Funktionslust

for string quartet

Christopher Fisher-Lochhead

Funktionslust [2018-21] for string quartet

written for the JACK Quartet

In college, I studied viola with a teacher who hewed closely to a very old-school type of classical pedagogy. All his students practiced the standard scales, finger exercises, and etudes; we learned the standard orchestral excerpts: Strauss's Don Juan, Mendelssohn's Midsummer Night's Dream Overture, Shostakovich's Fifth Symphony; and we cycled through the meager repertoire written or purloined for the viola: Walton, Bartok, Bach, Clarke, Brahms, and more Bach. At this time, my relationship to my instrument (a 2002 viola made by Long Island institution Charles Rufino that I still play today) was one of antagonism—its shape and substance, not to mention my body's own physical limitation, seemed to exist primarily as vectors of resistance that had to be conquered. This notion of music-making as subjugation was one that was reinforced over and over: we all idolized our peers who could execute the notes in the score with mechanical perfection (to call someone "a machine" was the highest compliment). At one point I even remember a visiting artist describing Bach's Chaconne as "Everest," aptly capturing the rapaciousness of classical pedagogy with an image of heteropatriarchal imperialist conquest.

It was only by immersing myself in the music of improvisers and by studying the interventions of 20th Century experimentalists and firebrands into classical instrumental technique that I was able to finally shed the antagonistic relationship I had to my viola. I have come to embrace an approach to my instrument that values listening, exploration, and play—and it is this approach that I have tried to channel in this piece.

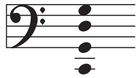
"Funktionslust" is an antiquated psychological term describing the pleasure one takes in doing what one is best suited to: a fish swimming, a bird flying, a cheetah running. Its choice as the title of this piece—while a bit tongue in cheek given the virtuosity of the instrumental writing—reflects my desire to ground the musical language of the piece in the physical structure of the instruments themselves and the bodies of the performers. The adapted tablature notation is detailed and specific, but it offers the performer bodily choreographies and fluctuations of velocity and muscle tension instead of prescribing results to be achieved.

The process of composing this piece unfolded slowly and methodically starting in the Fall of 2018 and stretching through the first year of the COVID-19 Pandemic. Because of personal and professional pressures during that period, I often could only manage to peck away at it once or twice a week. Tinkering with the minutia of a score as detailed and dense as this can come to feel like an abstract ritual of penance for an absent and unknowable transgression. But, as disconnected as such work can feel from the act of making music, it is nevertheless intensely pleasurable to me. I guess that is the other significance of the title: the perverse joy I get from sitting alone making scores—reifying imagined ideations, choreographies, and soundings.

—Chris Fisher-Lochhead

Tuning / Scordatura

With the exception of the cello's top string, all the instruments in the quartet employ standard tuning—although they should be tuned in just fifths (3/2's) and not adjusted to equal-tempered approximations. The cello's top string should be tuned down a just major second (9/8) so that it matches the G-string of the violins and the viola.

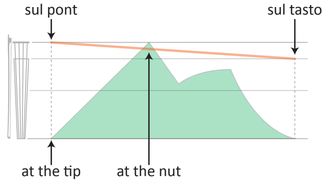
Cello tuning: 

Pitch and Instrumental Technique Notation

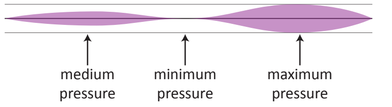
This score uses a system of notation that is a hybrid between traditional descriptive notation and tablature notation. The action of the left hand is indicated on a standard 5-line staff using the pitches that correspond to the sounding pitch achieved with normal (non-harmonic) finger pressure. It will normally be clear which string is to be stopped, but when clarification is needed, strings are indicated using roman numerals, with [i] corresponding to the highest string and [iv] corresponding to the lowest string. Whenever string crossings are not specifically indicated with tablature (see below), all of the notated pitches should be played. When open strings are to be played, they will be notated using traditional pitch notation, even though no actual action by the left hand is required.

Underlaid behind this 5-line staff is a tablature staff that indicates bowing and contact point. For the notation of bowing—given in green—the vertical position on the staff corresponds to the location on the bow, with the bottom mapping on to the bow's tip and the top mapping on to its nut. Thus, upward movement of the bowing notation on the staff corresponds to an upbow, downward movement to a downbow. For the notation of contact point—given in orange—the vertical position on the staff corresponds to the point of contact (for the bow or finger) on the string(s), with the top mapping on to the bridge and the bottom mapping on to the end of the strings by the pegs.

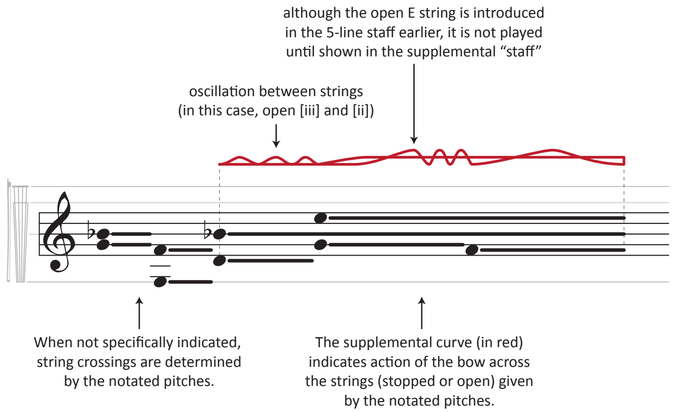
Horizontal guidelines are provided that indicate the edge of the fingerboard (mostly used to indicate a *sul tasto* contact point) and the halfway point of the string (octave harmonic). With the 5-line staff superimposed, the halfway guideline aligns with the middle line of the staff.



Right-hand pressure (roughly corresponding to loudness or dynamics) is indicated with a separate staff underneath the hybrid 5-line/tablature staff. The thickness of the shape on that staff (in purple) indicates the amount of pressure to be used, from almost none to maximum pressure. The actual resulting loudness will be determined by a number of other factors beyond pressure and no effort should be made to interpret the pressure staff as strictly indicating loudness; it indicates only the amount of physical force exerted by the right hand.



When not specifically indicated, string crossings are determined by the pitch notation on the 5-line staff. However, when string crossings are decoupled from the left-hand action, a supplemental "staff" is added above the hybrid 5-line/tablature staff. The string crossings—given in red—are indicated by the shape of this supplemental figure. There is no fixed vertical orientation for this "staff." Instead, the relative shaping of the string crossings indicate the action of the bow across whichever strings are notated at that given moment according to the pitch notation on the 5-line staff.



Rhythm

The rhythmic notation in this piece is completely proportional. In other words, the horizontal spacing of objects in the visual space corresponds exactly to their rhythmic positions. Rational rhythmic proportions are given on the “rhythm staff” above the hybrid 5-line/tablature staff using a quasi-traditional form of notation. In addition to the beams and tuplets that indicate rhythmic values, the rhythm staff also houses the dots that arte traditionally found next to the notehead. Each vertical stem descending from the rhythm staff corresponds to a musical event: the beginning or end of a gesture, the beginning or end of a new playing technique, the peak or turning point of an intensity envelope, etc. “Empty” rhythmic values are given by stem nubs.

Given that stems only indicate musical events, the rhythm staff does not directly indicate duration. In this system, a musical object’s duration can be determined as the distance between the points of its onset and its end. Sustained events—including sounding objects and performance acts—are indicated by horizontal lines (solid lines, dotted lines, or wavy lines, depending on the type of event). When there is a rapid succession of events, the sustain line can be ommitted for the sake of clarity. In such cases, the notated event lasts until the next event, and therefore its duration matches the rhythmic value given in the rhythm staff.

Grace notes are used to indicate any rhythmic placement that does not fit the grid given in the rhythm staff. In the two “drift” sections, some entrances are cued by events in other parts, indicated by a red vertical arrow from the trigger event to the cued entrance.

Conventional time signatures are not used. For the sections of the piece labelled with roman numerals (i to xiii), the rhythm is determined by a modified talea structure. The talea’s durational values (analagous to beats) are given in the space between the 1st and 2nd violin staves and between the viola and cello staves. Vertical dotted lines are used to show the division of rhythmic time into these values; vertical solid lines indicate a larger grouping of values (analagous to downbeats). For the remaining sections, the rhythmic pulse is given in the same way. For purposes of rehearsal or performance, a click track is available on demand.

Techniques

groan The bowing technique I call “groan” is executed by using low bowspeed and high bow pressure to create a noisy, perforated timbre that nonetheless still has a discernible central pitch. As is indicated in the notation, the bow’s contact point itself determines the sounding pitch. With the left hand, dampen the other strings as needed.

distal Distal bowing indicates a contact point for the bow on the “wrong” side of the left hand. The notation of the left hand’s placement corresponds to a traditional contact point (proximal bowing) and the new sounding pitch is given in parentheses. This is only used for the 2nd violin while it is held in the lap.

proximal Proximal bowing indicates the traditional contact point for the bow (between the left hand and the bridge).

A left-hand oscillation (trill or tremolo) between two fingers. The initial noteheads define the oscillating pitches and the secondary beams define the rate of oscillation.

A left-hand single-finger oscillation. This is exclusively used with harmonic pressure (indicated by the notehead and the light color of the sustain).

pizz.

For pizzicato, the contact point is indicated with orange [x] noteheads. In passages where the bow is also being used, this same notehead—along with the standard **+** symbol—is used to indicate left-hand pizzicato, except in the “drift” sections in the cello, where the recurring open-G-string left-hand pizzicato is indicated with the **+** alone.

Dampen all sound at the indicated rhythmic position.

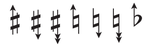
Taking a parallel orientation between the bow and the bridge as the horizontal baseline, bow rotation is indicated using an approximate angle above or below that baseline.

Although the tablature notation employed here is able to implicitly indicate traditional articulations and expressive indications, occasionally a supplemental articulation is added (bow tremolo, accents, and tenuto marks in particular). These should not be interpreted as taking the place of the tablature notation, but rather as providing clarification or a subtle modulation of those parameters.

This piece uses the Helmholtz-Ellis system of accidentals. For a comprehensive overview of this system and just intonation (JI) more generally, see plainsound.org.

With a few exceptions, this piece uses a 13-limit JI harmonic system. The accidentals used are summarized below.

