APERTURE

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for string quartet

Amy Brandon 2018

Instrumentation.

Violin I
Violin II
Viola
Violoncello

Duration.

~5min

Program notes.

Aperture uses a combination of resonant tunings and dynamic shifts to create the impression of a fluid, shifting but static portal or rift.

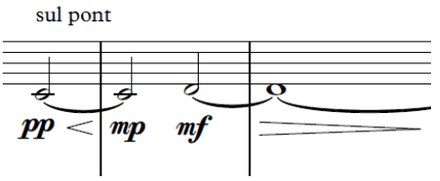
Technical notes.

1. The primary goal of this piece is resonance. All notes should be tuned to be as resonant as possible within the ensemble.

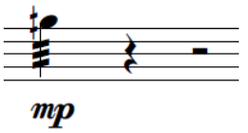
2. Pitch material is a combination of equal temperament, quartertones and just intonation from a C fundamental. Pitches are intended to be tuned to be as resonant as possible throughout the piece, with the exception of equal tempered quartertones, which should be as dissonant as possible.

3. Pitches are almost exclusively restrained to the same octave (G3-G4) across all instruments to ensure close voicings. Staying sul G on the violins, viola and sul A on the cello is preferred, but not required, except where a neighbouring open string is needed.

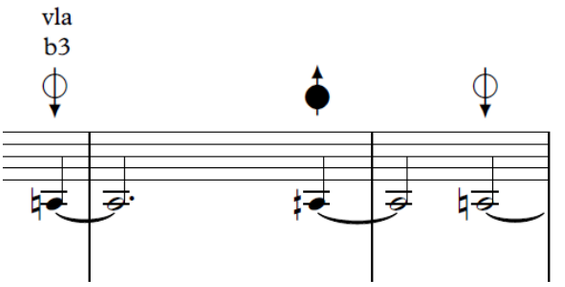
4. Equal temperament intervals are played as usual, although tuned to be as resonant as possible within the ensemble.



5. Quartertones are tuned normally, about 50 cents sharper than equal tempered intervals.



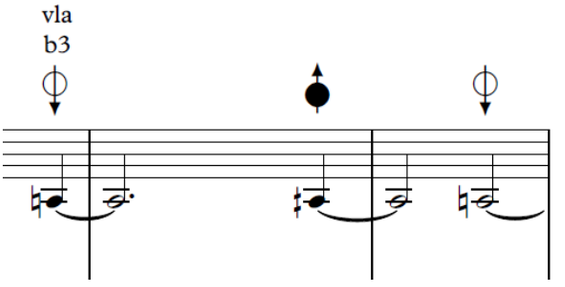
6. Just intonation pitches are indicated with a white or black circle with an arrow:



<u>To correctly tune the Just Intonation pitches:</u>

- It may be helpful to practice the Just Intonation pitches (sul G or sul A) with a tuner to familiarize the location and sound. A chart with the pitches in cents is below for reference. However, i**n performance, the most resonant interval possible is desired – actual tuning to the exact cent is not expected.**

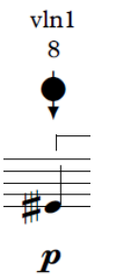
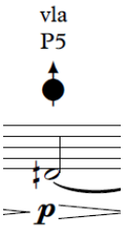
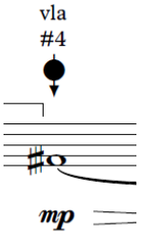
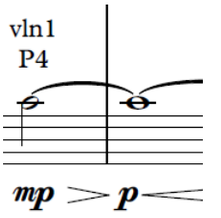
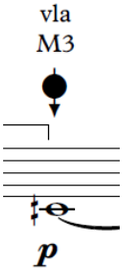
- In performance, there is notation to guide you to the approximate pitch.

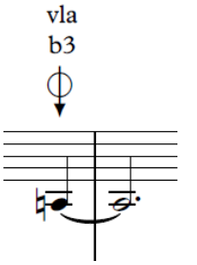


- Firstly, aim for the indicated note: in this example, a natural A below middle C. Sliding into notes to tune is acceptable.

- This note should be tuned slightly flat (indicated by the downwards white circle arrow) so that it is **resonant with the ensemble** and/or **makes the correct interval indicated**.

- In the above example, the first violin tunes the A3 slightly flat to a natural minor third below C in the viola, then to a slightly sharp A quartersharp, and returning to the original slightly flat A natural.

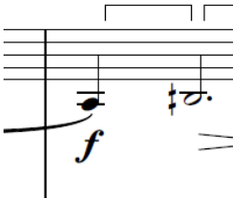
Notation indicates the instrument to tune to, and the interval	
Octave: ie. tune to a unison or octave with the first violin	
Perfect Fifth: ie. tune a perfect fifth above the viola	
Augmented Fourth: ie. tune an augmented fourth above the viola	
Perfect Fourth: ie. tune a perfect fourth above the violin	
Natural Major Third: ie. tune to a natural major third above the viola	

Natural Minor Third: ie. tune to a natural minor third below the viola	

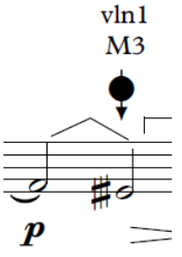
So in this piece, while the actual pitch may be +59 cents or -27 cents compared to equal temperament, you will almost always be tuning these pitches using a common interval with another member of the group. This is to take advantage of the usual tuning process of string quartets to achieve the most resonant intervals. **Sliding into pitches in order to tune correctly is acceptable.**

7. In addition, for clarity in cases of melodic lines between JI pitches, square and triangle brackets indicate the actual interval from the previous note. This is to help in cases where the starting and ending pitches are unclear, but the distance between them is a perfect interval.

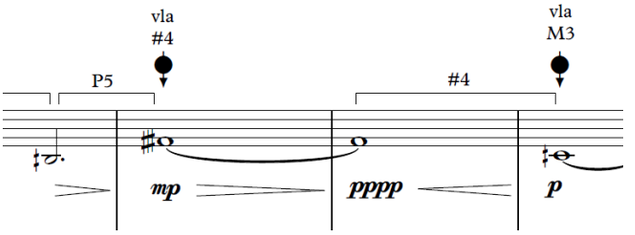
   Square brackets alone indicate equal tempered wholetones (200 cents).



   Triangle brackets indicate an equal tempered semitone (100 cents).



   Square brackets with an interval (ie. P5, P4, #4) indicate equal tempered perfect fifth (700 cents), perfect fourth (500 cents), and augmented fourth (600 cents).



Below is a chart of the Just Intonation pitches used in this piece with actual cents, cent difference from equal temperament and notation. MIDI bend information has been used to approximate the sounds in Sibelius for the MIDI MP3 accompanying this score.

