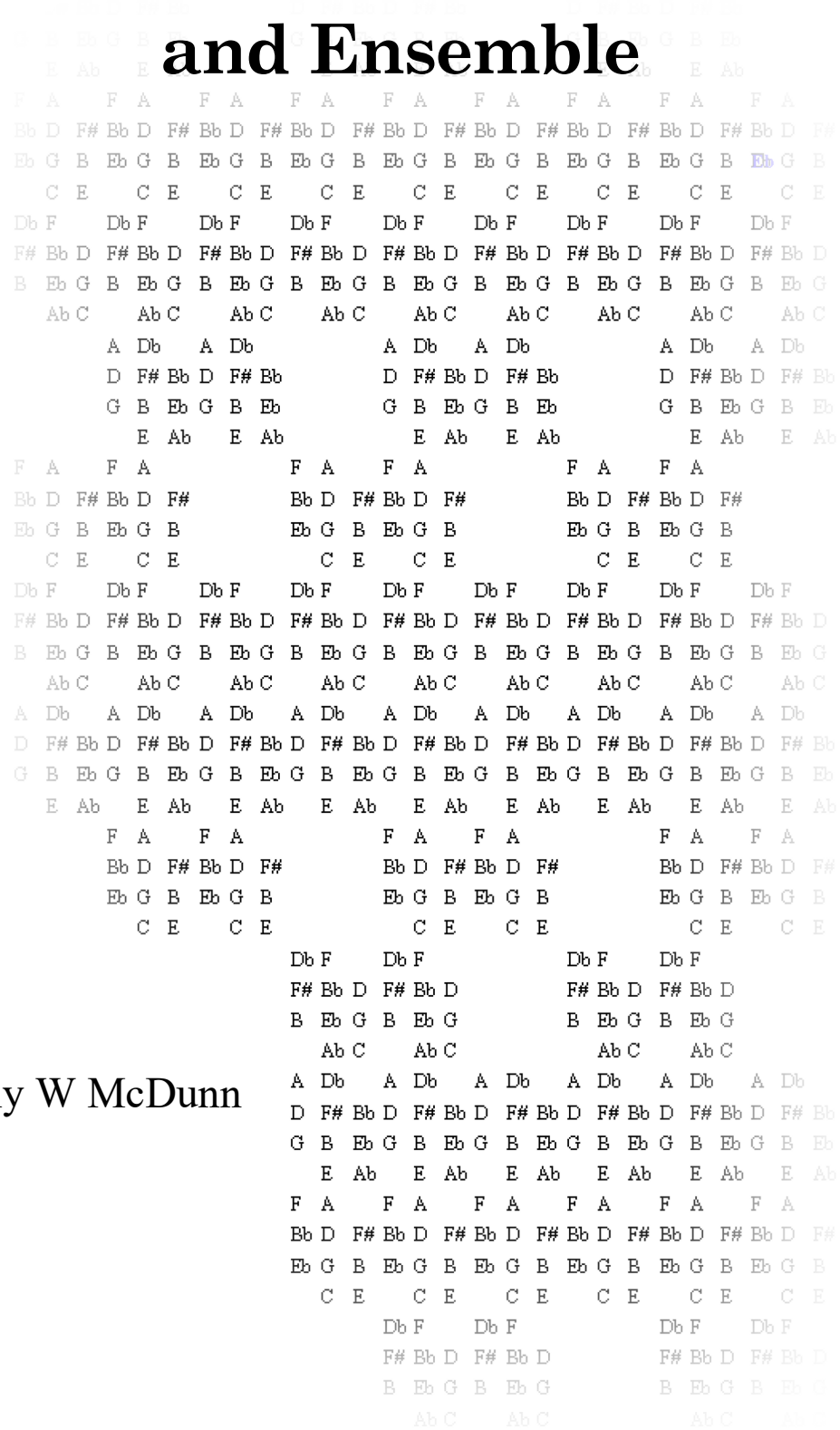
Mini Concerto for Archinovica and Ensemble



Timothy W McDunn

Instrumentation

Flute (Piccolo doubling); Oboe; Clarinet in Bb (Bass Clarinet doubling); Soprano Saxophone; French Horn; Trumpet in Bb; Trombone; Percussion 1 (Crotales, Marimba); Percussion 2 (Glockenspiel, Xylophone, Cymbals, Crotales); Violin 1; Violin 2; Viola; Cello; Contrabass; Archinovica (explained below)

Concept

The concerto genre is fundamentally about the dialogue between the soloist and ensemble. This seems to represent the strife and reconciliation of the individual with society. In this piece, the soloist plays archinovica, a software instrument I've created, which algorithmically retunes the pitches of a MIDI keyboard during live performance. The tuning shifts as the music modulates, so that every pitch is in a just interval relation with other pitches that were just played. Meanwhile, the ensemble in this piece plays in unchanging equal temperament—a more practical approach to tuning, which also allows the possibility of modulation in all keys. Because of this, the ensemble and the soloist go out of tune with each other as the piece develops.

Music for archinovica lays bare the frailty of expressive resources by problematizing the categories of harmonic experience: what is A-natural, for example? If shifted 2 cents higher is it still A-natural? What if it moves 2 cents higher again after that? The ear generally accepts small changes to a pitch without placing it in an entirely different category. But does this mean every pitch is A-natural? Or is there some hard and fast dividing line between categories, which is only difficult to perceive? This may be another sense in which, as Ben Johnston put it, Western music is based on 'an acoustic lie.'

I am of the opinion that this frailty of expressive resources owes to a blemish in human nature. Through its representation of the conflict between the individual and society, this concerto speaks to the redemption of that human flaw. If played exactly as written, the soloist will return to roughly match the tuning of the ensemble again at the end of the piece. If mistakes occur, however, they may more or less cancel each other out, or the soloist may end up out of tune with the ensemble at the end, depending on the details of the mistakes. In every performance, it is a surprise whether the individual, in the purity of private thought, effects a reconciliation with the practical constraints of society. The composition is thus a study in the relation between the free will of the individual, the constraints of society, and the redemption of human frailty.

Playing Archinovica

Setup

The archinovica is a software instrument, which uses a deterministic, generative algorithm to retune a MIDI keyboard during live performance. The purpose of the instrument is to allow harmonic modulation in five-limit just intonation.

To use the archinovica, attach a MIDI keyboard to a computer and double click the Archinovica.jar file included in the software package. Turn off local control on the keyboard; consult the manual of the keyboard for instructions on how to do this. Press 'Z' to enter full screen mode. Press 'R' to reset the tuning of the instrument at any time after the tuning has shifted due to modulation.

The instrument introduces a slight delay (30 milliseconds). This delay window allows the software to distinguish between pitches occurring simultaneously and those occurring in succession, which may affect the tuning. All notes pressed within 30 milliseconds of each other are considered a part of the same chord. To change the length of the delay window, use File > Set Delay Window.

Guided Tuning

Included with this composition is a file called "setrecords.txt." If placed in the same directory as the Archinovica.jar file, this will enable guided tuning during rehearsal, and optionally during performance. To use this feature, hold shift and press the letter corresponding to the last rehearsal mark passed in the score. The instrument will jump to the appropriate tuning at that point in the piece.

Pedals

To control pitch, the archinovica repurposes the three pedals of the keyboard traditionally used for una corda, damper, and sostenuto. Pedal markings are indicated by three signs shown here. Pedals are to be held down during the attack of one chord or note. If a bracket extends from the pedal marking below multiple chords or notes, the pedals are to be held down until the end of the bracket. Pedals only affect the intonation of a chord or note if held during the attack; they may be released at will during sustain.



The middle pedal serves as an inverted damper. It cuts off the sound, which sustains by default.
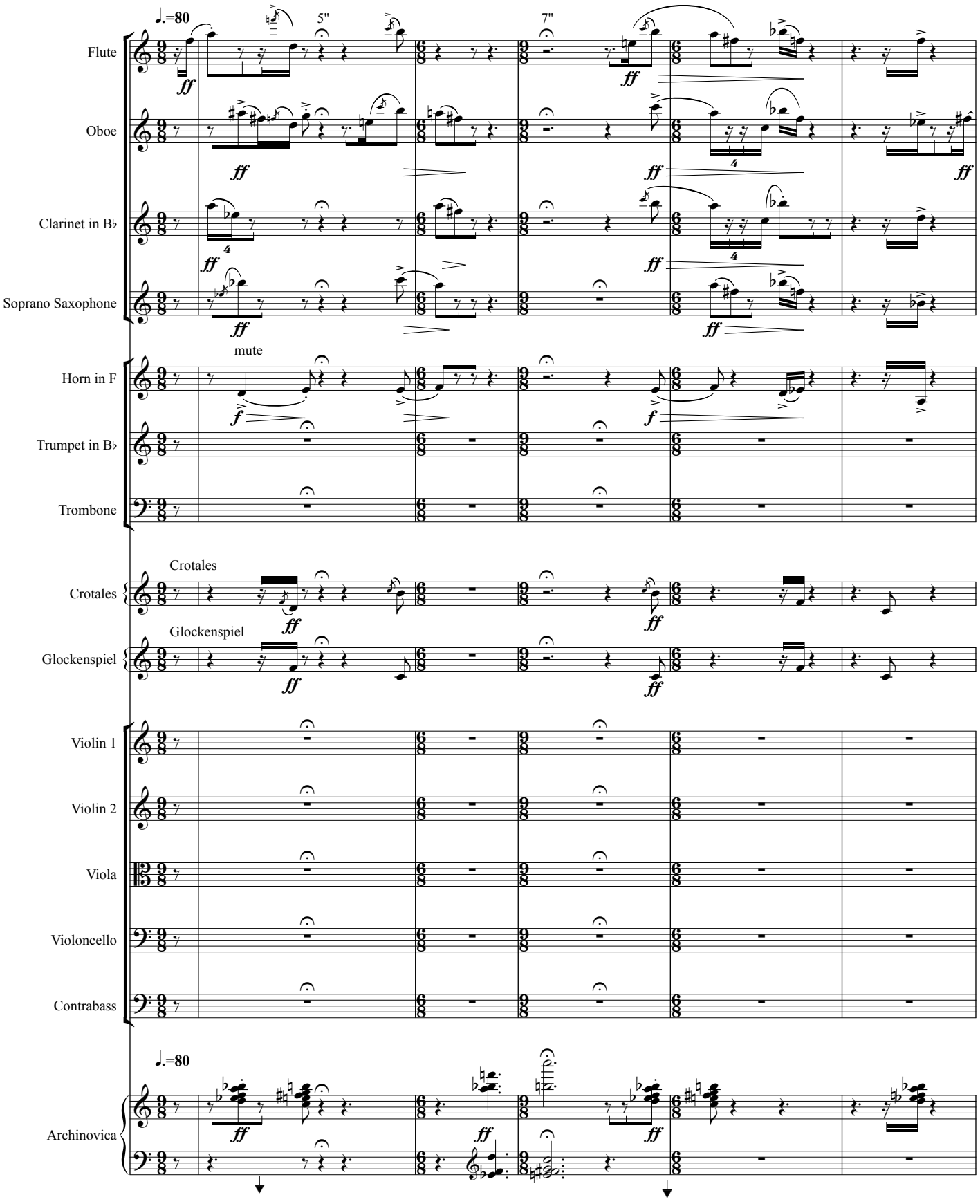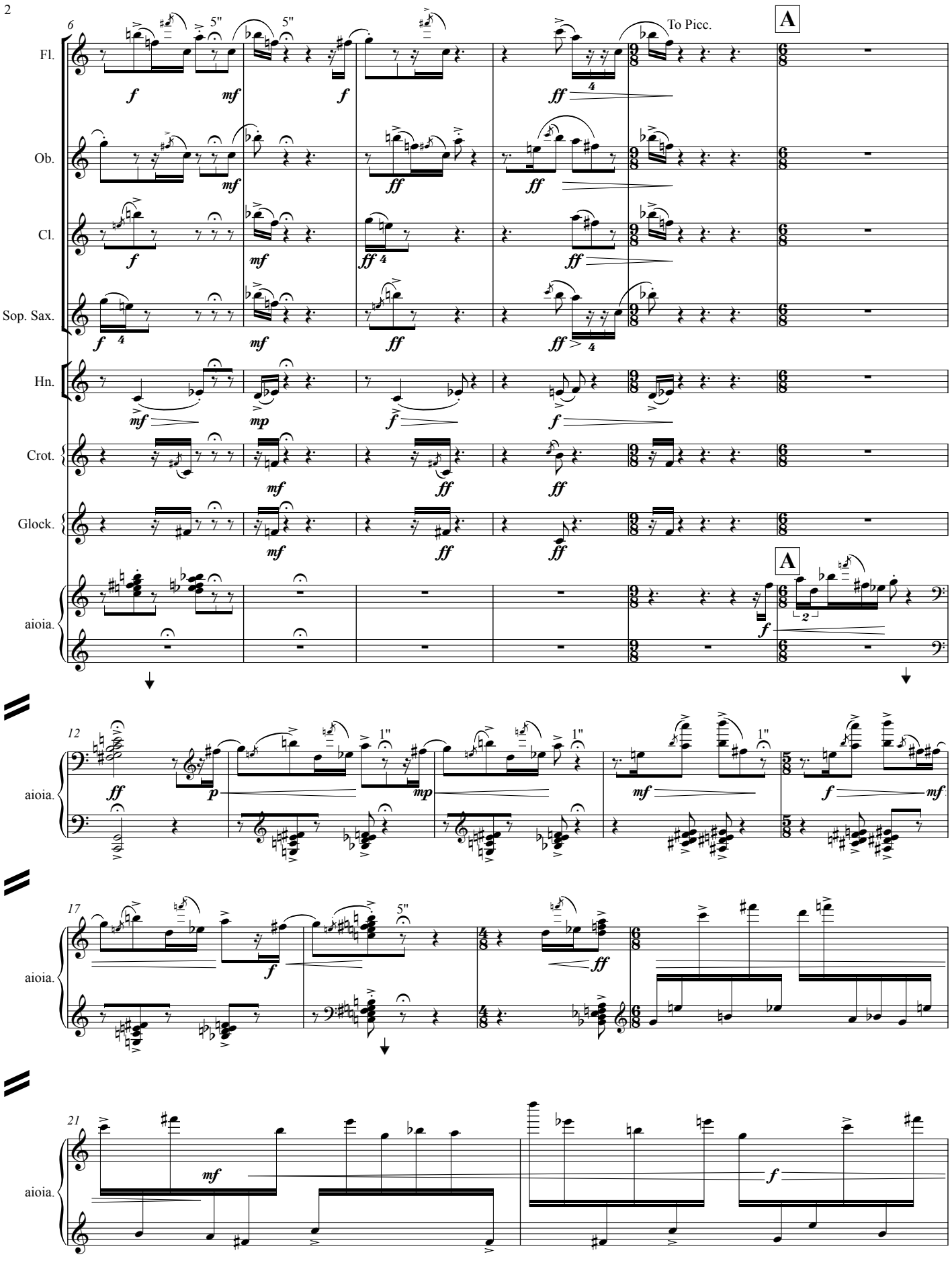


C Score
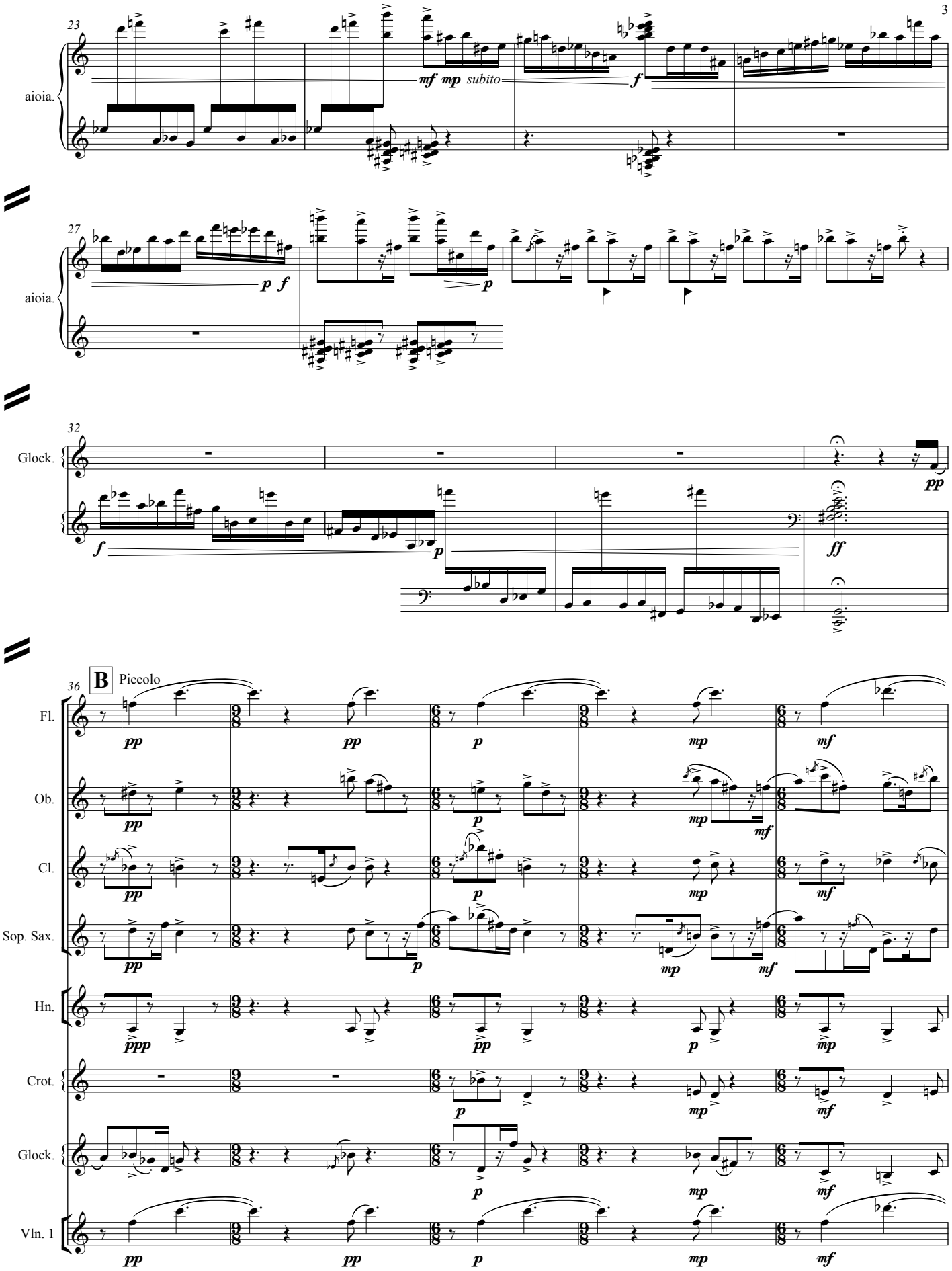
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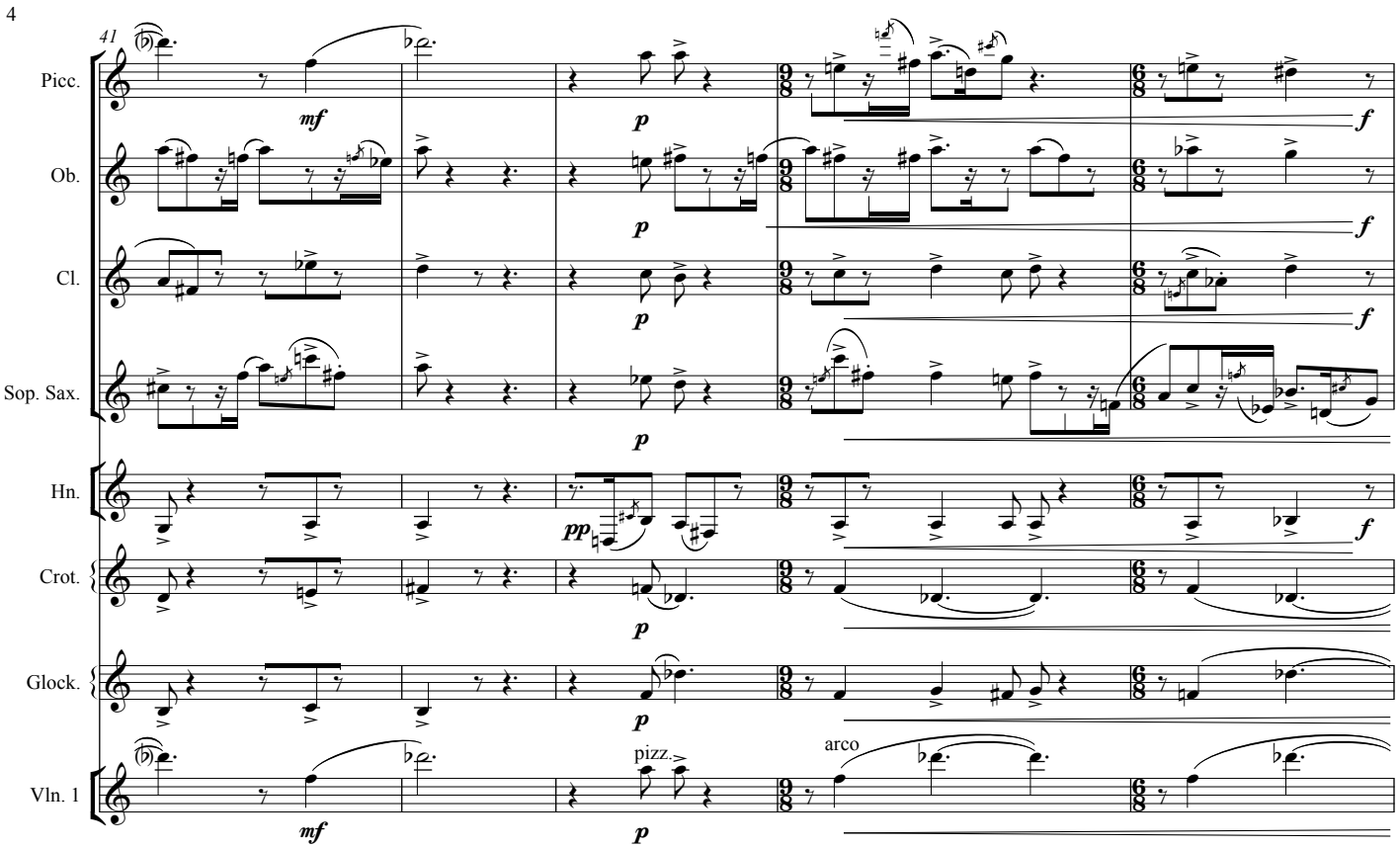
Mini Concerto for Archinovica and Ensemble
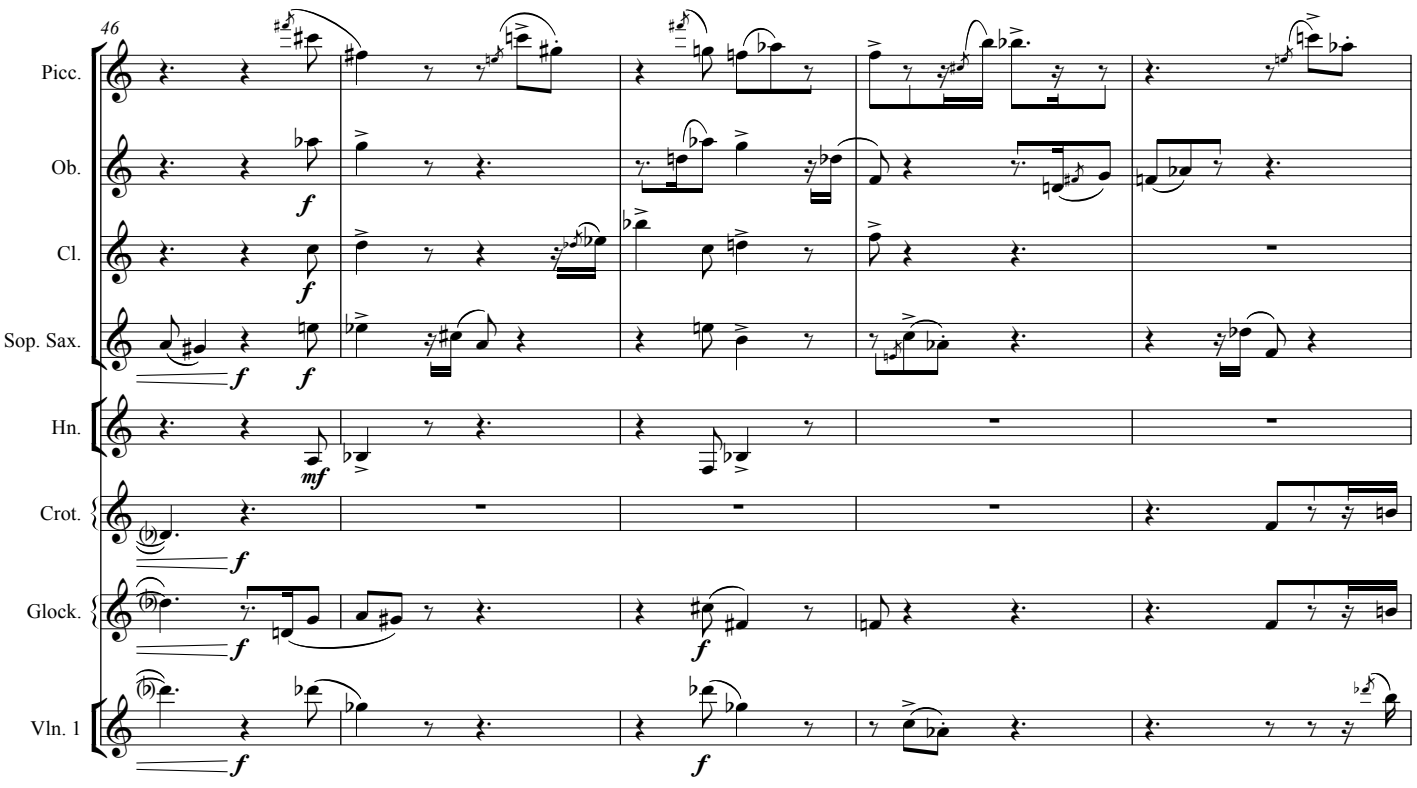
Timothy W McDunn
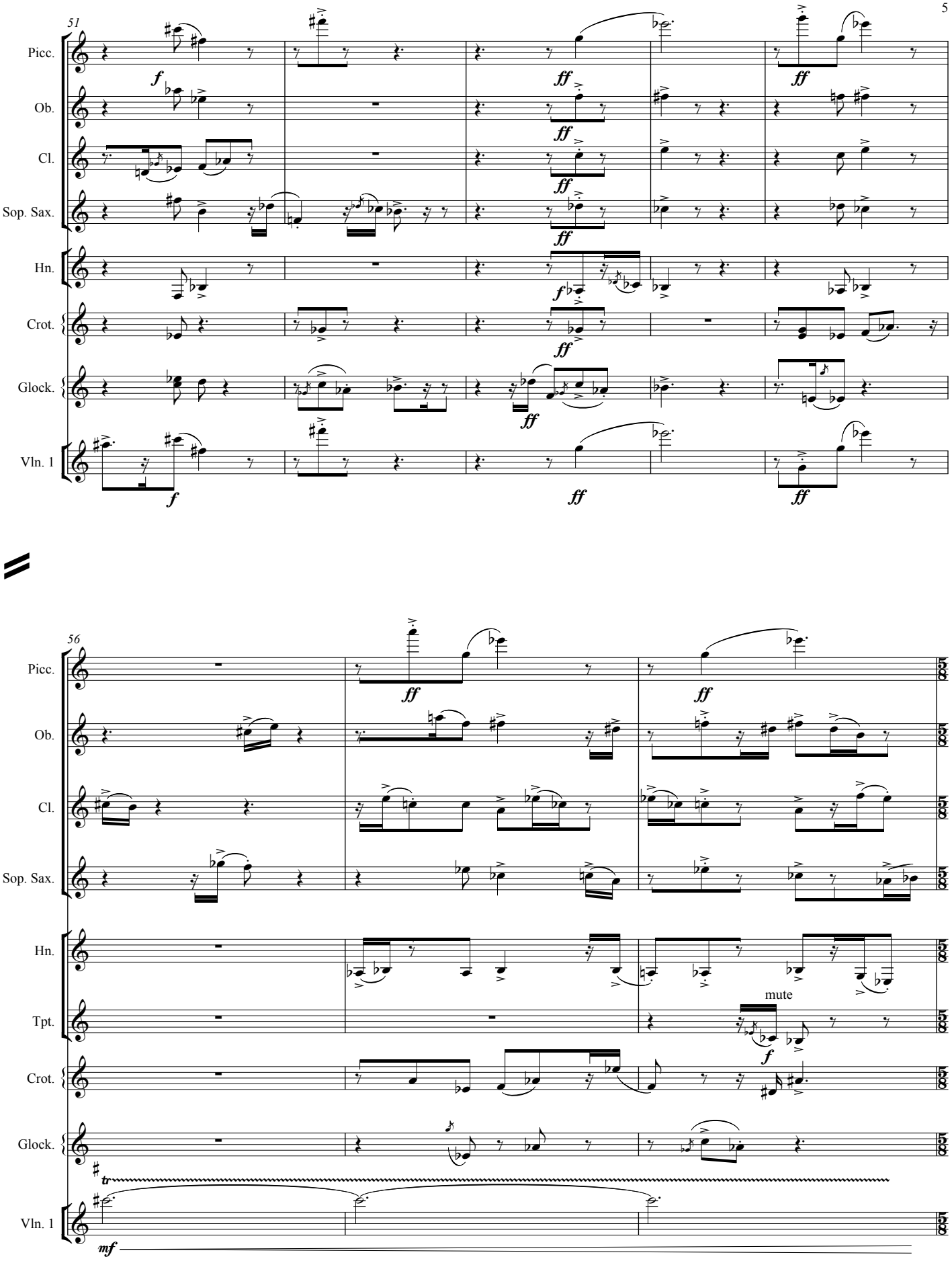


