ABSTRACT

Title of Dissertation: 13 EPISODES FOR STRING QUARTET

Quinn Gareth Dizon,
Doctor of Musical Arts, 2019

Dissertation Director: Dr. Mark Wilson, Associate Professor, Composition

13 Episodes for String Quartet is an original composition with an approximate duration of 38 minutes. A dramatic narrative unfolds over a 13-movement arch form as two intervals, a tritone and a perfect fifth, are presented and explored in different harmonic and melodic contexts. As these two opposing forces compete for the foreground, a gradual shift takes place from musical material that is audibly tritone based to material that is audibly perfect fifth based.

To help realize the structure and content for this composition, I developed a computational method to generate and parse pitch-class sets based on user supplied interval content and filter criteria. I call this *Binary Harmony*. In this method, I generate sequences of pitches, where each dyadic adjacency in the sequence forms one of two provided pitch class-intervals. The principal musical material for each movement is generated using this computational method.

13 EPISODES FOR STRING QUARTET

By

Quinn Gareth Dizon

Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park in partial fulfillment
of the requirements for the degree of
Doctor of Musical Arts
2019

Advisory Committee:
Professor Mark Wilson, Chair
Professor Hector Bravo
Professor Robert Gibson
Professor Dora Hanninen
Professor Daniel Zimmerman

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DEDICATION

This work is dedicated to my father, Fernando Dizon.

Having recently become a father myself, I have only begun to recognize the extent of your dedication, and the sacrifices you made for our family and me. My pursuit of music, and this work, would not have been possible without the love and encouragement I received from you.

ACKNOWLDEGMENTS

Though *13 episodes for string quartet* serves as the capstone to my doctoral degree, it is truly a product of my compositional journey over the last 12 years. To all the mentors I have had throughout my various degrees who have helped shape me into the musician I am today, to all the performers who have provided their time, energy, and expertise in realizing my music, and to my family and friends who have been endlessly supportive of my music and my career, I give deep and sincere thanks.

I would like to give special thanks to Professor Mark Wilson, whose dedication and unyielding encouragement as my composition mentor has kept me inspired throughout my doctoral work. You have been a pleasure to work with, and I will always remember our time together with great fondness.

I would also like to recognize Professors Robert Gibson, Dora Hanninen, and Daniel Zimmerman for their instruction and guidance over the last four years. I would not be the musician, educator, or scholar I am today without the support I have received from each of you.

Finally, a heartfelt thanks to my family. You have all been a limitless source of encouragement and support throughout my life, and I owe so much of my success to each of you.

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PROGRAM NOTE

For much of my career in composition, I resisted my natural inclination towards drama in music. Perhaps believing that it would detract from the pure musical value of my work, I suppressed dramatic ideas, and instead focused on crafting interesting musical structures (formal, melodic, harmonic, etc.) that could stand on their own without the need for extra musical imagery. When putting notes to paper, however, I found it nearly impossible to ignore my dramatic tendencies. Listening to a completed work of mine, I could easily hear the narrative that managed to rise to the surface, despite my efforts to suppress it.

Recognizing this characteristic of my music, in recent years I have come to embrace my need for drama at every stage in my compositional process. In this light, I view *13 Episodes for String Quartet* as a milestone along this path of consciously incorporating dramatic narrative in my process.

From the early conceptual stages, drama played a significant role in my structural design of this piece. In its most nascent form, I imagined two conflicting musical entities battling for dominance. From this simple idea, I discovered the primary musical characters for this work – two intervals, a tritone and a perfect fifth. The dramatic narrative unfolds as these two elements are set against each other in various melodic and harmonic contexts.

The work is organized into a 13-movement arch form, where each mirrored pair of movements explores similar musical material, techniques, or gestures. Superimposed on this form, I envisioned a three-level hierarchy, where certain movements would interact directly with the dramatic narrative, and others would provide commentary, and serve as vehicles between these key dramatic moments.

At the top of this hierarchical scheme are movements I, VII, and XIII (the first, middle and last movements respectively). In these movements, we are introduced to the musical world, overwhelmed by the conflict in it, and ultimately experience resolution and triumph.

Movements IV and X (the midpoints from beginning to middle, and middle to end, respectively) form the second hierarchical tier. In these movements, we can see and comment on where we have been, and where we are going, but we are powerless to stop the forward momentum.

All remaining movements are part of the third hierarchical level. Rather than being key players in any local sense of dramatic narrative, these movements explore material unique to themselves, and gradually transition the mood and atmosphere from one structural point to another. In the overall form, these movements serve vital dramatic roles by linking the core dramatic movements.

The following is a brief narrative description of the intended dramatic role for each movement:

I. The first breath. A world in darkness. A dim light shining in the distance.

II. Floating in a gentle current. The expanse seems endless.

III. A warm glow. It is always just out of reach.

IV. At the precipice. A dark and limitless void below.

V. Descent. All light begins to recede.

VI. Searching in the dark. Becoming panicked.

VII. Identity and memory. Everything is forgotten. All alone.

VIII. Embracing the darkness. A primal pulse awakens.

IX. Too many paths to choose. An endless maze.

X. In the distance, a new light splits the gloom.

XI. Always moving, but never any closer. Beginning to feel numb.

XII. Taking a moment to rest. A realization. Not alone anymore.

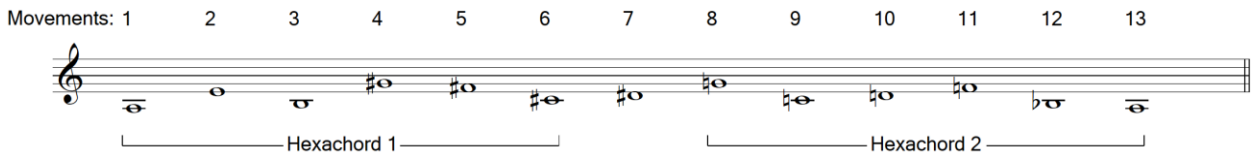
XIII. Discovery of something that has always been here. Uncovering it together.

Duration Approximately 38’

PITCH ORGANIZATION

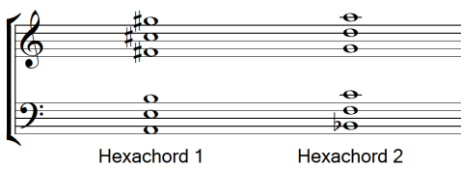
The following sequence of notes underpins the large-scale pitch structure and provides the principal melodic content for the composition. Each pitch in the sequence represents the pitch class center of the corresponding movement.

Figure 1 – Primary Pitch Sequence & Movement Pitch Centers



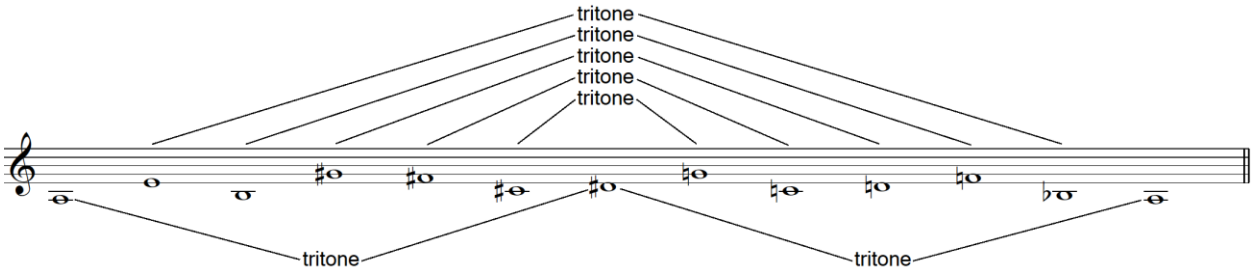
This sequence presents the aggregate, with the final pitch being a repetition of the first. As figure 1 shows, the sequence can be divided into two hexachords that flank a central pitch, D#/Eb. Each hexachord can be arranged as an unbroken series of perfect 5ths.

Figure 2 – Hexachordal Division



The sequence also has retrograde symmetry at the tritone.

Figure 3 – Tritone Symmetry



BINARY HARMONY

For this and previous compositions, I have developed and worked with a computational method for generating and parsing pitch-class sets based on provided interval content. I call this method *Binary Harmony*.

The following is an introduction to the terms and principles associated with binary harmony, as well as select musical excerpts from this work that illustrate some of the ways in which I have implemented it into my compositional process.

Basic Terminology

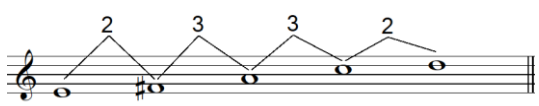
Binary Pitch-Class Interval Set ("binary set"): *An unordered set of two pitch class intervals,* x *and* y.[1]

As an example, the binary set (4, 9) includes PCIs 4 and 9.

Limited Pitch-Class Interval Sequence (LPCIS): *An ordered sequence of pitch classes in which each dyadic adjacency forms one of the two pc intervals of a binary set.*[2]

For example, the LPCIS <46902> (a member of SC 5-34[02469]) defines the pc interval series <2332>, in which each interval is drawn from the binary set (2,3). In my compositional practice, I realize LPCISs in pitch-space as continuously ascending, or continuously descending, pitch sequences (see below).

Figure 4 – Limited Pitch Class Interval Sequence



Binary Harmony: *A set class associated with a LPCIS.*

For example, SC 5-34[02469] is a binary harmony associated with the pc interval series <2332> and binary set (2,3) given above.

Composing with Binary Harmony and Analytical Notation

Binary harmony provides a means for generating and modeling relations within and among pitch-class sets. It can be used various ways in composition.

The approach that I use to craft the materials for this composition involves creating lists of LPCISs generated from a single binary set. In doing this, I am presented with a vast array of harmonic possibilities that I may not have considered otherwise.

The following describes the basic process by which I generate these lists of LPCISs.

Any binary LPCIS can be expressed in terms of binary code – a string of 0s and 1s. Each 0 in the binary code indicates an instance of the first PCI in a binary set, and each 1, an instance of the second PCI. For example, consider binary set (2,3) again. Expressing a LPCIS as +[0 1 1 0] would indicate that the sequence of ordered PCIs is +2, +3, +3 and +2. [3] The example from before could be expressed as (2,3)-4+[0 1 1 0], where (2,3) is the binary set, 4 is the starting pitch-class, and +[0 1 1 0] is the binary representation of the LPCIS.[4]

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[1] Though the focus of this explanation is specifically on binary harmony, this concept can be expanded to include ternary, quaternary, etc. sets.

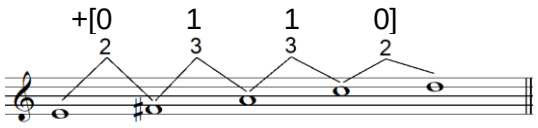
[2] This definition is specifically for a binary LPCIS. The concept of a LPCIS can likewise be expanded to incorporate larger PCI sets. It may be assumed that for the remainder of these explanations that LPCIS refers to a binary LPCIS.

[3] Because my realizations of LPCISs exist in pitch space, I have added the "+" sign to indicate direction. The "+" before the binary representation indicates that the sequence is ascending. A "–" preceding the binary representation would indicate a descending sequence.

[4] If the specific pitch-classes are unimportant in our analysis and we are simply illustrating the chain of intervals in a LPCIS, we may omit the starting PC value, leaving only (2,3)+[0 1 1 0].

Figure 5 – Binary Representation of LPCIS

LPCIS (2,3)-4+[0 1 1 0]



Once we define a few constraints, generating a complete list of possible LPCISs from a binary set becomes computationally straightforward. My first constraint is that all LPCISs will be constructed by moving in a single direction in pitch, up or down. The second constraint is that I limit realizations to a pitch range of a little over ten octaves (this allows for easy computation and display using the standard 128 MIDI note values). The third constraint is that I exclude any LPCISs that duplicate one or more pitch-classes (without this constraint, the results proliferate, bordering on unwieldy). In defining these constraints, each return value will be a unique LPCIS with no pitch-class repetition – a pitch-class set.

With these constraints in mind, the generative process is as follows:

1. Define a binary set (e.g. (3,4)).
2. Starting with an empty sequence, append a 0, and separately a 1 to create two new sequences.
3. Map each of these newly generated binary sequences to the corresponding PCIs of the binary set (e.g. [0 1 1] with a binary set (3,4) becomes [3 4 4]).
4. As the starting PC for each LPCIS, apply each mapped binary sequence to each of the 12 PCs (e.g. [3 4 4] will produce <037e>, <1480>, <2591>, etc.).
5. Remove any LPICSs with pitch-class repetition, and repeat the process from step 2 recursively, each time passing in the current sequence as the new starting sequence.

Even with the boundaries defined above, in most cases the results will be far too expansive to be useful for the composer. To address this issue, I have designed a filtering process so that only LPCISs that meet certain PC and interval vector criteria are returned.

Though the precise filter criteria may differ, the following represents a common filtering pattern that I have used in constructing materials from these lists of LPCISs. For the example below, each filter is applied in series so that there are fewer possibilities with each new filter.

This example is based on the return values of binary set (1,6).

Figure 6 – Example Filtering Process

Filter	# of Returned Values
No filters	1,884
LPCISs with exactly 4 pitch classes	60
LPCISs including the pitch classes 4 and 9 (E & A)	6
Binary Harmonies with interval vectors with exactly one IC 6 and one IC 5	2

From nearly 2,000 possible PCS, this simple filtering process produces just two sets that meet the desired PC and interval vector criteria.

Binary Sets and Numerology in this Composition

Layered on top of the principal pitch organization described in the previous section is a numerological scheme revolving around the number 13. This numerological scheme is realized by assigning each movement a primary binary set. The principal material for each movement is then derived from the list of possible LPCISs generated from that binary set.

Figure 7 – Binary Harmony Applied to Primary Pitch Sequence

1
Pitch Center: A
Binary Set: (1,6)
Interval Sum: 7

2
Pitch Center: E
Binary Set: (2,6)
Interval Sum: 8

3
Pitch Center: B
Binary Set: (1,8)
Interval Sum: 9

4
Pitch Center: G#
Binary Set: (2,4)
Interval Sum: 6

5
Pitch Center: F#
Binary Set: (1,3)
Interval Sum: 4

6
Pitch Center: C#
Binary Set: (1,4)
Interval Sum: 5

7
Pitch Center: D#
Binary Set: (6,7)
Interval Sum: 13

8
Pitch Center: G
Binary Set: (1,7)
Interval Sum: 8

9
Pitch Center: C
Binary Set: (2,7)
Interval Sum: 9

10
Pitch Center: D
Binary Set: (3,4)
Interval Sum: 7

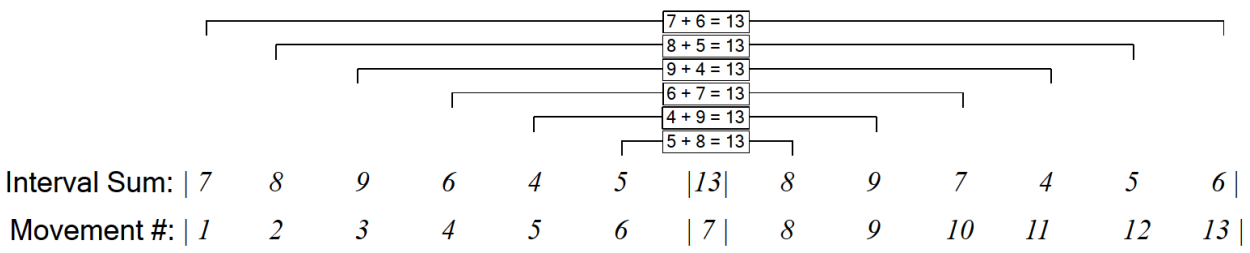
11
Pitch Center: F
Binary Set: (1,3)
Interval Sum: 4

12
Pitch Center: Bb
Binary Set: (2,3)
Interval Sum: 5

13
Pitch Center: A
Binary Set: (1,5)
Interval Sum: 6

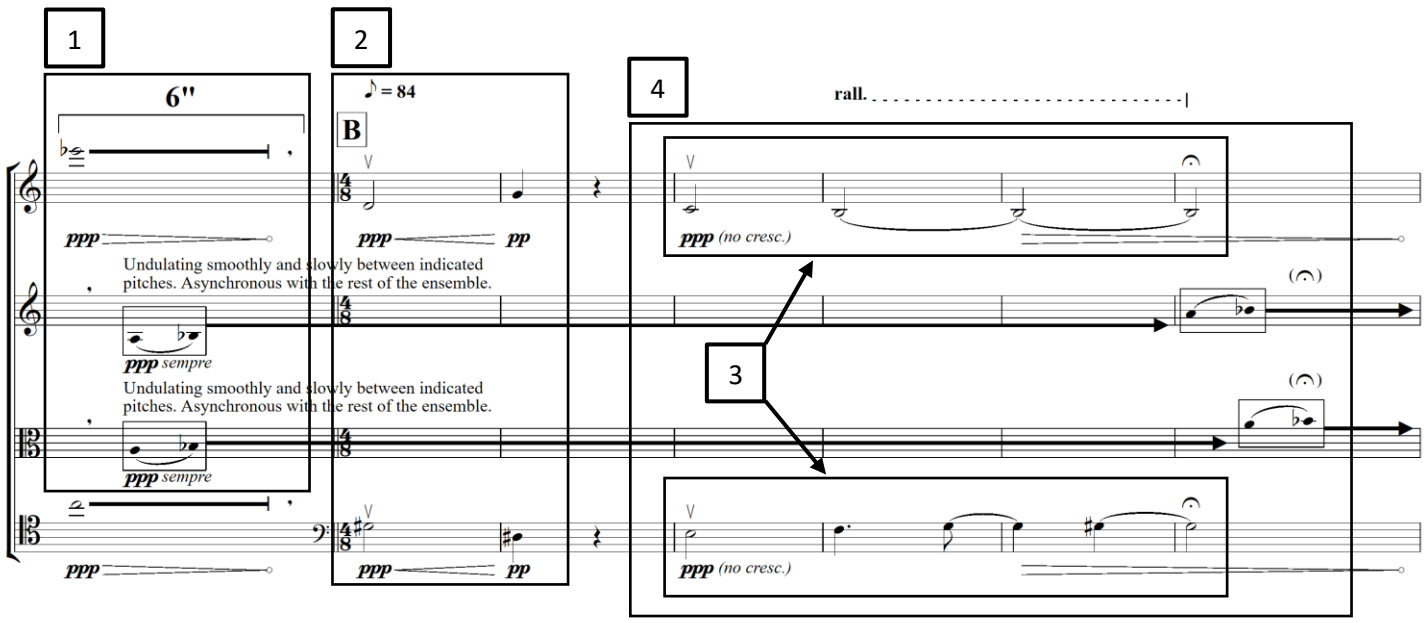
As the previous chart indicates, each binary set can be reduced to a single interval sum by adding the two PCIs of the set together. Combining the interval sums of each movement and its mirrored pair will result in the number 13 each time, with the central movement having the interval sum of 13 by itself.

Figure 8 – Numerology of Binary Set Interval Sums



ANALYSIS EXAMPLES[5]

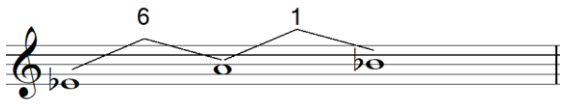
Figure 9a – Excerpt: Movement I – Binary Set (1,6) [pg. 12]



This excerpt shows how I use binary harmony in vertical and contrapuntal ways. Although notated below to illustrate their binary structures, I treat these generated LPCISs like any other PCS, and freely arrange and space them when I realize them in music.

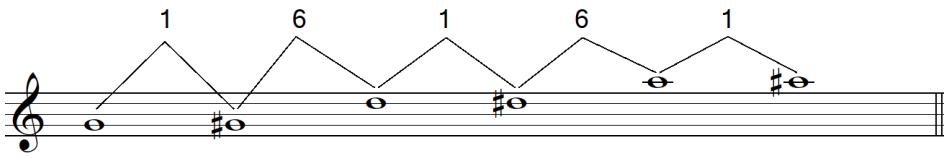
In box 1, the violin II and viola undulate in semitone movement between A3 and Bb3. Sustaining above this is an Eb6 in the violin I (the cello C5 is held over from a previous section, and is not part of this binary harmony). As a unit, these PCs form binary harmony, (1,6)-3+[1,0].

Figure 9b – (1,6)-3+[1,0] (SC 3-5[016])



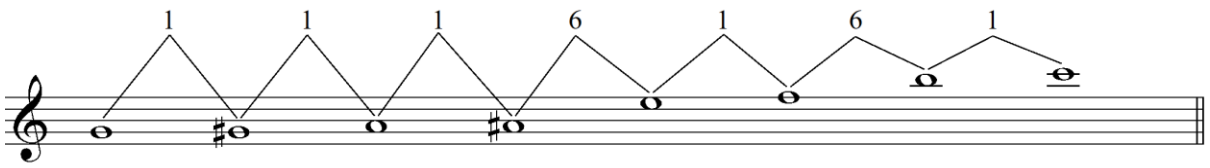
Box 2 expands upon the binary harmony of box 1, adding G#3, D4, and G4. These represent the audibly related binary harmony, (1,6)-7+[0,1,0,1,0].

