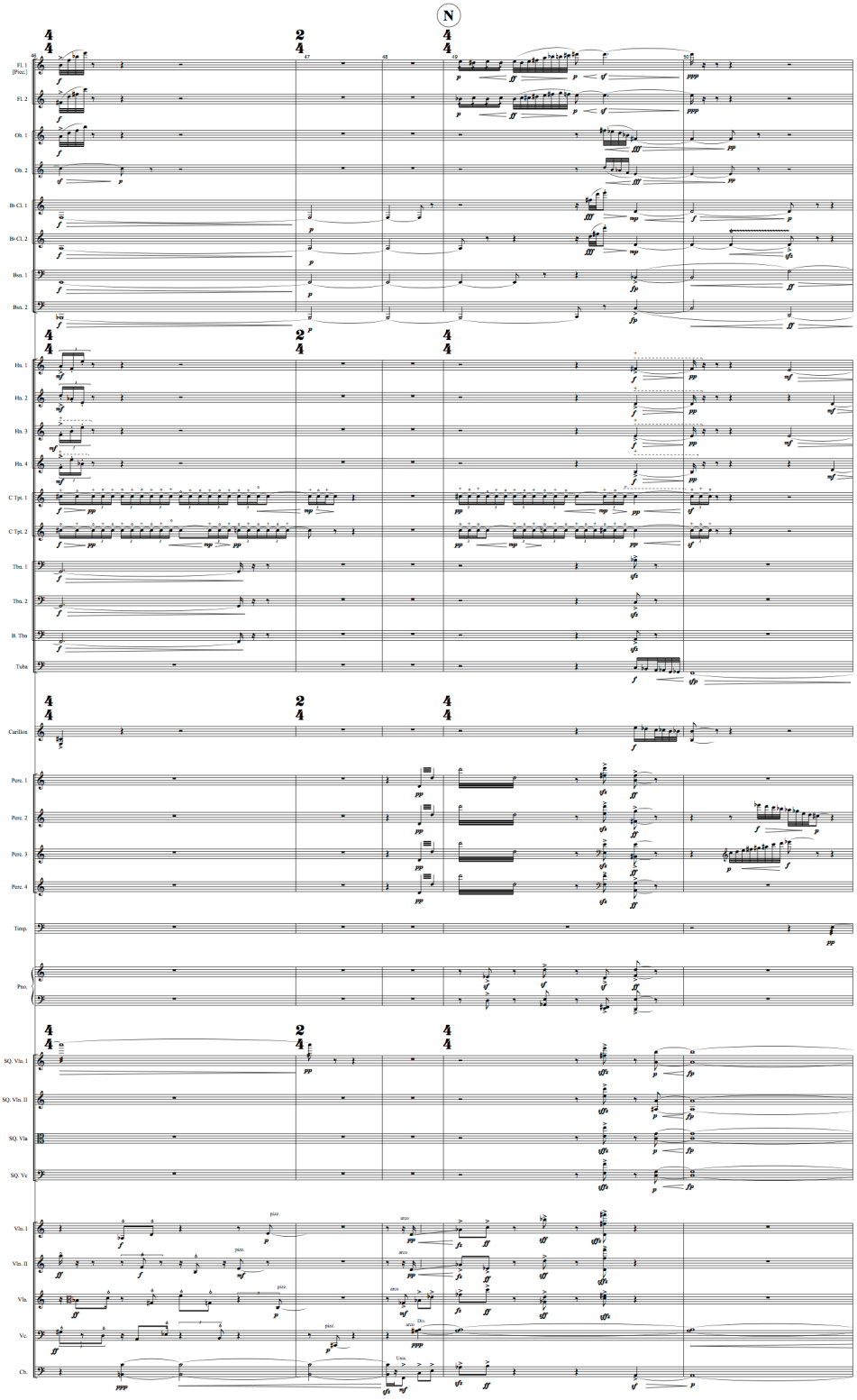

H
Ethereal with fraglie quality
23
24
25
26
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
[hand muted]
[hand muted]
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Tomtom
[w. hand]
Bass drum
Tamtam
ord.
8 va
rubato

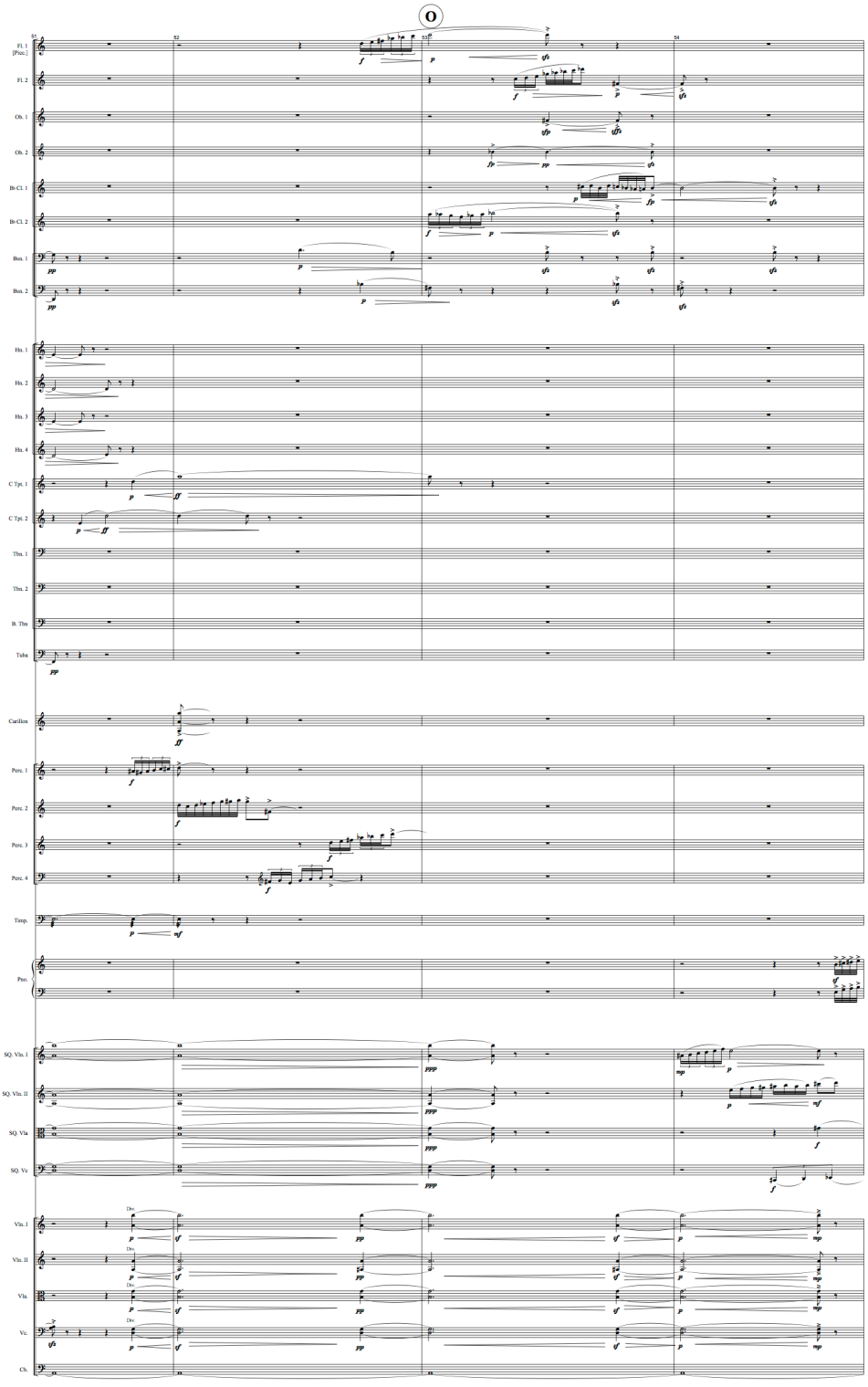

I
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

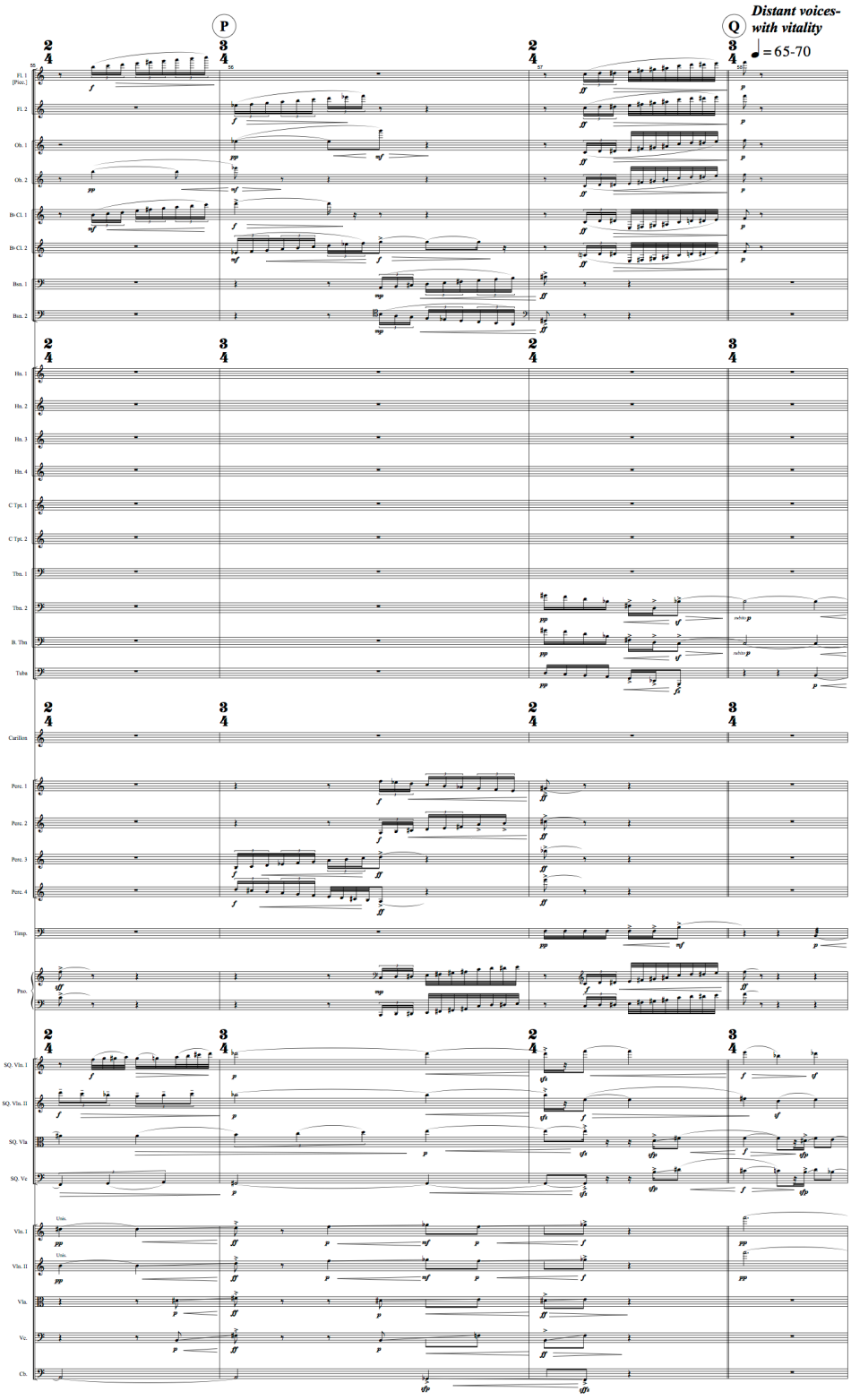

J
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Bass drum
[w. hand]
Marimba
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
ord.
s.s.p.
Vln. I
Vln. II
Vla.
Vc.
Div.
Cb.

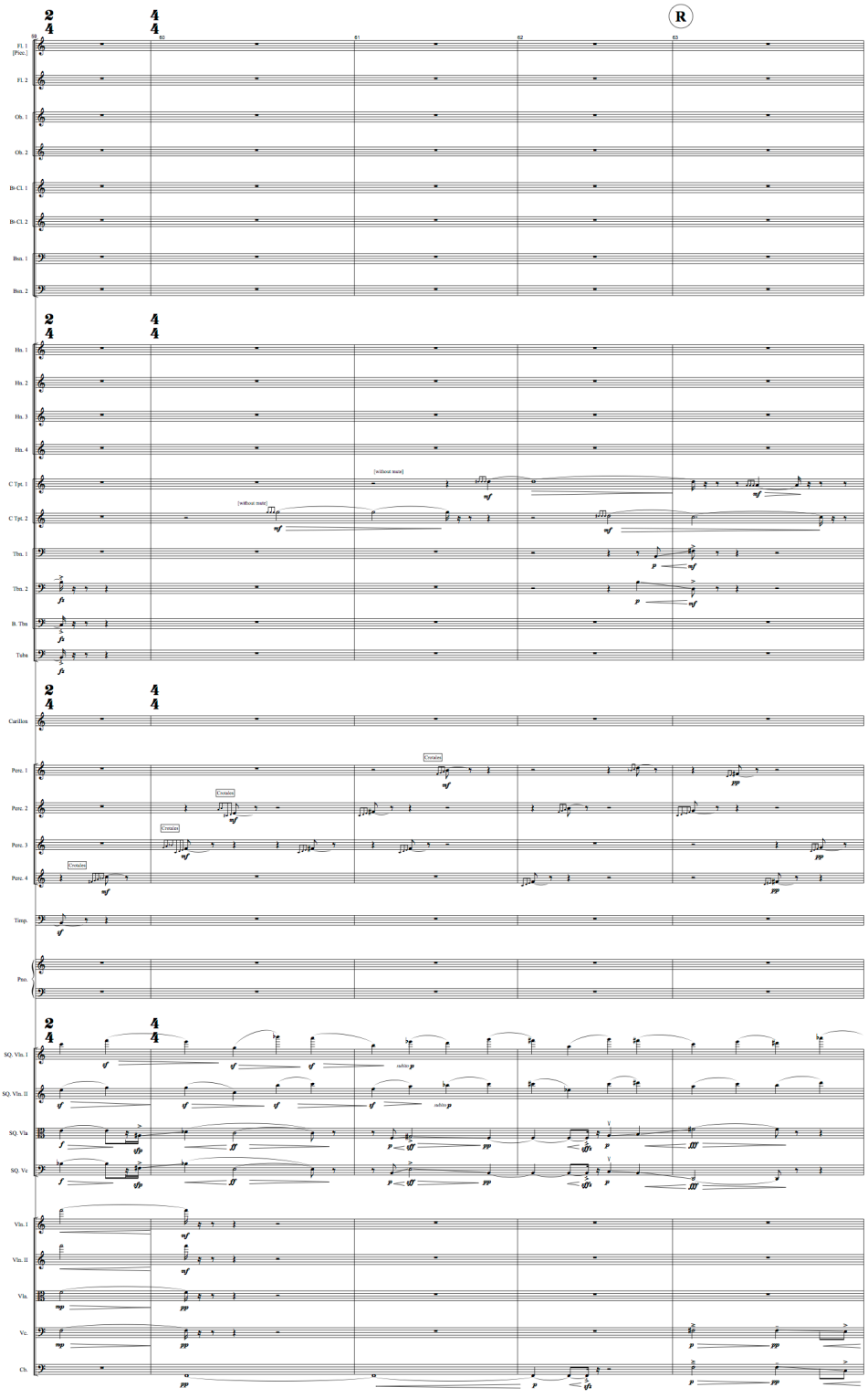

K
Mirror & its refection
♩= 80
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Crotales
Tamtam
Marimba
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.
Div.
unis.

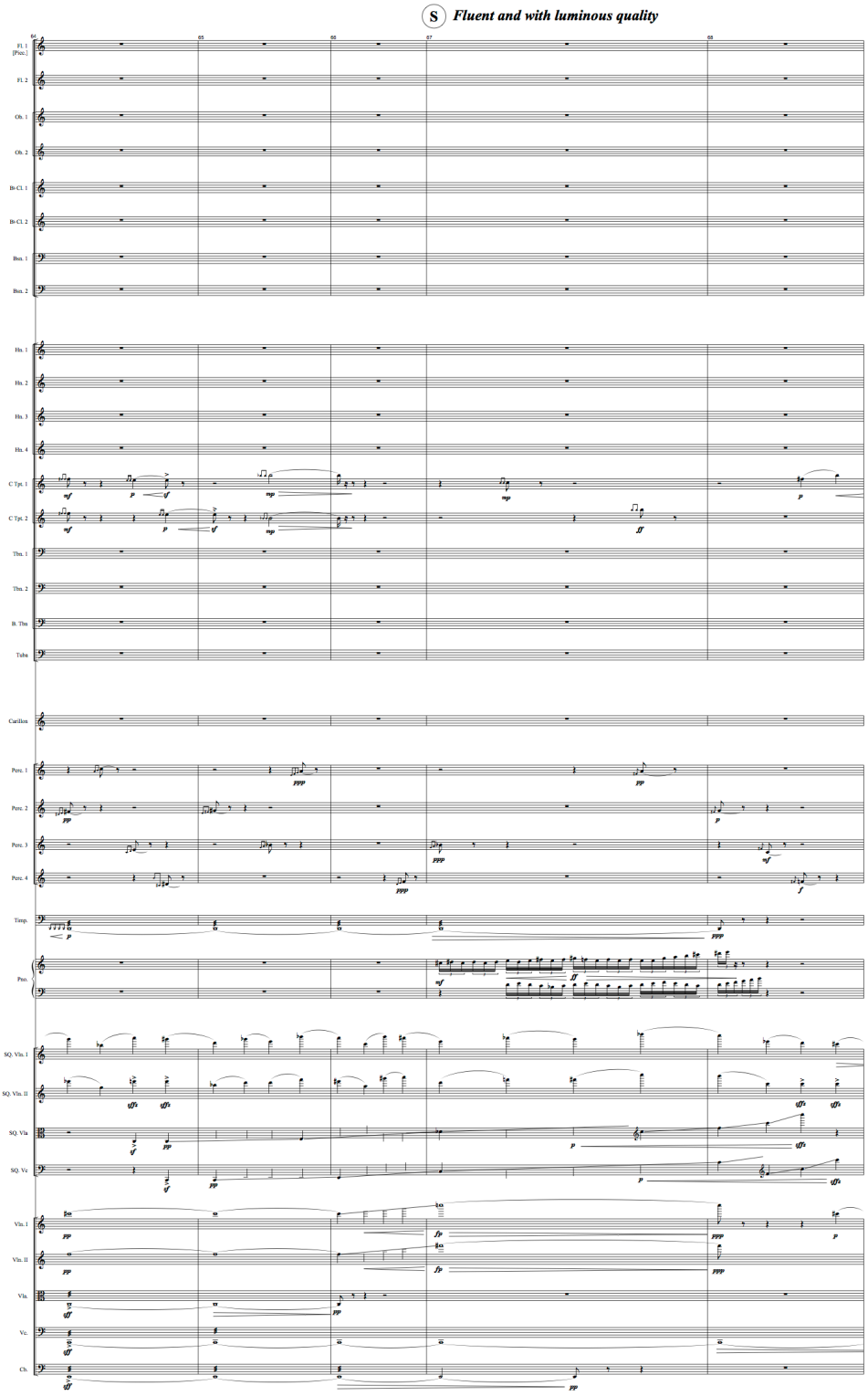

L
M
5
4
Fl. 1
[Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.

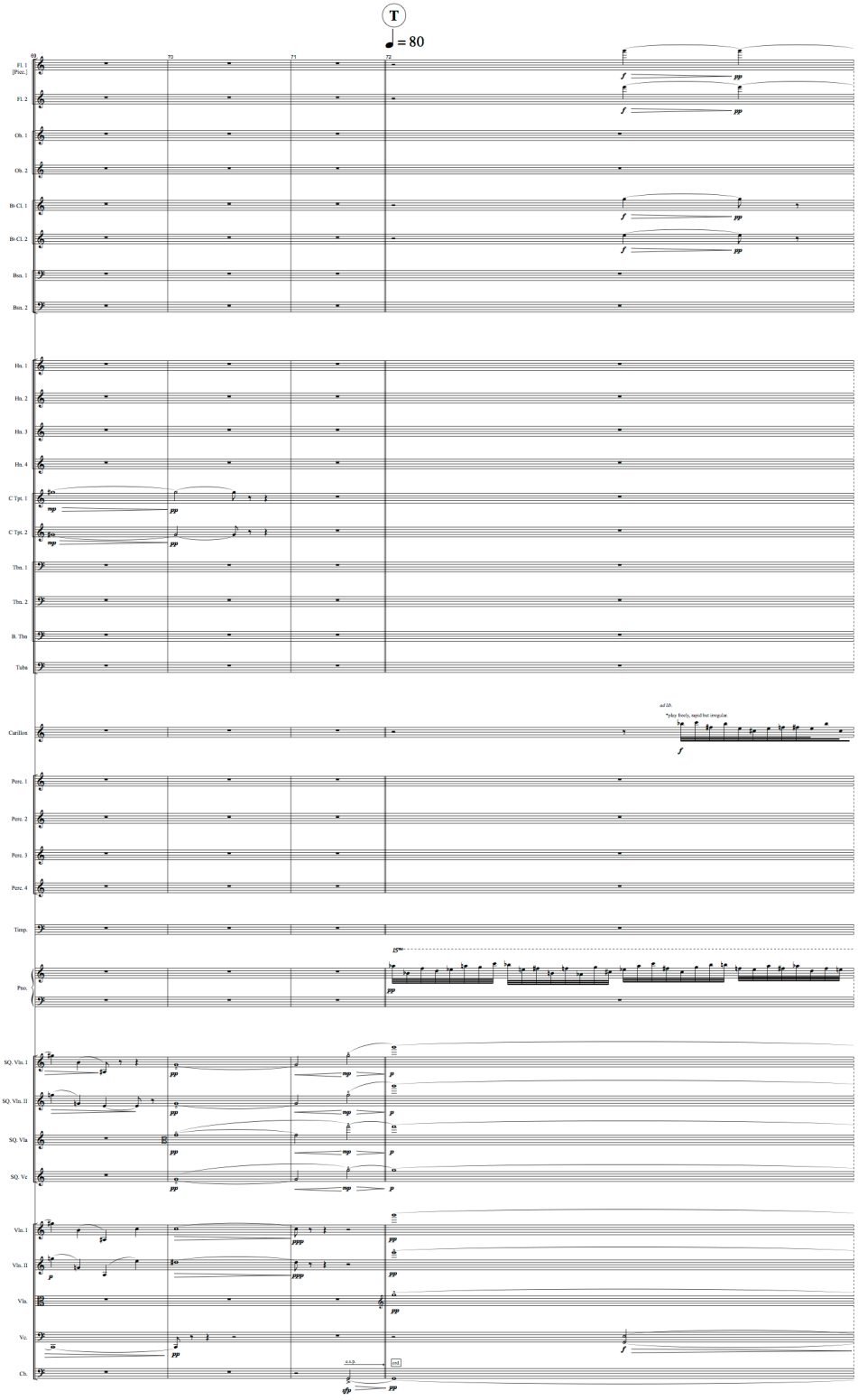

N
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
arco
pizz.
Div.
Unis.

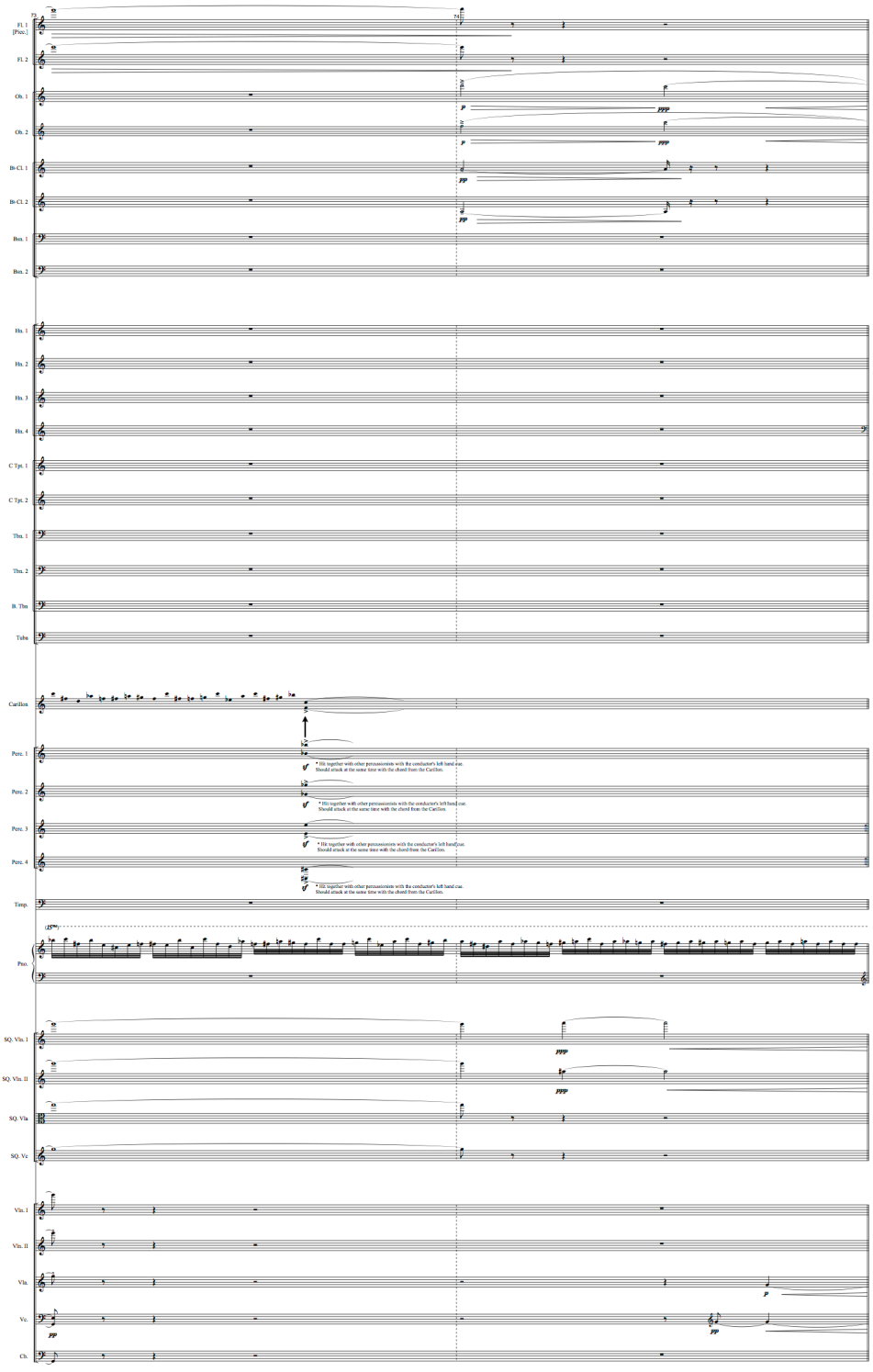

O
51
52
53
54
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
Bb Cl. 1
Bb Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Div.

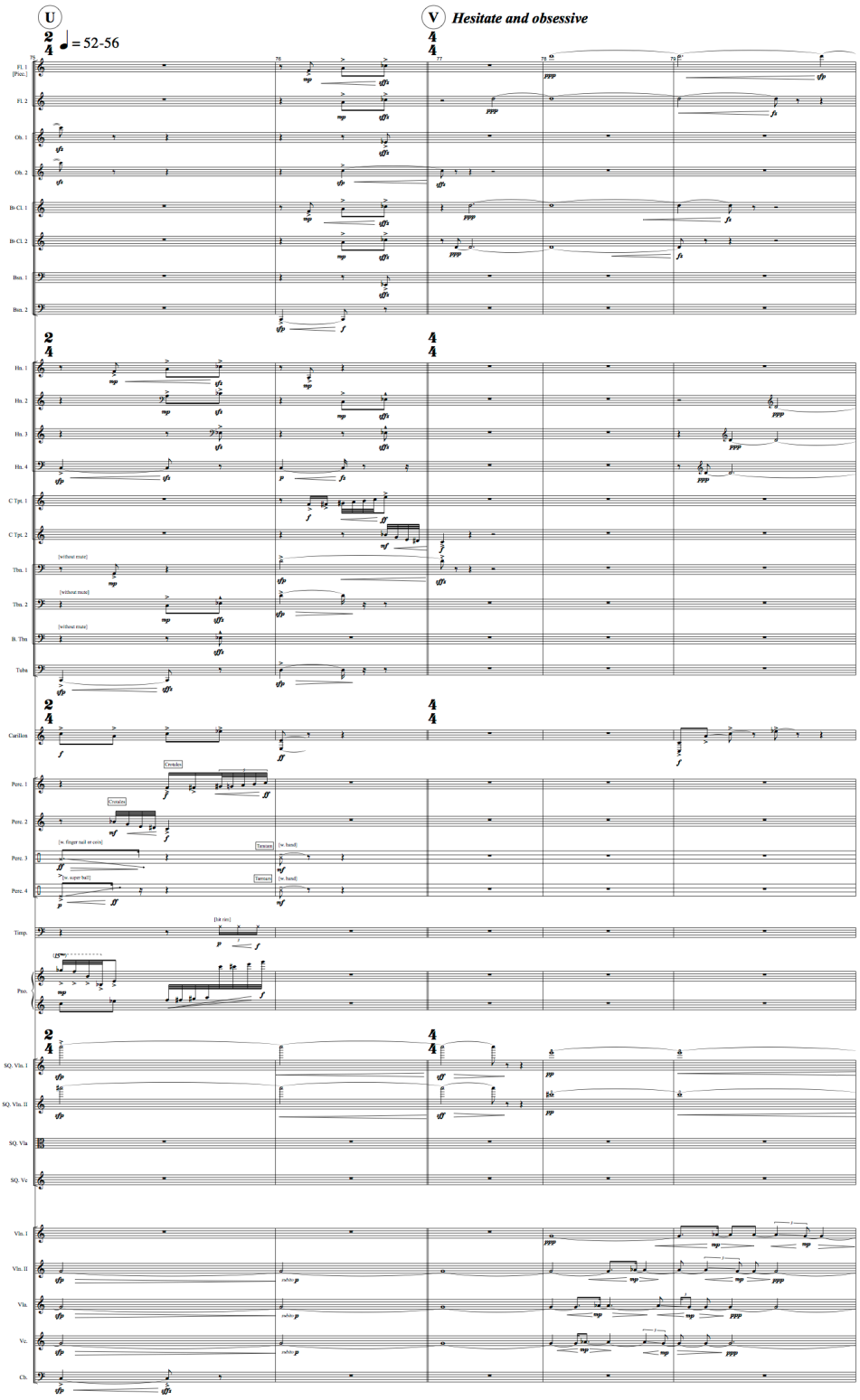

P
Q
Distant voices-
with vitality
= 65-70
Fl. 1
[Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.

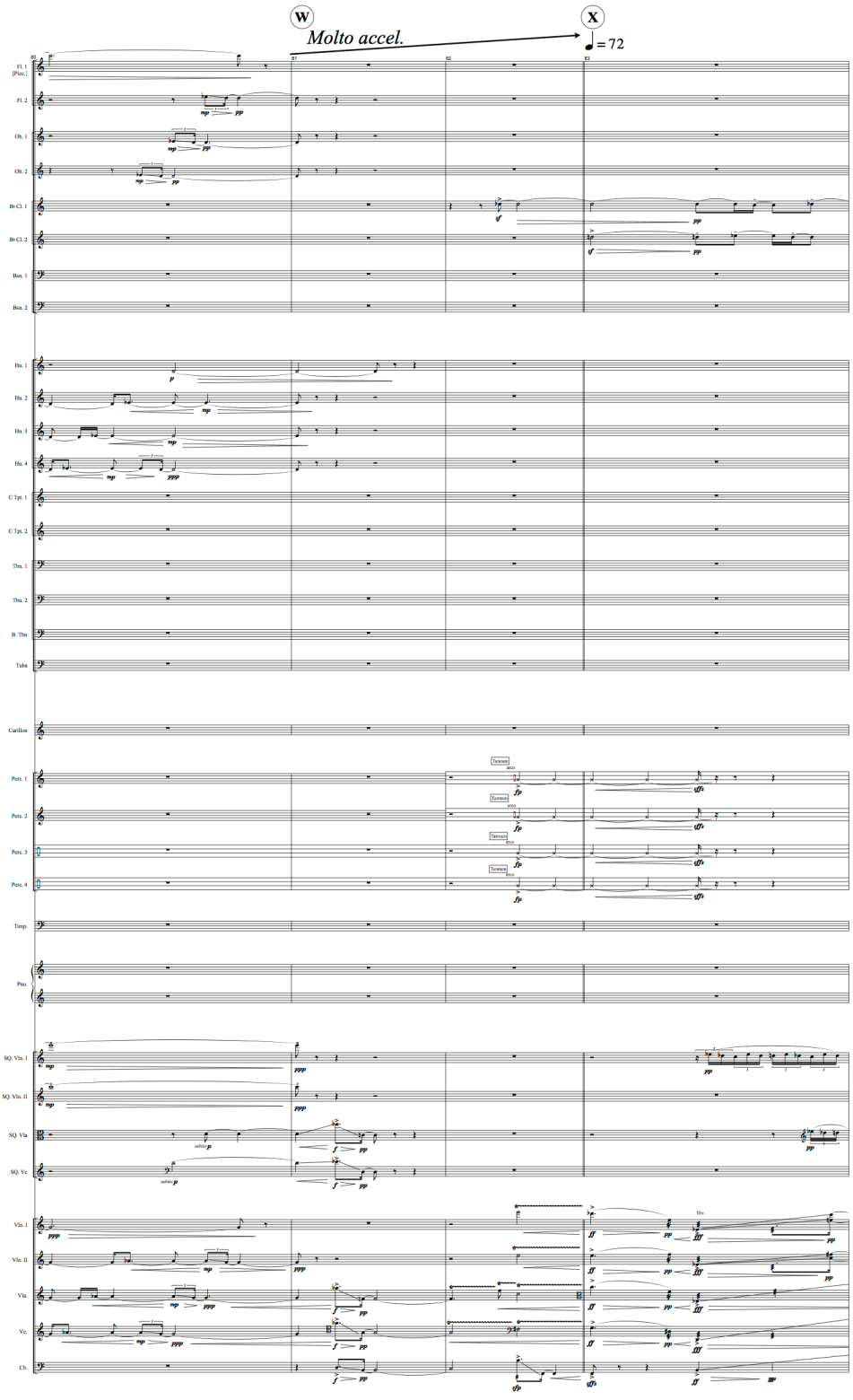

R
59
60
61
62
63
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
[without mute]
Crotales
radrite

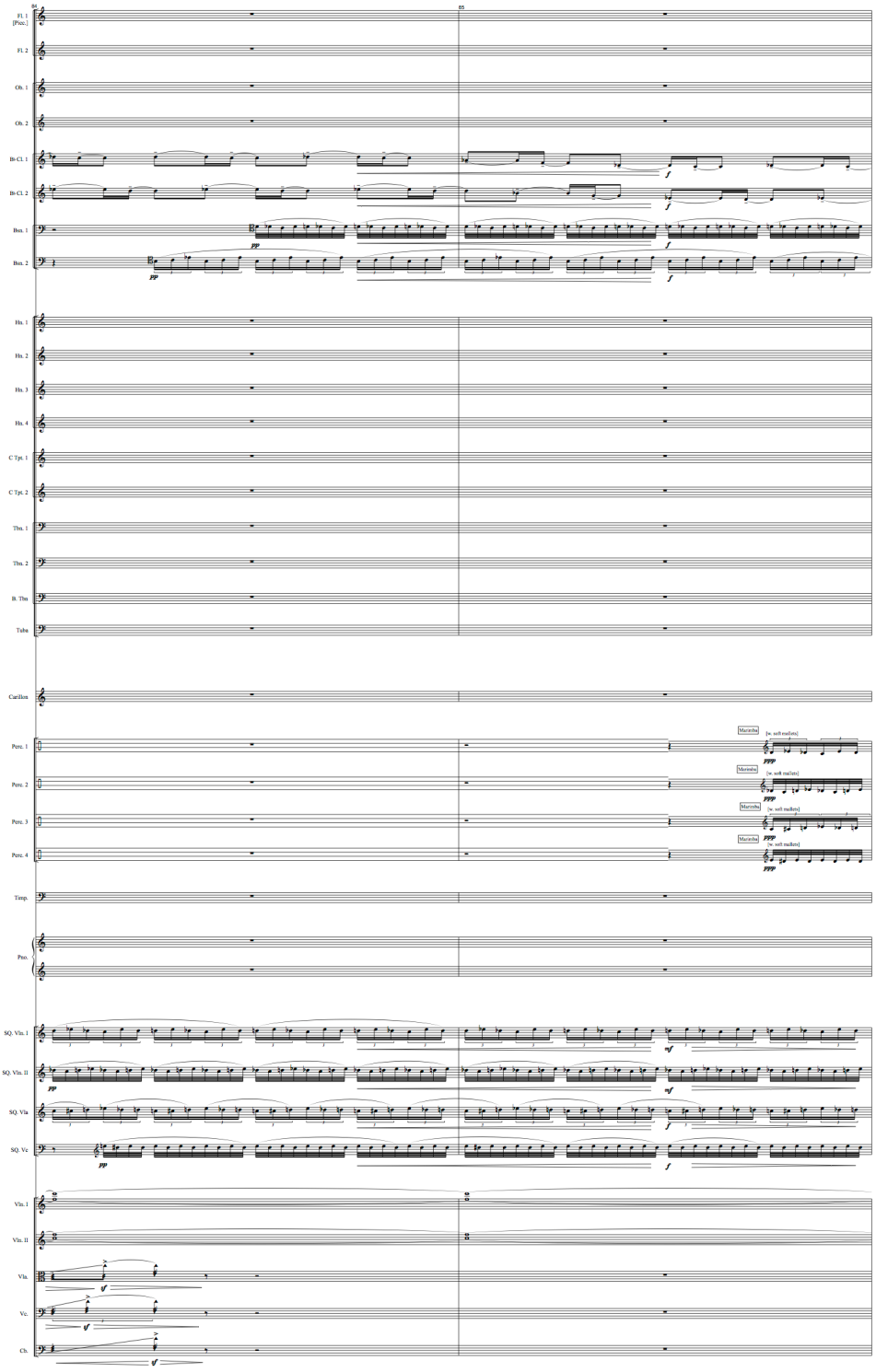

S
Fluent and with luminous quality
64
65
66
67
68
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.