Note and MIDI Bend	Partial / Ratio	Cent Difference	Actual Cents	Notation	Resonant Tuning Notation
B^: 0,77	**495/256**	B+41.5	1141.5	𝄲	𝅝
Bv: 0,61	**15/8**	B-11.7	1088.3	-	𝅝
Bb: 0,69	**9/5**	Bb+17.6	1017.6	♭	𝅝
A^:0, 83	**891/512**	A+59.1	959.1	𝄲	𝅝
A: 0,59	**5/3**	A-15.6	884.4		𝅝
Ab: 0,68	**8/5**	Ab+13.7	813.7	♭	𝅝
G^: 0,82	**99/65**	G+55.2	755.2	𝄲	𝅝
G: 0,65	**3/2**	G+2	702	-	-
F#^: 0,78	**1485/1024**	F#+43.5	643.5	♯	𝅝
F: 0,63	**4/3**	F-2	498.0	-	-
E: 0,60	**5/4**	E-13.7	386.3	-	𝅝

Eb: 0,69	**6/5**	Eb+15.6	315.6		
D^: 0,82	**297/256**	D+57.2	257.2		
D: 0,65	**9/8**	D+4	203.9	-	-
C^: 0,78	**4455/4096?**	C+45.5	145.5		
C: 0,64	**1/1**	C 0	0	-	-

8. The piece can be played as slowly as needed, however, the given tempo is ideal.

9. Dynamics should always be smoothly shifting, fluid and dramatic in order to give the impression of a physical 'aperture' appearing and disappearing. **Exact dynamics are not required as long as the general curvature is followed.**

Aperture

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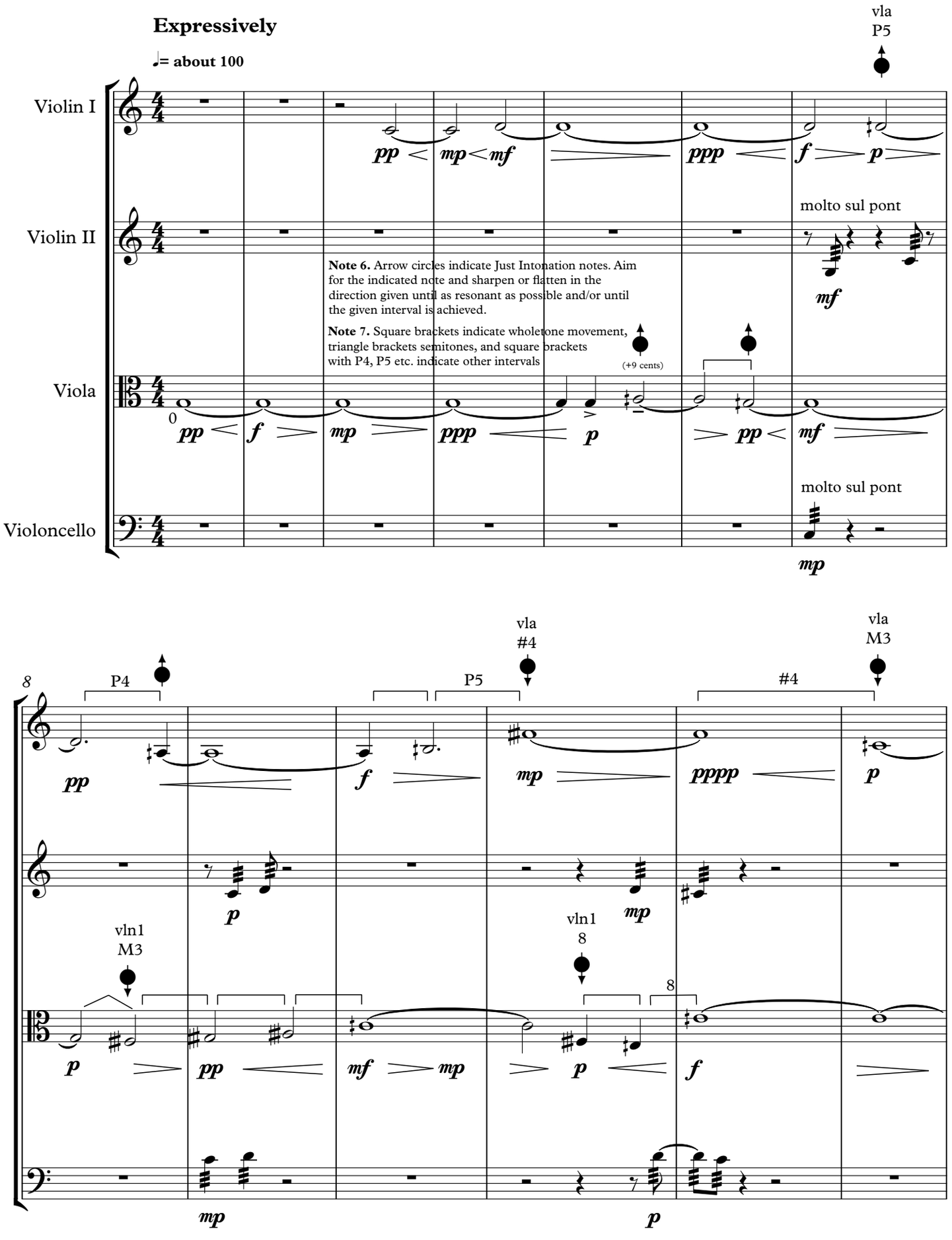