Figure 9c – (1,6)-7+[0,1,0,1,0] (SC 6-z38[012378])



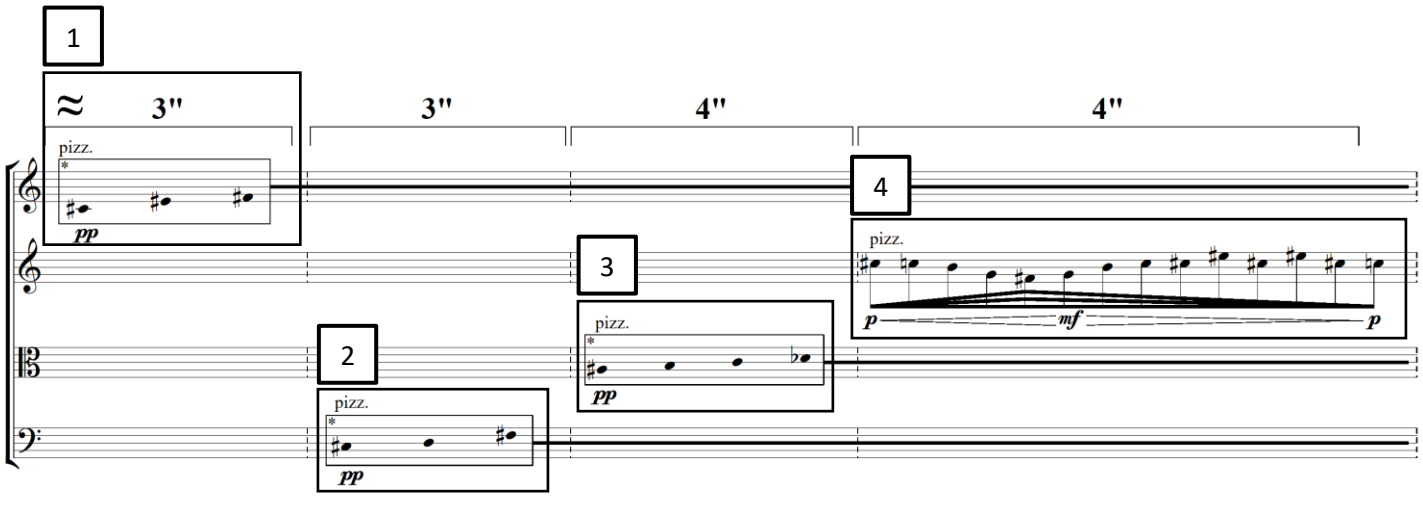
In the boxes labeled with a 3, the violin 1 and cello collapse inward. From this contrapuntal movement, another binary harmony is created, shown in box 4 – (1,6)-7+[0,0,0,1,0,1,0].

Figure 9d – (1,6)-7+[0,0,0,1,0,1,0] (SC 8-4[012345678])



[5] These examples illustrate only a few ways in which binary harmony has been incorporated into this composition, and are not meant as a comprehensive list of its application.

Figure 10a – Excerpt: Movement VI – Binary Set (1,4) [pg. 25]

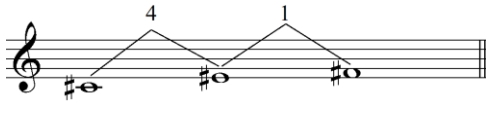


This next excerpt shows how binary harmony can be used to create related textural objects.

Boxes 1, 2, and 3 are aleatoric figures, where the performer may randomize pitches and rhythms as they see fit. The pitches in each figure are already arranged to highlight their individual LPCIS.

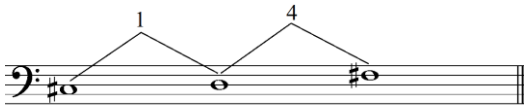
Box 1 – LPCIS (1,4)-1+[1,0]

Figure 10b – (1,4)-1+[1,0] (SC 3-4[015])



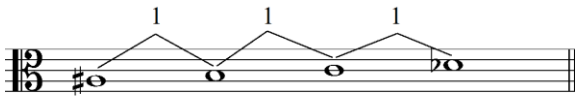
Box 2 – LPCIS (1,4)-1+[0,1]

Figure 10c – (1,4)-1+[0,1] (SC 3-4[015])



Box 3 – LPCIS (1,4)-8+[0,0,0]

Figure 10d – (1,4)-8+[0,0,0] (SC 4-1[0123])



Box 4 is the main melodic figure for this movement. The PCs in this box can be arranged to show that this is also a binary harmony from binary set (1,4) – (1,4)-5+[0,0,1,0,0].

Figure 10e – (1,4)-5+[0,0,1,0,0] (SC 6-7[012678])

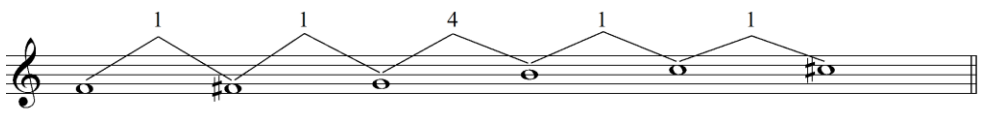
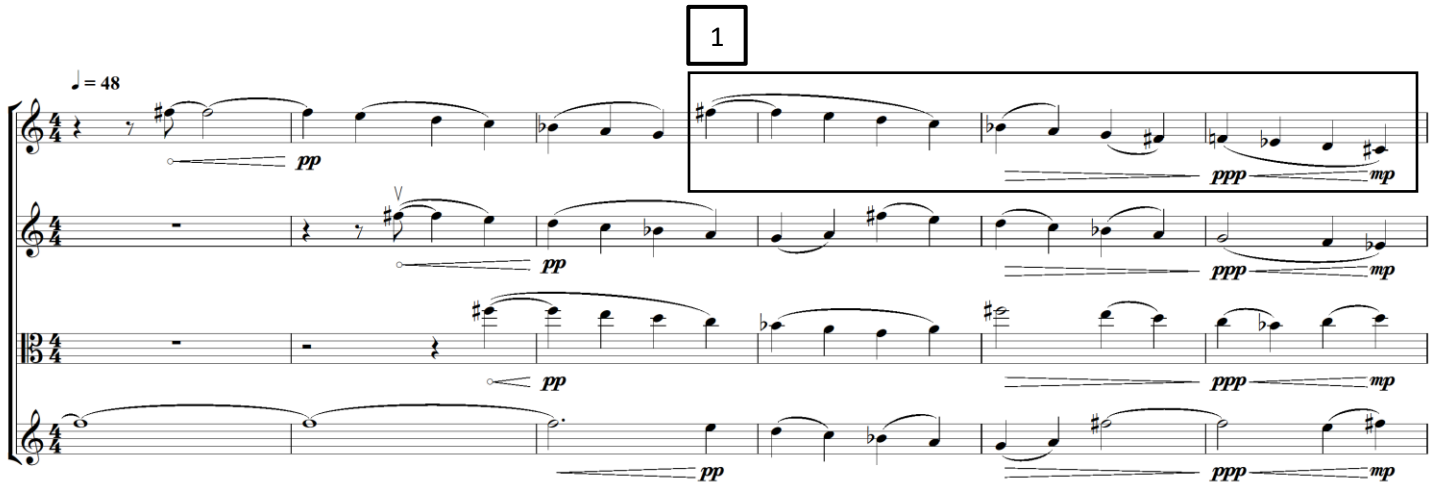


Figure 11a – Excerpt: Movement V – Binary Set (1,3) [pg. 23]



This movement is primarily constructed from overlapping, descending scale patterns. Here, I use binary harmonies to create these scale patterns. Box 1 shows the full length scale pattern for this section that occurs in the first violin. It can be arranged to match LPCIS (1,3)-4+[1,1,1,0,1,0,1,1,1].

Figure 11b – (1,3)-4+[1,1,1,0,1,0,1,1,1] (SC 10-4[012345689T])

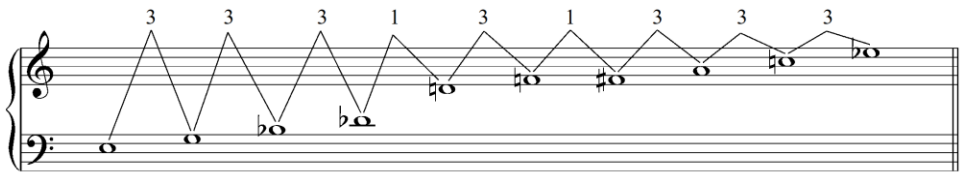
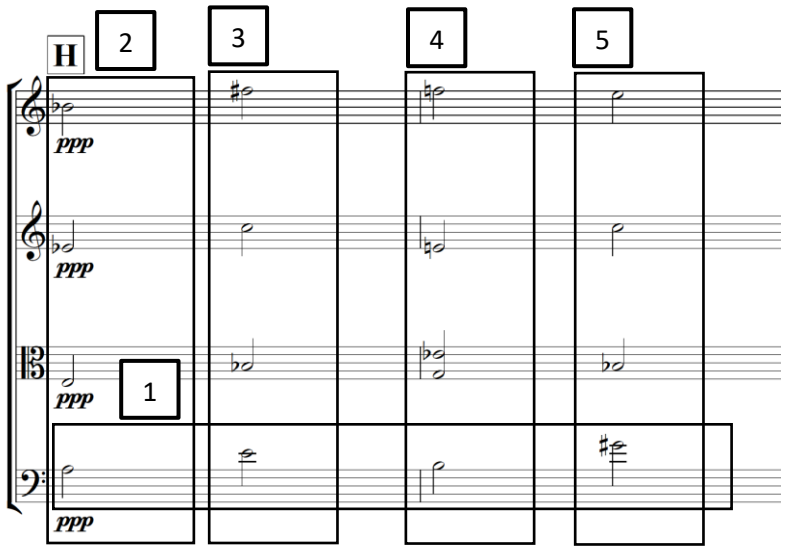


Figure 12a – Excerpt: Movement IV – Multiple Binary Sets [pg. 22]

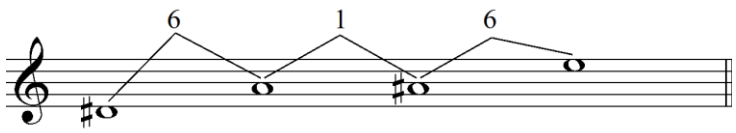


This excerpt shows a common way that I used binary harmony in a vertical sense. It also shows how I use the main pitch sequence of the work in a local context, and in conjunction with binary harmony.

The cello line in box 1 is the first four pitches from the primary 13 pitch sequence of the work. Each vertical harmony built on these pitches is a binary harmony from the corresponding movement of that pitch center.

For example, box 2, containing PC 9 (A) in the cello line, corresponds to movement 1 (pitch center A), which is based on binary set (1,6). The LPCIS in box 2 is (1,6)-3+[1,0,1].

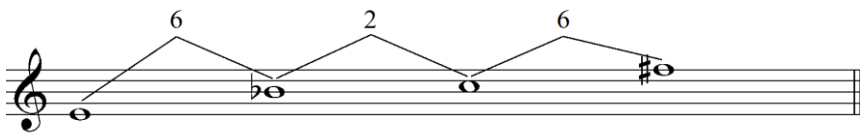
Figure 12b – (1,6)-3+[1,0,1] (SC 4-9[0167])



The remaining boxes in this excerpt follow the same pattern.

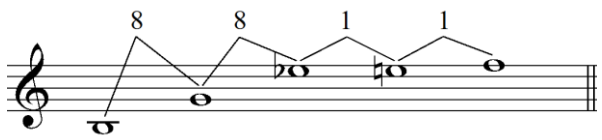
Box 3 corresponds to movement 2, based on binary set (2,6). This LPCIS is (2,6)-4+[1,0,1].

Figure 12c – (2,6)-4+[1,0,1] (SC 4-25[0268])



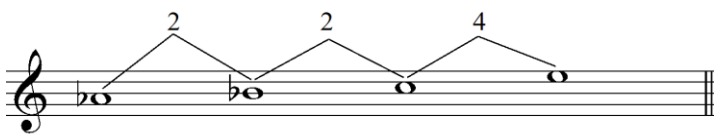
Box 4 corresponds to movement 3, based on binary set (1,8) – (1,8)-11+[1,1,0,0].

Figure 12d – (1,8)-11+[1,1,0,0] (SC 5-13[01248])



Box 5 corresponds to movement 4 (this movement), based on binary set (2,4) – (2,4)-8+[0,0,1].

Figure 12e – (2,4)-8+[0,0,1] (SC 4-24[0248])



This excerpt also demonstrates how I use binary harmony to create a sense of connection throughout the work. In particular, movements with more significant dramatic hierarchical importance (I, IV, VII, X, XIII), often reference other movements and prior material through binary harmony in similar ways to what I have shown here.

PERFORMANCE NOTES

General Notes:

All metronome markings remain in effect after their initial indication for any metered music until changed by a subsequent metronome marking.

Duration markings indicated in seconds above measures are approximate.

Symbols:

Null time. All time relations are relative. Open noteheads are longer than closed noteheads. Visual spacing between events within a null time bar is a *general* indicator of duration. All parts are asynchronous unless otherwise notated.

= Arrow noteheads indicate highest note possible (on current or given string).

= Brief breaks in the sound. In a “null time” measure, a slight pause before proceeding to the next event.

 = Open circles at the beginning or end of hairpins indicate that the sound should be as quiet as possible (*niente*).

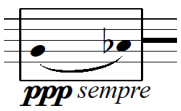
Lines:

 = Continue note/figure for indicated duration.

= Proceed immediately to next event without a break in sound.

= Stop playing note/figure when indicated.

Boxed Figures:



Boxed figures indicate a repeated segment or pattern. Continuation lines will follow to indicate how long a box figure should be performed (see Lines). All material within a boxed figure is asynchronous unless otherwise indicated. Further instructions for individual boxed figures are given in the score as needed.

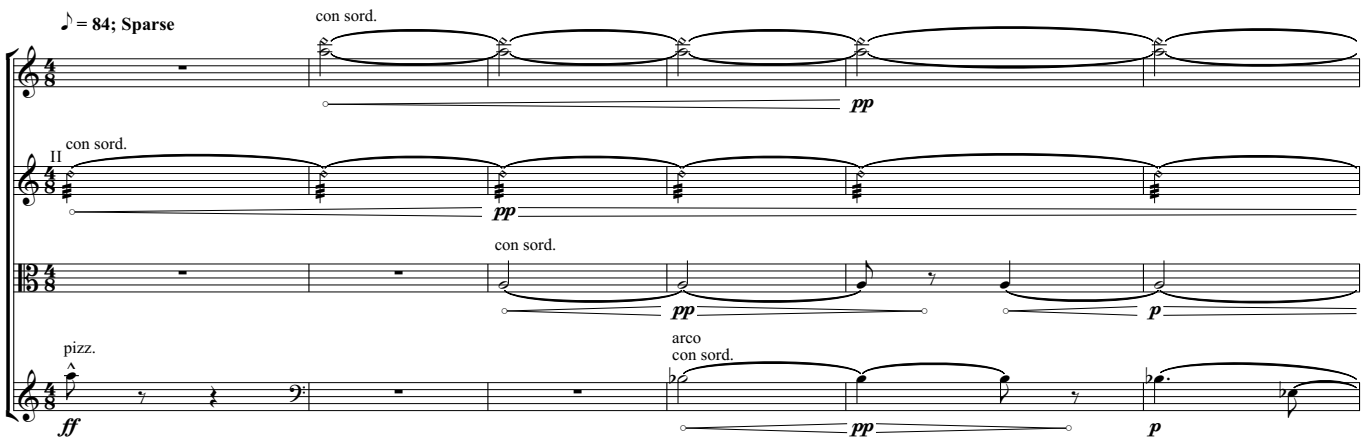
In addition to pitches, anything within the boxed figure (dynamics, articulations, etc.) should also be preserved on each repetition of the material, unless otherwise indicated.

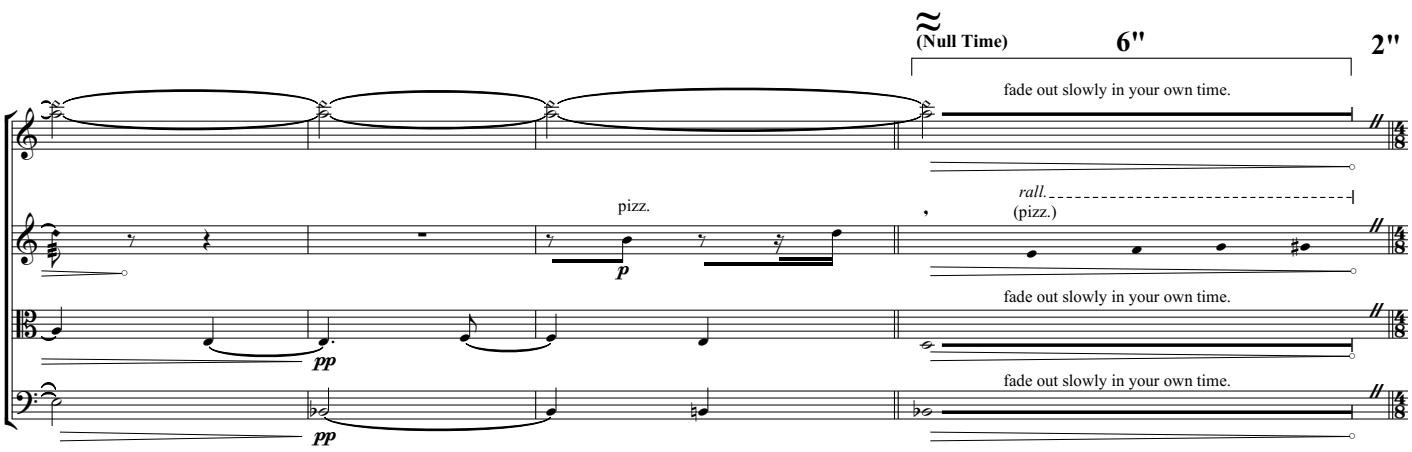
13 Episodes for String Quartet

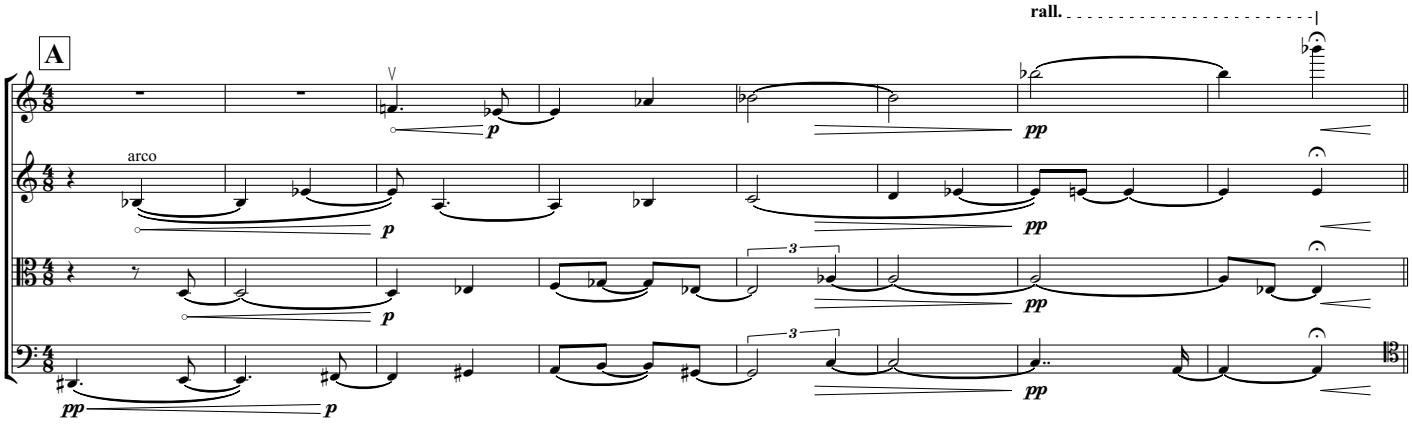
Quinn Dizon

I.

Breath







≈

(♩ = ca. 100) gradually slowing

20"

f poco

f poco

f poco

f poco

6"

♪ = 84

B

rall.

ppp ***ppp*** ***pp*** ***ppp*** *(no cresc.)*

Undulating smoothly and slowly between indicated pitches. Asynchronous with the rest of the ensemble.

ppp *sempre*

Undulating smoothly and slowly between indicated pitches. Asynchronous with the rest of the ensemble.

ppp *sempre*

ppp ***ppp*** ***pp*** ***ppp*** *(no cresc.)*

C

attacca

ppp

Maintain undulation between A & B♭ as the primary figure. Occasionally add in a C𝄫always in stepwise motion. The effect should be that C♭ is an infrequent neighbor tone to the main figure.

Maintain undulation between A & B♭ as the primary figure. Occasionally add in a G𝄪always in stepwise motion. The effect should be that G♯ is an infrequent neighbor tone to the main figure.

senza sord. sul tasto

ppp

II.
Current

≈ 2" 4"

♩ = 63; Flowing (in time)

I

senza sord.

pp

(approximation of resulting sound)

8va

III - Harmonic gliss.
In approximate time. Bow freely.

senza sord.

8va

*

etc.

* Highest note possible on indicated string
(as harmonic)

pp

(approximation of resulting sound)

II - Harmonic gliss.

senza sord.

*

II
In approximate time. Bow freely.

* Highest note possible on indicated string
(as harmonic)

(approximation of resulting sound)

8va

I - Harmonic gliss.
In approximate time. Bow freely.

A

8va

*

etc.

* Highest note possible on indicated string
(as harmonic)

solo

p

p

mf

mf

p

3

mf

mf

B

(I)

I

p *sub.*

III

I

II

II

p *sub.*

p ***ppp*** ***p***

(approximation of resulting sound)

IV

etc.

pp *sub.*

ppp ***p***

(approximation of resulting sound)

8va

I

II

8va

etc.

ppp ***p***

C

(II)

(approximation of resulting sound)

"seagul effect"

II

p

mp

p

p

(III)

(approximation of resulting sound)

To Vc.

"seagul effect"

III

p

III

etc.

pp

II

8va

II

8va

etc.

pp

mf

p

"seagul effect"

III

(III)

p

III

etc.