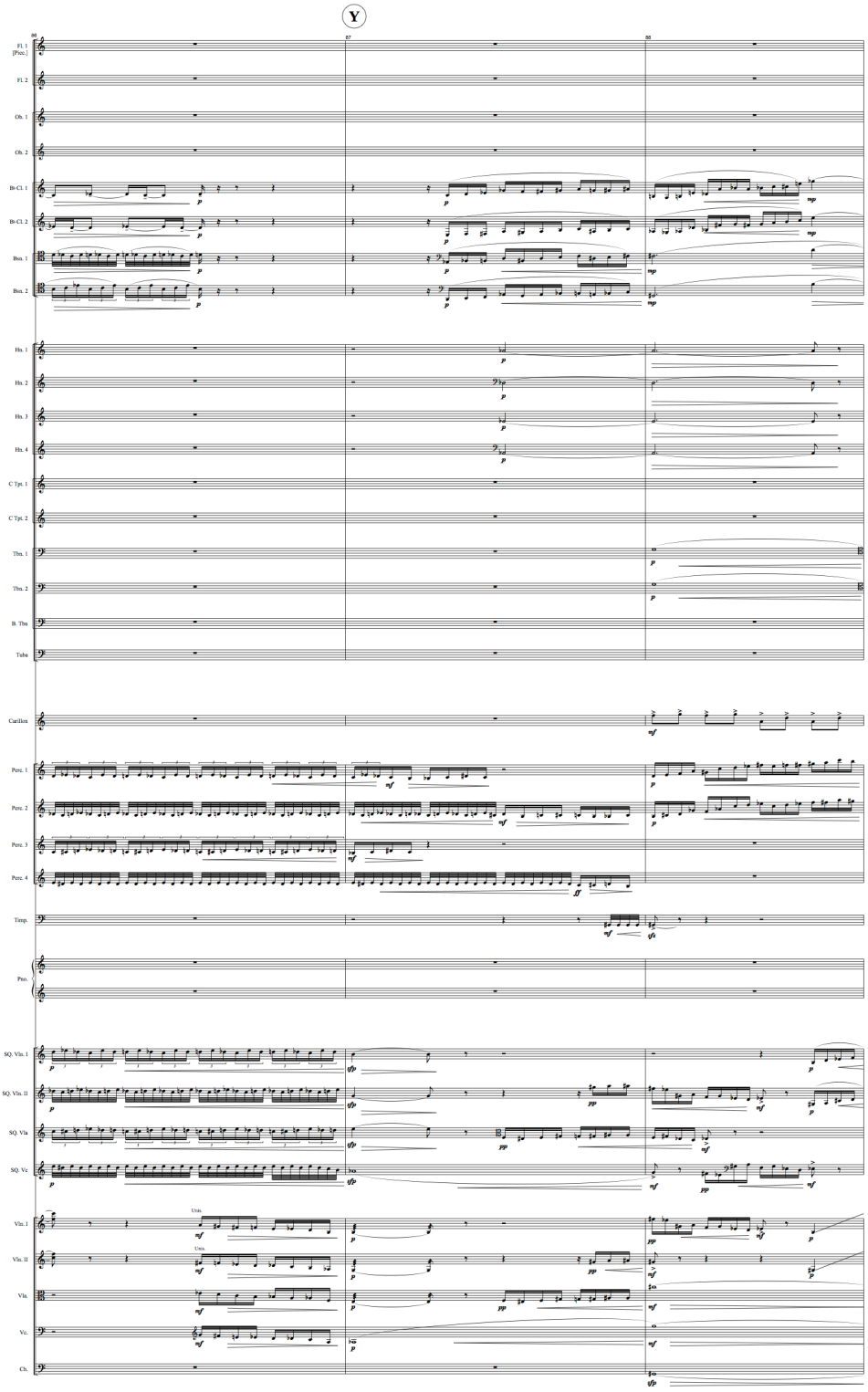

T
= 80
69
70
71
72
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
ad lib.
*play freely, rapid but irregular.
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

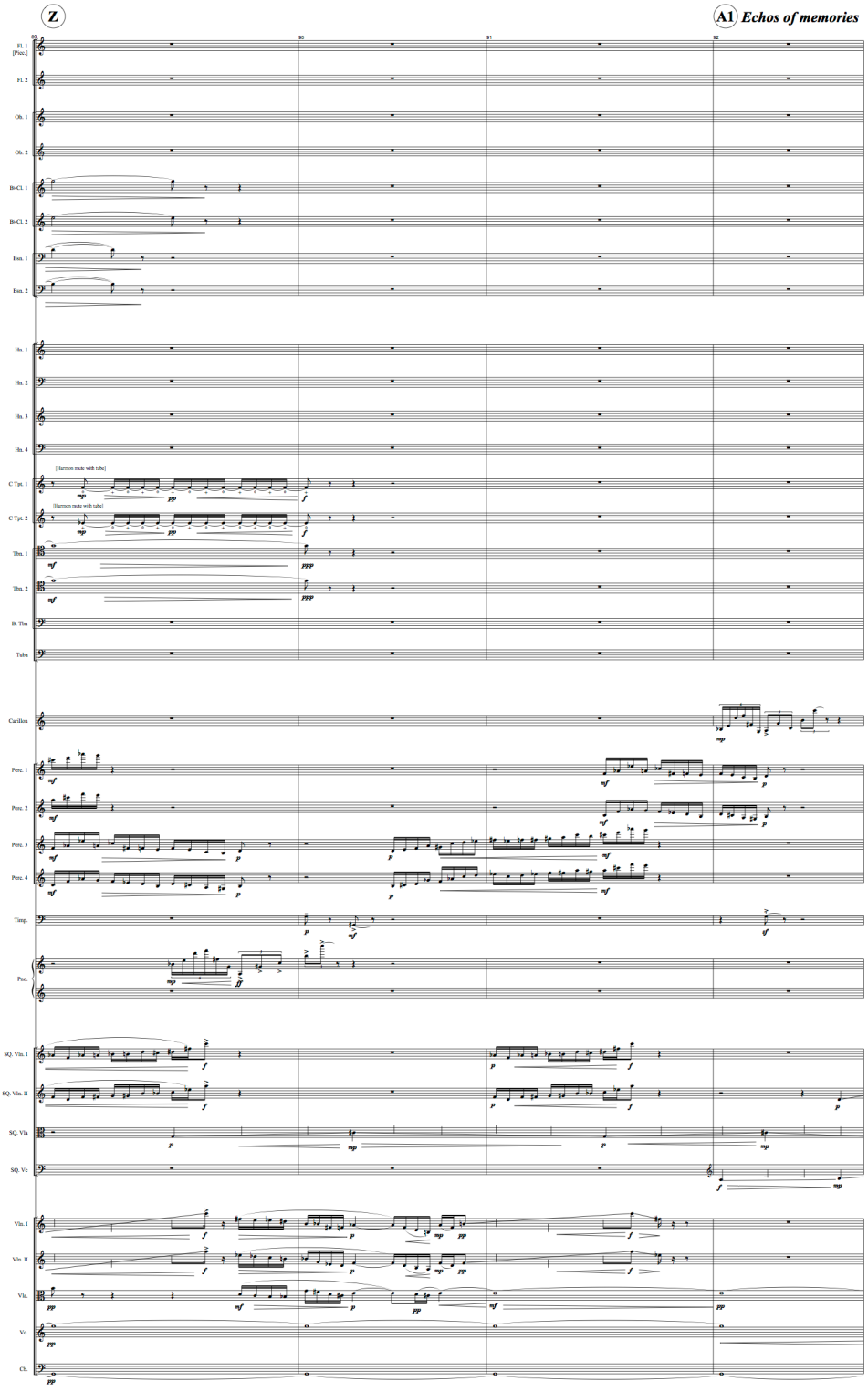

73
74
Fl. 1
[Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
* Hit together with other percussionists with the conductor's left hand cue. Should attack at the same time with the chord from the Carillon.
* Hit together with other percussionists with the conductor's left hand cue. Should attack at the same time with the chord from the Carillon.
* Hit together with other percussionists with the conductor's left hand cue. Should attack at the same time with the chord from the Carillon.
* Hit together with other percussionists with the conductor's left hand cue. Should attack at the same time with the chord from the Carillon.

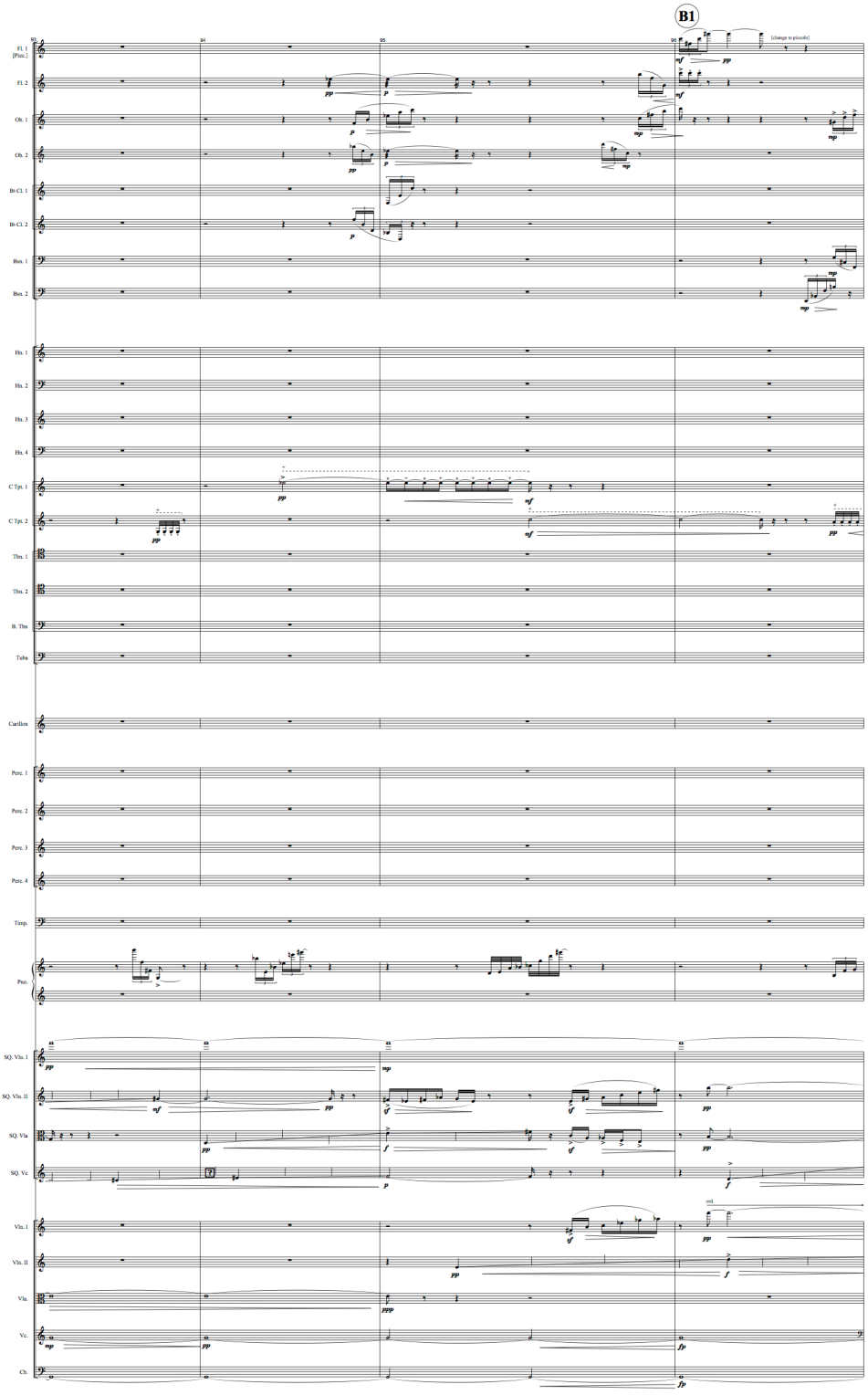

U
= 52-56
V
Hesitate and obsessive
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Crotales
Tamtam
[without mute]
[w. finger nail or coin]
[w. super ball]
[w. hand]
[hit rim]

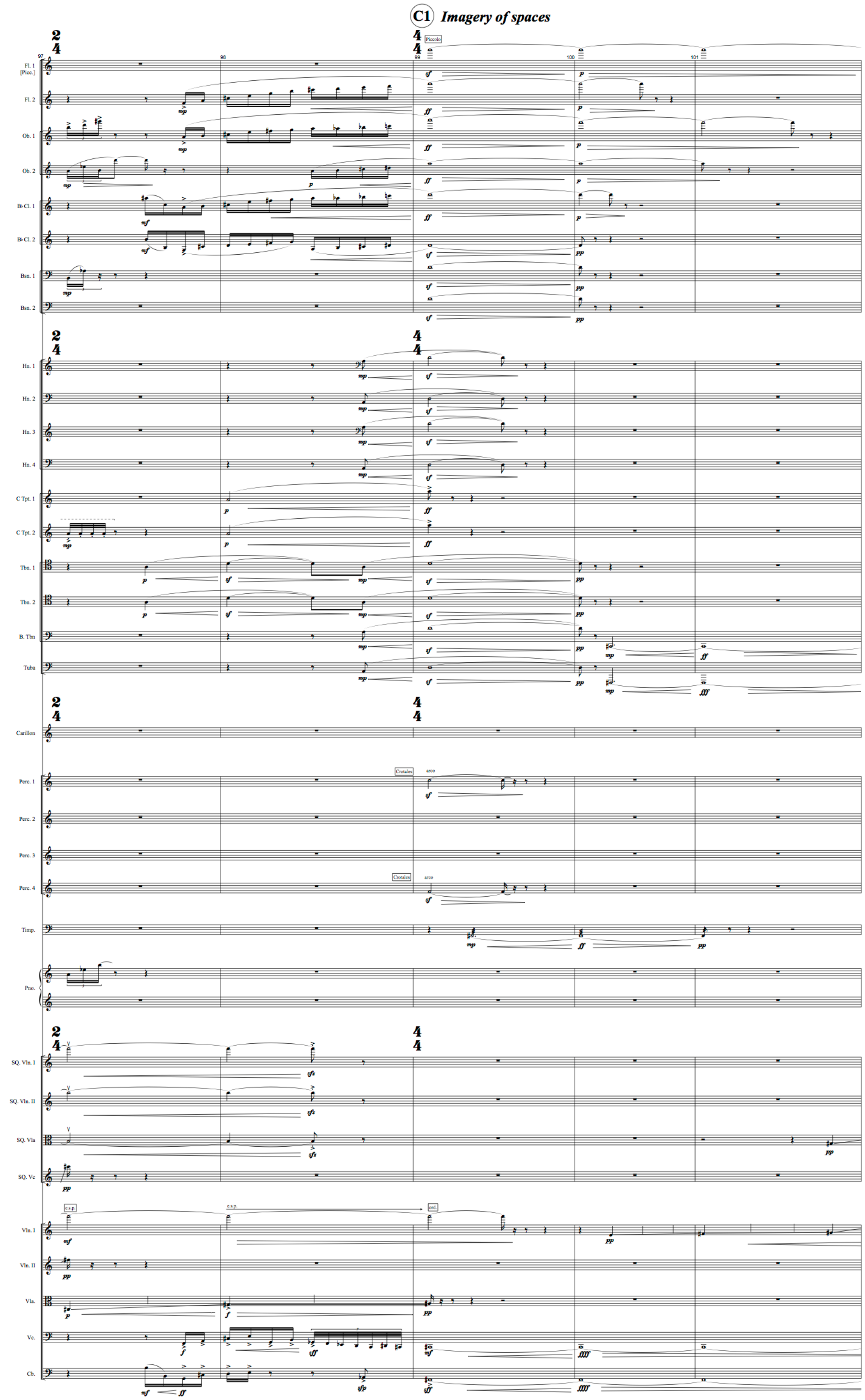

W
Molto accel.
X
= 72
80
81
82
83
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Div.

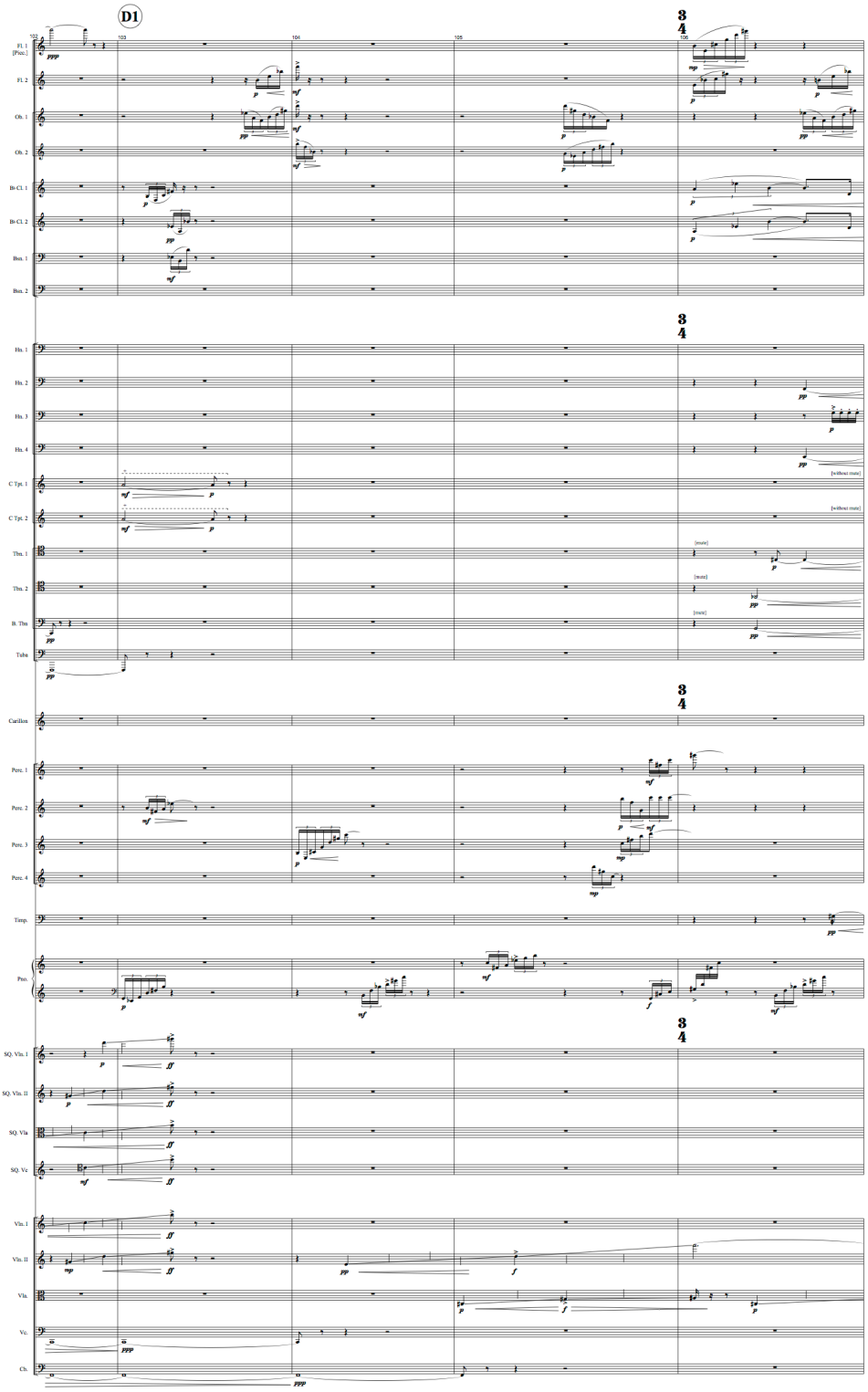

64
65
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Marimba
[w. soft mallets]

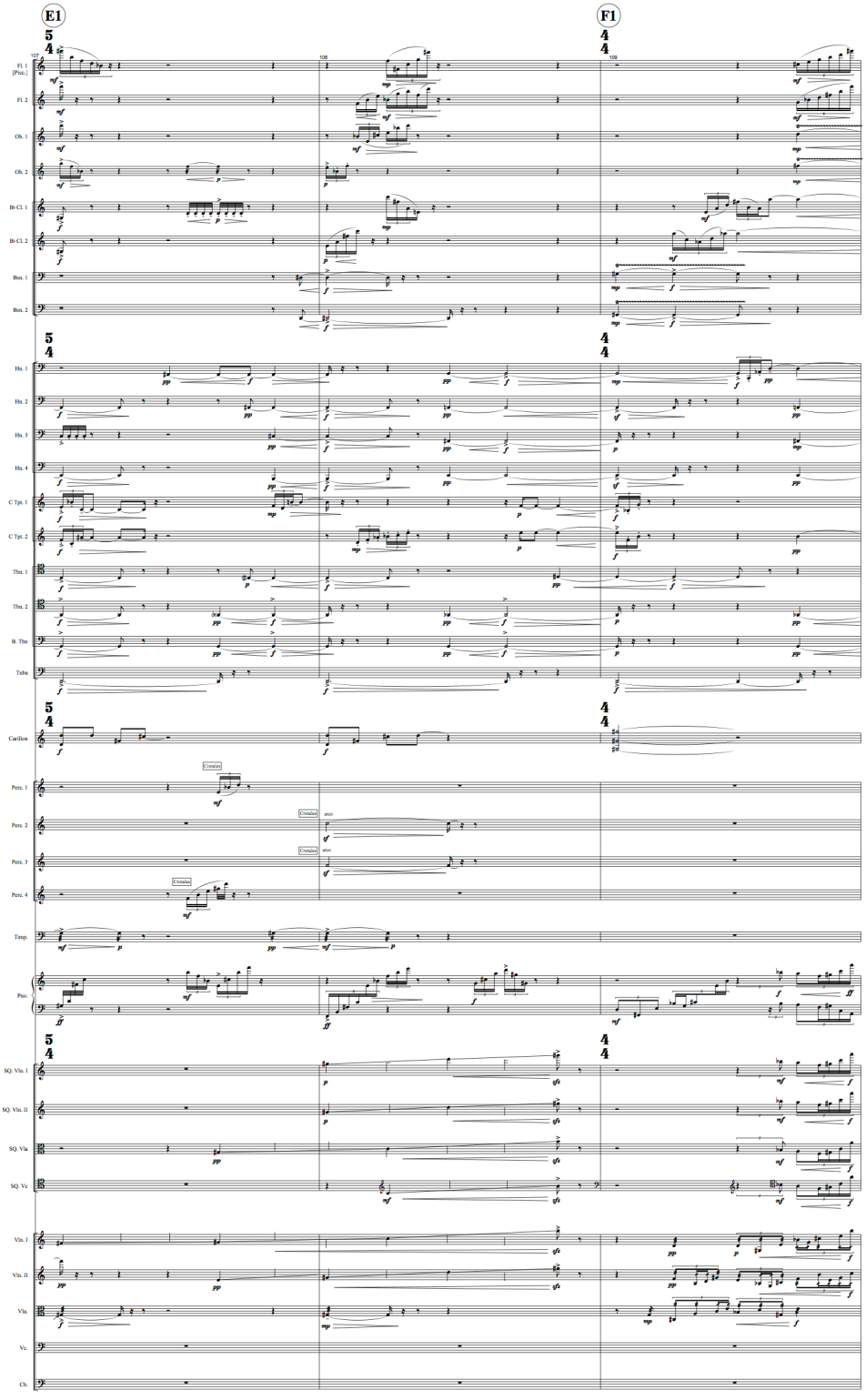

Y
86
87
88
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.
Unis.

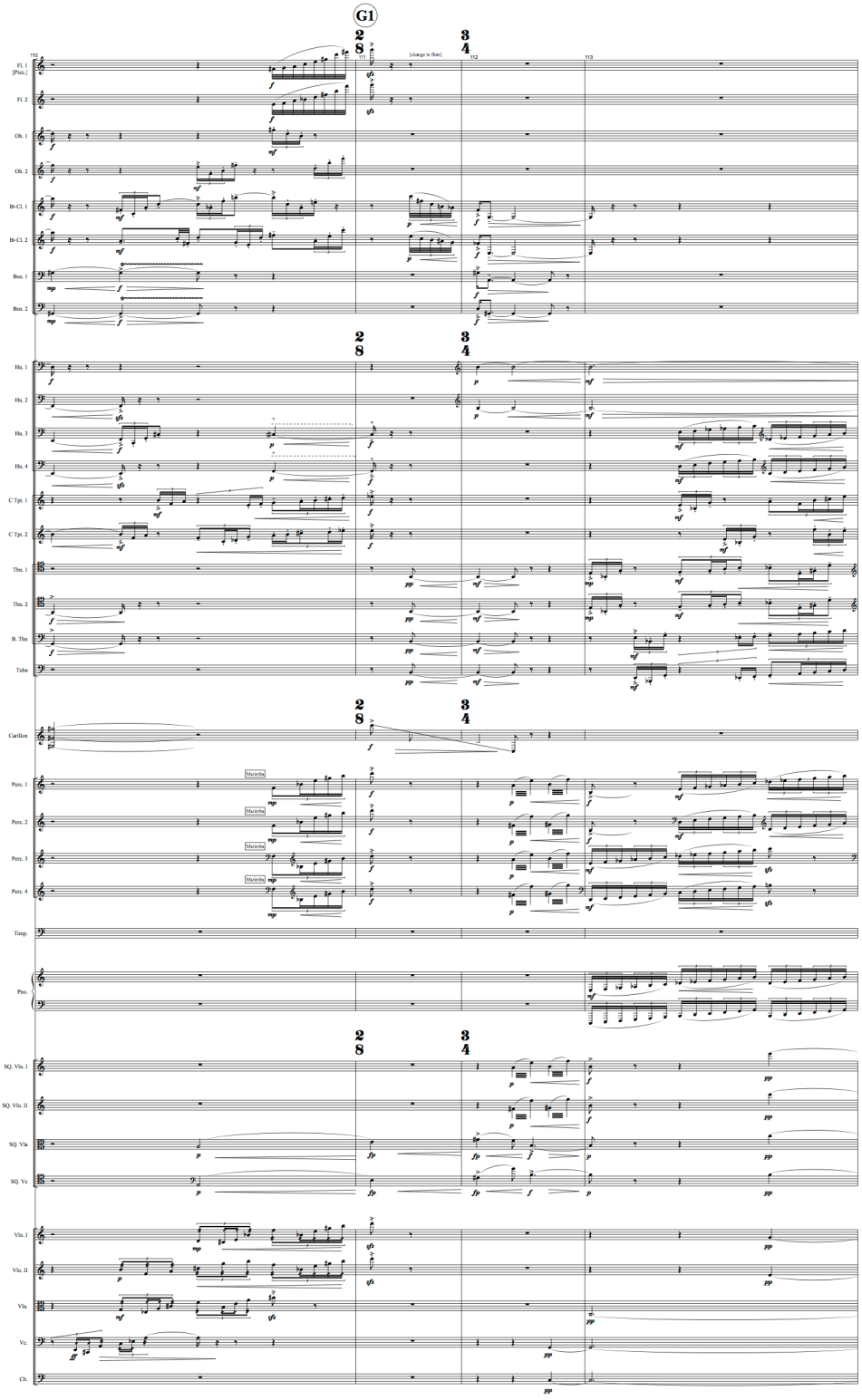

Z
A1 Echos of memories
89
90
91
92
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
[Harmon mute with tube]
[Harmon mute with tube]
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

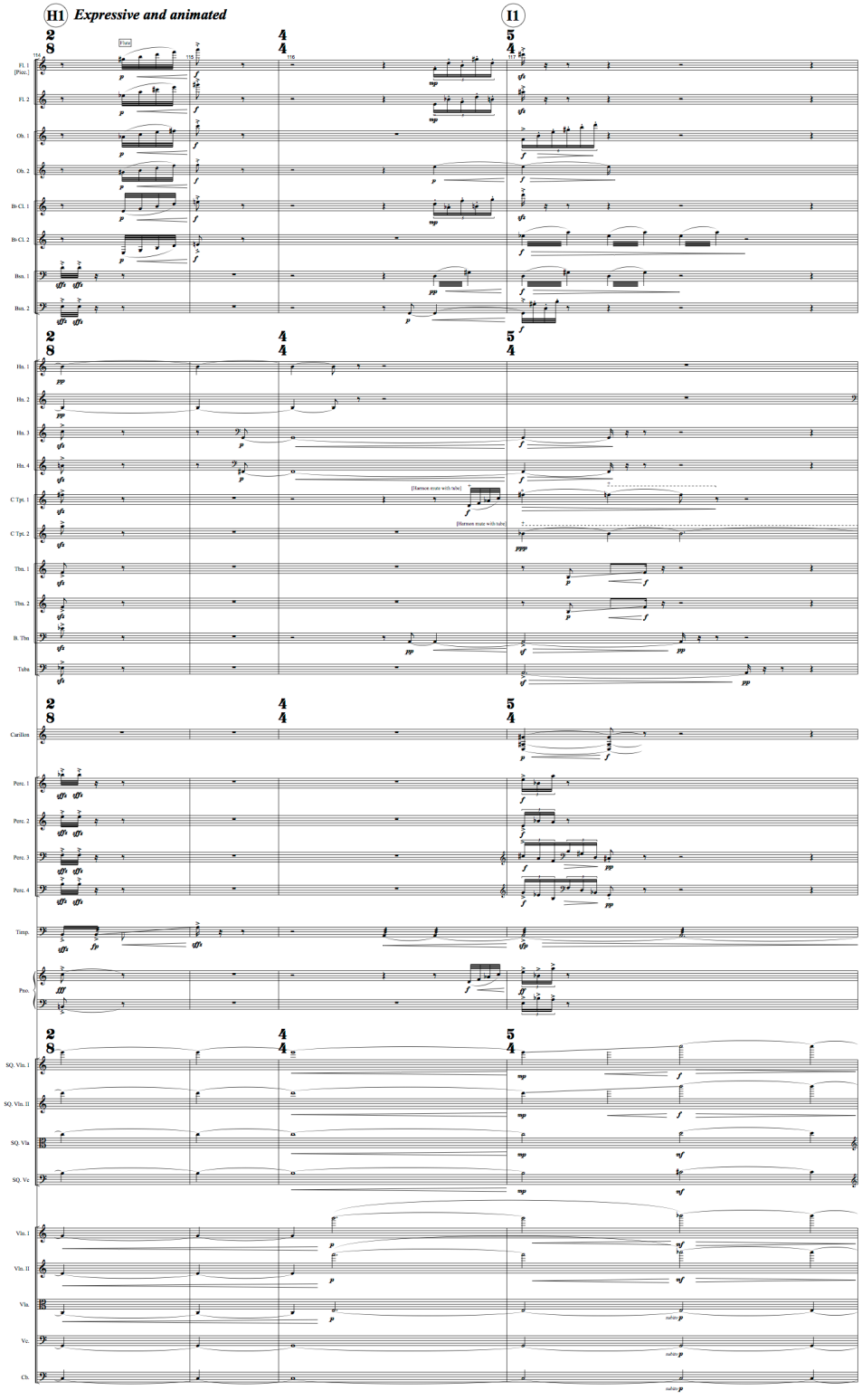

B1
[change to piccolo]
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.