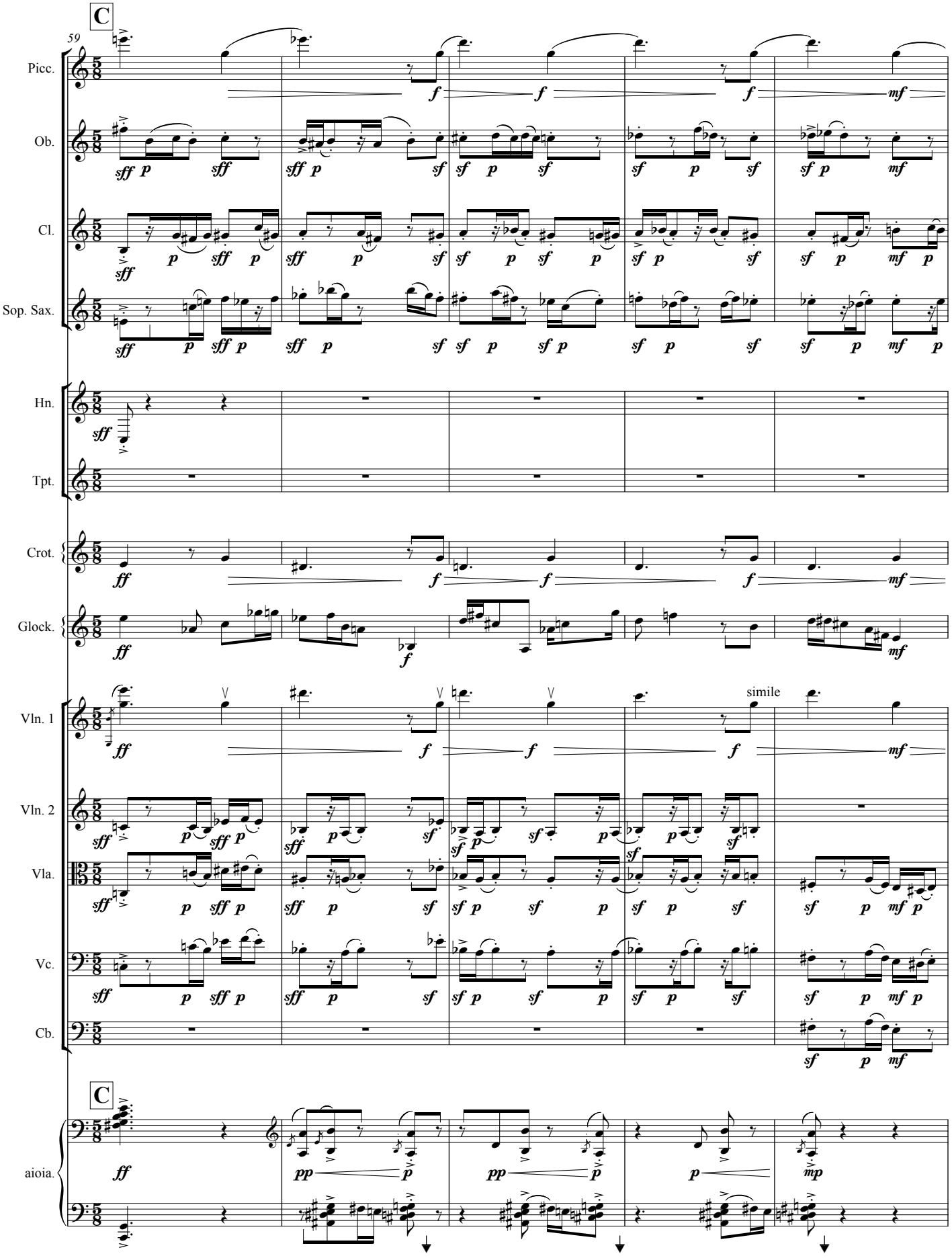

6
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Crot.
Glock.
aioia.
5"
5"
To Picc.
A
A
12
1"
1"
1"
17
5"
21
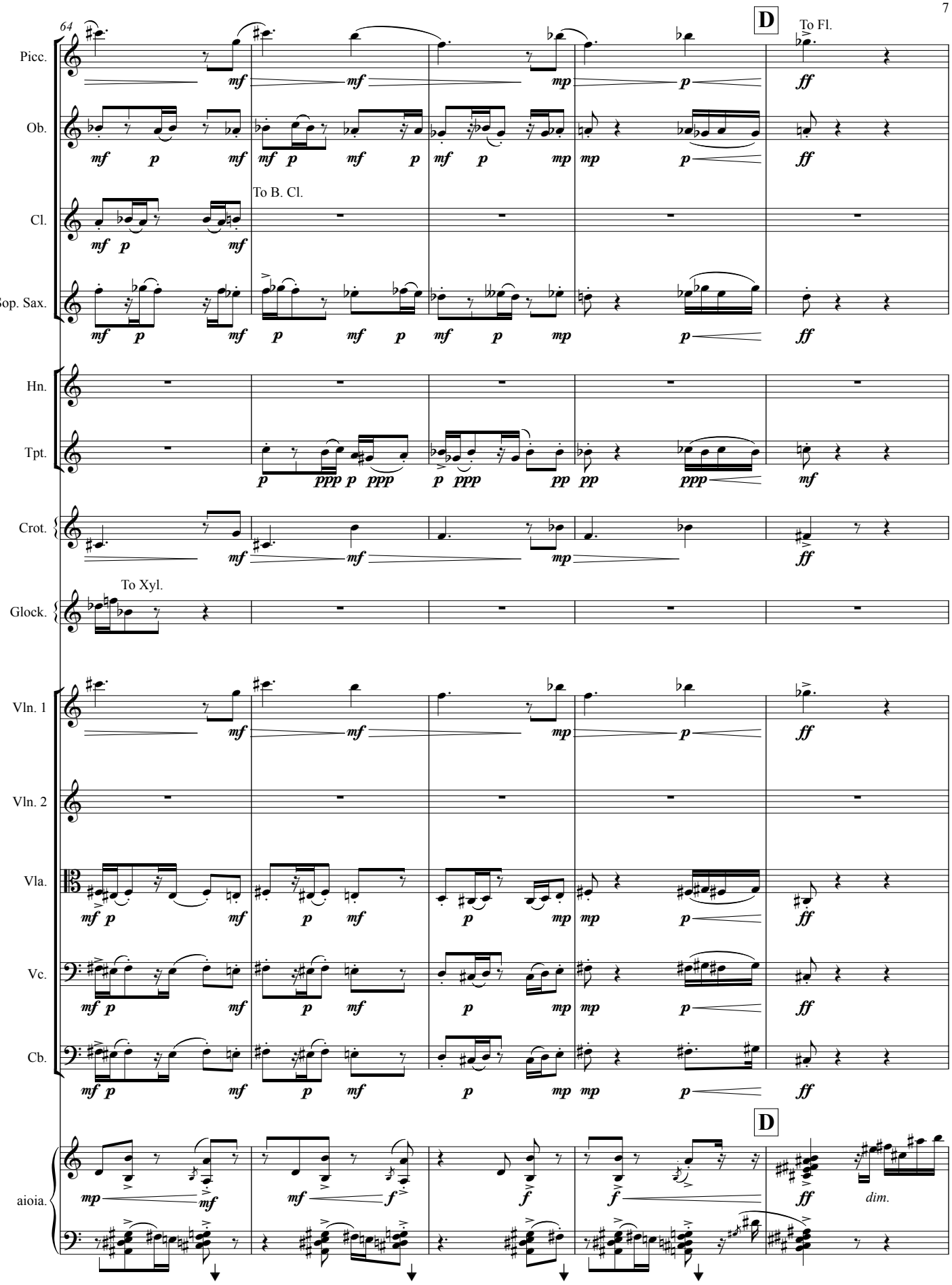

23
aioia.
mf mp subito
f
27
aioia.
p f
p
32
Glock.
f
p
pp
ff
36
B
Piccolo
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Crot.
Glock.
Vln. 1
pp
p
mp
mf
ppp
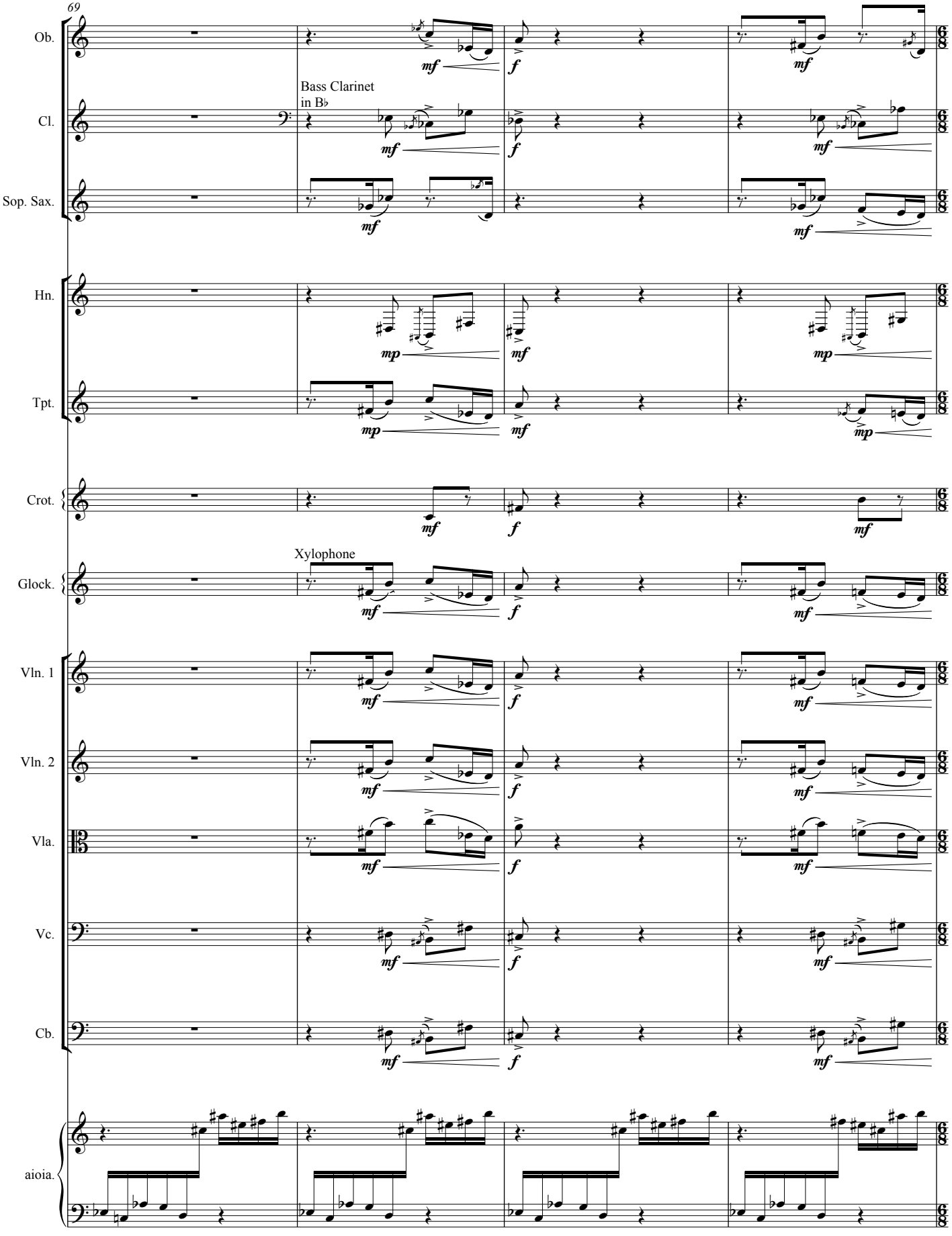

41
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Crot.
Glock.
Vln. 1
mf
p
pp
f
pizz.
arco
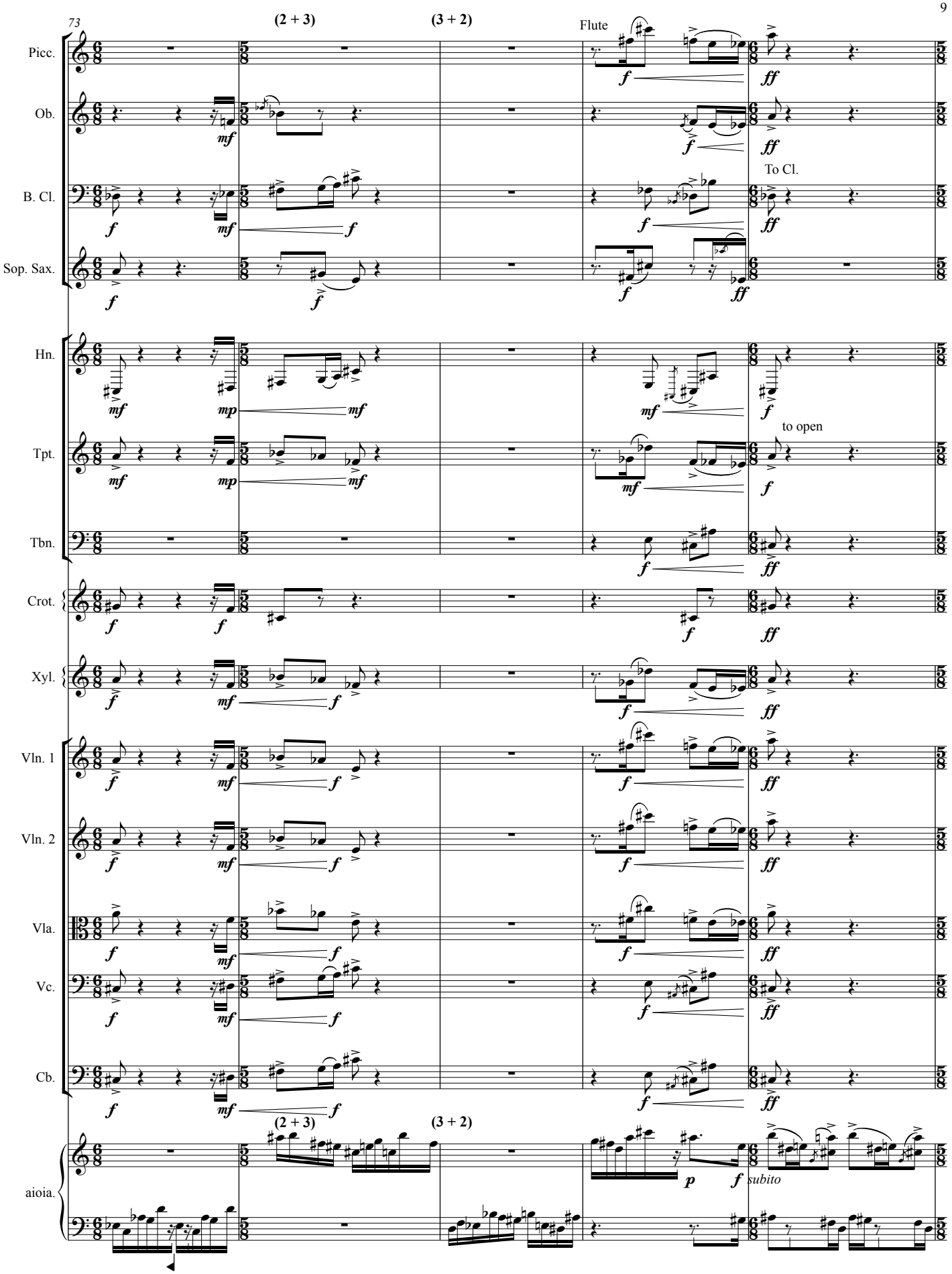

46
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Crot.
Glock.
Vln. 1
mf
f
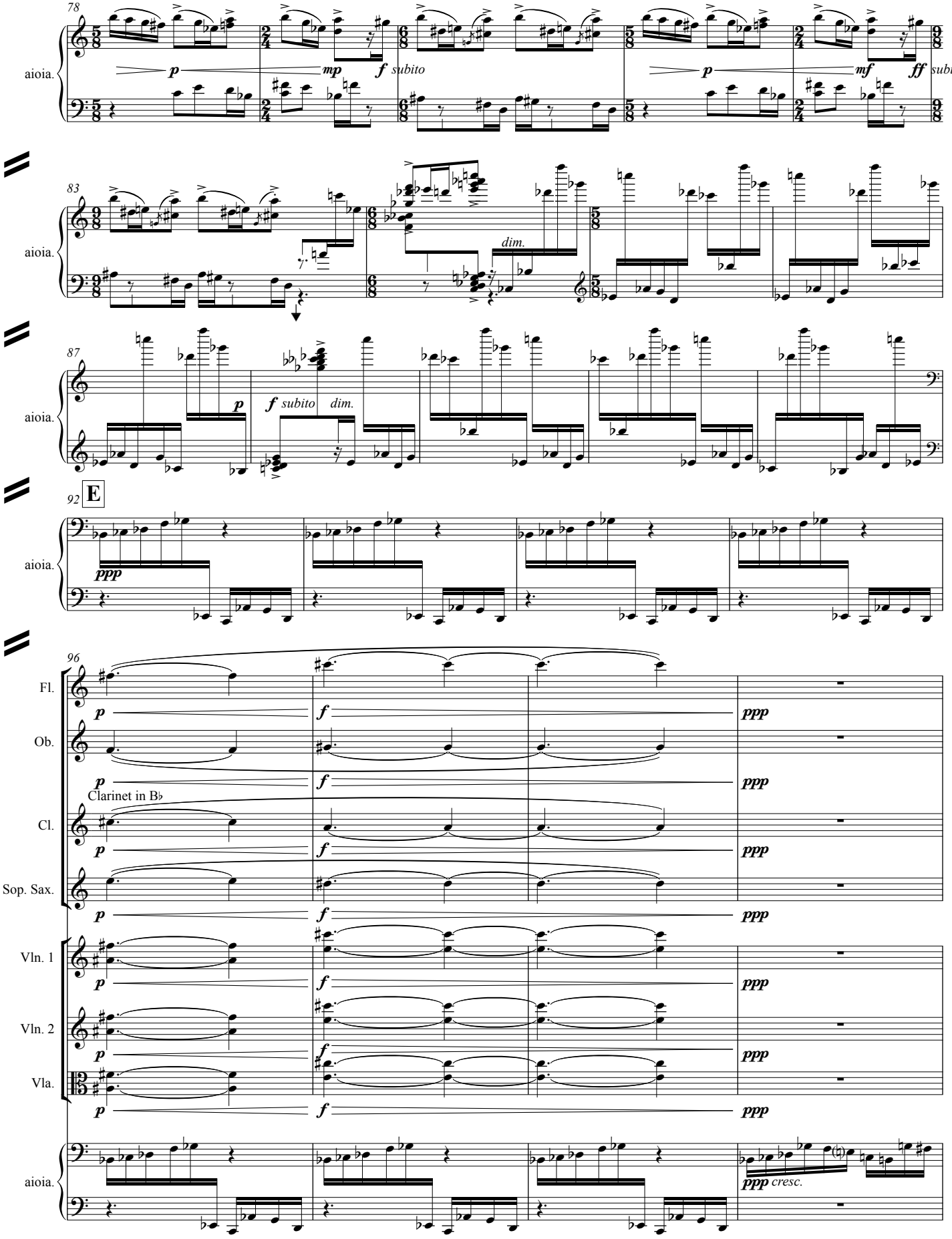

