UNIVERSITY OF CALIFORNIA, SAN DIEGO

Le Labyrinthe de Chartres

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

in

Music

by

Nicholas J DeMaison

Committee in charge:

Professor Philippe Manoury, Chair
Professor Liam Clancy
Professor Philip Larson
Professor Steven Schick
Professor Lesley Stern

2012

The Dissertation of Nicholas J DeMaison is approved, and it is acceptable in quality and form for publication on microfilm and electronically:

_____

_____

_____

_____

_____
Chair

University of California, San Diego

2012

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

VITA

2002	Bachelor of Music, Oberlin Conservatory of Music
2003-2005	Teaching Assistant, Department of Music University of California, San Diego
2005	Master of Arts, University of California, San Diego
2006-2008	Teaching Assistant, Department of Music University of California, San Diego
2012	Doctor of Philosophy, University of California, San Diego

FIELDS OF STUDY

Major Field: Composition

ABSTRACT OF THE DISSERTATION

Le Labyrinthe de Chartres

by

Nicholas J DeMaison

Doctor of Philosophy in Music

University of California, San Diego, 2012

Professor Philippe Manoury, Chair

Le Labyrinthe de Chartres is a trio for piano and two percussion. Organized into twelve interlocking sections, it lasts approximately eighteen minutes in performance. Specific instruments and performance techniques required are outlined in the performance notes and within the score. An Analysis of the work follows the score.

Performance Notes

Accidentals carry through the measure. In some more dense passages courtesy accidentals are applied.

8va lines apply only to a single stem direction.

Specific playing techniques are described in the score.

Percussion Instruments
Player 1:
1 md. sus. cymbal
Almglocken: 1 octave, C4 – B4 (played on a table)
Tam-tam
2 toms (md, lg)
Vibraphone
1 octave of crotales (written C4-C5)

Player 2:
1 tom (sm)
2 Triangles (sm, lg)
Thai Gongs: B3, C4, C#4, D#4, E4, F4, G#4, A4 (played on table)
China cymbal
12" splash cymbal
Glockenspiel
Marimba

Shared Instruments:
Bass drum
vibraphone
crotales

Both players need:
2 bows
range of mallets for mallet instruments
brushes
trinagle beater
super ball

Piano
Prepare F1, B2, D#3, D#4 with fishing line for bowing strings
Piano needs a mute for the upper third of the piano. This should be made of fabric, fairly narrow width (not more than two inches), and weighted heavy enough to dampen the sound but light enough so as to allow some ring.

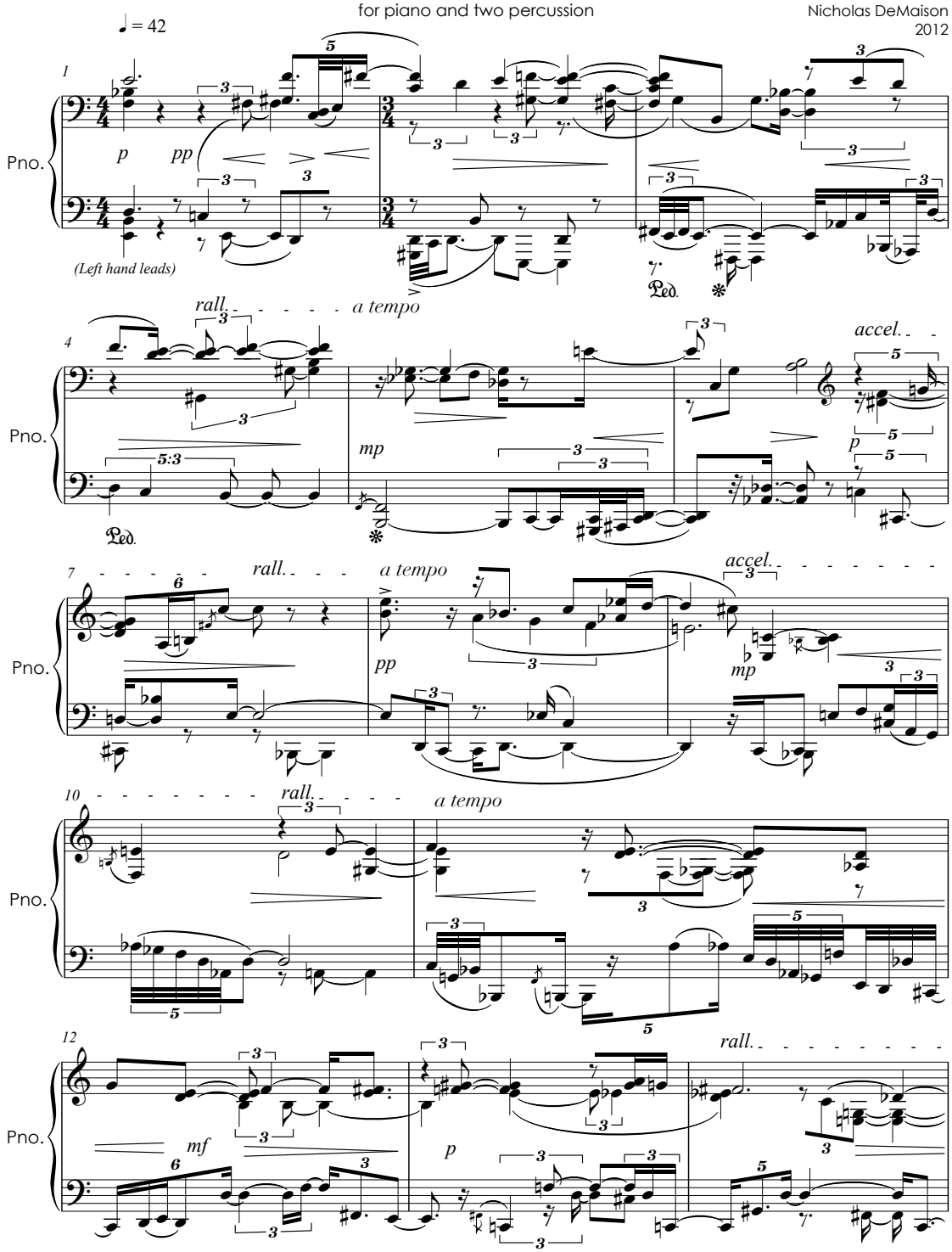
Duration: ca. 18 min.