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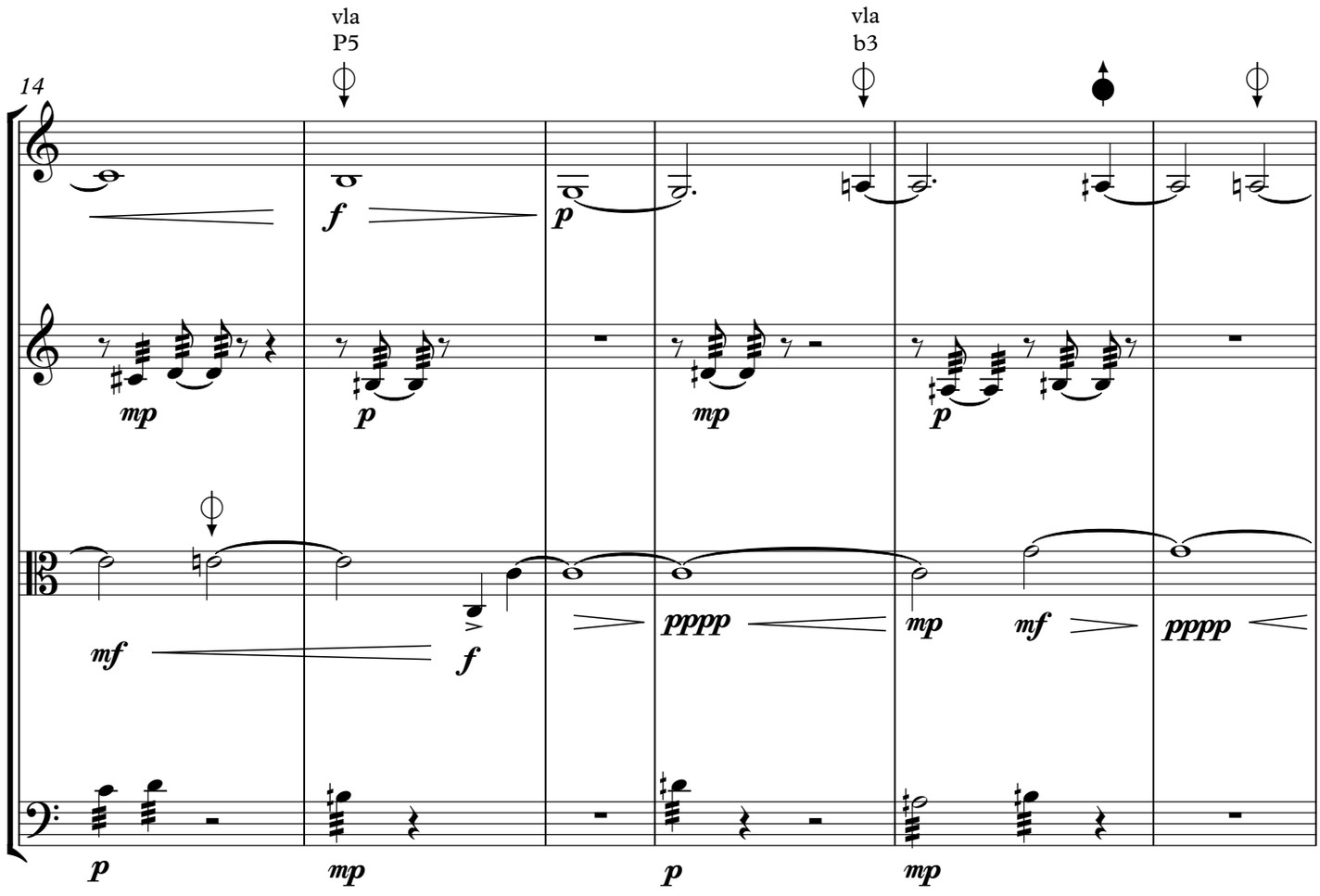