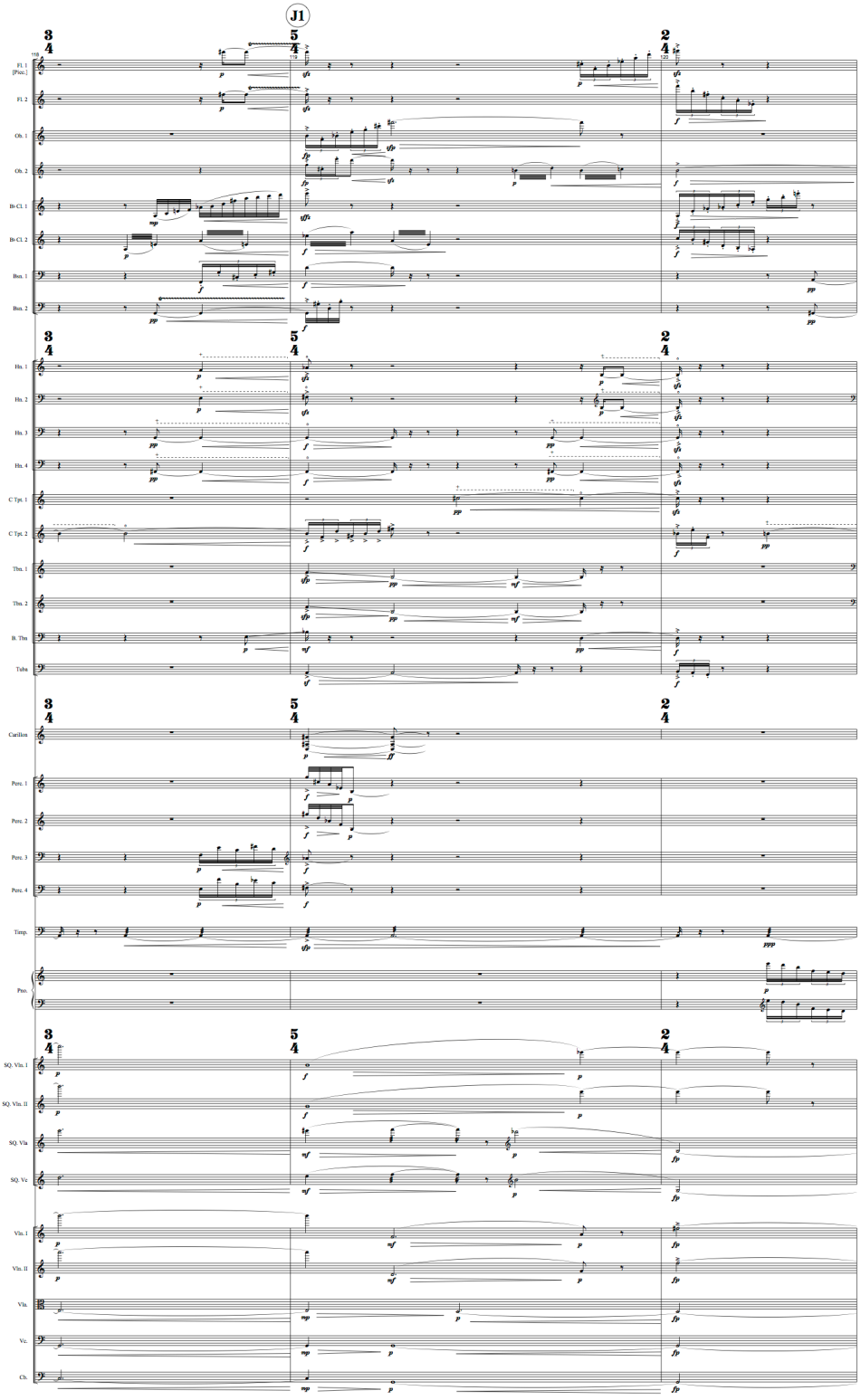

C1 Imagery of spaces
Piccolo
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Crotales
arco
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
ord.

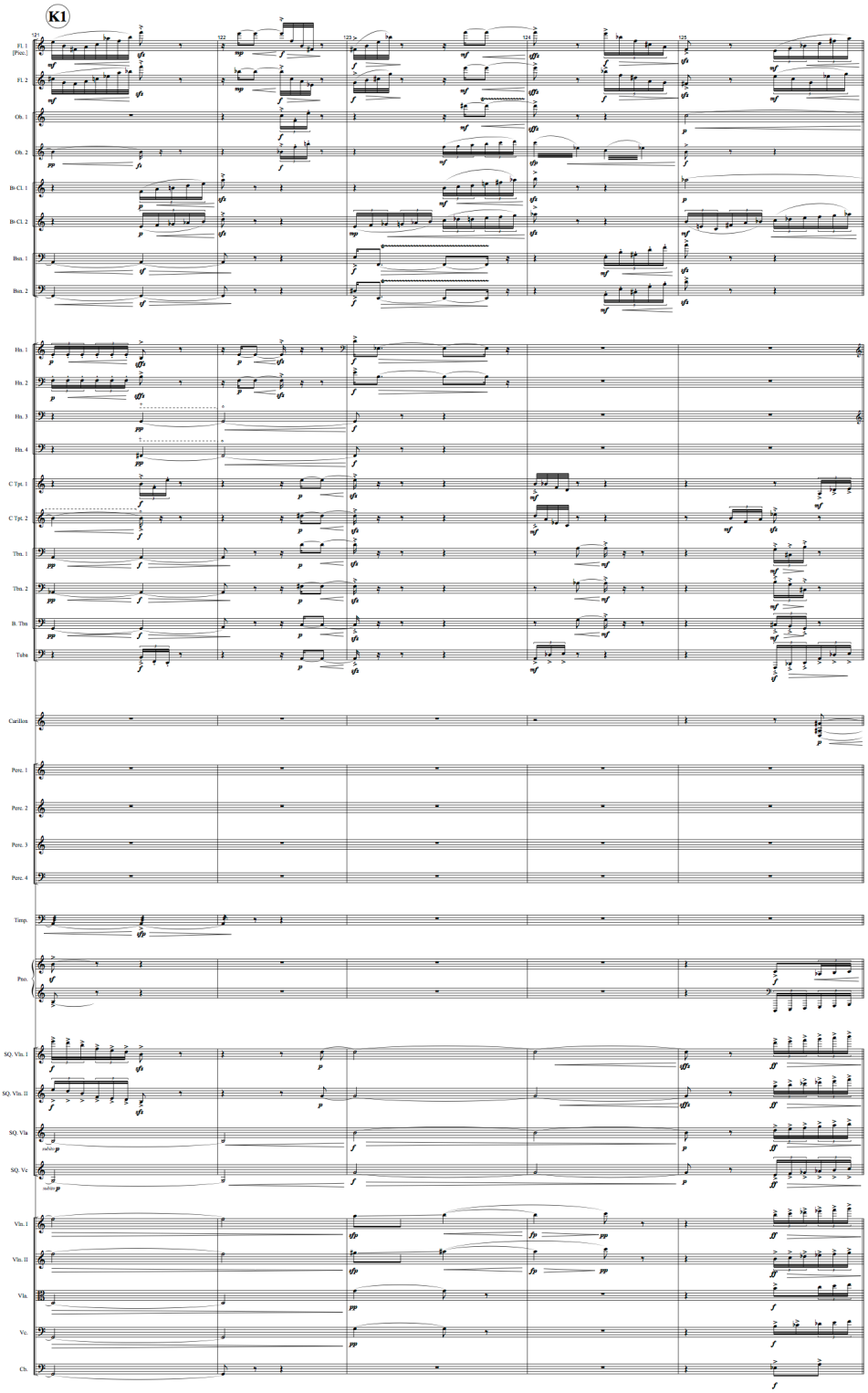

D1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
Bb Cl. 1
Bb Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
[without mute]
[mute]

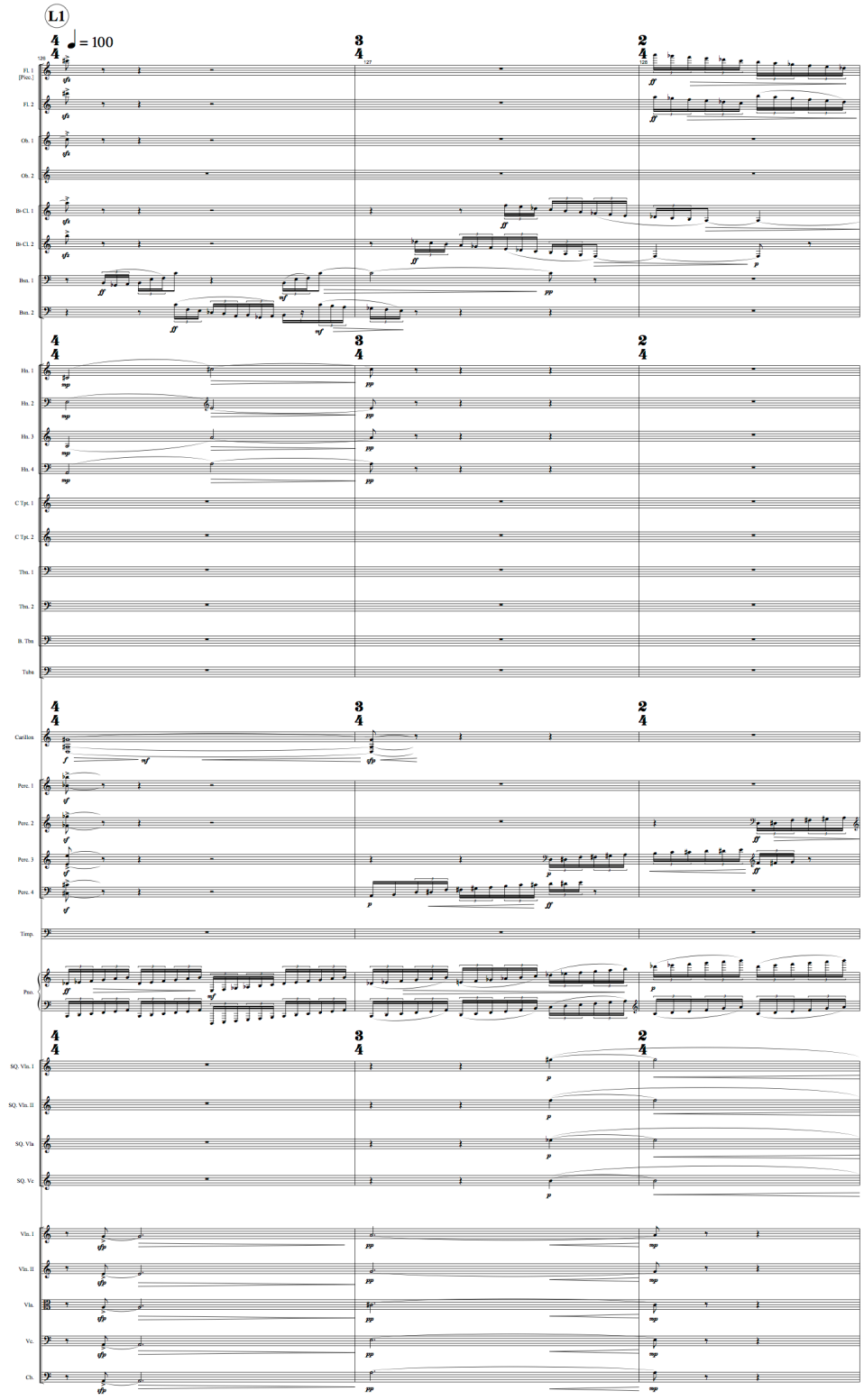

E1
F1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
Bb Cl. 1
Bb Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Crotales

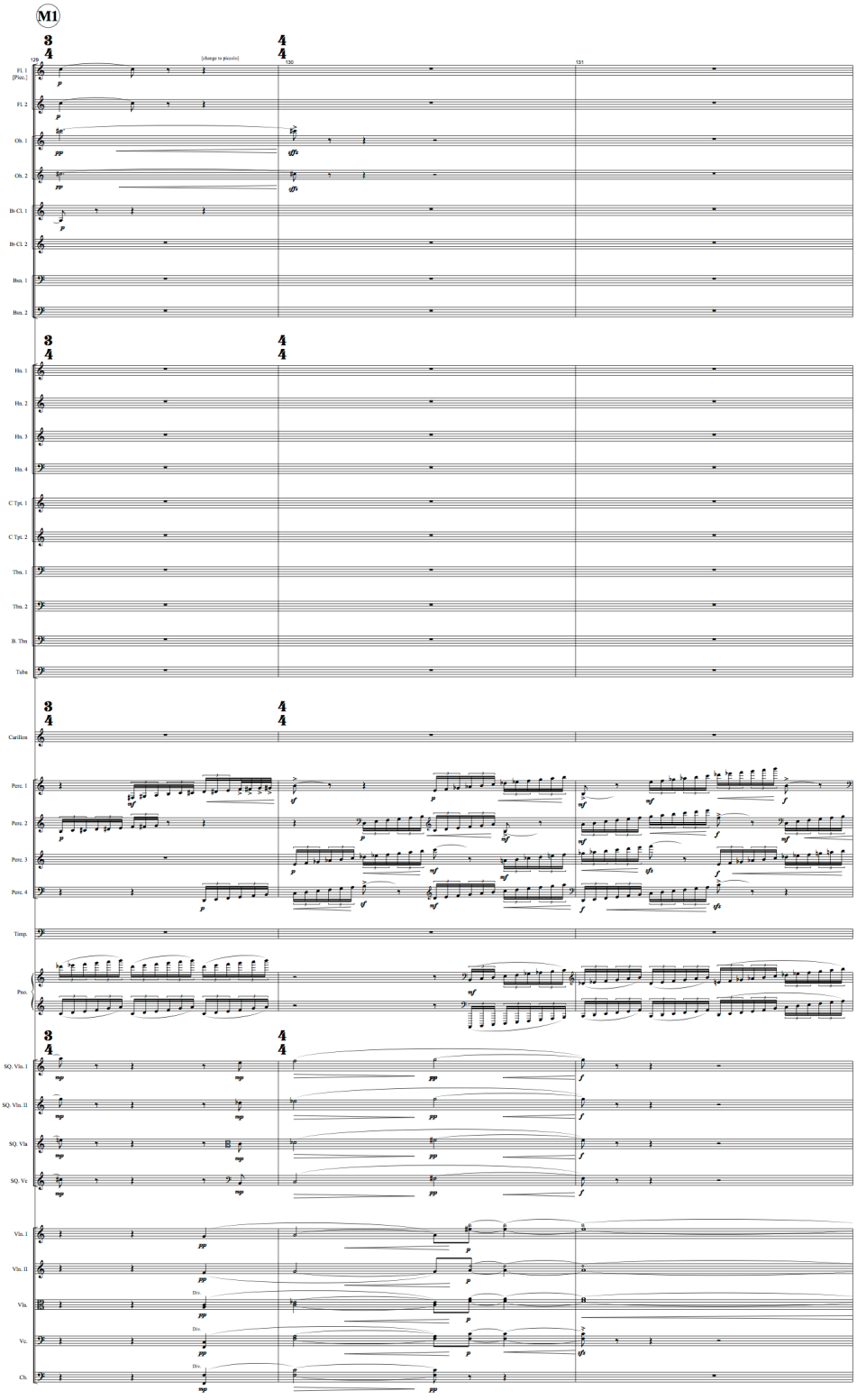

G1
2/8
3/4
110
111
112
113
[change to flute]
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Marimba
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.

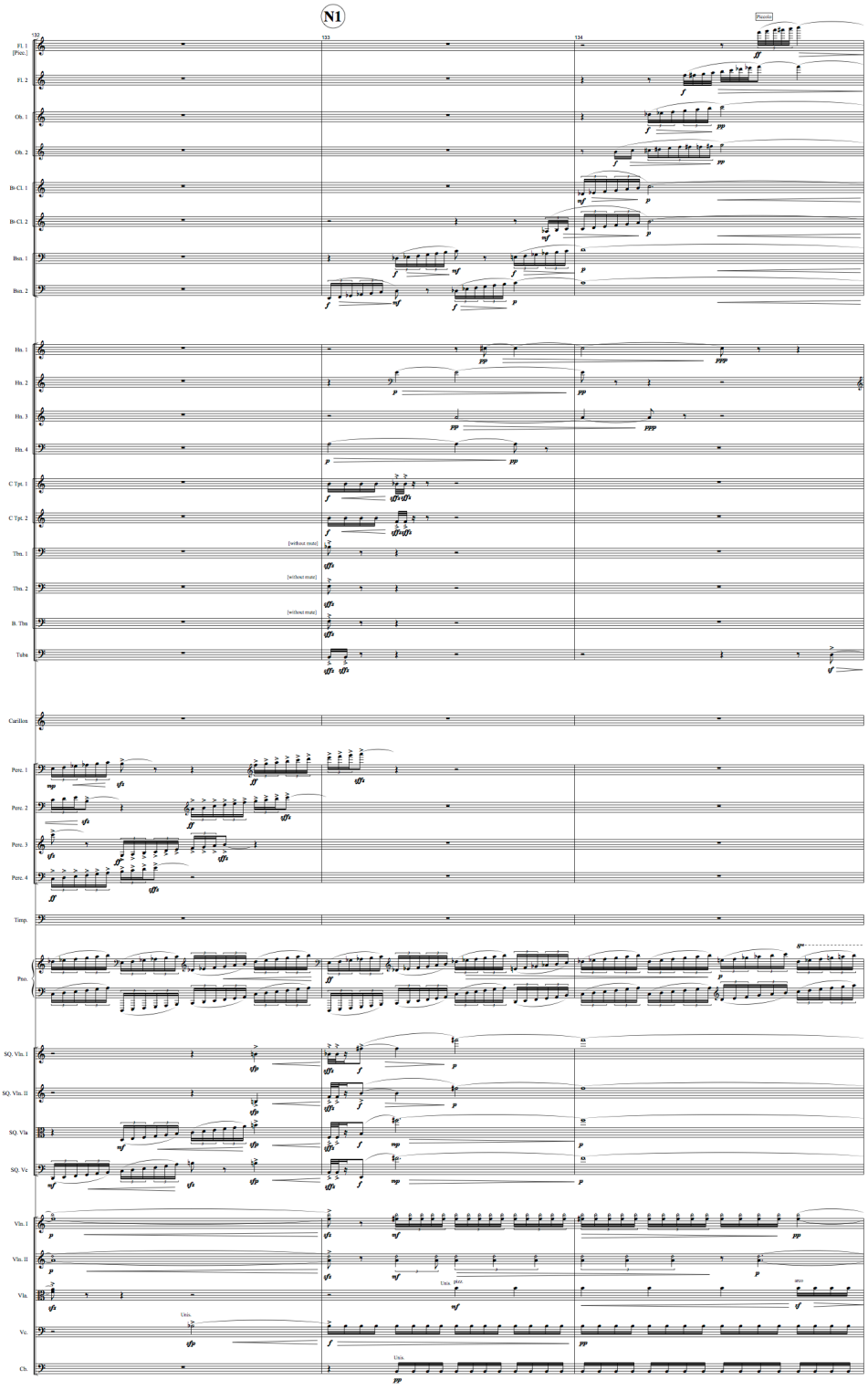

H1
Expressive and animated
I1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
[Harmon mute with tube]
[Harmon mute with tube]

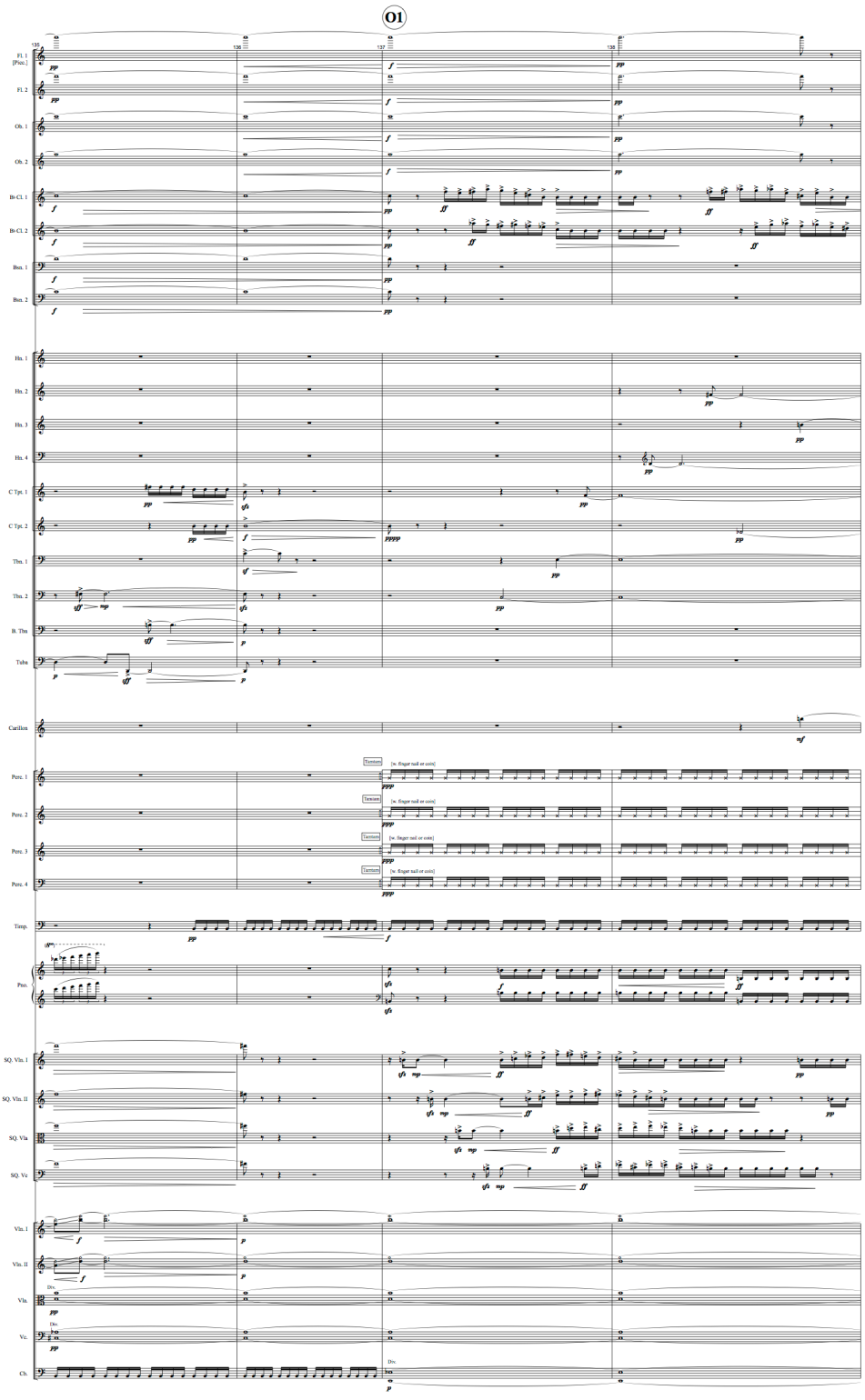

J1
Fl. 1
[Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

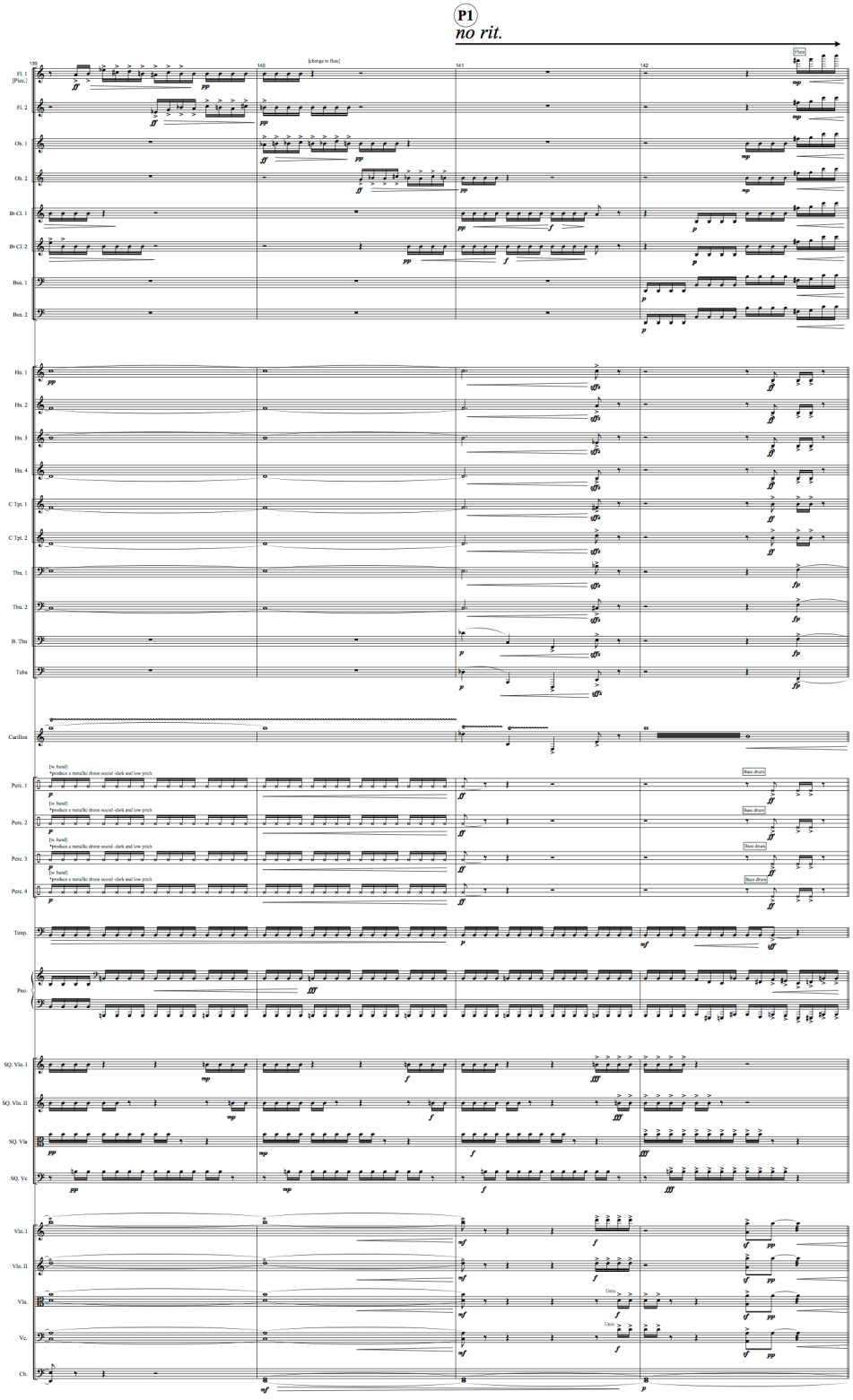

K1
121
122
123
124
125
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

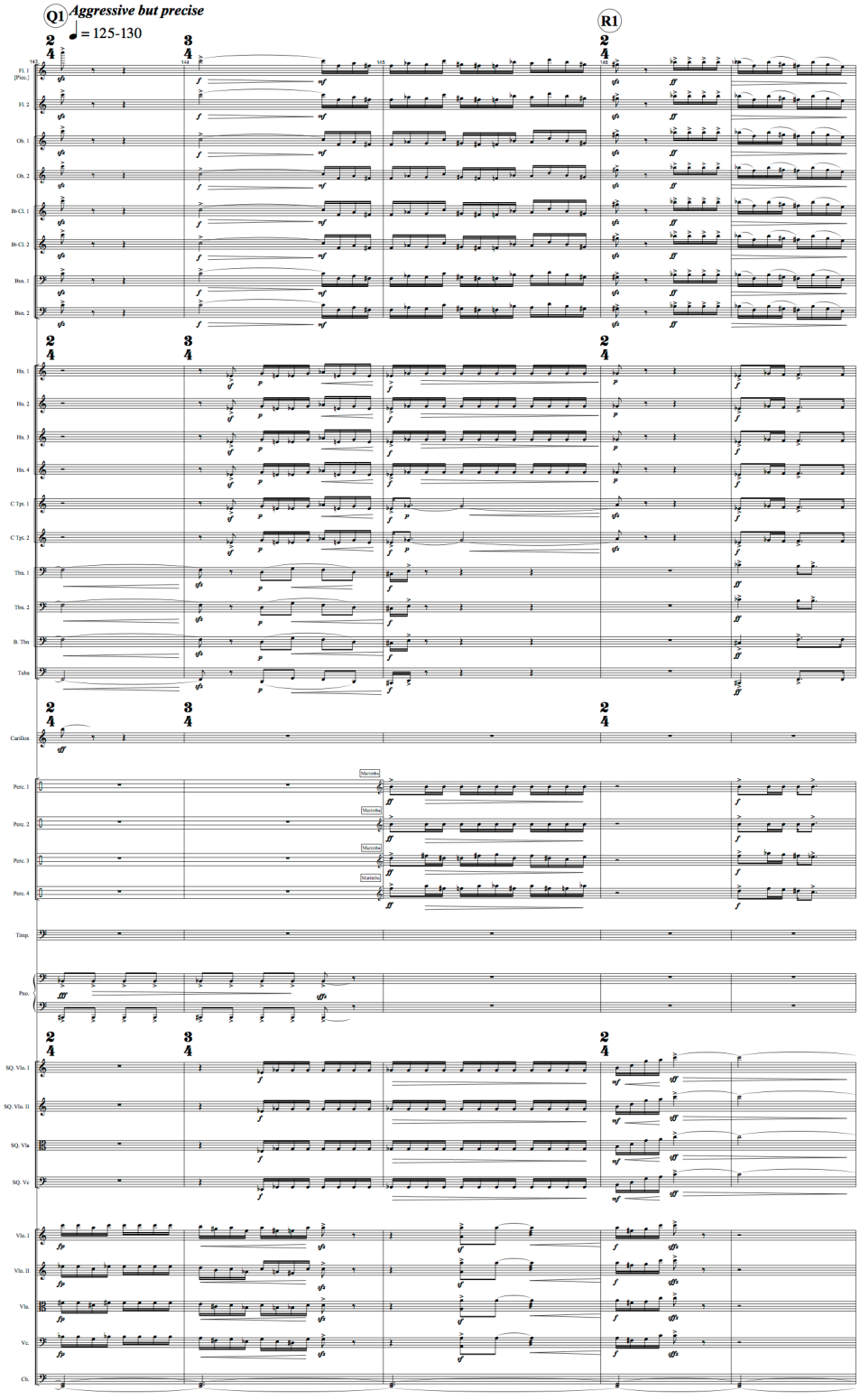

L1
= 100
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

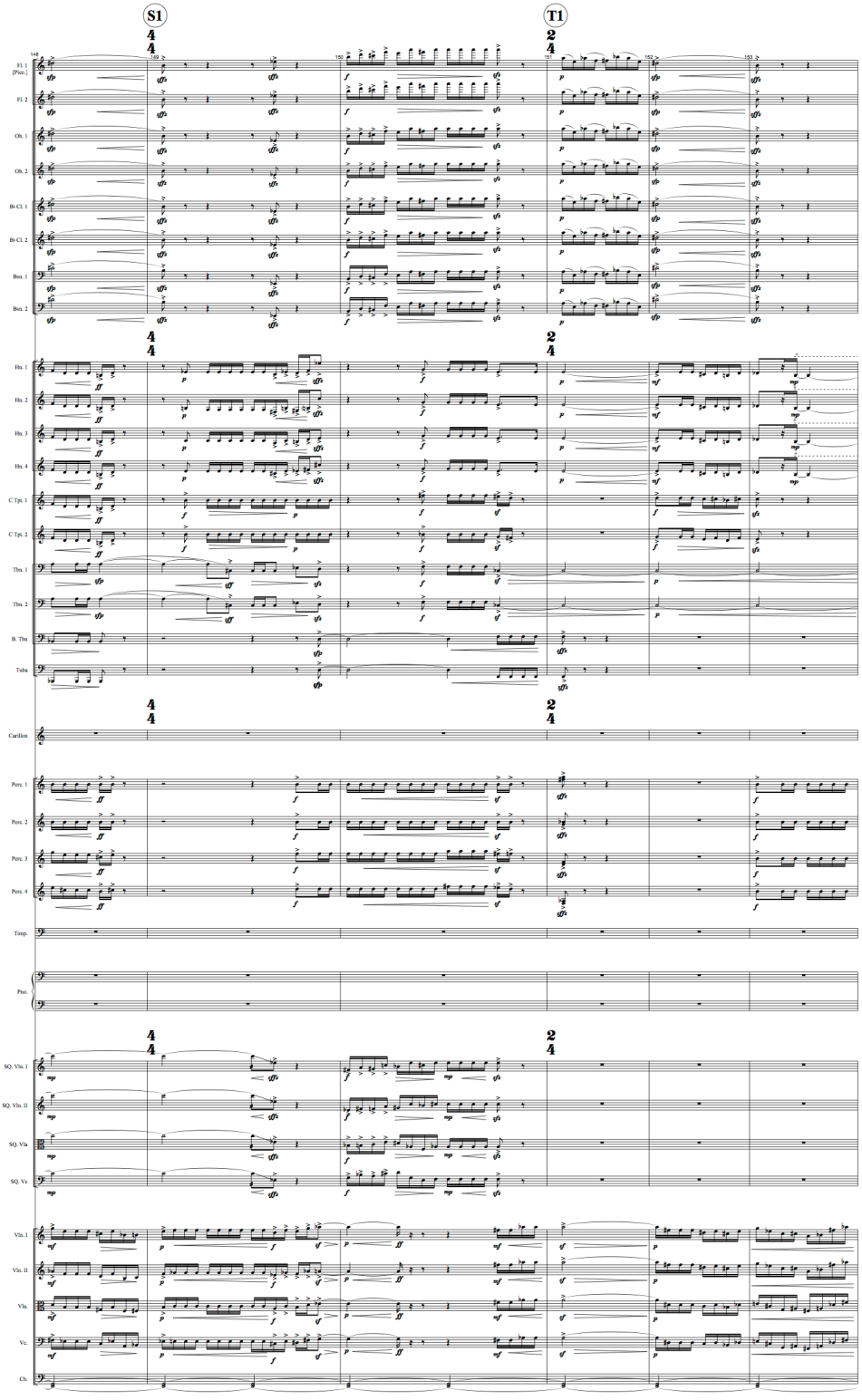

M1
129
[change to piccolo]
130
131
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.
Div.