3-limit (Pythagorean) Intervals



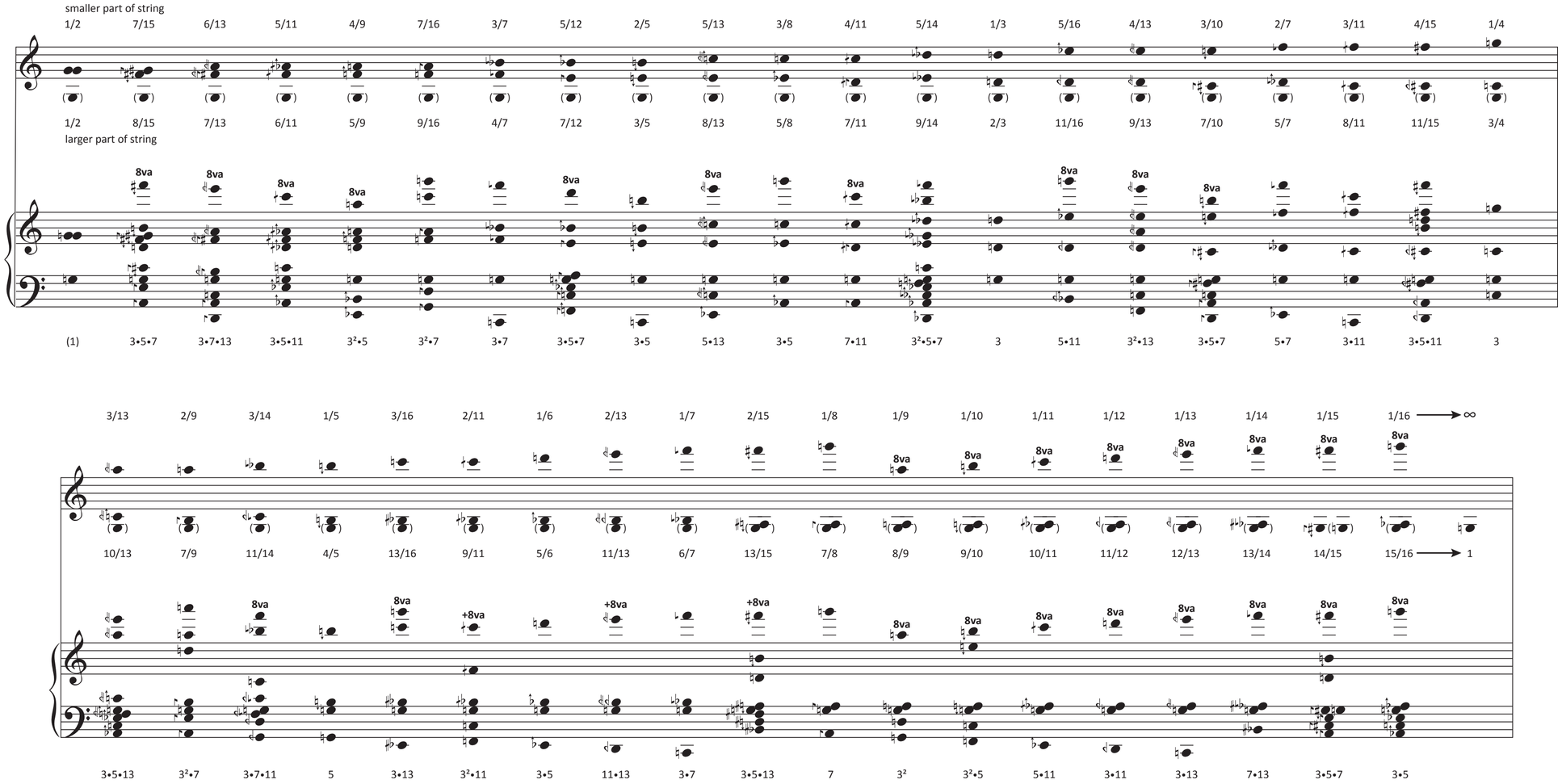
5-limit (Ptolemaic) Intervals

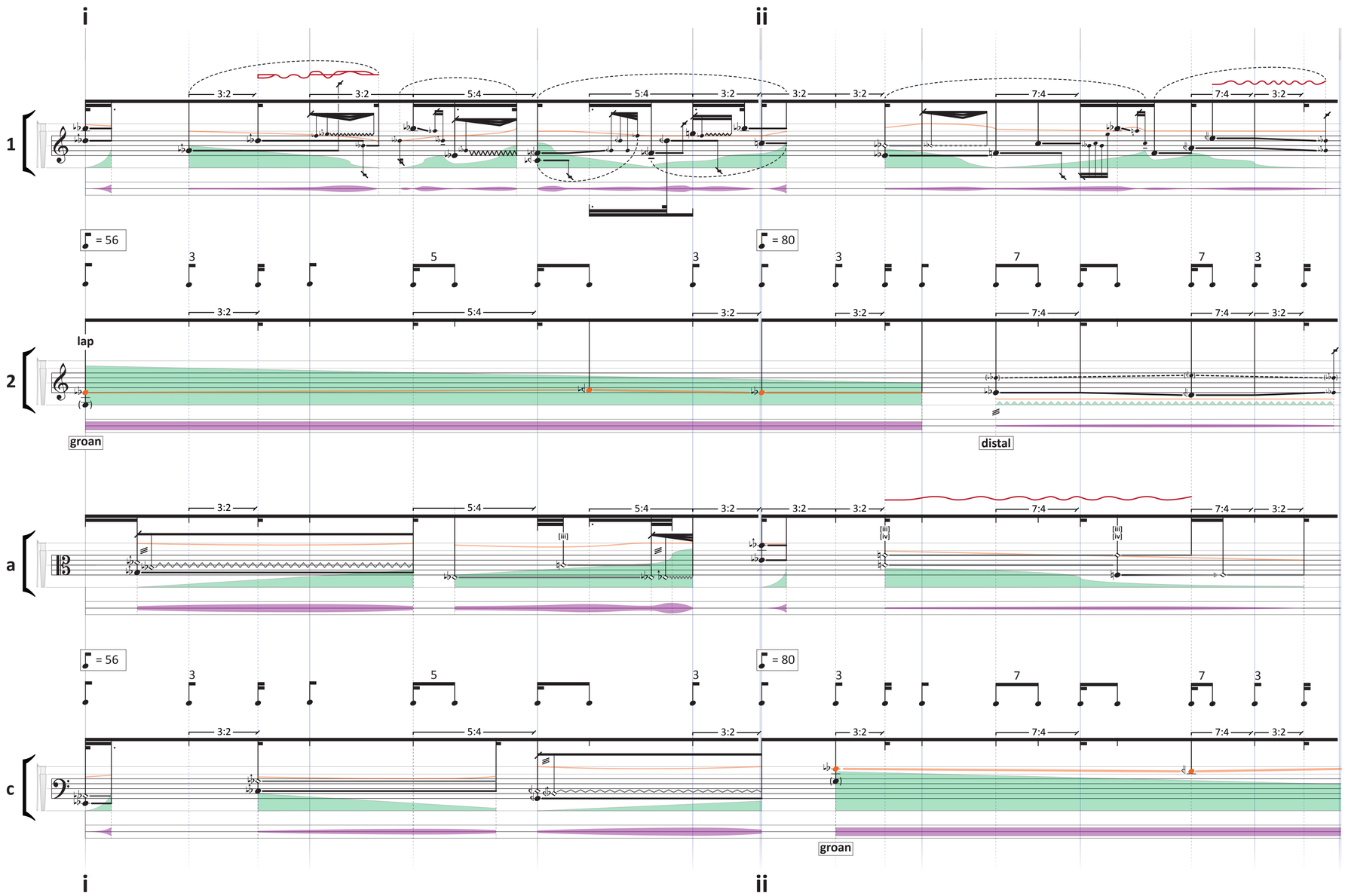
7-limit (Septimal) Intervals

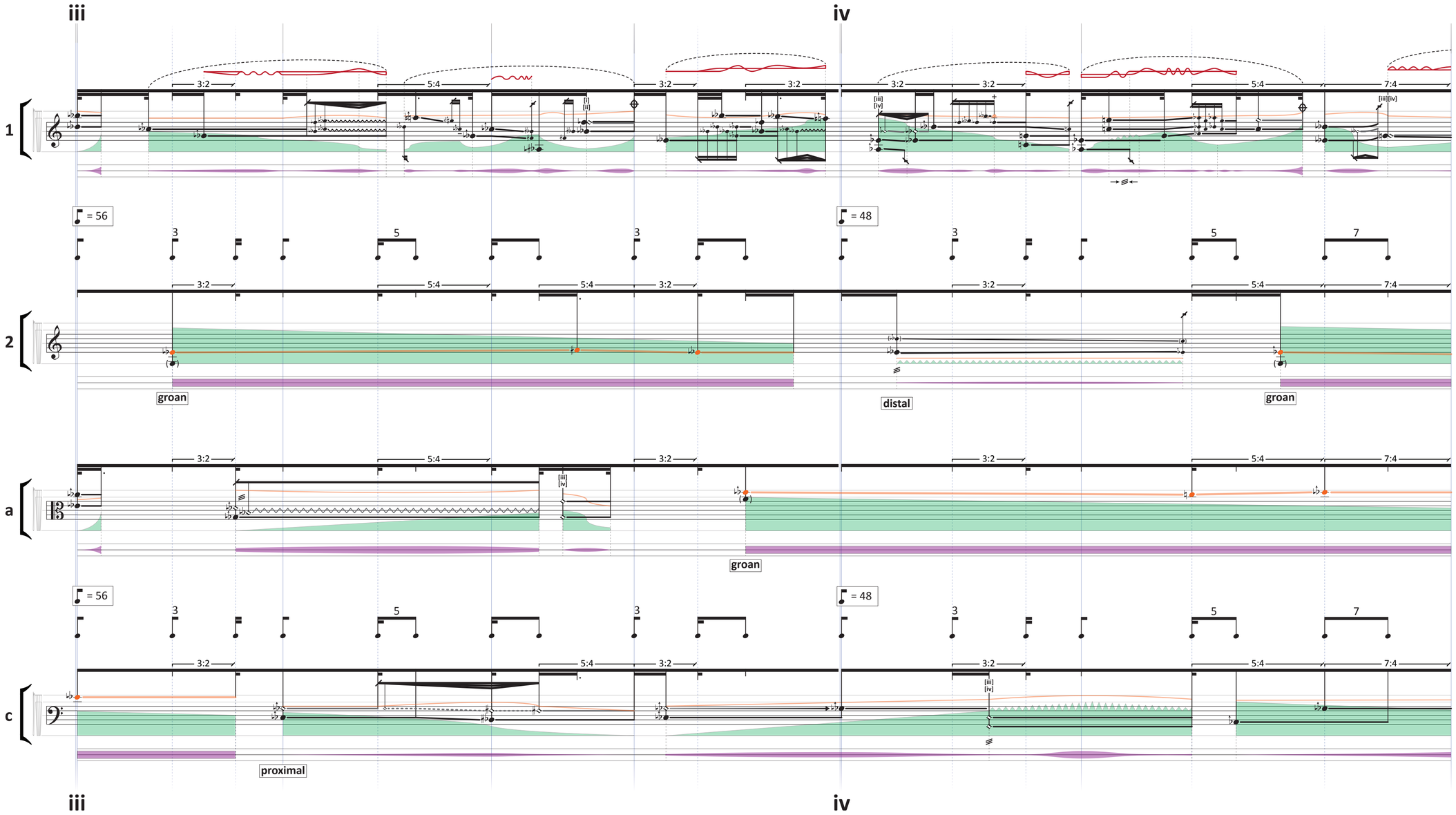
11-limit (Undecimal) Intervals

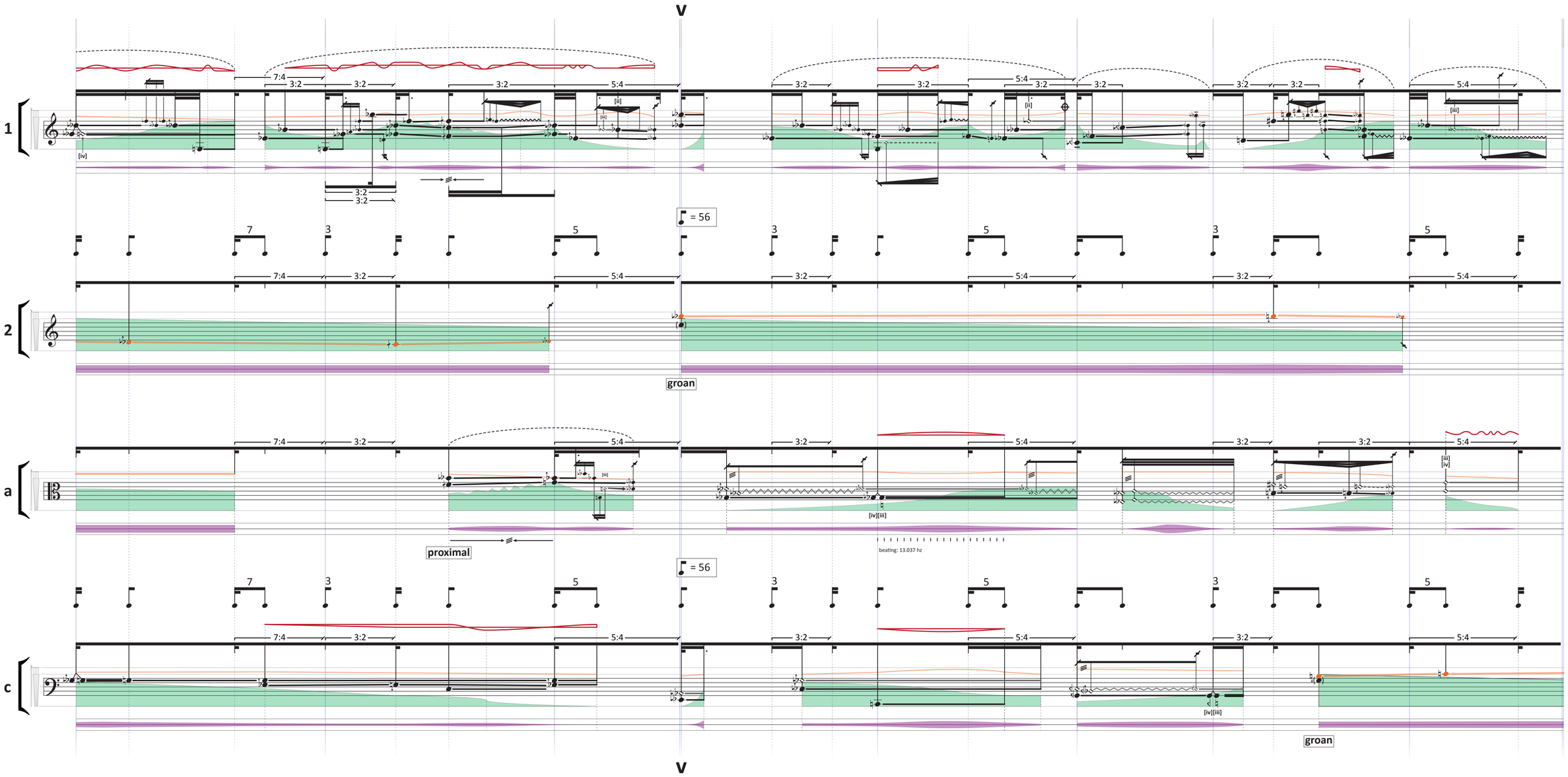
13-limit (Tridecimal) Intervals

The rational relationship of frequencies created by both parts of a divided string determines the harmonic materials (and some of the rhythmic materials) used herein. The two pitches produced, along with the open string's pitch—G (195.5 Hz)—are notated below using Helmholtz-Ellis accidentals. Below those three pitches is a harmonic extrapolation, which includes the integer factors necessary to express their rational interval relationships, plus any other pitches resulting from the interaction of those same factors. It is this harmonic extrapolation that generates the harmonic material.