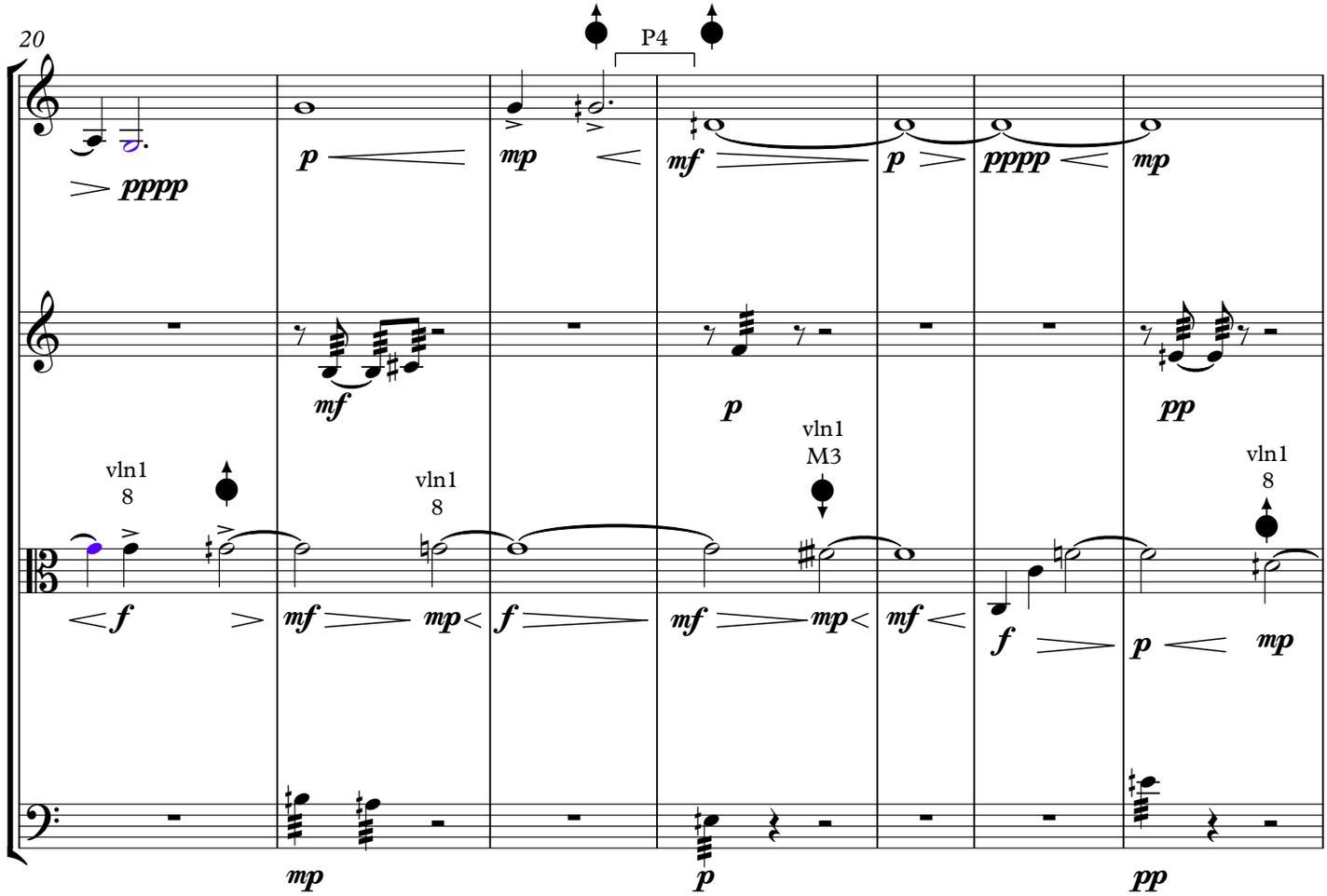
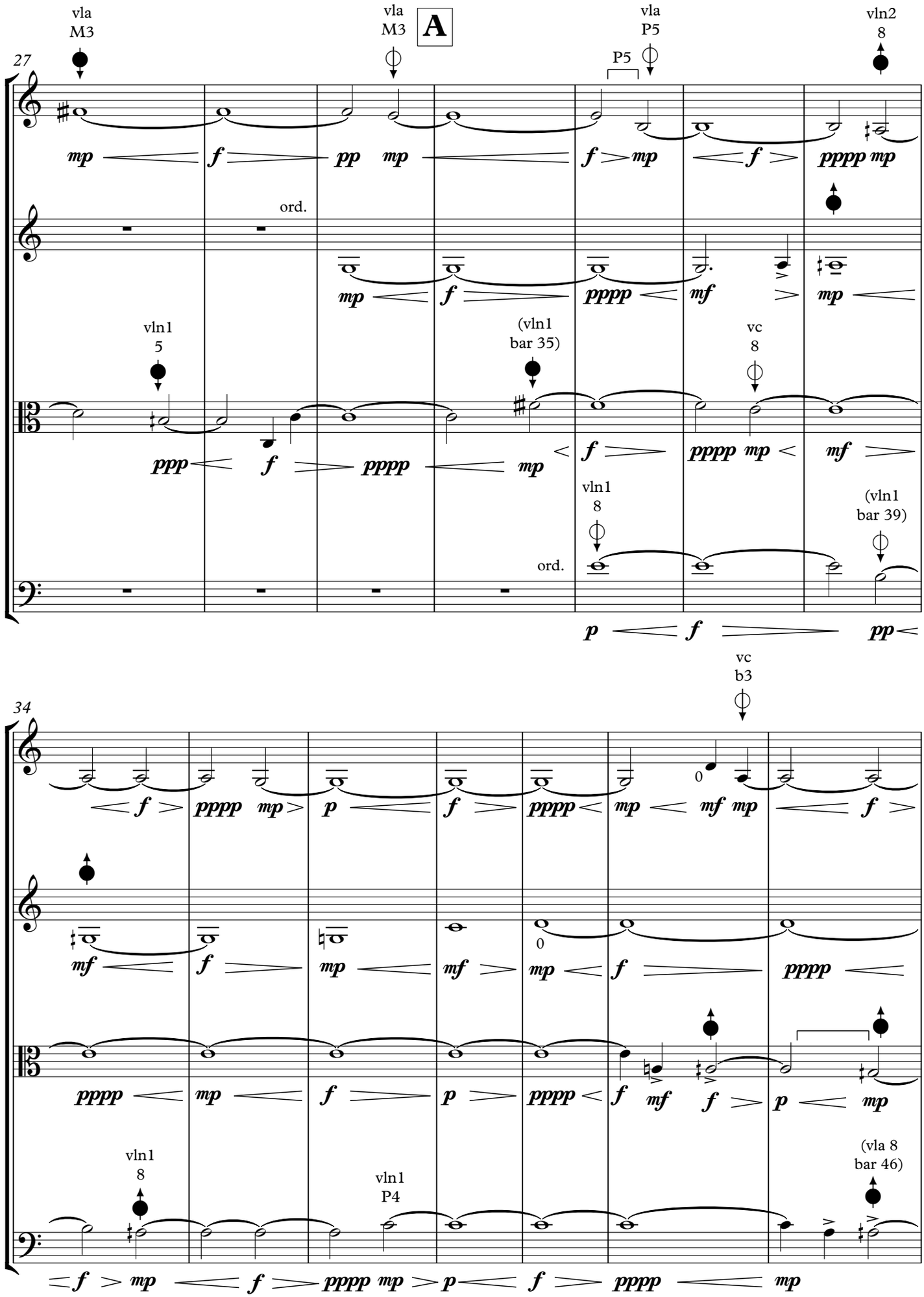
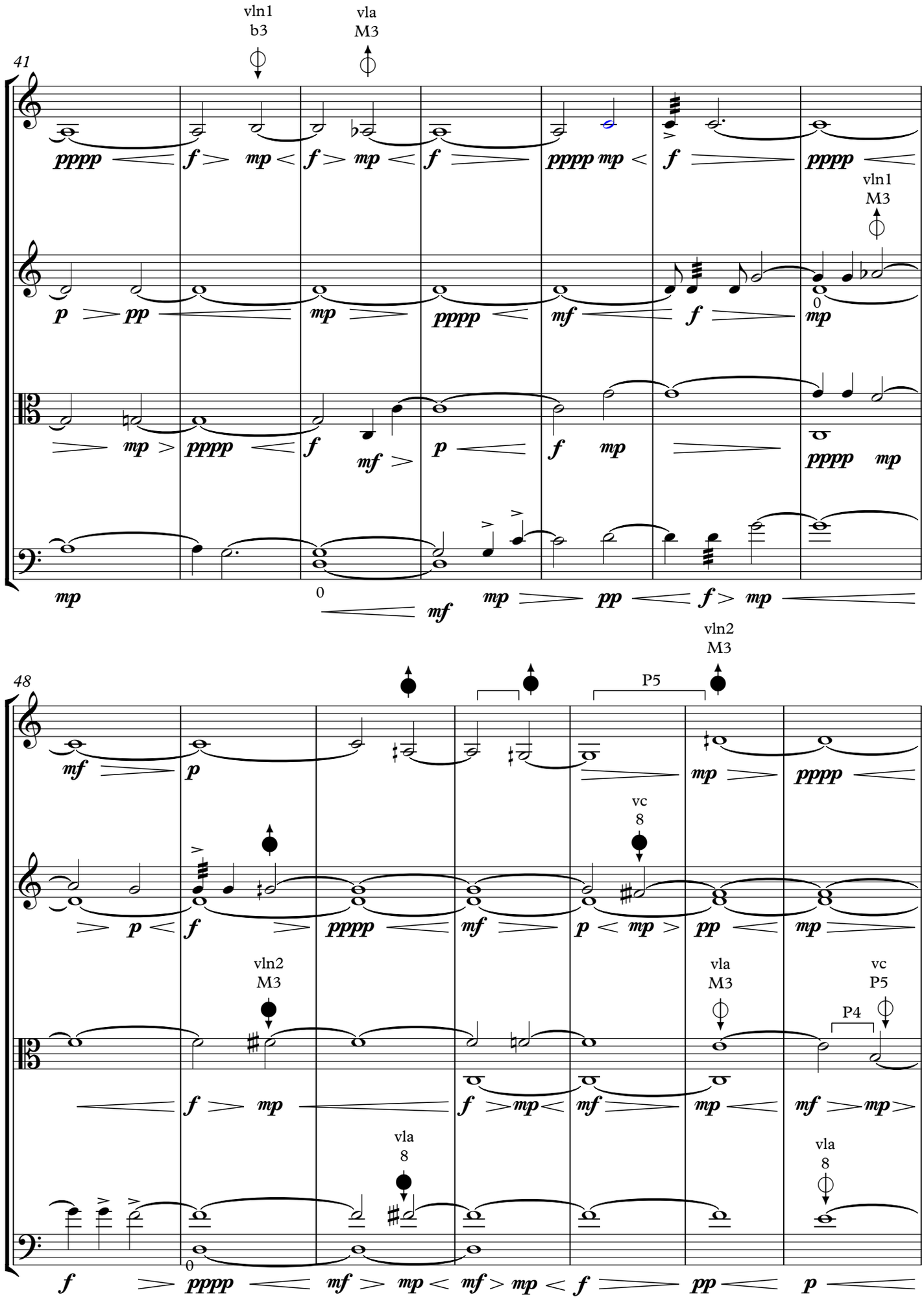