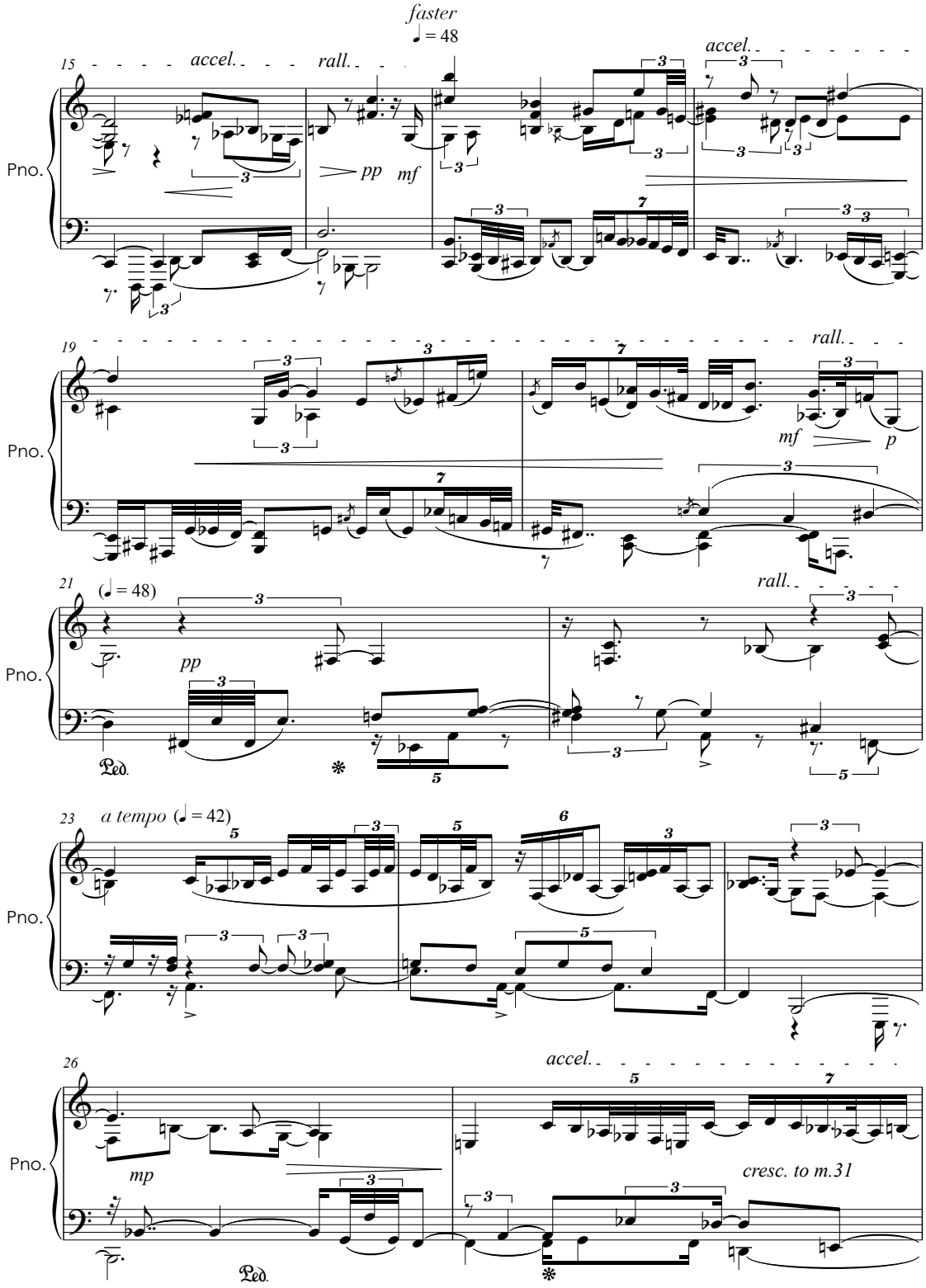
for the Sinopia Ensemble

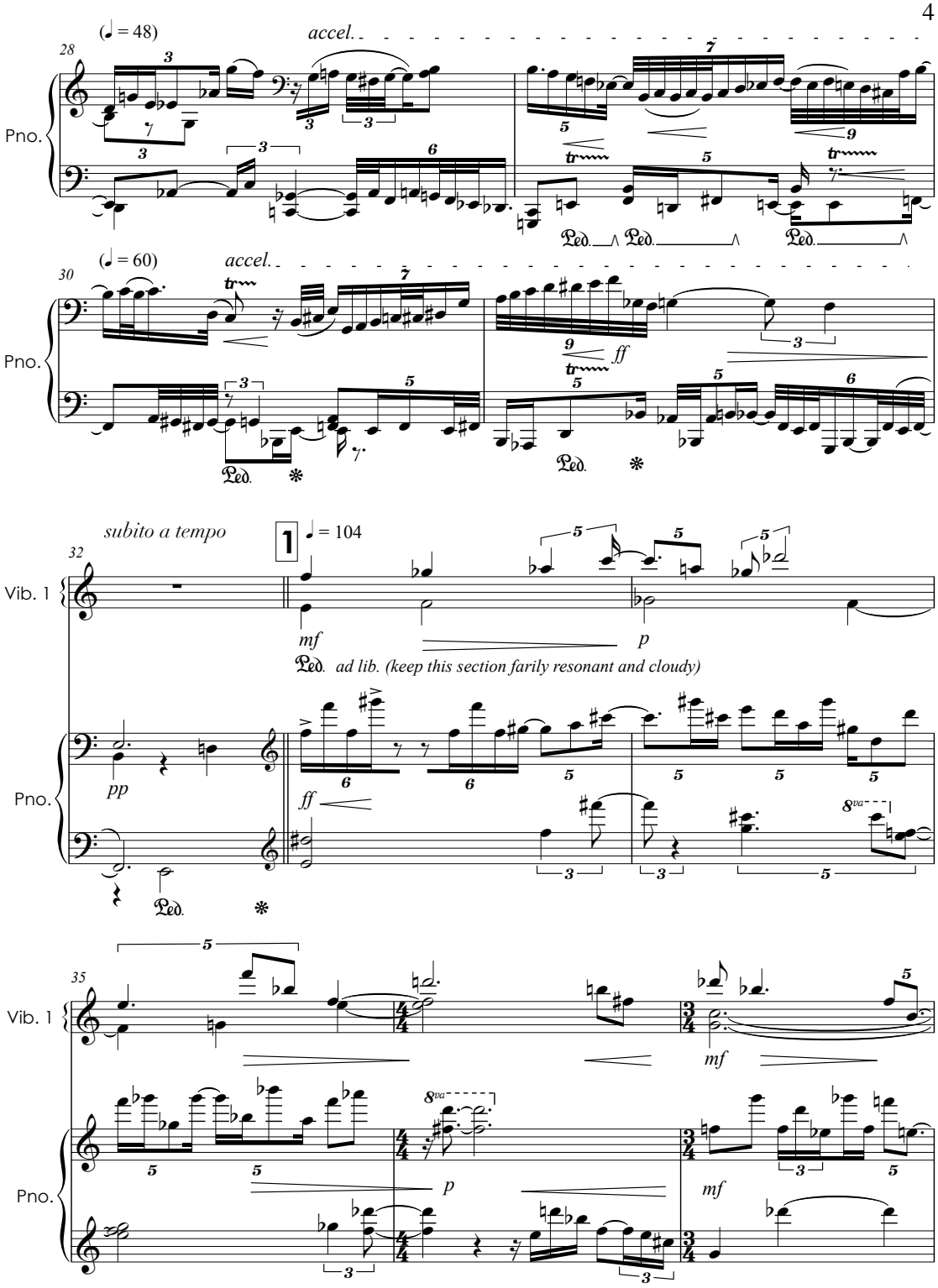
Le Labyrinthe de Chartres

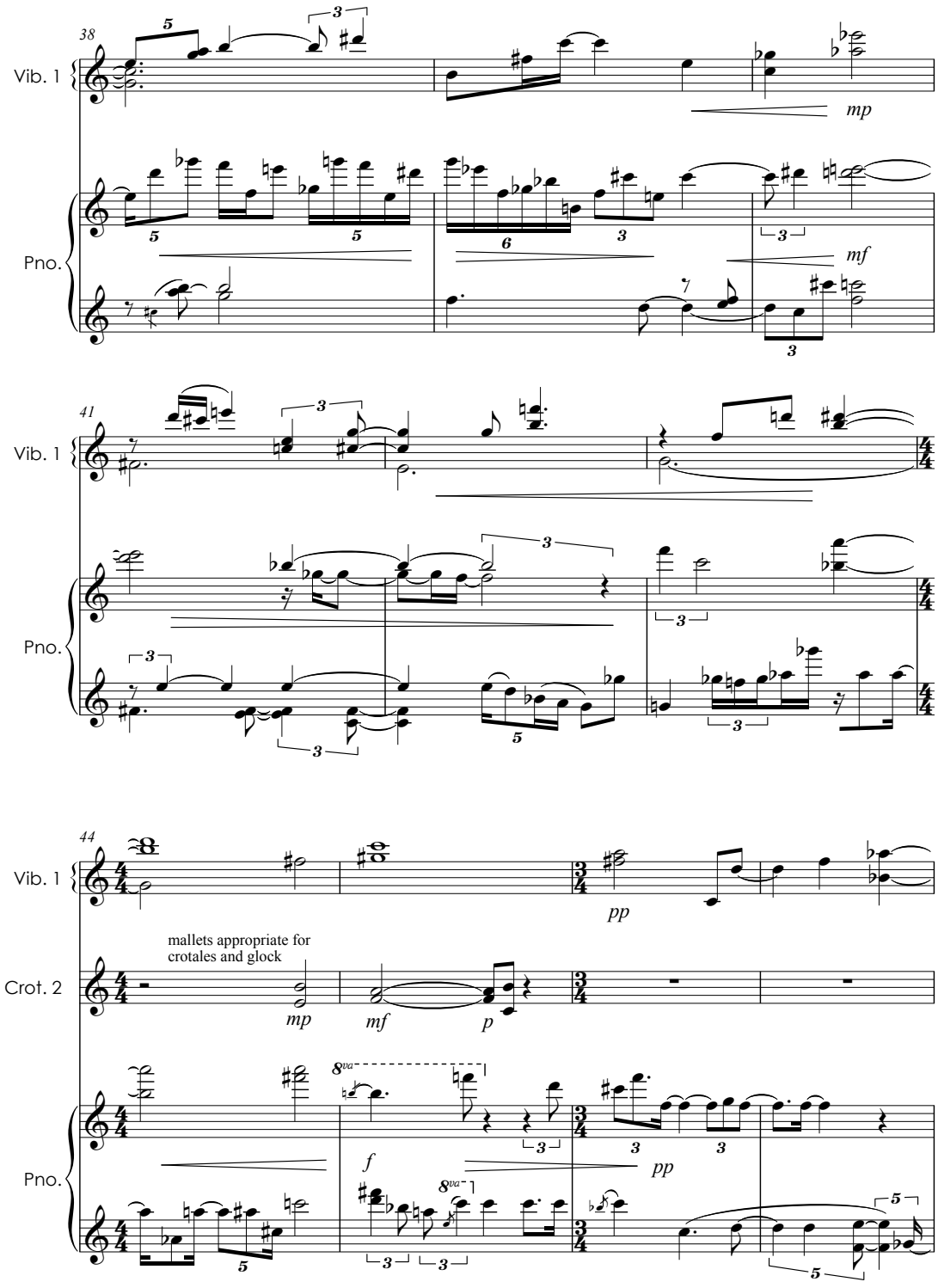
for piano and two percussion

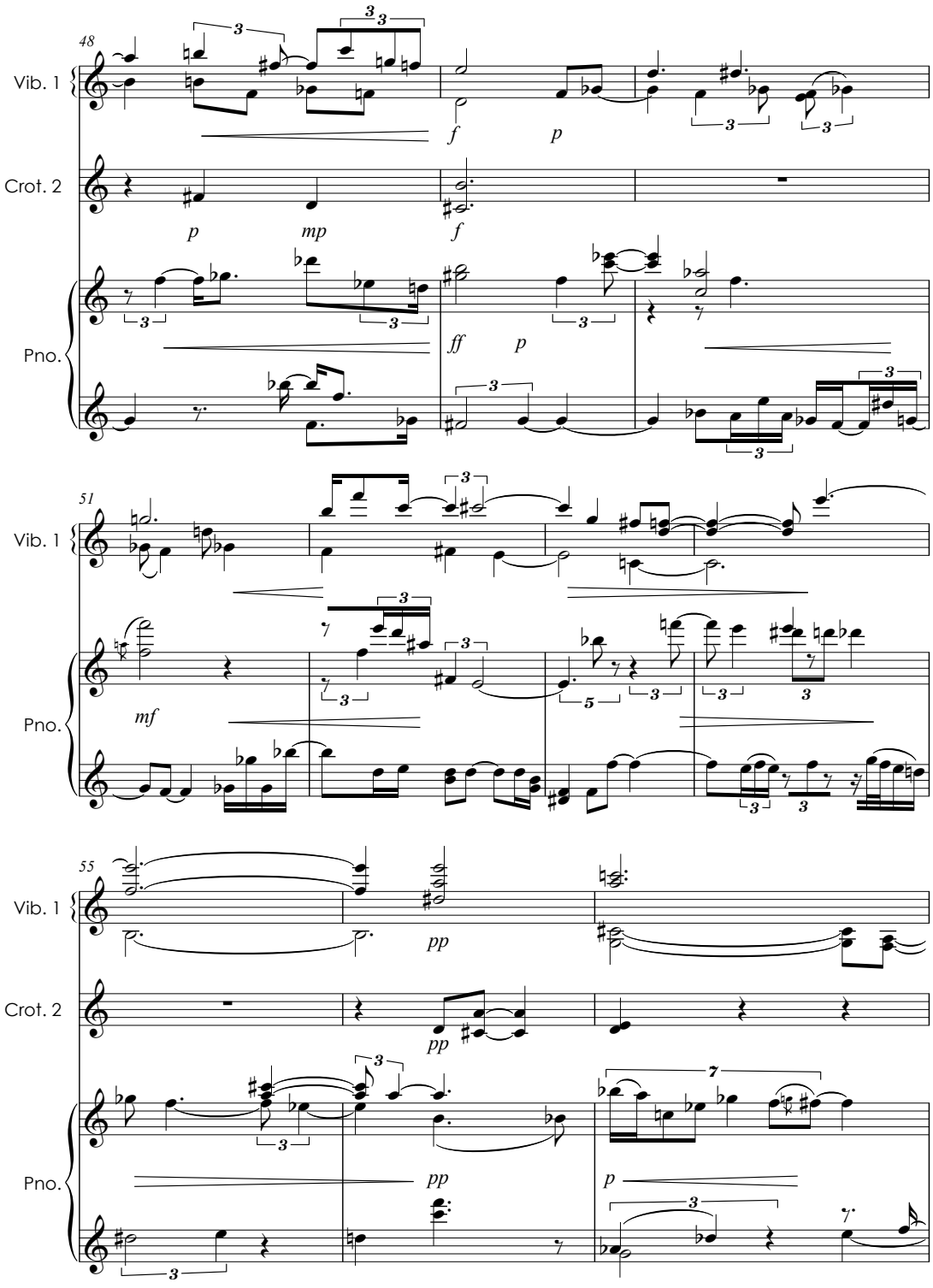
Nicholas DeMaison
2012

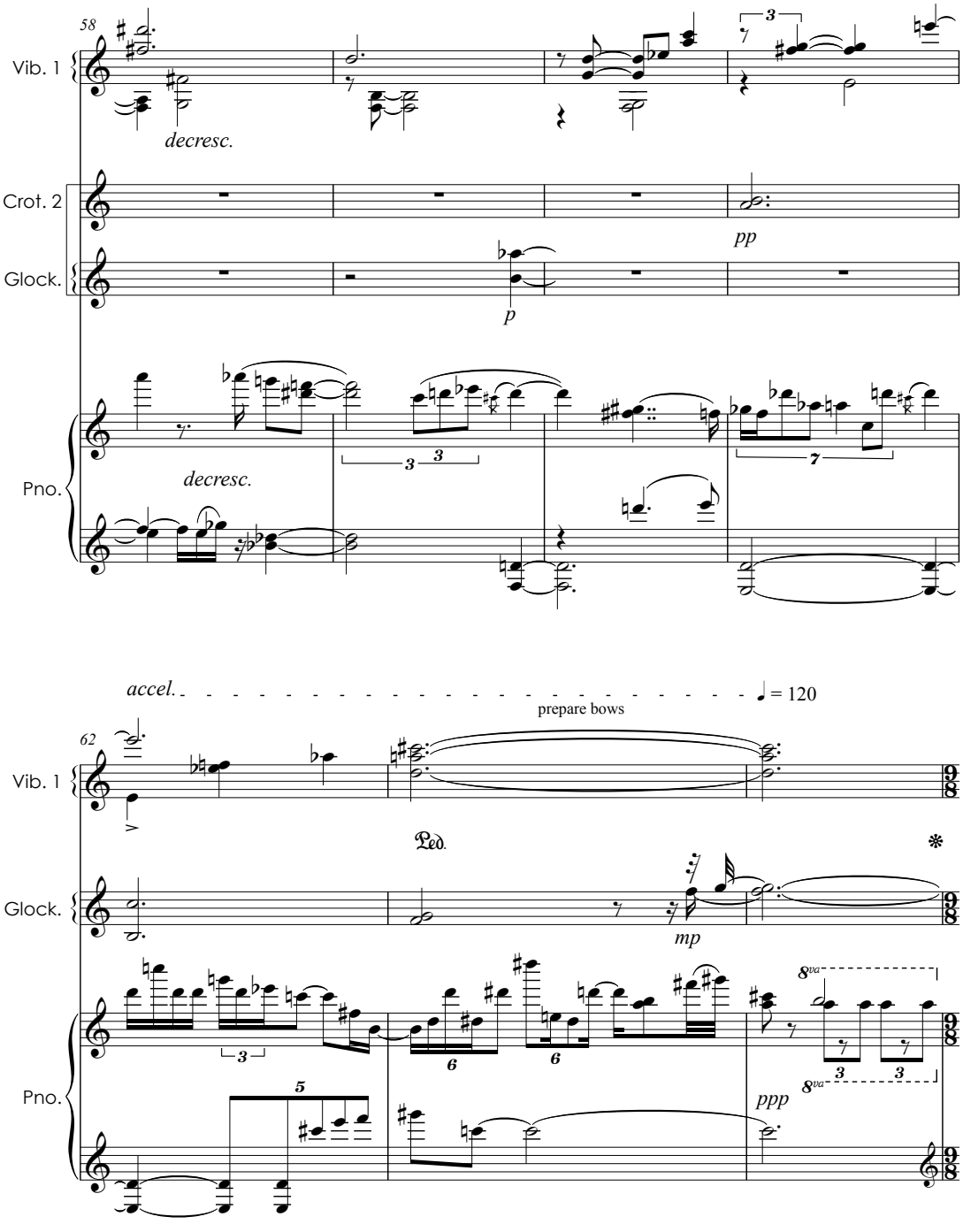