(III)

(II)

"seagul effect"

II

I

8va

etc.

mf

pp

mf

mf

pp

mf

"seagul effect"

III

p

III

"seagul effect"

III

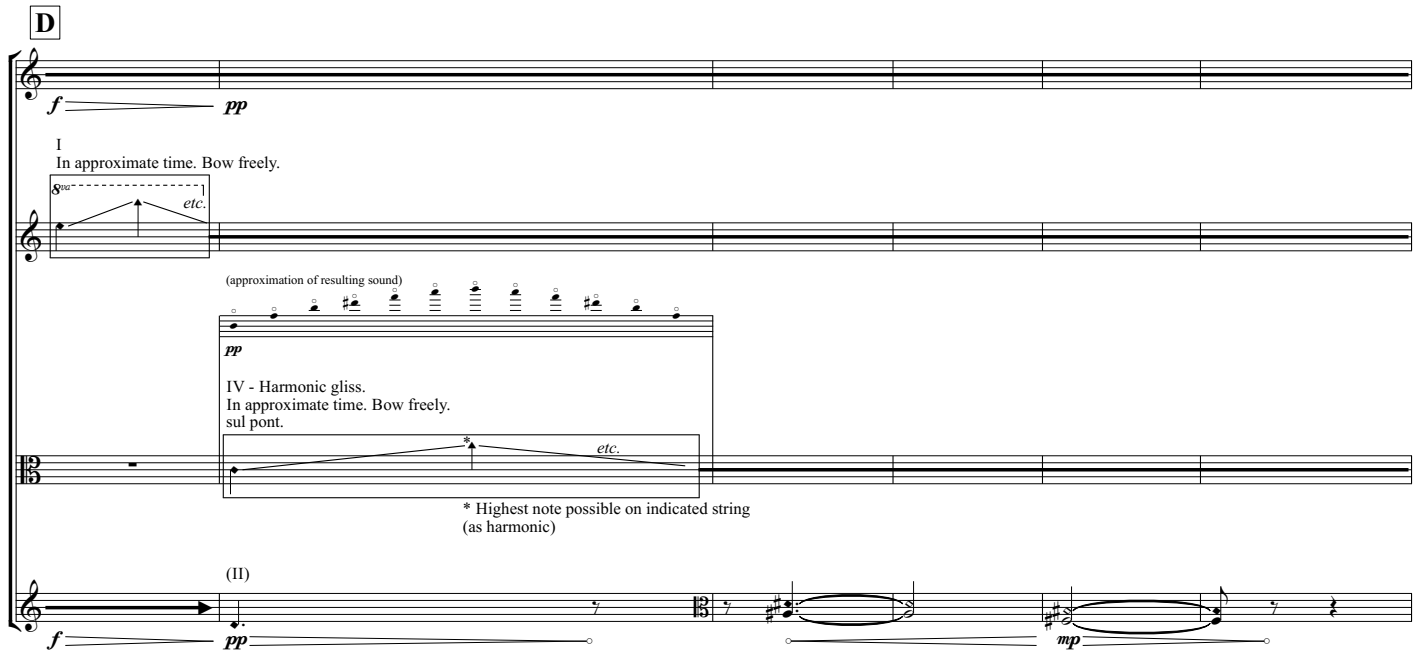
p

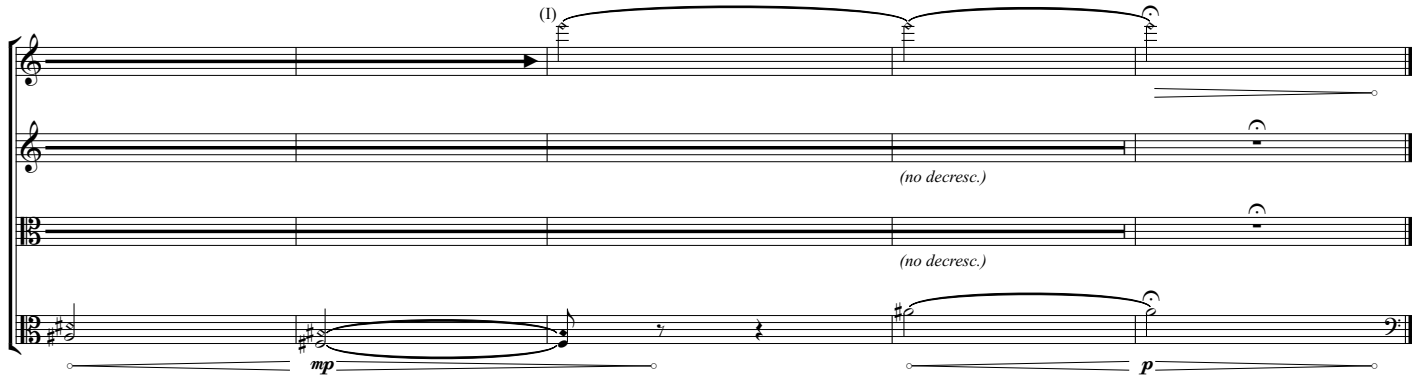
II

In approximate time. Bow freely.

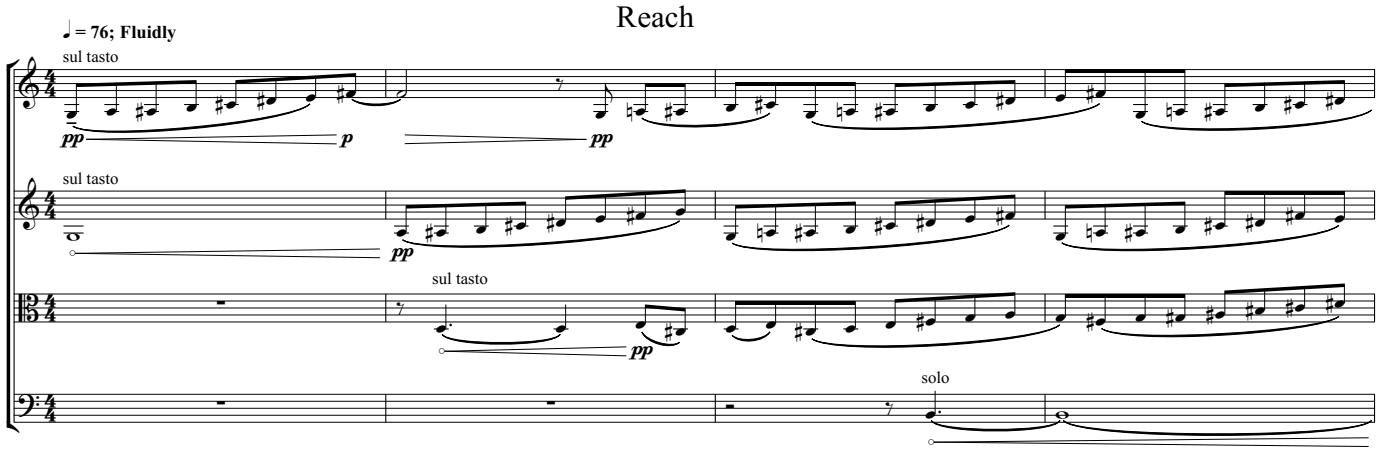
etc.

"seagul effect"


D
f
pp
I
In approximate time. Bow freely.
8va
etc.
(approximation of resulting sound)
pp
IV - Harmonic gliss.
In approximate time. Bow freely.
sul pont.
*
etc.
* Highest note possible on indicated string
(as harmonic)
(II)
f
pp
mp


(I)
(no decresc.)
(no decresc.)
mp
p

III.
Reach


♩ = 76; Fluidly
sul tasto
pp
p
pp
sul tasto
pp
sul tasto
pp
solo

A

pp mp pp mf gliss.