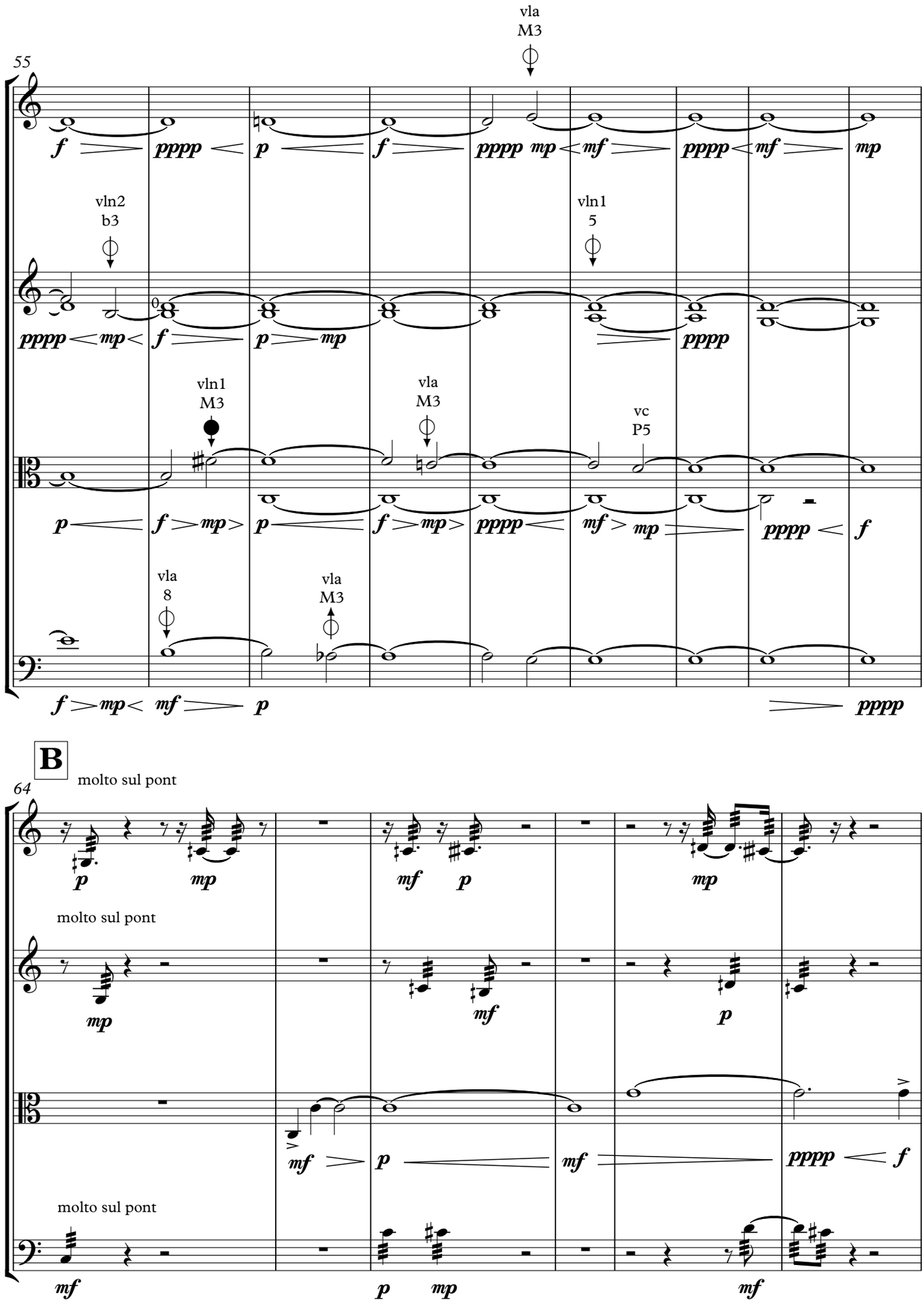
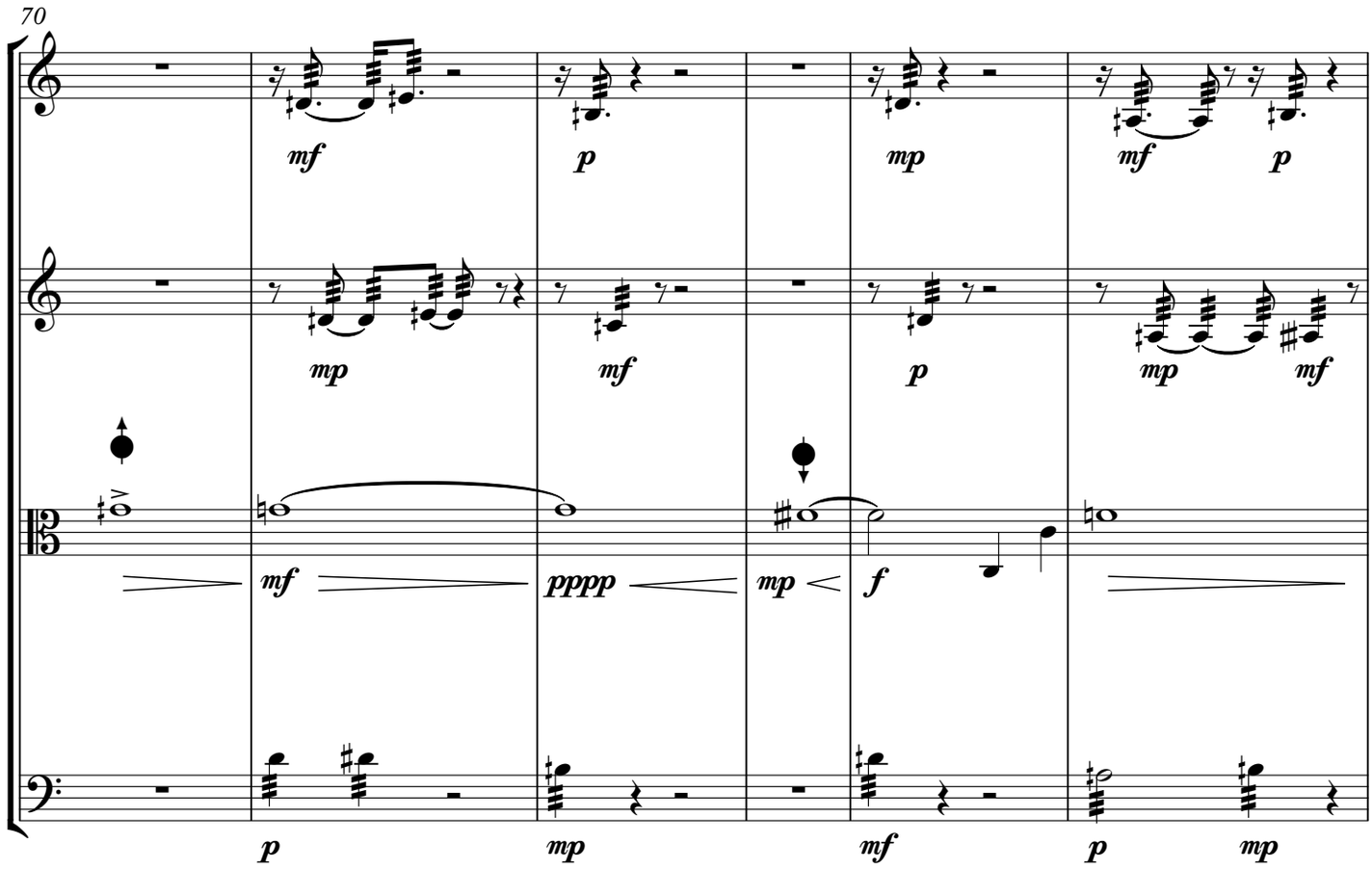