51
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Crot.
Glock.
Vln. 1
f
ff
56
mute
tr
mf
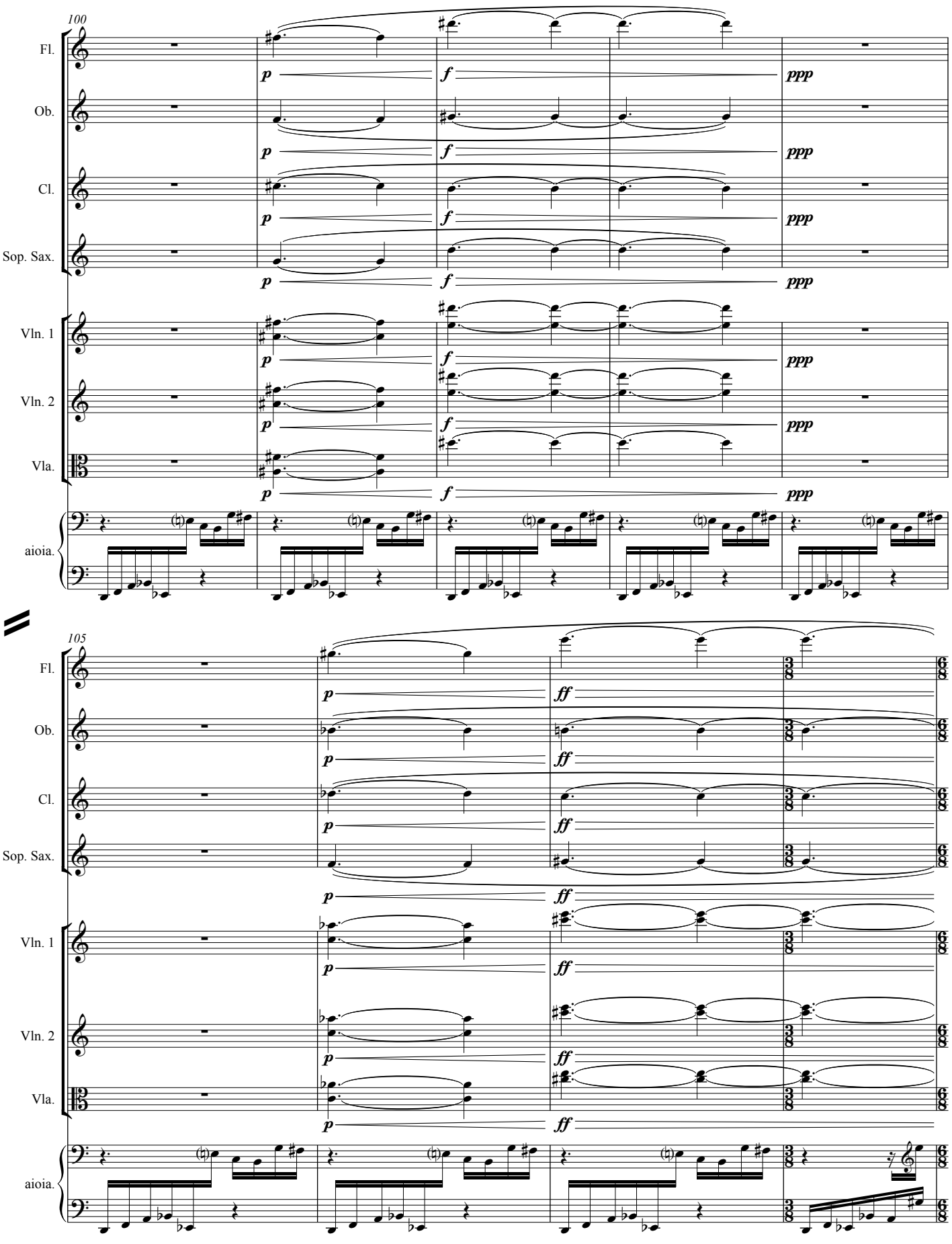

C
59
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Crot.
Glock.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
simile
C
aioia.
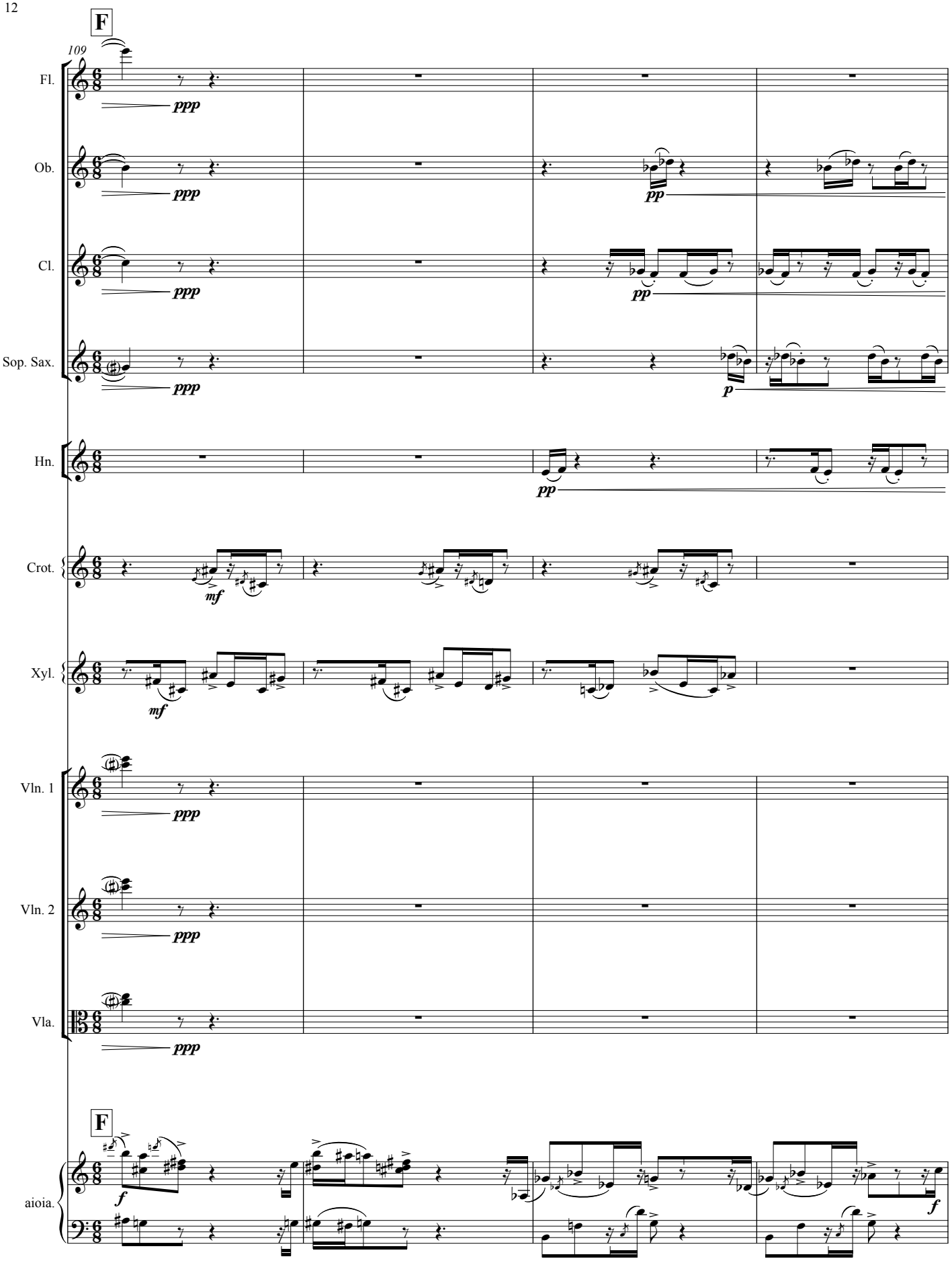

64
D
To Fl.
Picc.
Ob.
To B. Cl.
Cl.
Sop. Sax.
Hn.
Tpt.
Crot.
To Xyl.
Glock.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
D
aioia.
dim.
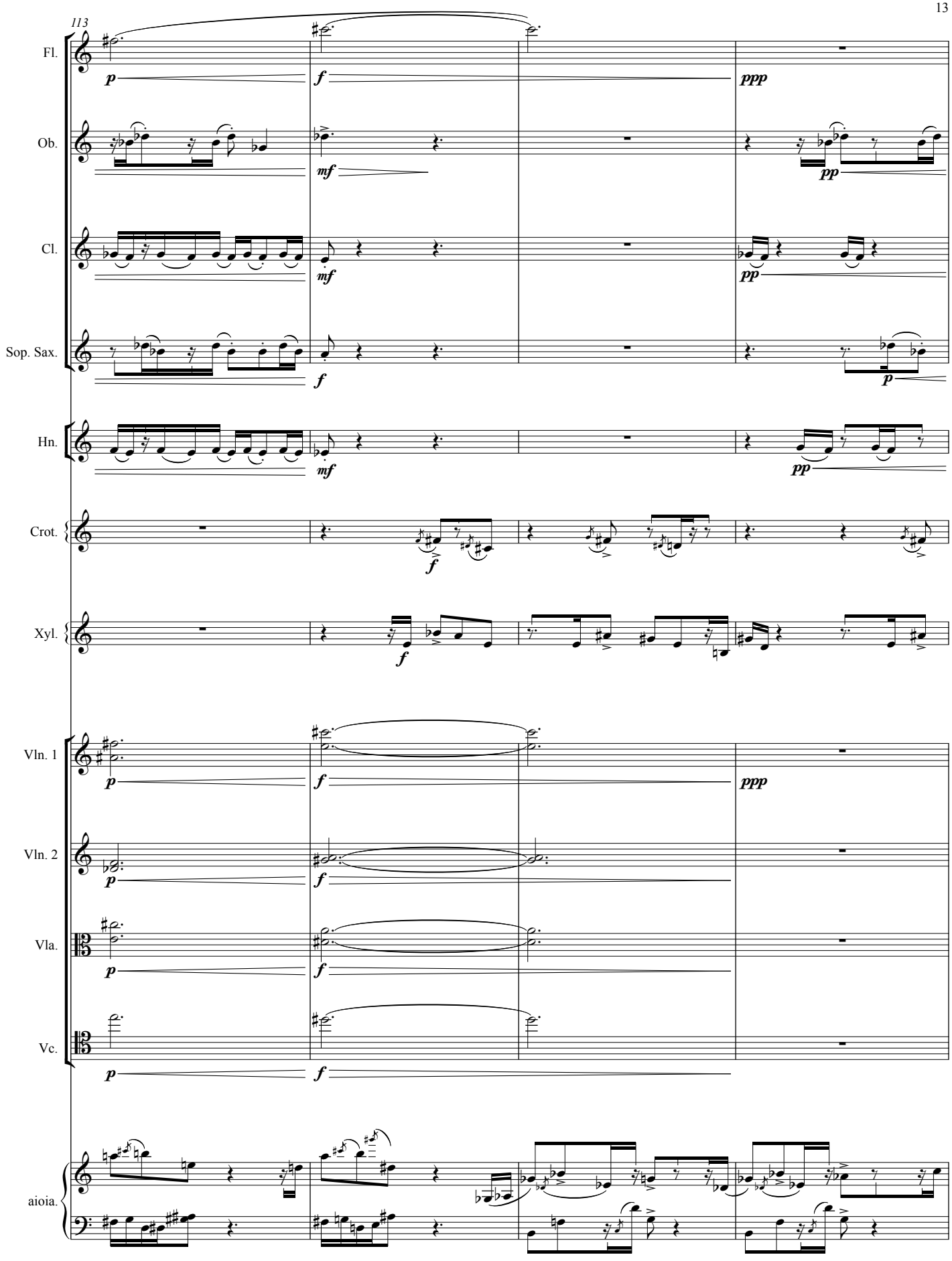

69
Ob.
Cl.
Bass Clarinet
in B♭
Sop. Sax.
Hn.
Tpt.
Crot.
Glock.
Xylophone
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
mf
f
mp
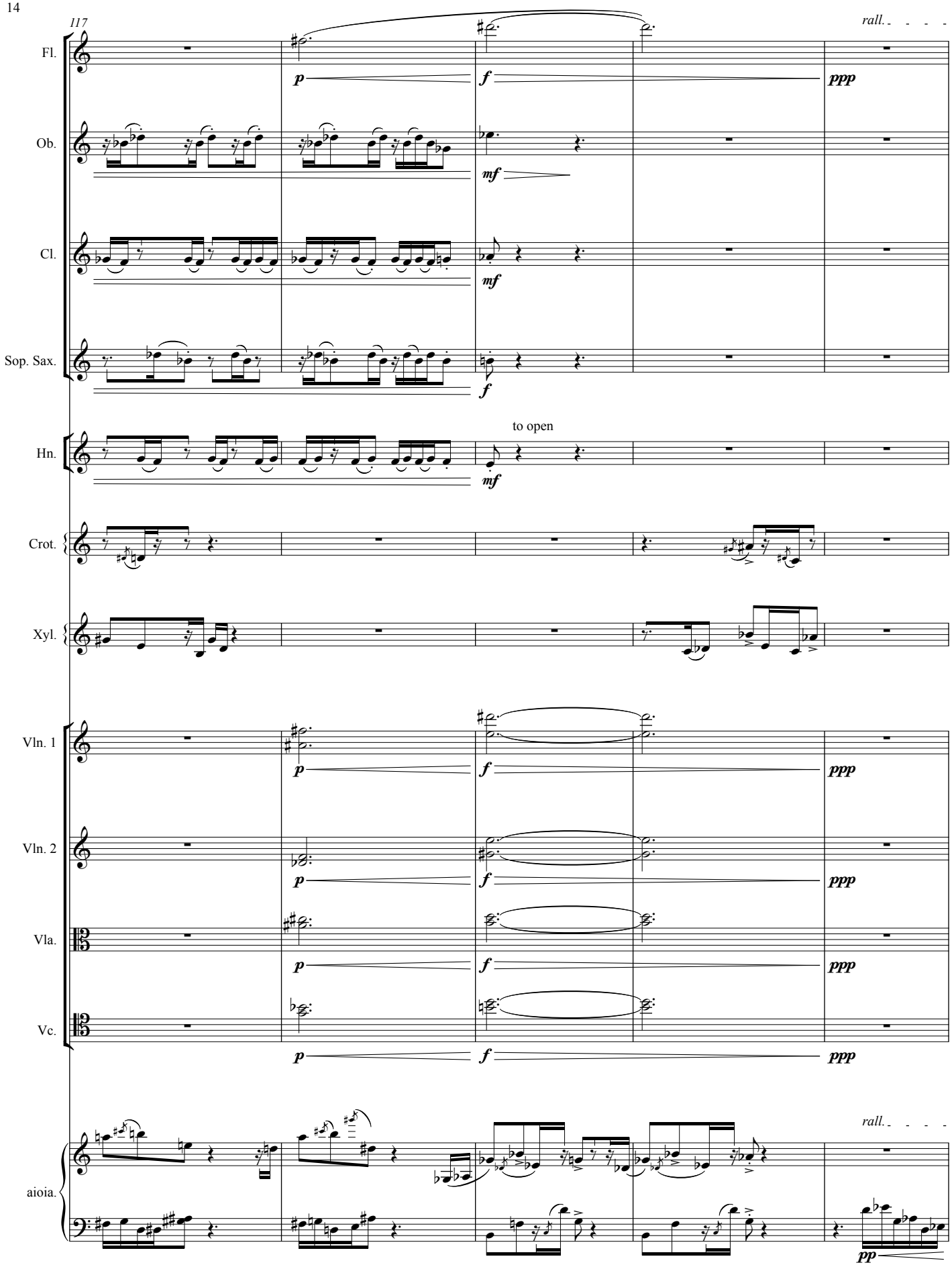

73
(2 + 3)
(3 + 2)
Flute
To Cl.
to open
Picc.
Ob.
B. Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Crot.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
subito
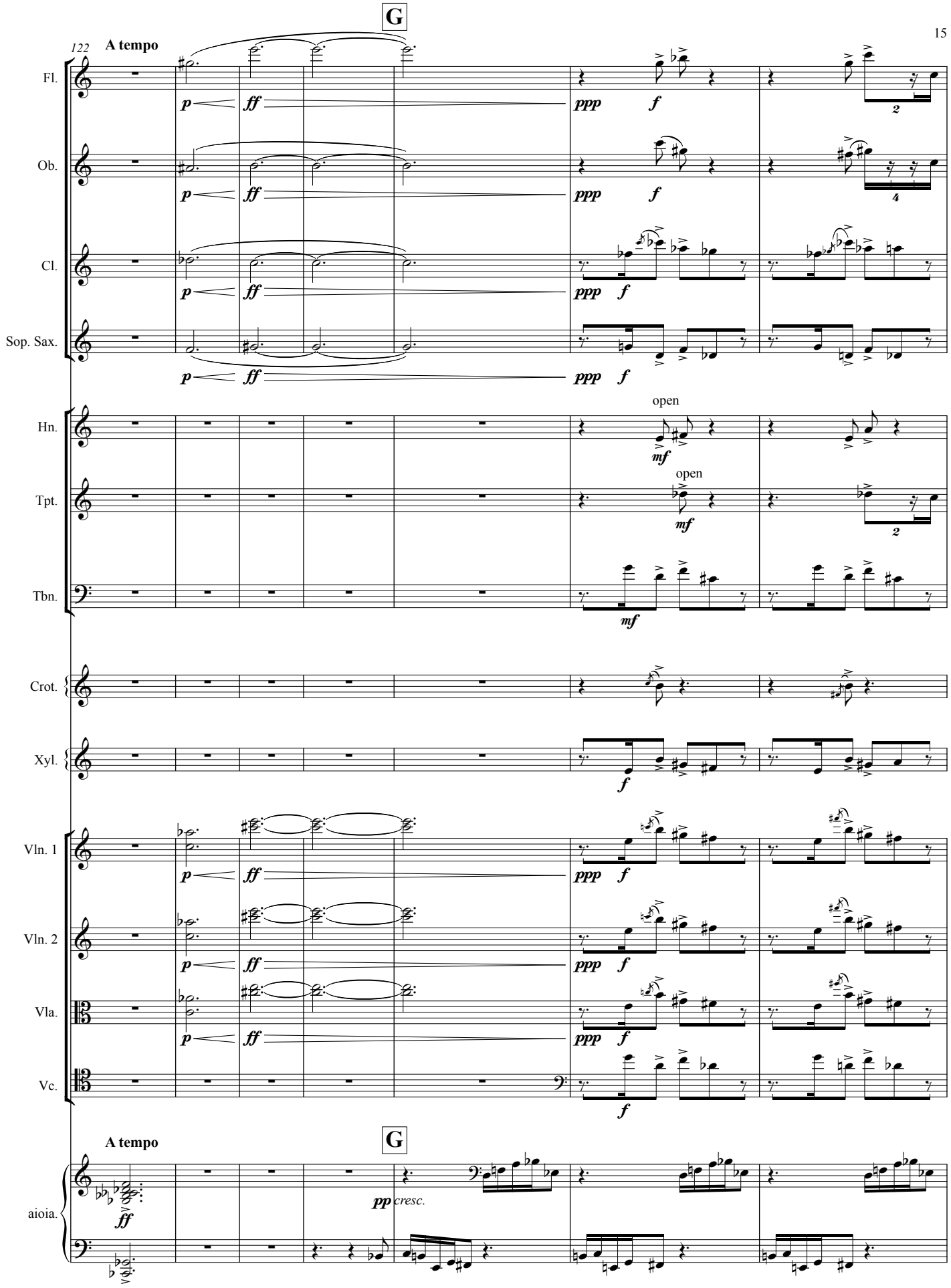

78
aioia.
p
mp
f subito
p
mf
ff subito
83
aioia.
dim.
87
aioia.
p
f subito
dim.
92
E
aioia.
ppp
96
Fl.
Ob.
Clarinet in B♭
Cl.
Sop. Sax.
Vln. 1
Vln. 2
Vla.
aioia.
p
f
ppp
ppp cresc.
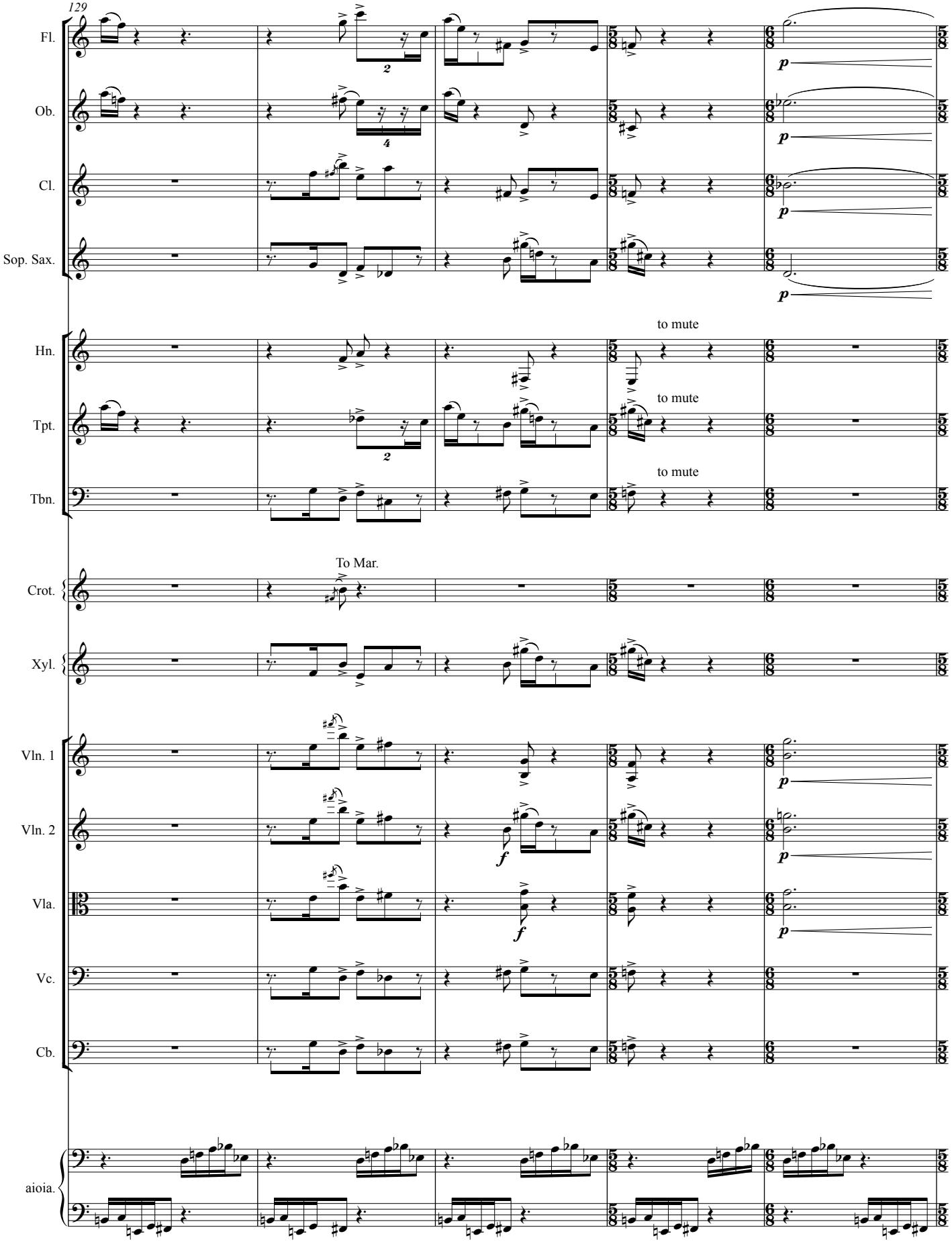