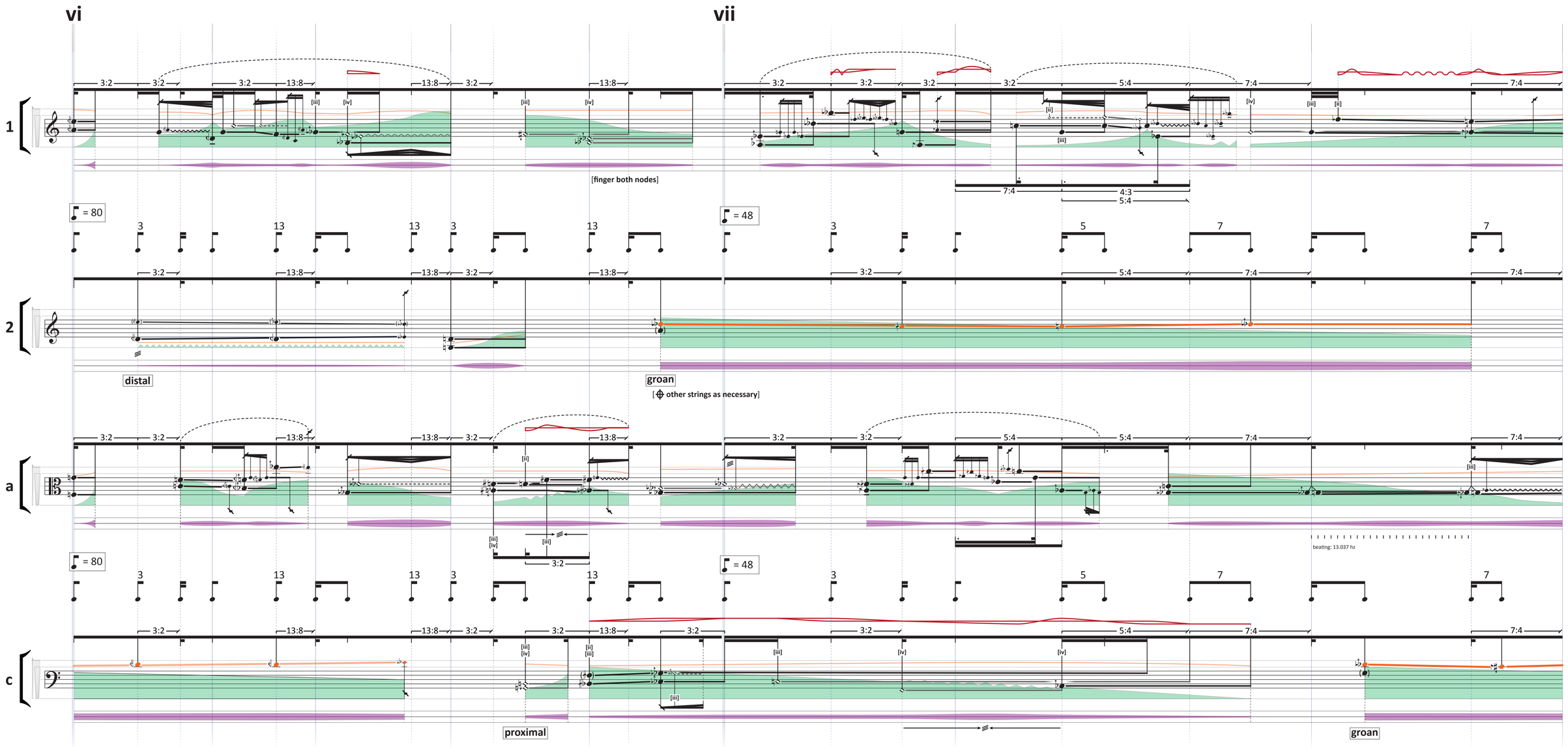


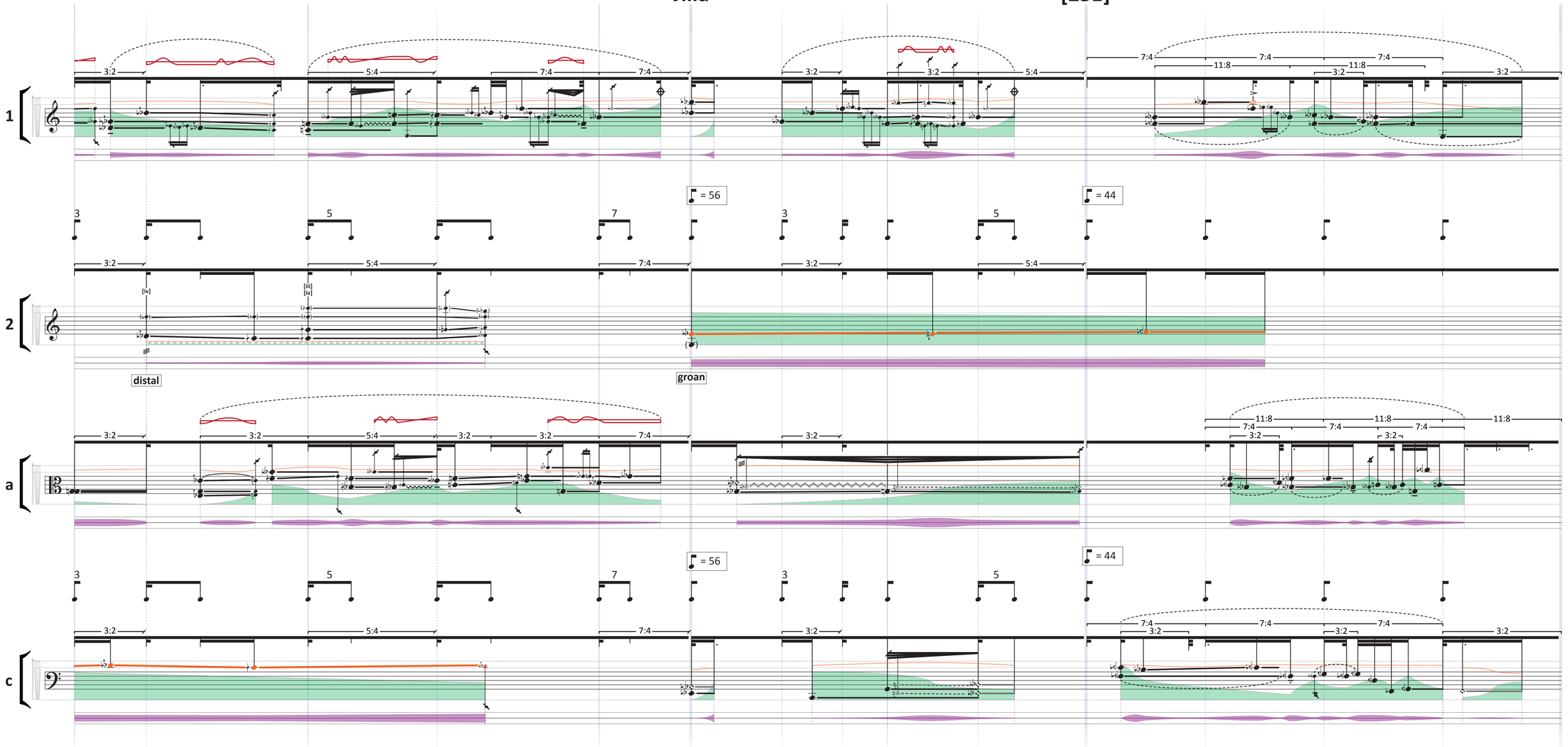

i
ii
1
= 56
= 80
lap
groan
distal
a
= 56
= 80
groan
c
i
ii

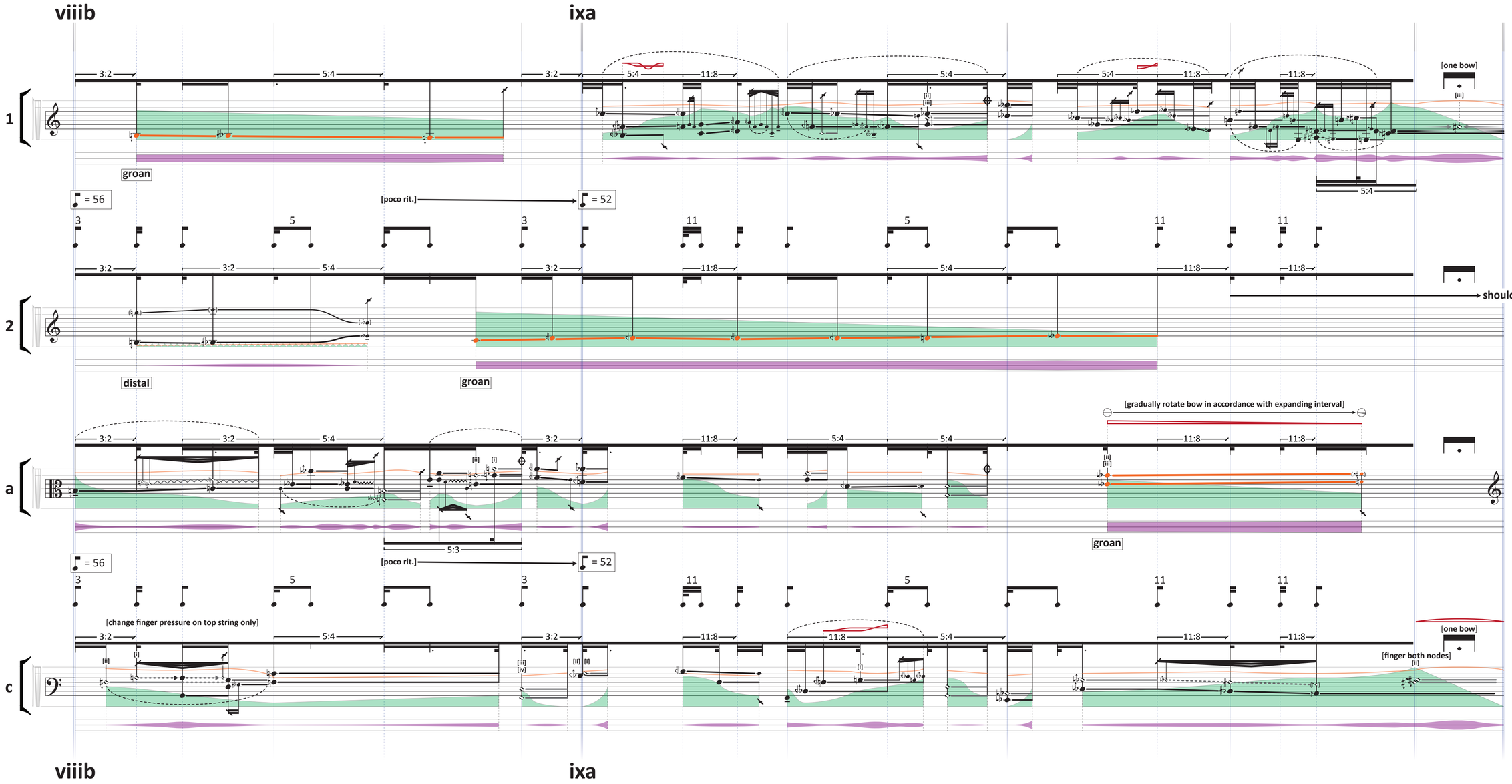

iii
iv
1
2
a
c
= 56
= 48
groan
distal
groan
groan
proximal
iii
iv

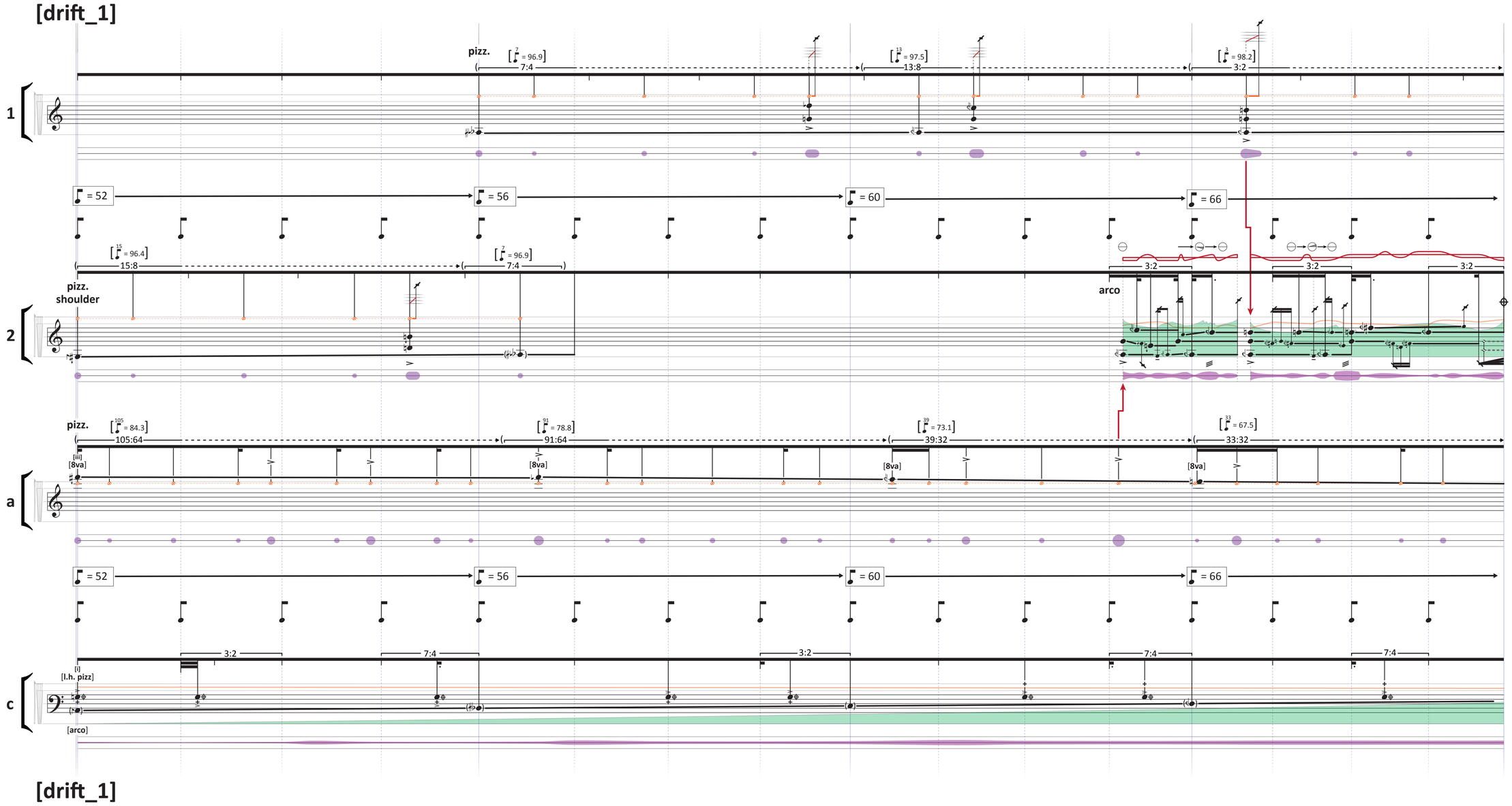