mf pp sub. molto sul tasto

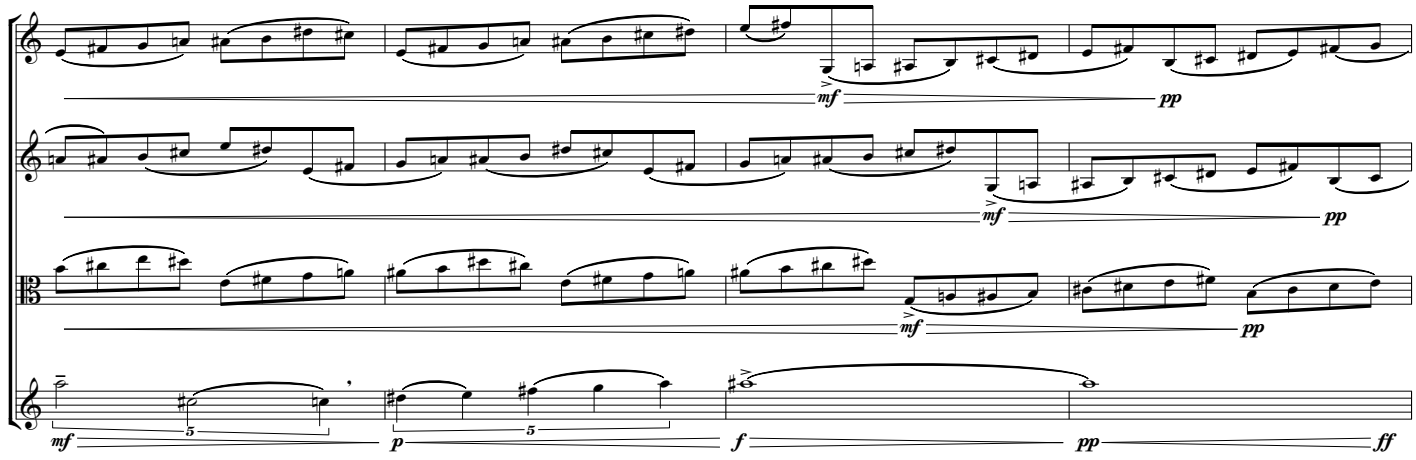
mf pp sub. molto sul tasto

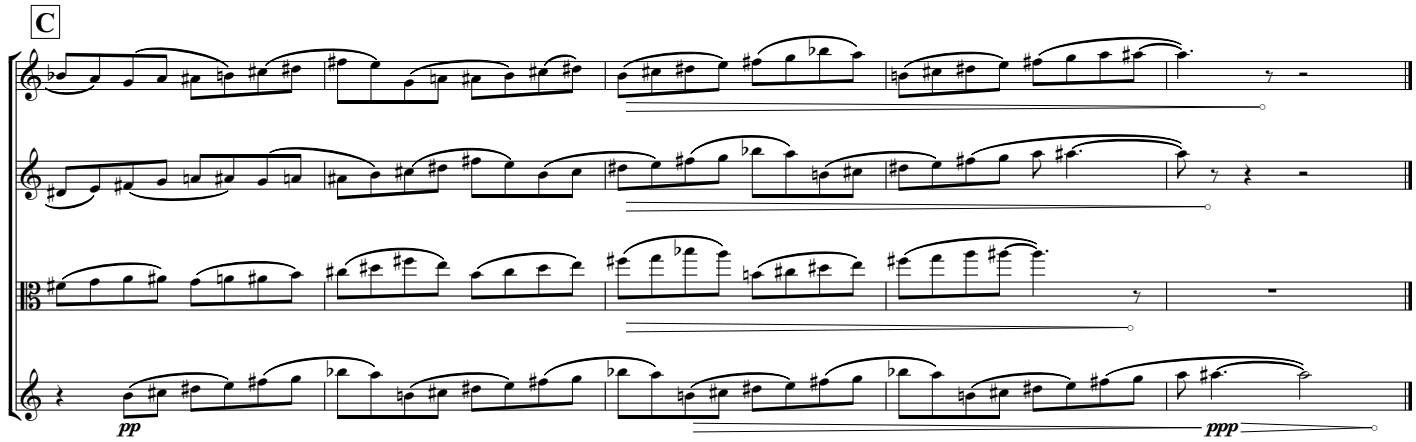
mf pp sub. molto sul tasto

pp

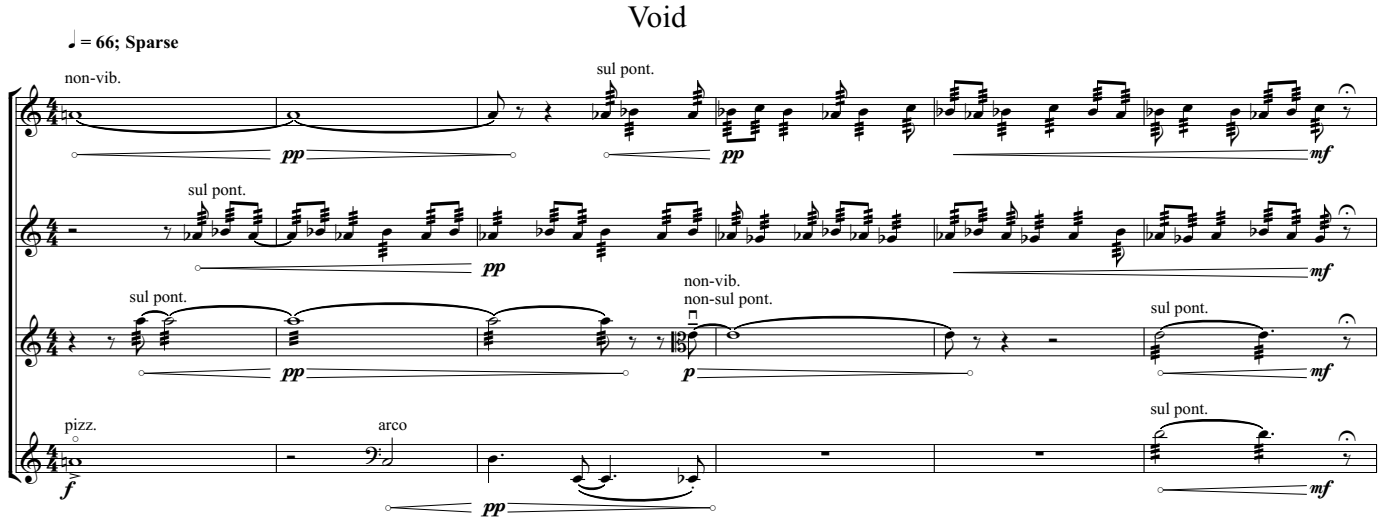
B

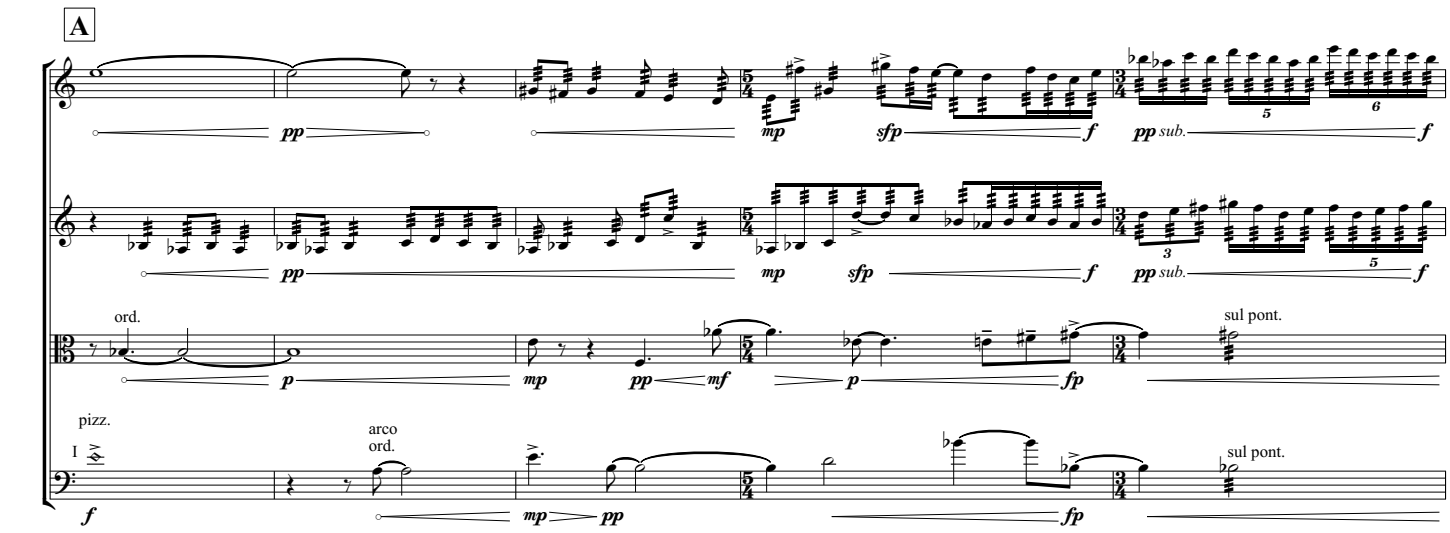
p mf pp

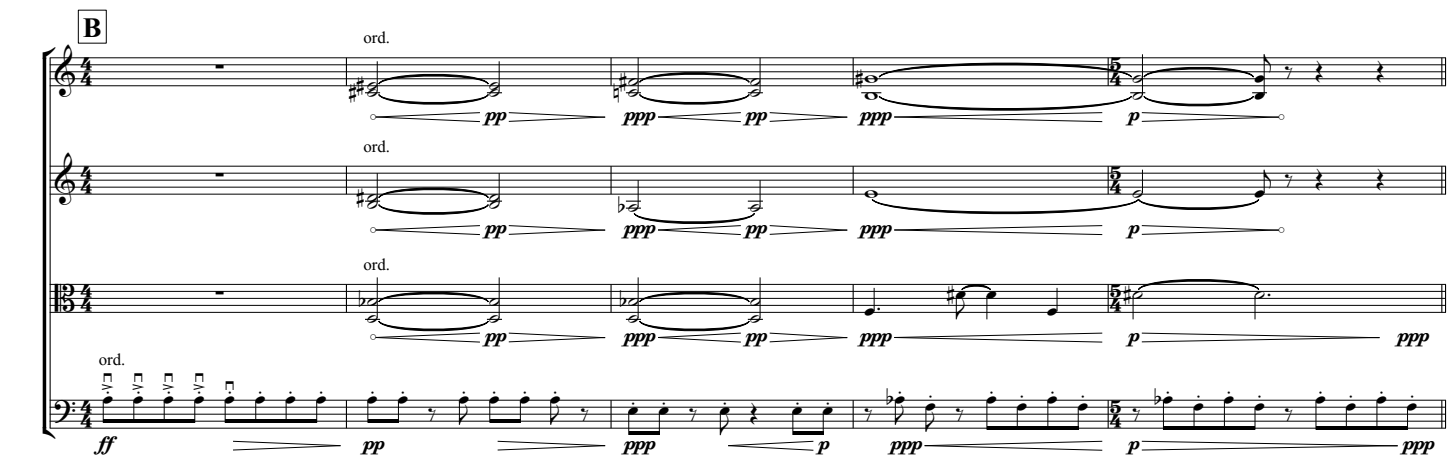

mf
pp
mf
pp
mf
pp
mf
p
5
5
f
pp
ff


C
pp
ppp

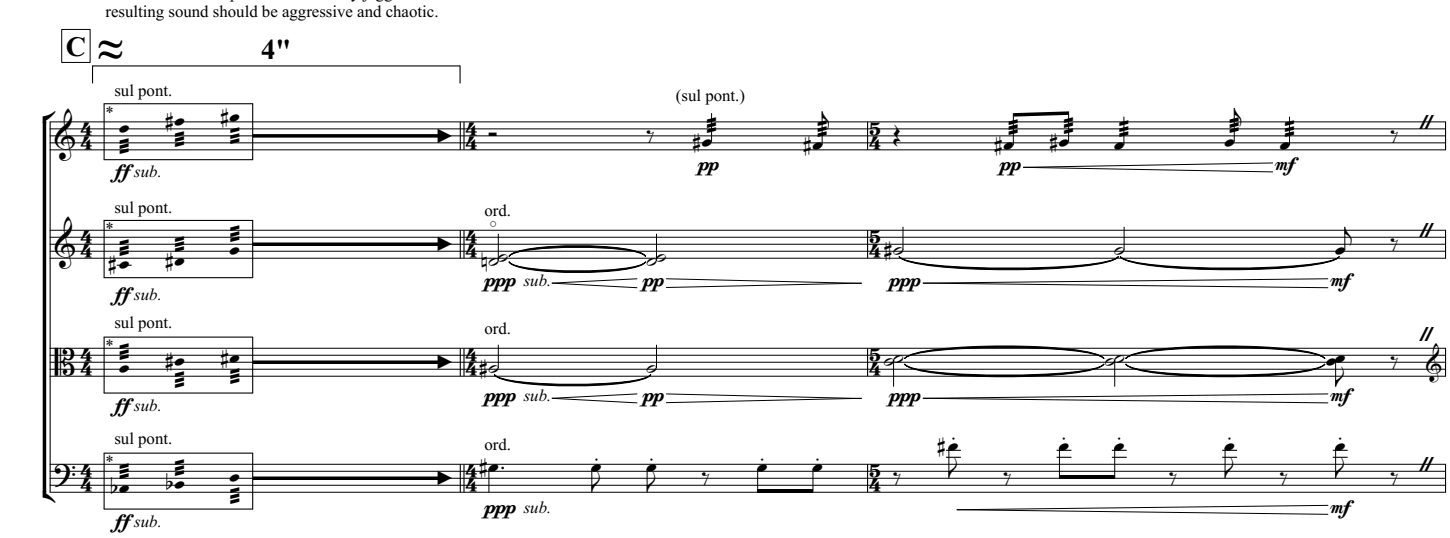
IV.
Void

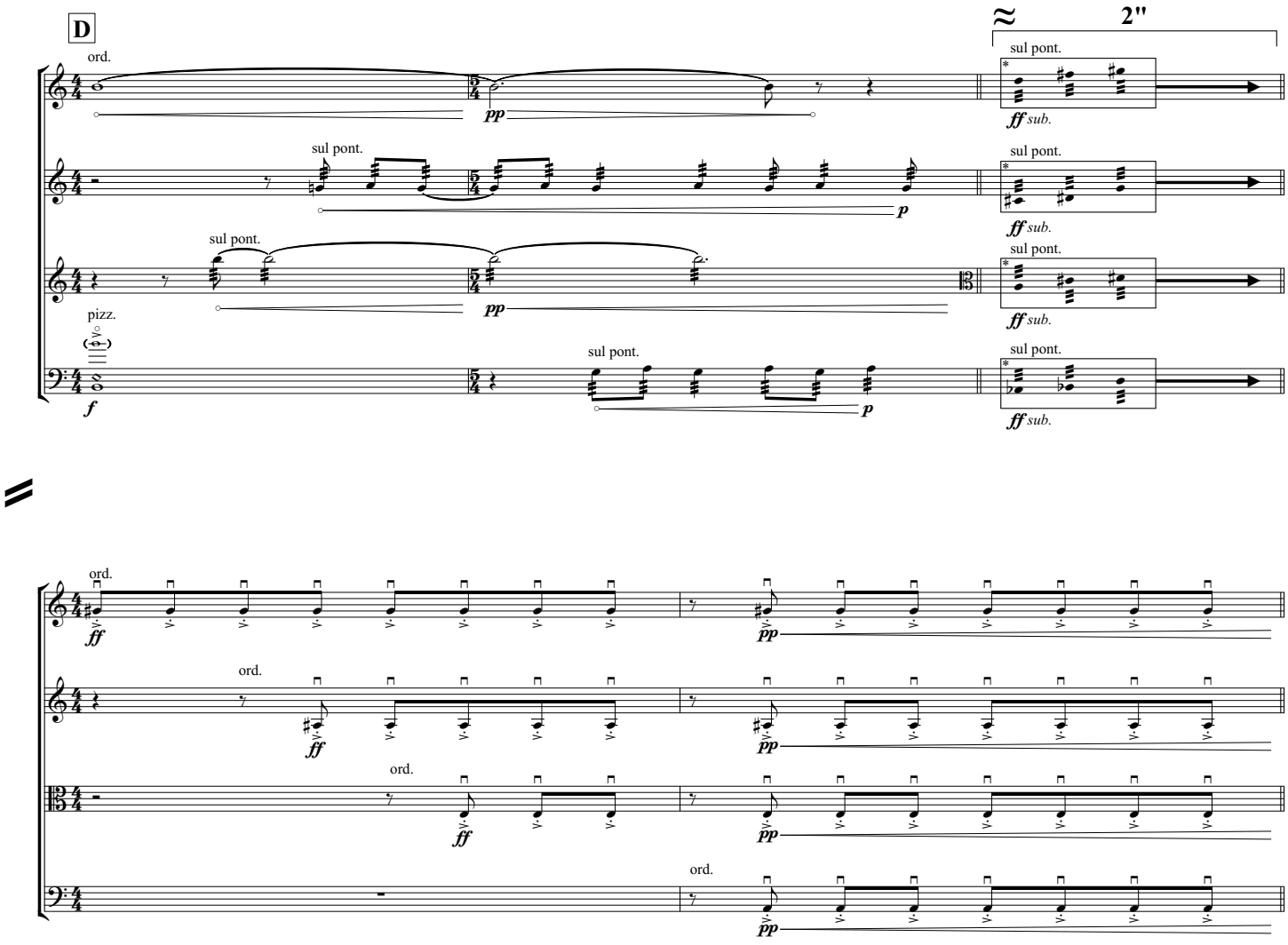

♩ = 66; Sparse
non-vib.
pp
sul pont.
pp
mf
sul pont.
pp
mf
sul pont.
pp
non-vib.
non-sul pont.
p
sul pont.
mf
pizz.
f
arco
pp
sul pont.
mf





* Randomized playing of the indicated pitches. There should be no sense of pulse, and the rhythms in each individual part should be very jagged. The resulting sound should be aggressive and chaotic.

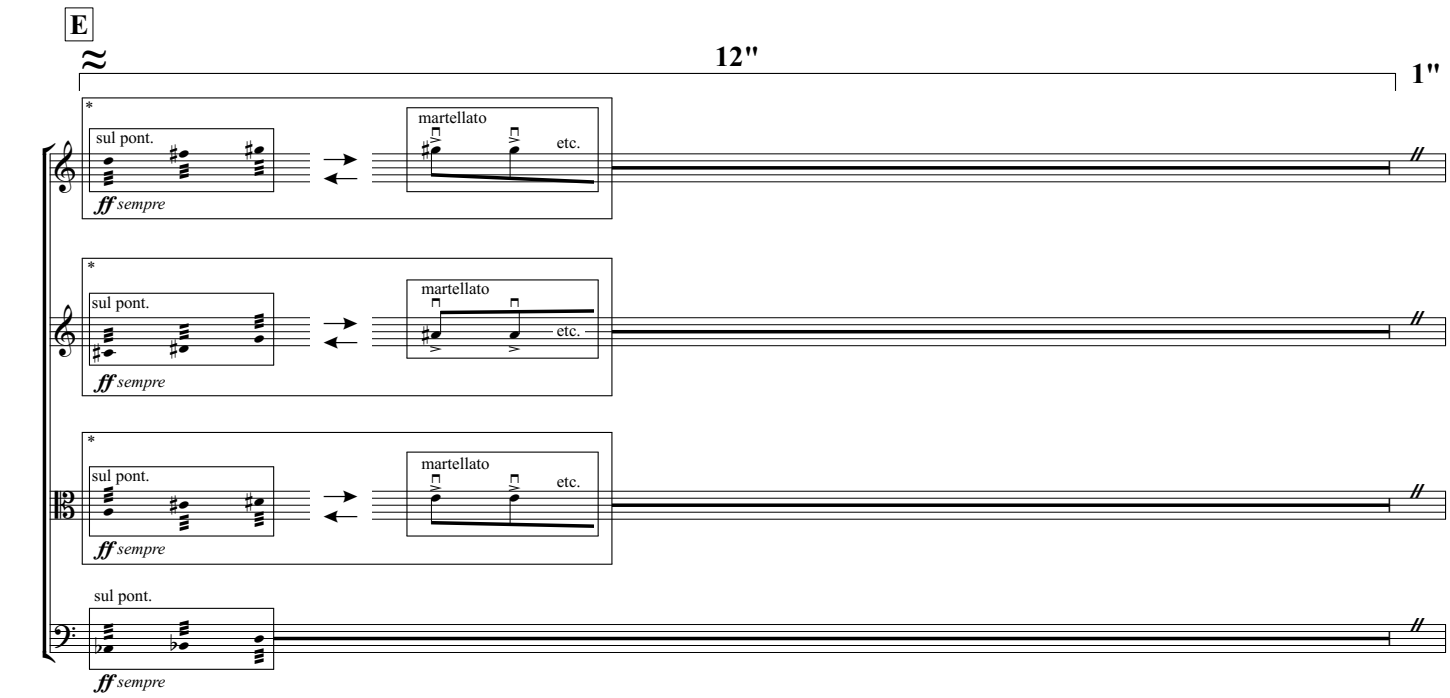




Vc. as before.

All others:
* Sporadically alternating between the two boxed figures. The first figure should be played like those from earlier in this movement, with jagged and chaotic rhythms, always sul ponticello. The second boxed figure (not sul ponticello) should be a series of consecutive eighth-notes on the indicated pitch (♩ = 66). This boxed figure may be as short as a single eighth-note, or as long as desired. The character should be bold and strident.

Overall, the effect should be a tumultuous and cacophonous layering of sound, with occasional pitches in a clear eighth-note rhythm breaking through the texture.



Gradually losing intensity

3" 1" 2" 1" 1" 1"

sul pont.

mf *p* *pp*

sul pont.

mf *p* *pp*

sul pont.

mf *p* *pp*

sul pont.

mf *p* *pp*

F

sul pont.

mf *p*

sul pont.

ord.
non-vib.

mf *pp*

sul pont.

pp *p*

pizz.

f *mf*

pp *pp*

pp *pp*

pp *pp*

pp *pp*

p *pp*

G

♩ = 56; Calm

ord.
con sord.
non-vib.

pp

ord.
con sord.
non-vib.

pp

ord.
con sord.
non-vib.

pp

pp

arco
con sord.
poco vib.

pp ppp pp ppp

H

poco accel.

ppp

ppp

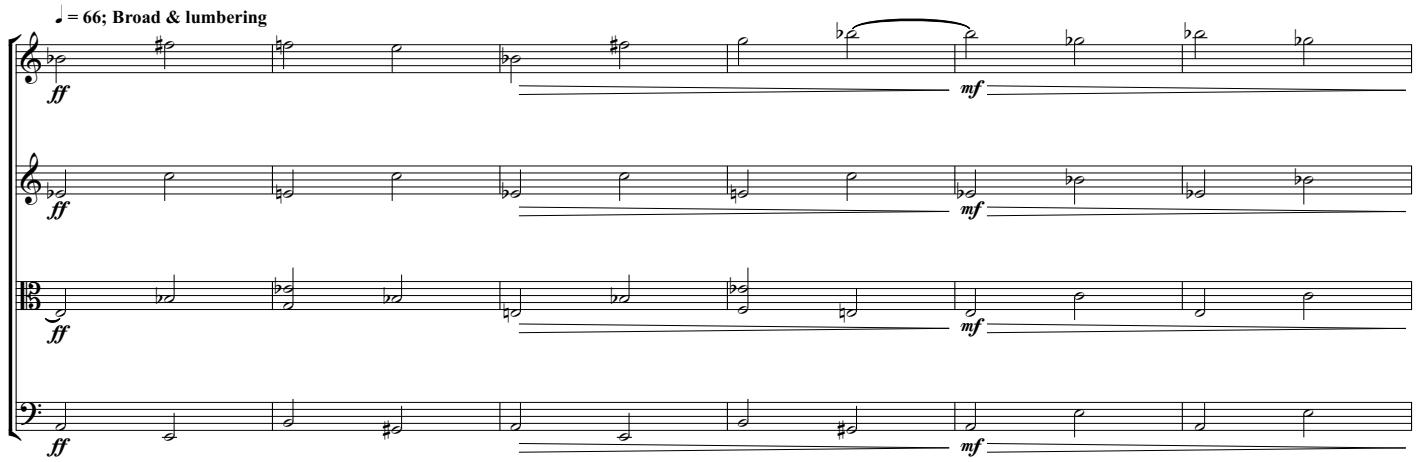
ppp

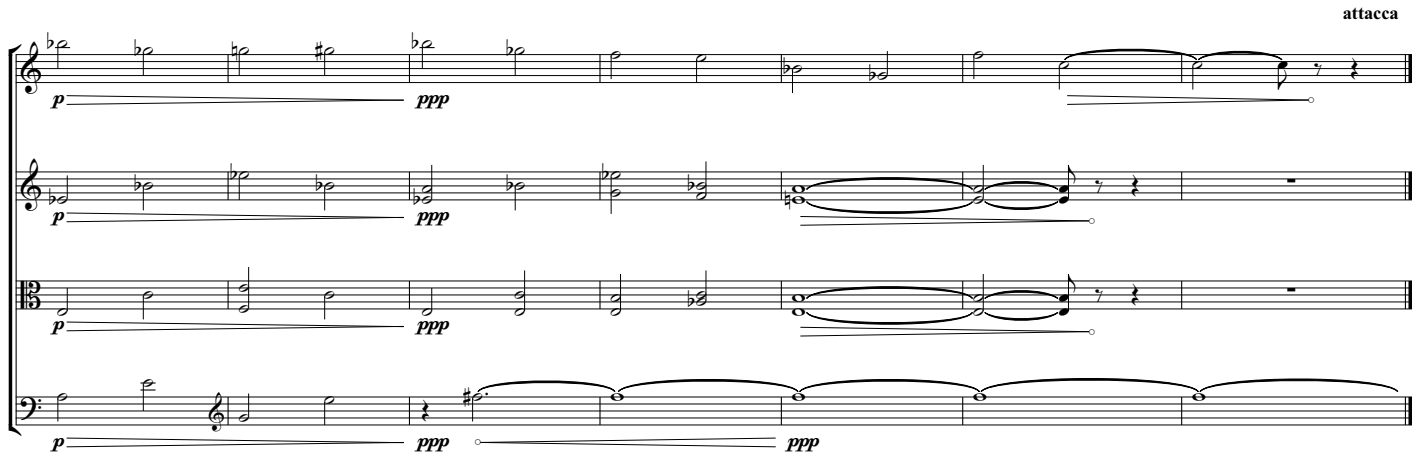
mp

mp

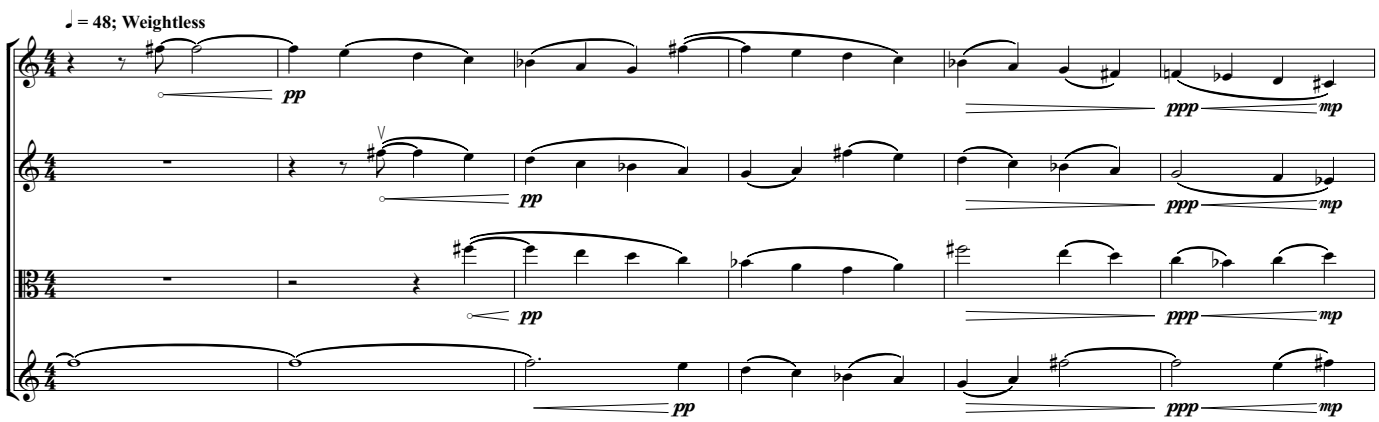
mp

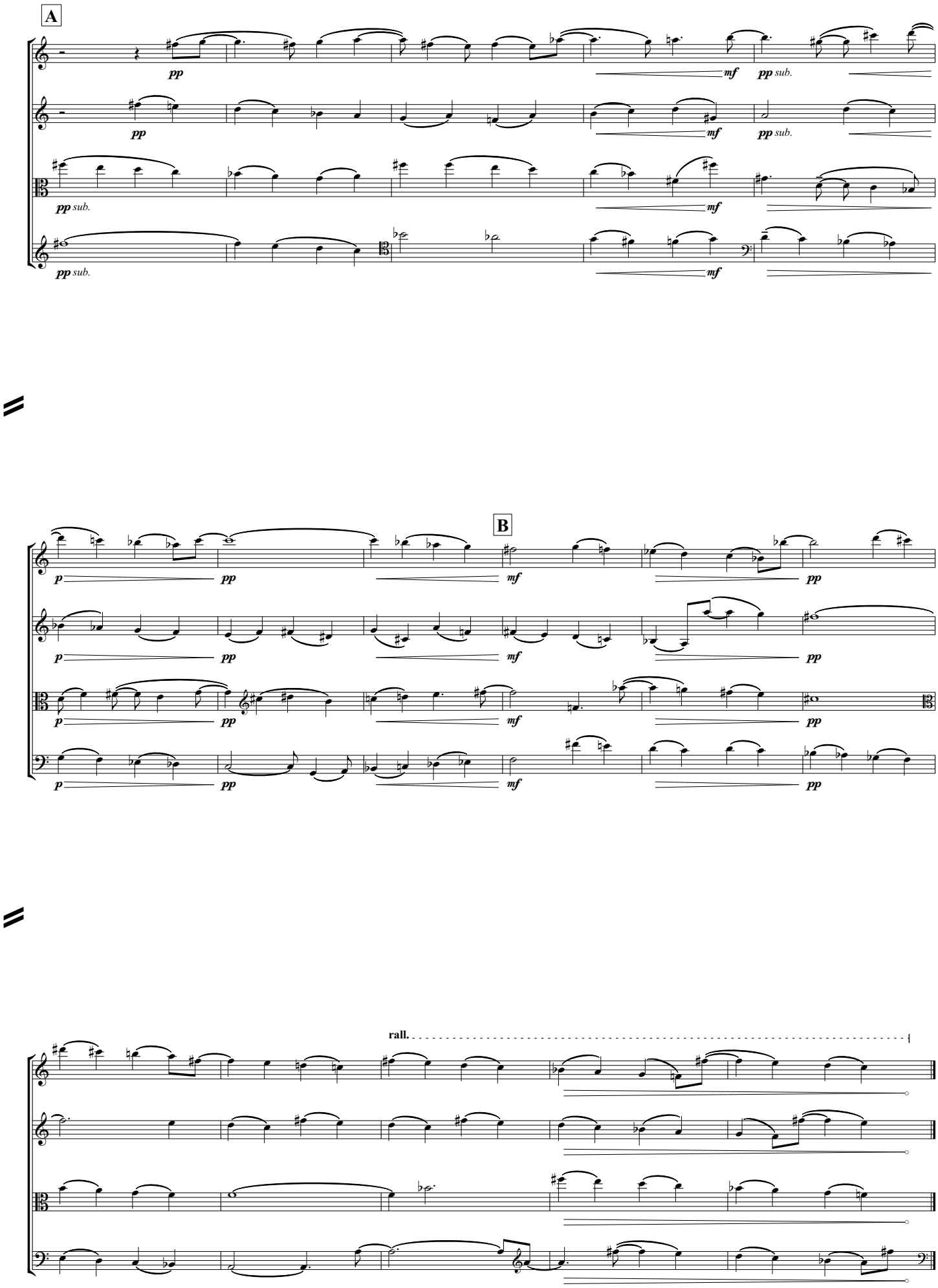
mp


♩ = 66; Broad & lumbering
ff
mf

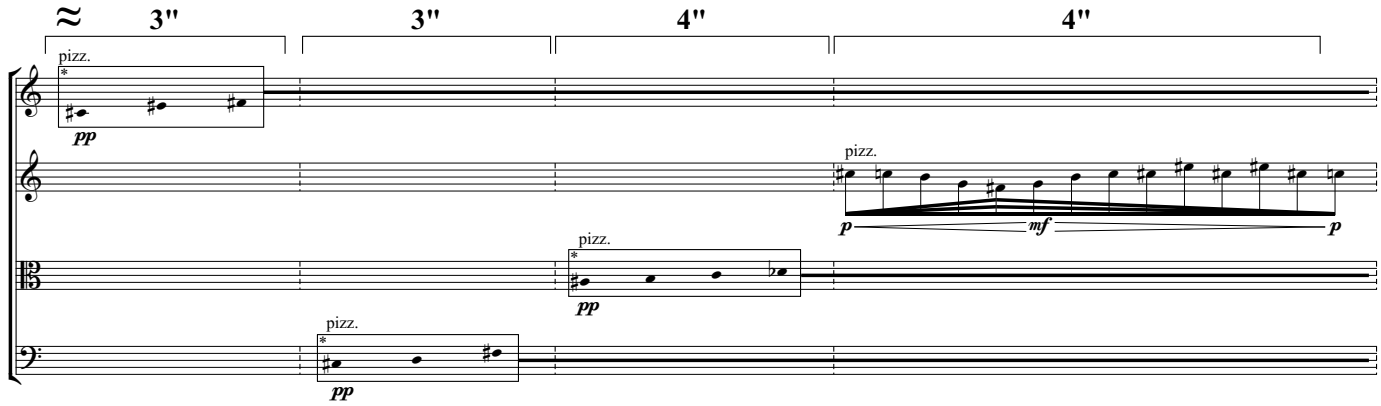

attacca
p
ppp

V.
Descent

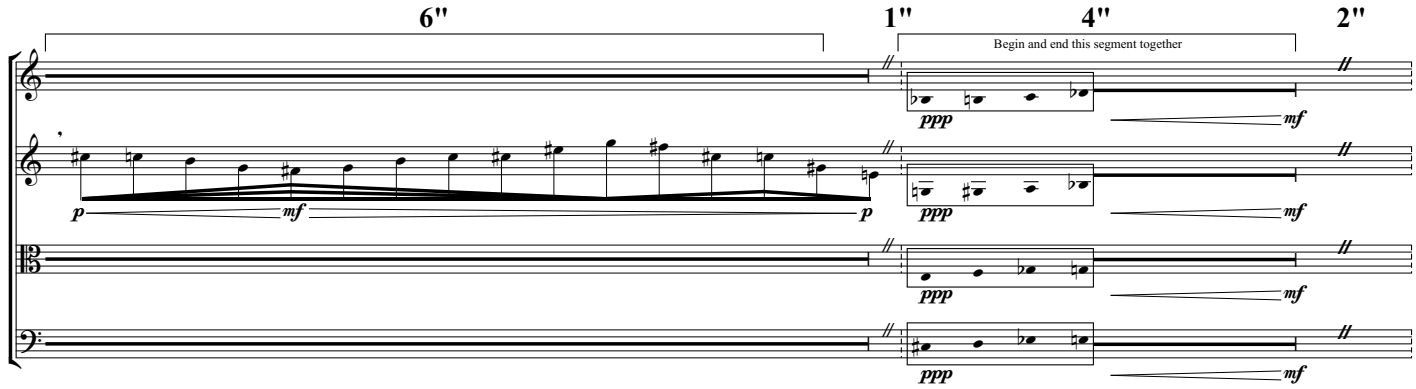

♩ = 48; Weightless
pp
ppp
mp

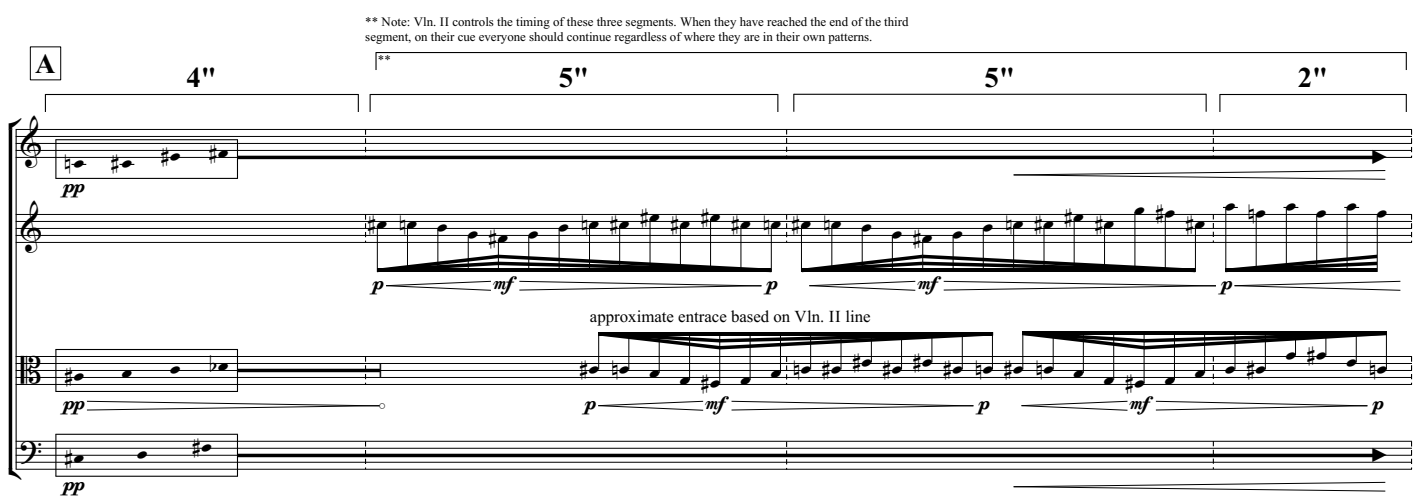

A
pp
mf
pp sub.
B
p
pp
mf
rall.