100
Fl.
Ob.
Cl.
Sop. Sax.
Vln. 1
Vln. 2
Vla.
aioia.
p
f
ppp
105
ff
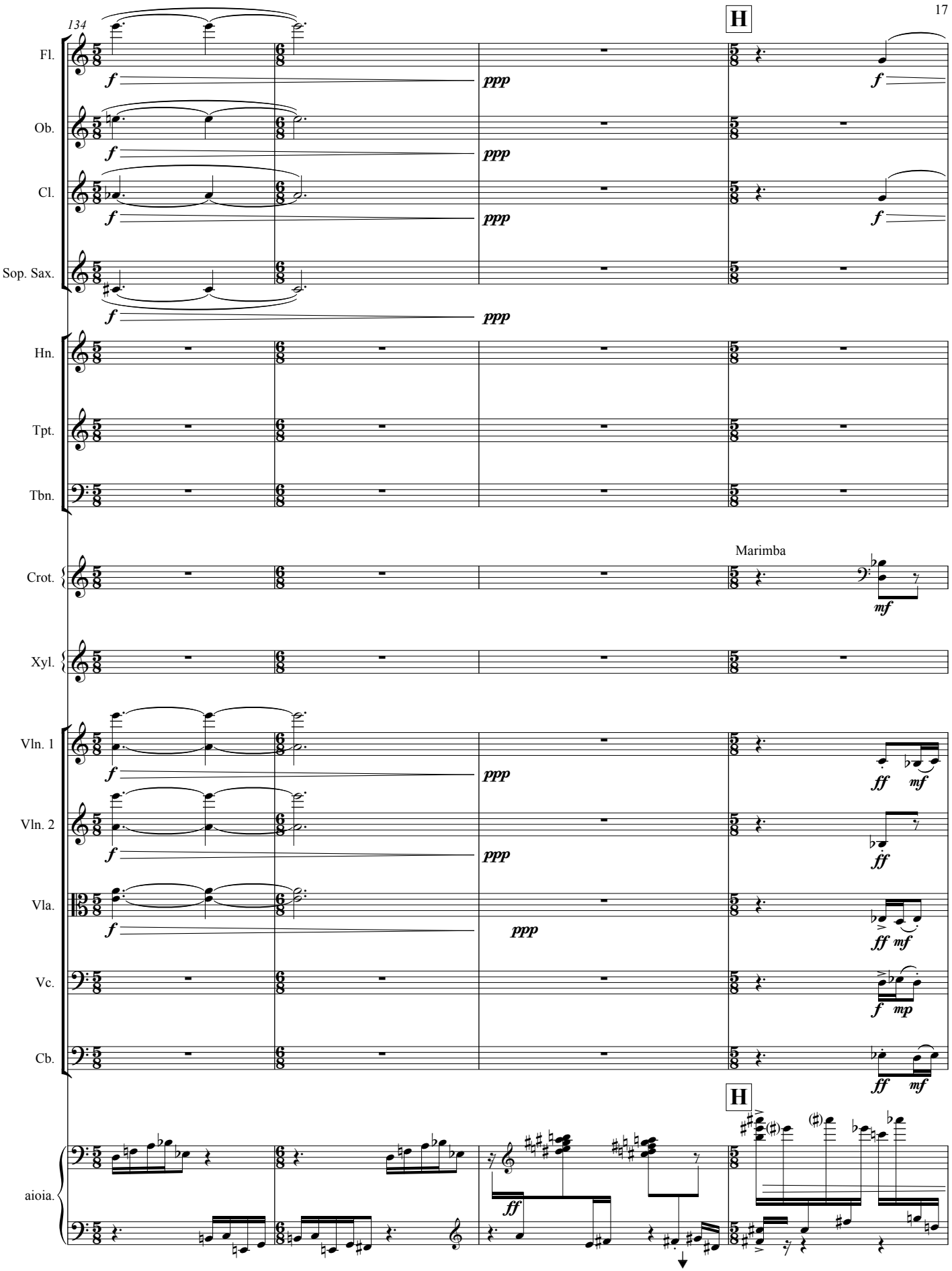

F
109
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Crot.
Xyl.
Vln. 1
Vln. 2
Vla.
aioia.
ppp
pp
p
mf
f
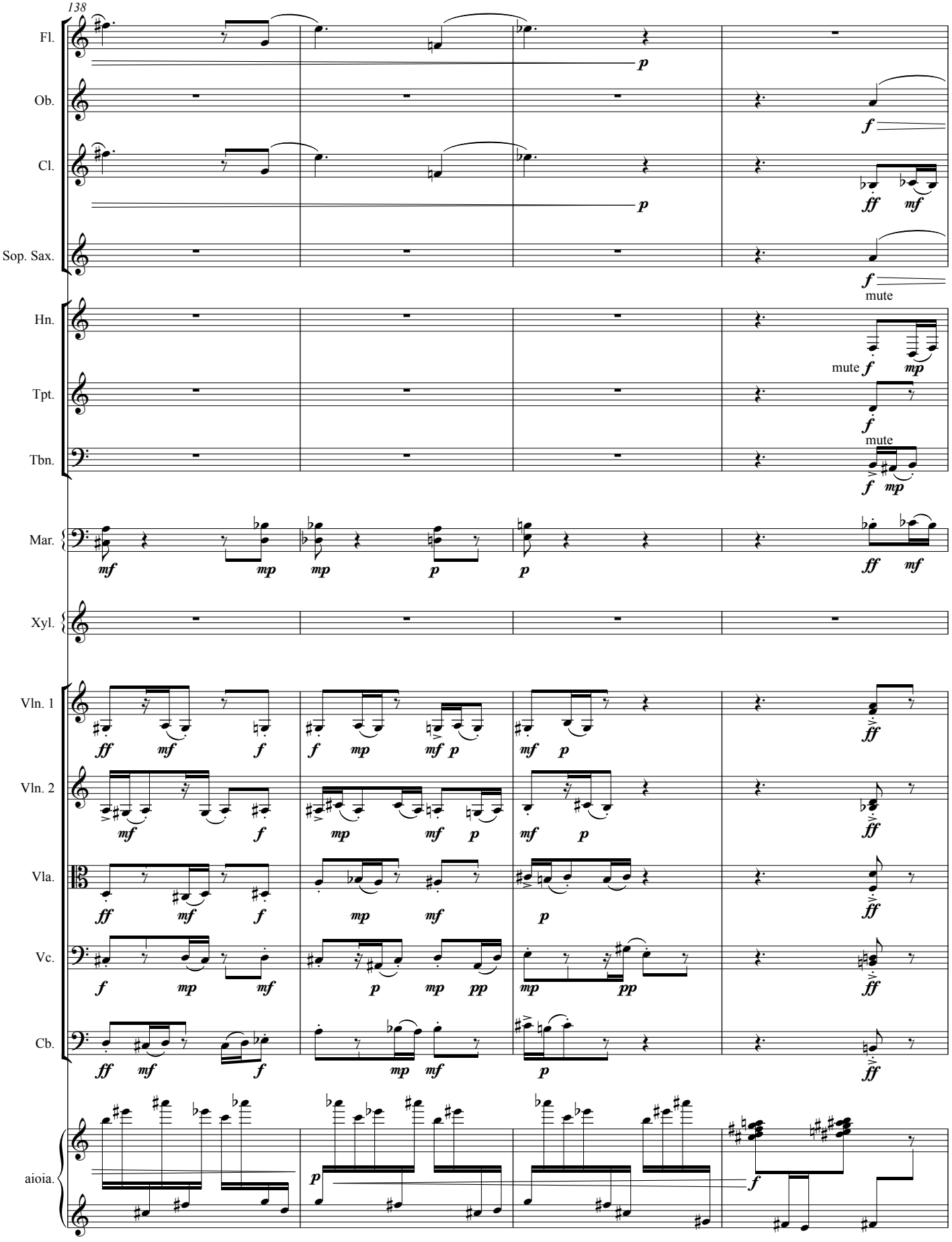

113
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Crot.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
aioia.
p
f
mf
ppp
pp
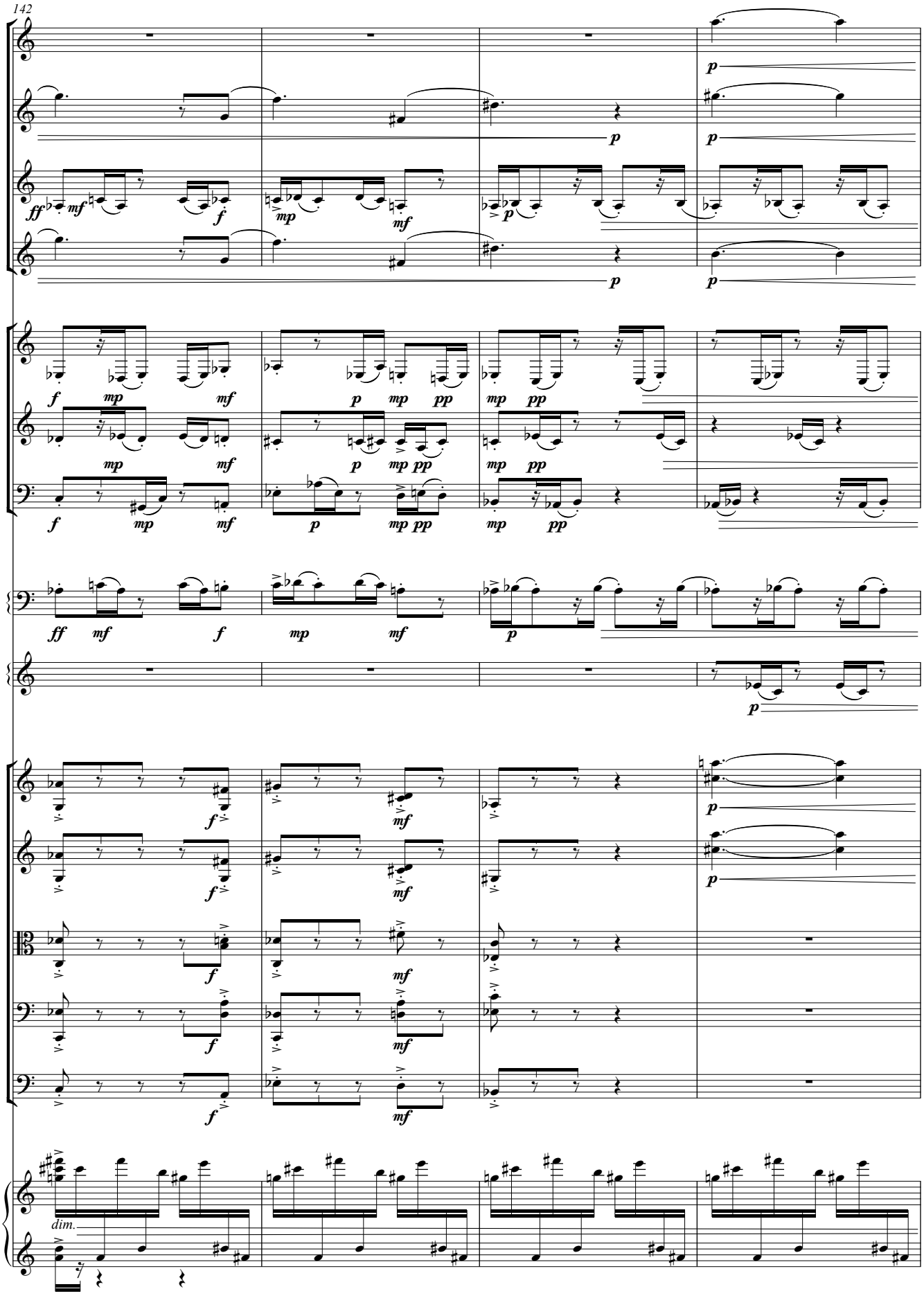

117
rall.
Fl.
Ob.
Cl.
Sop. Sax.
to open
Hn.
Crot.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
aioia.
rall.
p
f
ppp
mf
pp
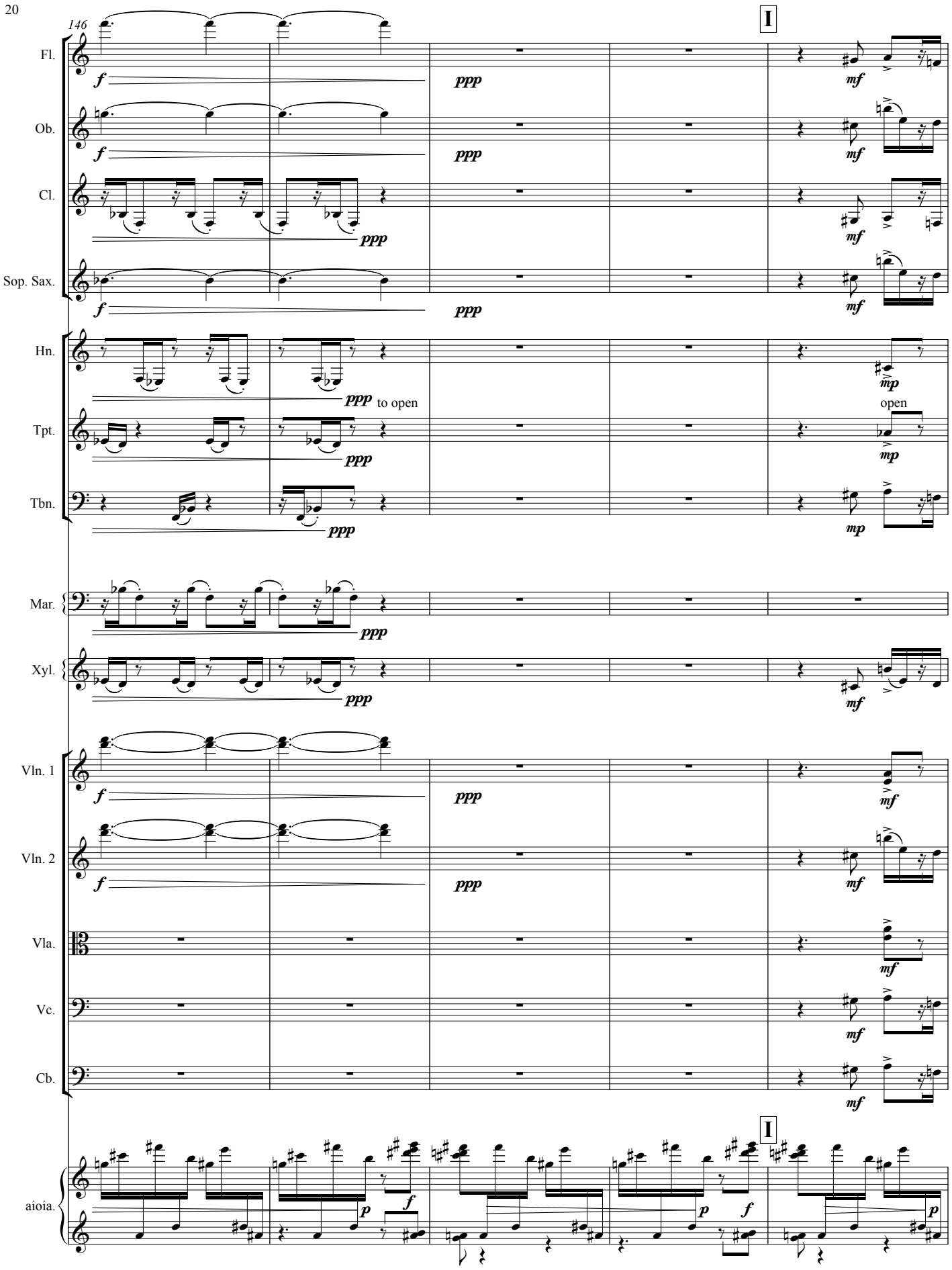

G
122
A tempo
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Crot.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
aioia.
open
open
cresc.
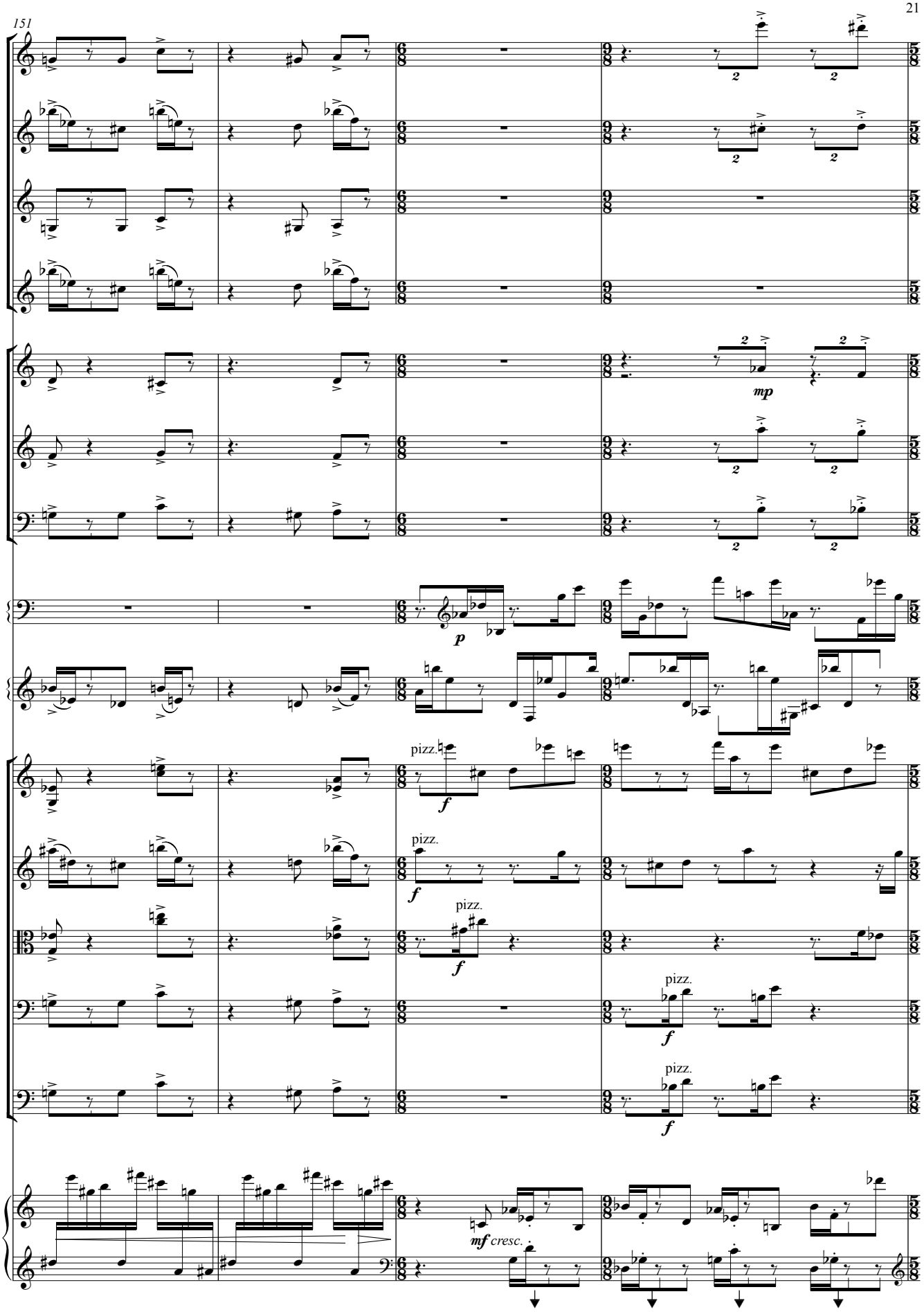

129
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
to mute
to mute
to mute
To Mar.
Crot.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
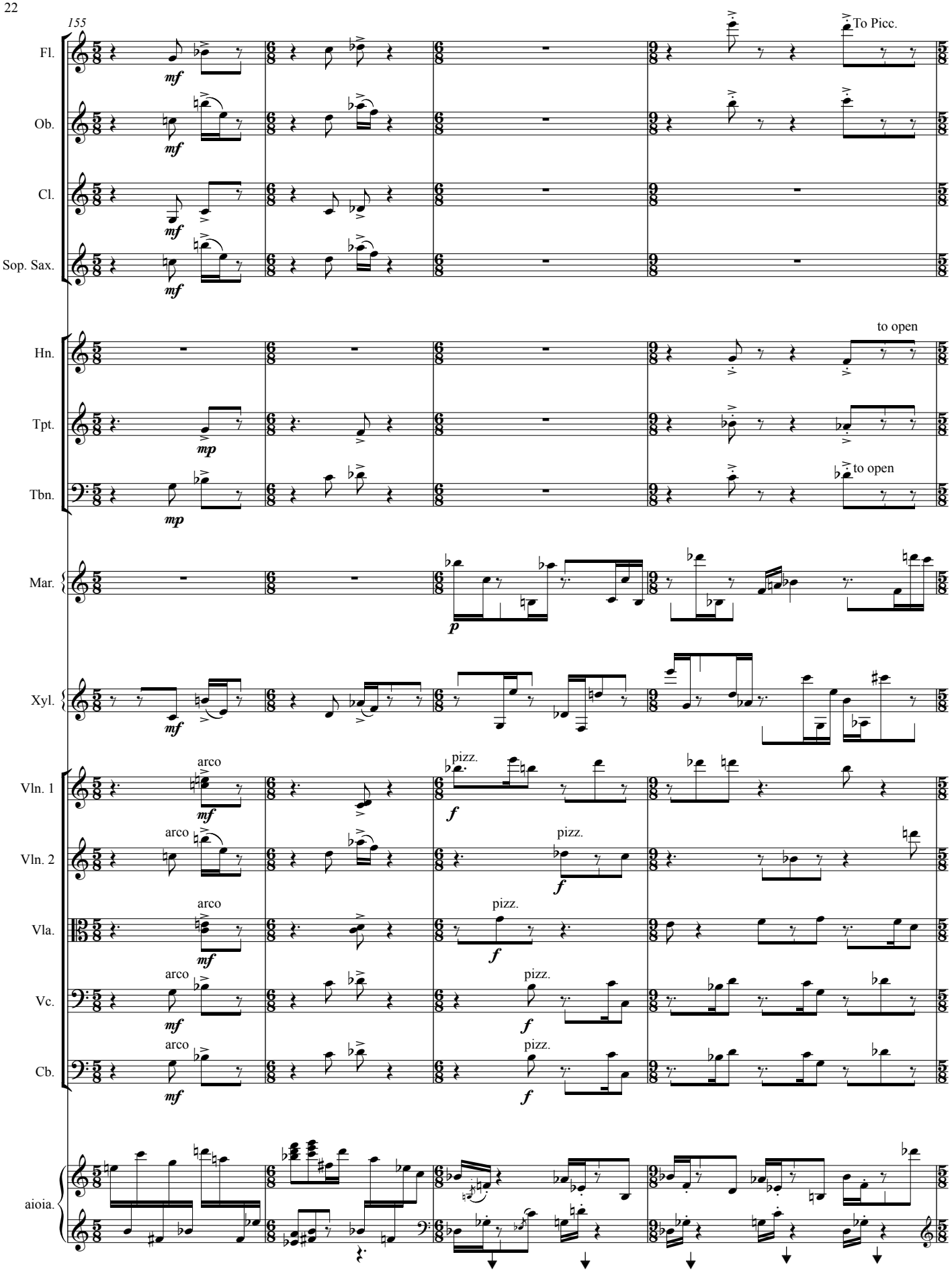

134
H
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Marimba
Crot.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
f
ppp
mf
ff
mp
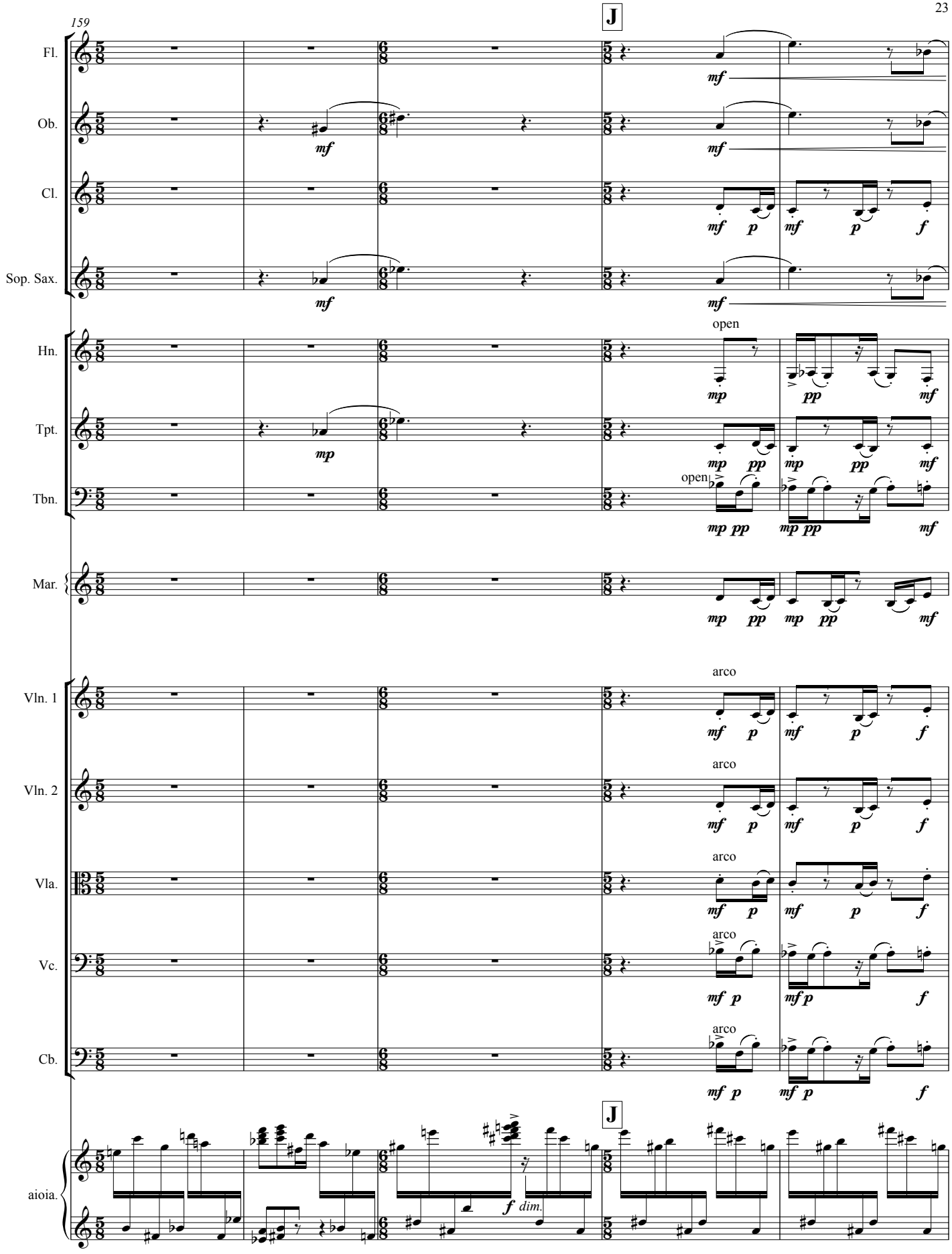