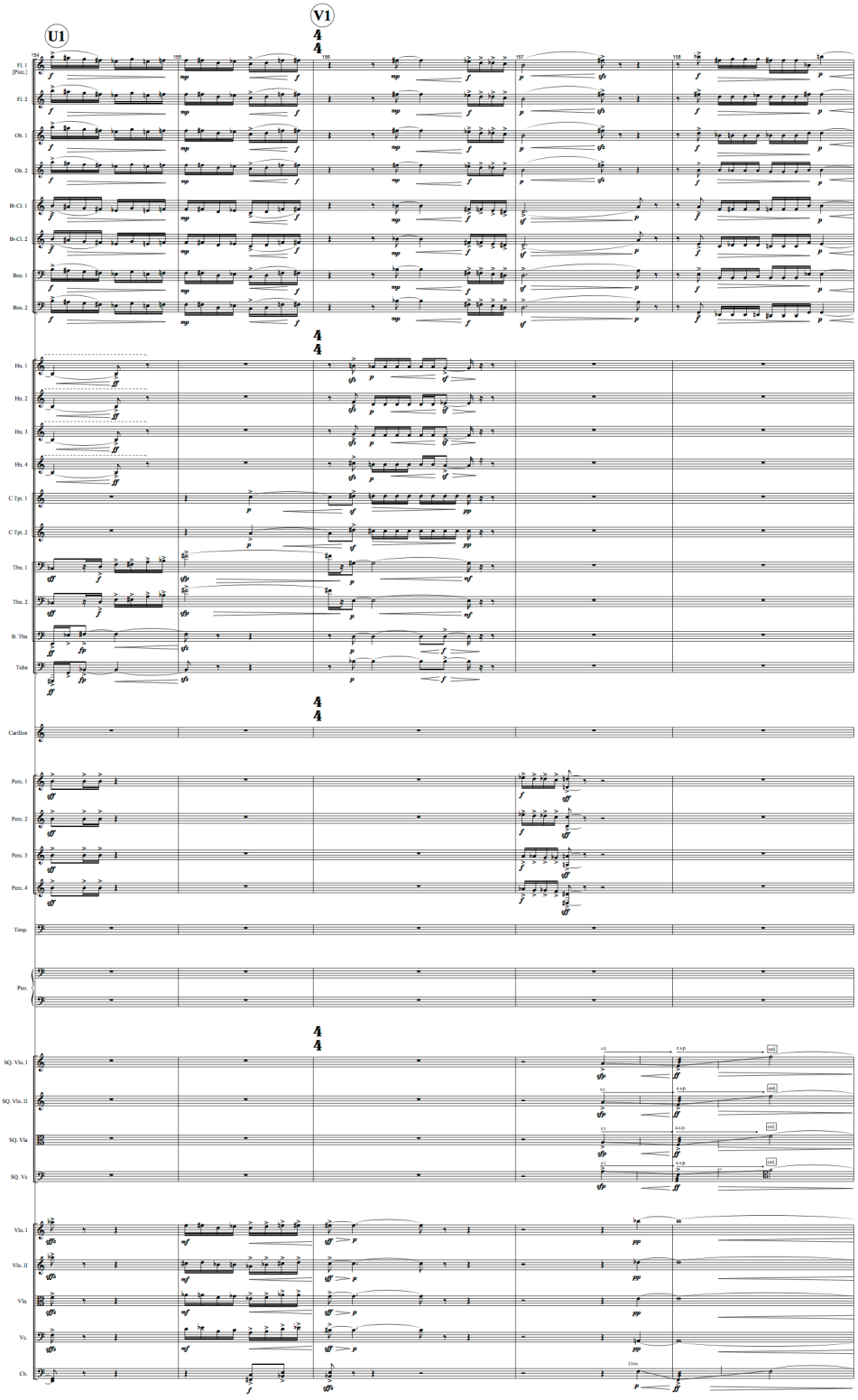

N1
132
133
134
Piccolo
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
[without mute]
Tbn. 2
[without mute]
B. Tbn
[without mute]
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.
Unis.
Unis.
pizz.
arco

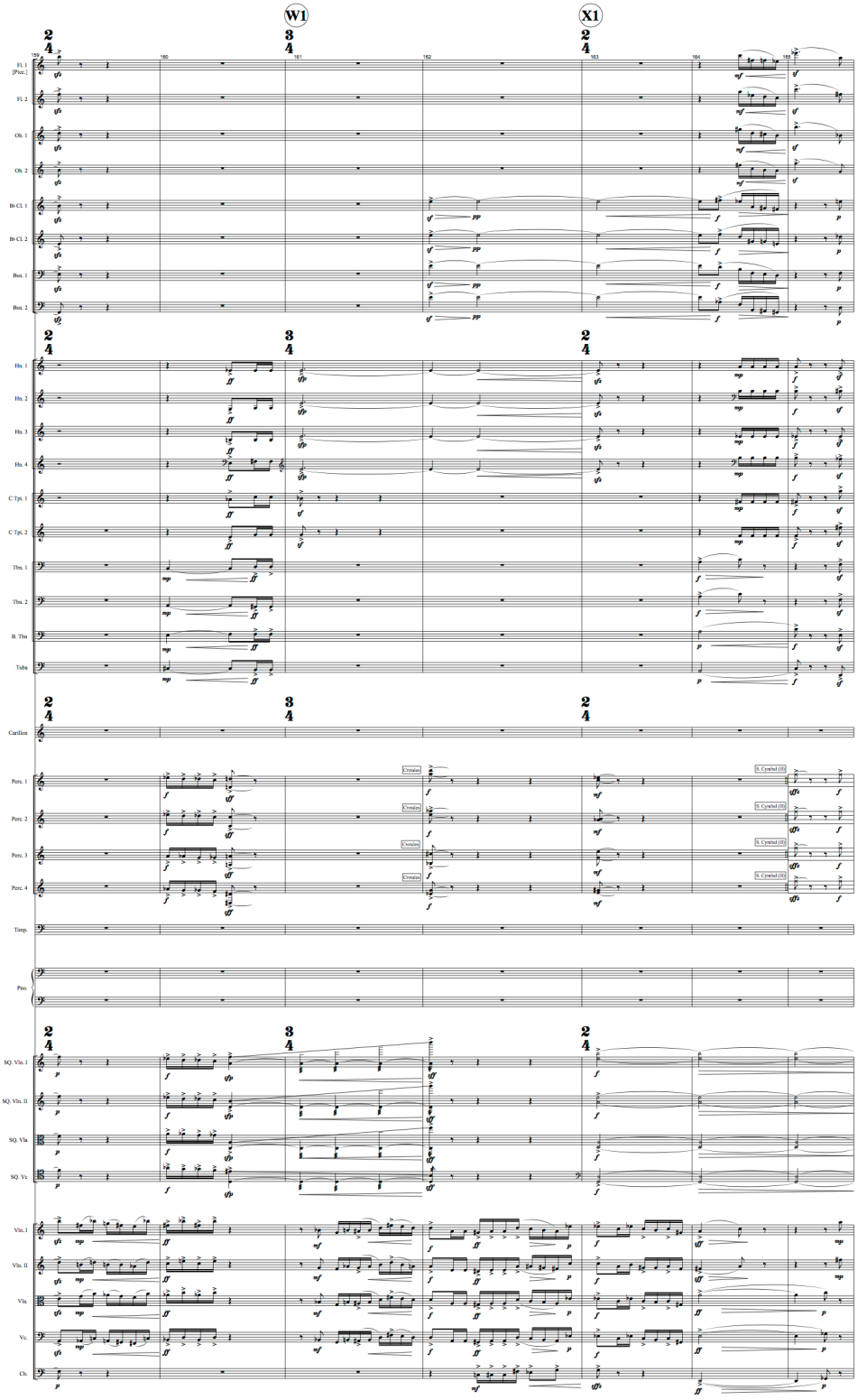

O1
135
136
137
138
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
Bb Cl. 1
Bb Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Div.
Tamtam
[w. finger nail or coin]

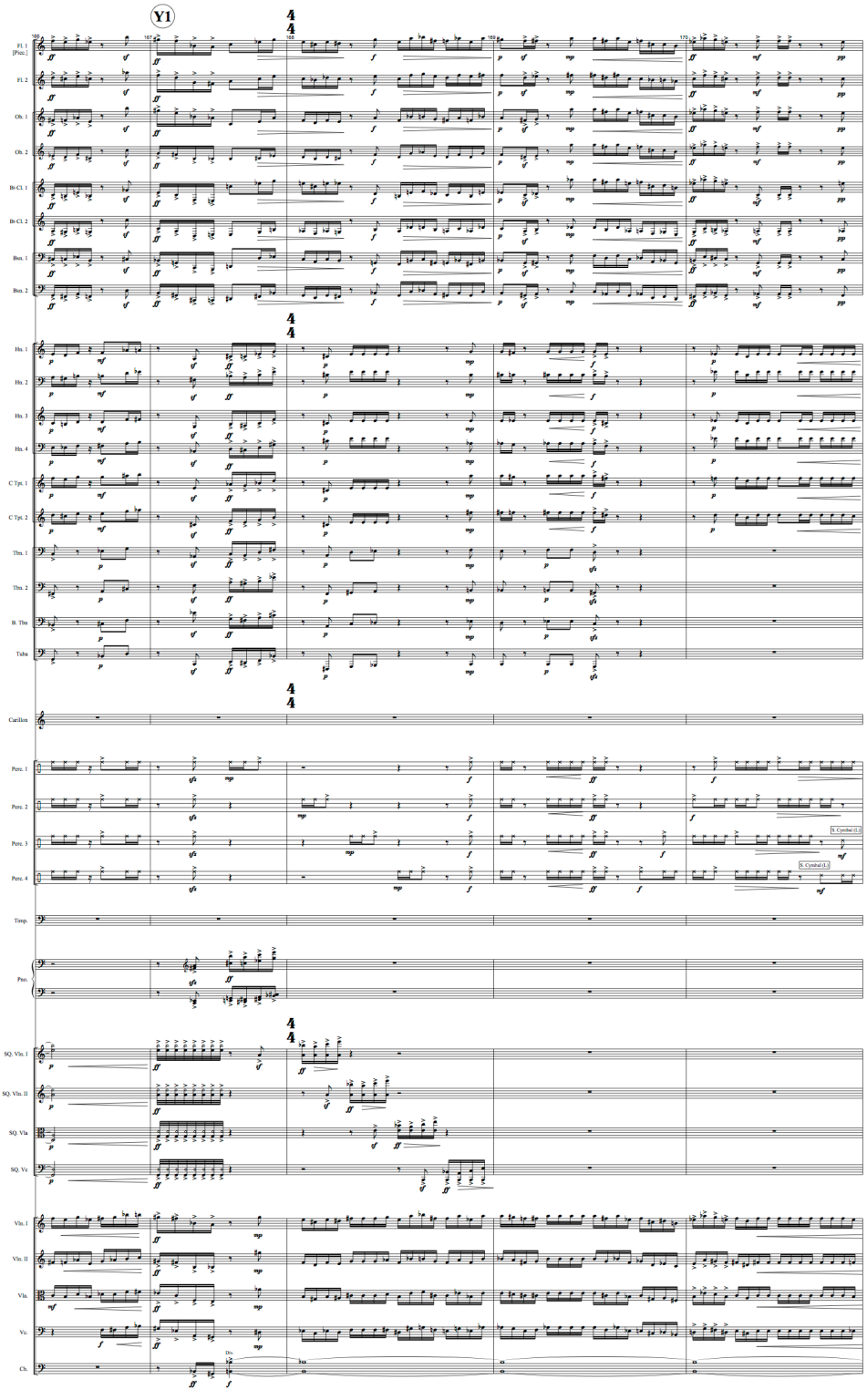

P1
no rit.
[change to flute]
[Flute]
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
Bb Cl. 1
Bb Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
[w. hand]
*produce a metallic drone sound -dark and low pitch
[Bass drum]
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.

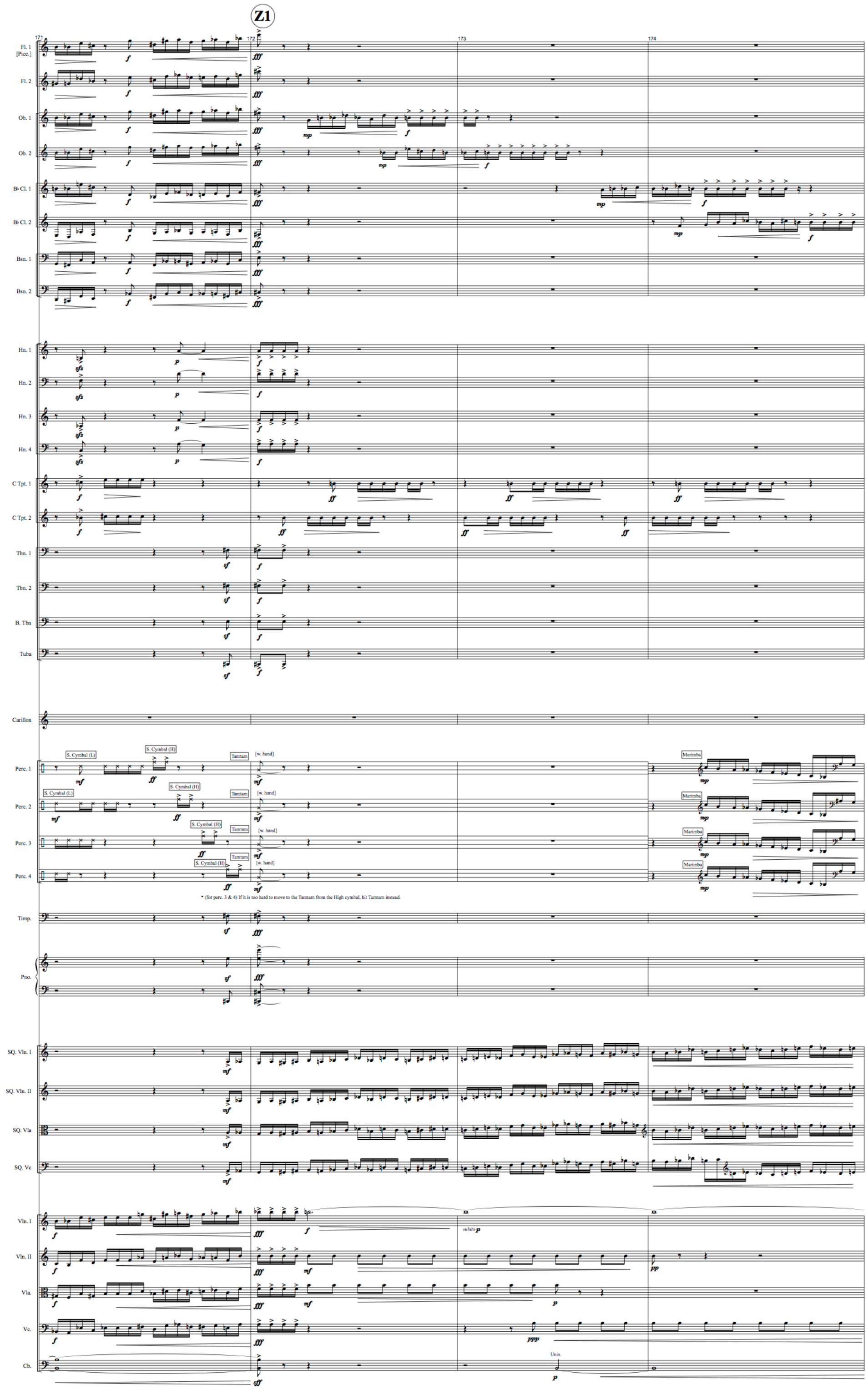

Q1
Aggressive but precise
= 125-130
R1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
Bb Cl. 1
Bb Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

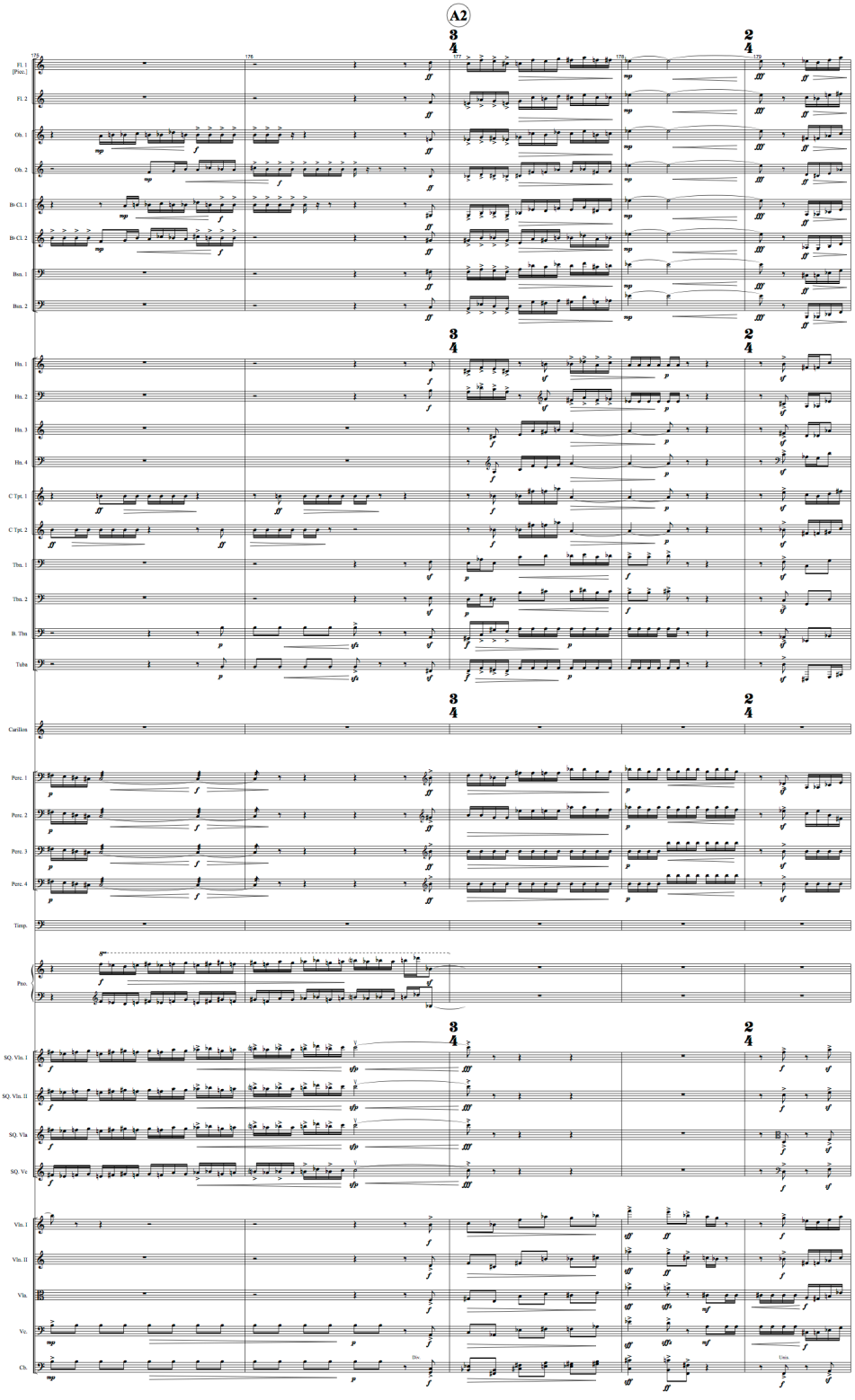

S1
T1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.

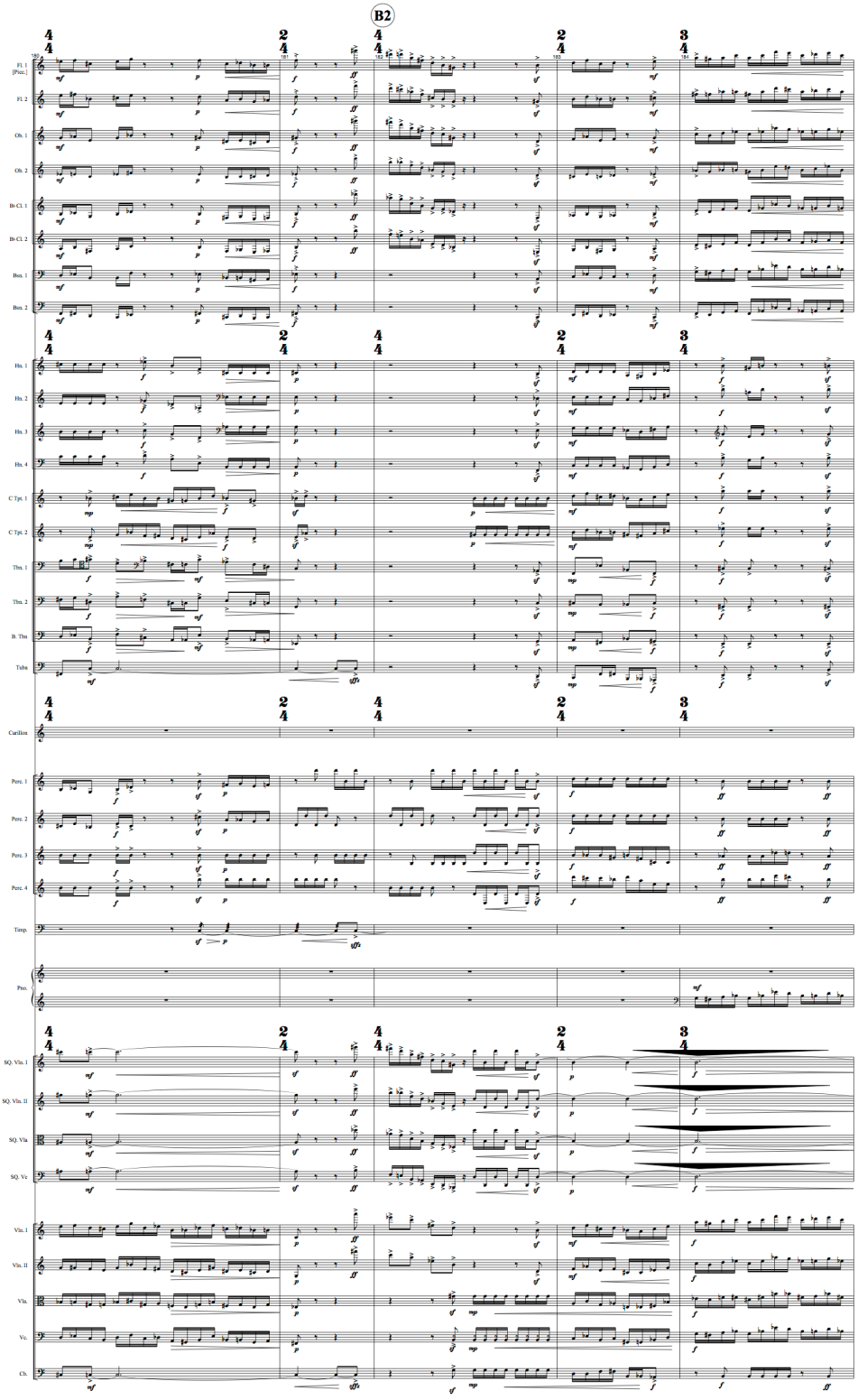

U1
V1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.

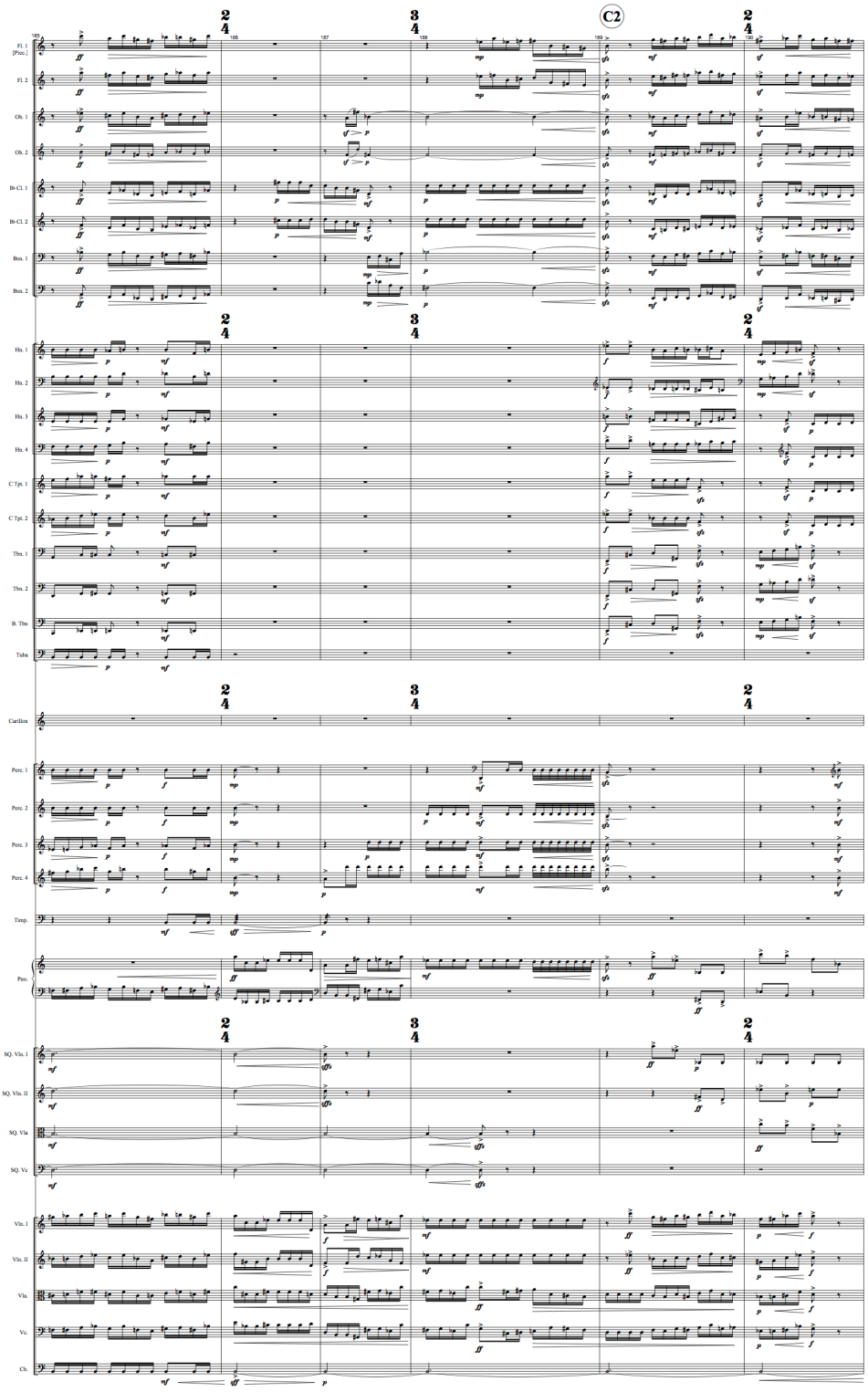

W1
X1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Crotales
S. Cymbal (H)

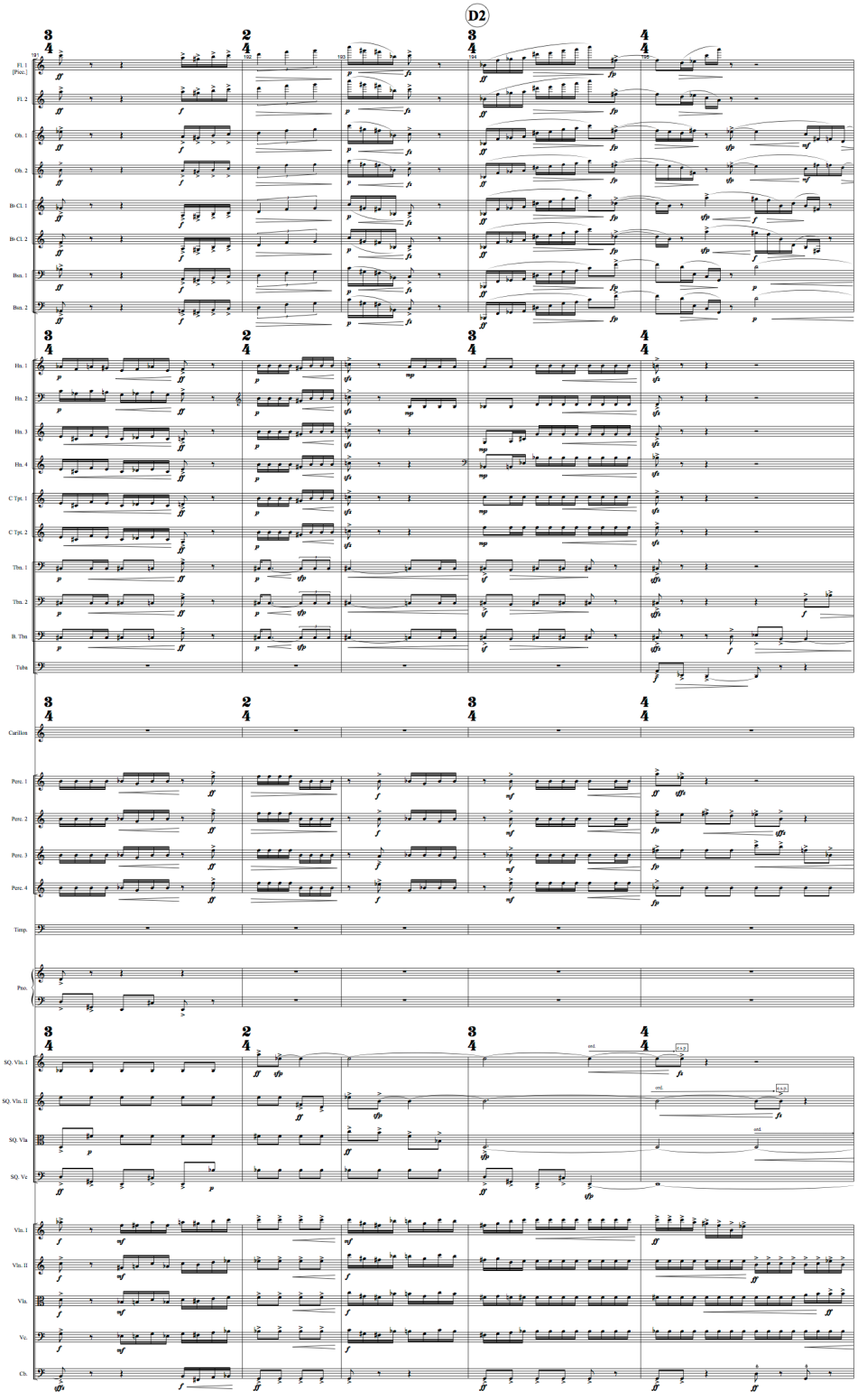

Y1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
S. Cymbal (L)
S. Cymbal (L)
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.
Div.

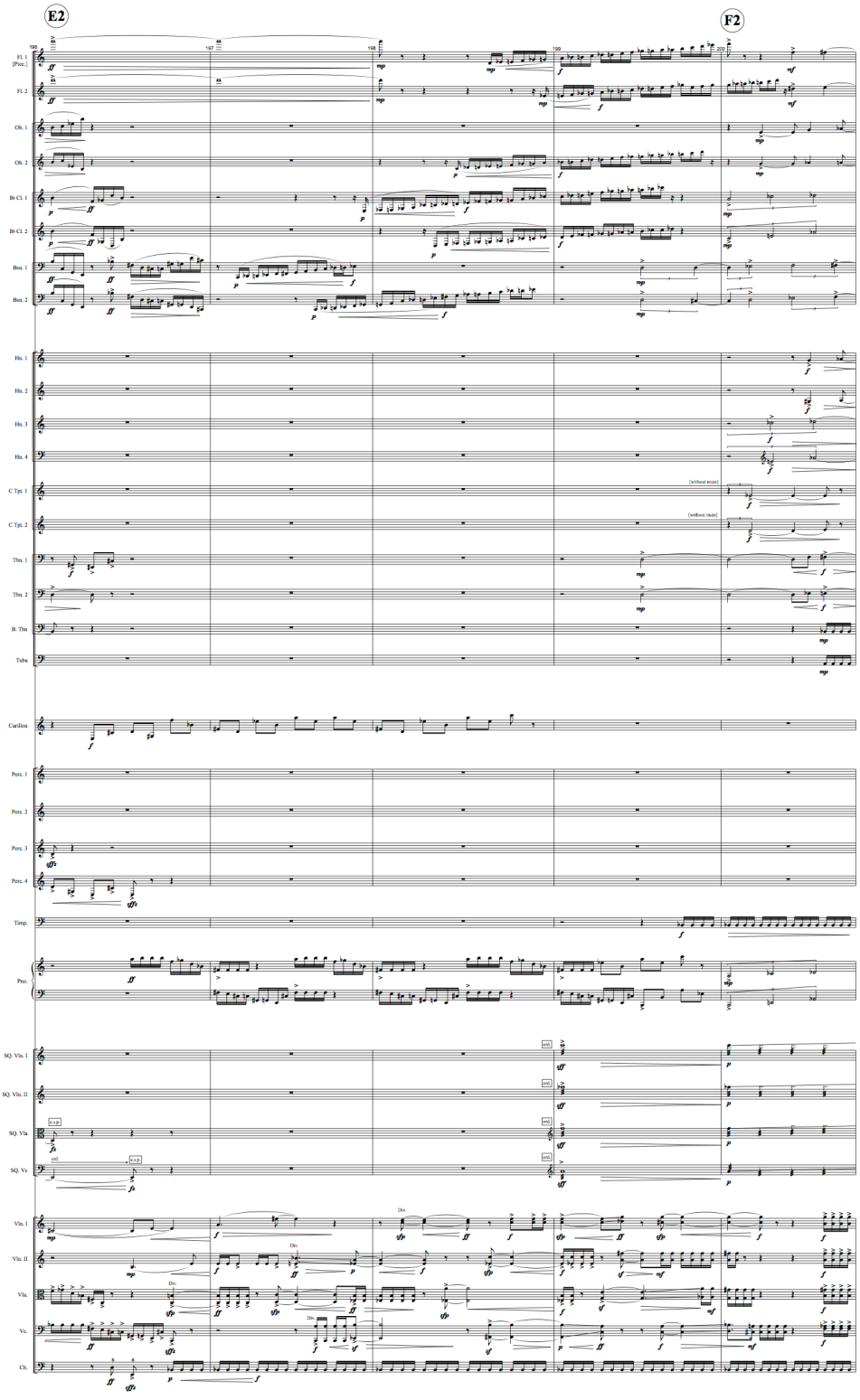

Z1
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
S. Cymbal (L)
S. Cymbal (H)
Tamtam
[w. hand]
Marimba
* (for perc. 3 & 4) If it is too hard to move to the Tamtam from the High cymbal, hit Tamtam instead.
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.