14
vla
P5
vla
b3

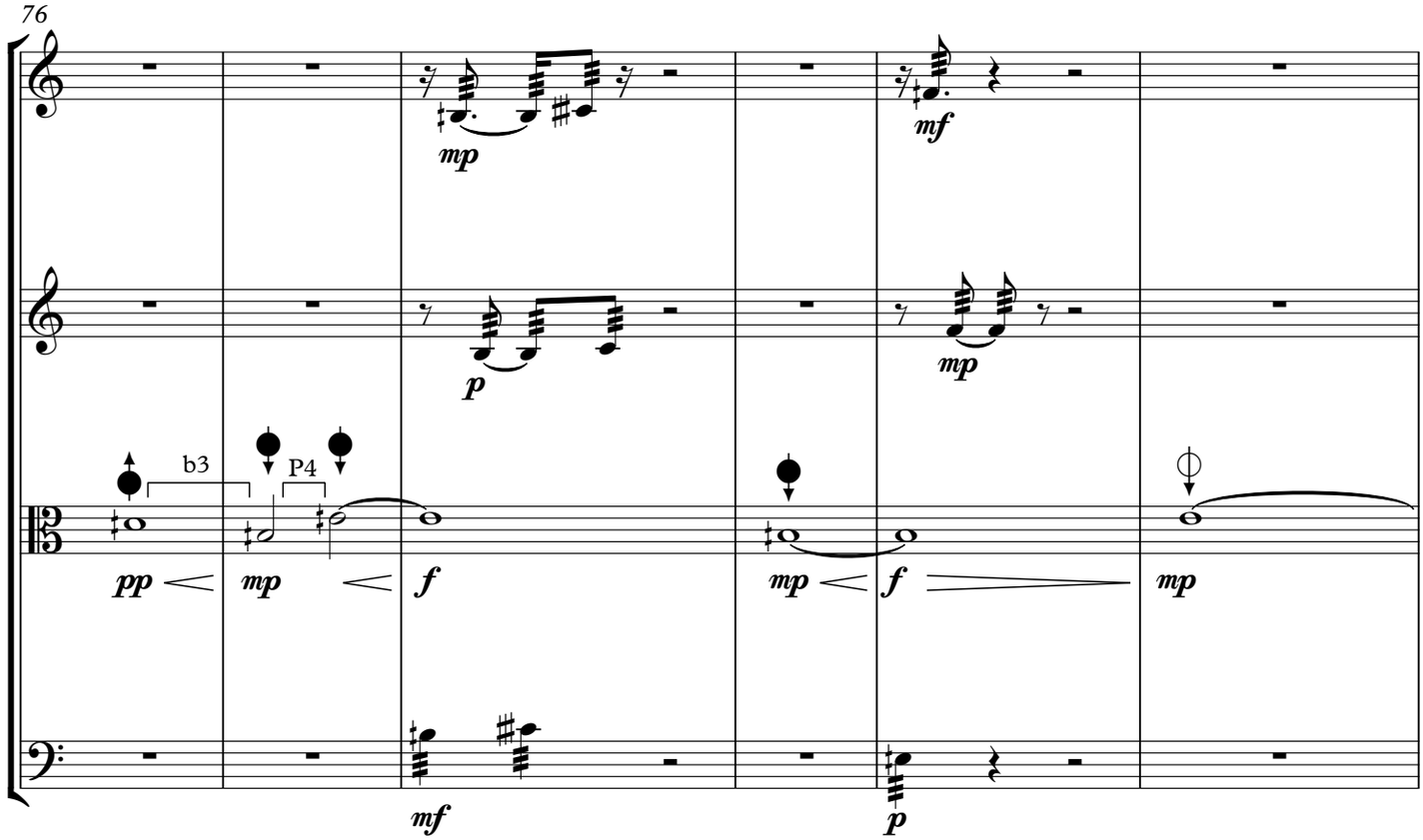

20
P4
vln1
8
vln1
8
vln1
M3
vln1
8

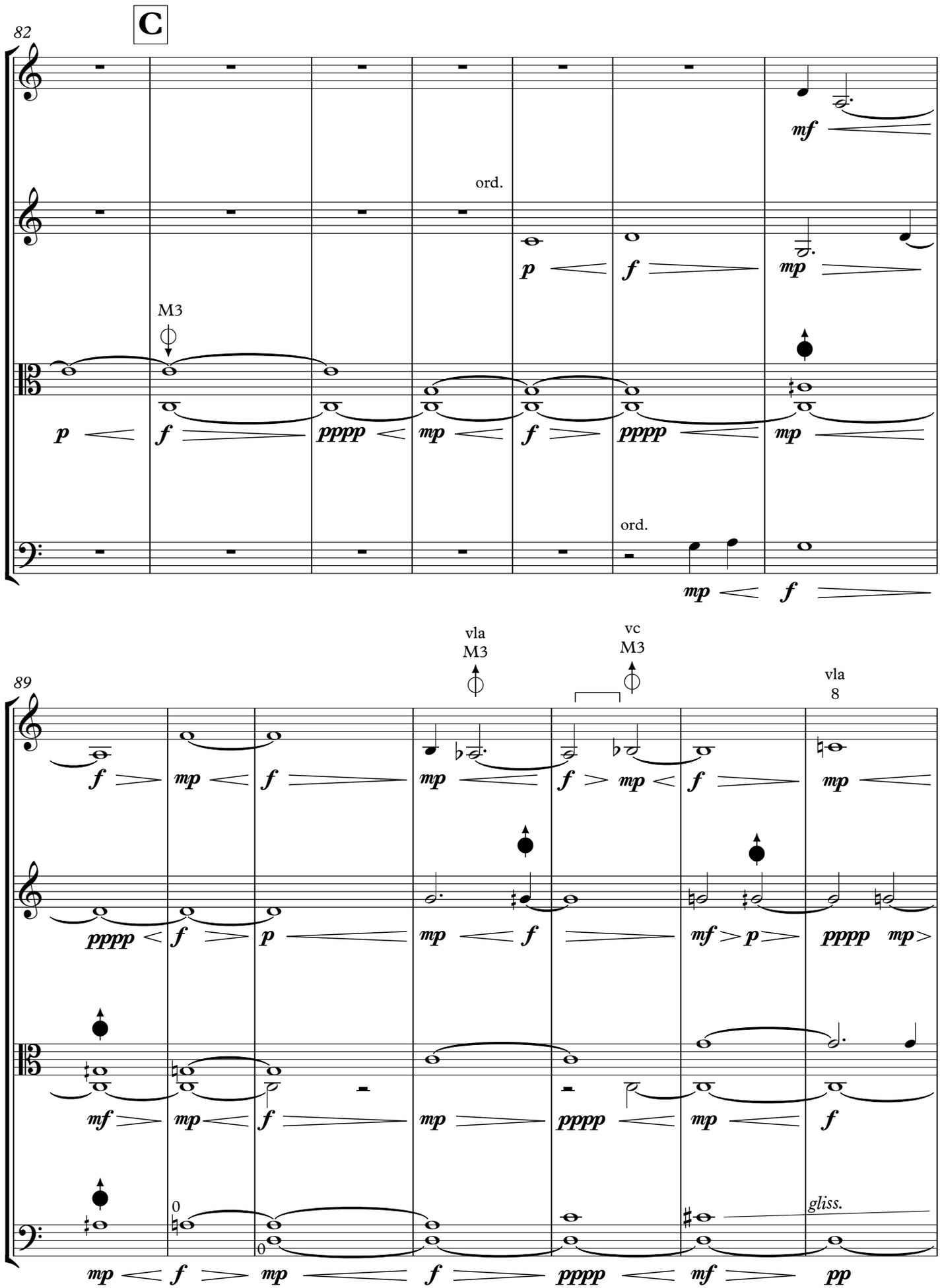

27
vla
M3
vla
M3
A
vla
P5
P5
vln2
8
ord.
vln1
5
(vln1
bar 35)
vc
8
vln1
8
(vln1
bar 39)
ord.
34
vc
b3
vln1
8
vln1
P4
(vla 8
bar 46)