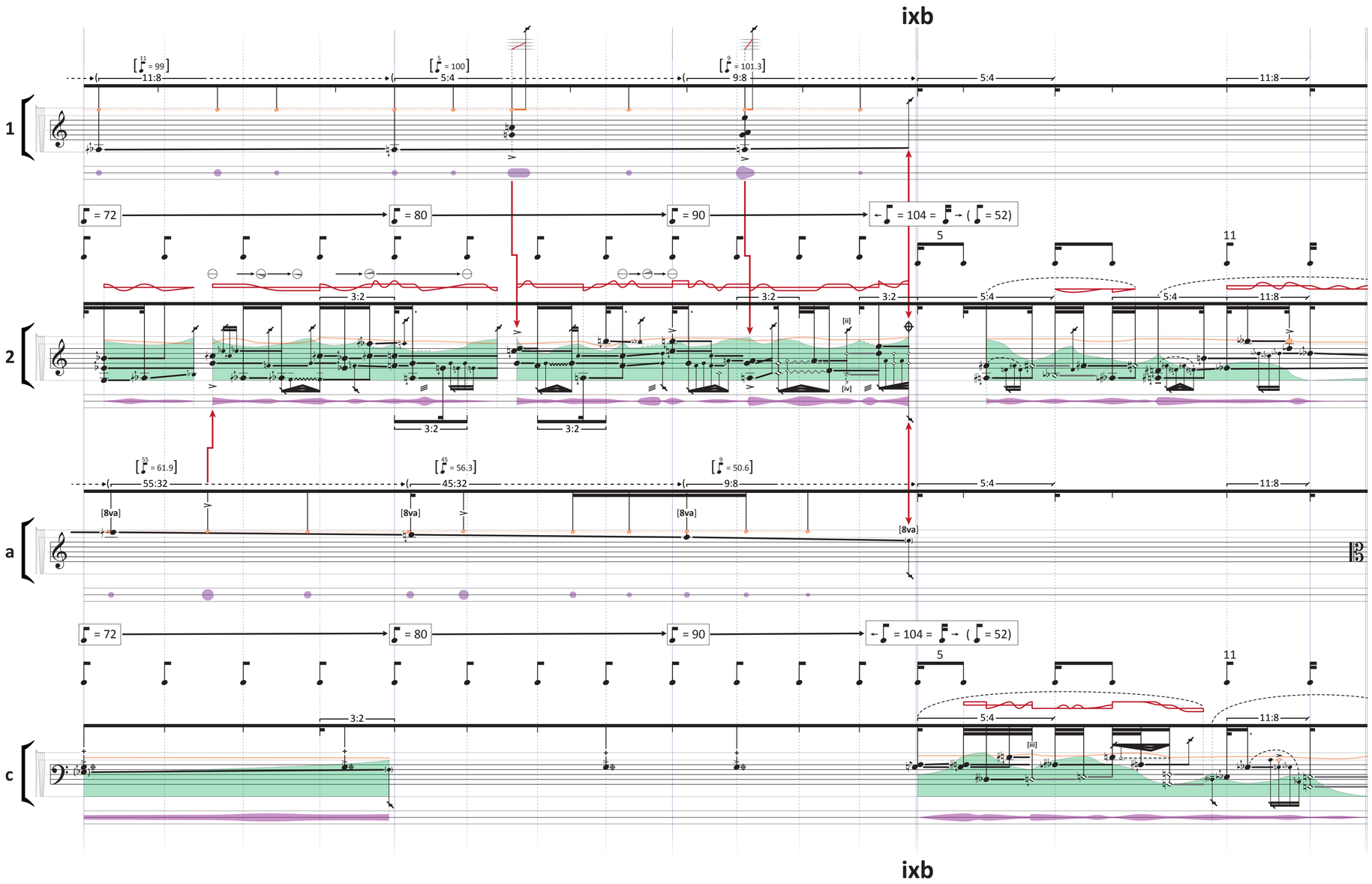
V
1
2
a
c
7:4
3:2
5:4
[iv]
[ii]
[iii]
= 56
7
3
5
groan
proximal
[iv][iii]
beating: 13.037 hz
V

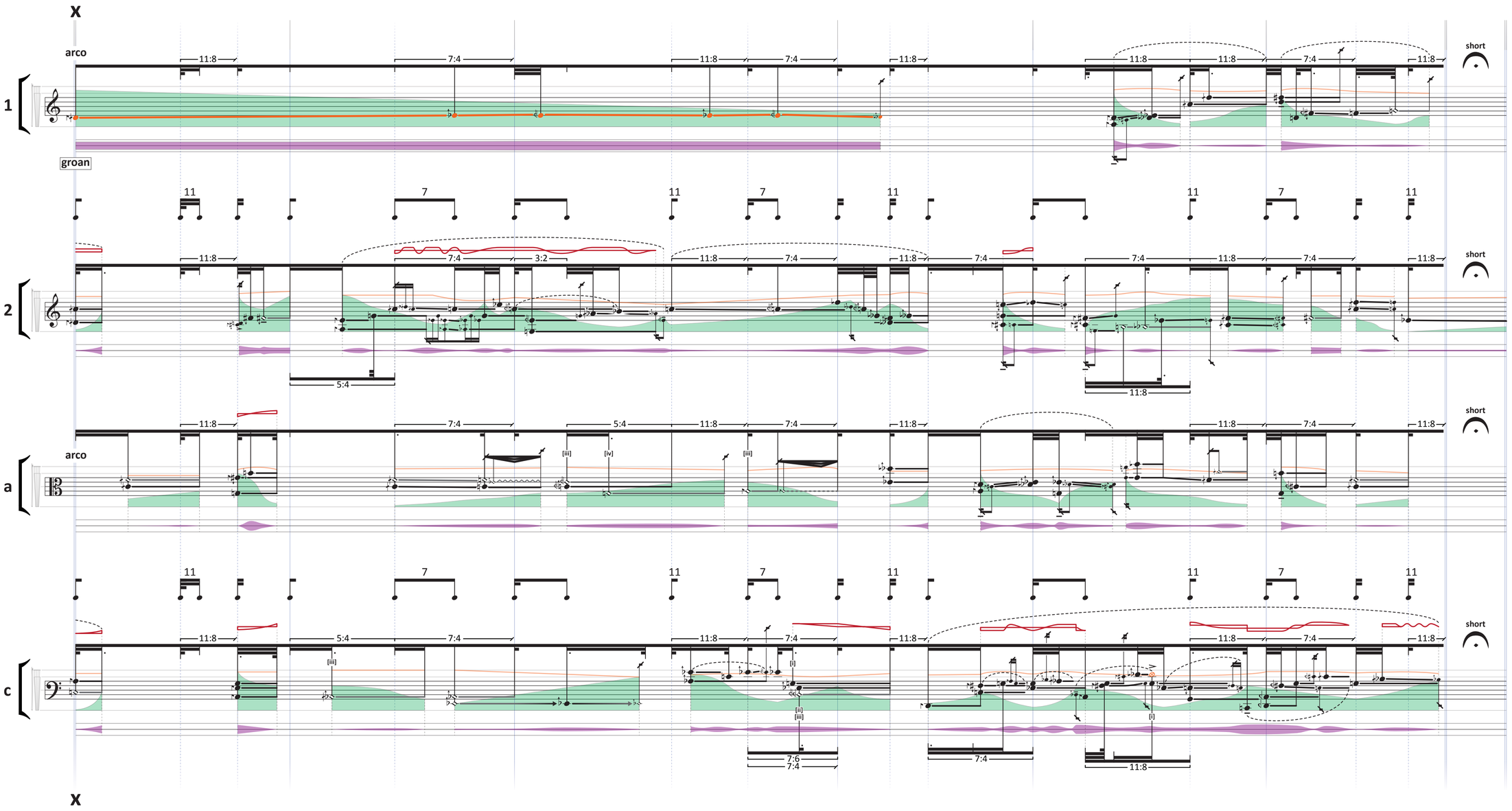

vi
vii
1
2
a
c
= 80
= 48
[finger both nodes]
distal
groan
[other strings as necessary]
proximal
beating: 13.037 hz
vi
vii