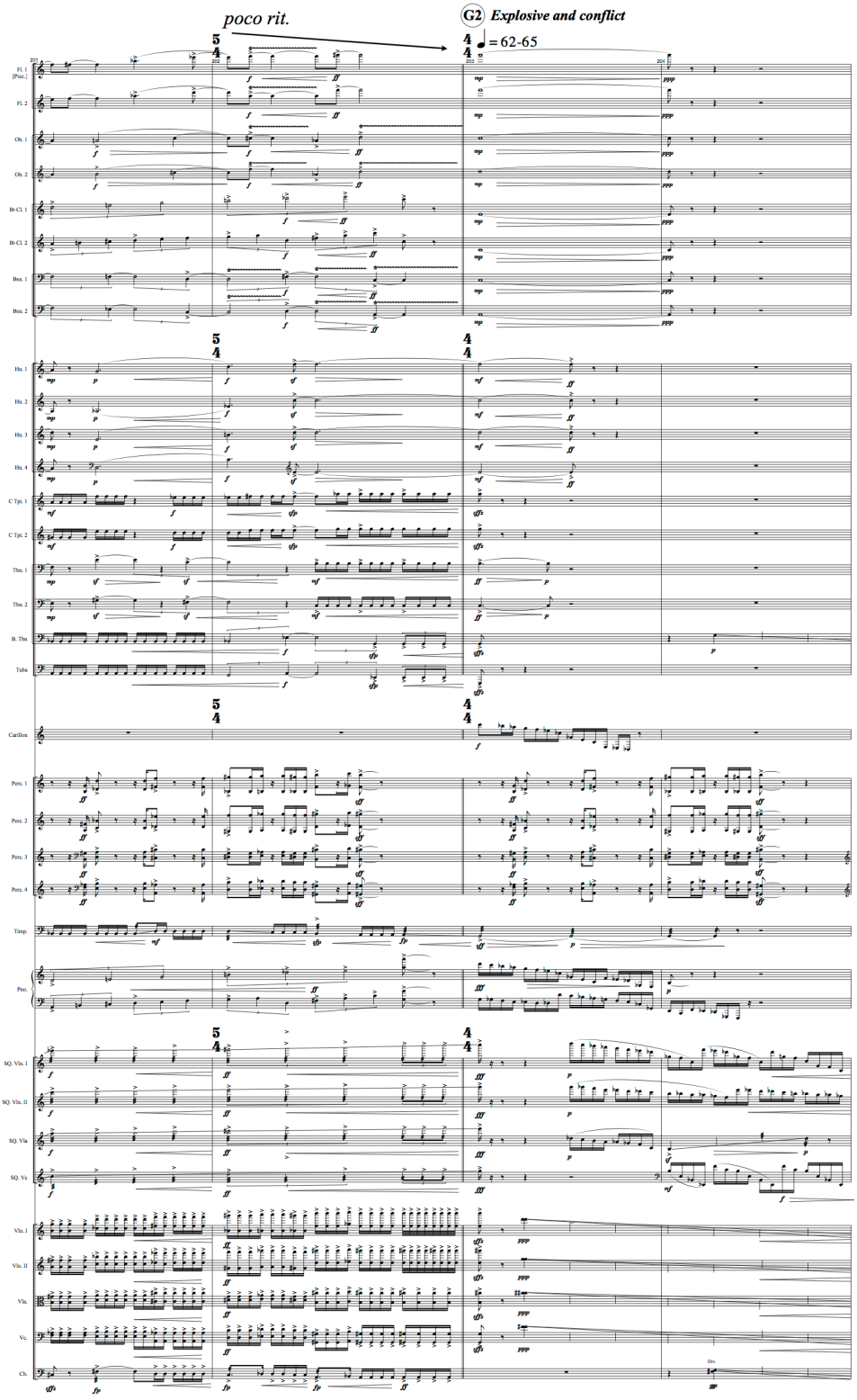

A2
Fl. 1
[Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.

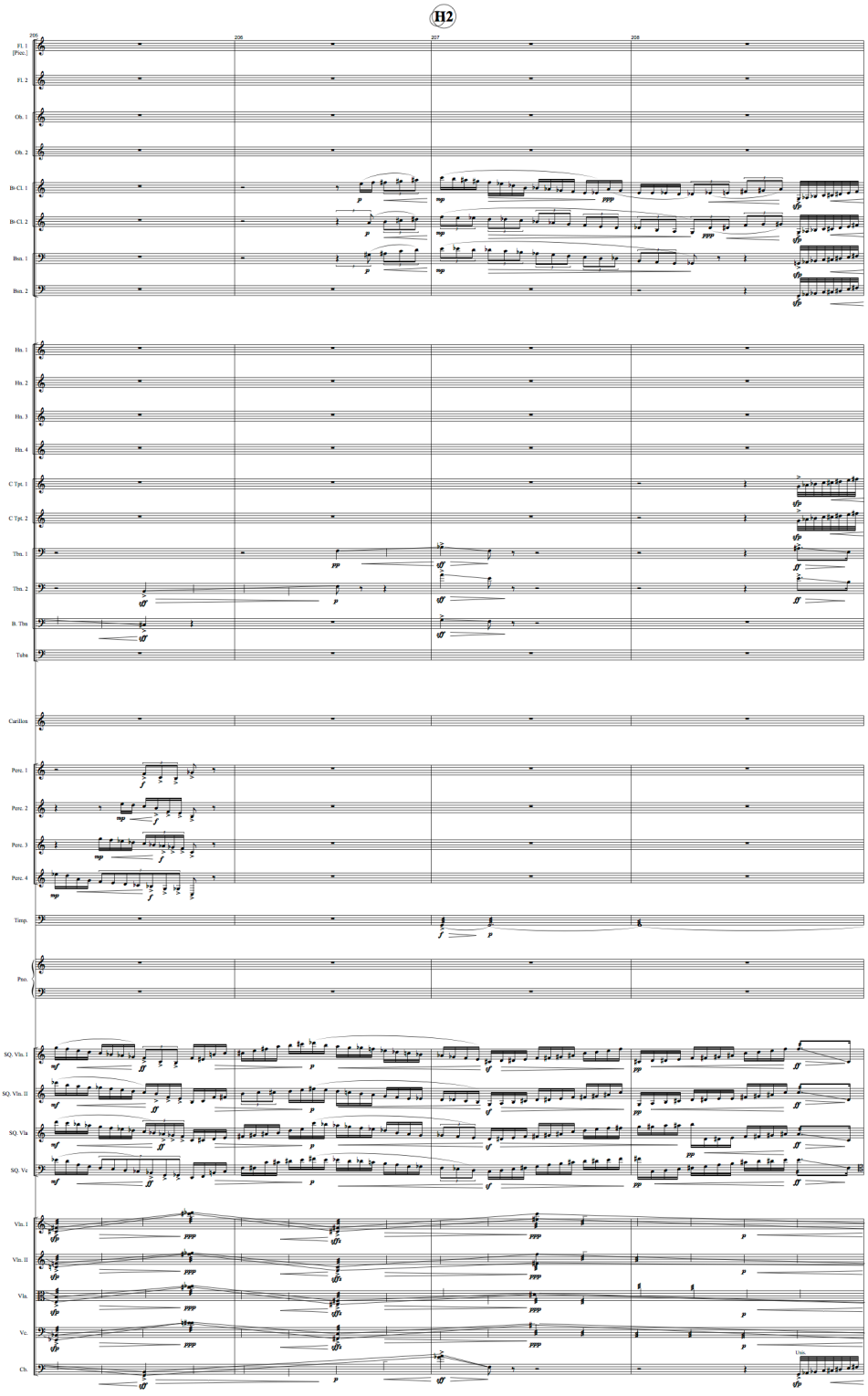

B2
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

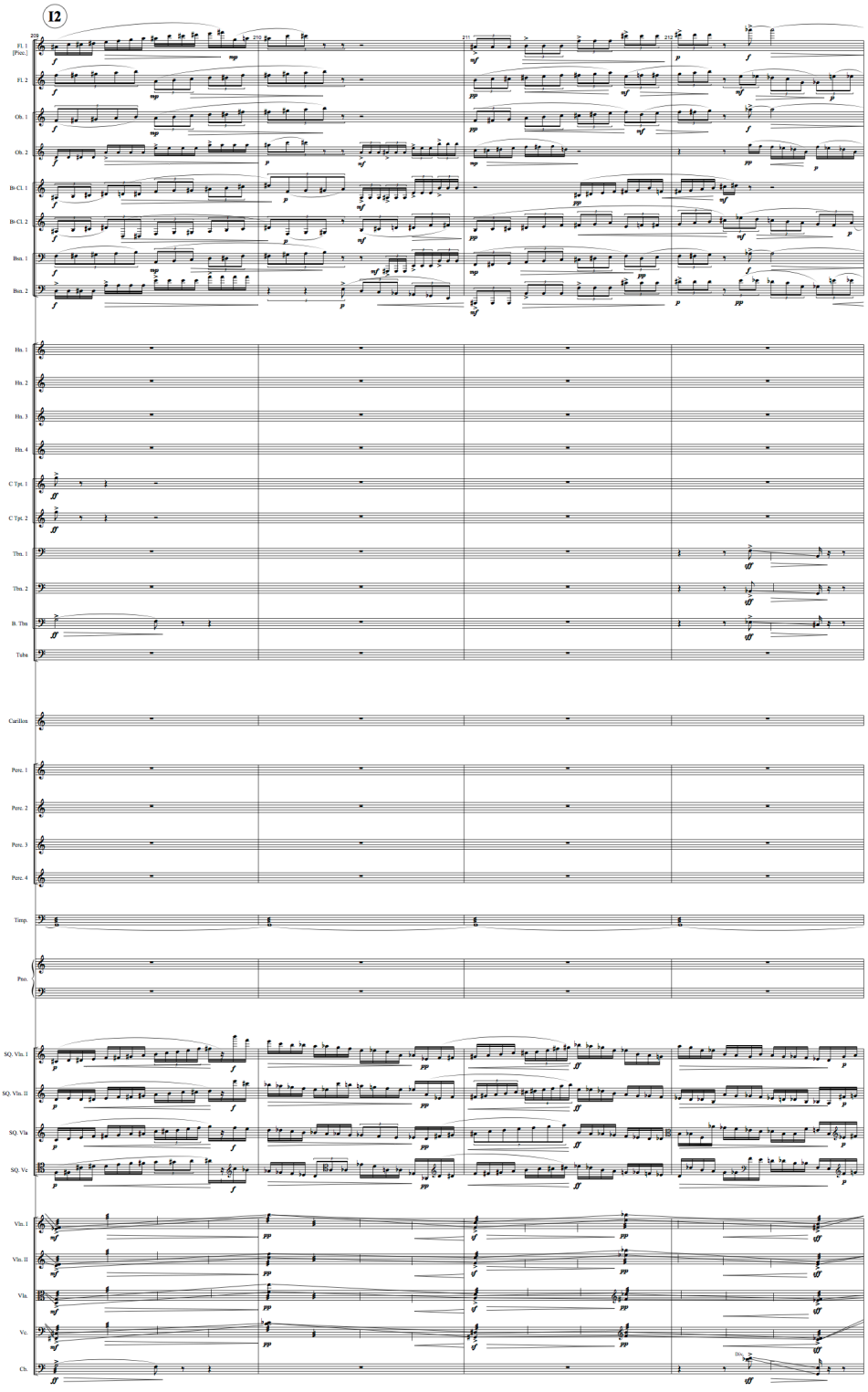

C2
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

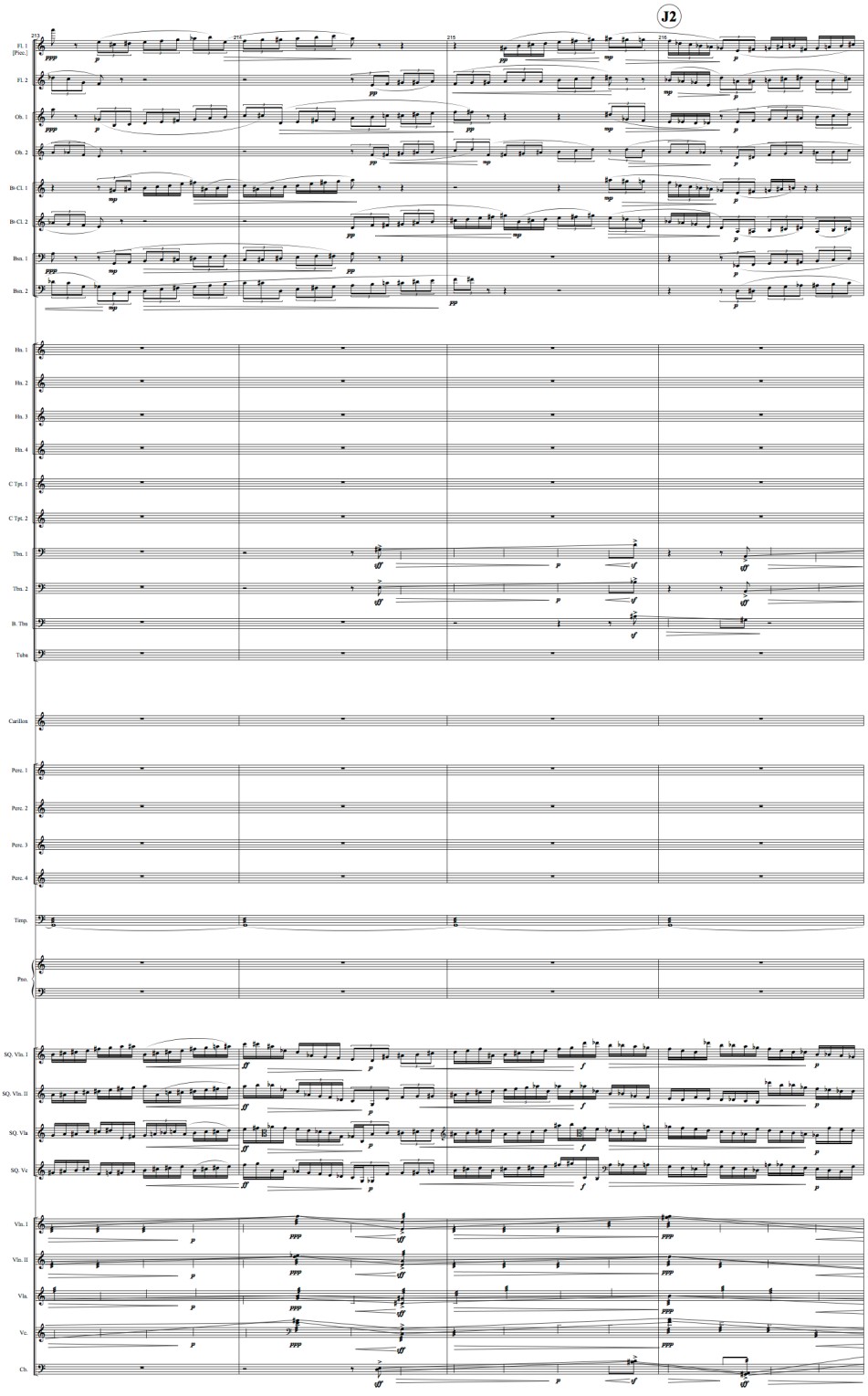

D2
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
Bb Cl. 1
Bb Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

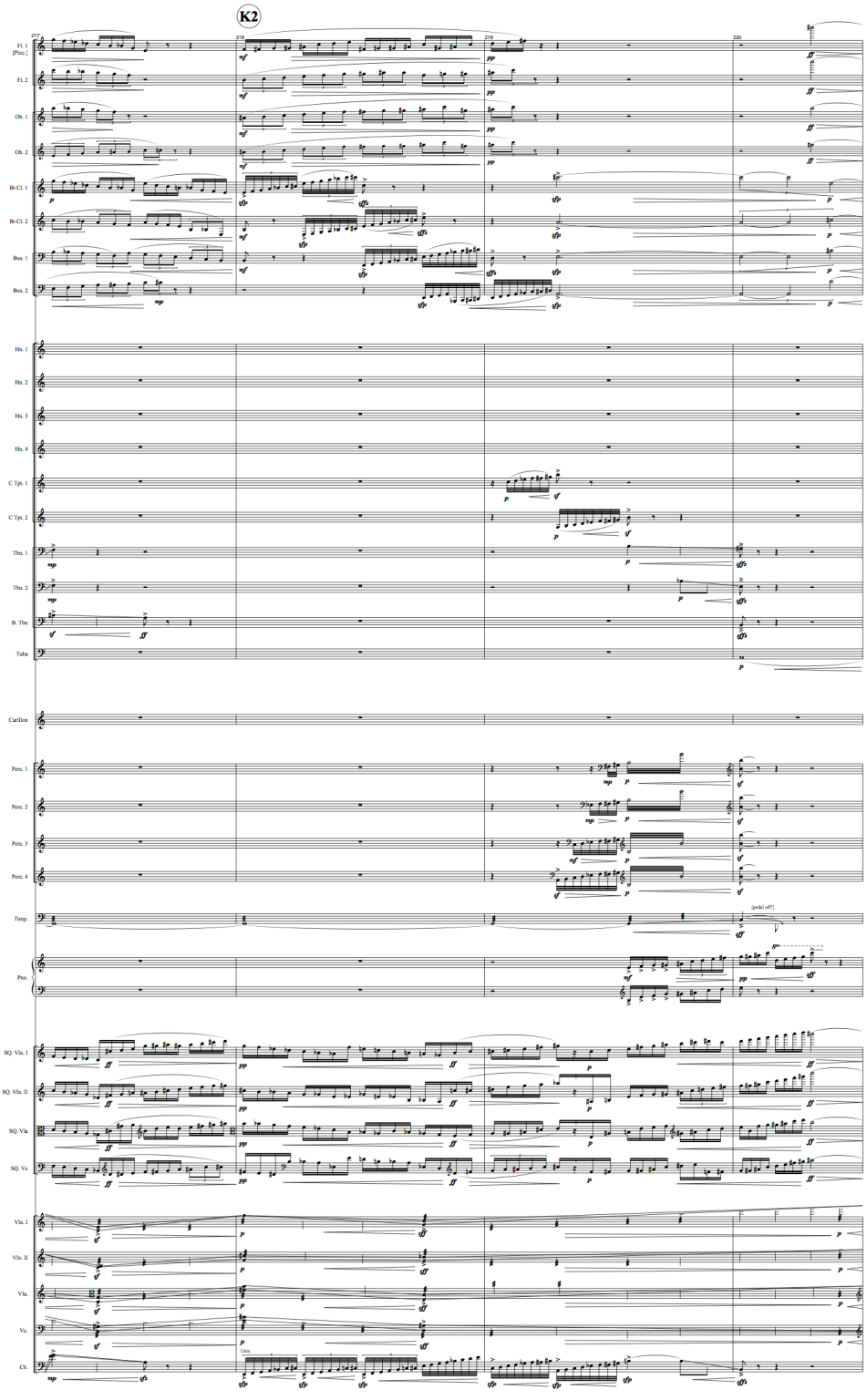

E2
F2
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
[without mute]
[without mute]
Div.

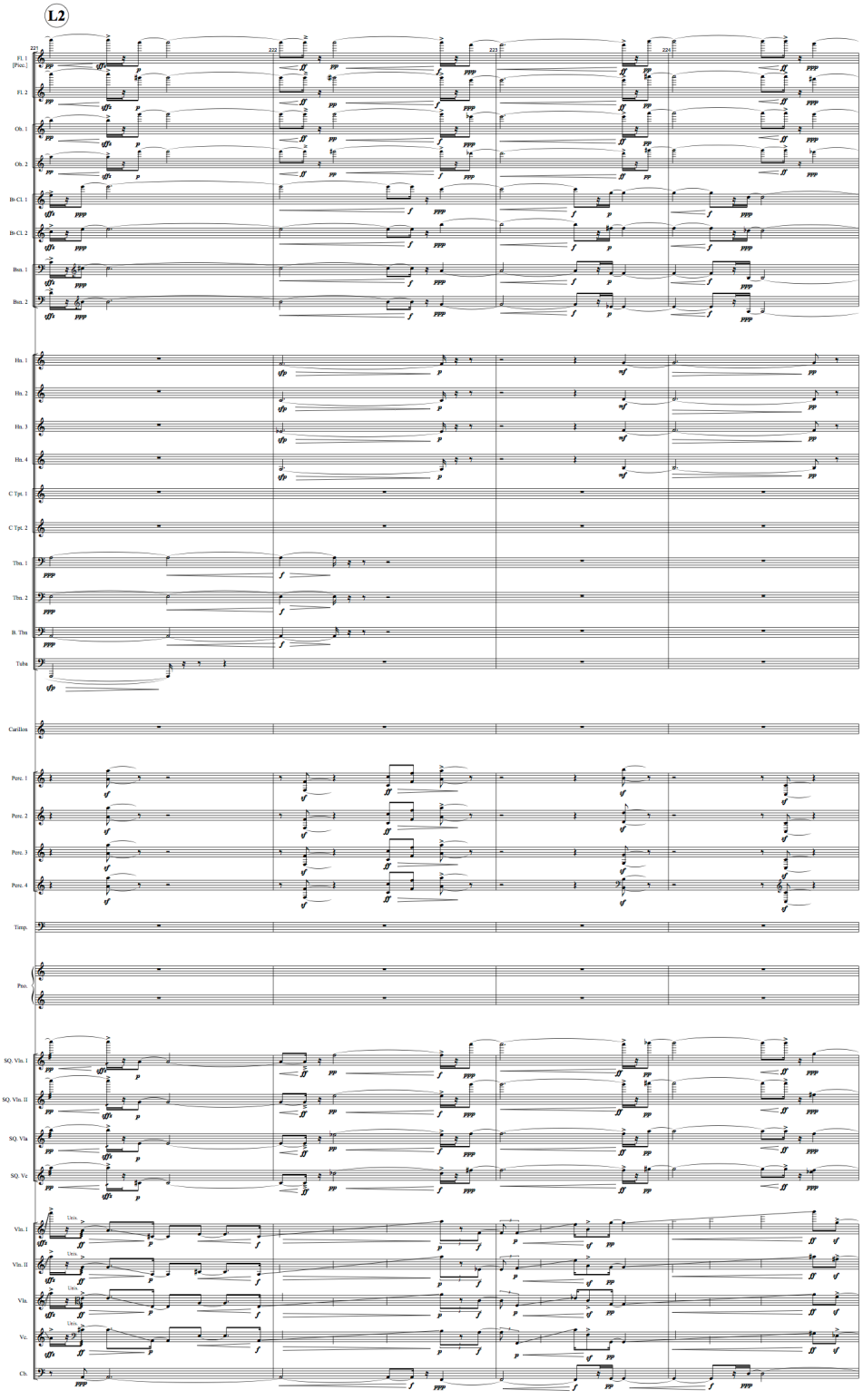

poco rit.
G2
Explosive and conflict
= 62-65
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.

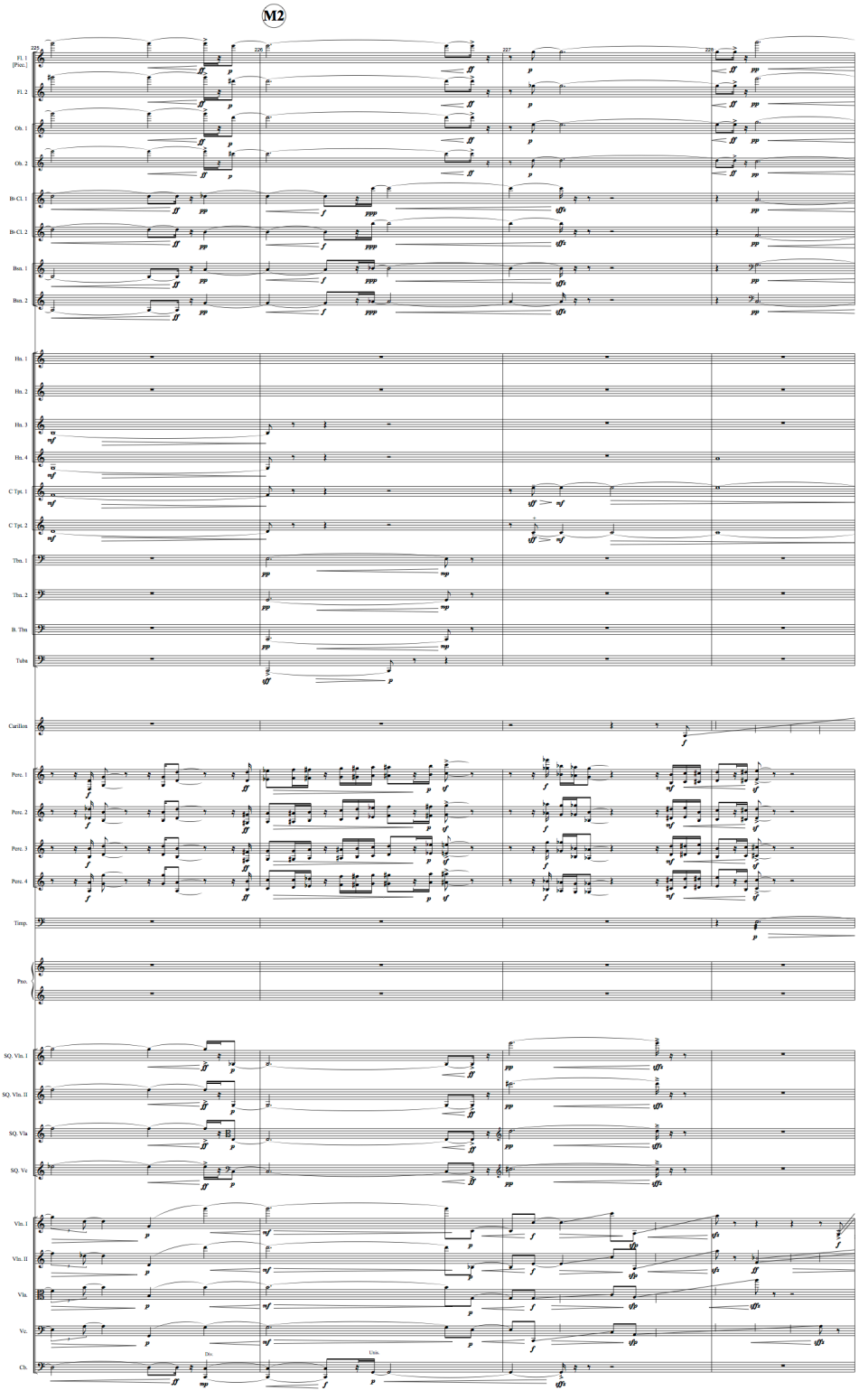

H2
205
206
207
208
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.

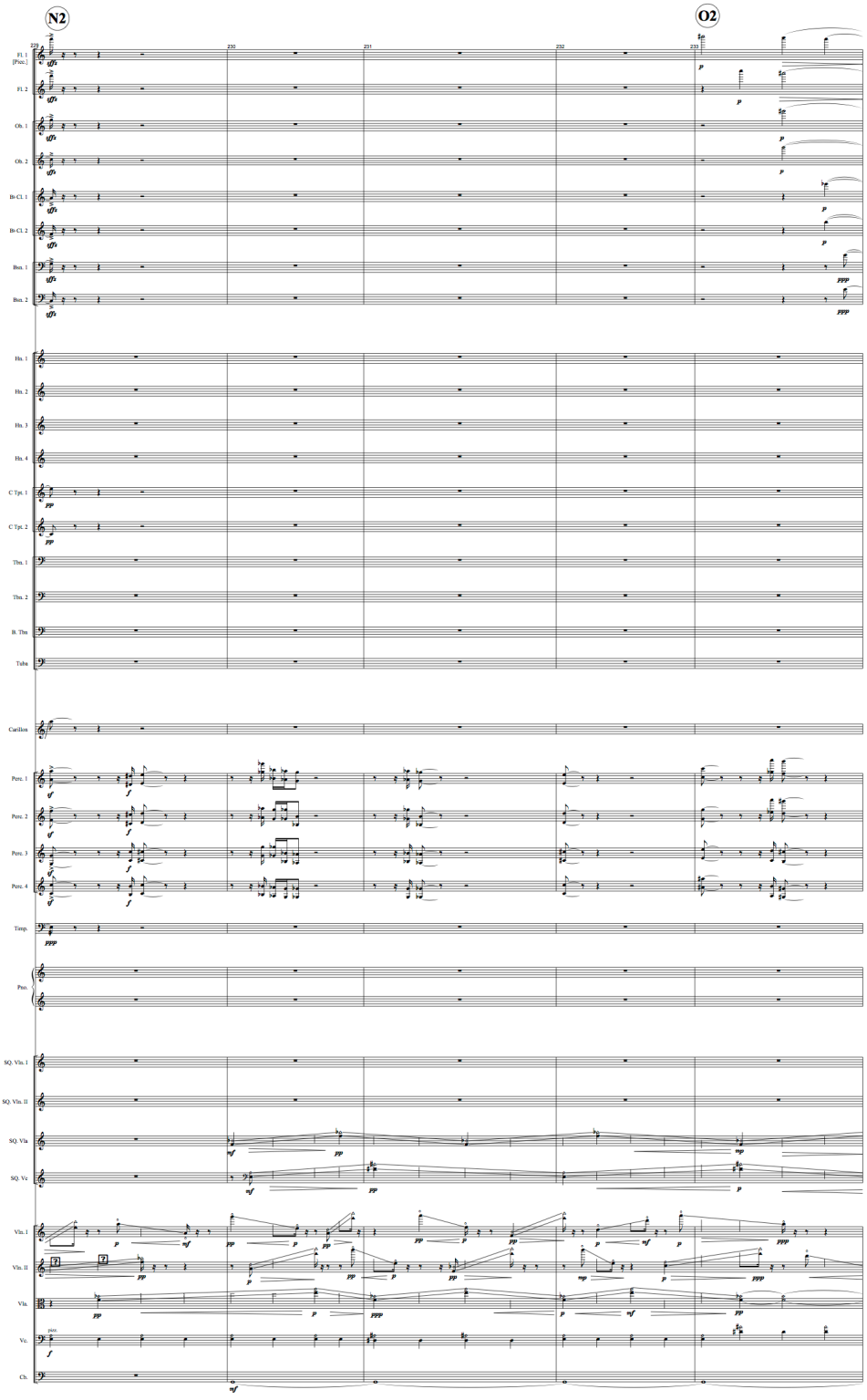

12
209
210
211
212
Fl. 1
[Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

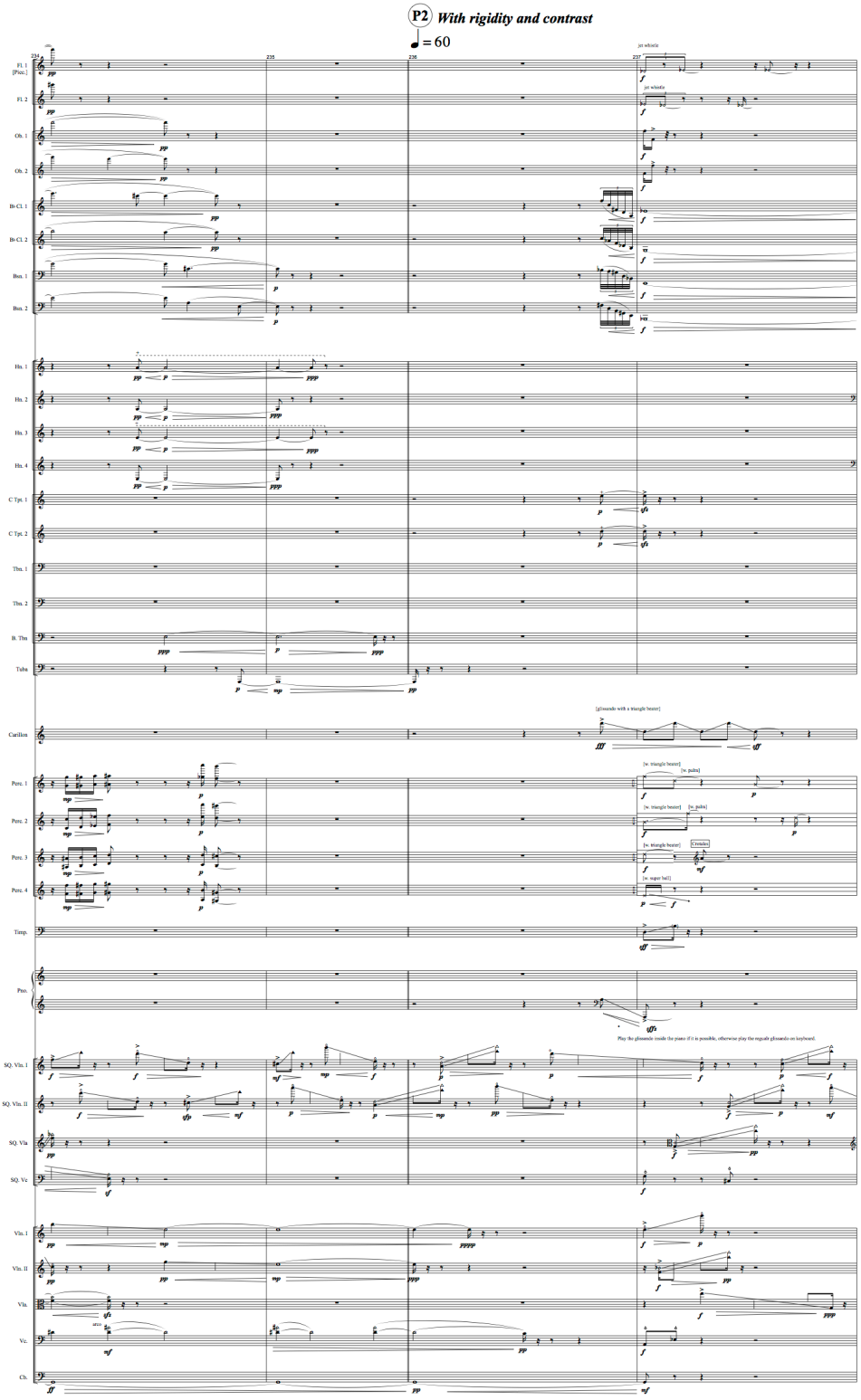

J2
214
215
216
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

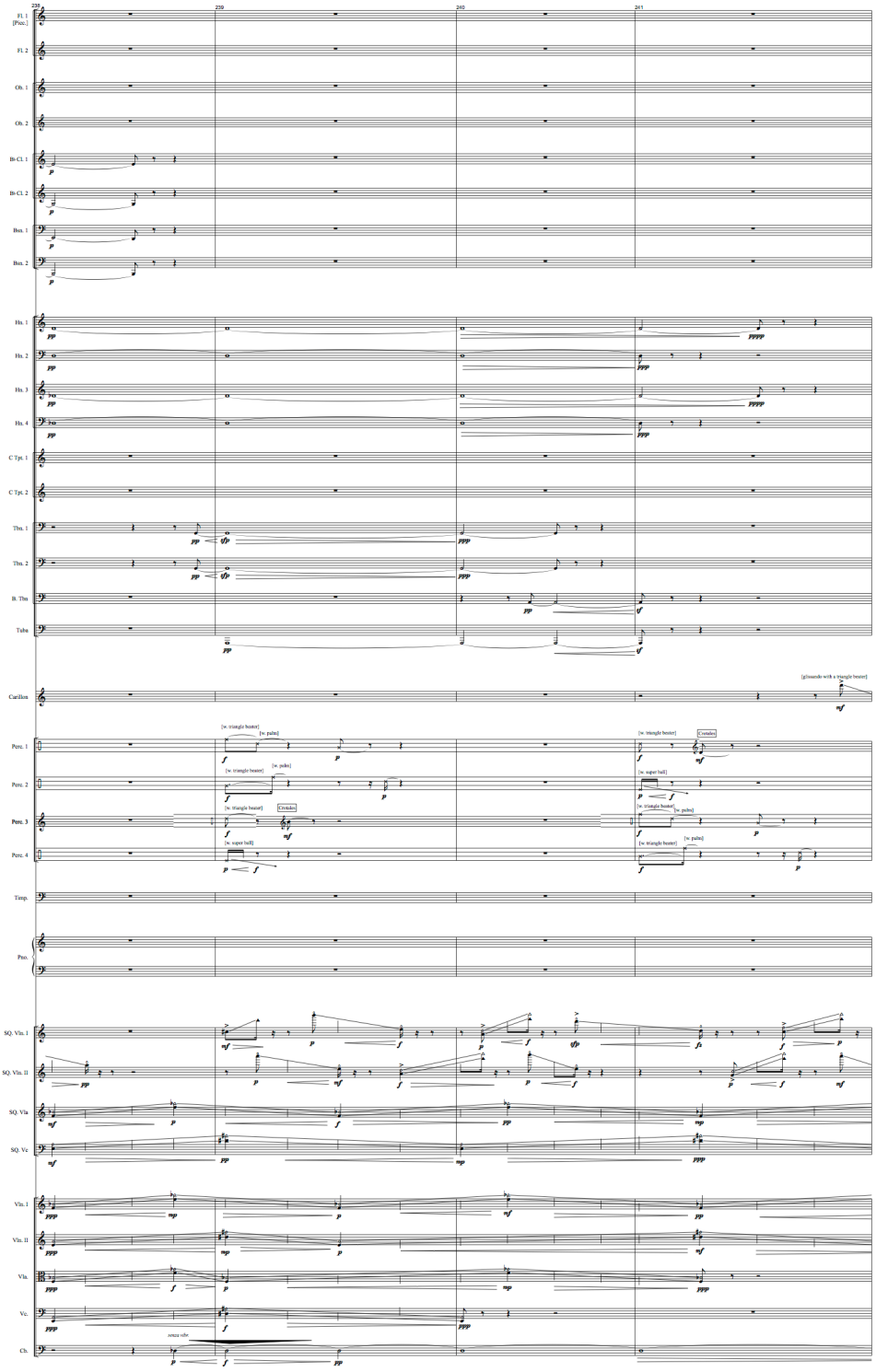

K2
217
218
219
220
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
[pedal off]
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Ctrs.