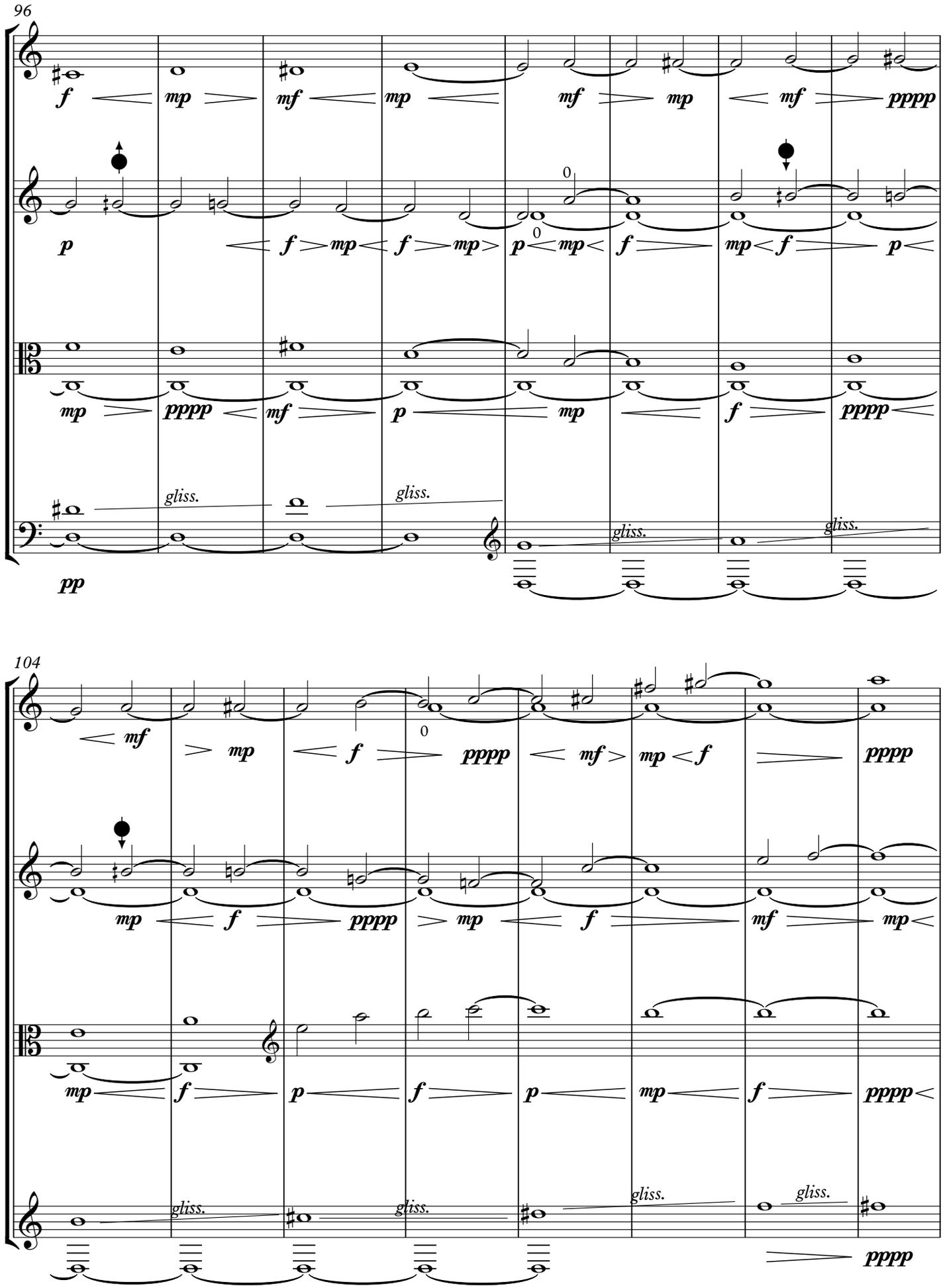

41
vln1
b3
vla
M3
vln1
M3
48
vln2
M3
P5
vc
8
vln2
M3
vla
M3
vc
P5
P4
vla
8
vla
8

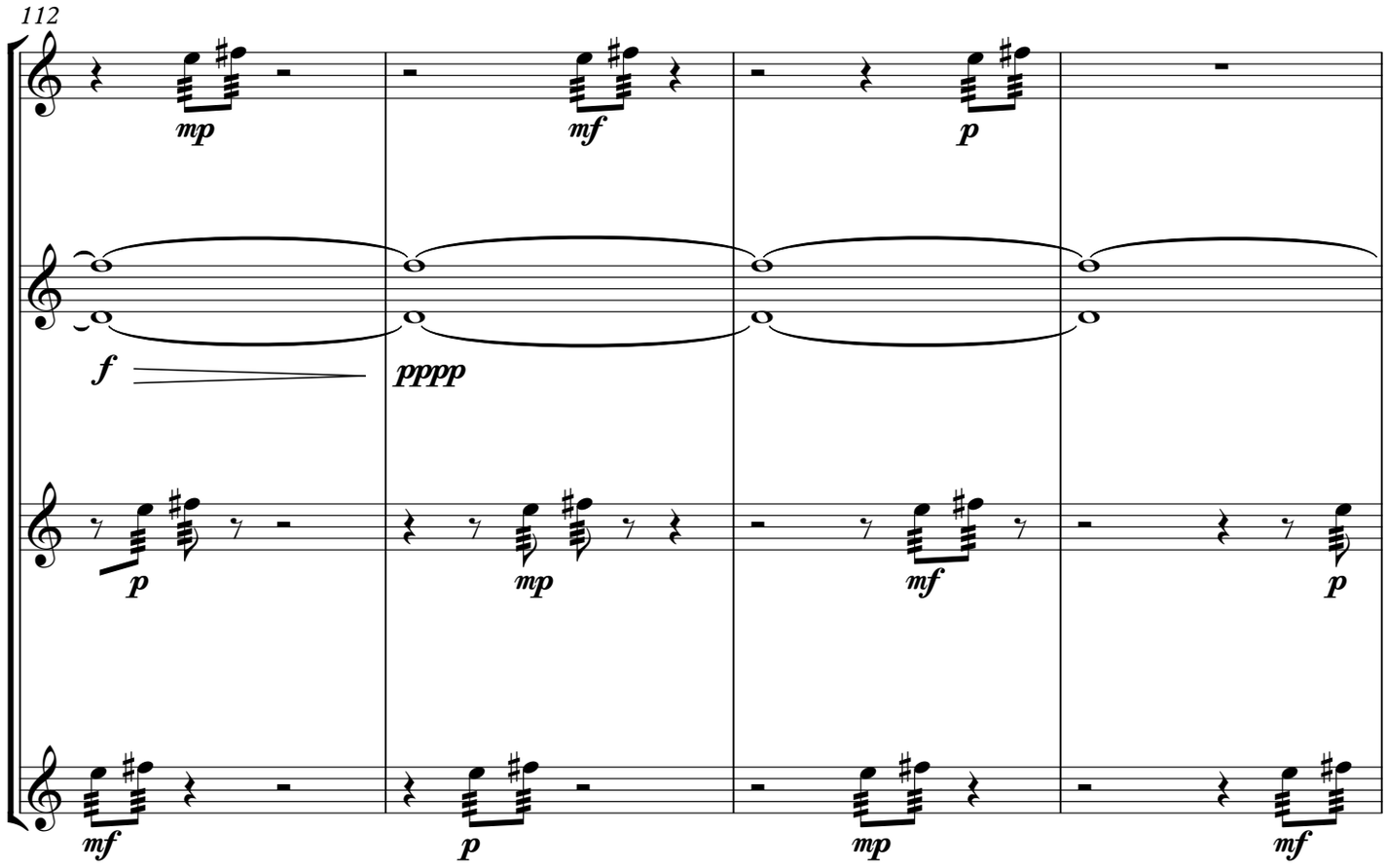

55
vla
M3
vln2
b3
vln1
5
vln1
M3
vla
M3
vc
P5
vla
8
vla
M3
B
64
molto sul pont
molto sul pont
molto sul pont