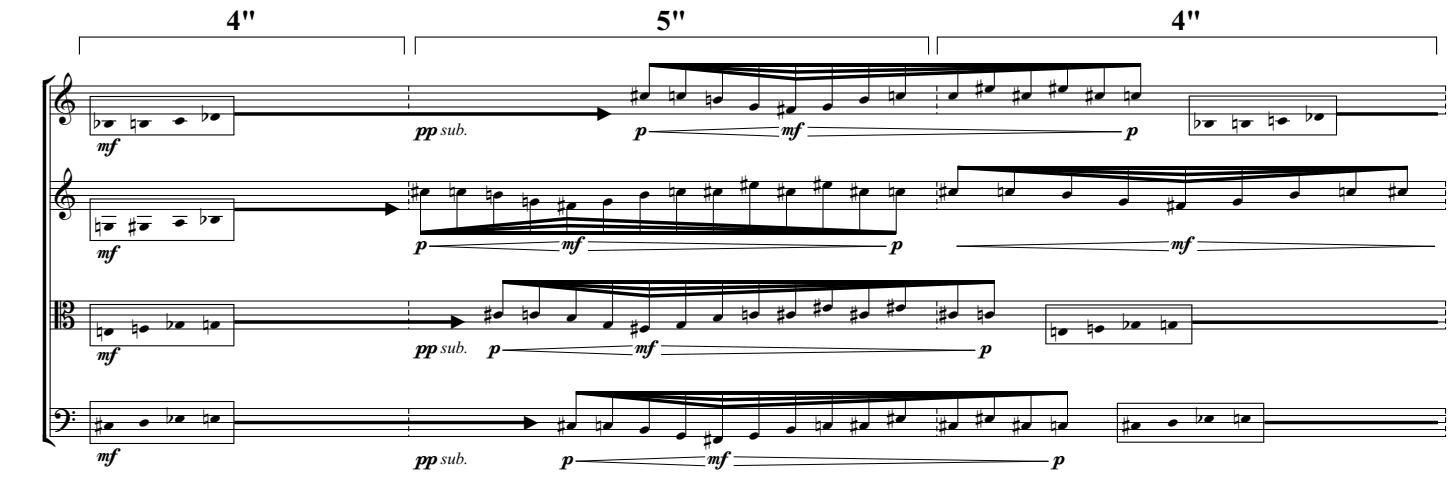
VI.
Searching

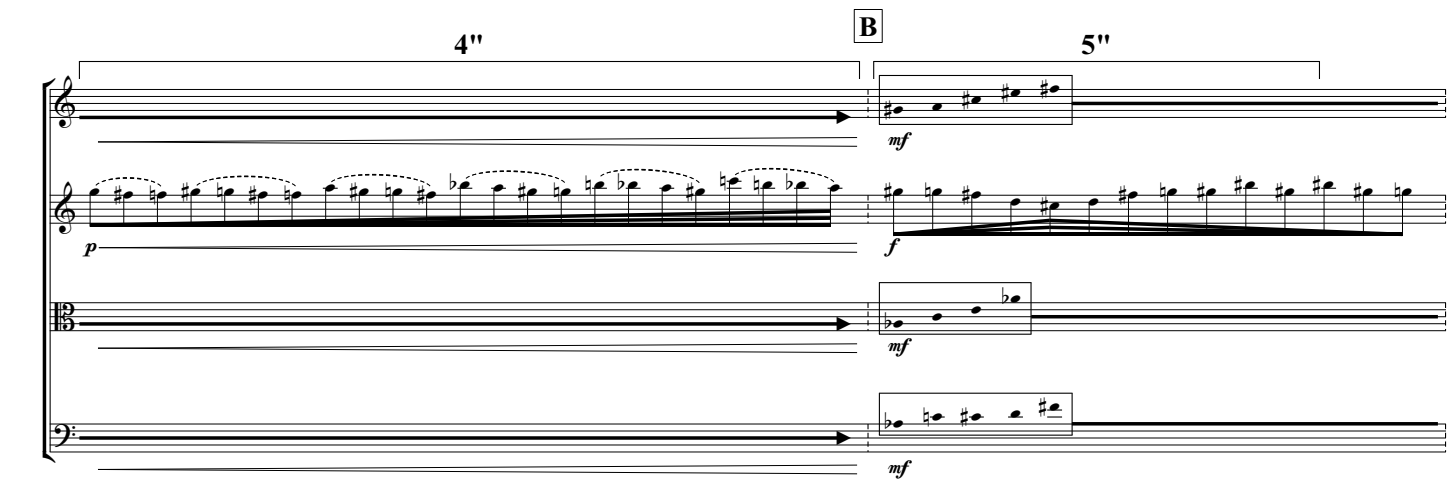


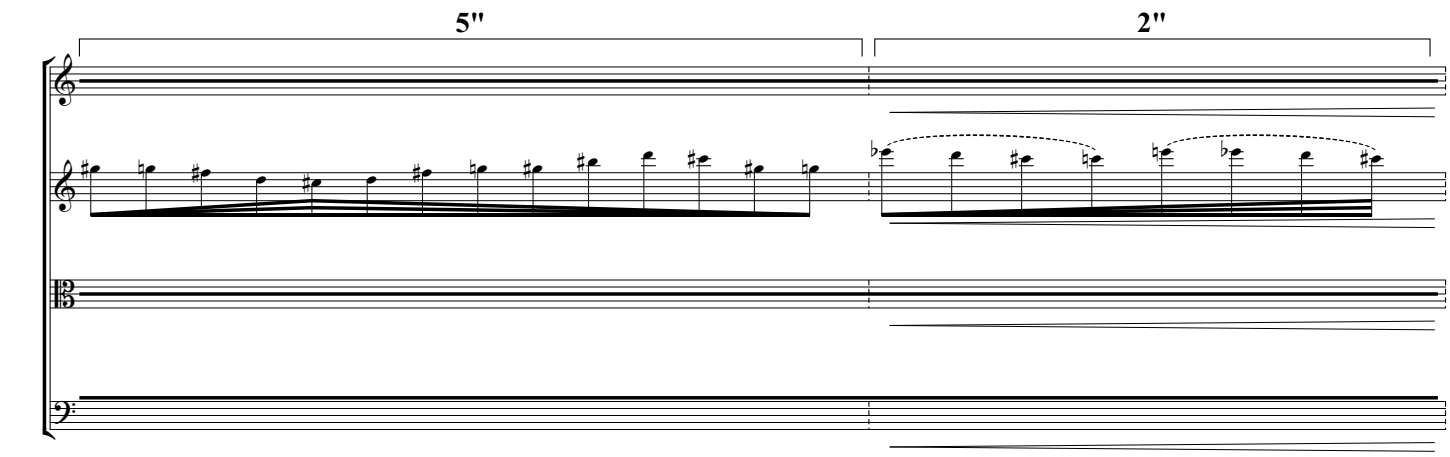
*All boxed figures in this movement should be performed as follows:
- pitches in any order (you may repeat a pitch)
- avoid repeated patterns or highlighting one particular pitch too often
- rather quickly, always with sporadic and jagged rhythms
- no sense of pulse
- no dynamic alteration unless specifically indicated






4"
5"
4"
mf
pp sub.
p
mf
p


4"
B
5"
mf
p
f
mf
mf


5"
2"

C

20"

*** Vln. II controls this cutoff. All stop, regardless of where you are in your pattern.

8"

2"

***

ff sempre

3"

8"

8"

10"

pp

arco
poco vib.

p

VII.
Identity

≈ 4" 4" 8" 8"

con sord.
enter shortly after Vln. 2

gliss.

con sord.
enter shortly after Vc.

con sord.

con sord.

enter shortly after Vla.

A

10"

♩ = 48; Nebulous

♩ = 48

gliss.

pp mp pp mp pp

gliss.

pp

gliss.

pp

♩ = 48

gliss.

pp mp pp mp pp

accel. ♩ = 63

Like movement II.
I - Harmonic gliss.
In approximate time. Bow freely.

B

8va

etc.

pp mp f

tr

pp mf

mf p mf

Like movement II.
II - Harmonic Gliss.
In approximate time. Bow freely.

ppp mp f

rall. ♩ = 48

(harmonic gliss.)

sim.

8va gliss.

mf p

8va gliss.

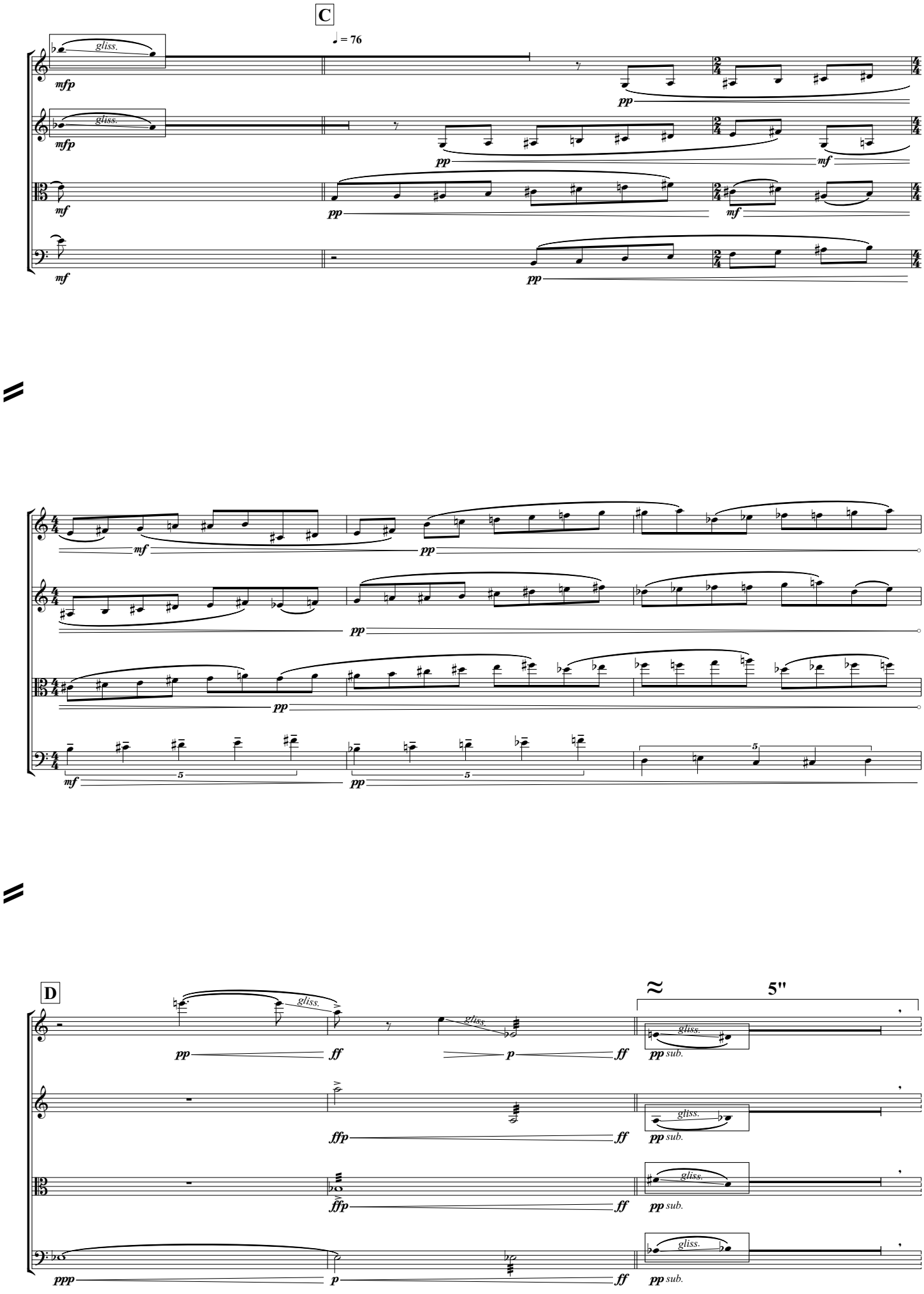
p ppp

(tr)

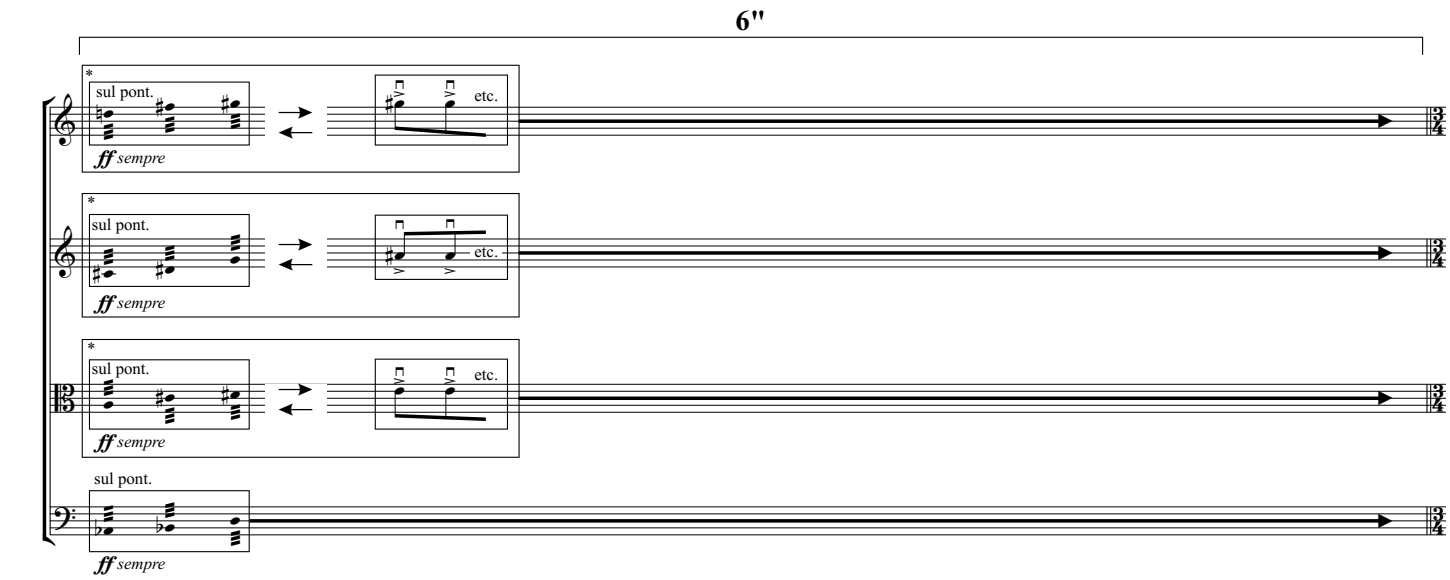
ff pp

pp

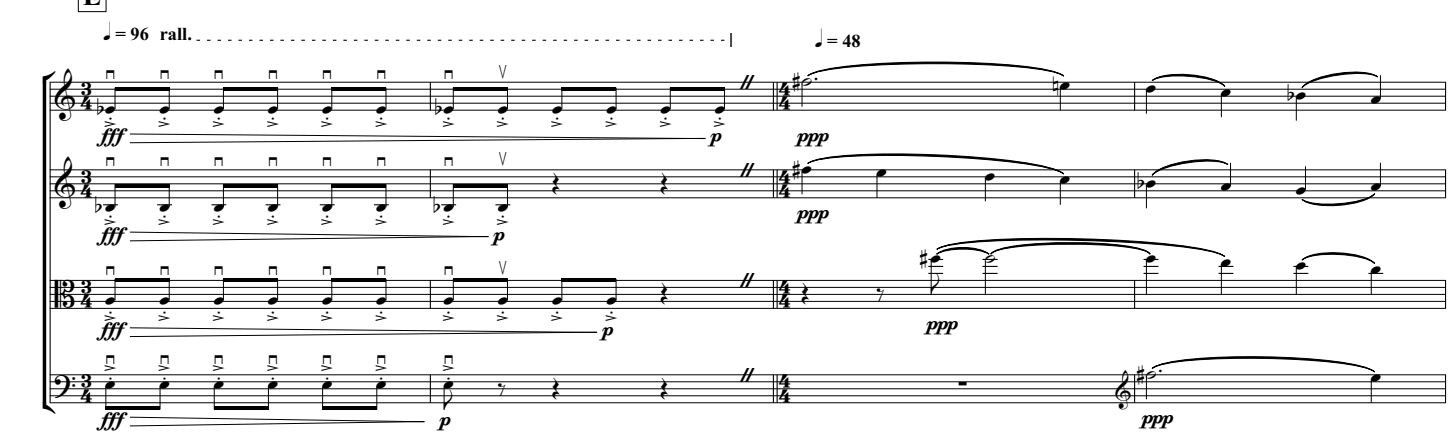
ff

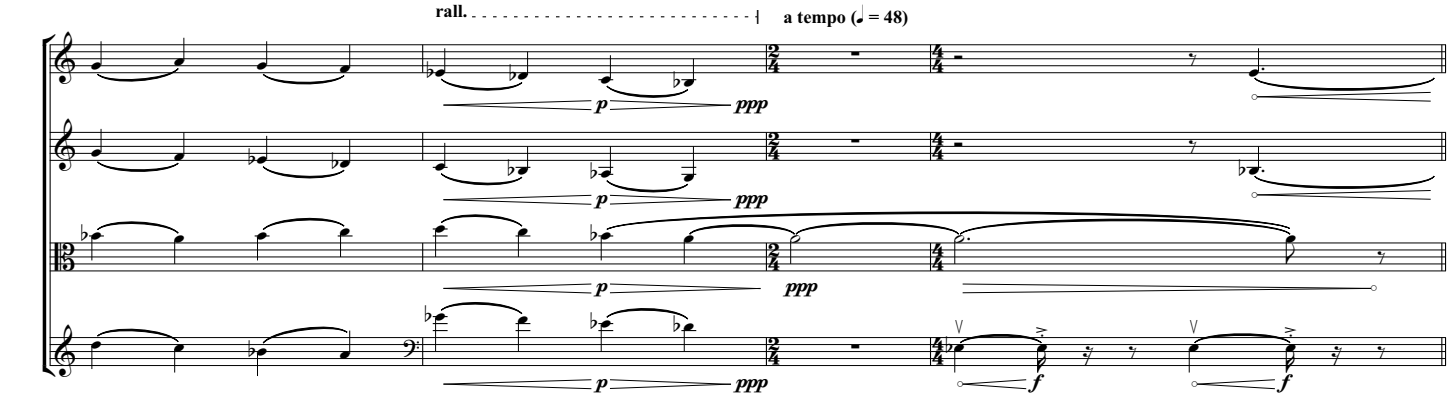

C
♩ = 76
gliss.
mfp
pp
mf
D
gliss.
pp
ff
p
ffp
ppp
pp sub.
5"

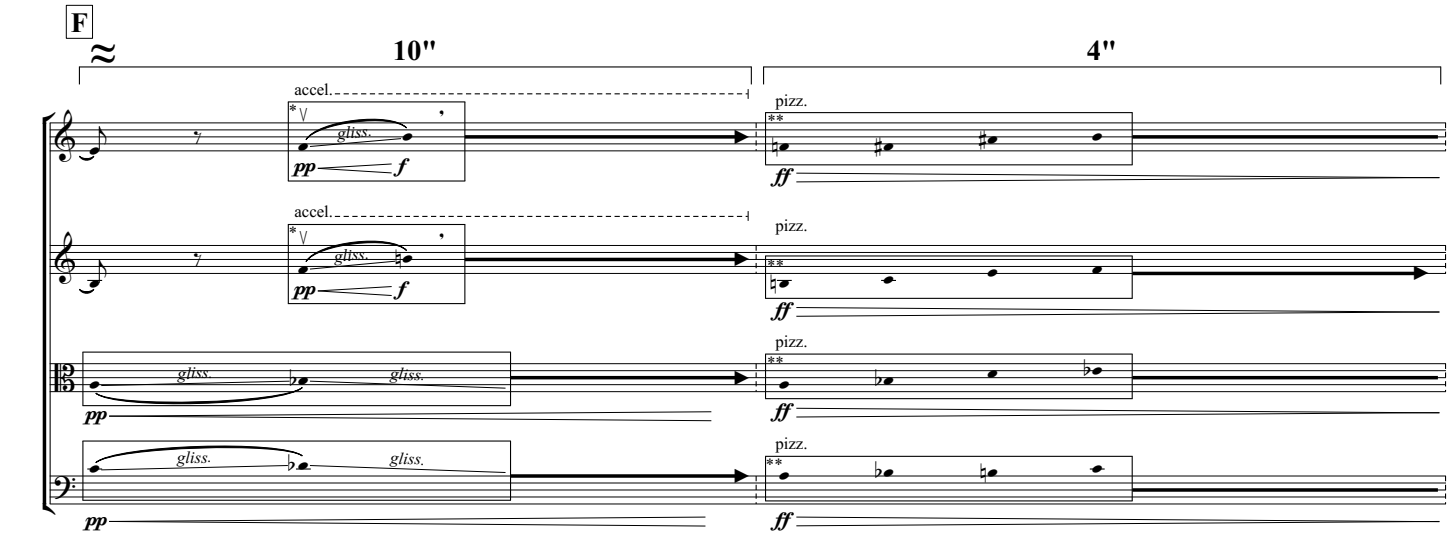
* Like movement IV
The first figure should be played with jagged rhythms, no sense of pulse, and always sul ponticello. The second figure, not sul pointicello,
is a series of consecutive eighth-notes at ♩ = 60. Alternate between the two figures freely, always maintaining a high level of energy.