138
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
mute
mute
mute
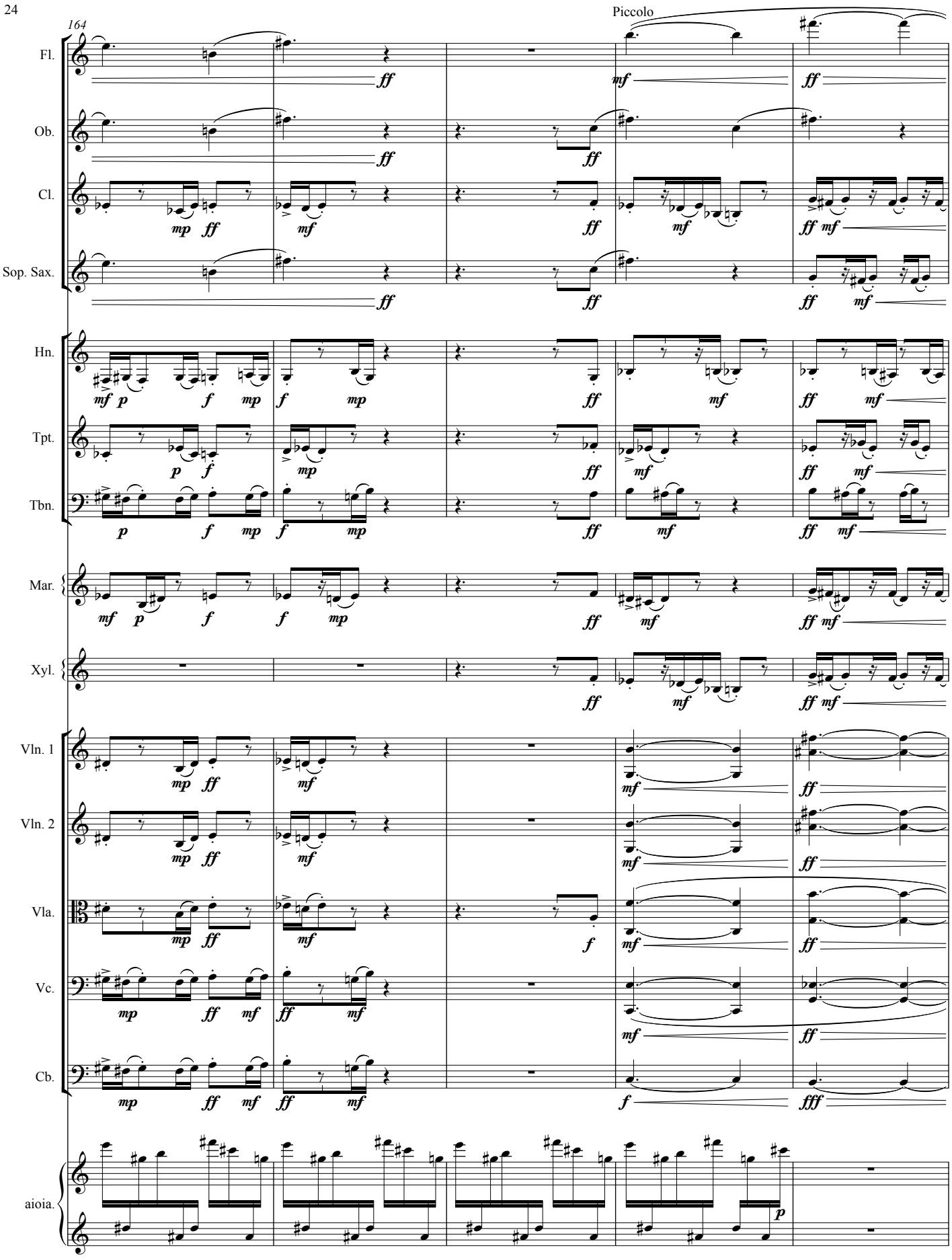

142
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
dim.
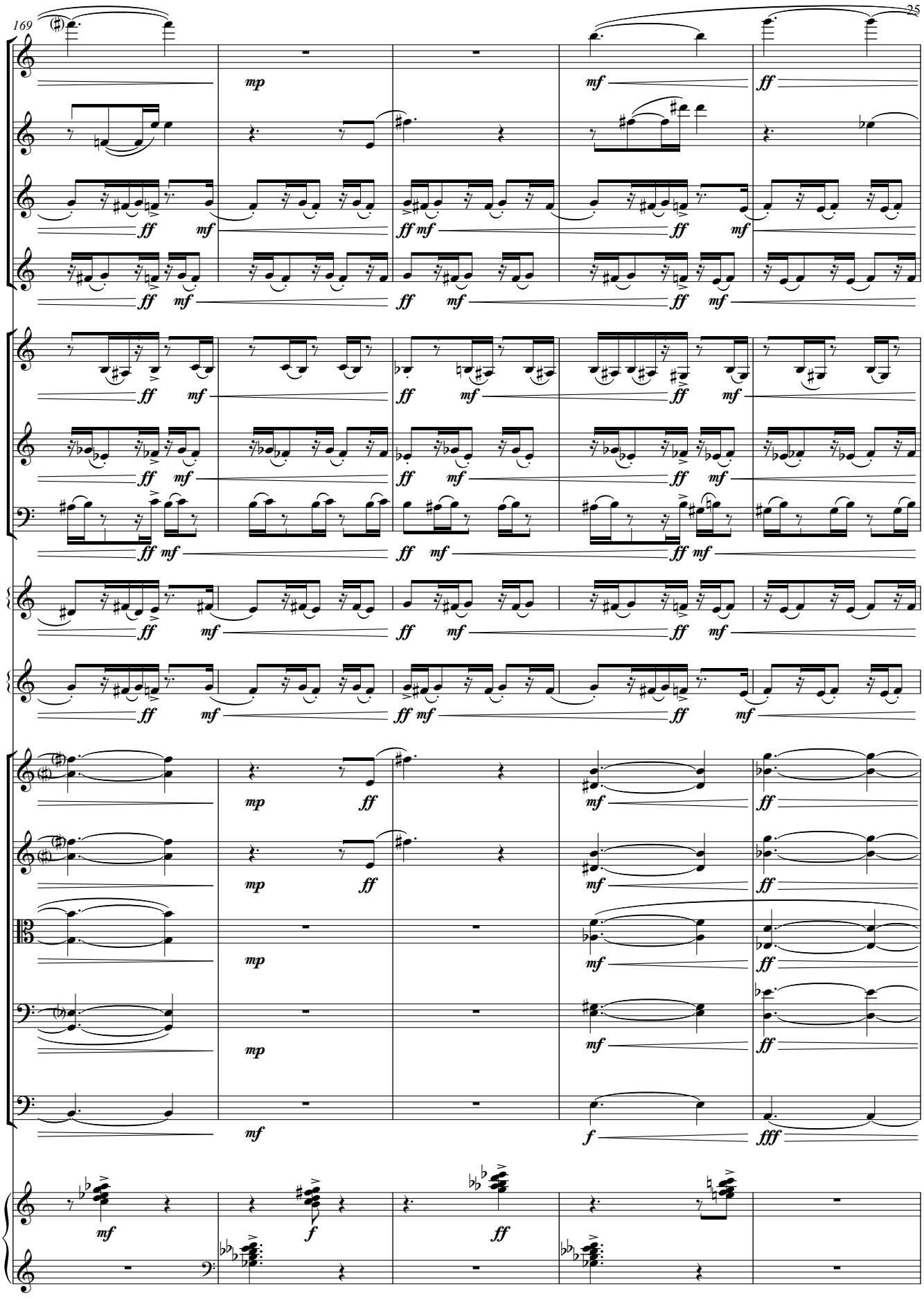

146
I
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
to open
open
f
ppp
mf
mp
p
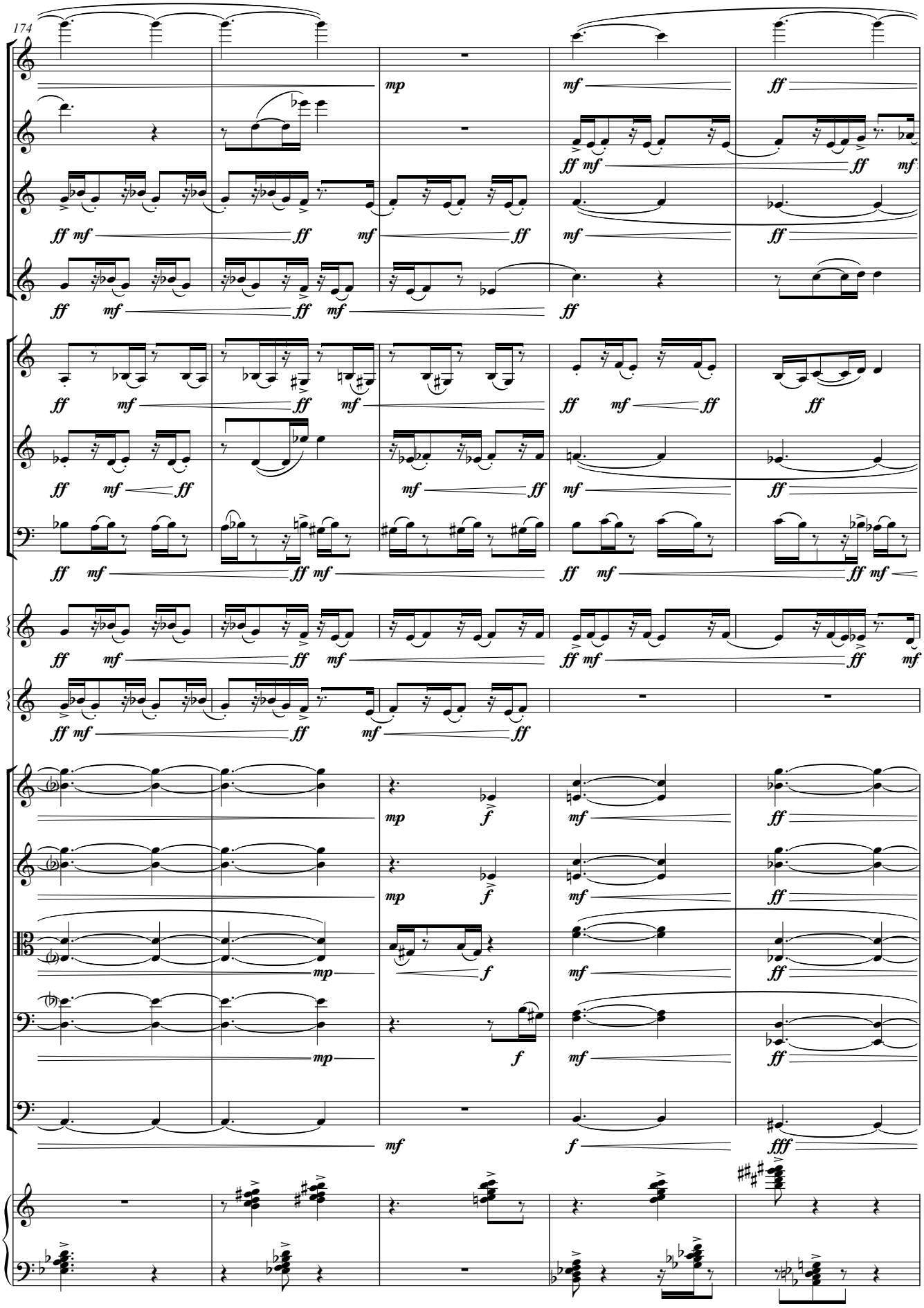

151
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
mp
p
f
pizz.
mf cresc.
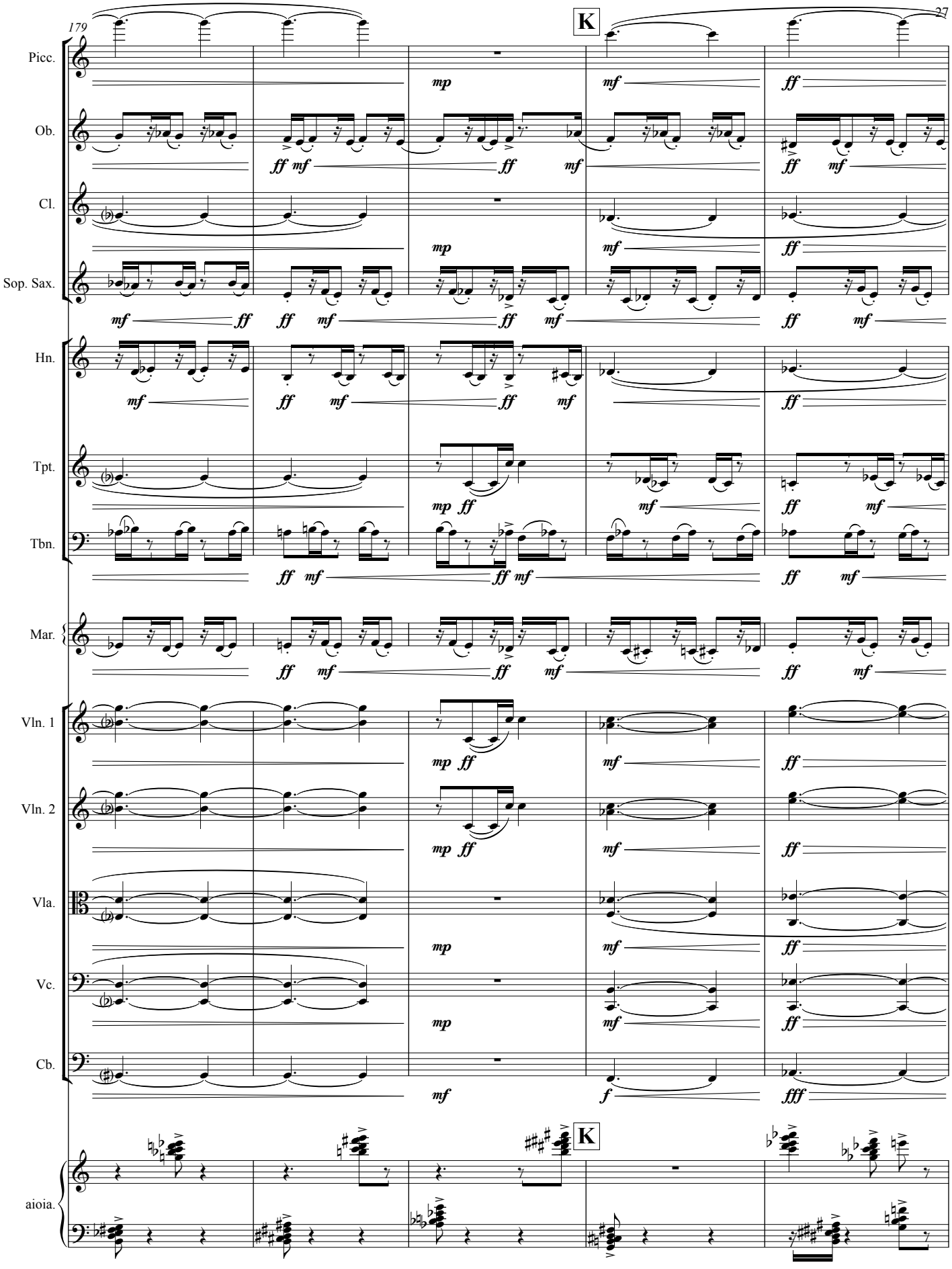

155
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
mf
mp
p
f
arco
pizz.
To Picc.
to open
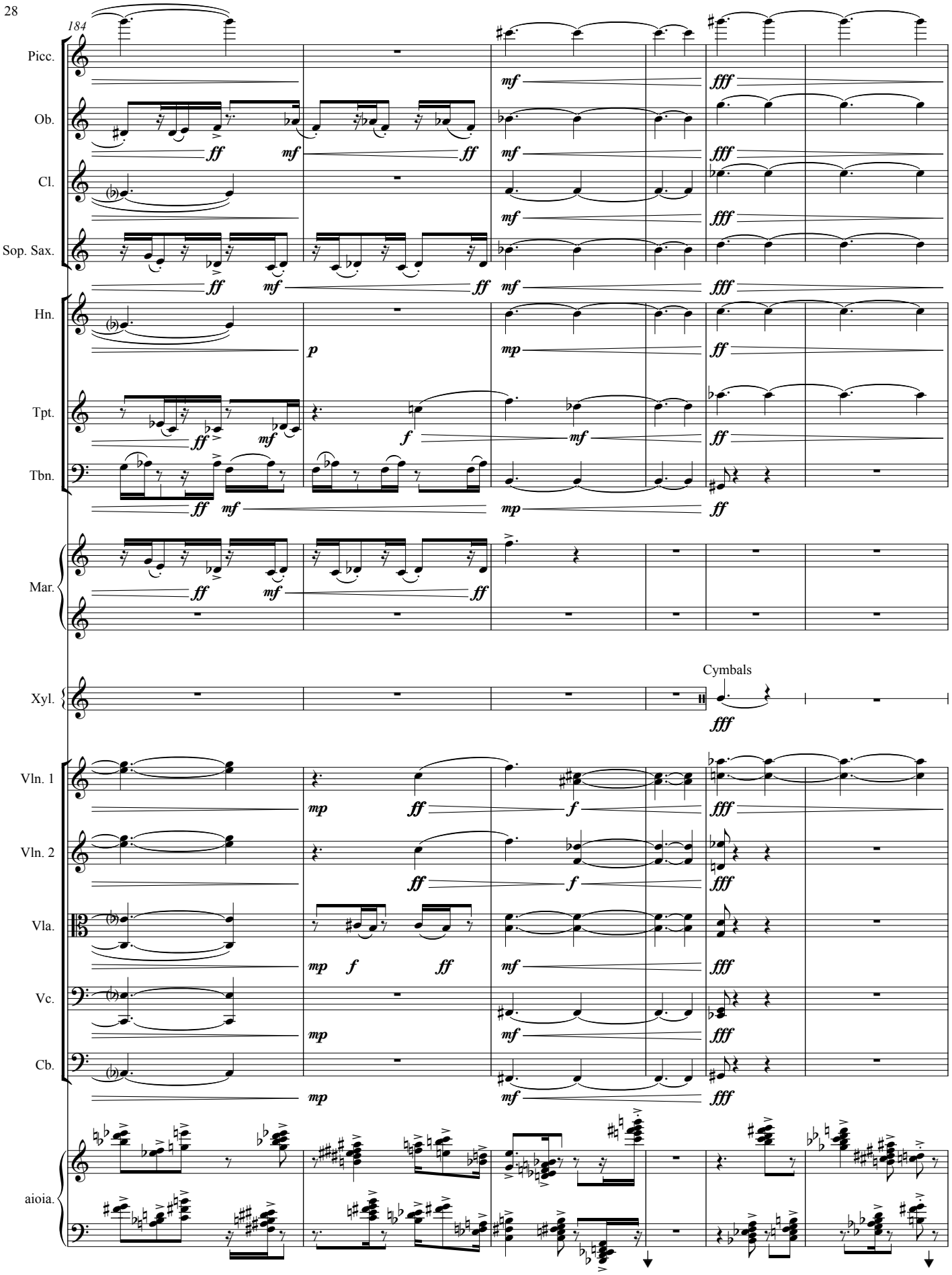

159
J
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
mf
mp
pp
f
open
arco
dim.
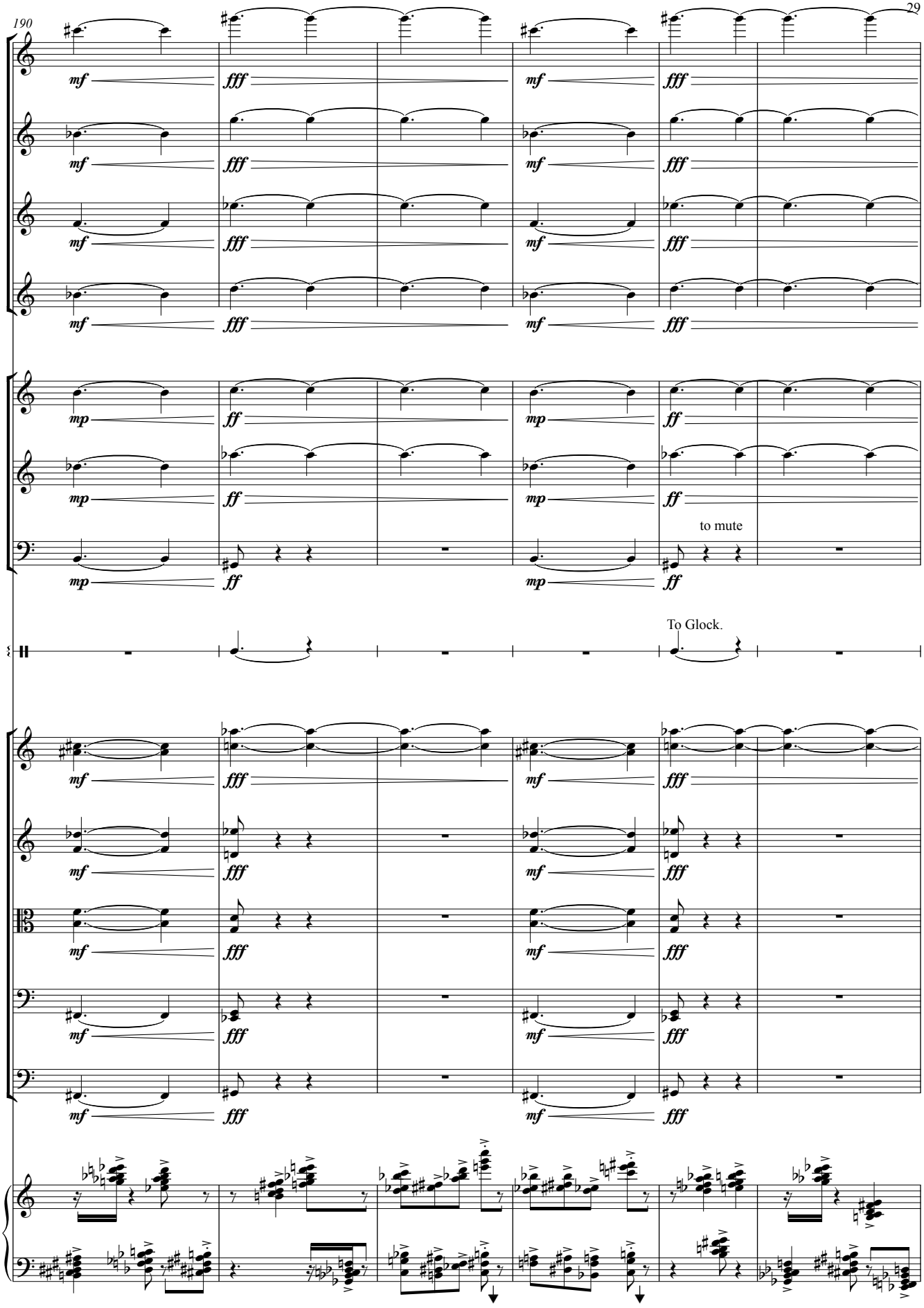