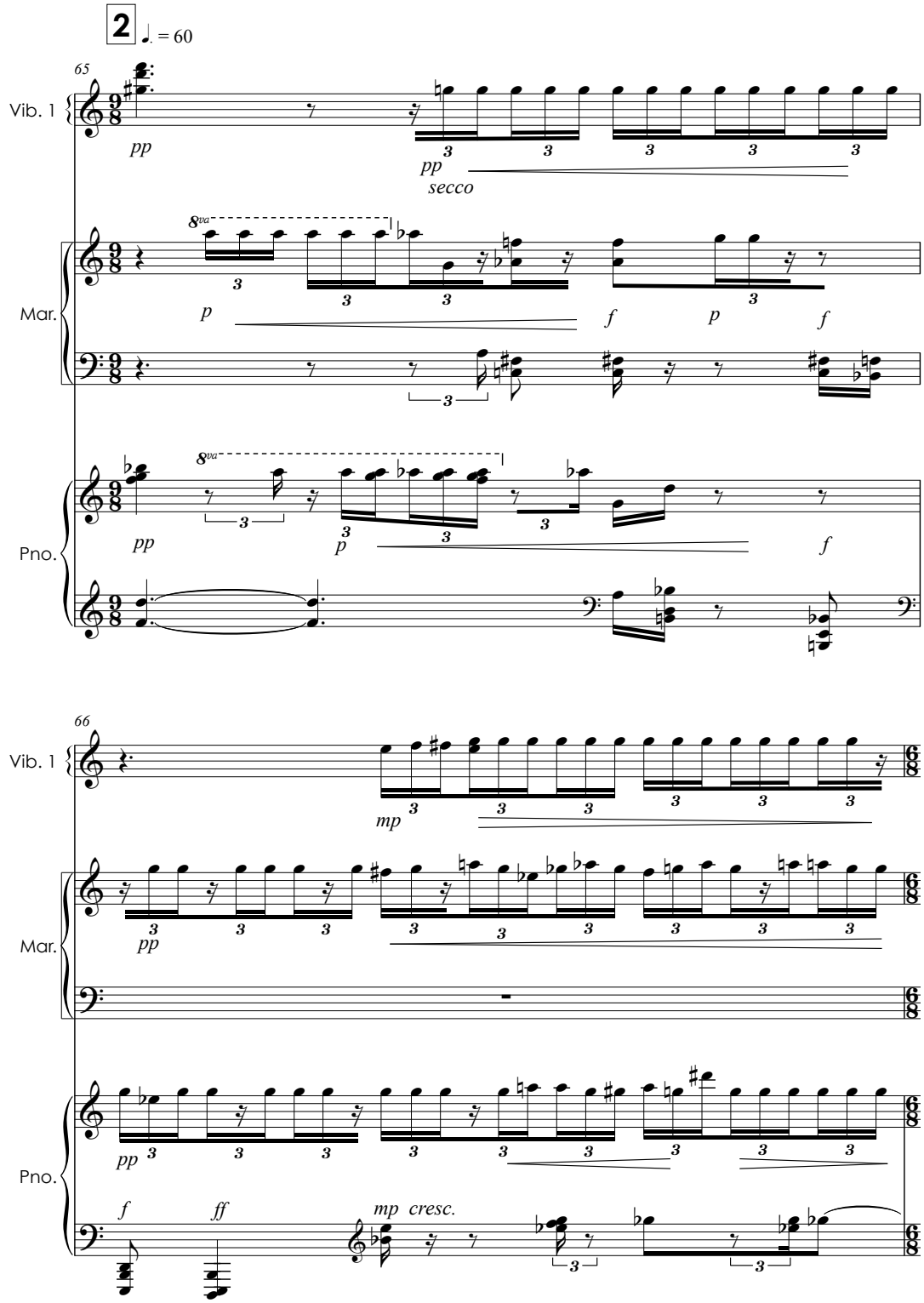

faster
♩ = 48
15
accel.
rall.
accel.
Pno.
pp
mf
19
rall.
mf
p
21
(♩ = 48)
rall.
pp
Ped.
23
a tempo (♩ = 42)
26
accel.
mp
cresc. to m.31
Ped.

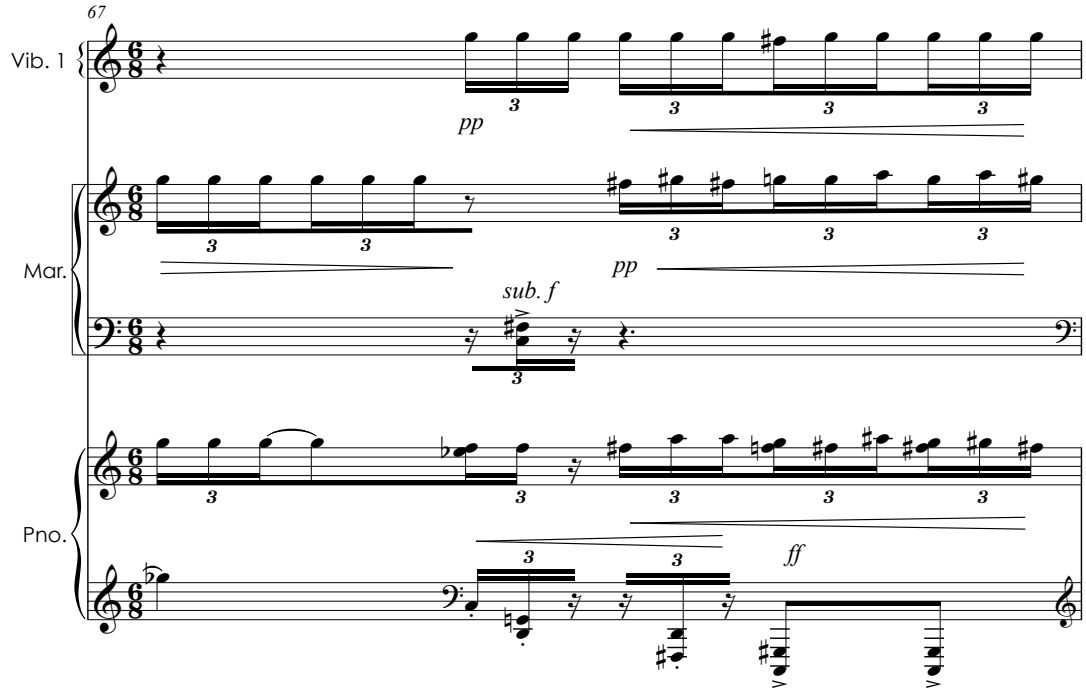

(♩ = 48)
accel.
28
Pno.
(♩ = 60)
accel.
30
Pno.
subito a tempo