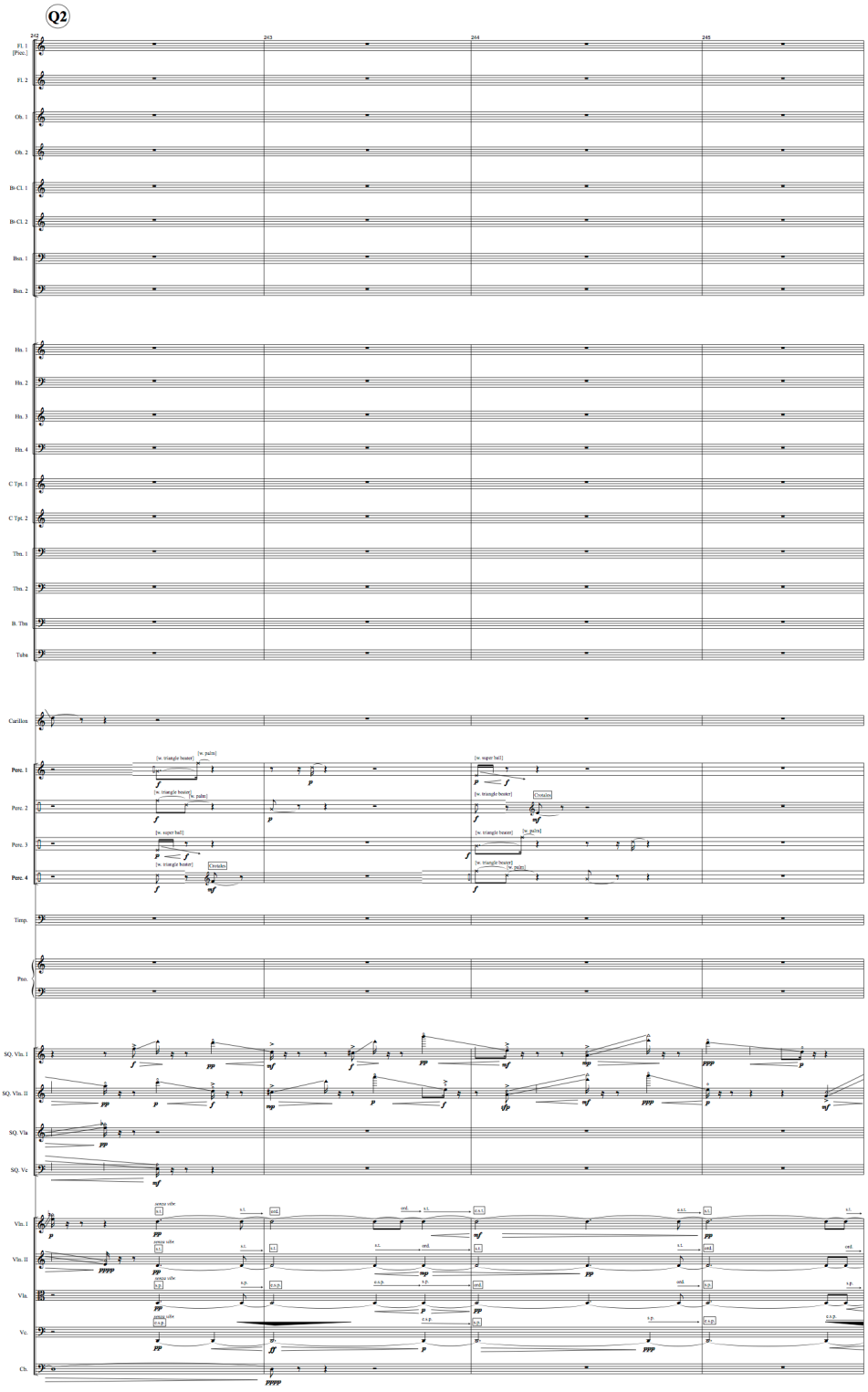

L2
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.
Unis.

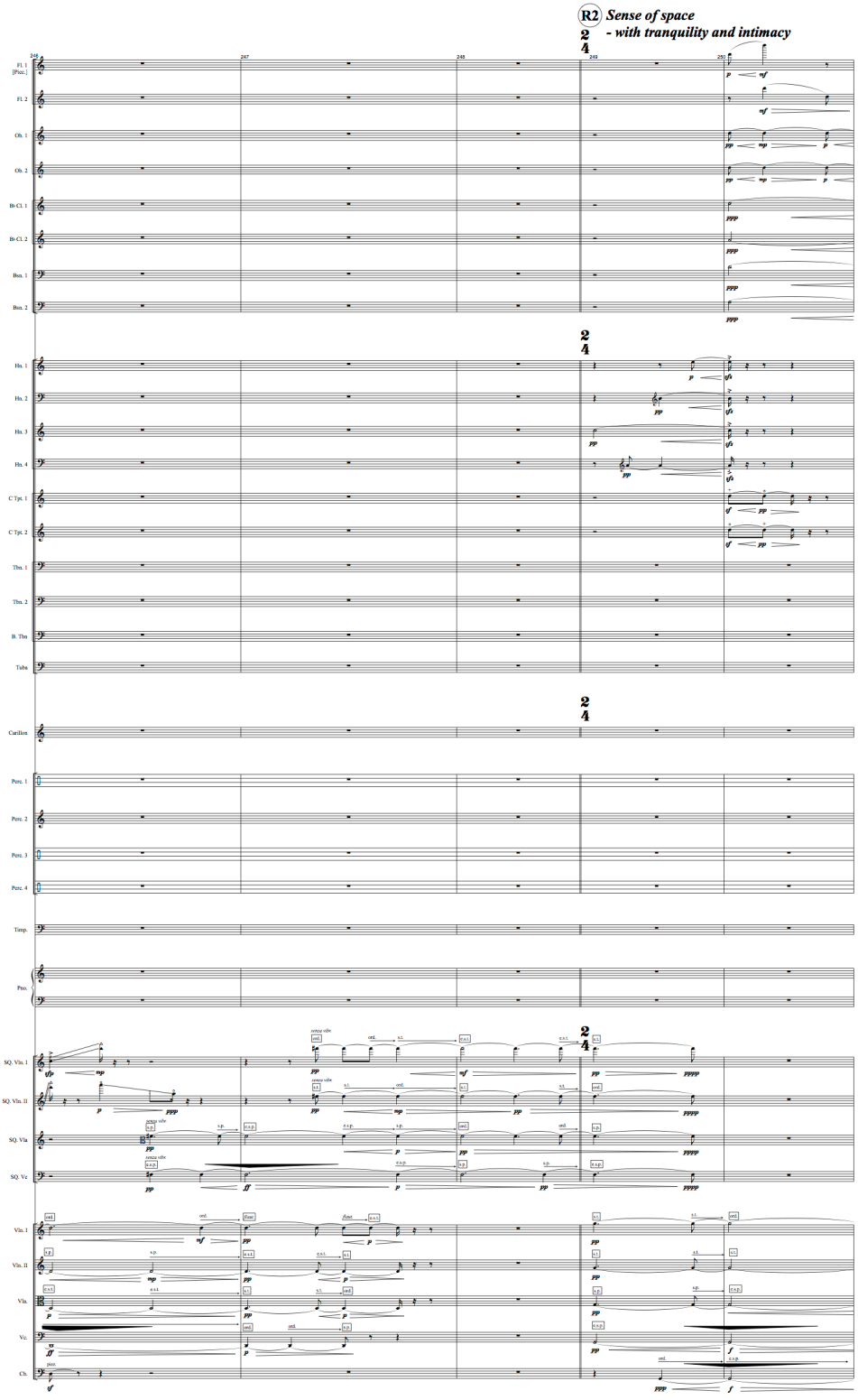

M2
225
226
227
228
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
Div.
Unis.

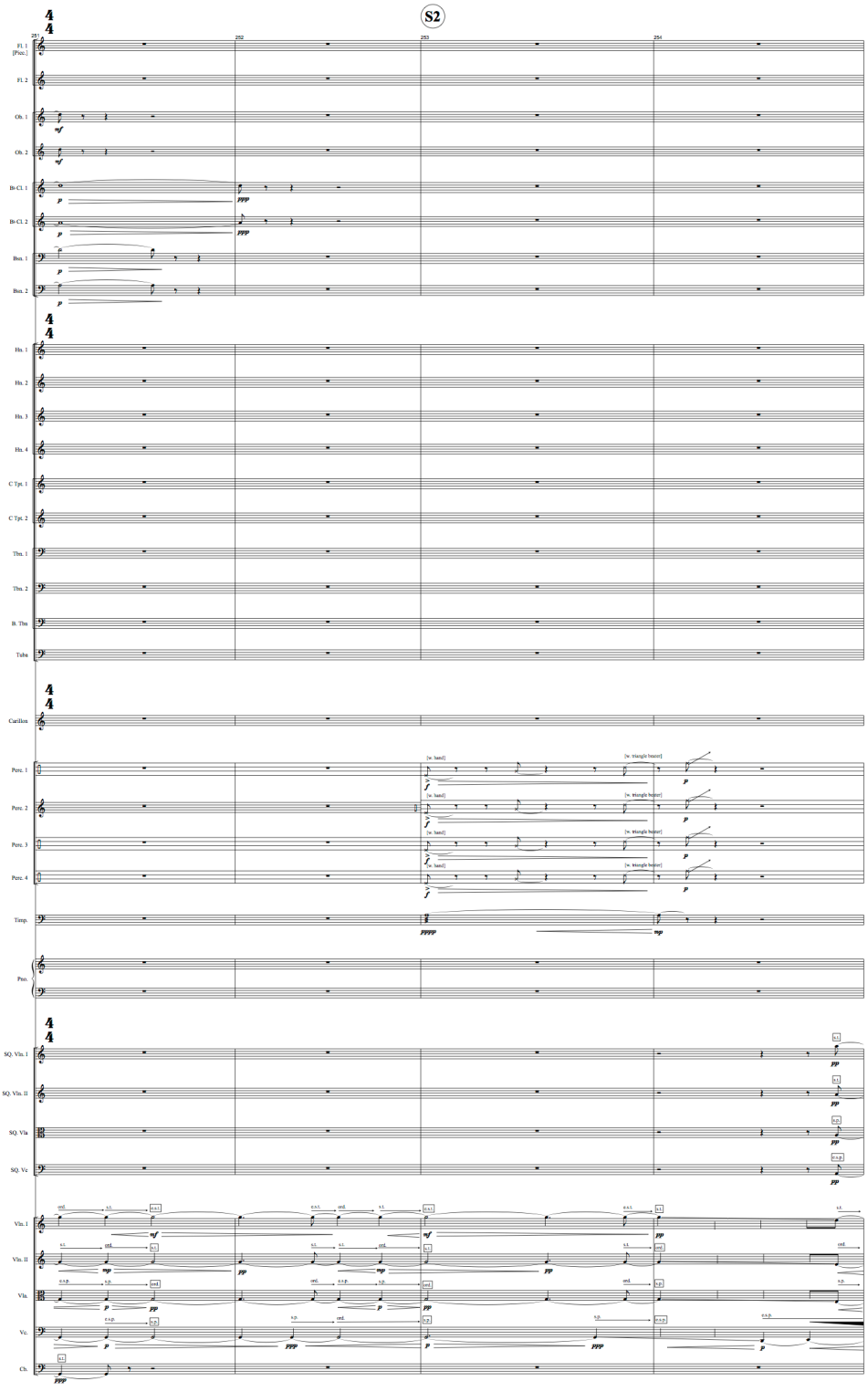

N2
O2
229
230
231
232
233
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

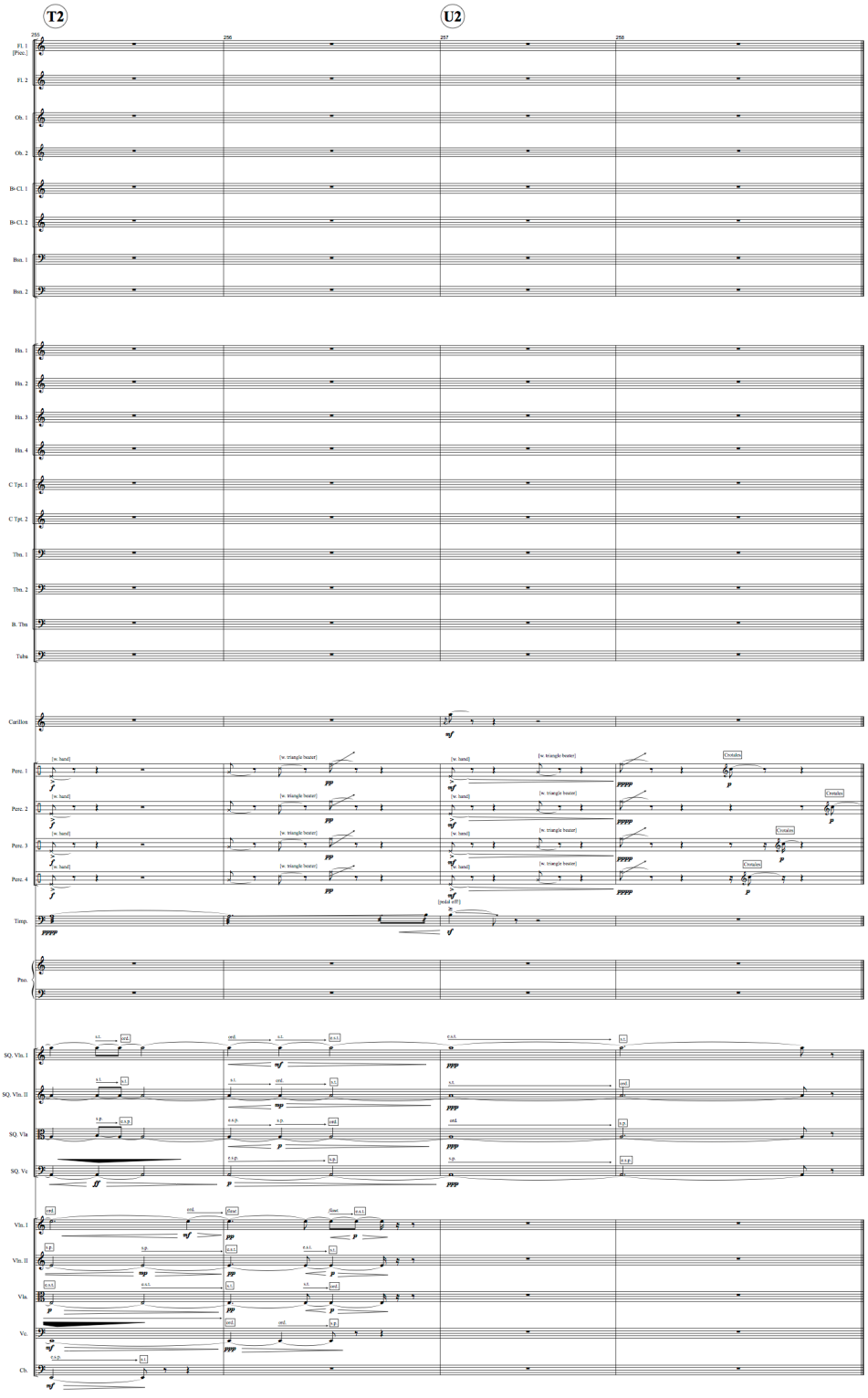

P2 With rigidity and contrast
♩ = 60
234
235
236
237
jet whistle
Fl. 1
[Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
[glissando with a triangle beater]
Perc. 1
Perc. 2
Perc. 3
Perc. 4
[w. triangle beater]
[w. palm]
[w. super ball]
Timp.
Pno.
Play the glissando inside the piano if it is possible, otherwise play the regular glissando on keyboard.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.


238
239
240
241
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
[glissando with a triangle beater]
Perc. 1
Perc. 2
Perc. 3
Perc. 4
[w. triangle beater]
[w. palm]
[w. super ball]
Crotales
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
senza vibr.

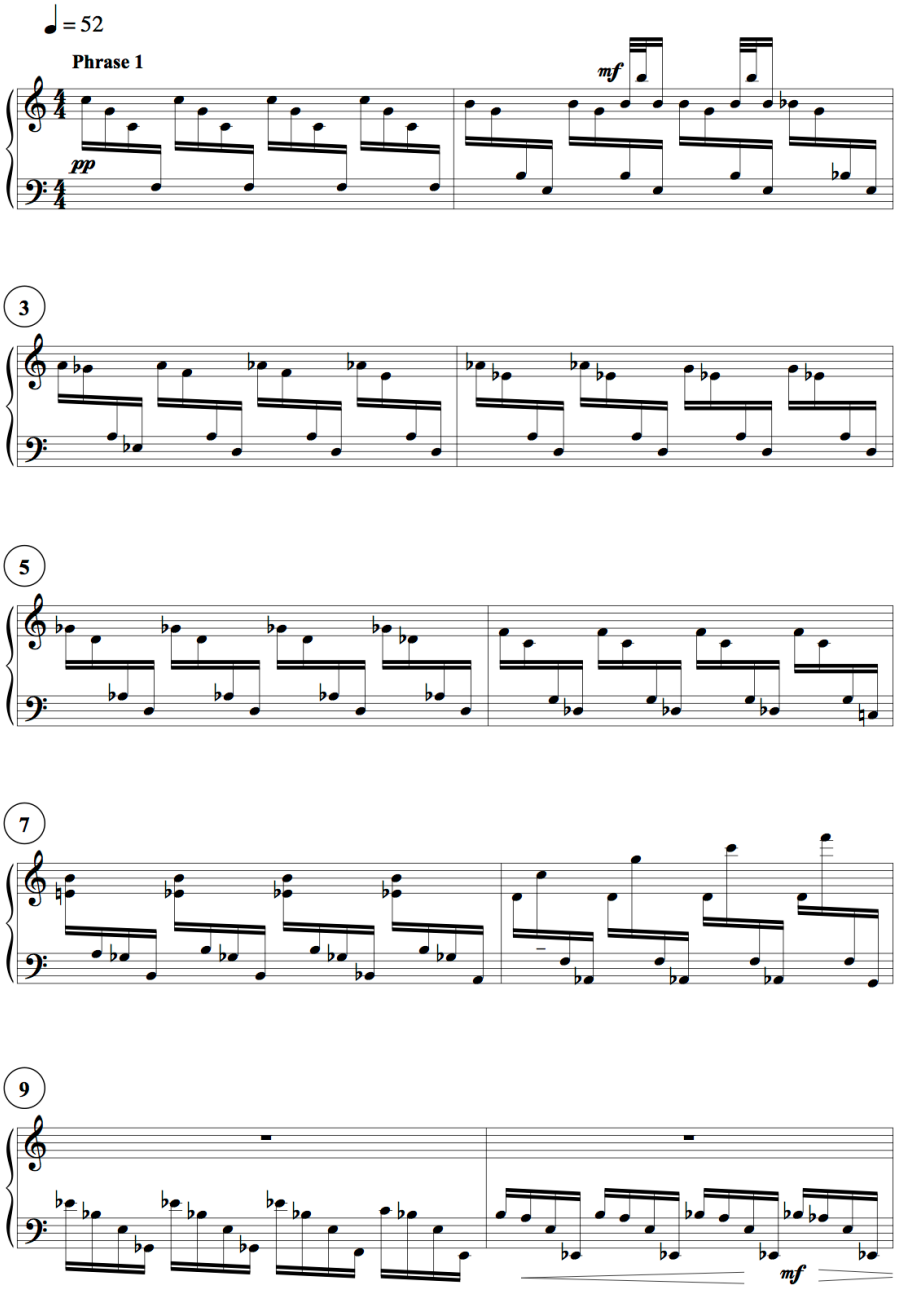

Q2
242
243
244
245
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

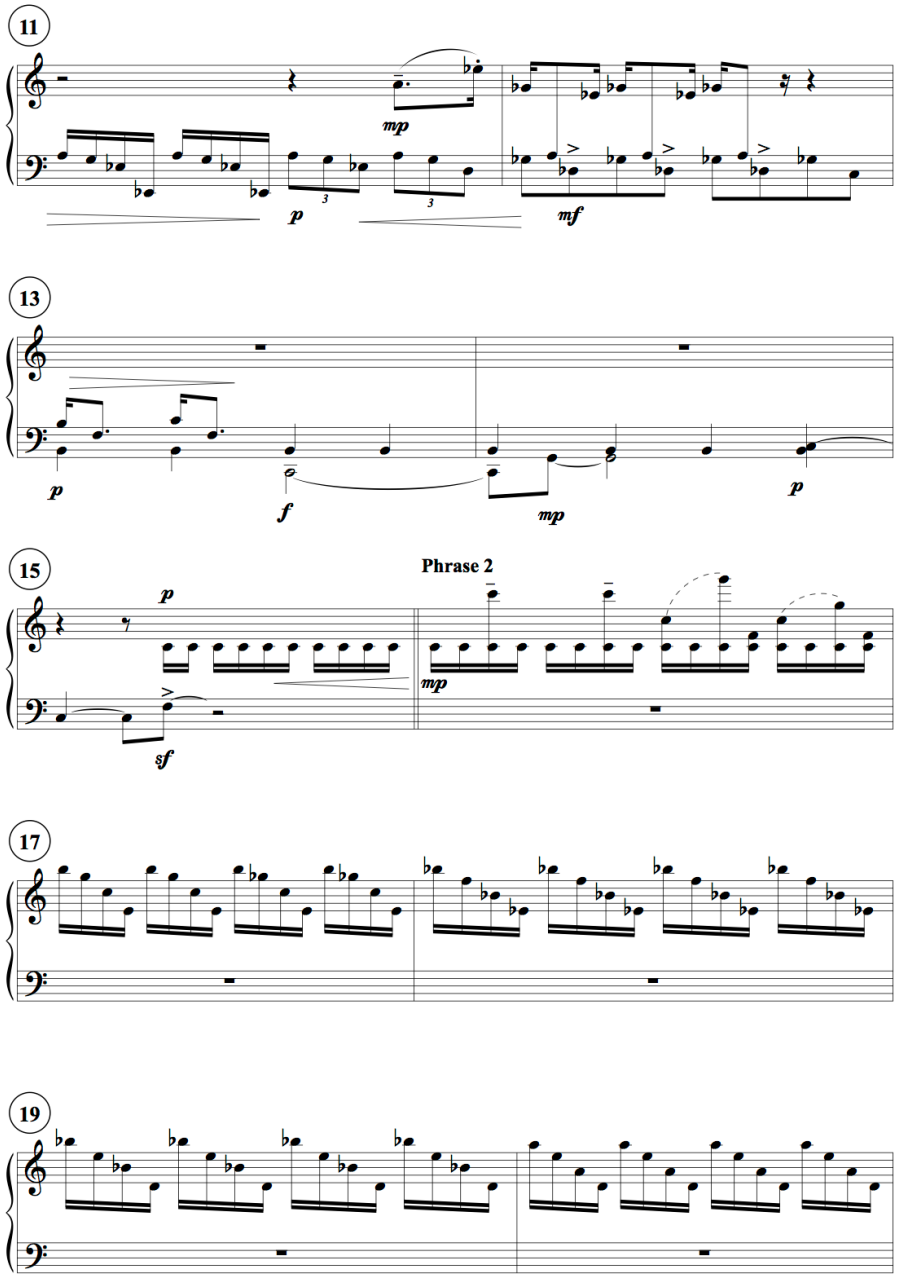

R2
Sense of space
- with tranquility and intimacy
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc.
Vln. I
Vln. II
Vla.
Vc.
Cb.

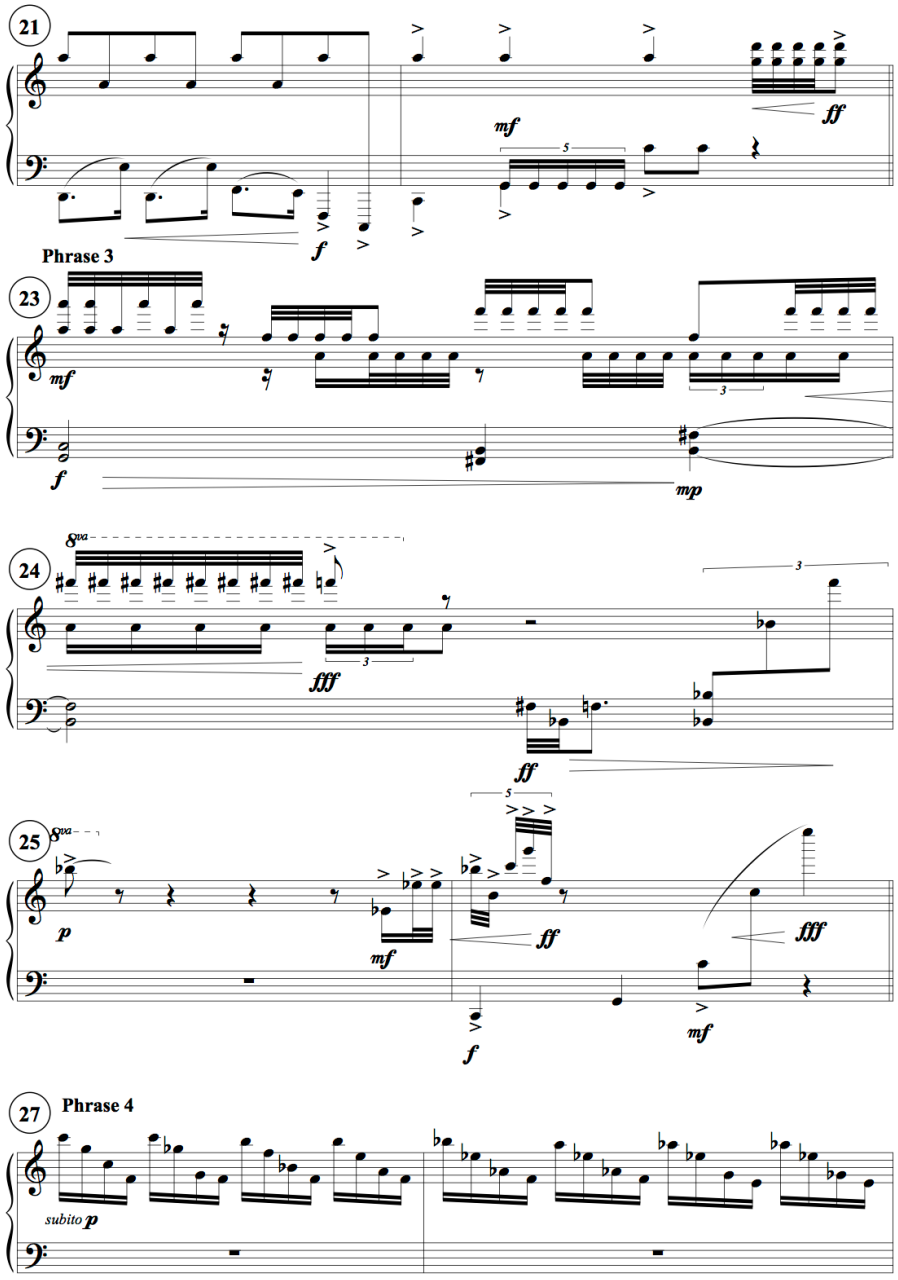

S2
251
252
253
254
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.

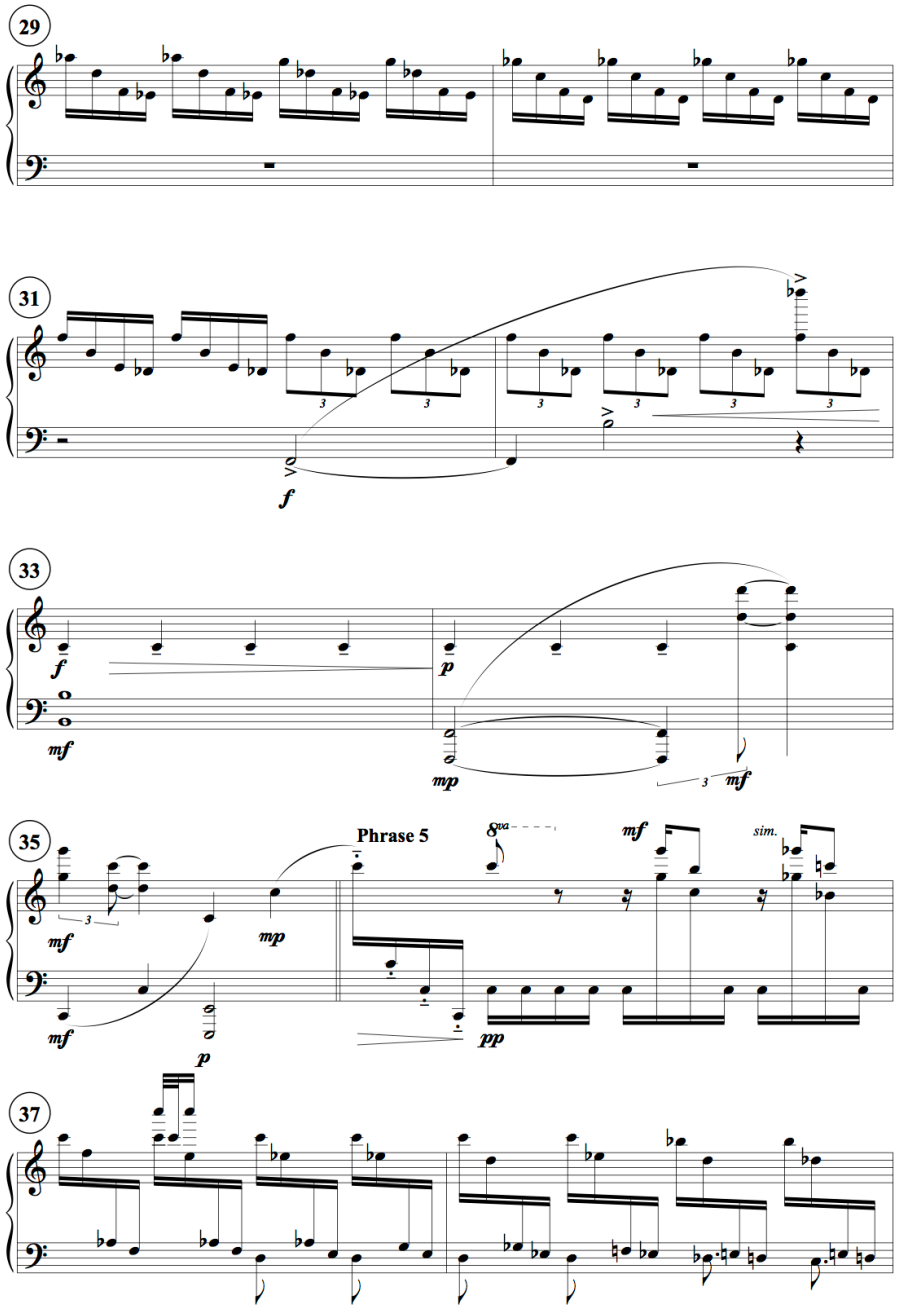

T2
U2
255
256
257
258
Fl. 1 [Picc.]
Fl. 2
Ob. 1
Ob. 2
B♭ Cl. 1
B♭ Cl. 2
Bsn. 1
Bsn. 2
Hn. 1
Hn. 2
Hn. 3
Hn. 4
C Tpt. 1
C Tpt. 2
Tbn. 1
Tbn. 2
B. Tbn
Tuba
Carillon
Perc. 1
Perc. 2
Perc. 3
Perc. 4
Timp.
Pno.
SQ. Vln. I
SQ. Vln. II
SQ. Vla
SQ. Vc
Vln. I
Vln. II
Vla.
Vc.
Cb.
[w. hand]
[w. triangle beater]
Crotales
[molto riff.]