164
Piccolo
Fl.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
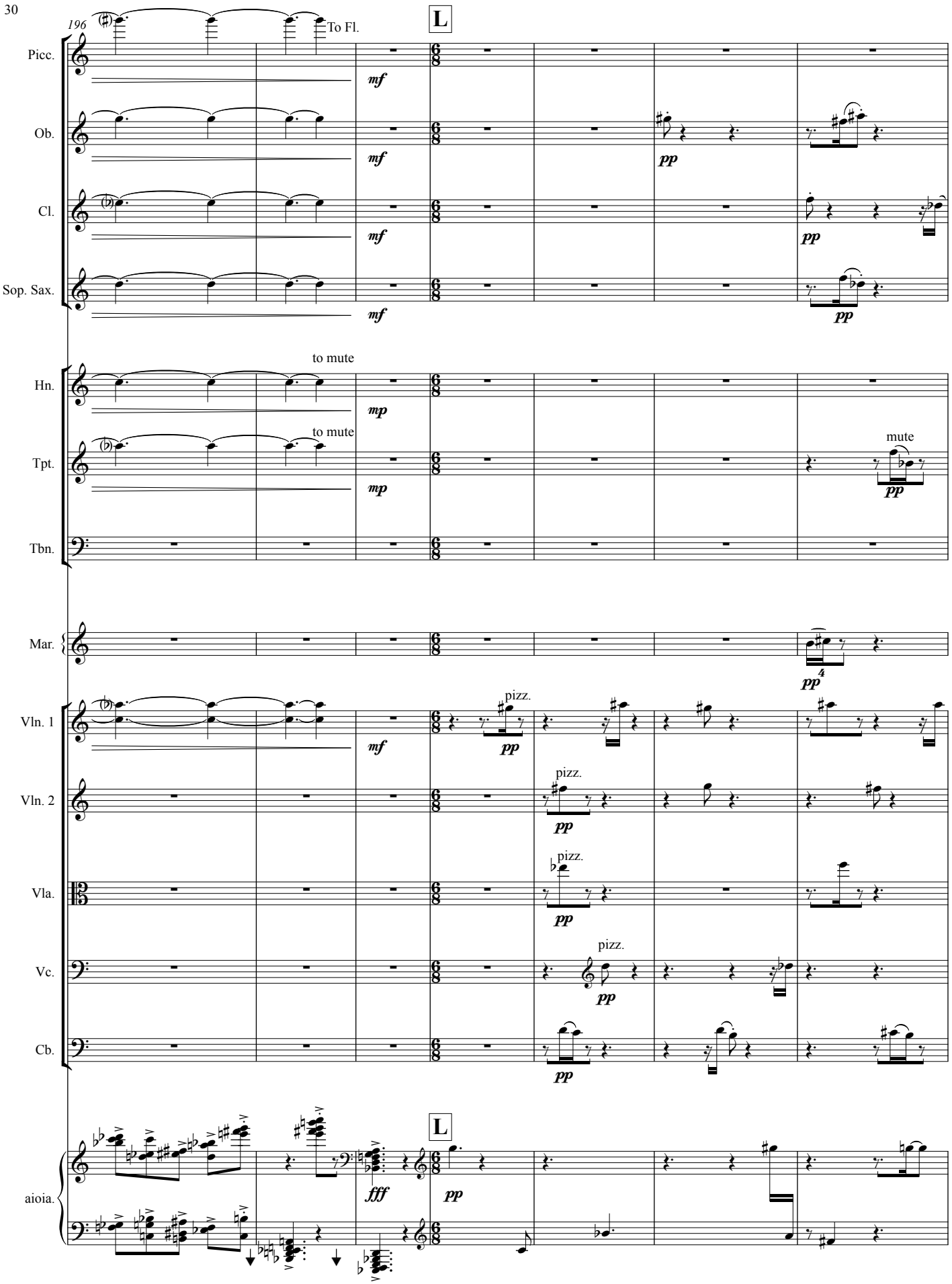

169
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
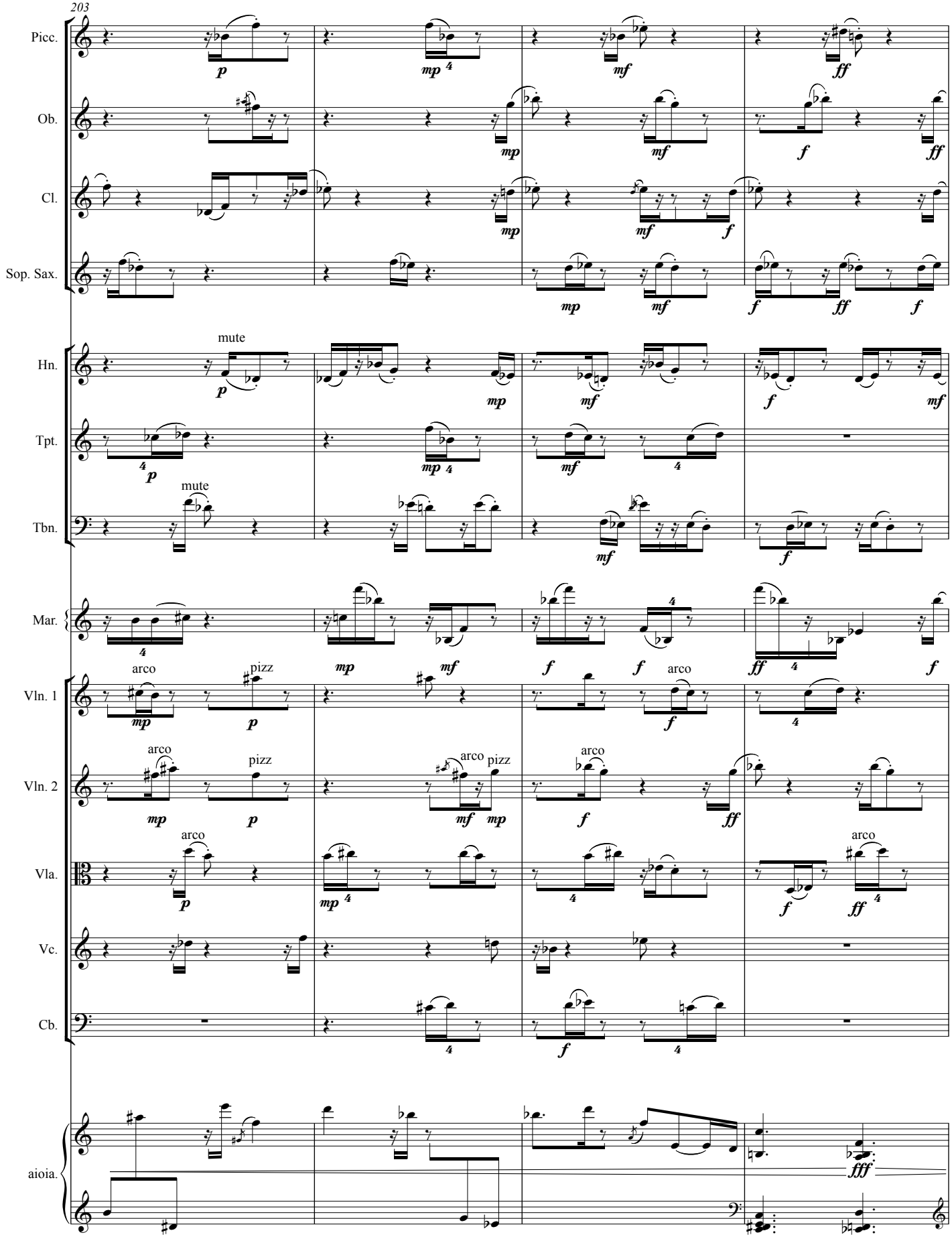

174
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
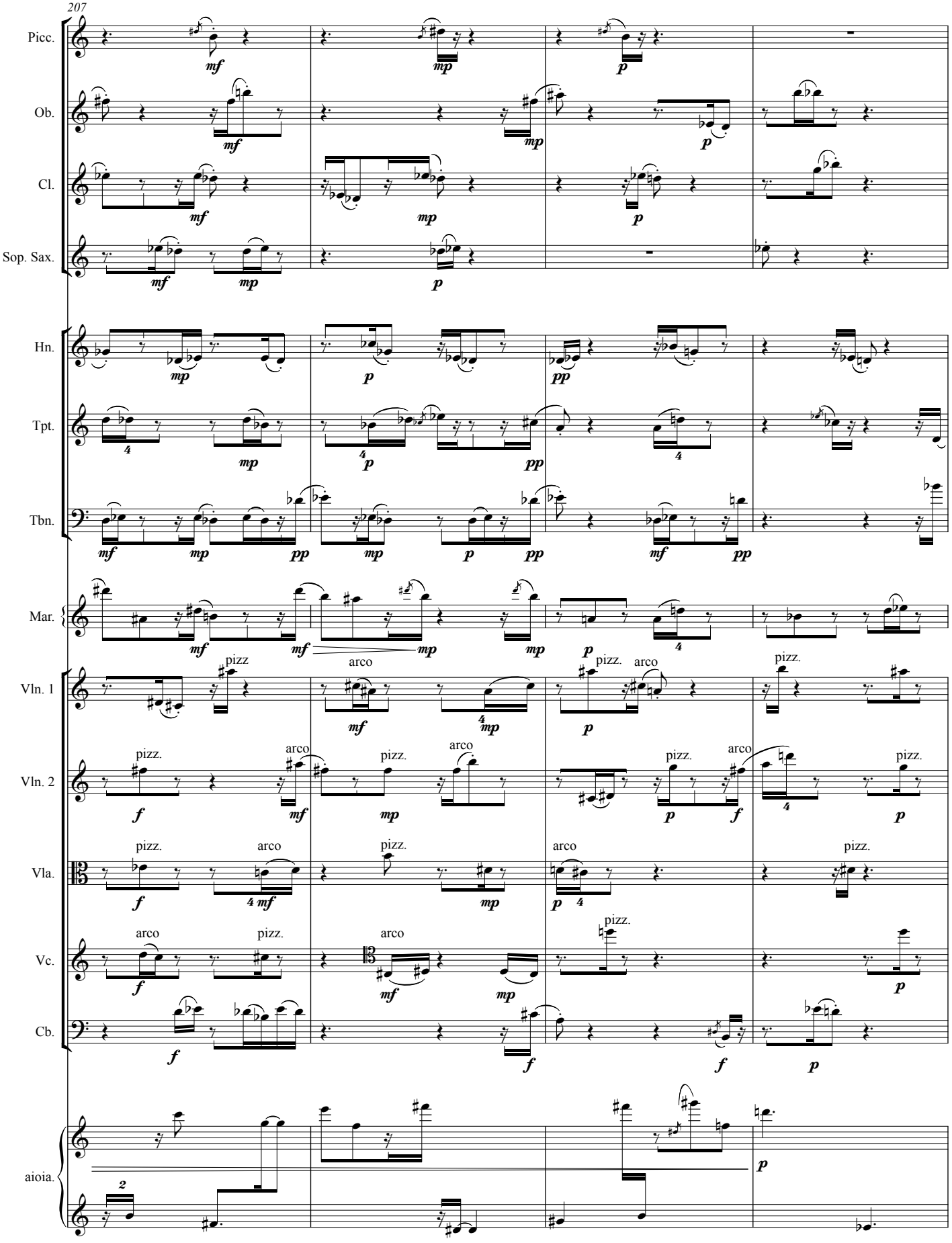

179
K
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
K
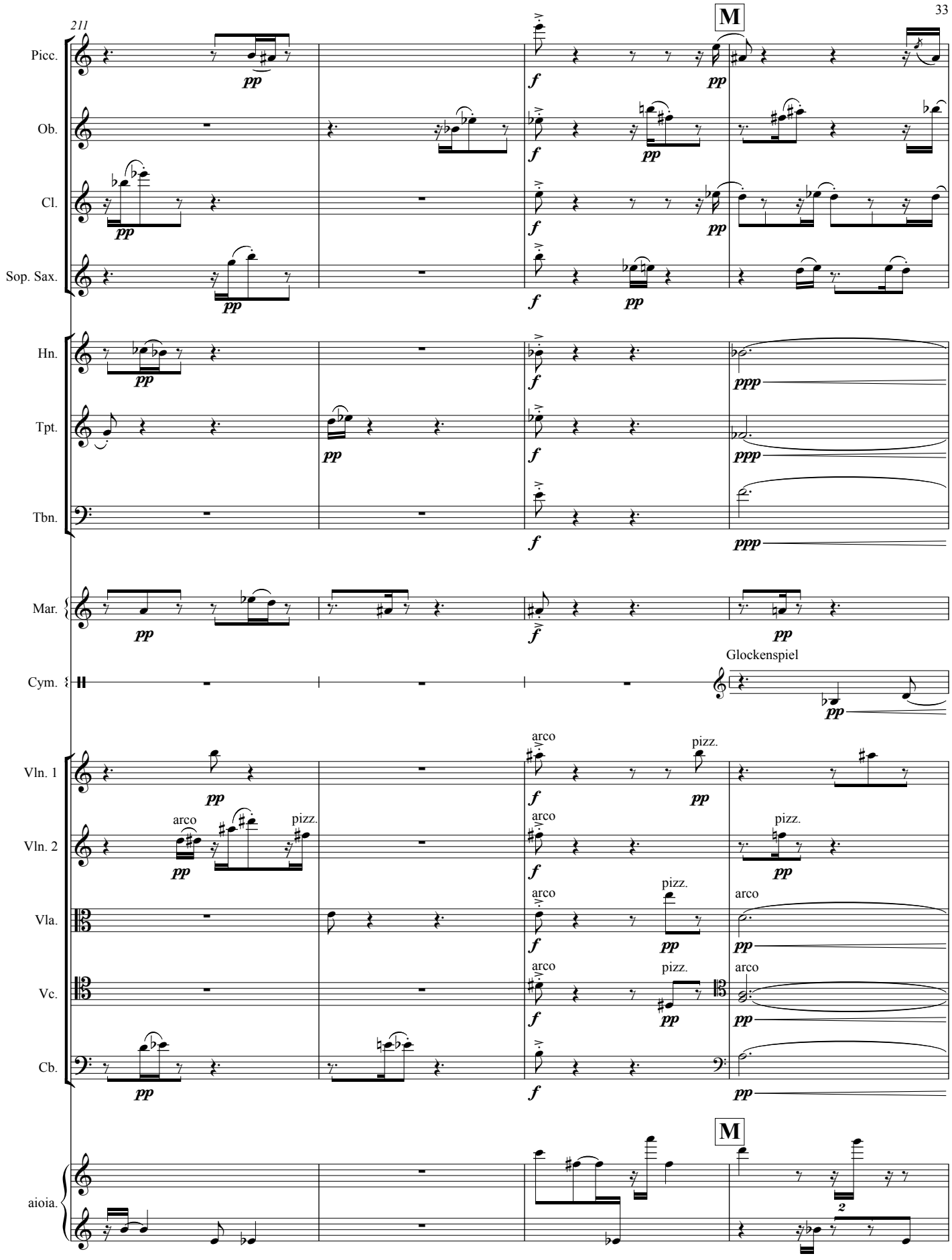

184
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
Mar.
Xyl.
Cymbals
Vln. 1
Vln. 2
Vla.
Vc.
Cb.
aioia.
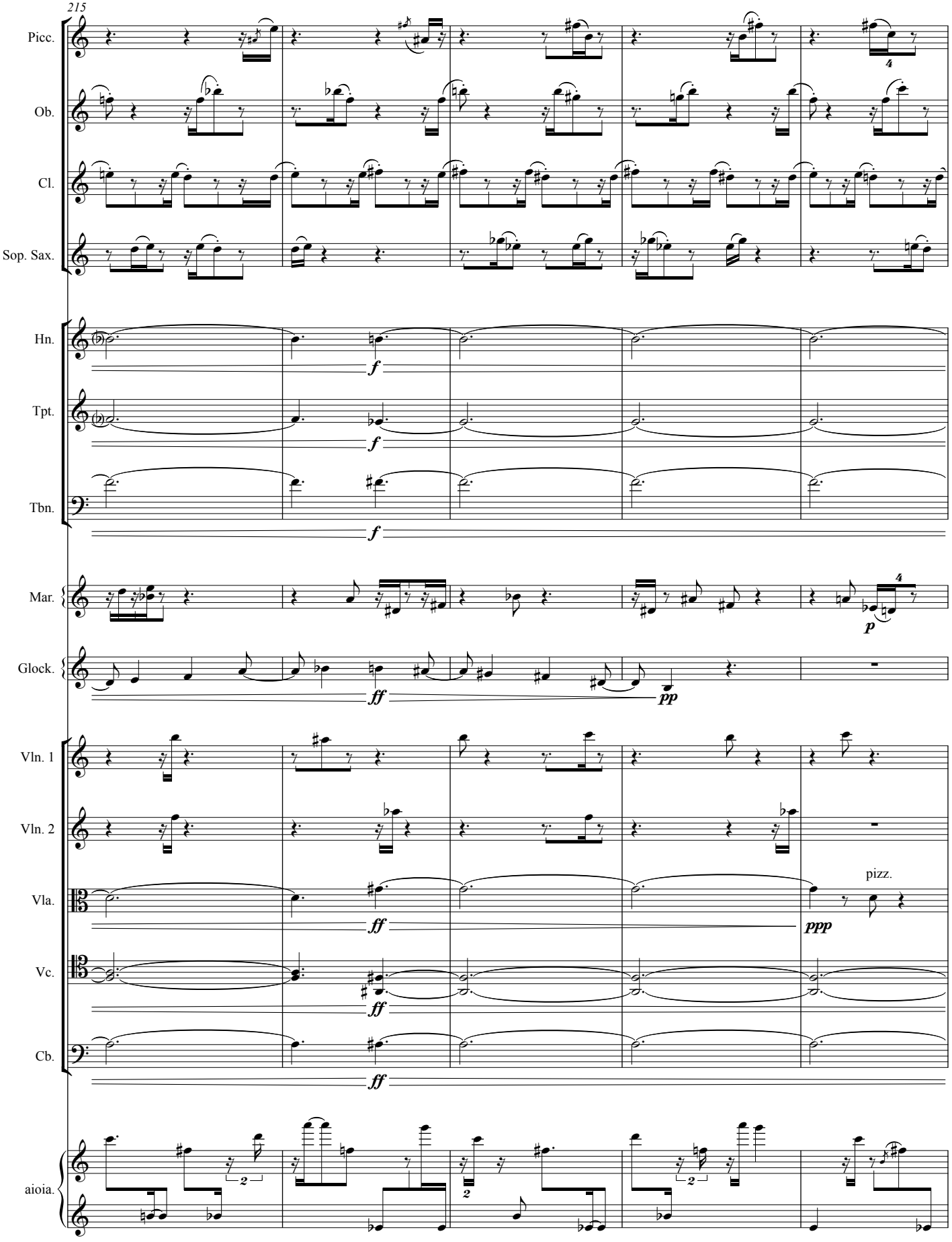

190
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
Tpt.
Tbn.
to mute
Cym.
To Glock.
Vln. 1
Vln. 2
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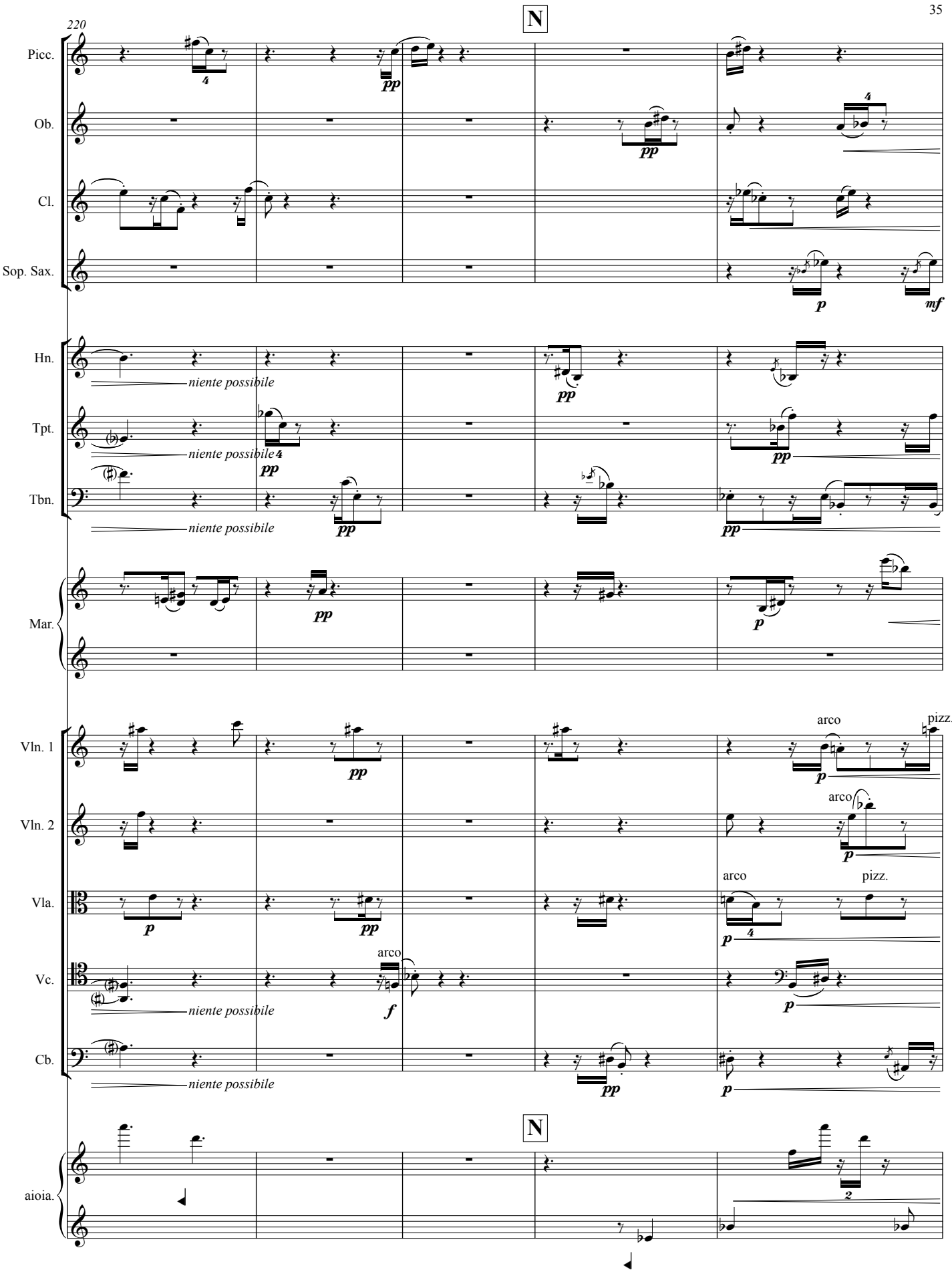

196
To Fl.
L
Picc.
Ob.
Cl.
Sop. Sax.
Hn.
to mute
Tpt.
to mute
mute
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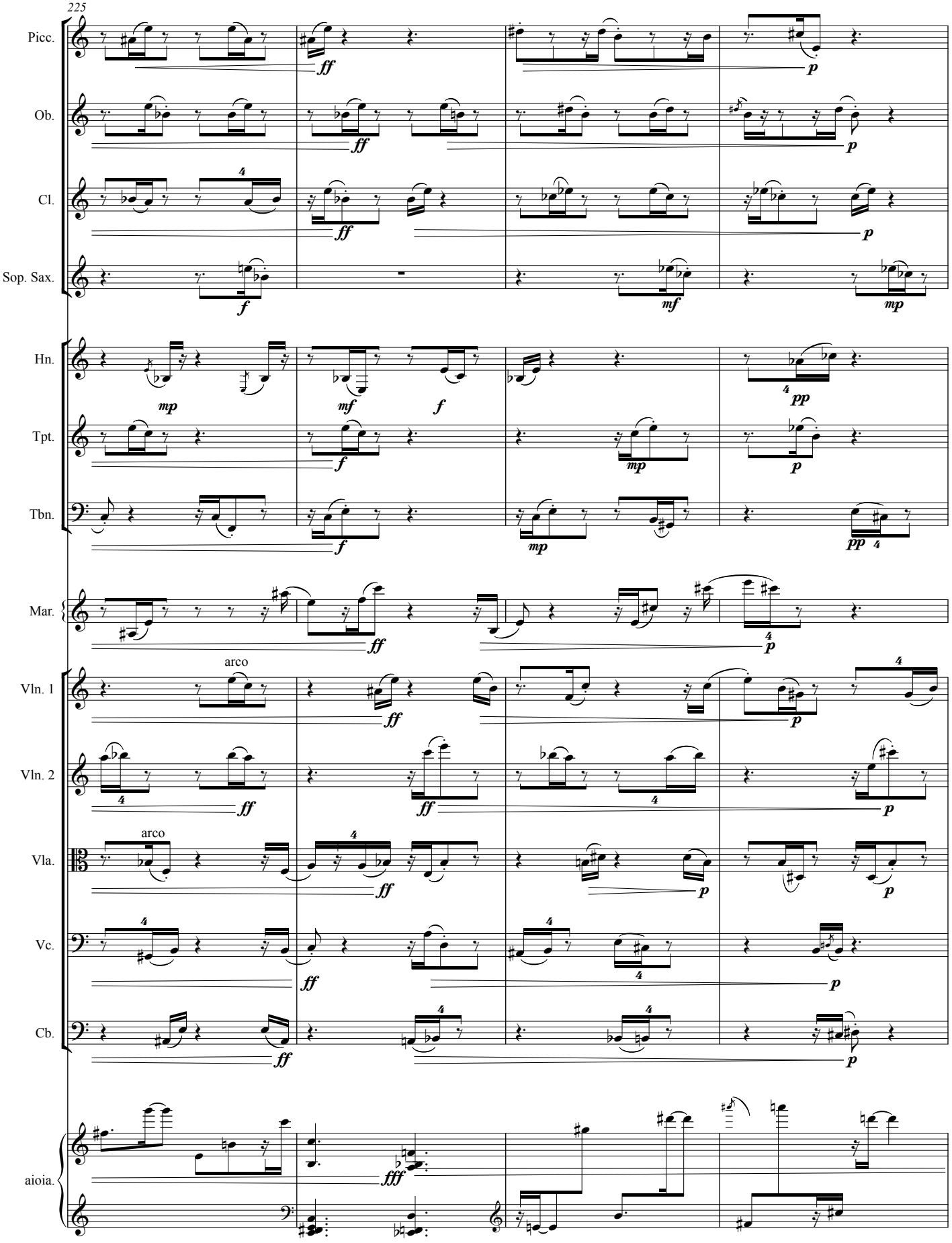

203
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Ob.
Cl.
Sop. Sax.
Hn.
mute
Tpt.
Tbn.
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Mar.
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Vln. 2
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Cb.
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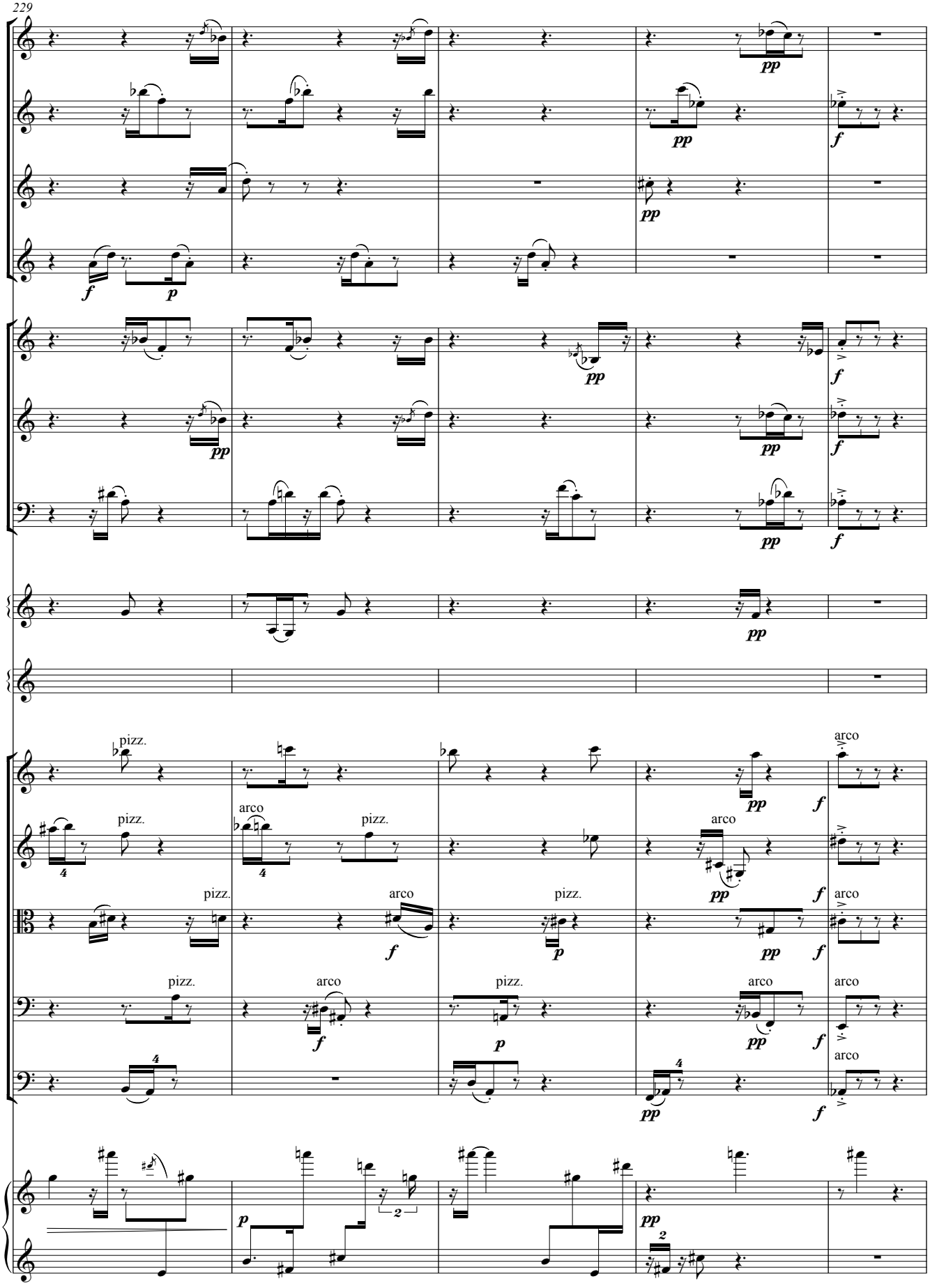