E

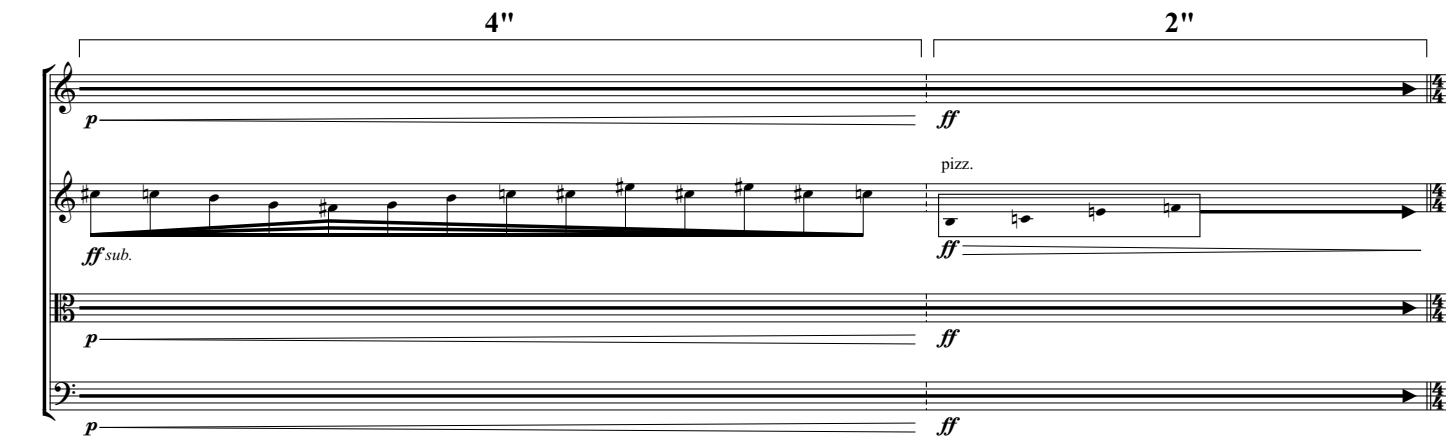


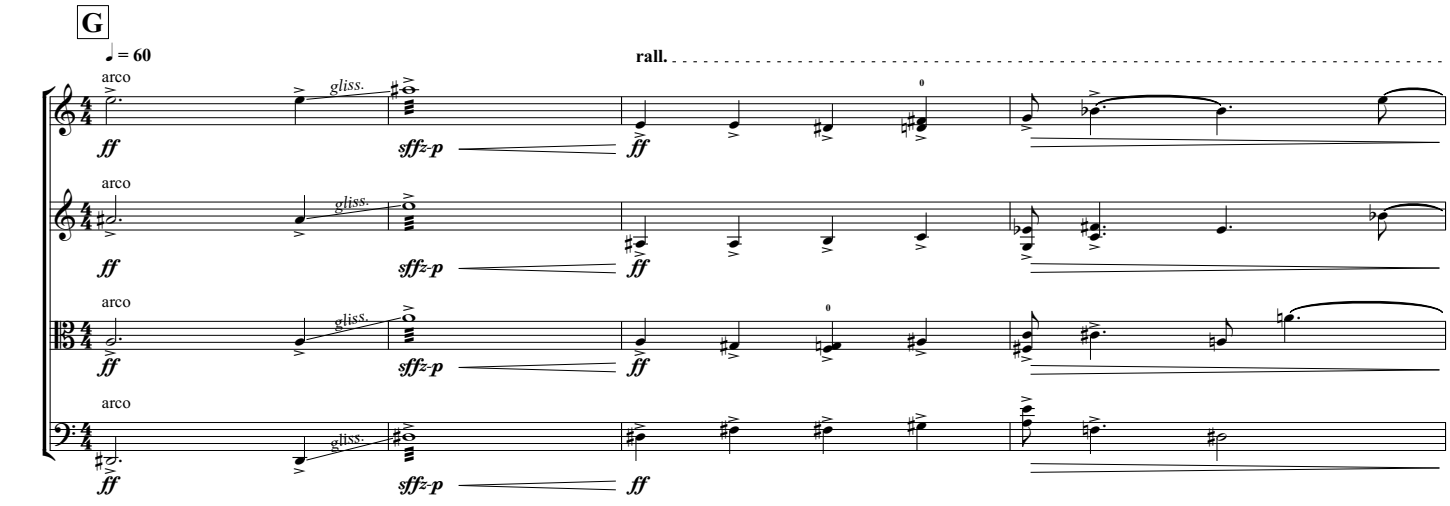




* Repeat the boxed figure, each time crescending the from a relatively quite dynamic to a louder one. Over the course of the measure, gradually increase the speed to the figure from a moderate tempo to a frantic and frenzied tempo by the end (as fast as possible).

** Like movement VI. Rather quick, randomized playing of the indicated pitches, avoiding any patterns or a sense of pulse.





H

♩ = 48

p pp ppp gliss.

VIII.

Pulse

A

♩ = 144; Driving

pizz

mf ff sfz p sfz

* Given the speed, this should be more of a purcussive effect. It is not necessary that we hear each pitch clearly.

pizz.

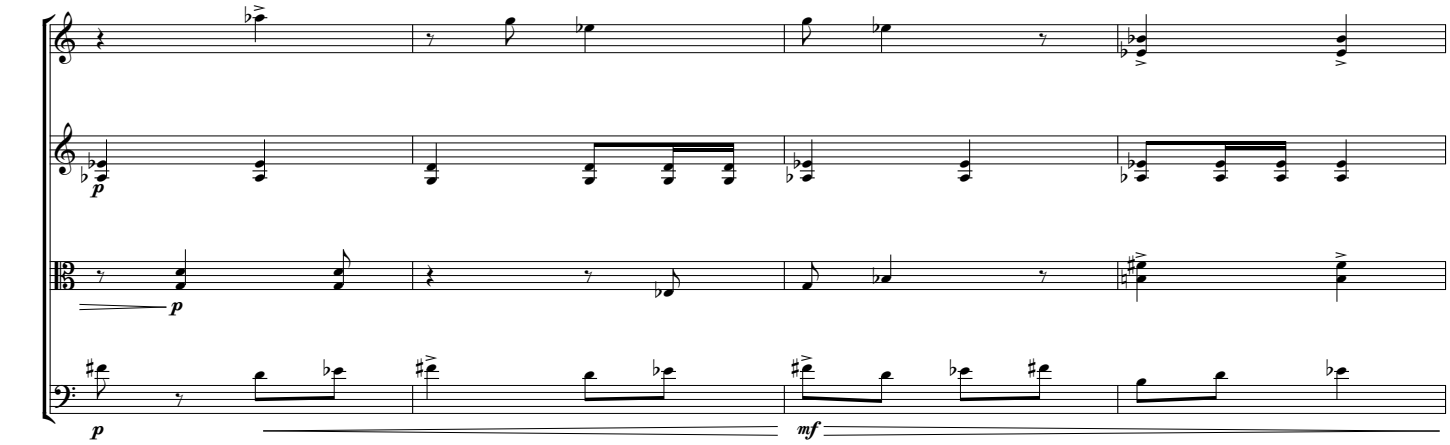
ff p

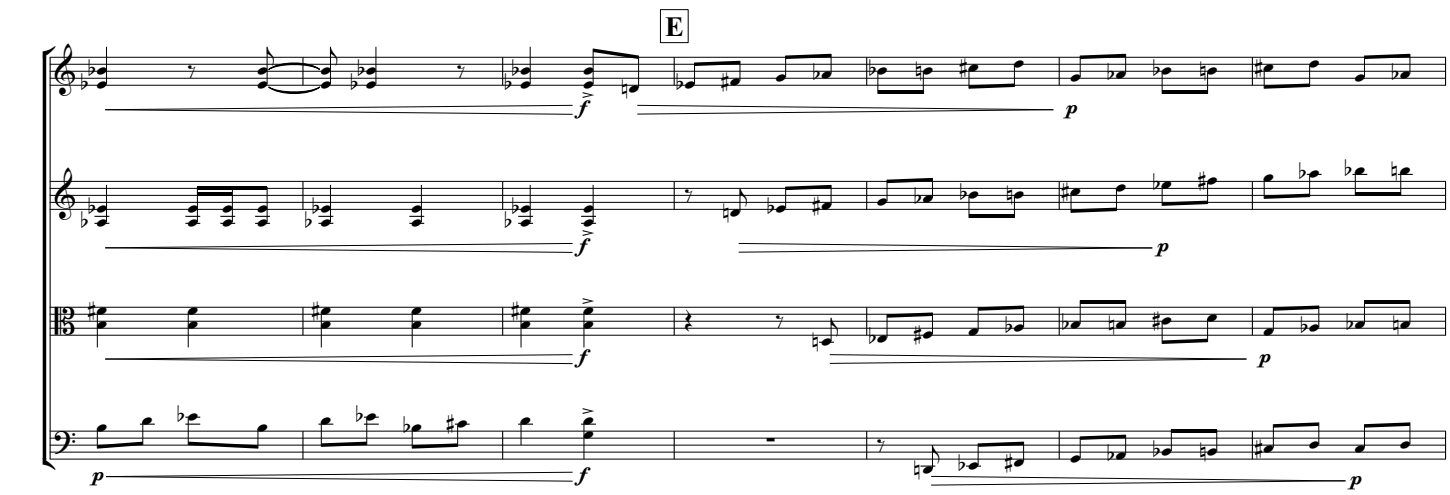
B

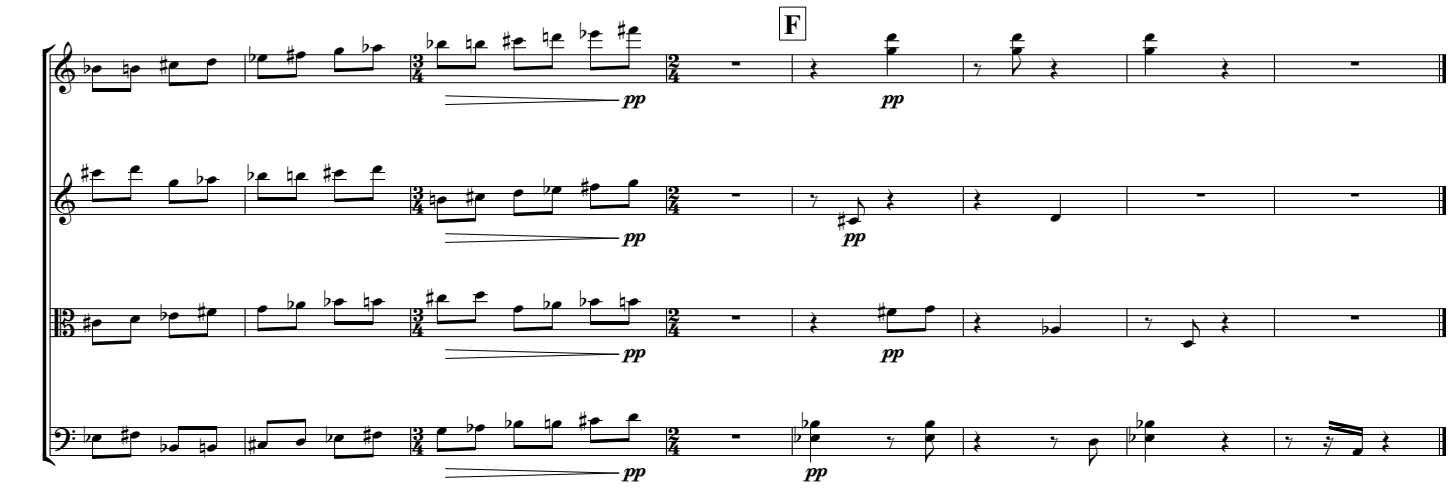
* Given the speed, this should be more of a purcussive effect. It is not necessary that we hear each pitch clearly.

C

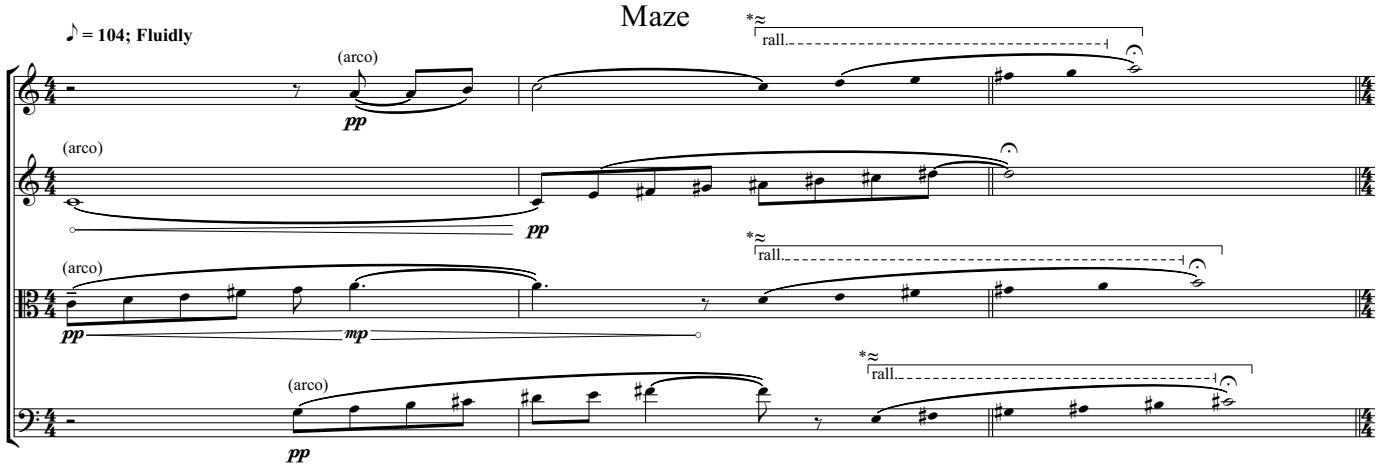
D


p
p
mf

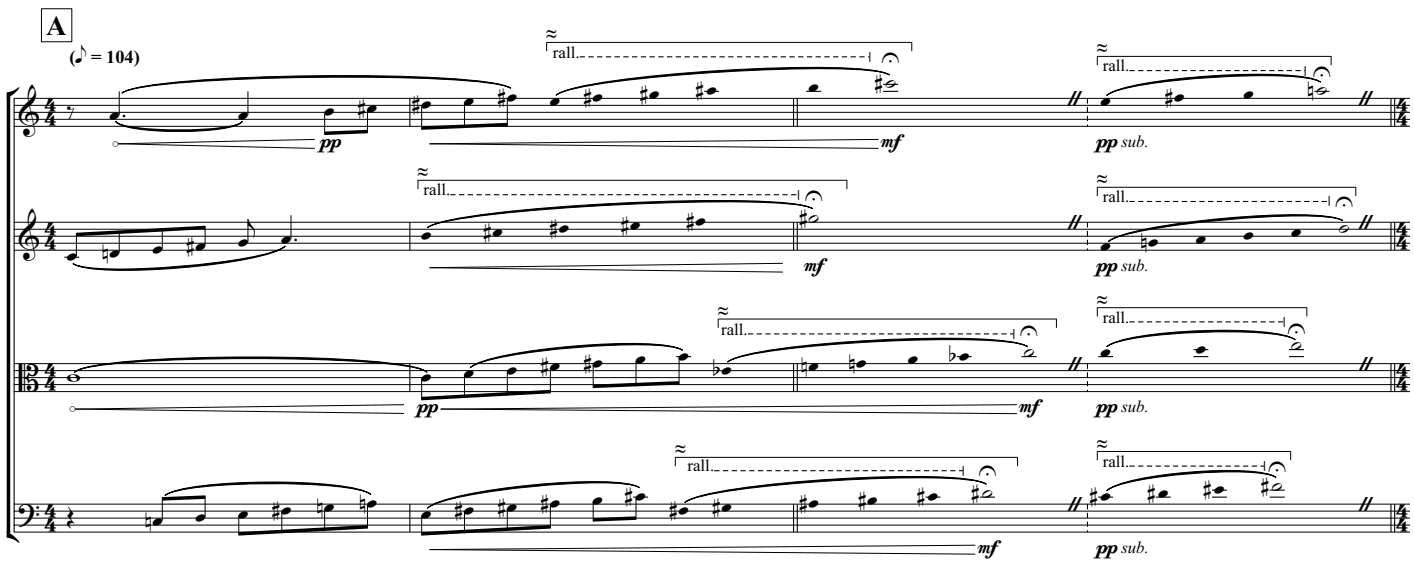

E
f
p
f
p
f
p
p

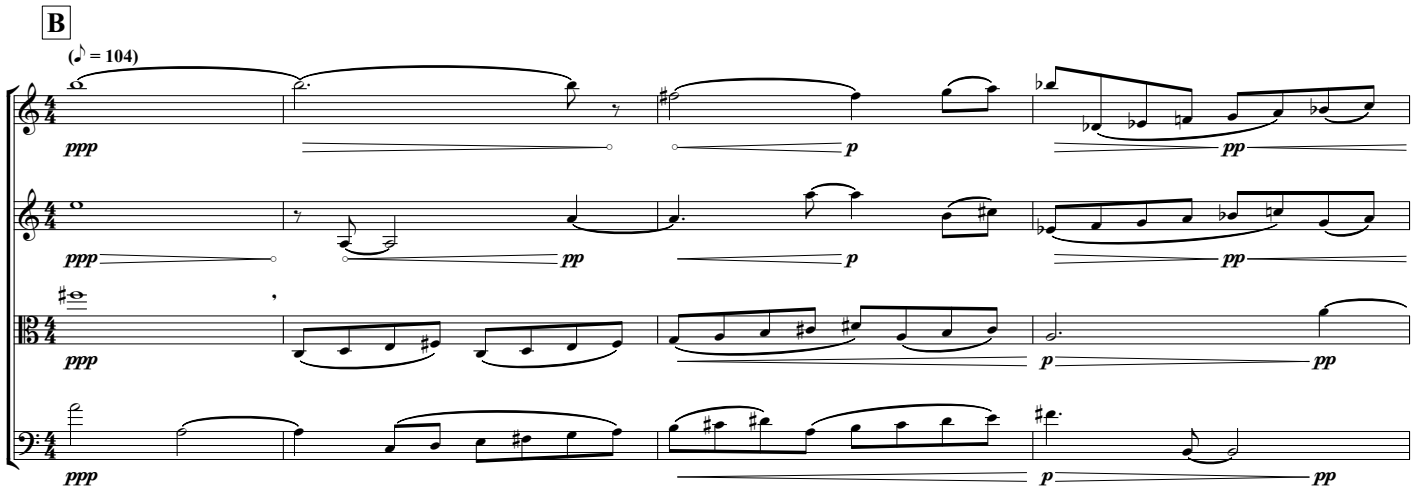

F
pp
pp
pp
pp
pp
pp

IX.
Maze



* Individual null time. For the duration indicated, each player with this marking in their part is responsible for their own sense of time and pulse. This should not be an extreme departure from the established sense of pulse in the movement, and should start in roughly the same time and character. Over the duration of the null time, gradually slow your individual tempo, asynchronous from everyone else. The effect should sound like a relatively clear sense of pulse slowly evaporates.