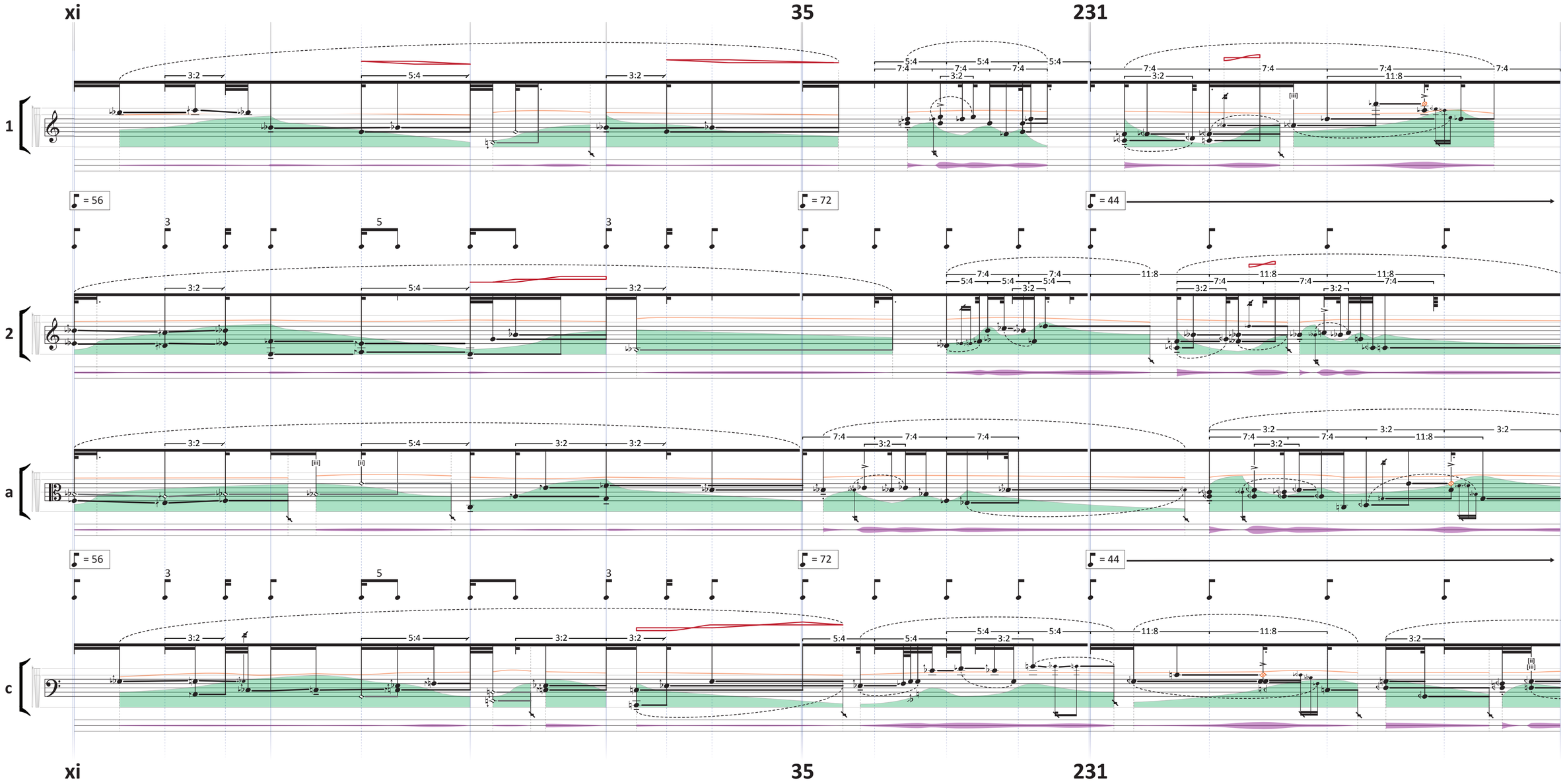

1
2
a
c
= 56
= 44
distal
groan

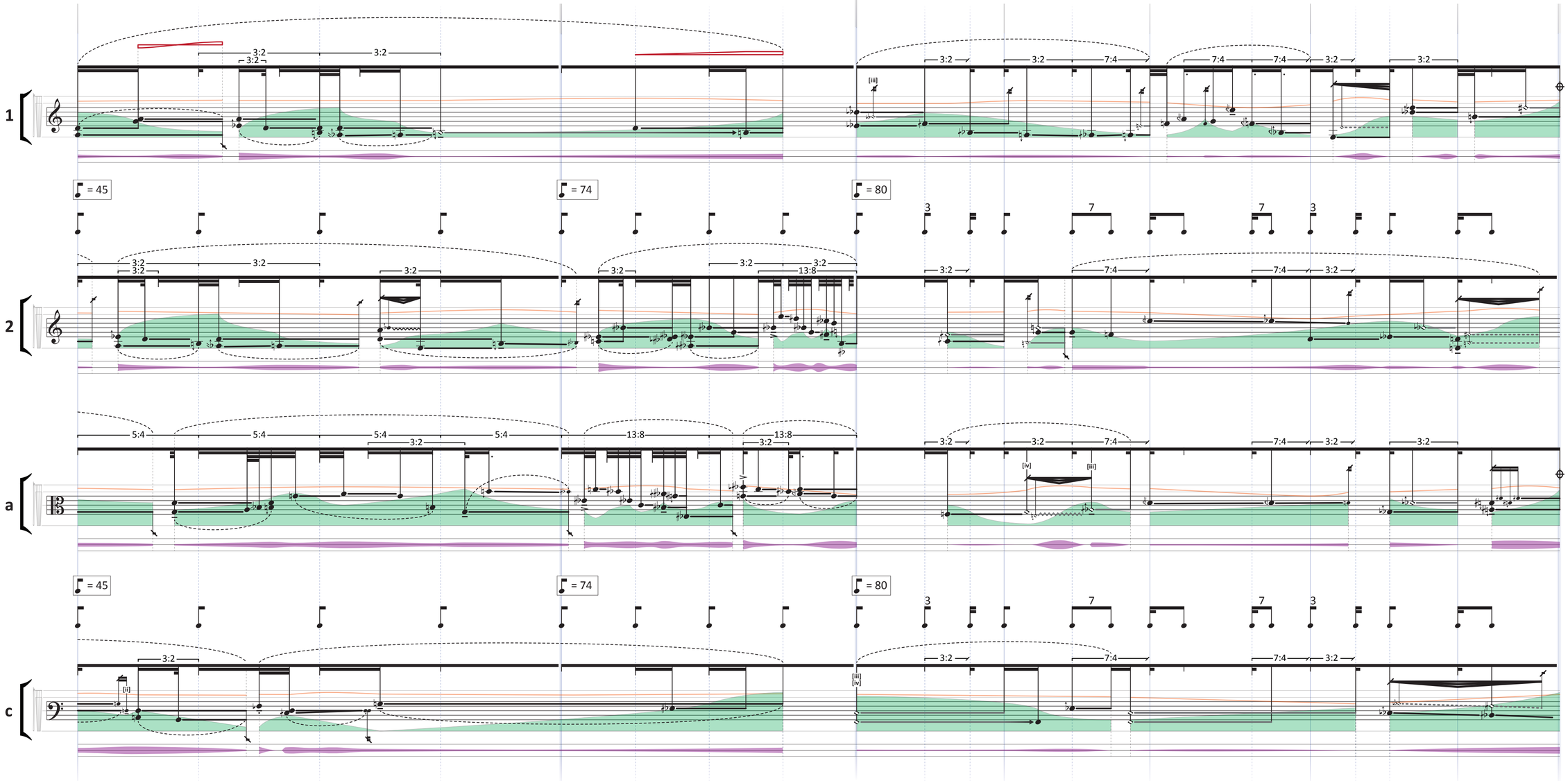

viiib
ixa
1
groan
[one bow]
[iii]
5:4
= 56
[poco rit.]
= 52
2
distal
groan
shoulder
a
[gradually rotate bow in accordance with expanding interval]
groan
5:3
= 56
[poco rit.]
= 52
c
[change finger pressure on top string only]
[one bow]
[finger both nodes]
viiib
ixa


[drift_1]
1
pizz.
7:4
13:8
3:2
= 52
= 56
= 60
= 66
2
pizz.
shoulder
15:8
7:4
arco
a
pizz.
105:64
91:64
39:32
33:32
[8va]
c
[l.h. pizz]
[arco]
[drift_1]

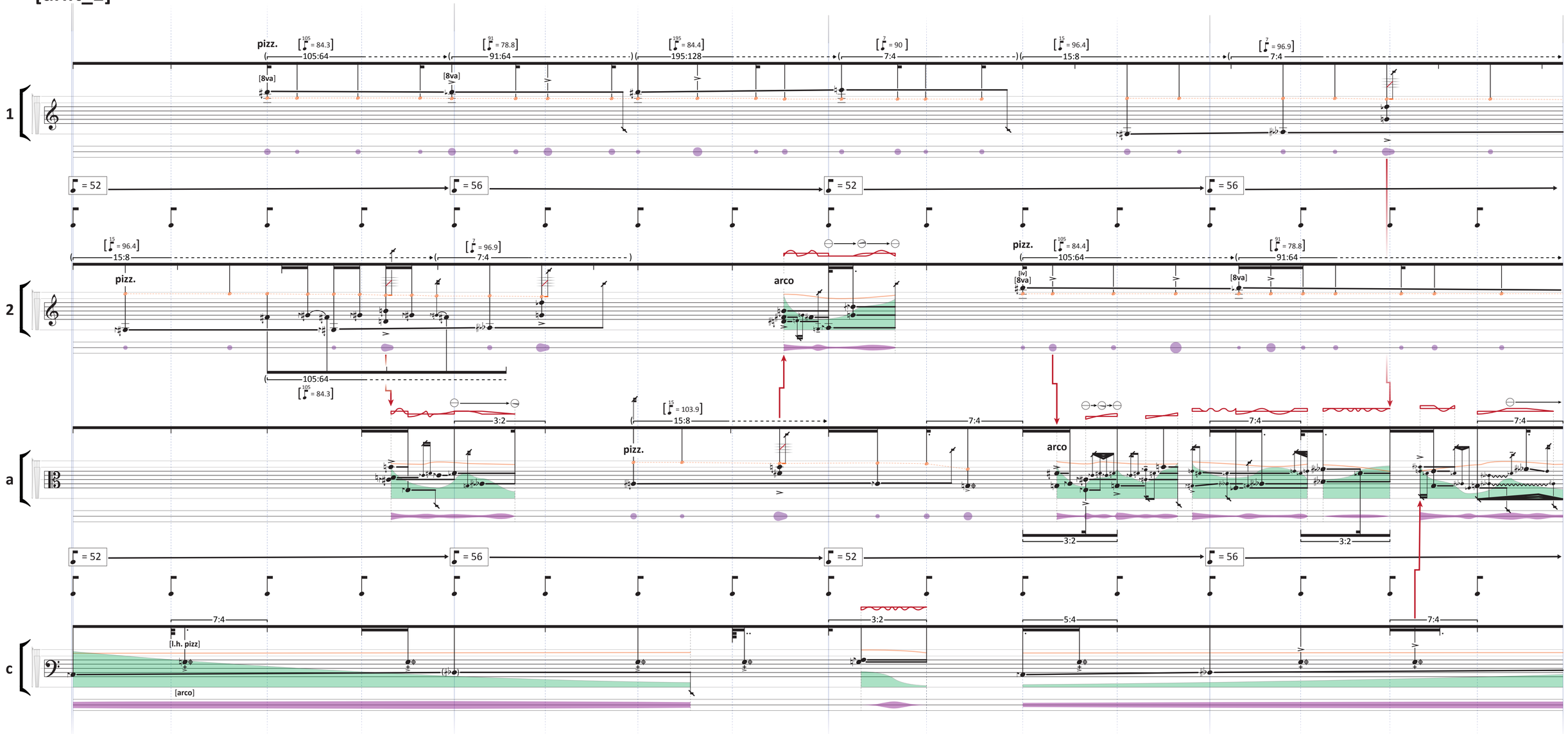

ixb
1
2
a
c
[11 = 99]
[5 = 100]
[9 = 101.3]
11:8
5:4
9:8
11:8
5:4
= 72
= 80
= 90
= 104 = (= 52)
5
11
3:2
[ii]
[iv]
[55 = 61.9]
[45 = 56.3]
[9 = 50.6]
55:32
45:32
9:8
[8va]
[iii]
ixb