1
♩ = 104
32
Vib. 1
mf
p
Ped. ad lib. (keep this section farily resonant and cloudy)
Pno.
pp
ff
8va
35
Vib. 1
mf
Pno.
8va
p
mf

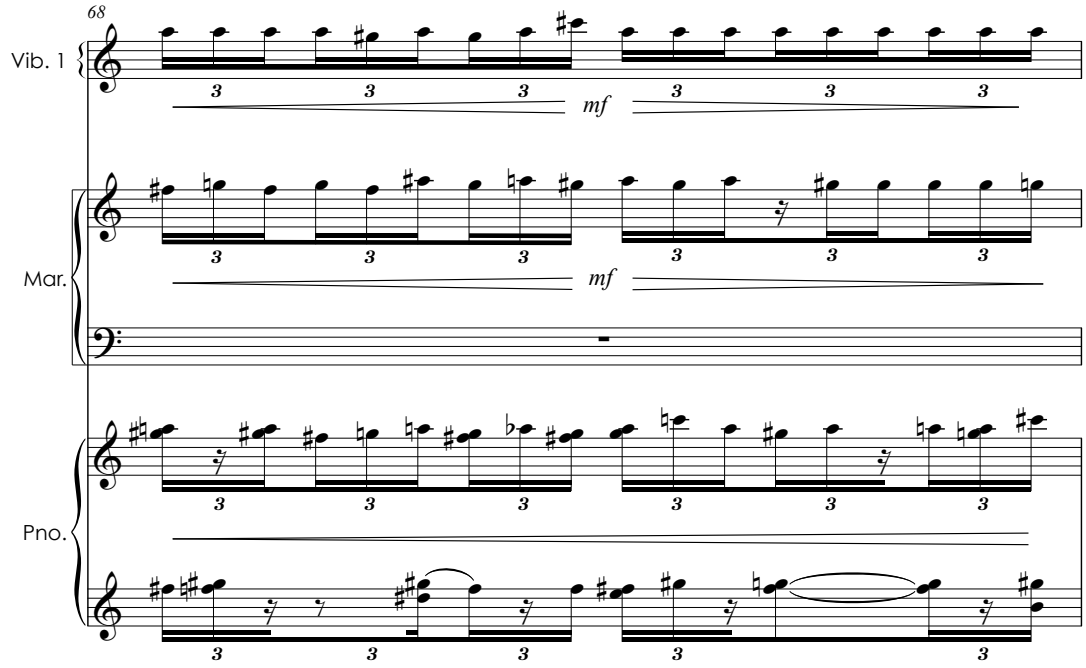

38
Vib. 1
Pno.
mp
mf
41
Vib. 1
Pno.
44
Vib. 1
pp
mallets appropriate for
crotales and glock
Crot. 2
mp
mf
p
8va
f
pp
Pno.