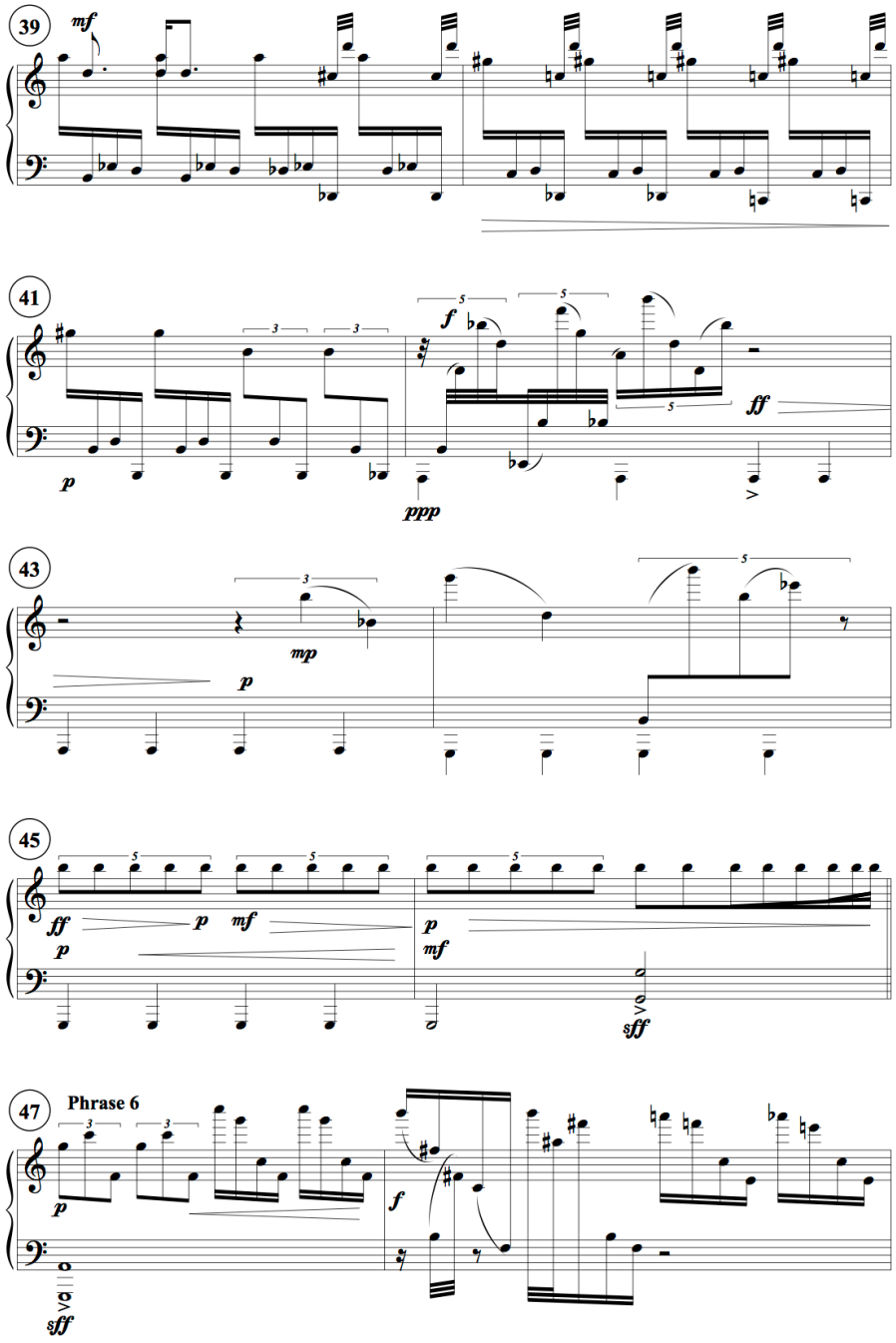
MUSIC SCORE 4: *THE CELESTIAL THREADS*

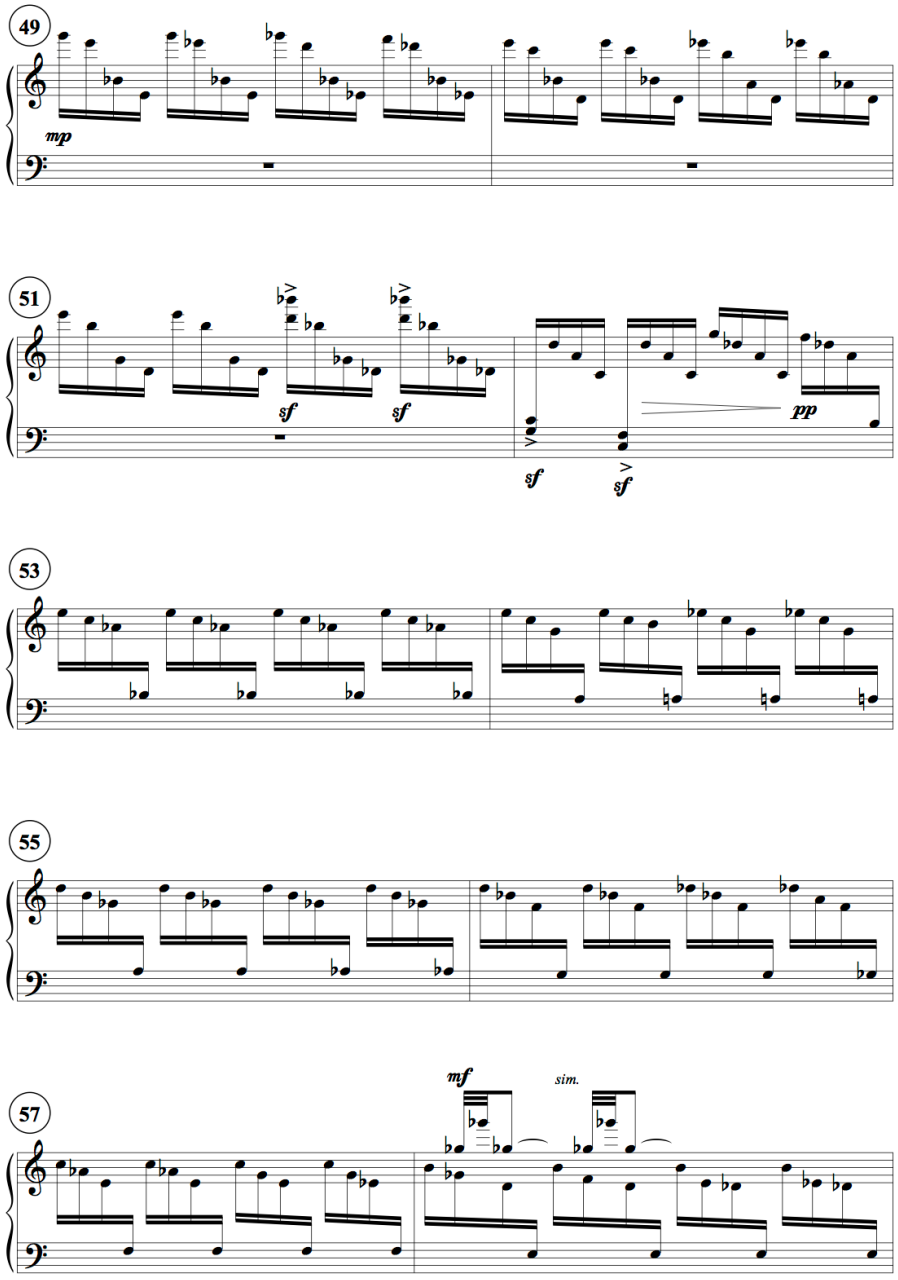

♩ = 52
Phrase 1
pp
mf
3
5
7
9
mf

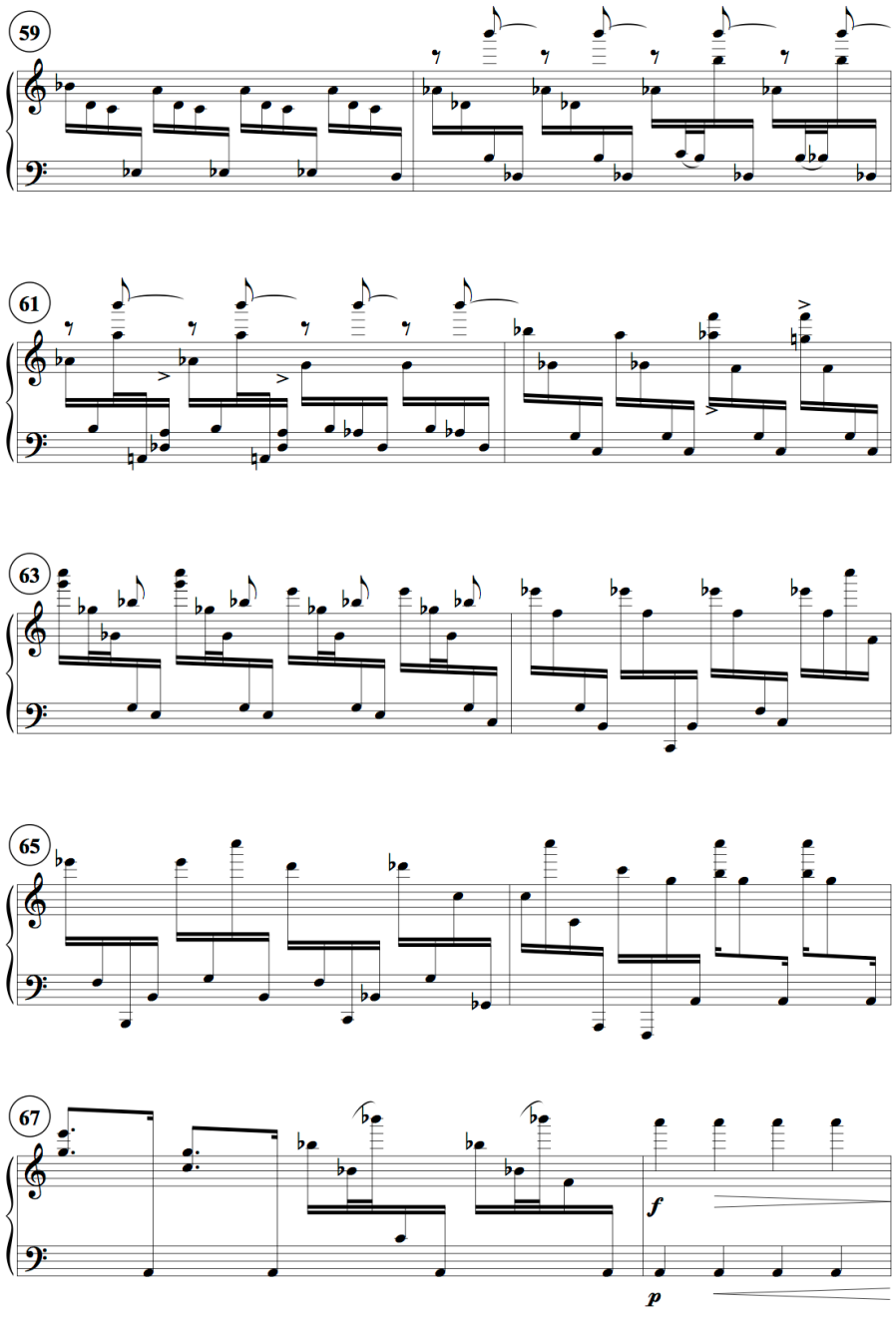

11
mp
p
mf
13
p
f
mp
p
15
Phrase 2
p
mp
sf
17
19

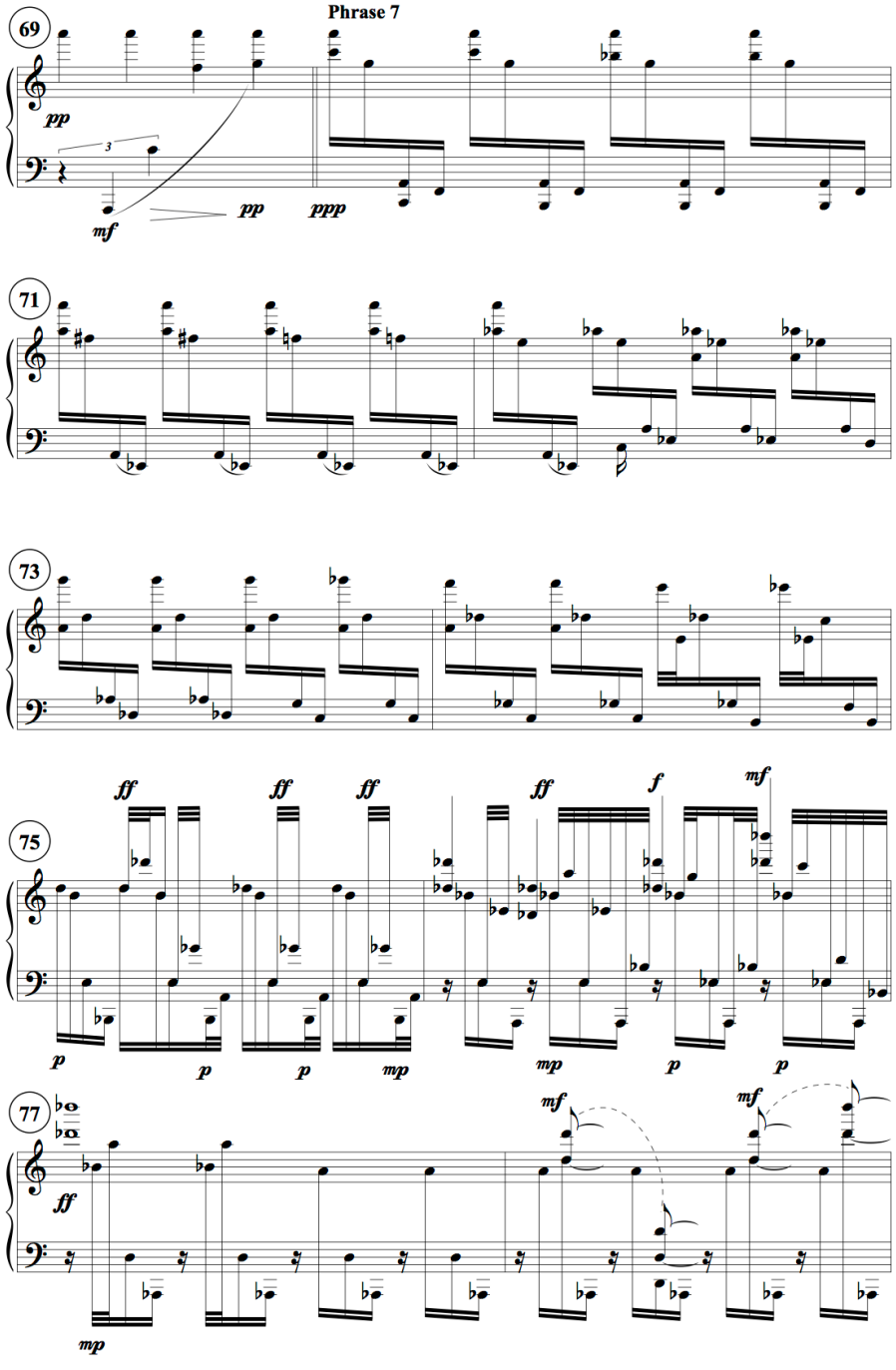

21
mf
ff
f
Phrase 3
23
mf
f
mp
24
8va
fff
ff
25
8va
p
mf
ff
fff
f
mf
27
Phrase 4
subito p

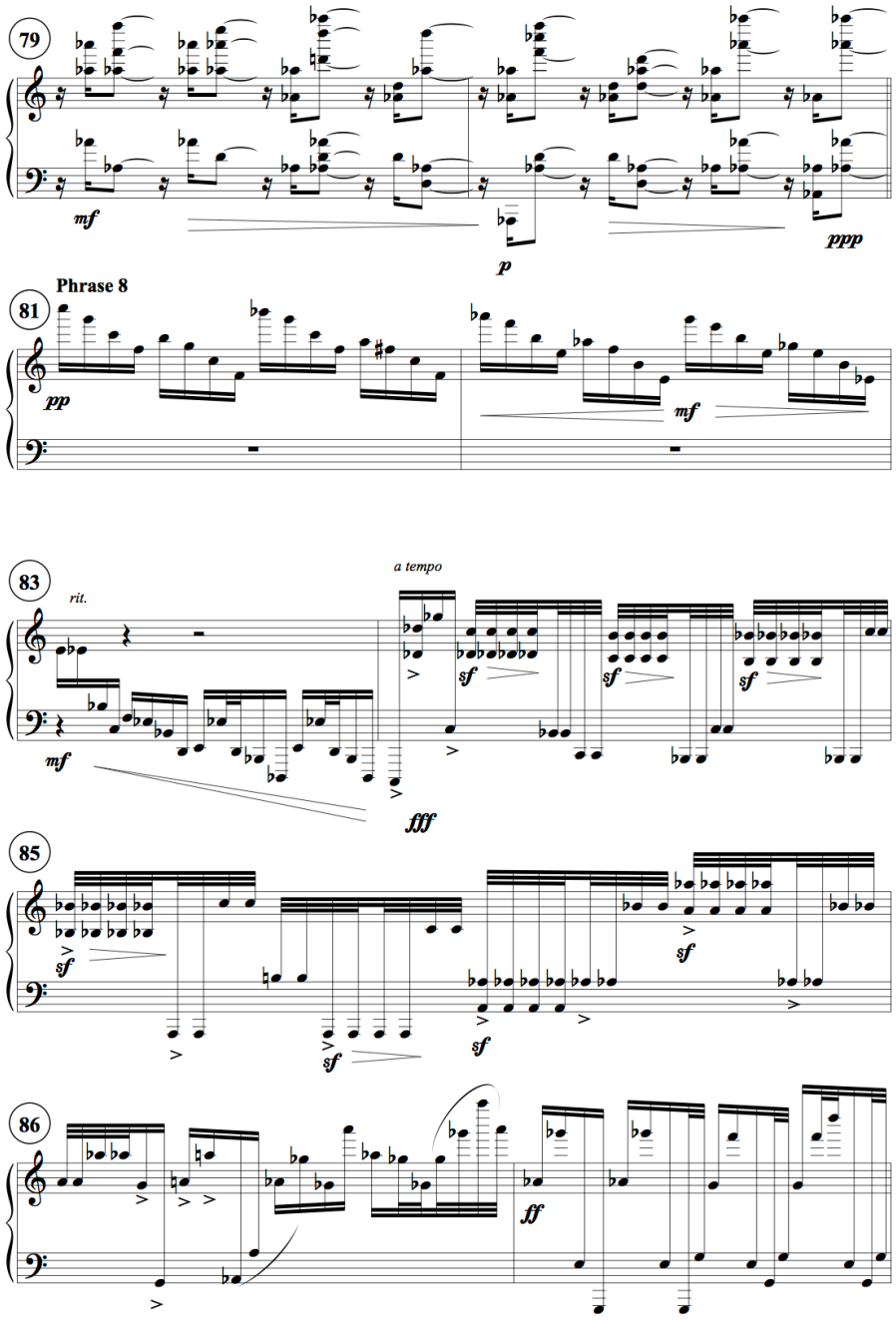

29
31
f
33
f
mf
p
mp
mf
35
mf
mp
Phrase 5
8va
mf
sim.
mf
p
pp
37

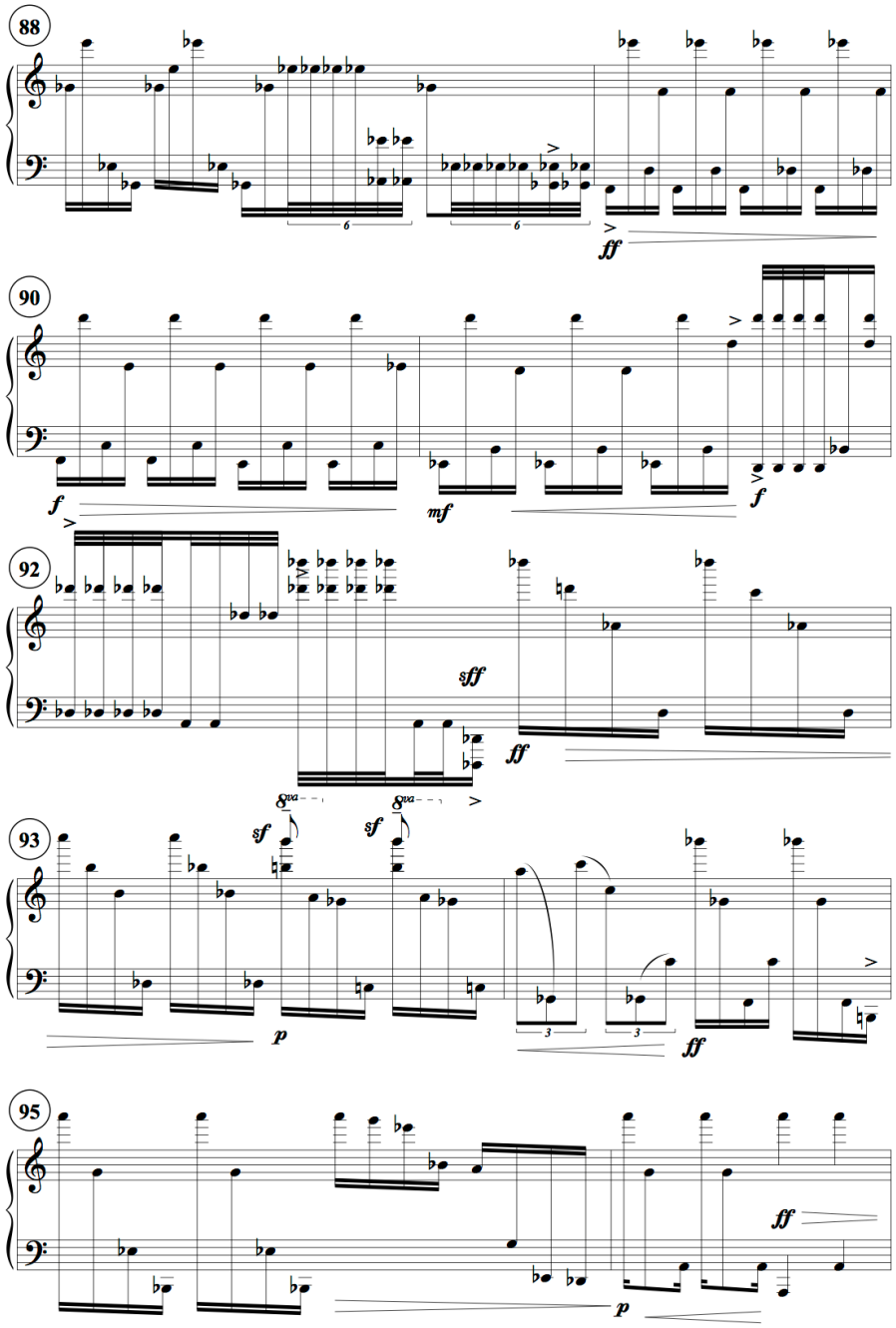

39
mf
41
p
f
ppp
ff
43
mp
p
45
ff
p
mf
sff
47
Phrase 6
sff

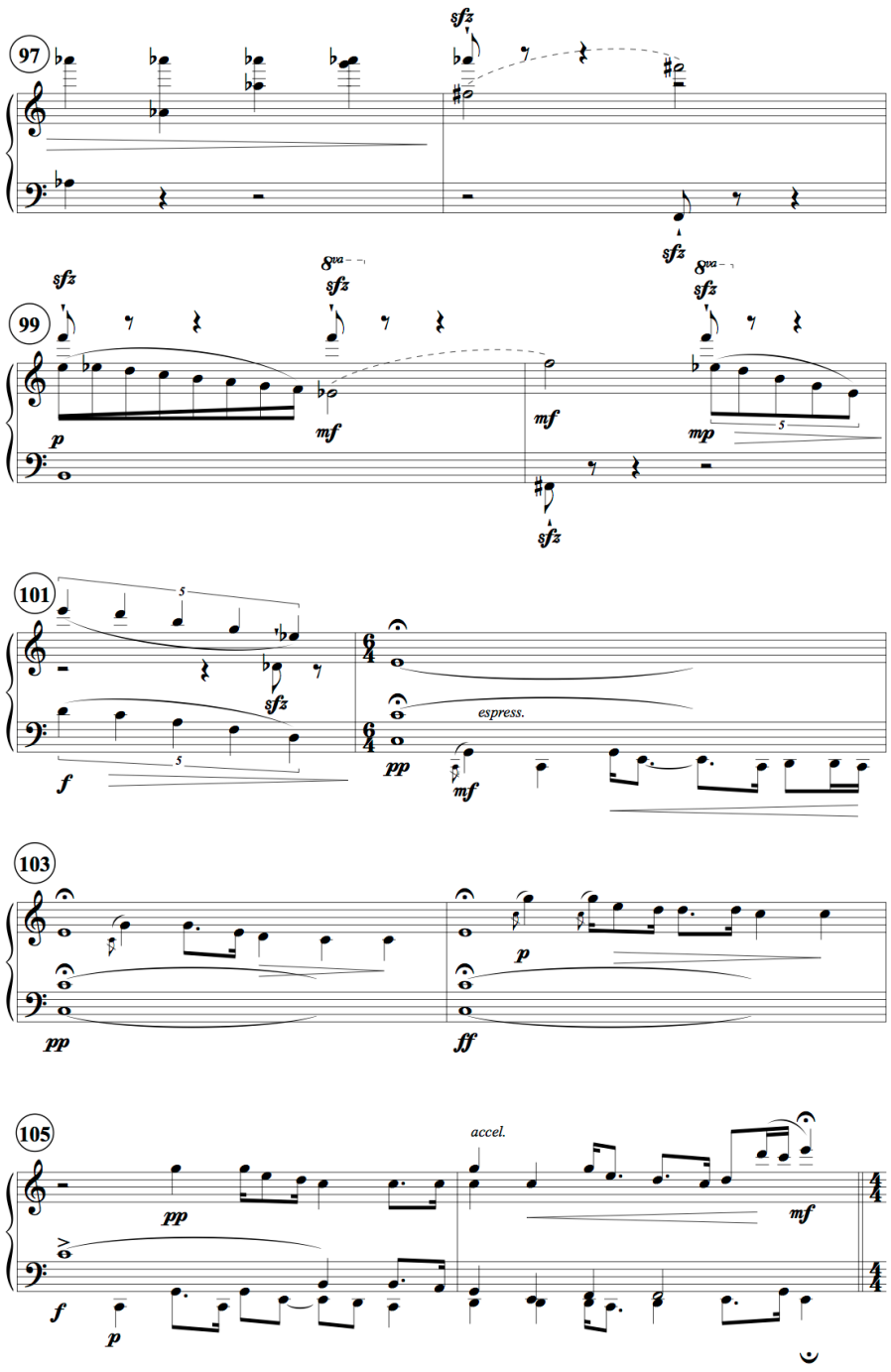

49
mp
51
sf
sf
sf
sf
pp
53
55
57
mf
sim.

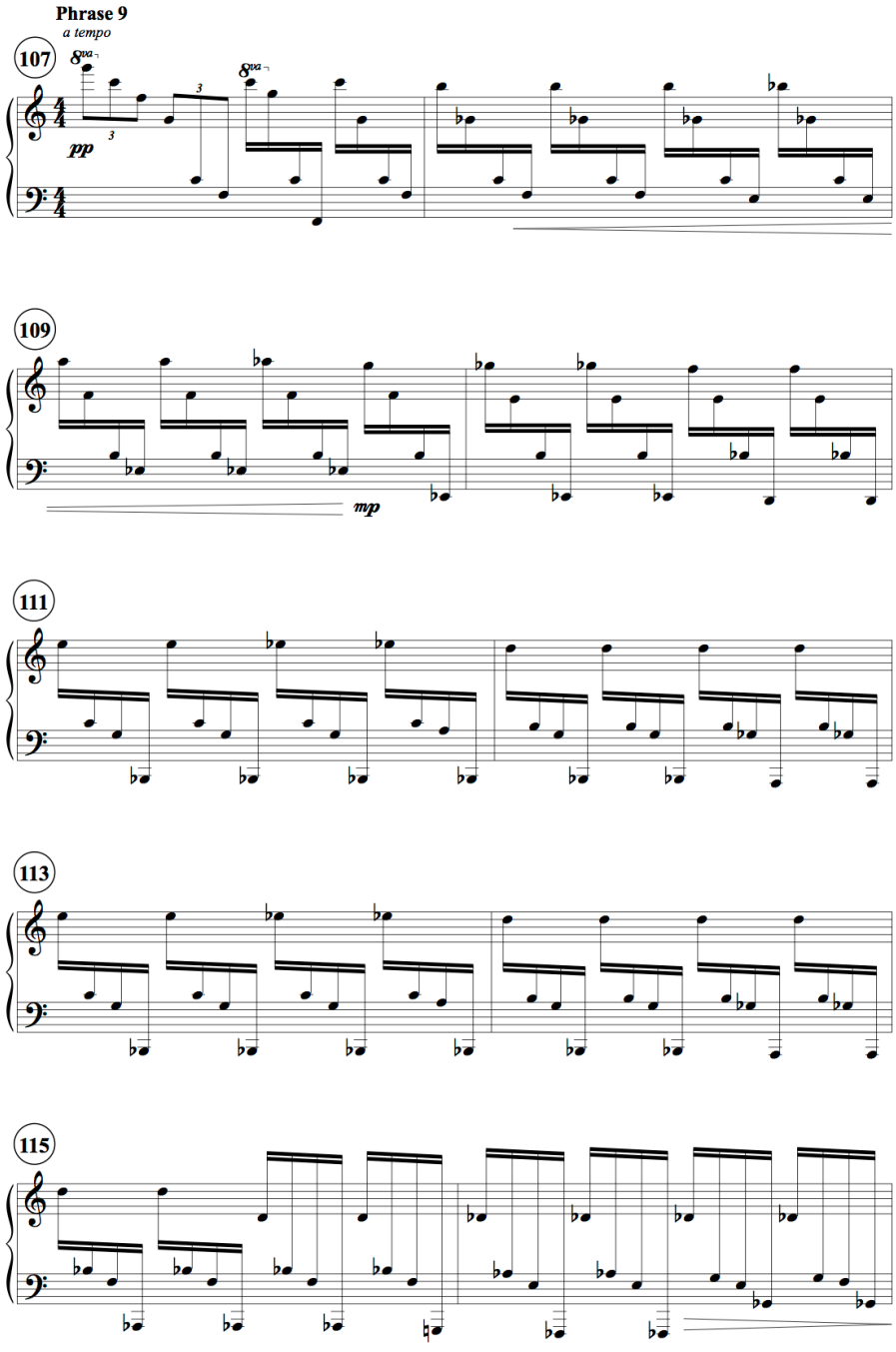

59
61
63
65
67
f
p

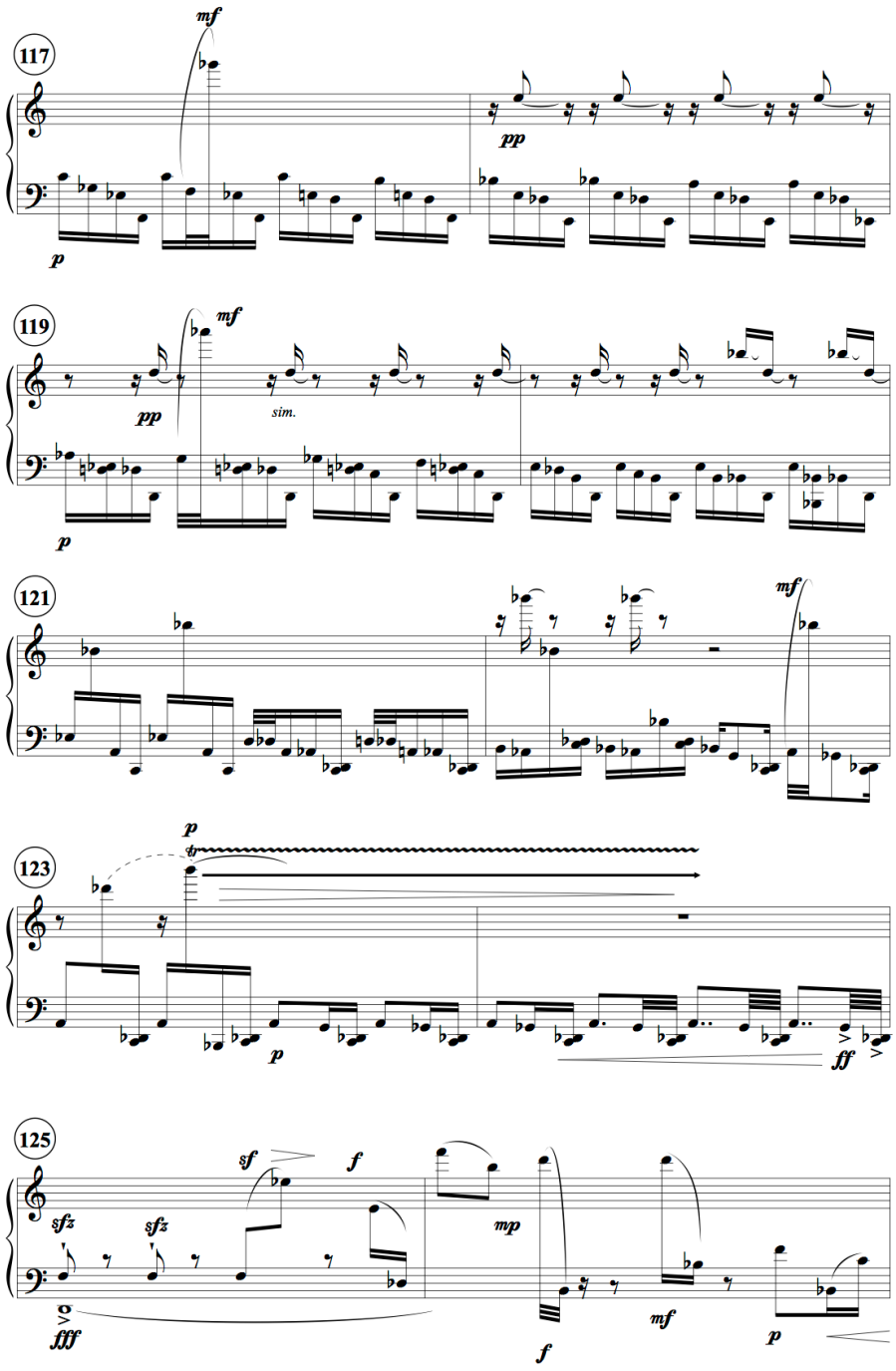

Phrase 7
69
pp
3
mf
pp
ppp
71
73
75
ff
ff
ff
ff
f
mf
p
p
p
mp
mp
p
p
77
ff
mf
mf
mp