207
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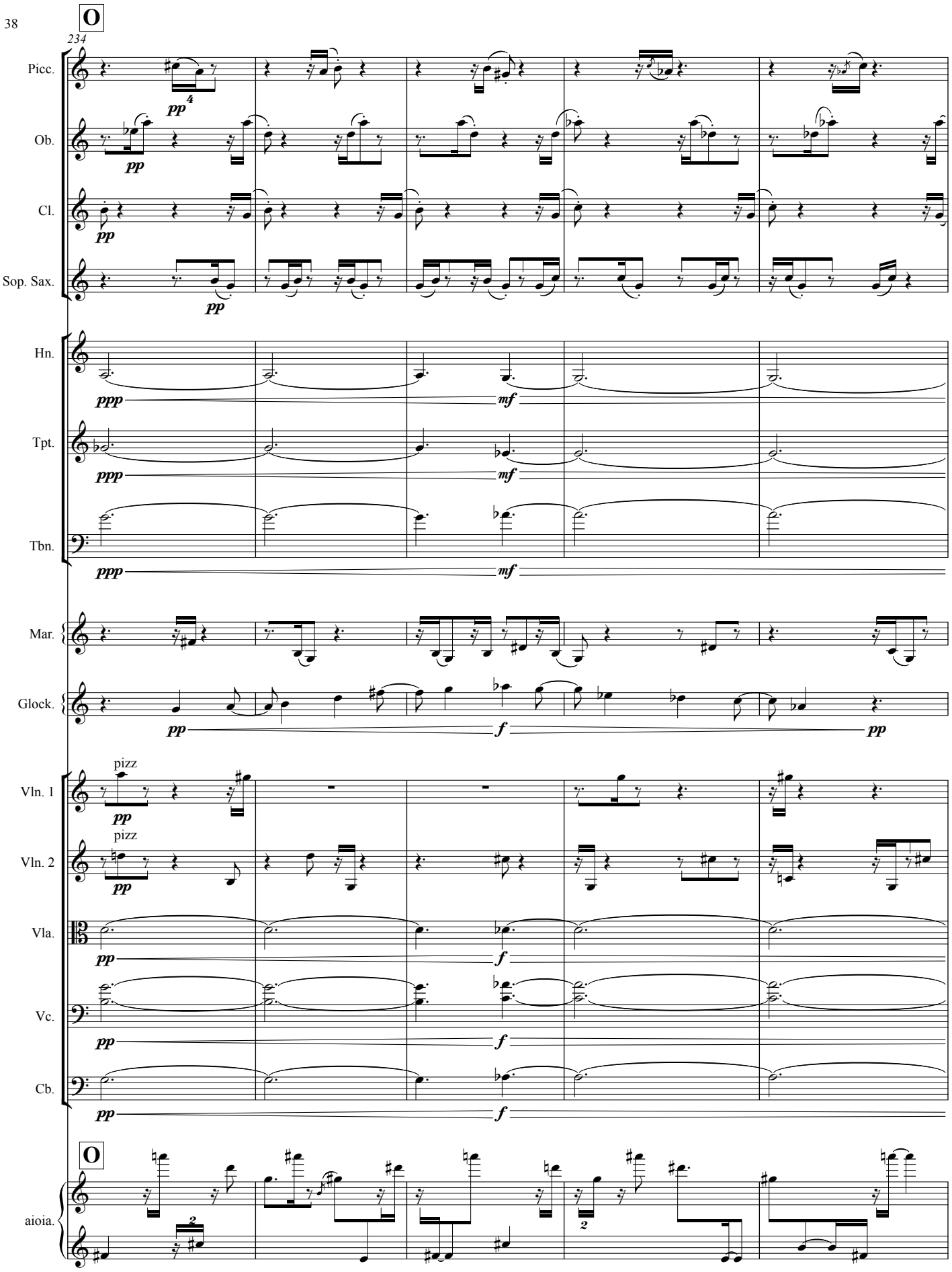

211
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Picc.
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Cl.
Sop. Sax.
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Mar.
Glockenspiel
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Vln. 2
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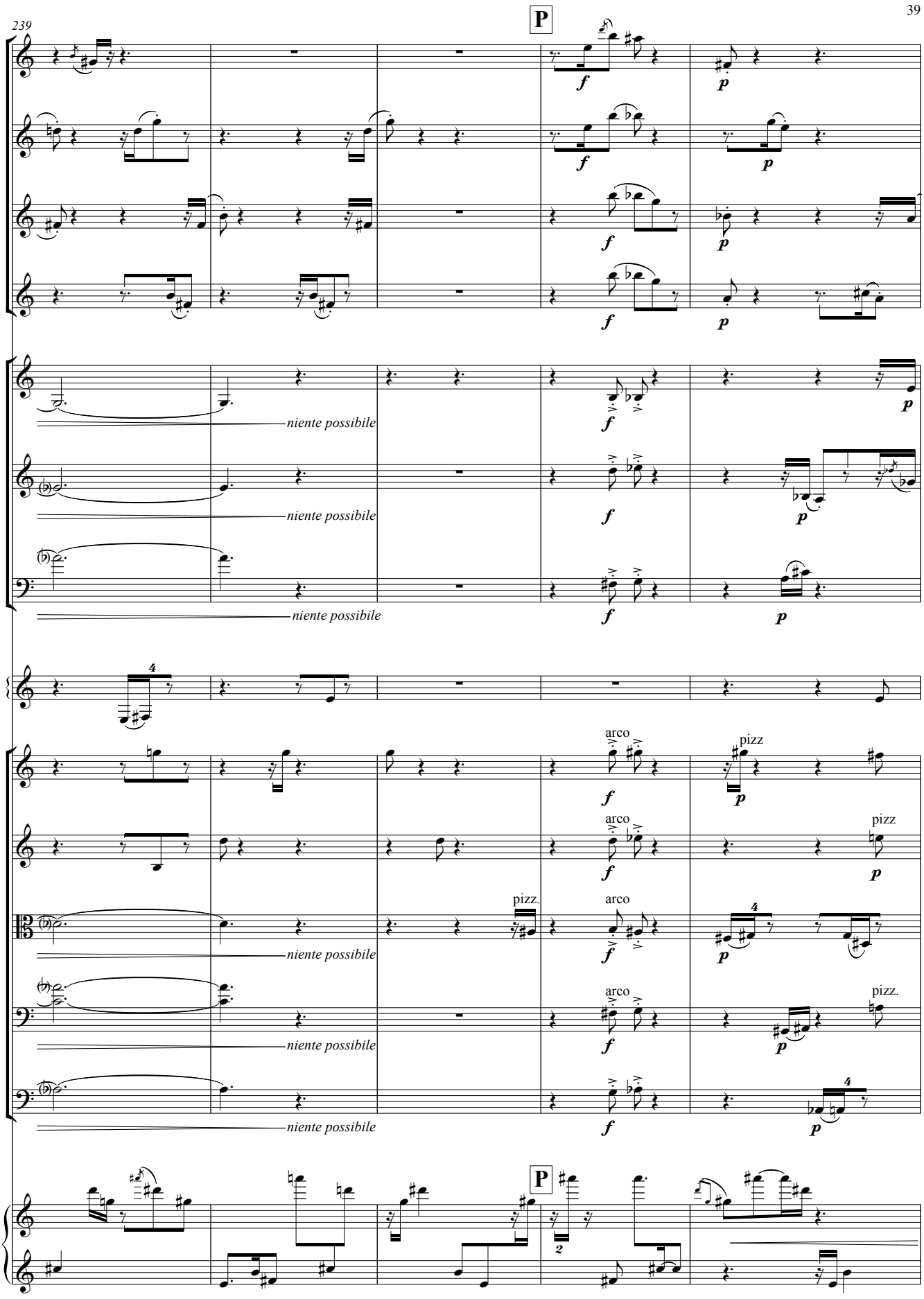

215
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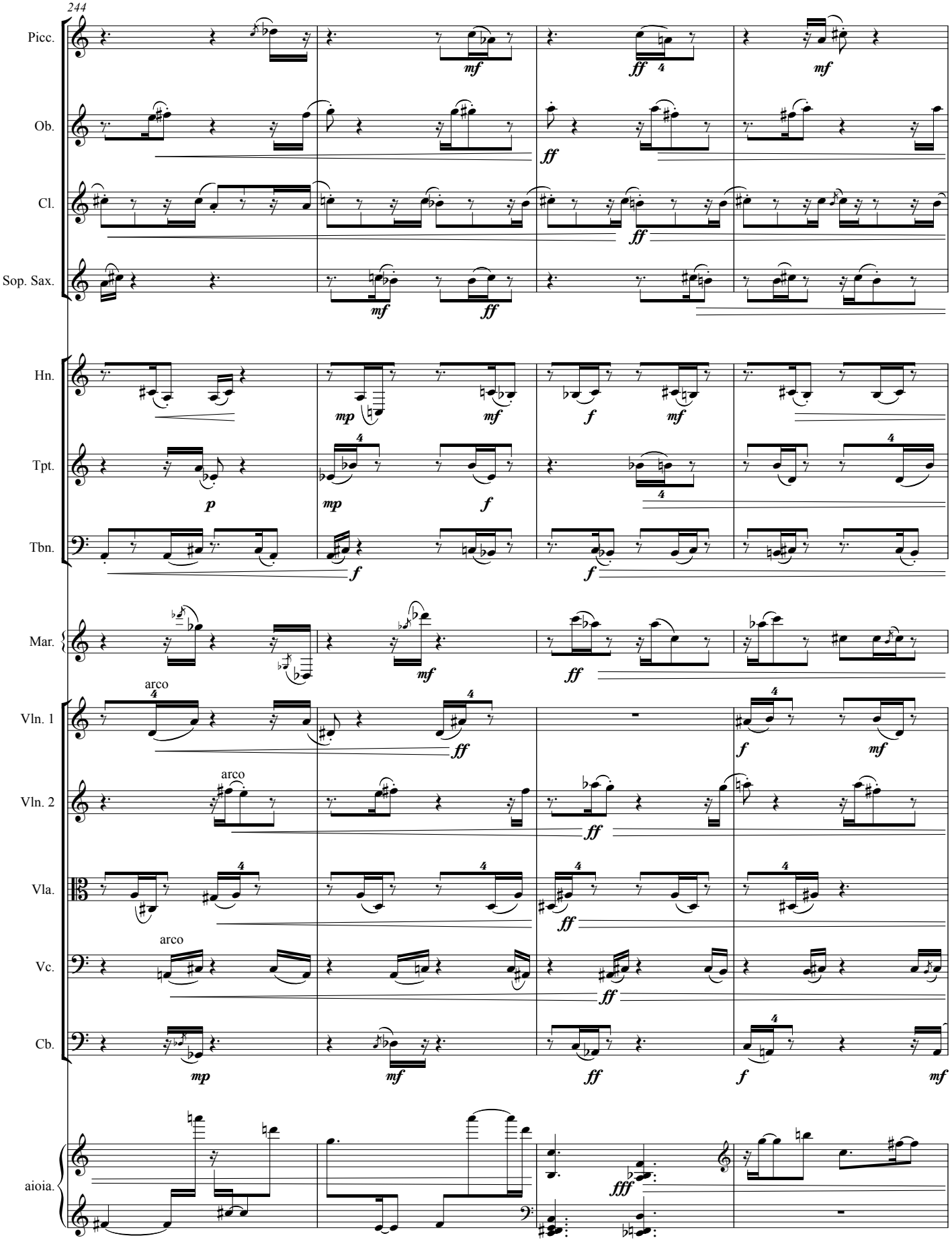

220
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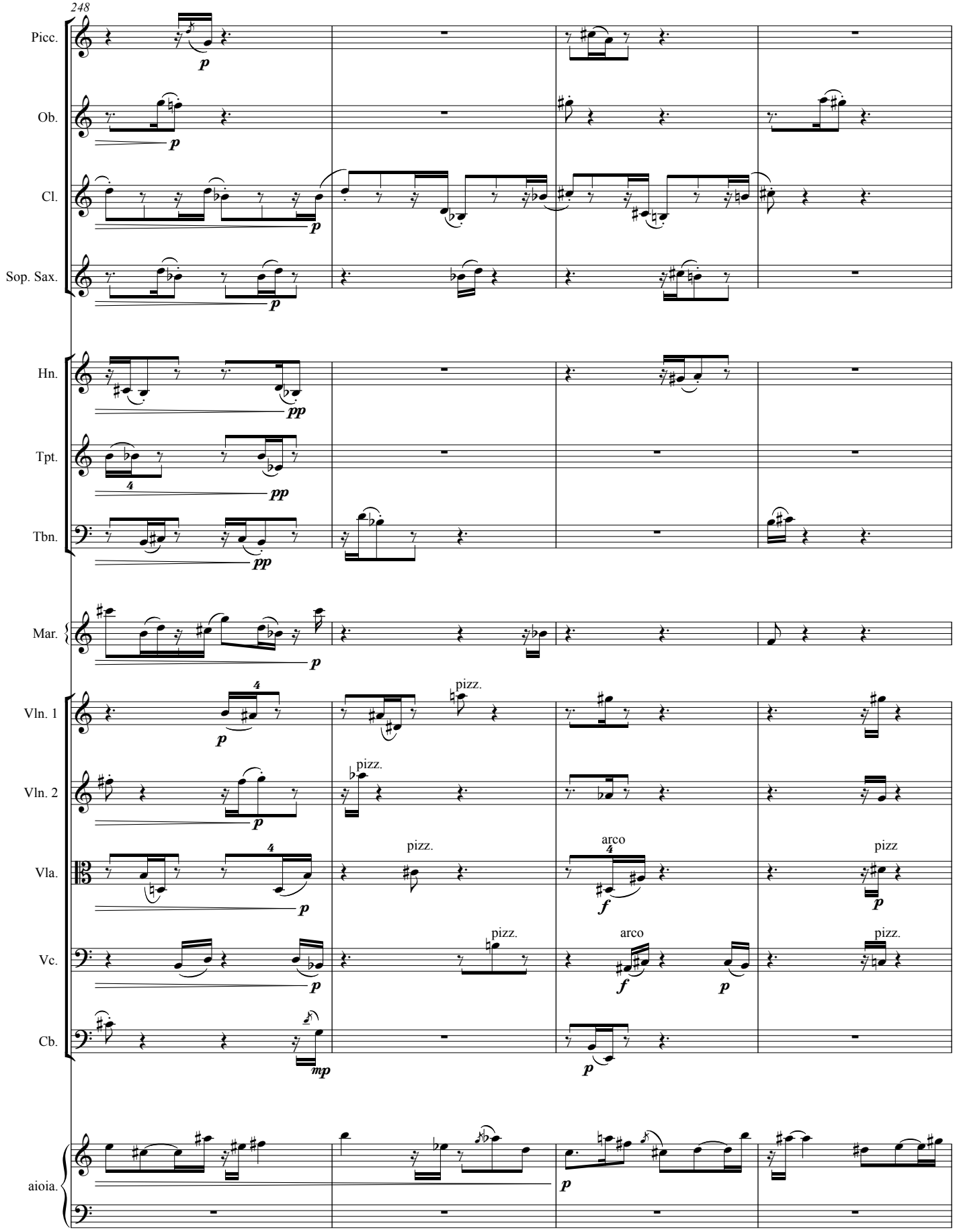

225
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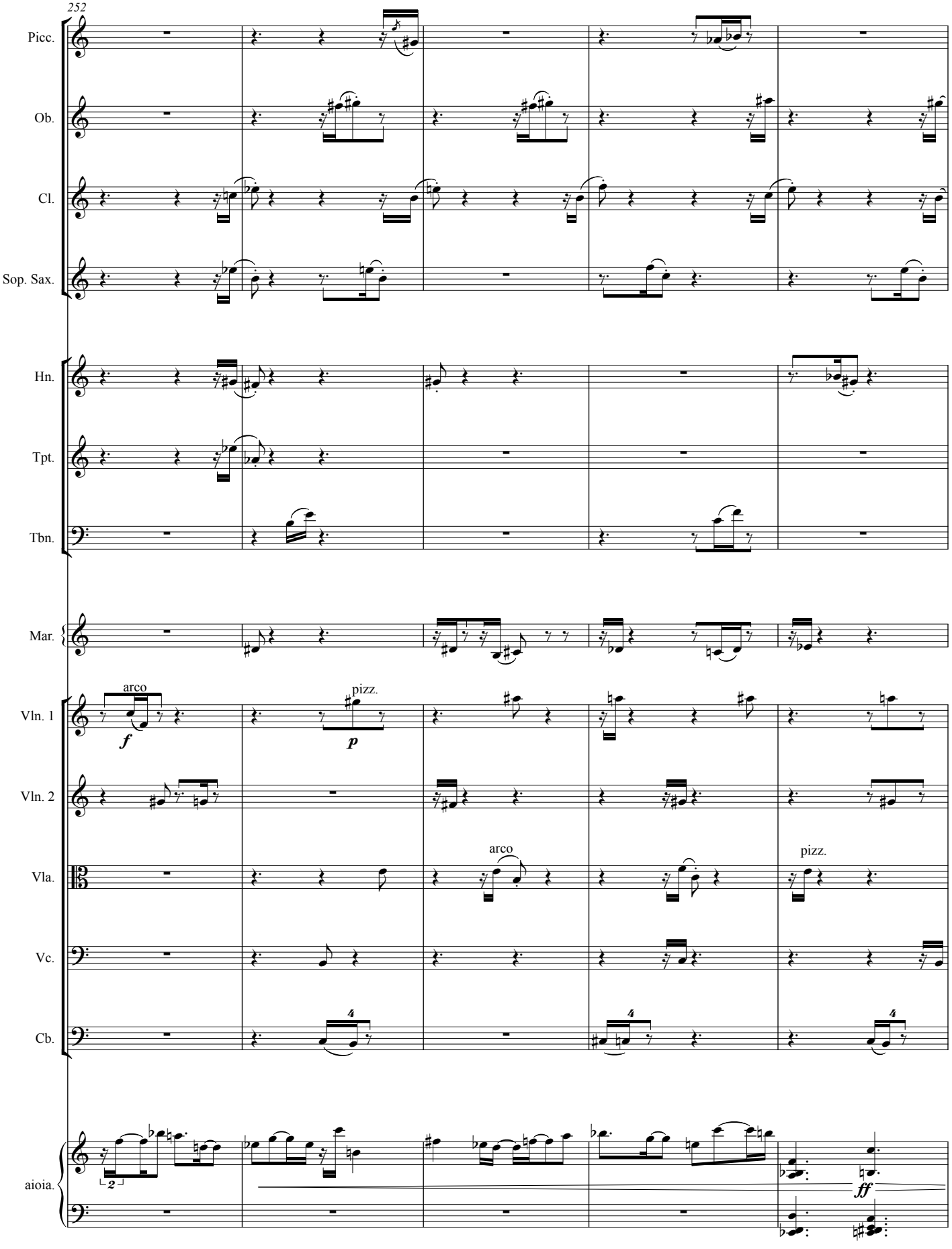

229
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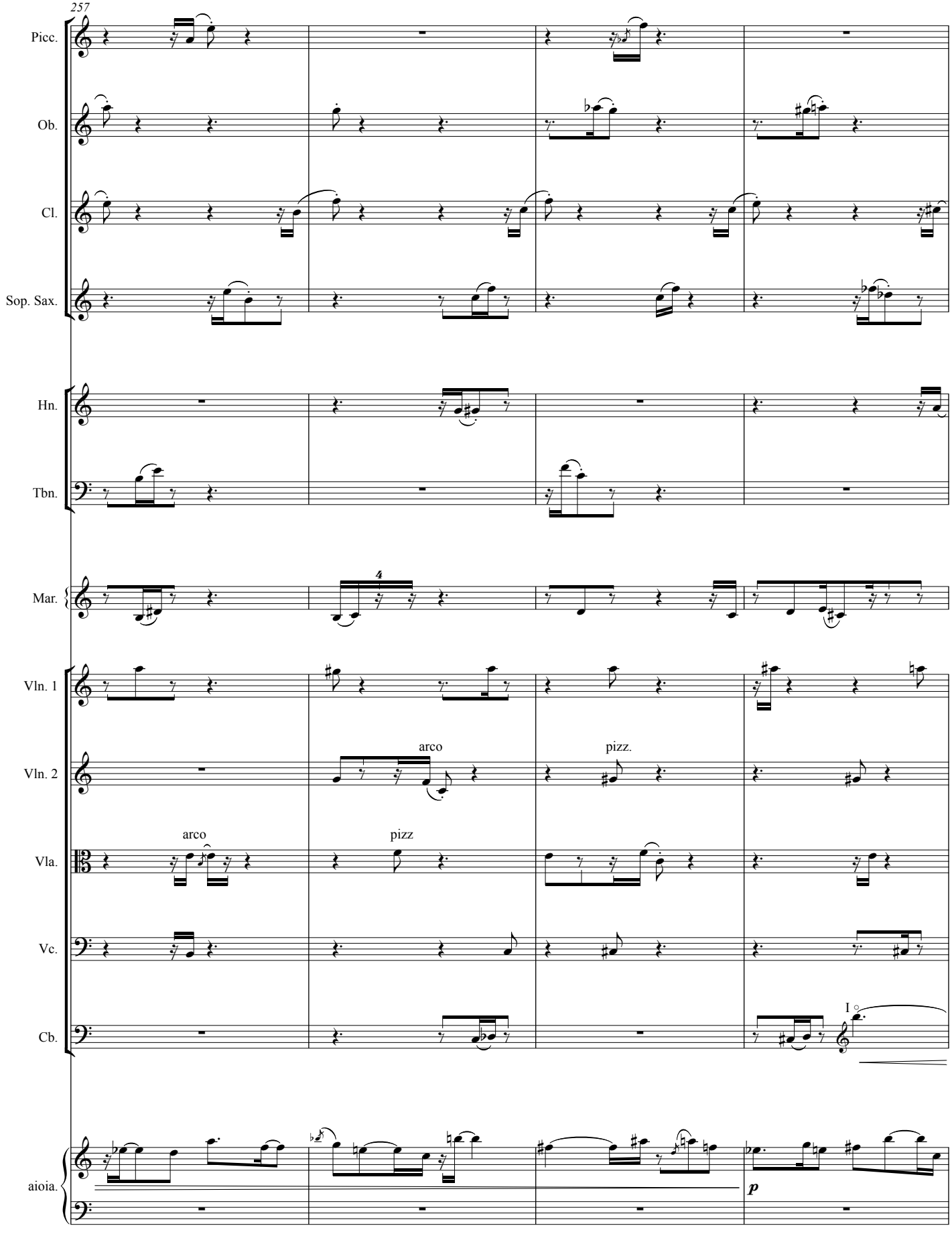