x
arco
1
groan
2
a
arco
c
short
11:8
7:4
11
7
3:2
5:4
[iii]
[iv]
[i]
[ii]
7:6
x

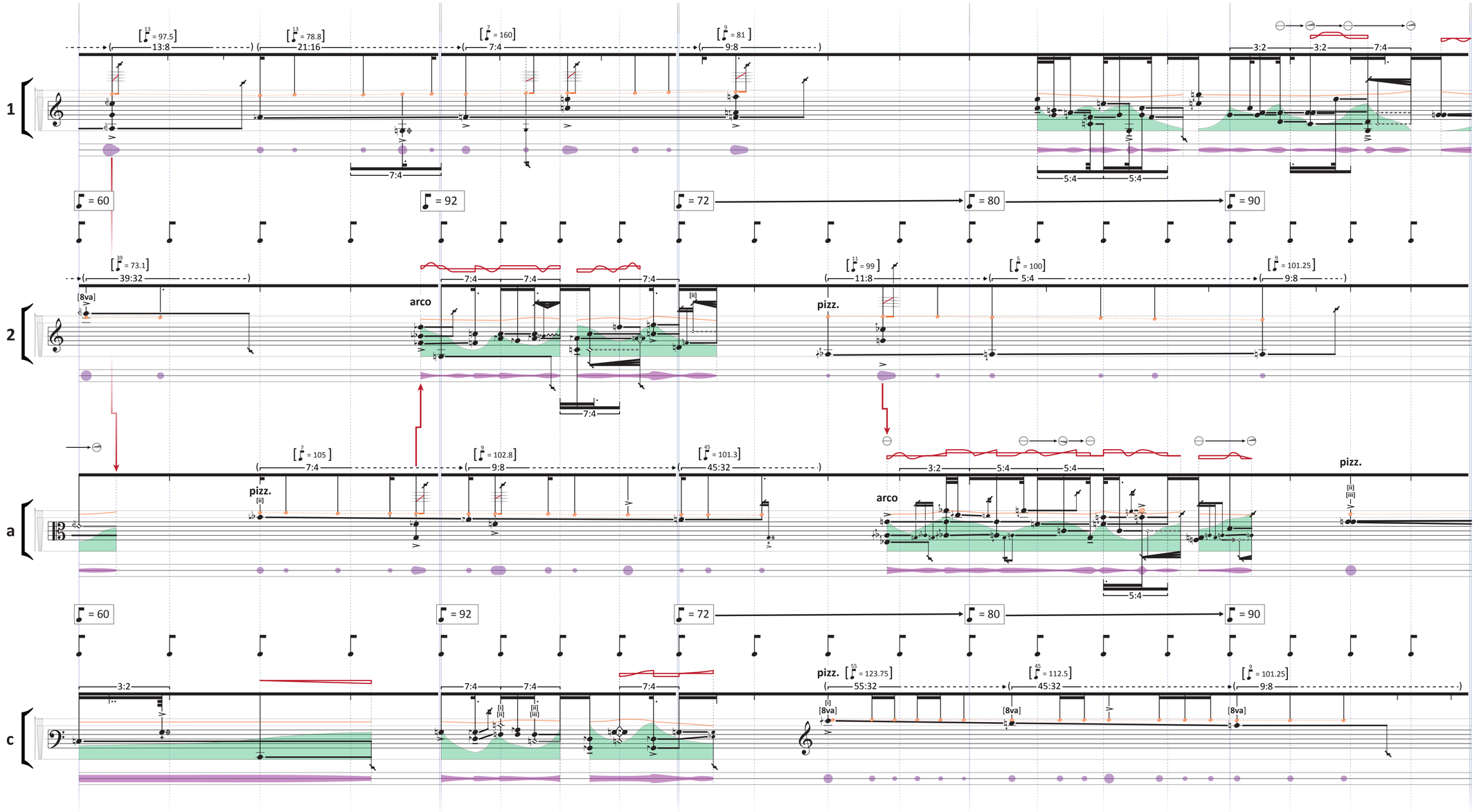

xi
35
231
1
2
a
c
= 56
= 72
= 44
3:2
5:4
7:4
11:8
[i]
[ii]
[iii]

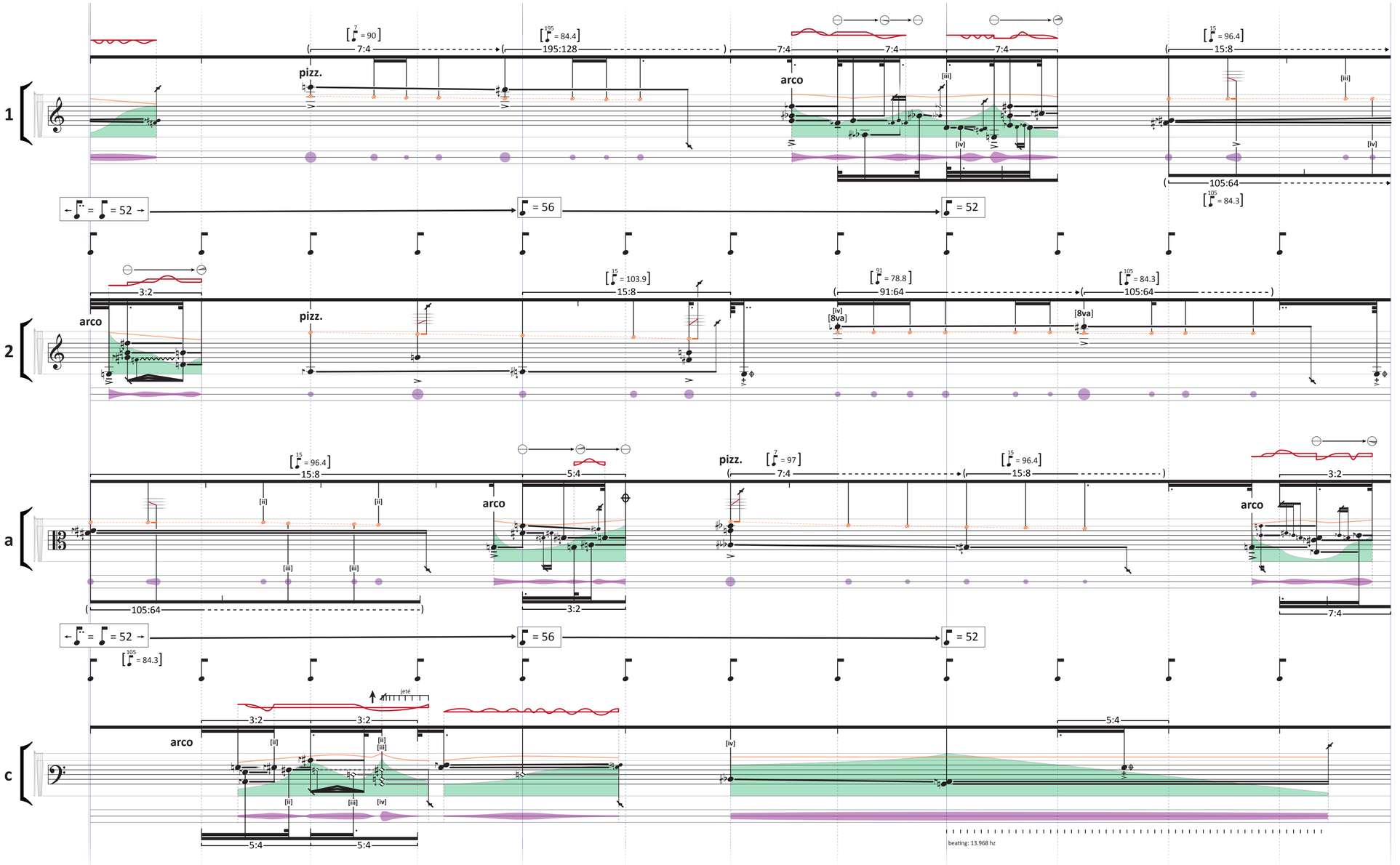

1
2
a
c
= 45
= 74
= 80
3:2
5:4
7:4
13:8
[i]
[ii]
[iii]
[iv]
[v]