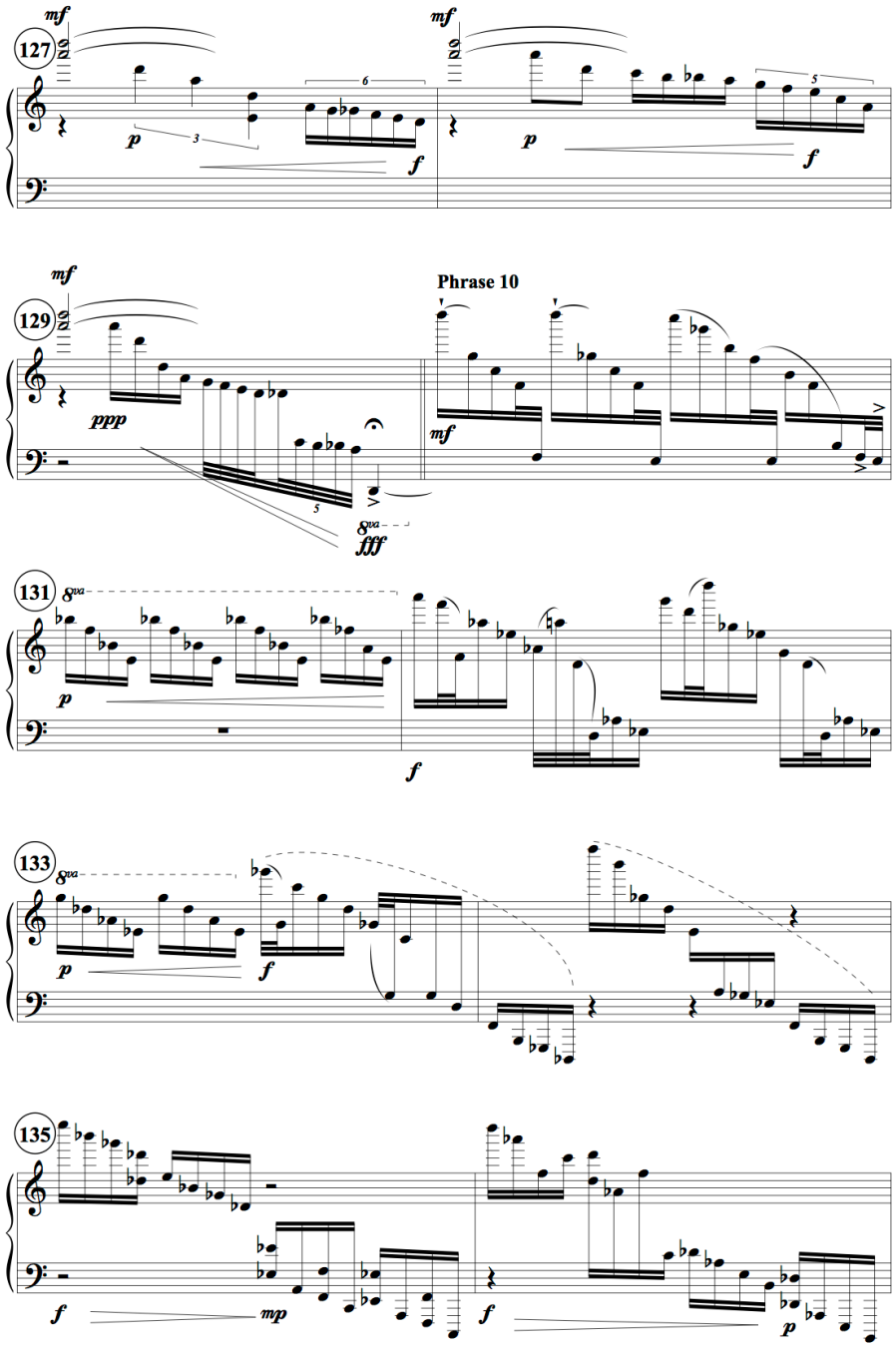

79
mf
p
ppp
Phrase 8
81
pp
mf
83
rit.
a tempo
mf
fff
sf
sf
sf
85
sf
sf
sf
sf
86
ff

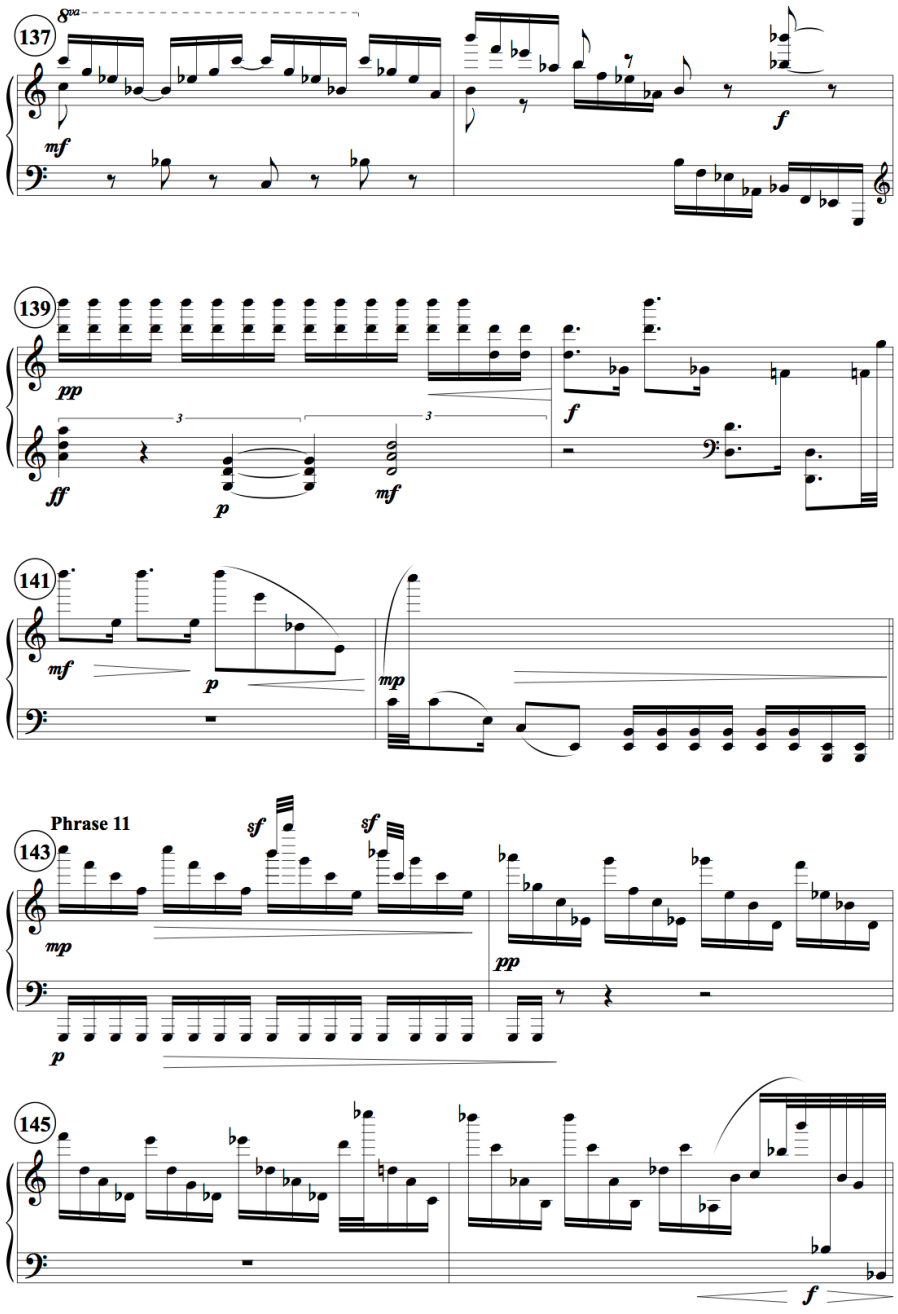

88
ff
90
f
mf
f
92
sff
ff
93
sf
sf
8va
8va
p
ff
95
ff
p

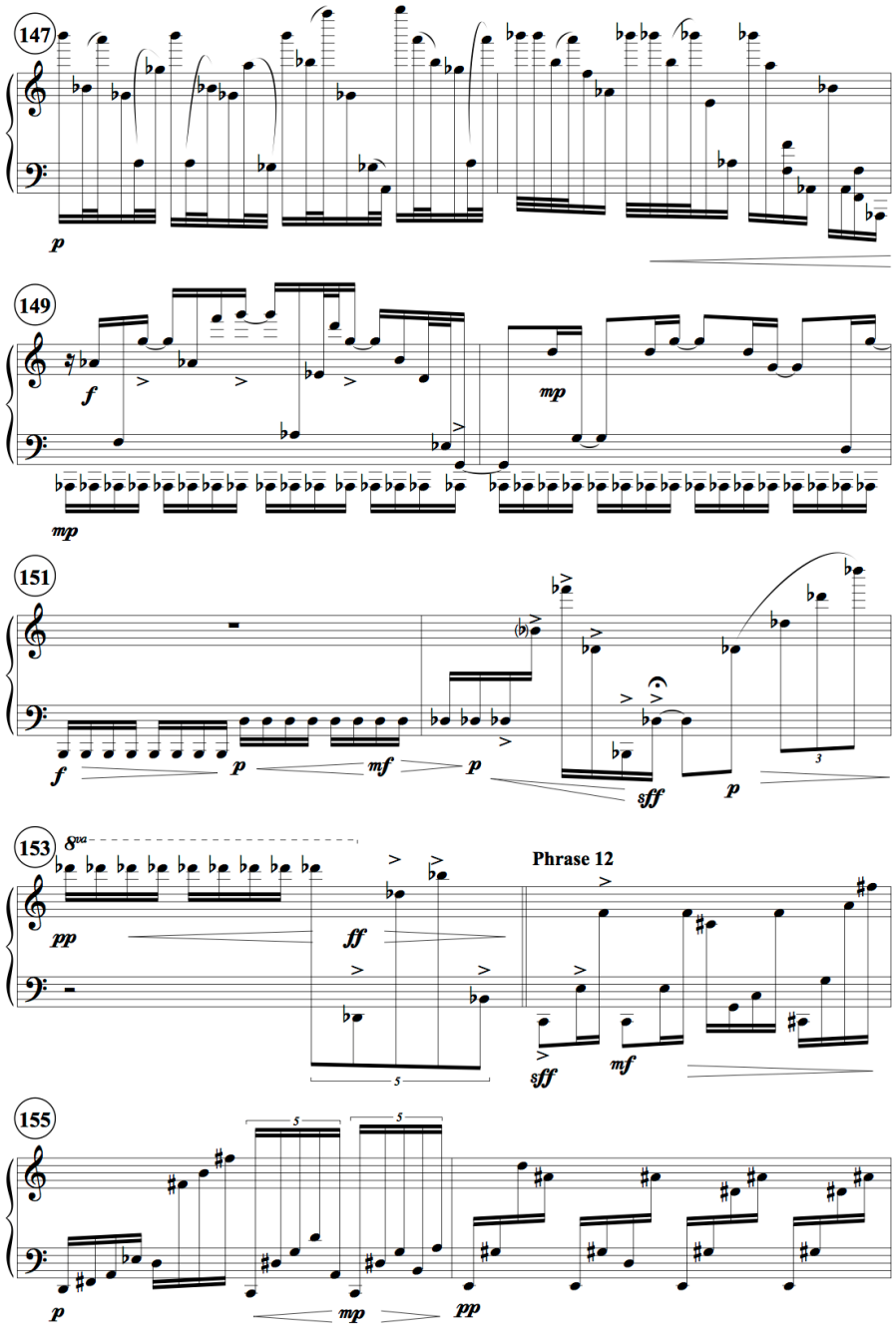

97
99
101
103
105
sfz
mf
mp
p
pp
ff
f
espress.
accel.
8va

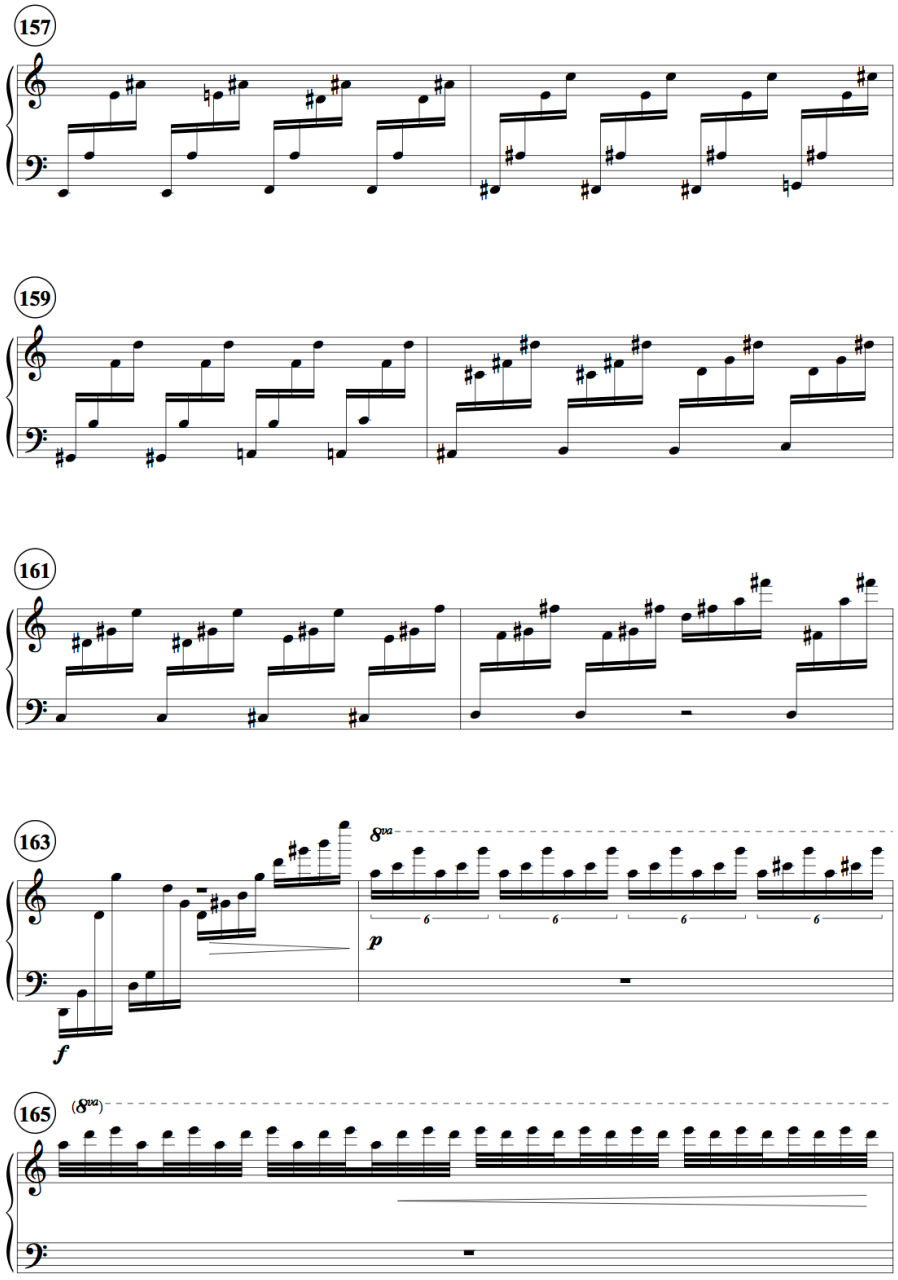

Phrase 9
a tempo
107
8va
8va
pp
109
mp
111
113
115

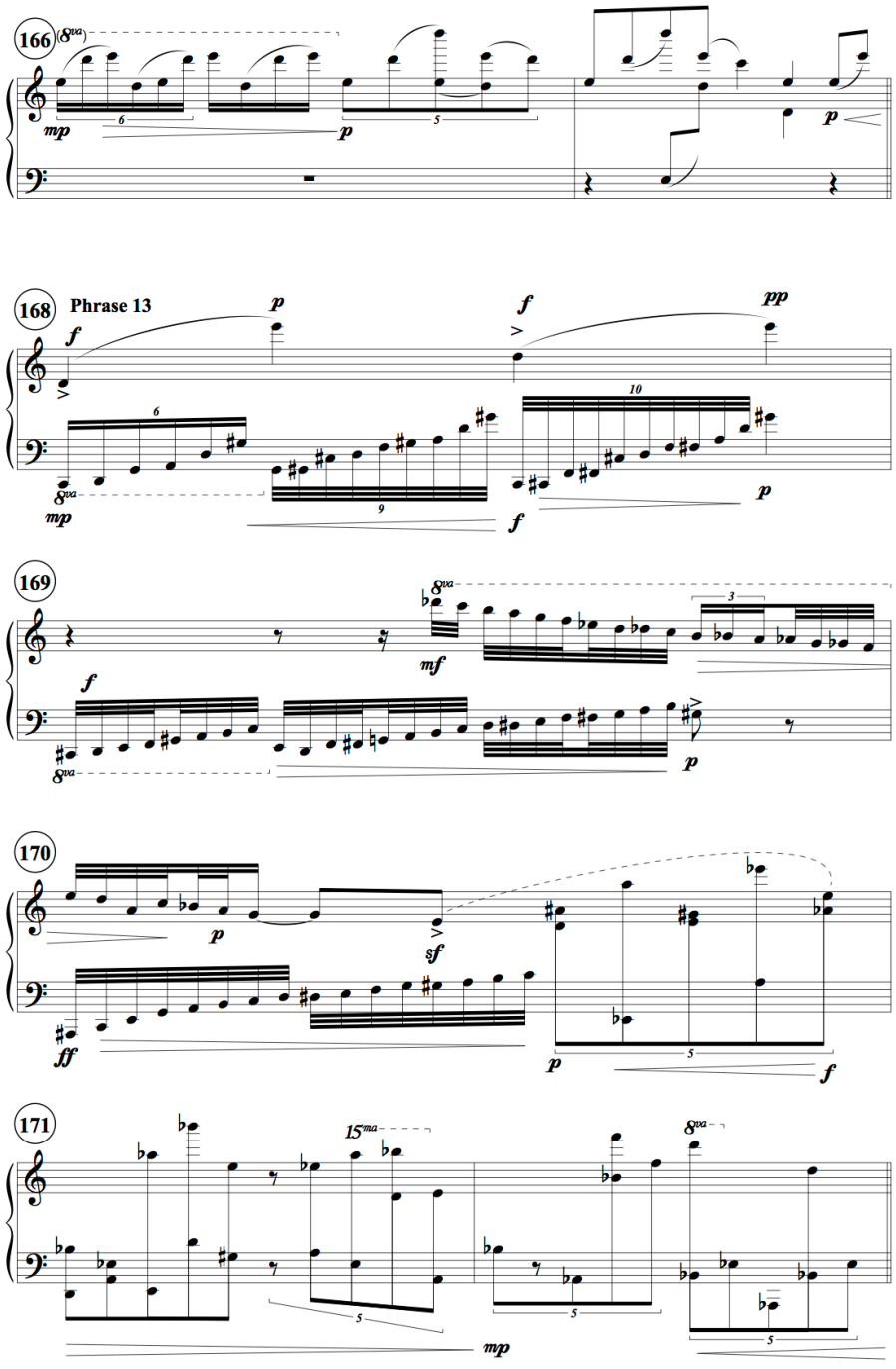

117
mf
pp
p
119
mf
pp
sim.
p
121
mf
123
p
tr
p
ff
125
sf
f
sfz
sfz
mp
fff
f
mf
p

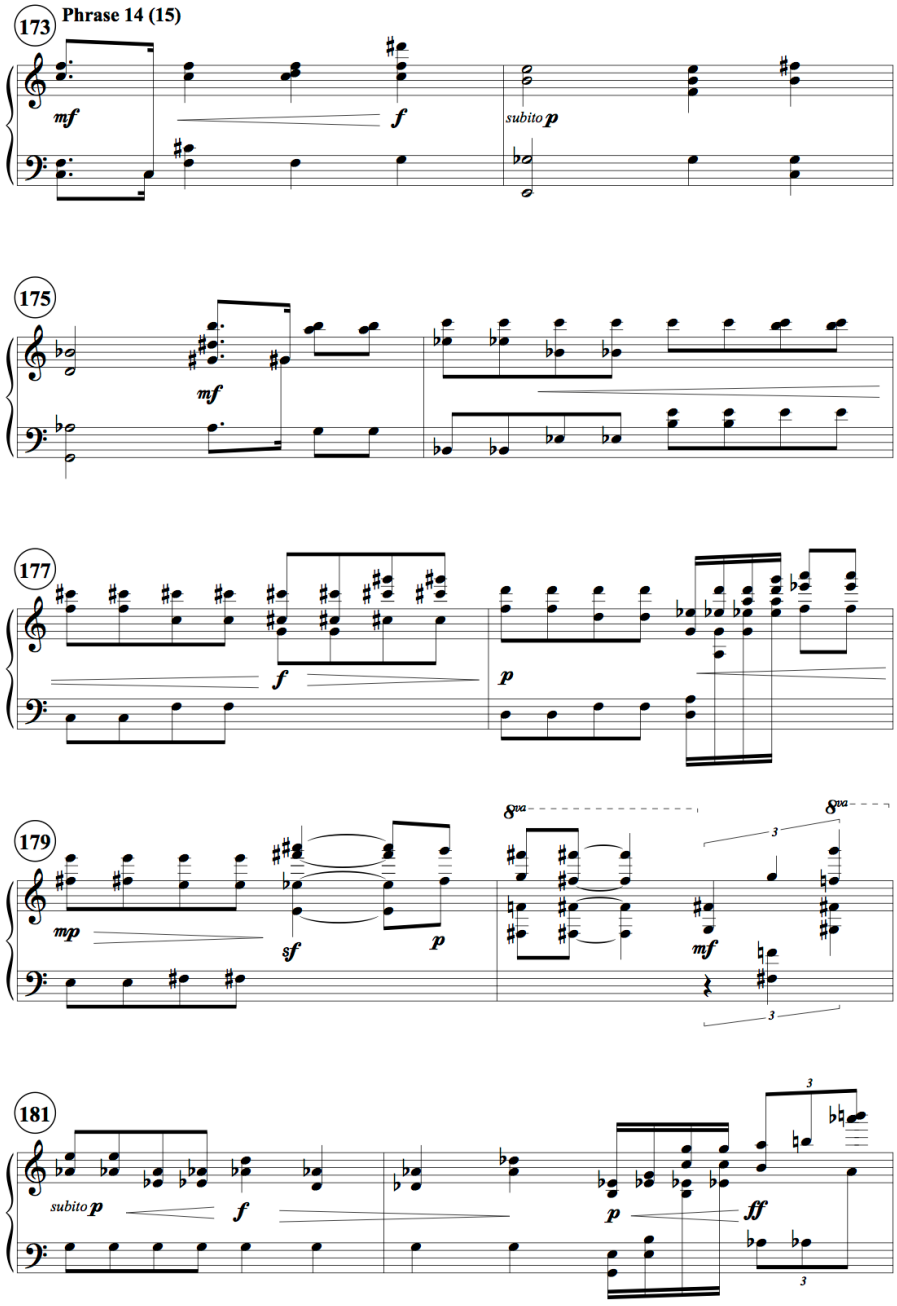

127
mf
p
f
mf
p
f
129
mf
ppp
Phrase 10
mf
8va
fff
131
8va
p
f
133
8va
p
f
135
f
mp
f
p

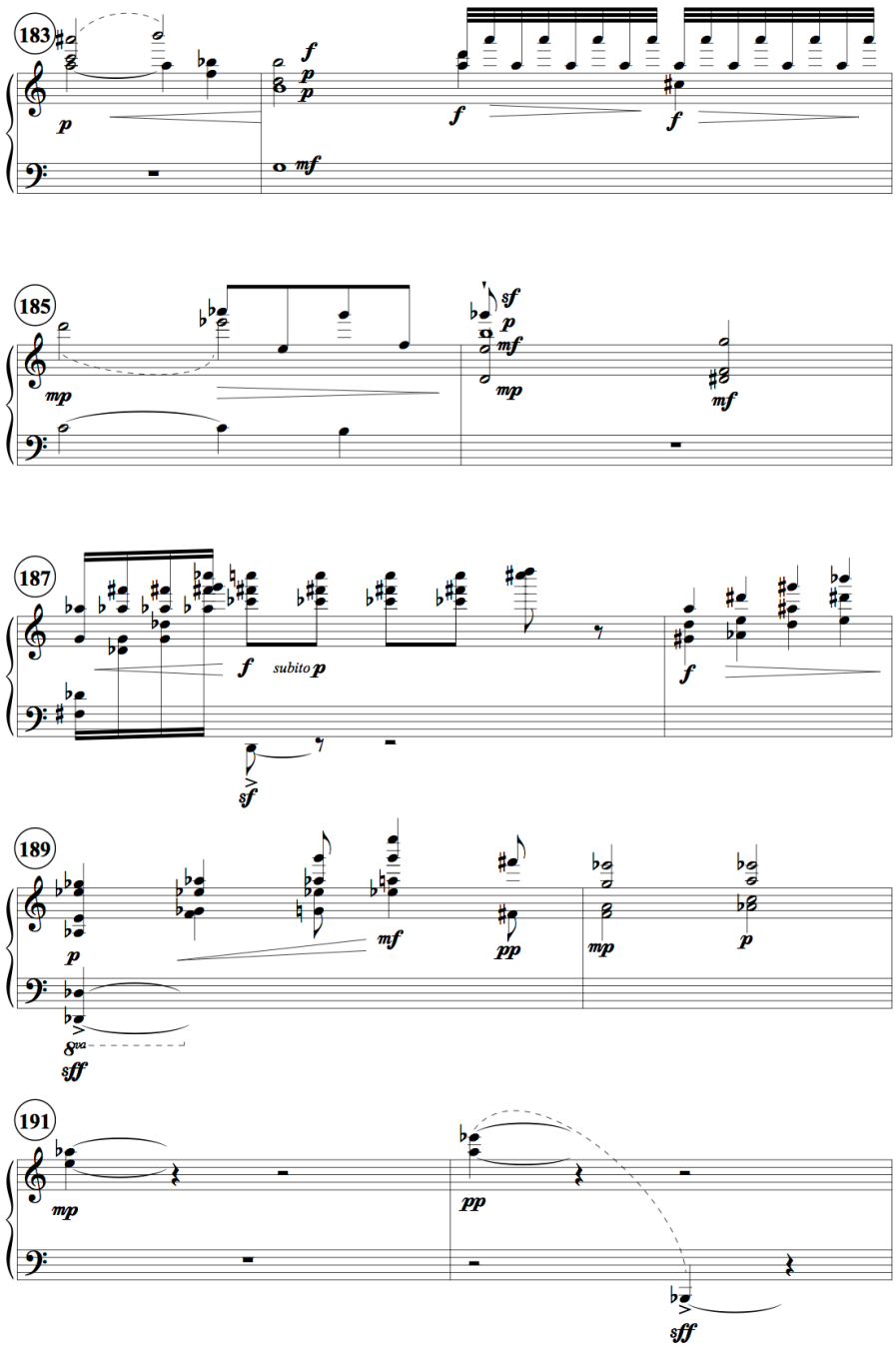

137
8va
mf
f
139
pp
ff
p
mf
f
141
mf
p
mp
Phrase 11
143
sf
sf
mp
p
pp
145
f

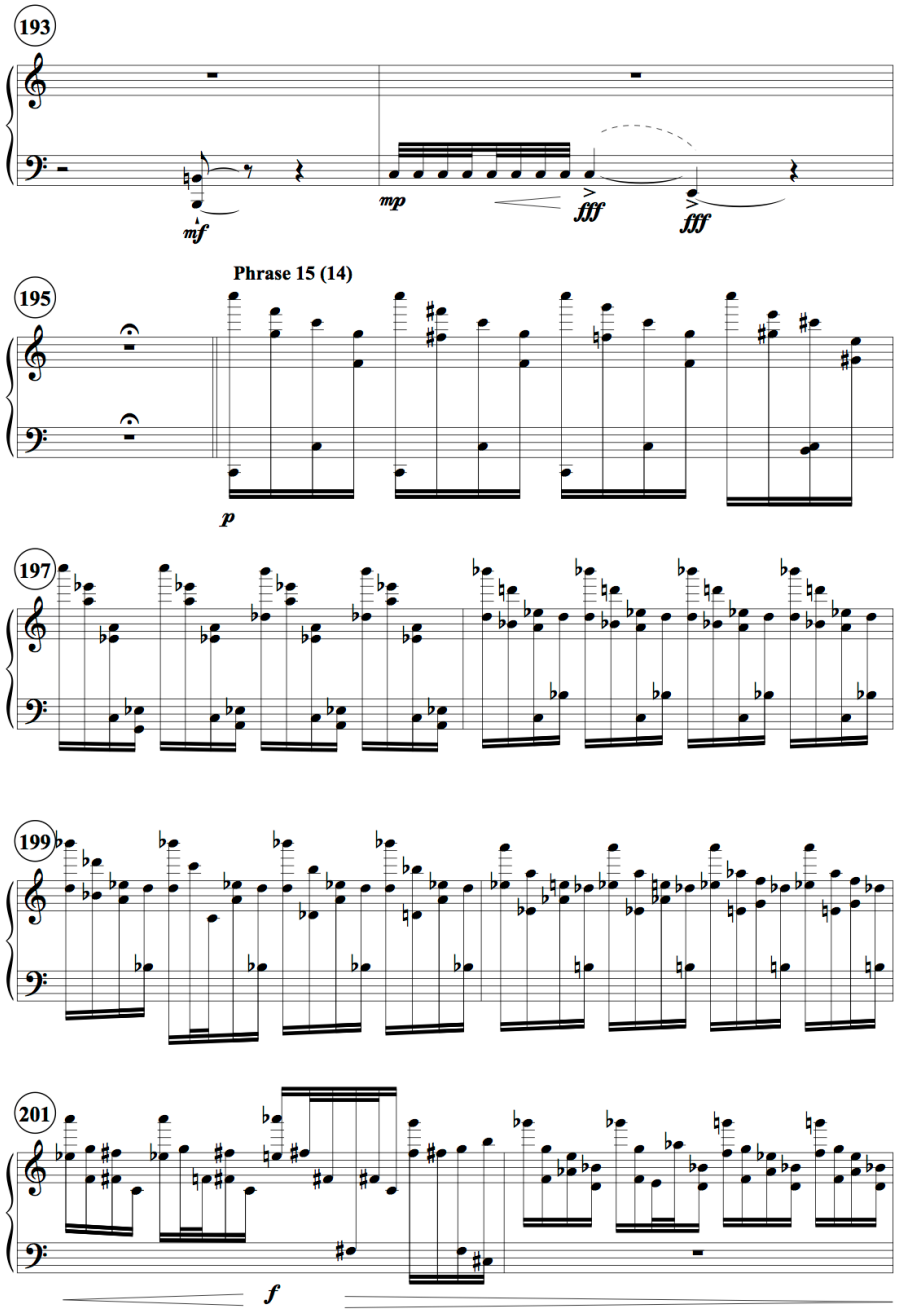

147
p
149
f
mp
mp
151
f
p
mf
p
sff
p
153
8va
pp
ff
Phrase 12
sff
mf
155
p
mp
pp

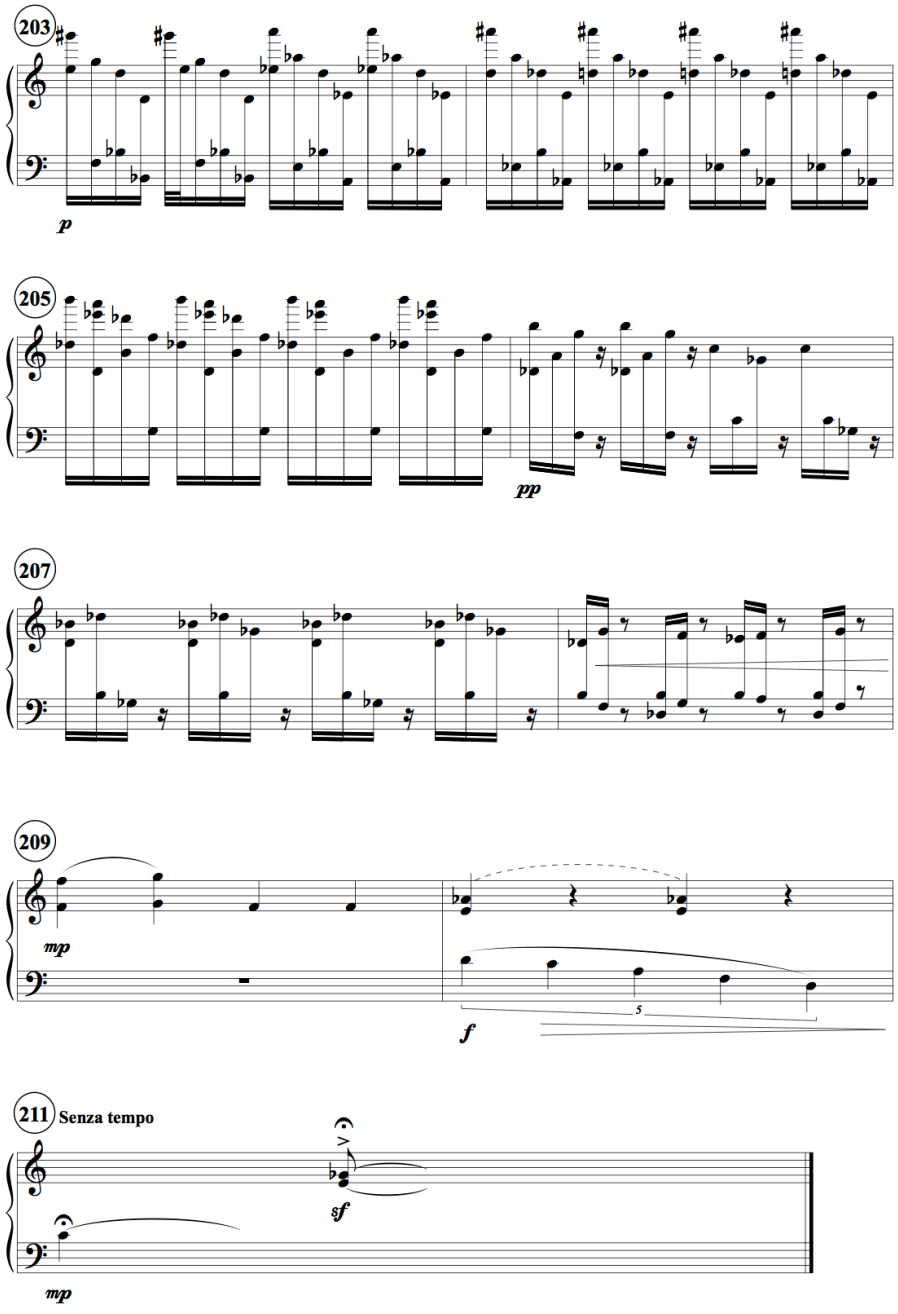

157
159
161
163
8va
6
6
6
6
p
f
165
(8va)


166
8va
mp
p
p
168
Phrase 13
f
p
f
pp
8va
mp
f
p
169
f
8va
mf
p
170
p
sf
ff
p
f
171
15ma
8va
mp


173
Phrase 14 (15)
mf
f
subito p
175
mf
177
f
p
179
mp
sf
p
8va
mf
181
subito p
f
p
ff


183
185
187
189
191
8va
subito p


193
mf
mp
fff
fff
Phrase 15 (14)
195
p
197
199
201
f


203
p
205
pp
207
209
mp
f
5
211
Senza tempo
sf
mp