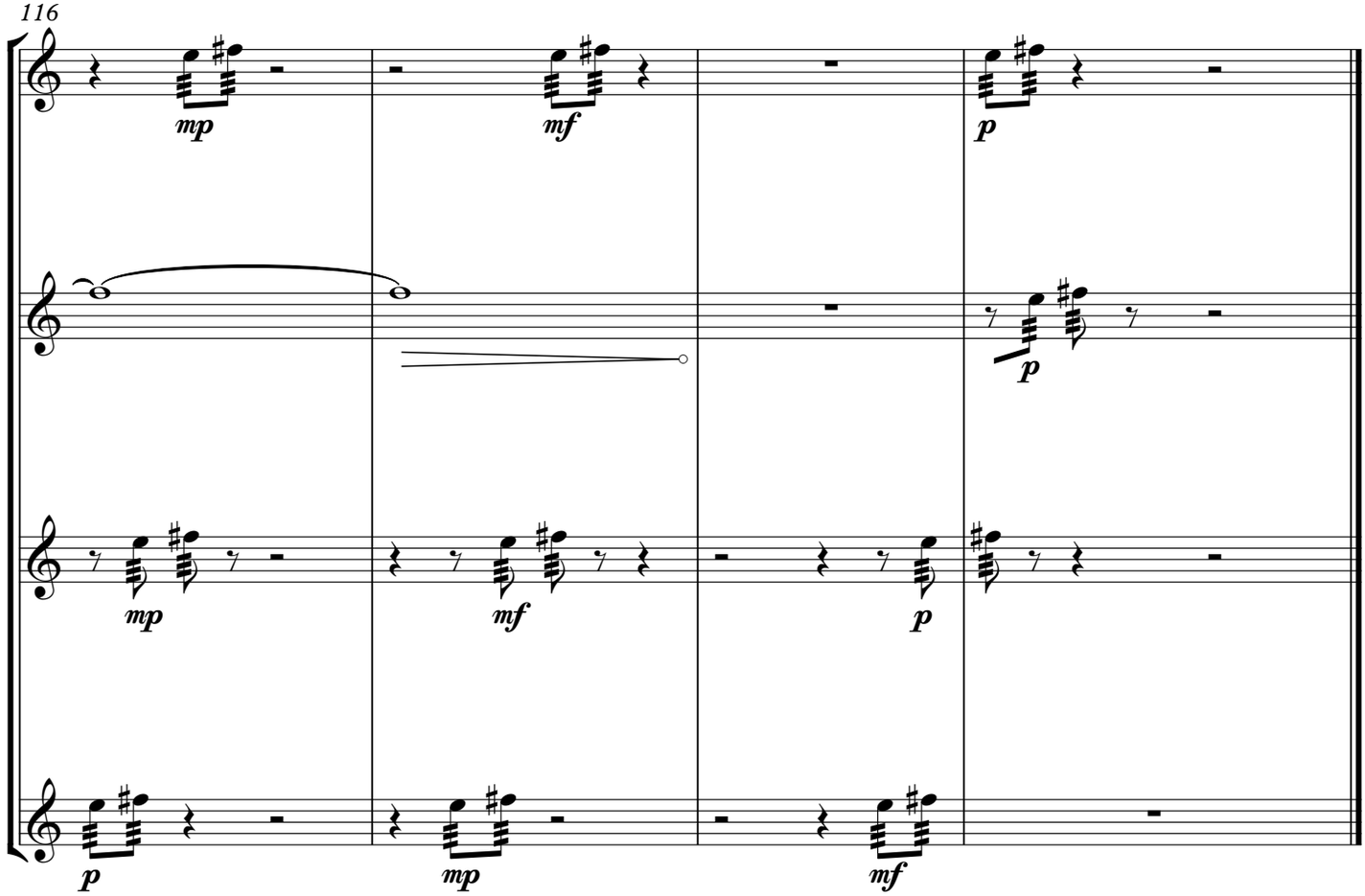

70
mf
p
mp
mf
p
mp
mf
p
mp
mf
pppp
mp
f
p
mp
mf
p
mp


76
mp
mf
p
mp
b3
P4
pp
mp
f
mp
f
mp
mf
p


C
82
ord.
M3
ord.
89
vla
M3
vc
M3
vla
8
gliss.


96
104
gliss.


112
mp
mf
p
f
pppp
p
mp
mf
p
mf
p
mp
mf


116
mp
mf
p
p
mp
mf
p
p
mp
mf