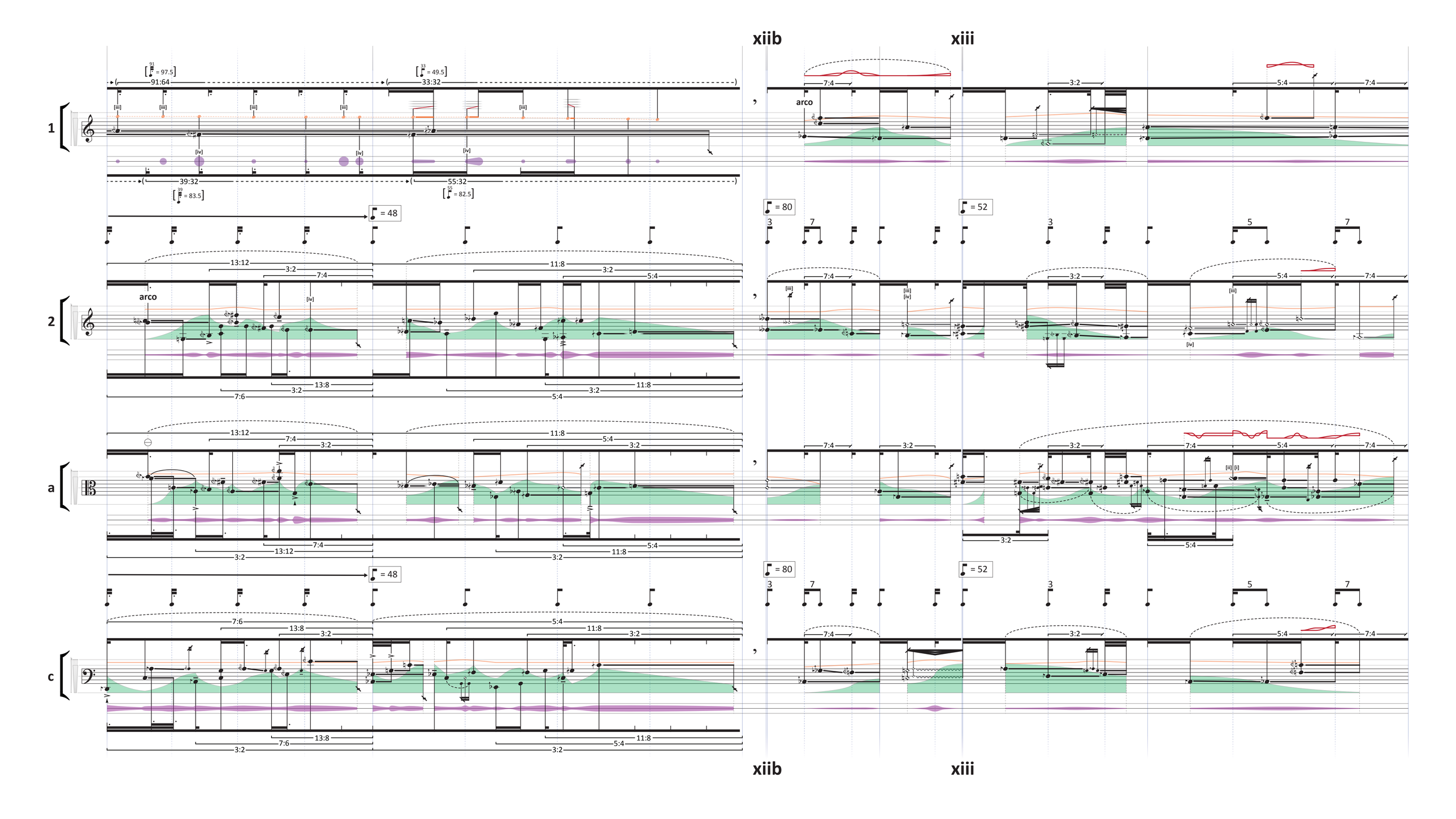
[drift_2]

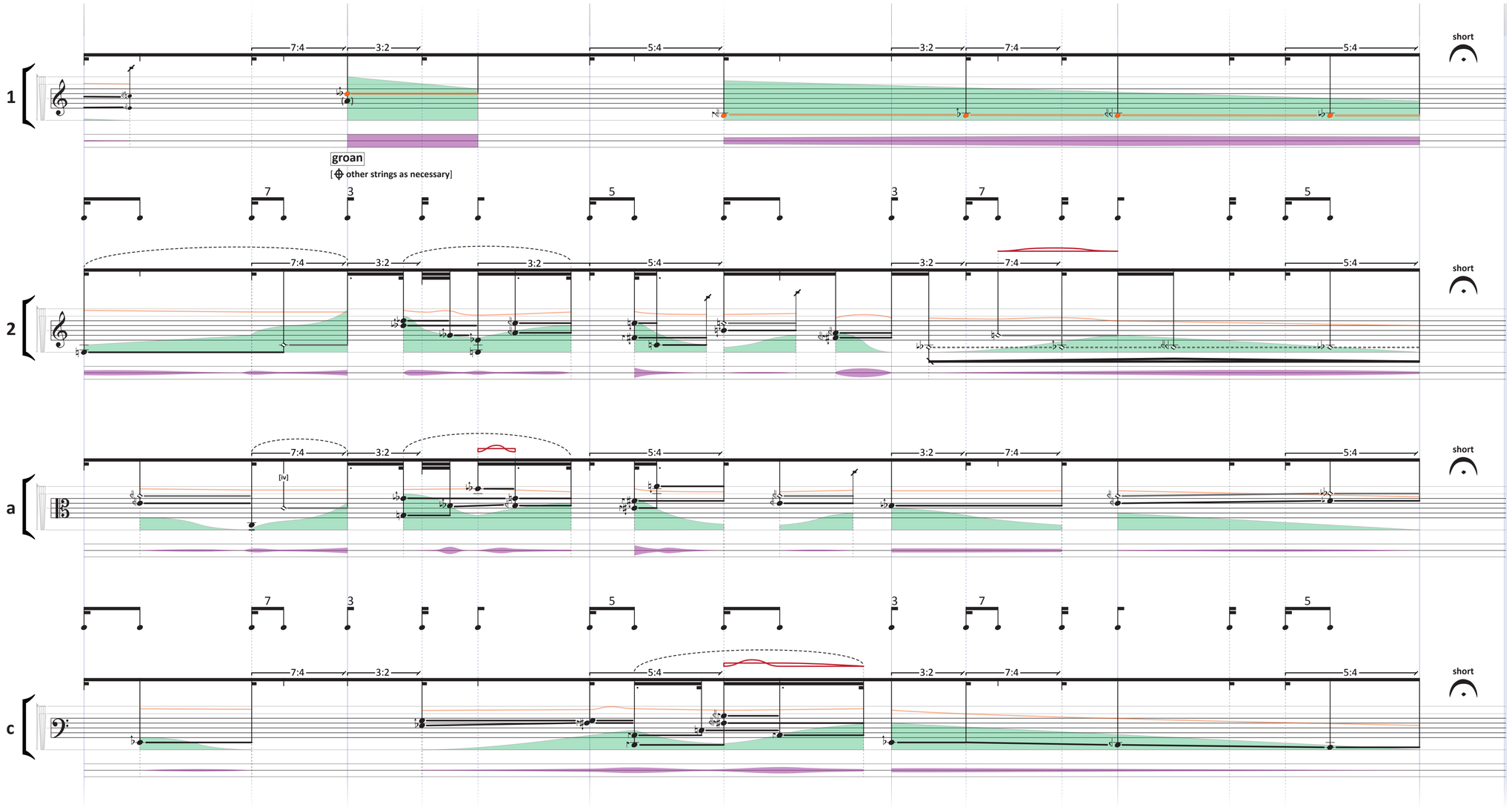


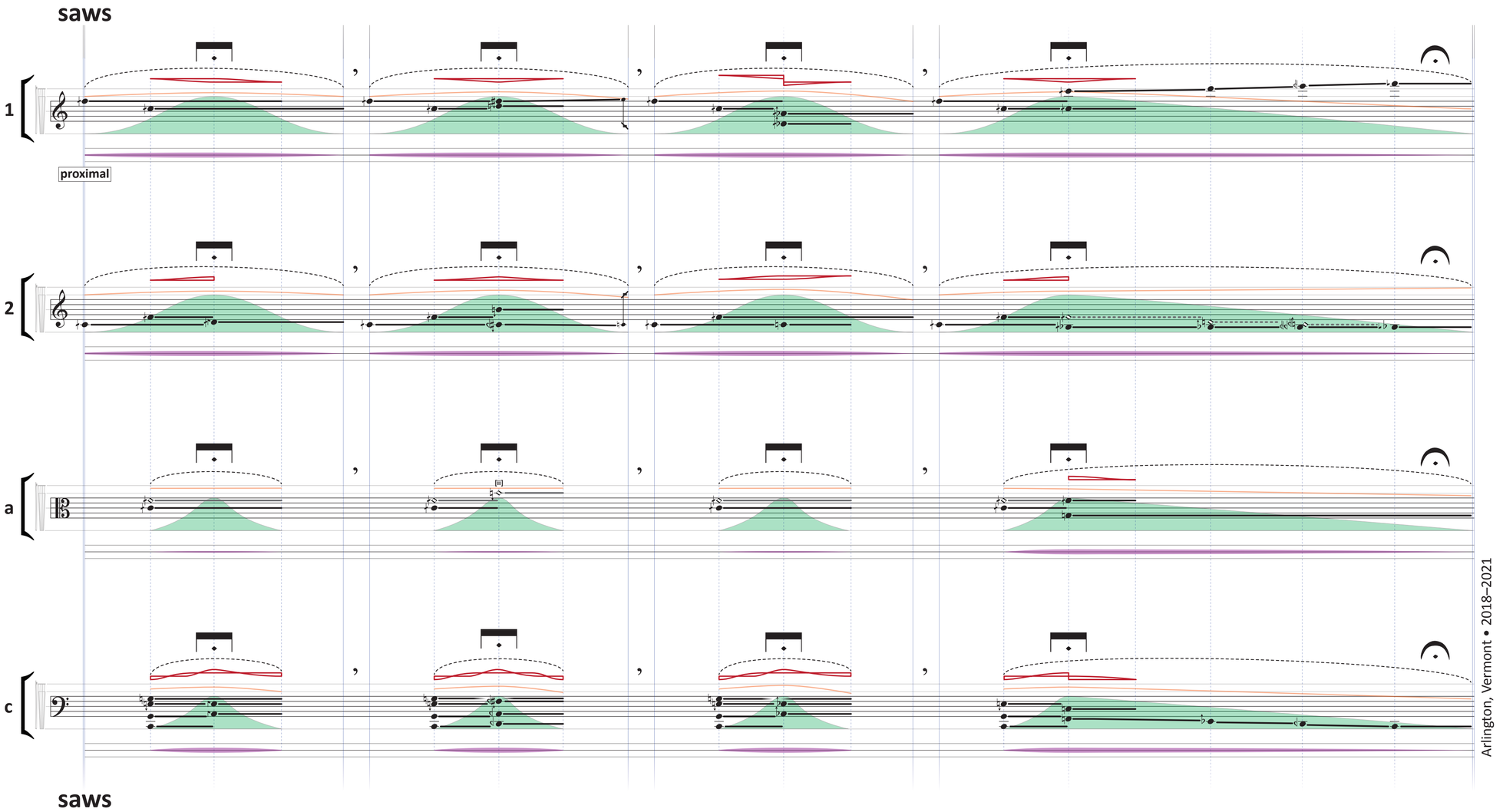
[drift_2]


1
2
a
c
= 60
= 92
= 72
= 80
= 90
arco
pizz.
[8va]


1
2
a
c
pizz.
arco
[8va]
jeté
beating: 13.968 hz


xiib
xiii
1
2
a
c
arco
= 48
= 80
= 52
91:64
33:32
39:32
55:32
= 97.5
= 49.5
= 83.5
= 82.5
13:12
11:8
7:4
3:2
5:4
13:8
7:6


1
2
a
c
7:4
3:2
5:4
short
groan
[other strings as necessary]
[iv]



Arlington, Vermont • 2018–2021