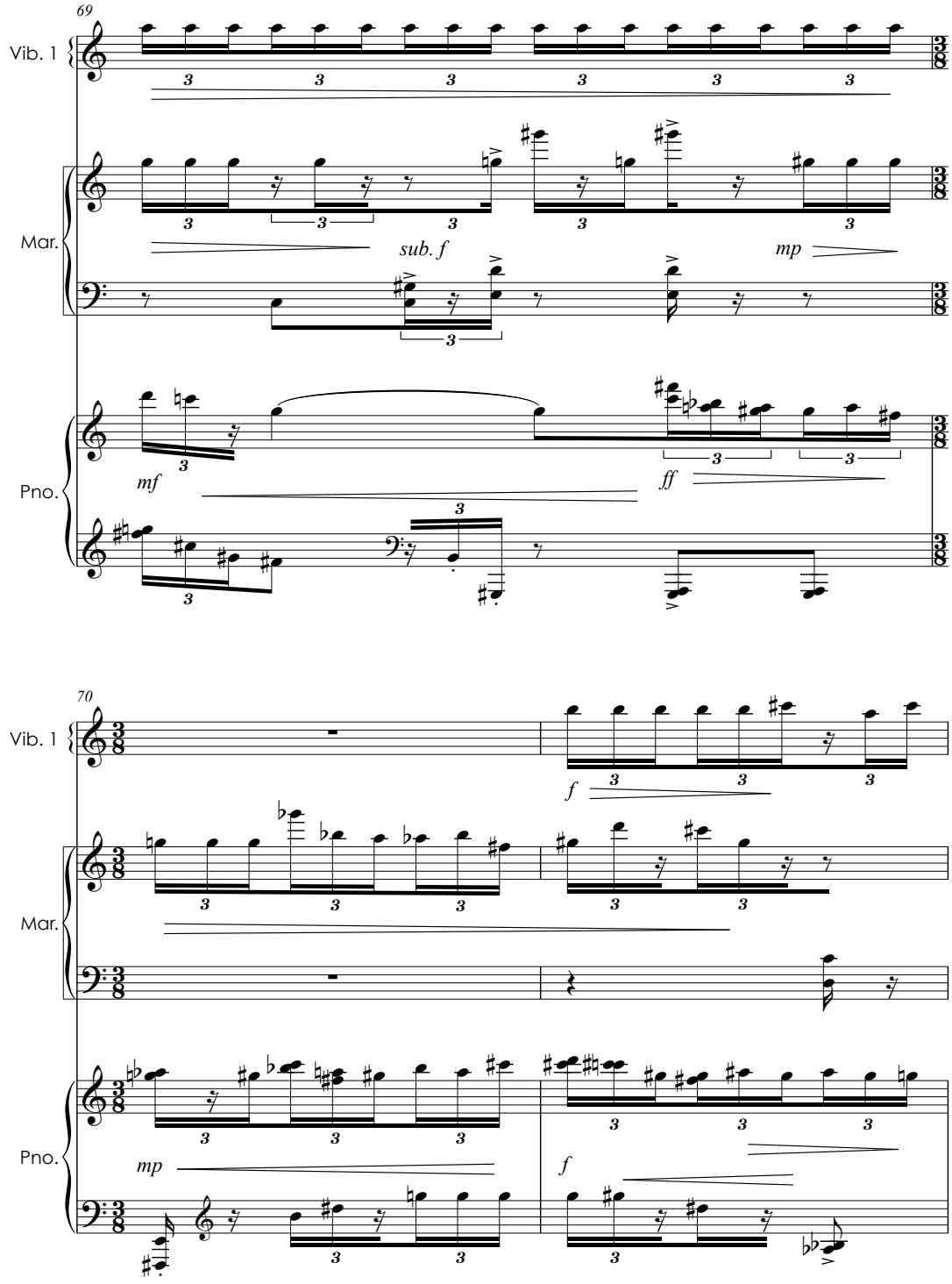

48
Vib. 1
Crot. 2
Pno.
51
Vib. 1
Pno.
55
Vib. 1
Crot. 2
Pno.

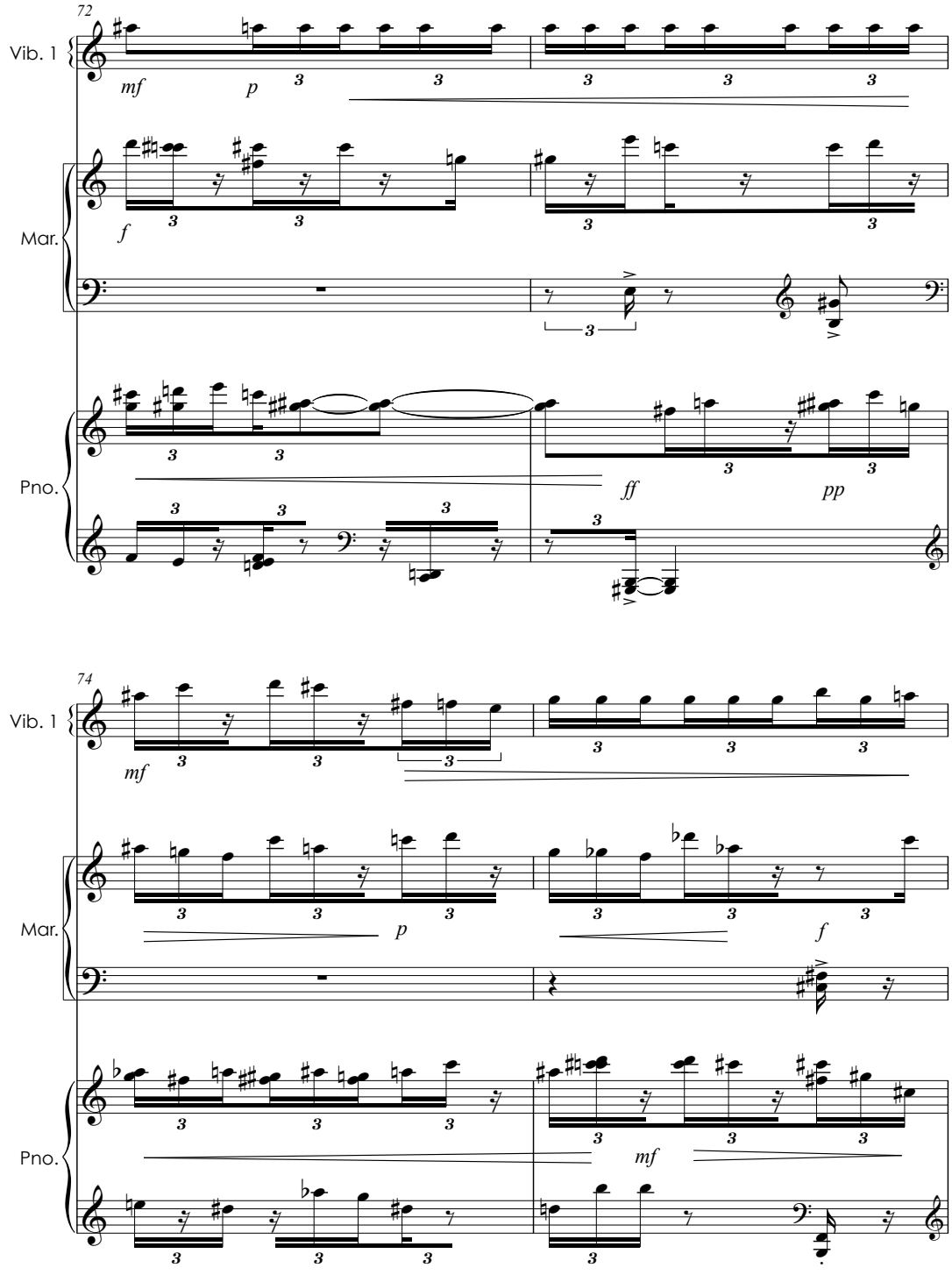

58
Vib. 1
decresc.
Crot. 2
pp
Glock.
p
Pno.
decresc.
accel.
= 120
prepare bows
62
Vib. 1
Ped.
*
Glock.
mp
Pno.
8va
ppp

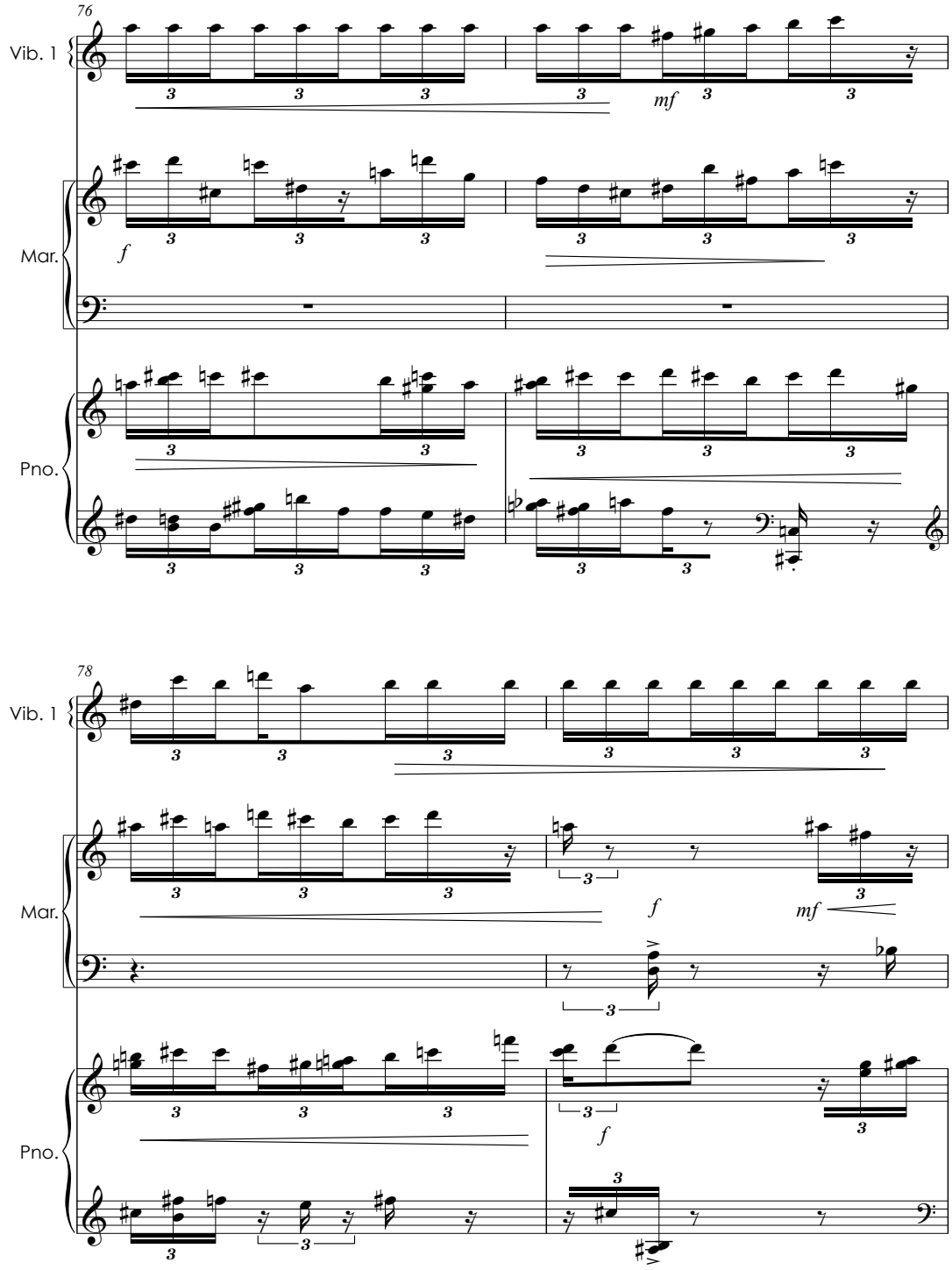

2
♩. = 60
65
Vib. 1
pp
pp
secco
8va
Mar.
p
f
p
f
Pno.
pp
8va
p
f
66
Vib. 1
mp
Mar.
pp
Pno.
pp
f
ff
mp cresc.