C

≈ rall.

mf pp pp p pp

≈ rall.

mf pp pp p pp

mf pp mf

mf pp mf

D

≈ rall.

p pp

≈ rall.

p pp

pp

pp

≈ rall.

≈ rall.

E

♪ = 96; Slightly slower

ppp

ppp

ppp

ppp

pp

rall.

rall.

rall.

8va

ppp

X.

Split

A

♪ = 96

accel.

♩ = 60; Reaching

pp

pp

pp

mp

pp

mp

pp

pp

III

ppp

mp

pp

B

C

rall.

pizz.

arco

D

♩ = 60; Flowing

pizz.

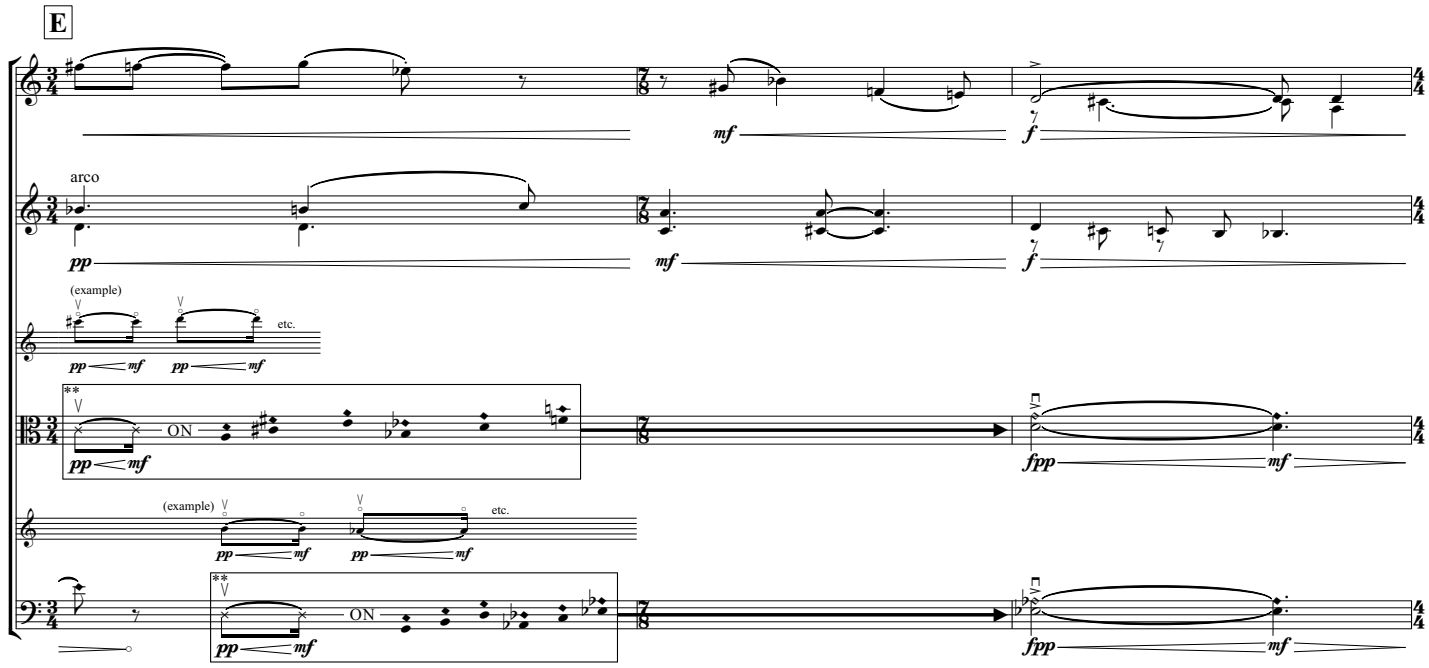
pizz.

* At a moderate pace, play the indicated pitches in a randomized order and with relatively jagged and non-repeating rhythms. In the parts that play this figure, there should be no sense of pulse.

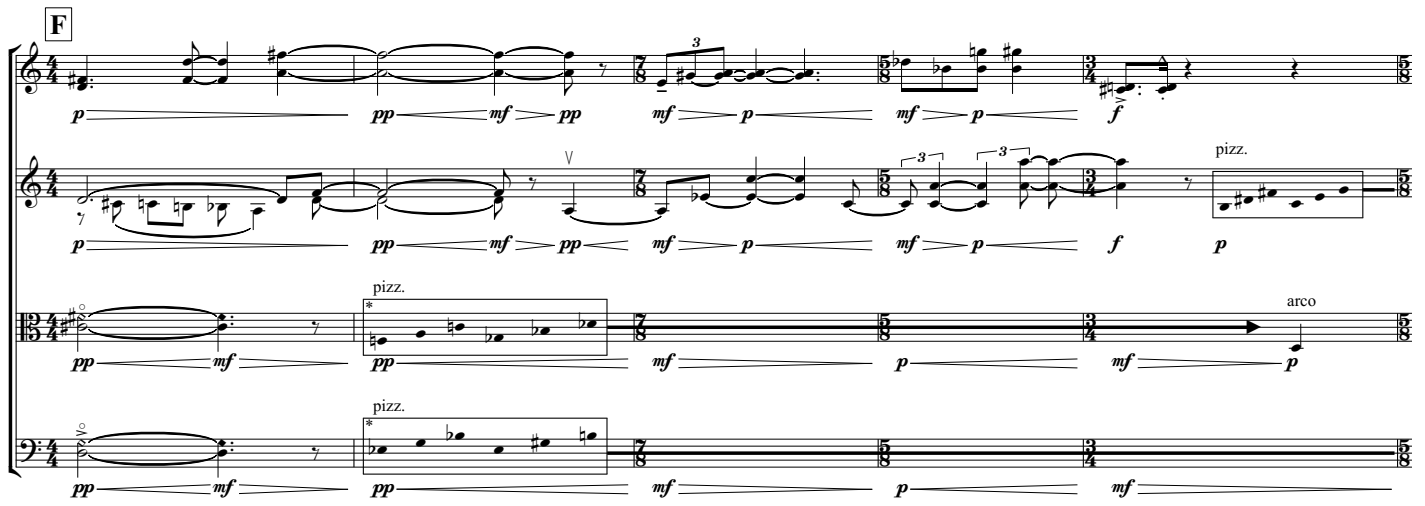
arco

III

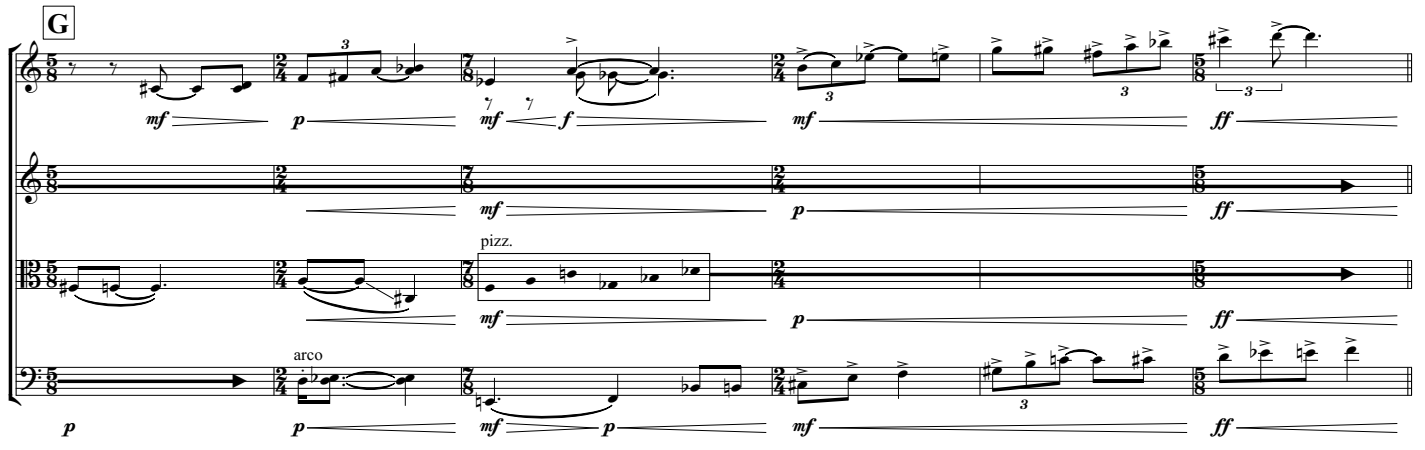
I

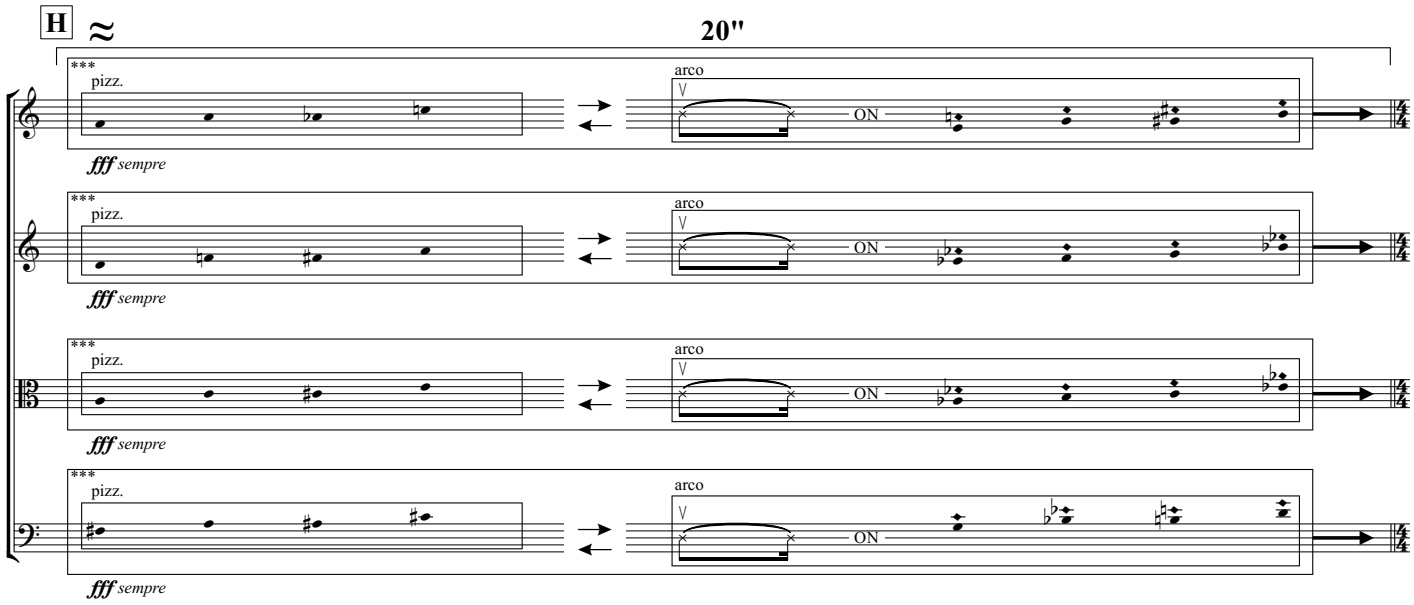


** At the beginning of the figure, a rhythmic and dynamic pattern is indicated. In the second part of the figure, there are a series of harmonic pitches. Randomizing these harmonic pitches, play each in the rhythm/dynamic of the pattern given at the beginning of the figure. An example is provided above each part with this figure. You may use alternate fingerings for the harmonics as you prefer. The performance of this figure does not need to be exceptionally fast.

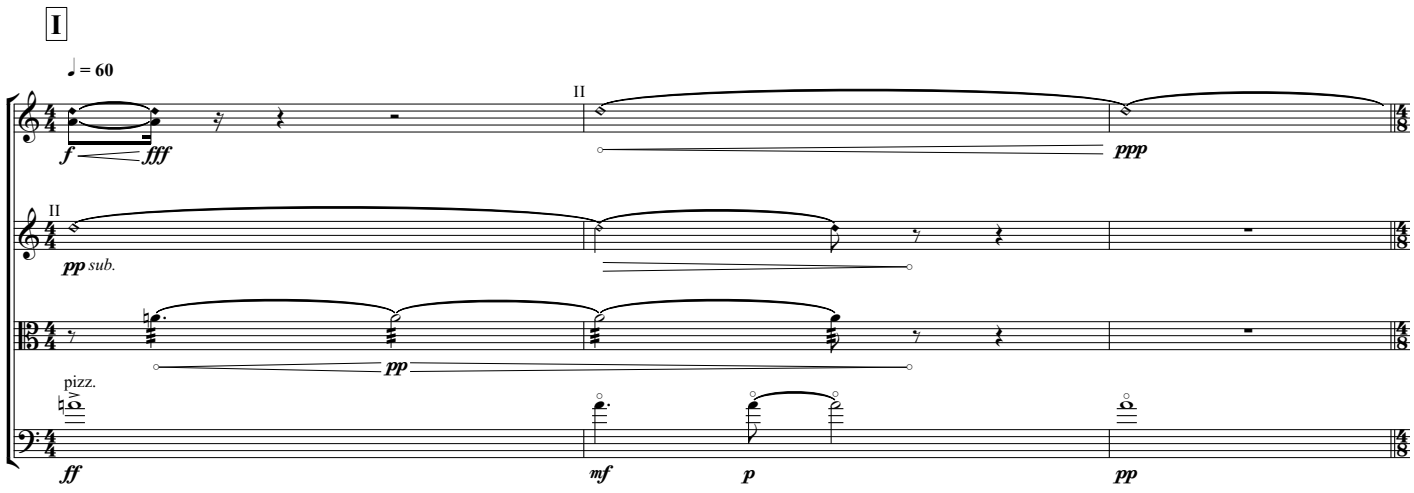


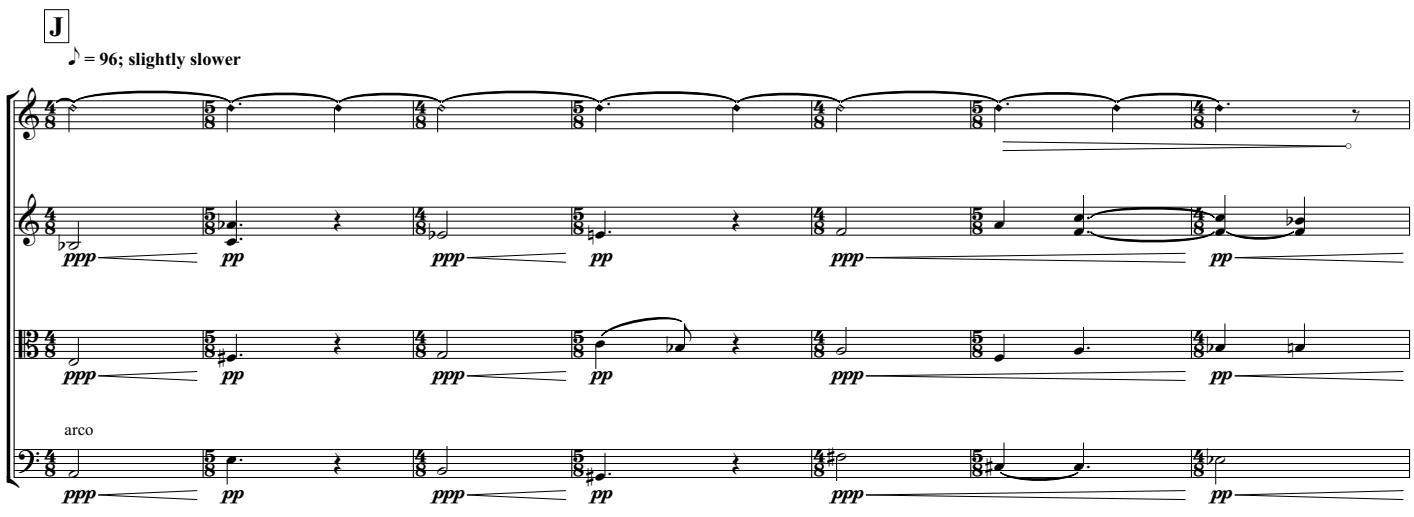
* At a moderate pace, play the indicated pitches in a randomized order and with relatively jagged and non-repeating rhythms. In the parts that play this figure, there should be no sense of pulse.

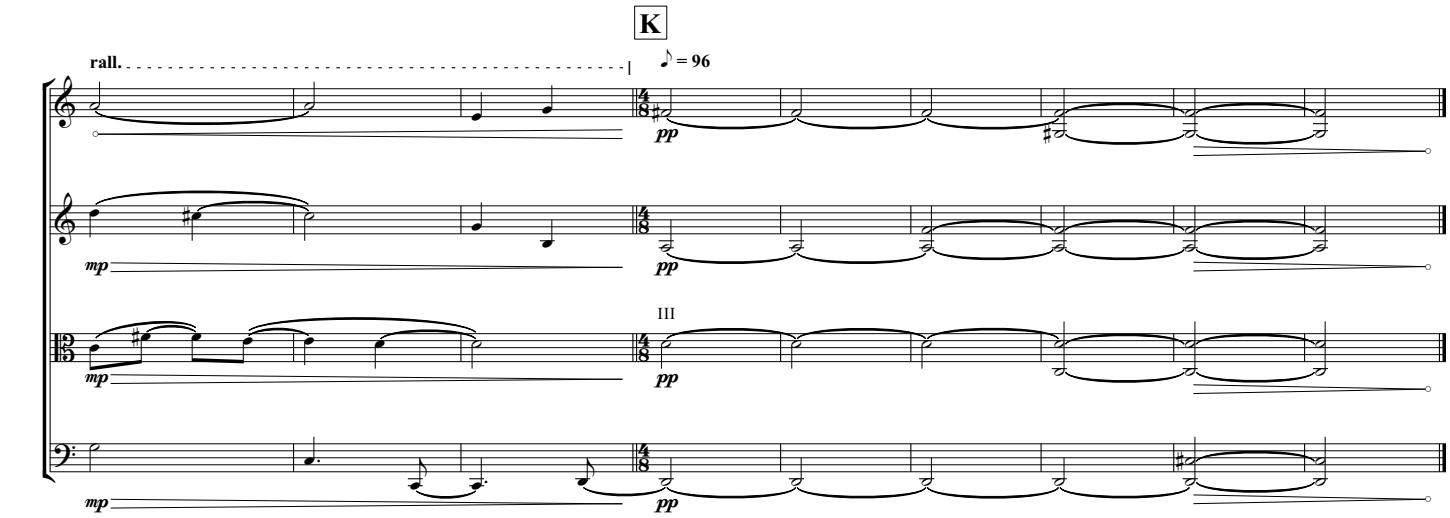




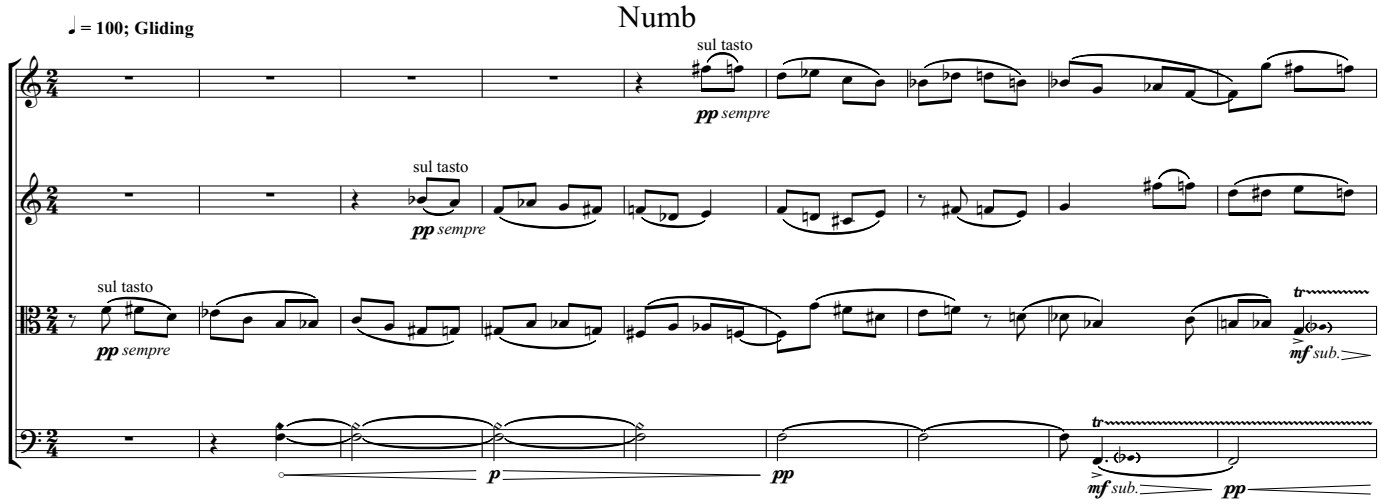
*** This figure contains the two primary aleatoric figures from this movement. Alternate freely between the two, always maintaining a high level of intensity.
See previous definitions for performance notes for each figure.