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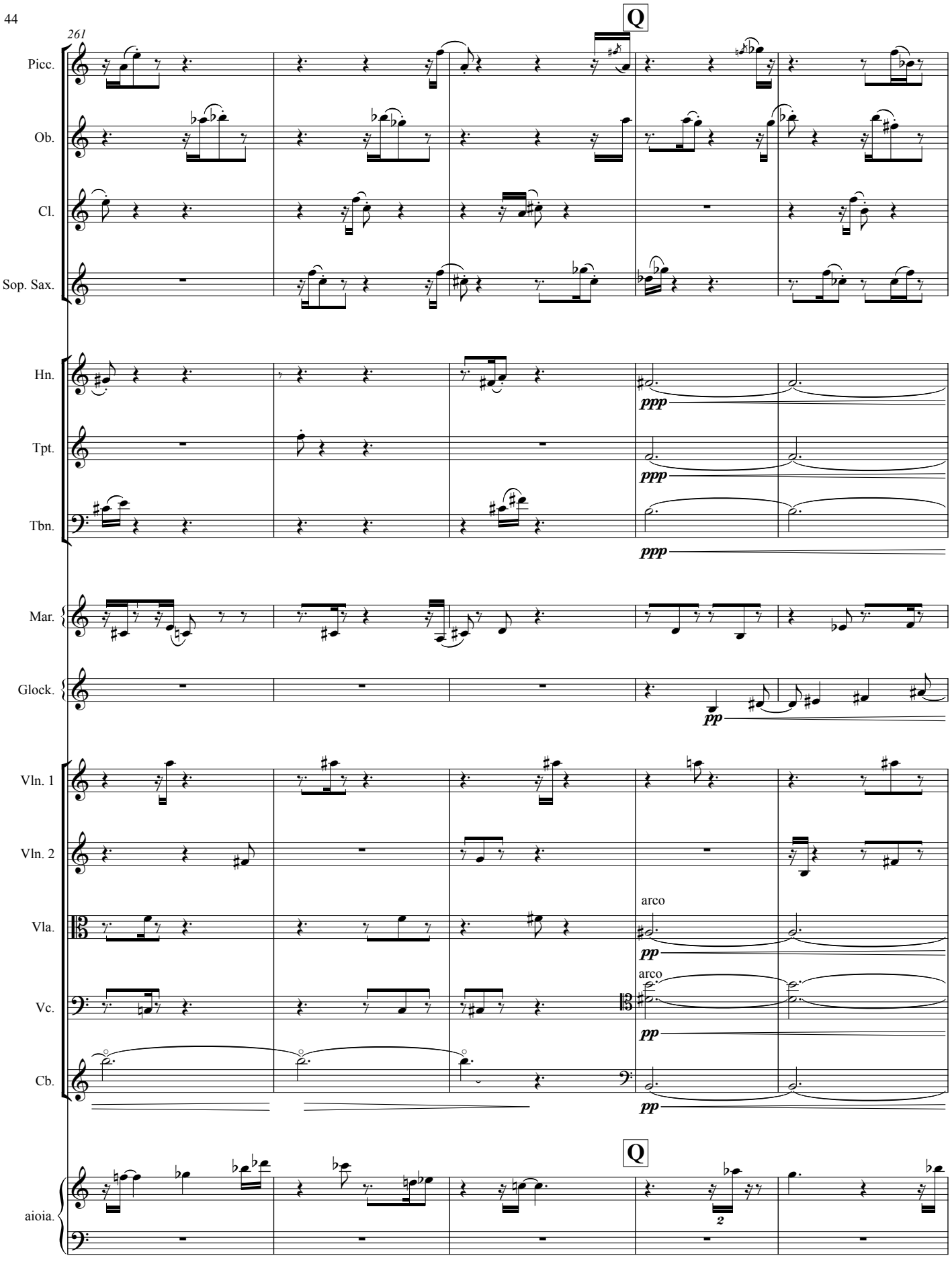

239
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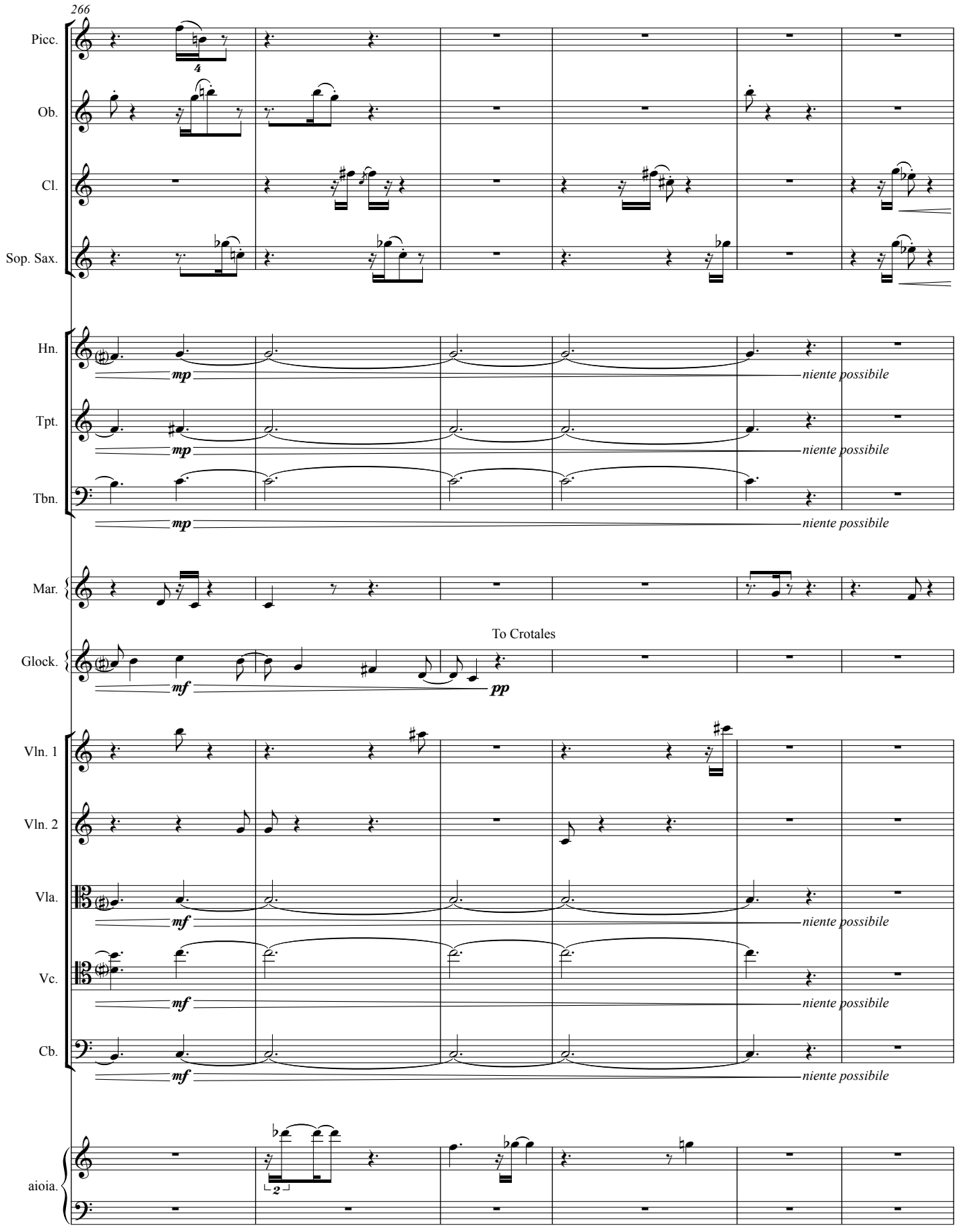

244
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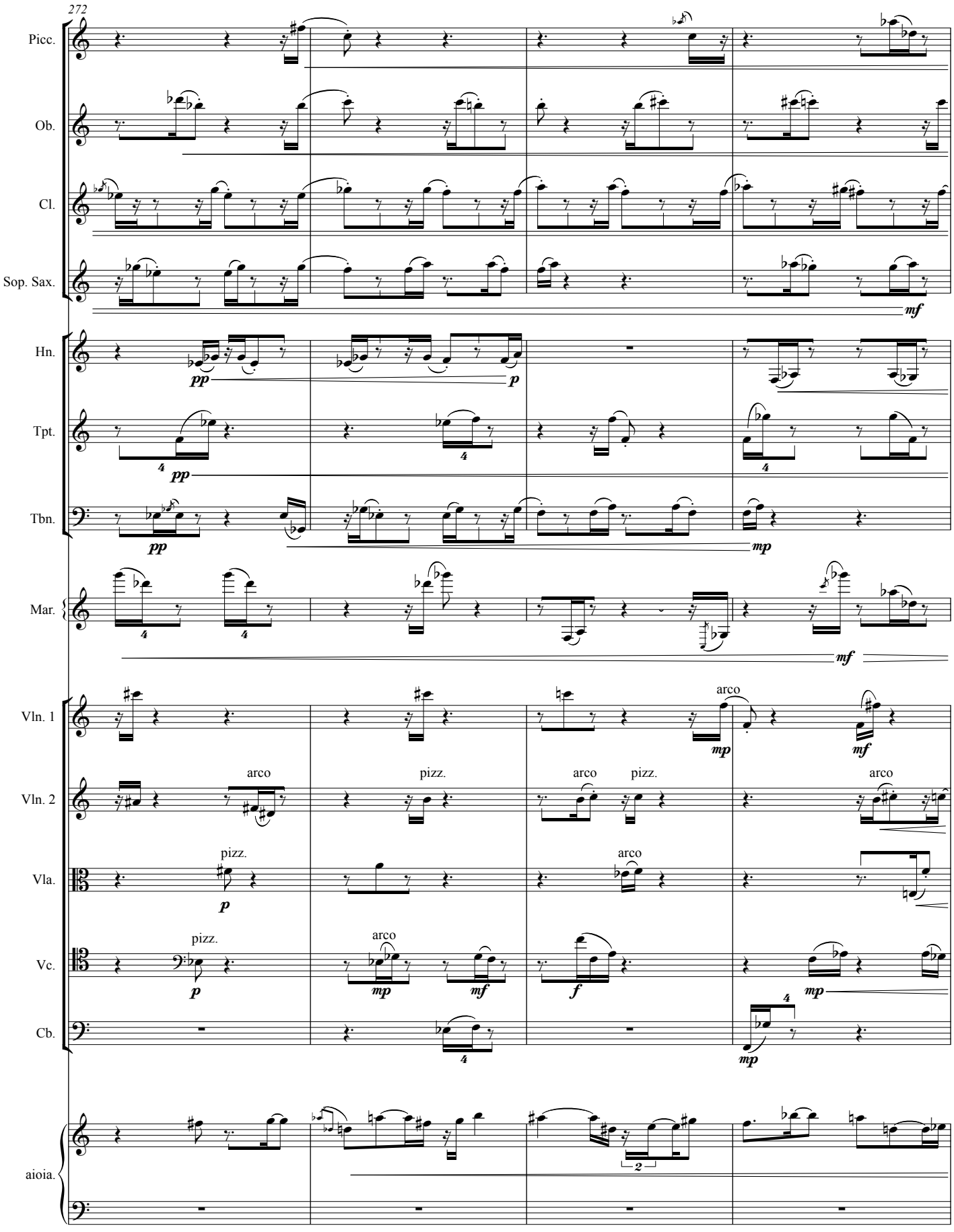

248
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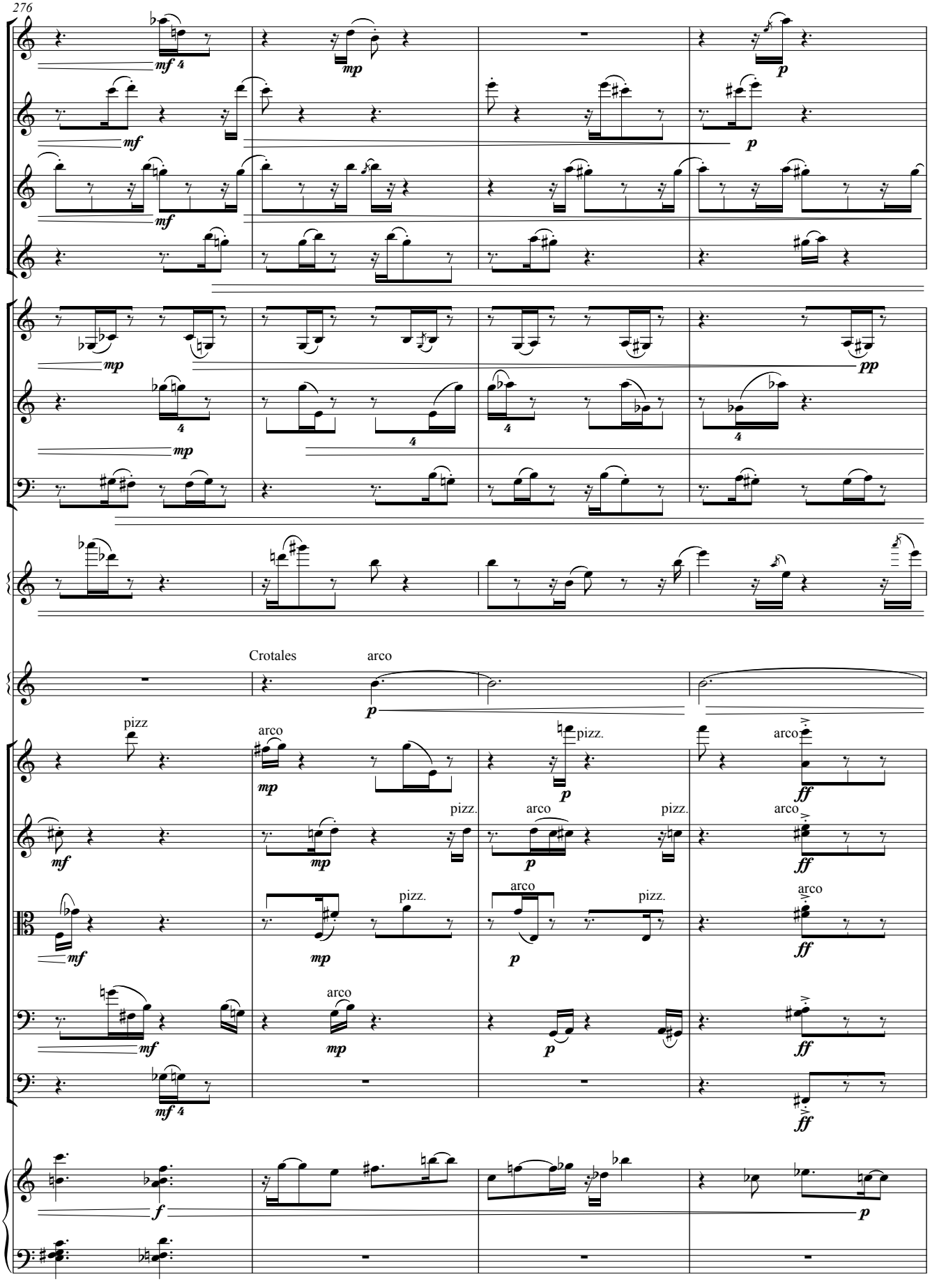

252
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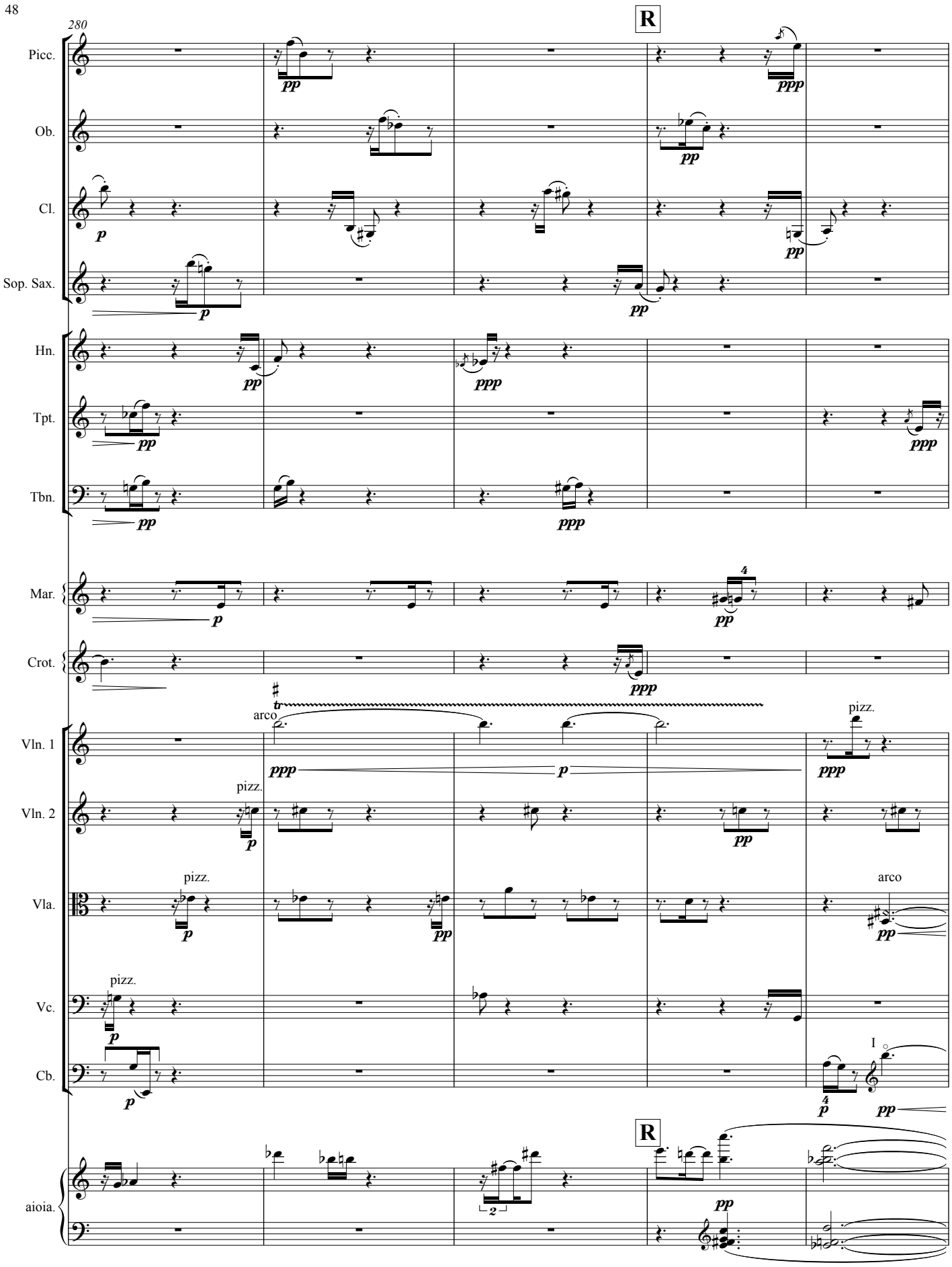

257
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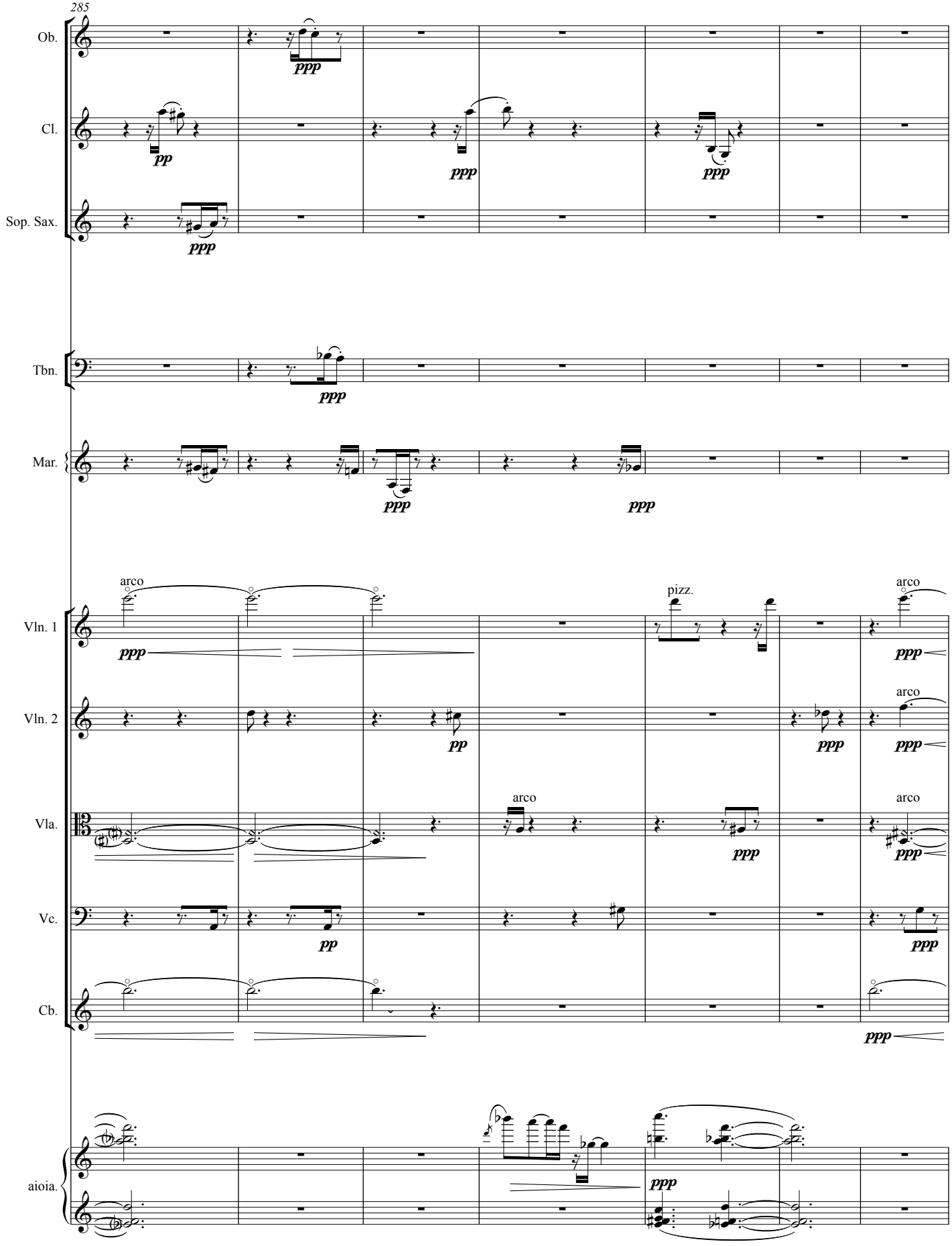

261
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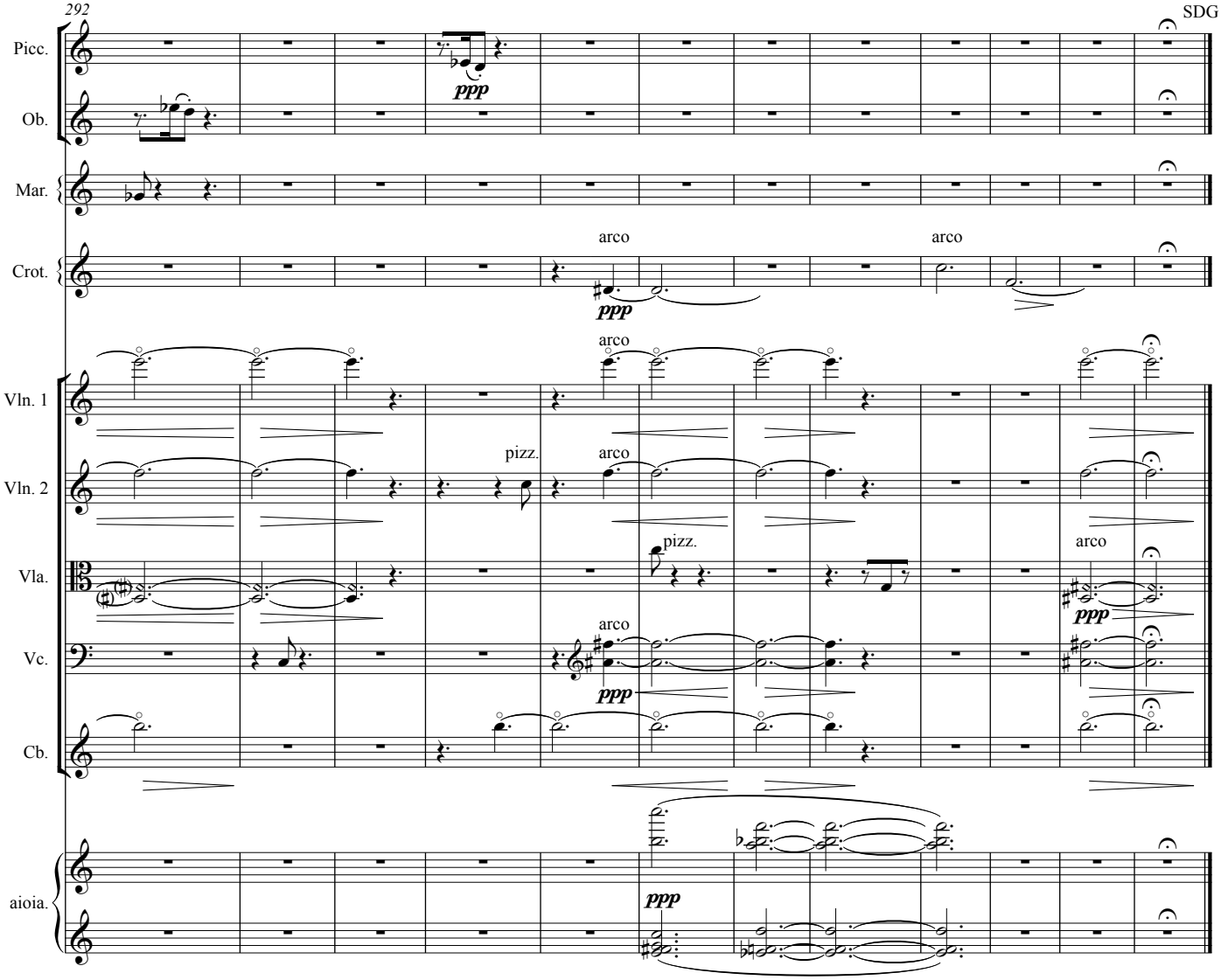

266
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