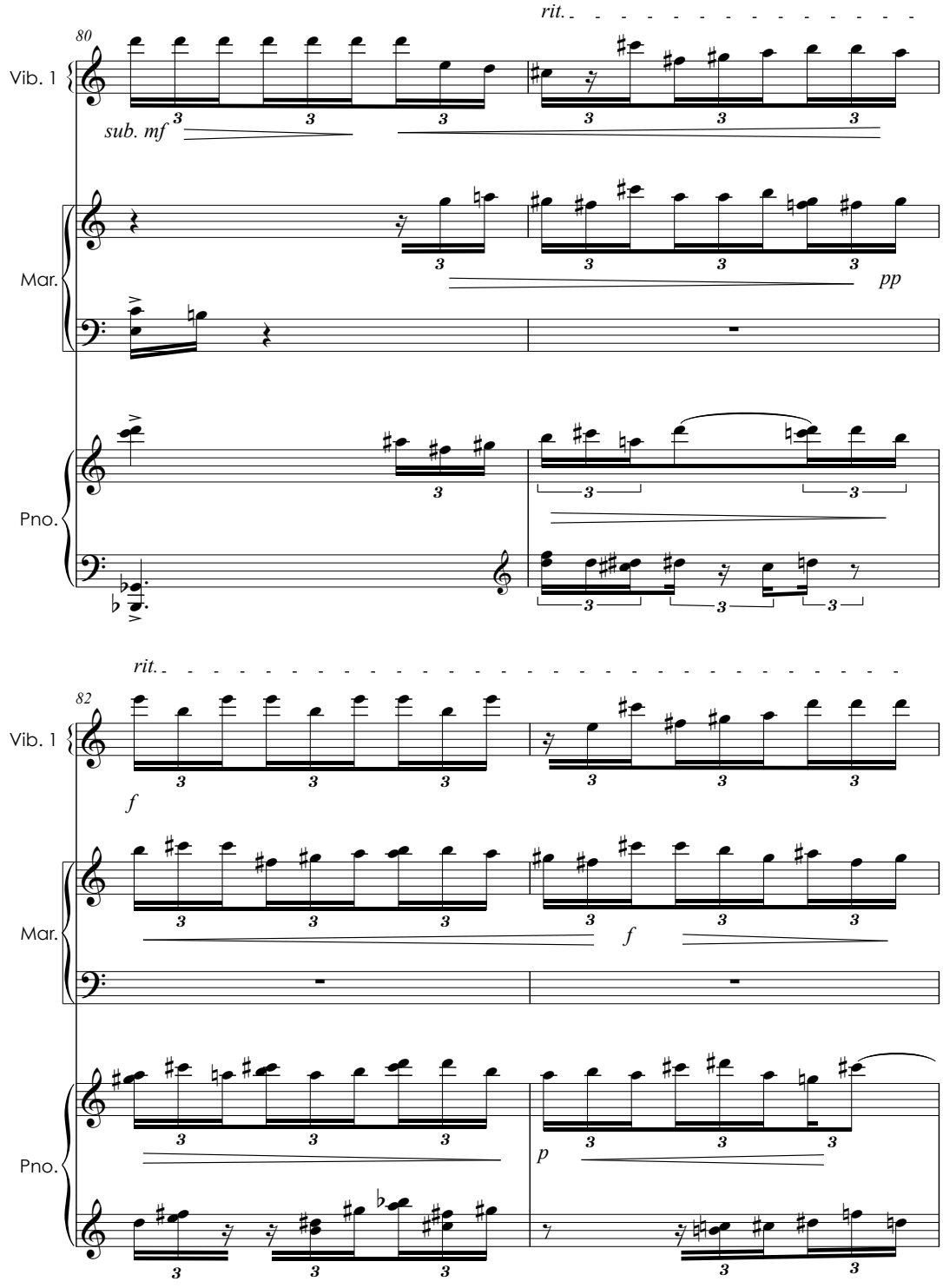

67
Vib. 1
pp
Mar.
pp
sub. f
Pno.
ff

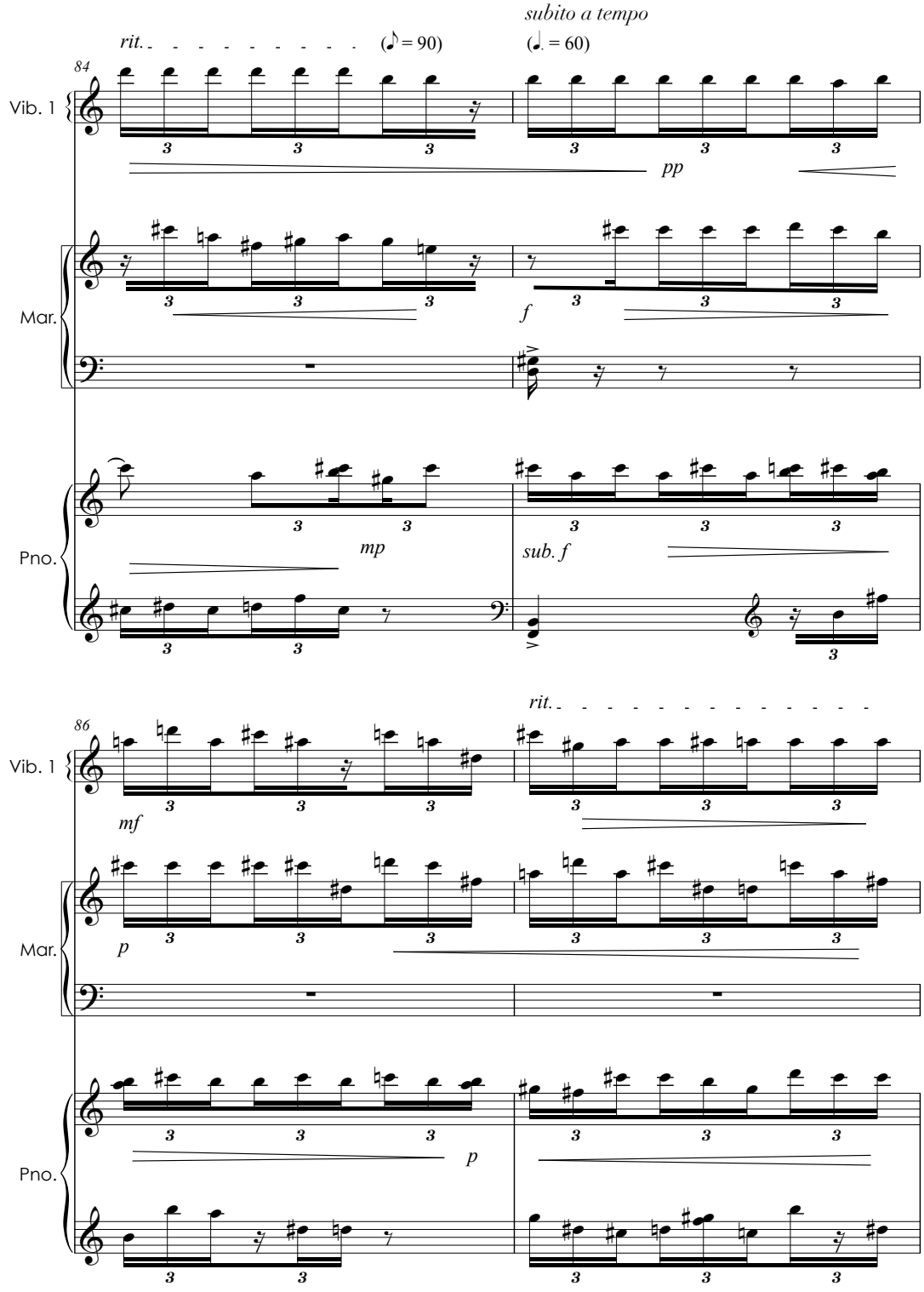

68
Vib. 1
mf
Mar.
mf
Pno.

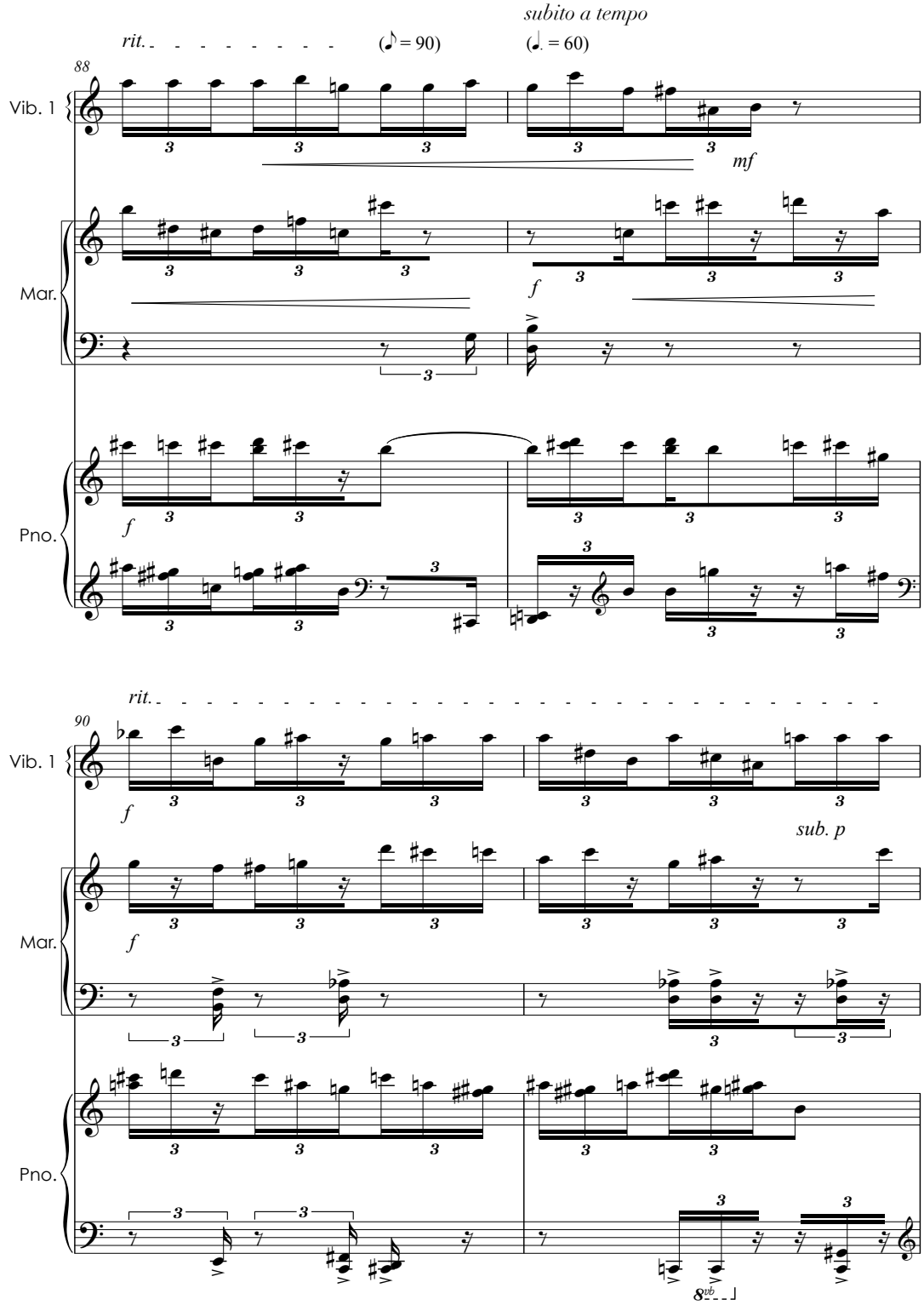