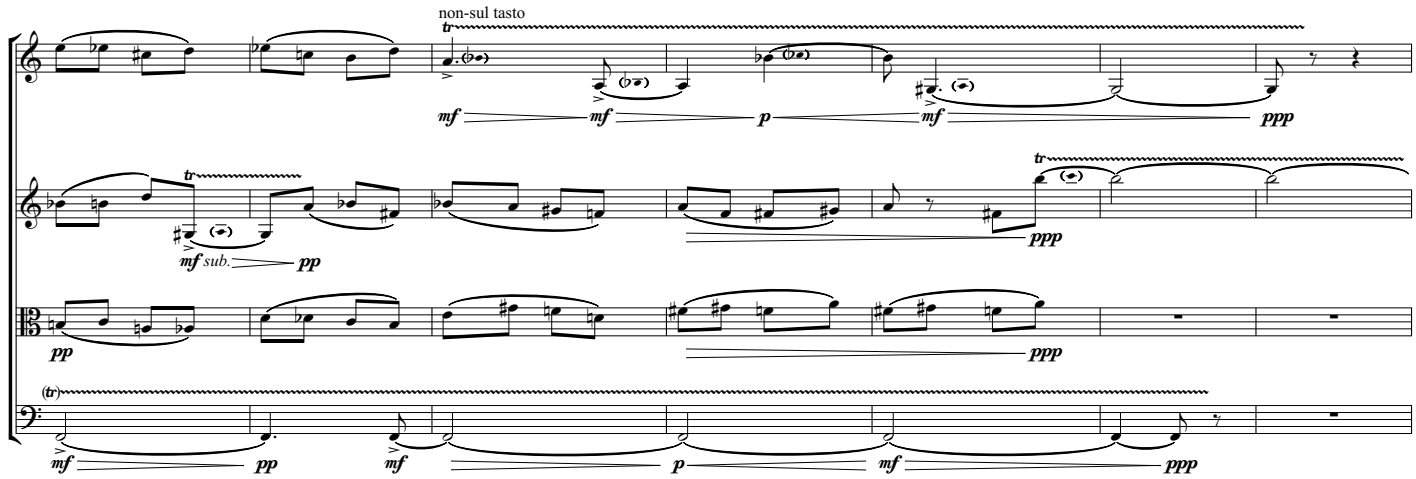





K
rall.
♪ = 96
pp
mp
III

XI.
Numb


♩ = 100; Gliding
sul tasto
pp sempre
mf sub.
p
ppp


non-sul tasto
mf
p
ppp
mf sub.
pp

A

(tr)

mf

mf p mf mf

mf p mf mf

B

♩ = 132; Suddenly erupting

rall.

tr

pp ffp ffp ff p mf

tr

ffp ffp ff p

tr

ffp ffp ff p

tr

ffp ffp ff p

C

♩ = 100; Like the beginning

pp sempre

tr

mf p pp

pp sempre

tr

mf p

(tr)

pp pp

tr

(tr)

mf pp

D

pp sub.

pp

pp sub.

mf

f pp sub.

mf

pp sub.

E

♩ = 132

luftpause

f ff

ff sub. & sempre

pp

luftpause

ff

ff sub. & sempre

pp

luftpause

f ff

ff sub. & sempre

pp

luftpause

f

ff sub. & sempre

sfp

F

rall.

ff

pp

ff

pp

ff

p

pp

gradually overpressure to scratch tone

gradually back to ord.

(ord.)

ff

pp

ppp

ppp

ppp

ppp

G

♩ = 84; Waning

sul tasto

pp sempre

sul tasto

pp sempre

sul tasto

pp sempre

sul tasto

pp

H

ppp

ppp

ppp

tr

pp

rall.

I

ppp

ppp

ppp

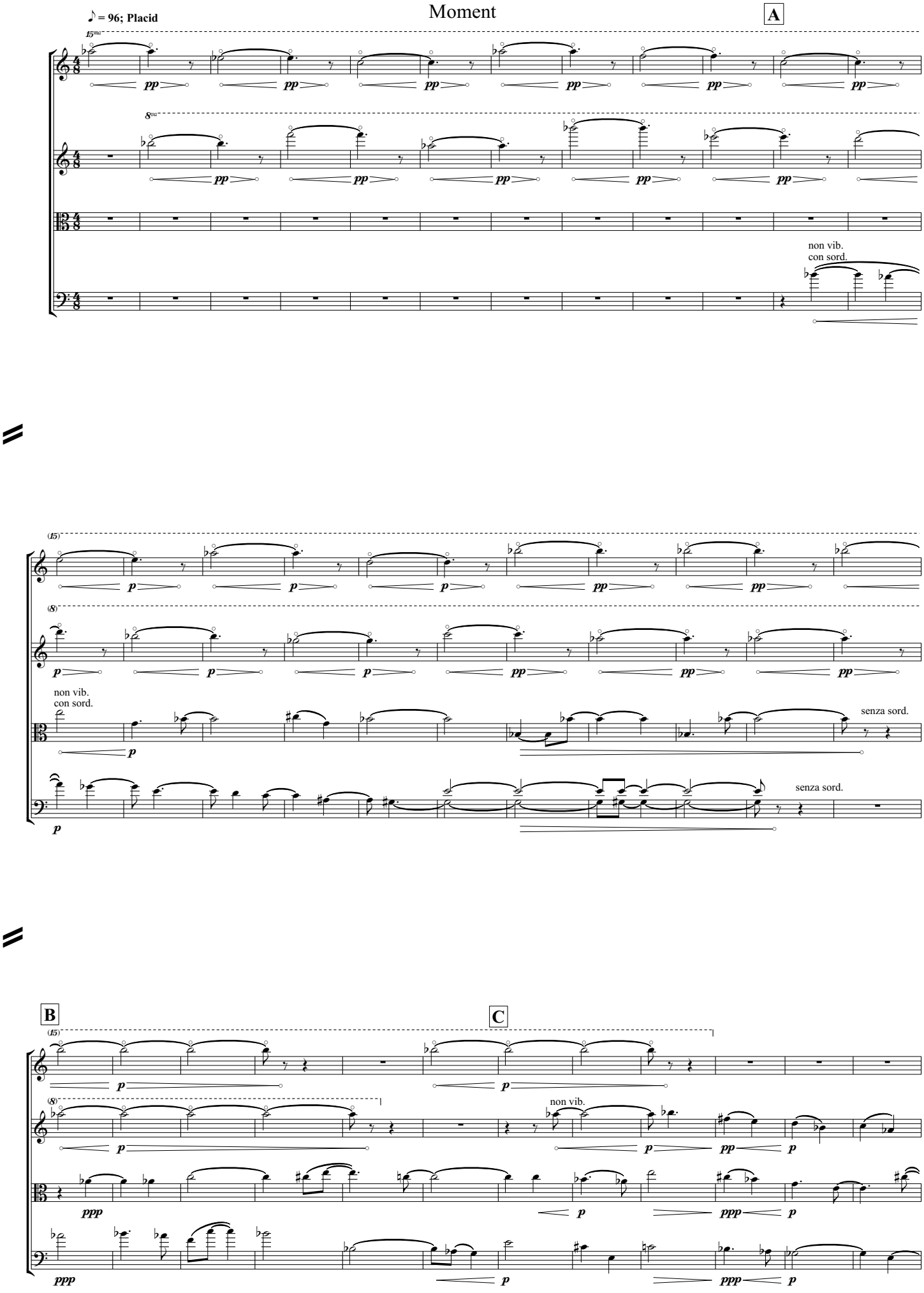
echo
molto sul tasto

(tr)

ppp

ppp

XII.
Moment


♪ = 96; Placid
A
15ma
8va
pp
non vib.
con sord.
(15)
(8)
p
senza sord.
B
C
ppp
non vib.

D

pp pp p

mp p ppp

mp p ppp

mp p ppp

E

non harmonic

p ppp mp

gradually adding vib.

p

gradually adding vib.

p

gradually adding vib.

p

F

non vib.

f pp

f p ff

f p ff

f p ff

G

ppp

con sord.

non vib.
con sord.

ppp

non vib.
con sord.

ppp

non vib.
con sord.

ppp

H

poco vib.

pp

poco vib.

pp

poco vib.

pp

I

attacca

ppp

Slowly and smoothly undulating between the two indicated pitches

XIII.
Discovery

♩ = 60; At peace

(con sord.)

ppp *p* *ppp*

(con sord.)

ppp *p* *ppp*

(con sord.)

ppp *p* *ppp*

(con sord.)

ppp *p* *ppp*

A

p *ppp* *p*

p *ppp* *p*

p *ppp* *p*

p *ppp* *p*

B

mp mf p mf ppp

senza sord.

mp mf p mf ppp ppp ppp pp

mp mf p mf ppp ppp ppp

mp mf p mf ppp ppp ppp

C

senza sord.

fp fp pp mp

mf pp mp

senza sord.

fp pp mp

senza sord.
pizz.

arco

f (mf) p pp mp

D

♩ = 84 accel.

fp pp mp fp fp fp f

pizz.

arco

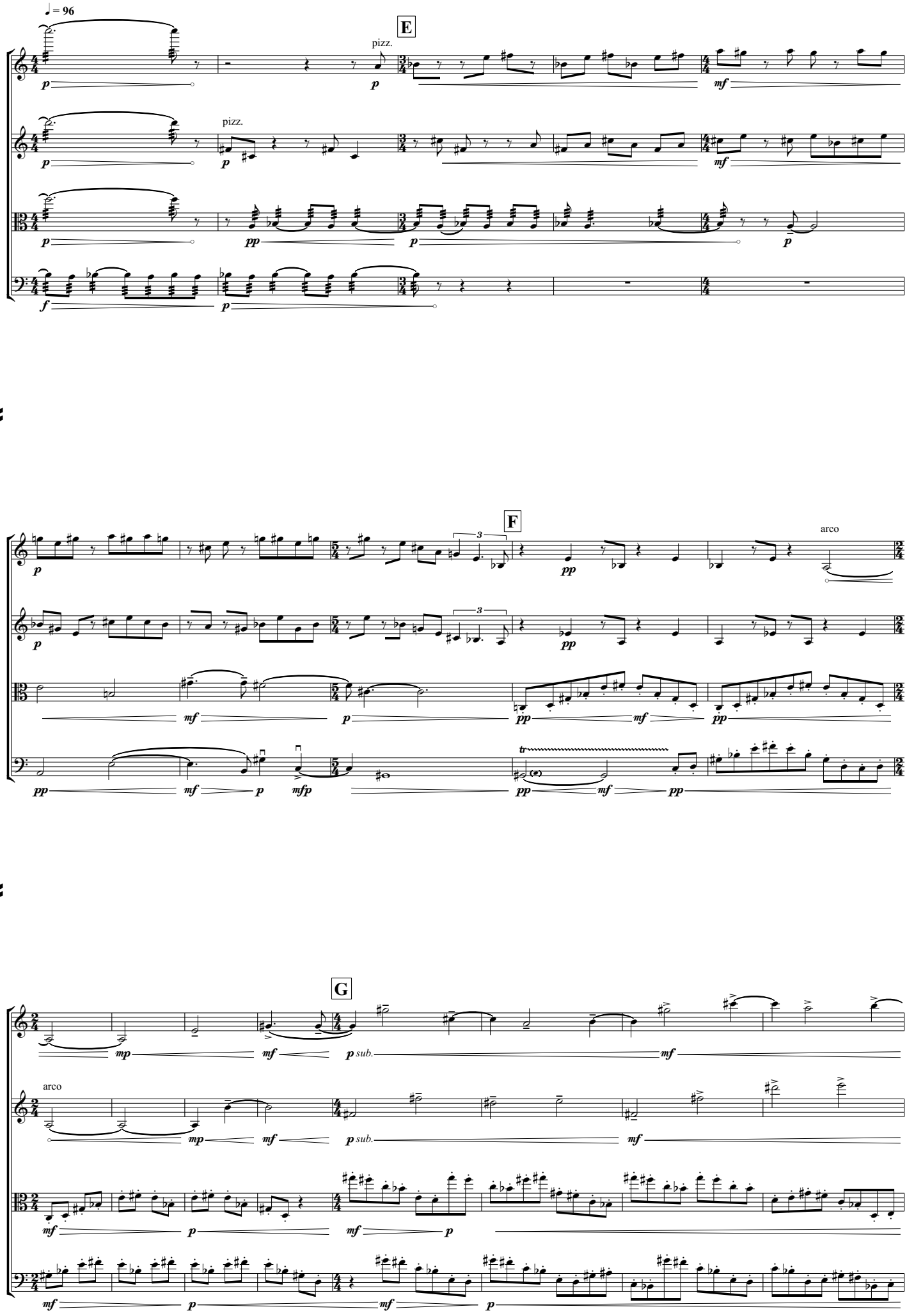
f sub. mp f fp f fp f fp f

pp mp fp f fp f fp f

pizz.

arco

pp fp mp f fp f fp f fp


♩ = 96
E
pizz.
pizz.
F
arco
G
arco
p sub.
p sub.

H

ff mf p pp

I

p pp mf

mp p mf

pp mp p mf

J

♩ = 104

♪ = ♪ sempre

♩. = 69

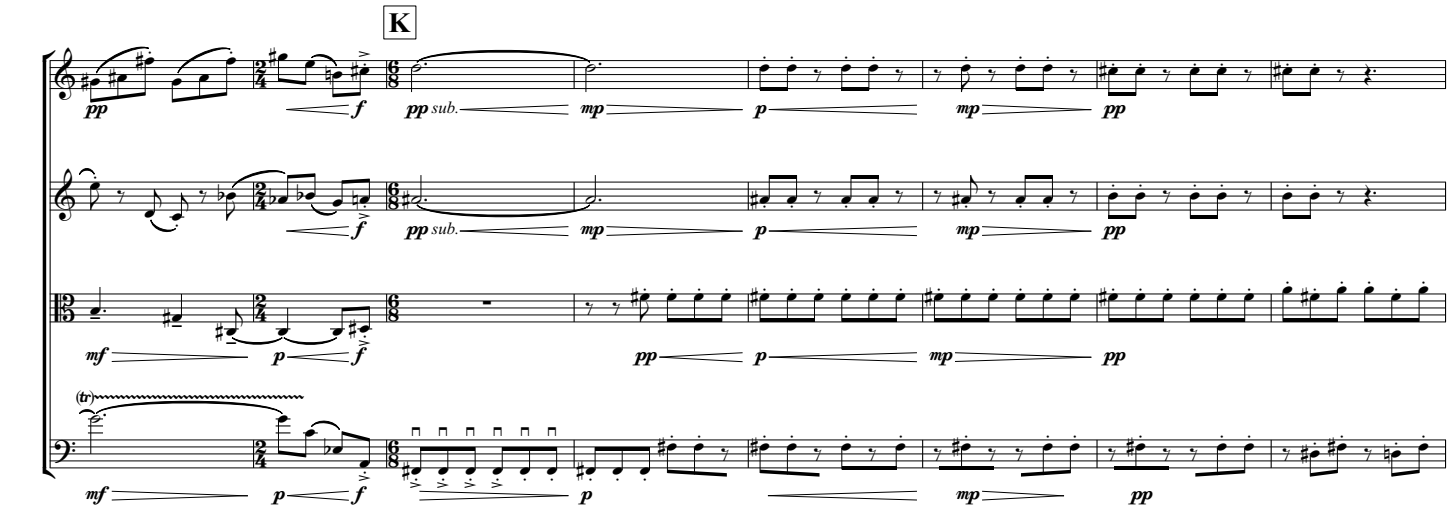
f ff p sub.

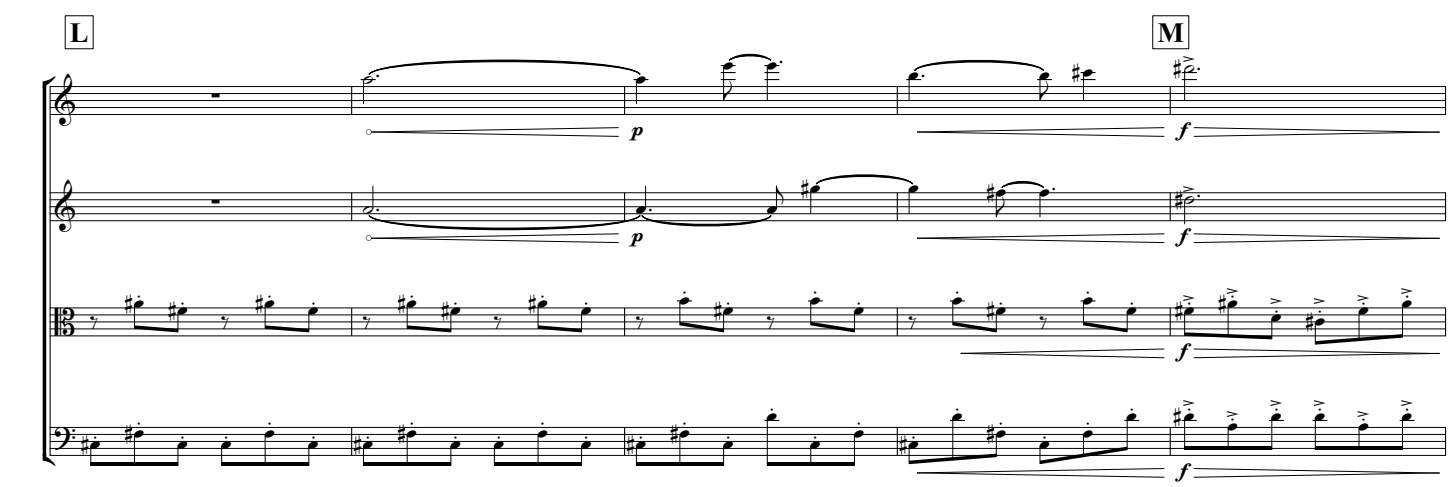
pizz.

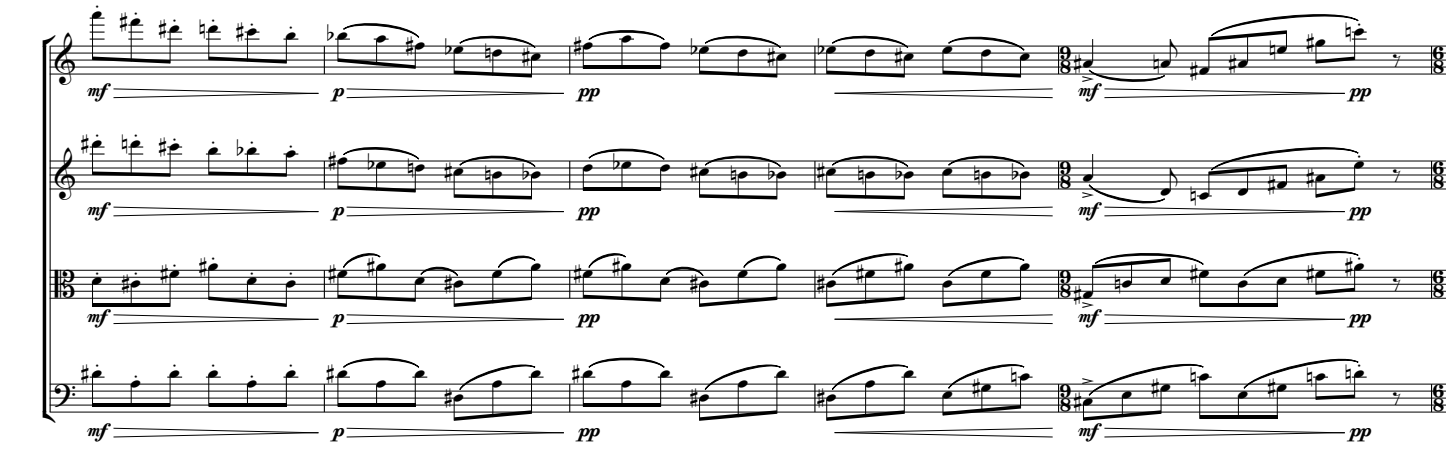
arco

sffz p

tr


K


L
M



N

pizz.

pp

O

rall.

ff *p*

ff *p*

arco

ff *p* *pp*

P

♩ = 72; Tentative

sul tasto

ppp *pp* *ppp* *pp* *ppp* *pp* *ppp* *pp* *ppp* *pp*

sul tasto

ppp *pp* *ppp* *pp* *ppp* *pp* *ppp* *pp* *ppp* *pp*

sul tasto

ppp *pp* *ppp* *pp* *ppp* *pp* *ppp* *pp* *ppp* *pp*

Q

ppp pp pp mp pp

ppp pp pp mp pp

ppp pp pp mp pp

mp pp sub. mp pp

R

≈ 6"

enter shortly after Vla.

♩ = 72

accel.

gliss. pp ppp

gliss. pp ppp

enter shortly after Vln. 2

gliss. pp ppp

S

♩ = 144; double-time

non sul tasto

mf fp ff p f sub.

non sul tasto

mp fp ff p f sub.

non sul tasto

p fp ff p f sub.

pp fp ff p f sub.

T

fp f p pp

fp f p pp

fp f p

fp f p pp

U

f p ff pp sub. f

f p ff pp sub. f

f ff pp sub. f

ff pp f

V

p f f p f p

p f f p f p

p f f p f p

fp f f p f p

W

p ff

p ff

p

f ff

X

ff

Y

≈

10"

6"

4"

5"

3"

fff sempre

* Randomized playing of the pitches indicated. Always in a steady pulse of 8th notes, and the ensemble should be synchronized in this pulse. You may include rests, but they should be very brief (e.g. one 8th beat). This should feel like a continuation of the previous material in that is should be relatively fast and aggressive.

** When switching to this second stage of randomized pitches, you need not maintain a steady stream of 8th notes. However, the pulse should never feel slower than the 8th-note beat. You may include additional effects such as tremolo or sul ponticello as desired, so long as the overall effect is raging and chaotic. Players do not need to be synchronized when playing in this second stage.

Z

(♩ = 144)

fff

rall.

p

BIBLIOGRAPHY

Straus, Joseph N. (2016) *Introduction to Post-Tonal Theory (4th ed.)*. New York: W.W. Norton & Company.