69
Vib. 1
Mar.
sub. f
mp
Pno.
mf
ff
70
Vib. 1
f
Mar.
Pno.
mp
f

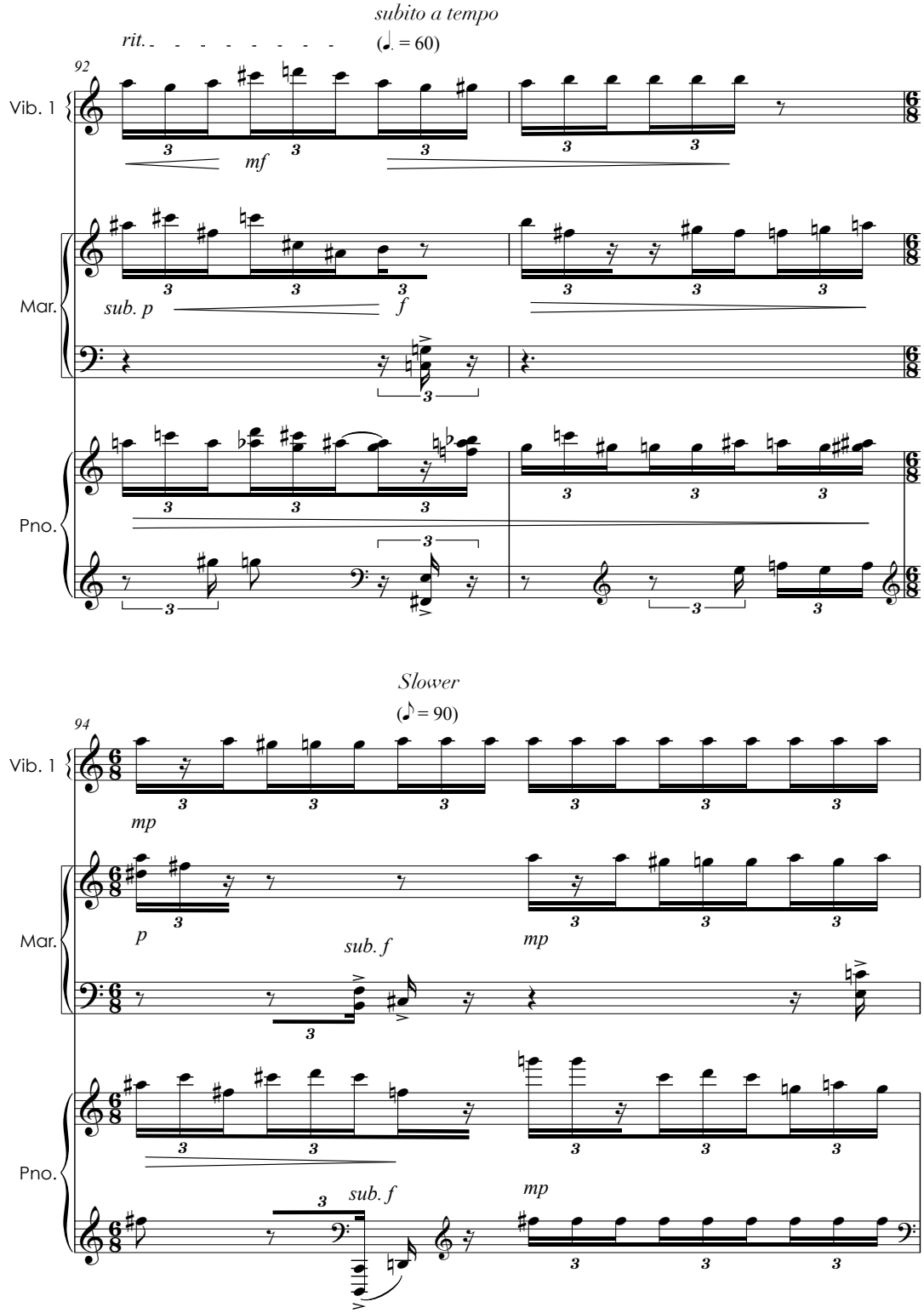

72
Vib. 1
mf
p
Mar.
f
Pno.
ff
pp
74
Vib. 1
mf
Mar.
p
f
Pno.
mf

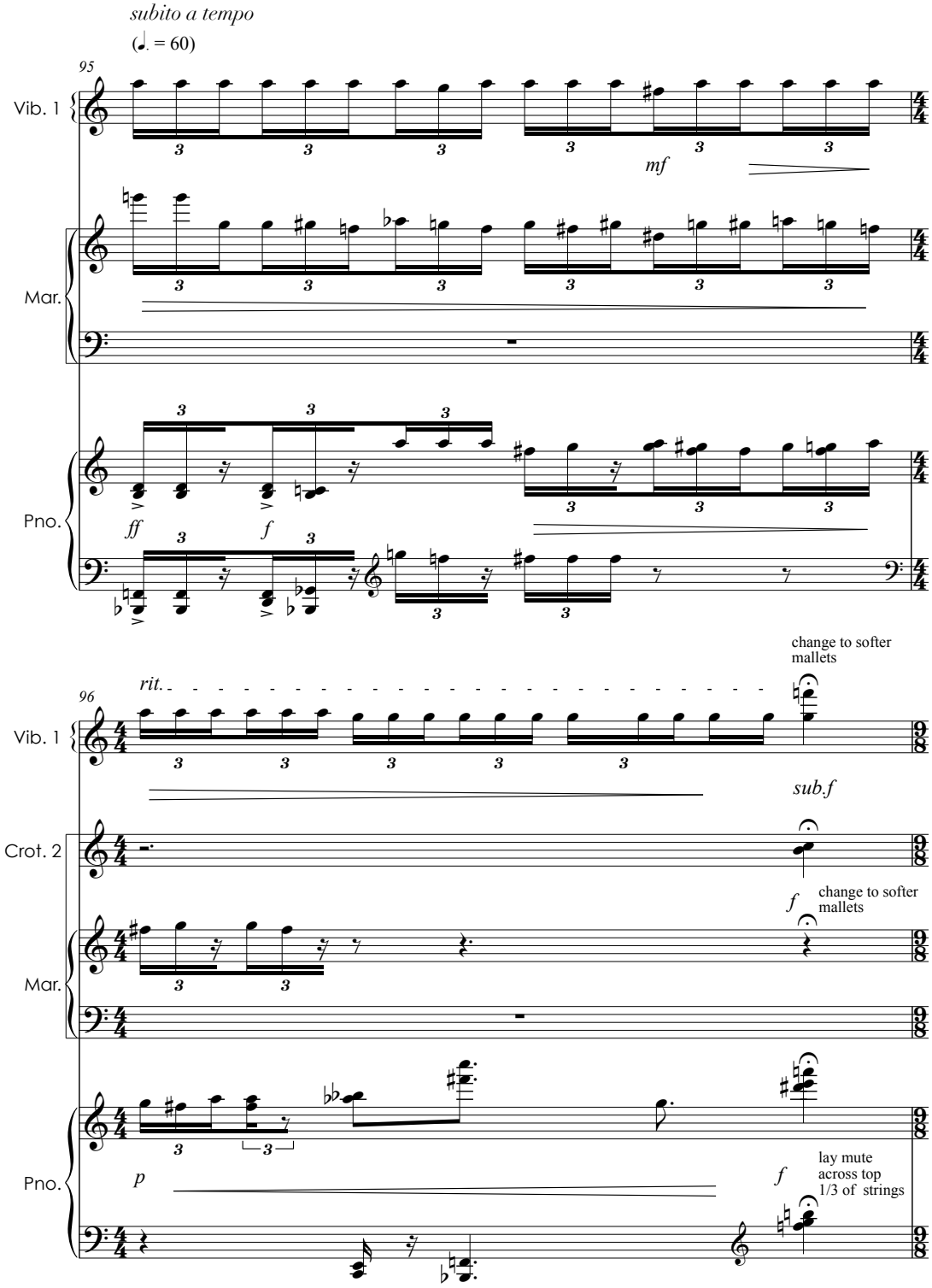

76
Vib. 1
Mar.
Pno.
f
mf
78
Vib. 1
Mar.
Pno.
f
mf
f

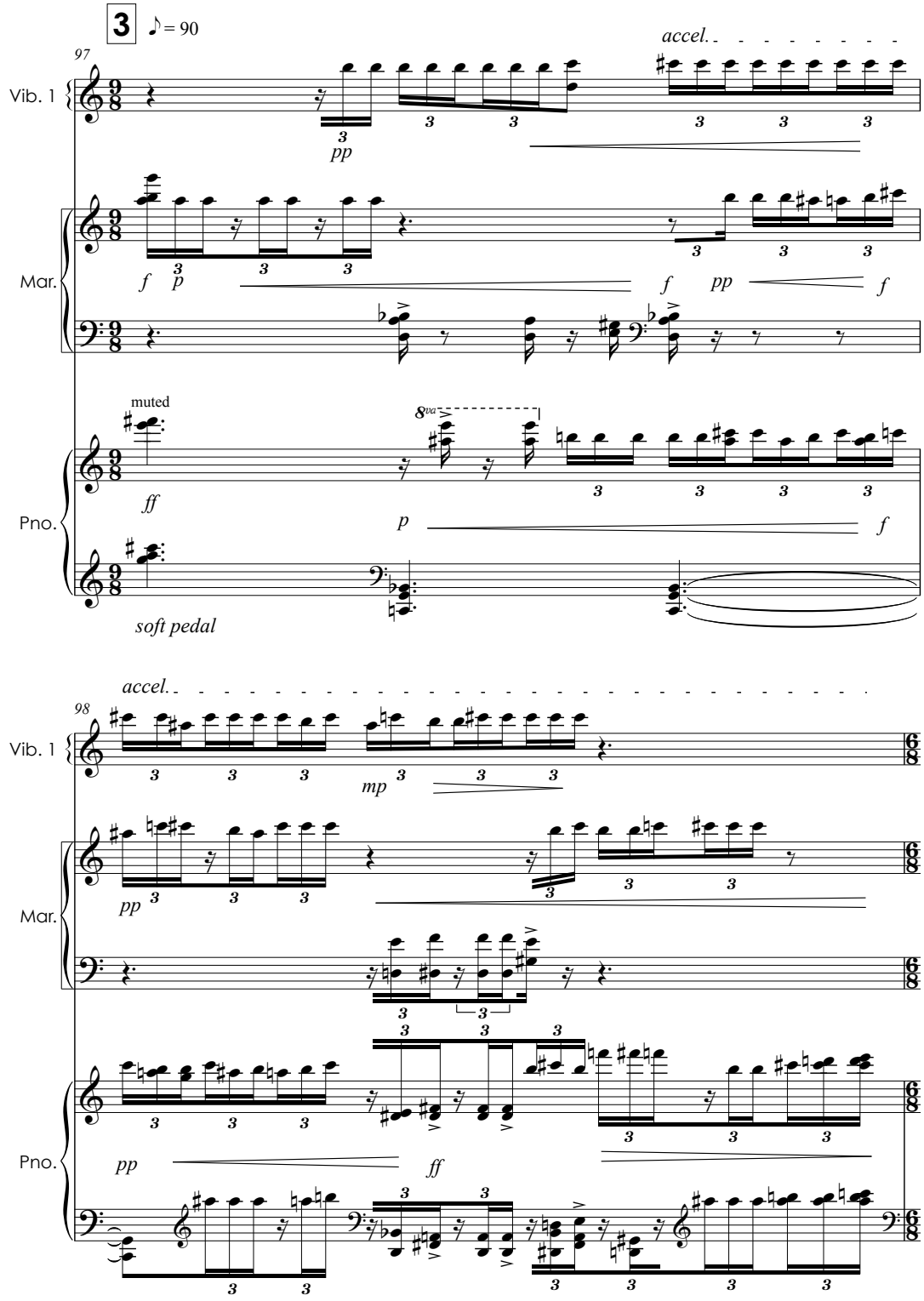

80
rit.
Vib. 1
sub. mf
Mar.
pp
Pno.
rit.
82
Vib. 1
f
Mar.
f
Pno.
p

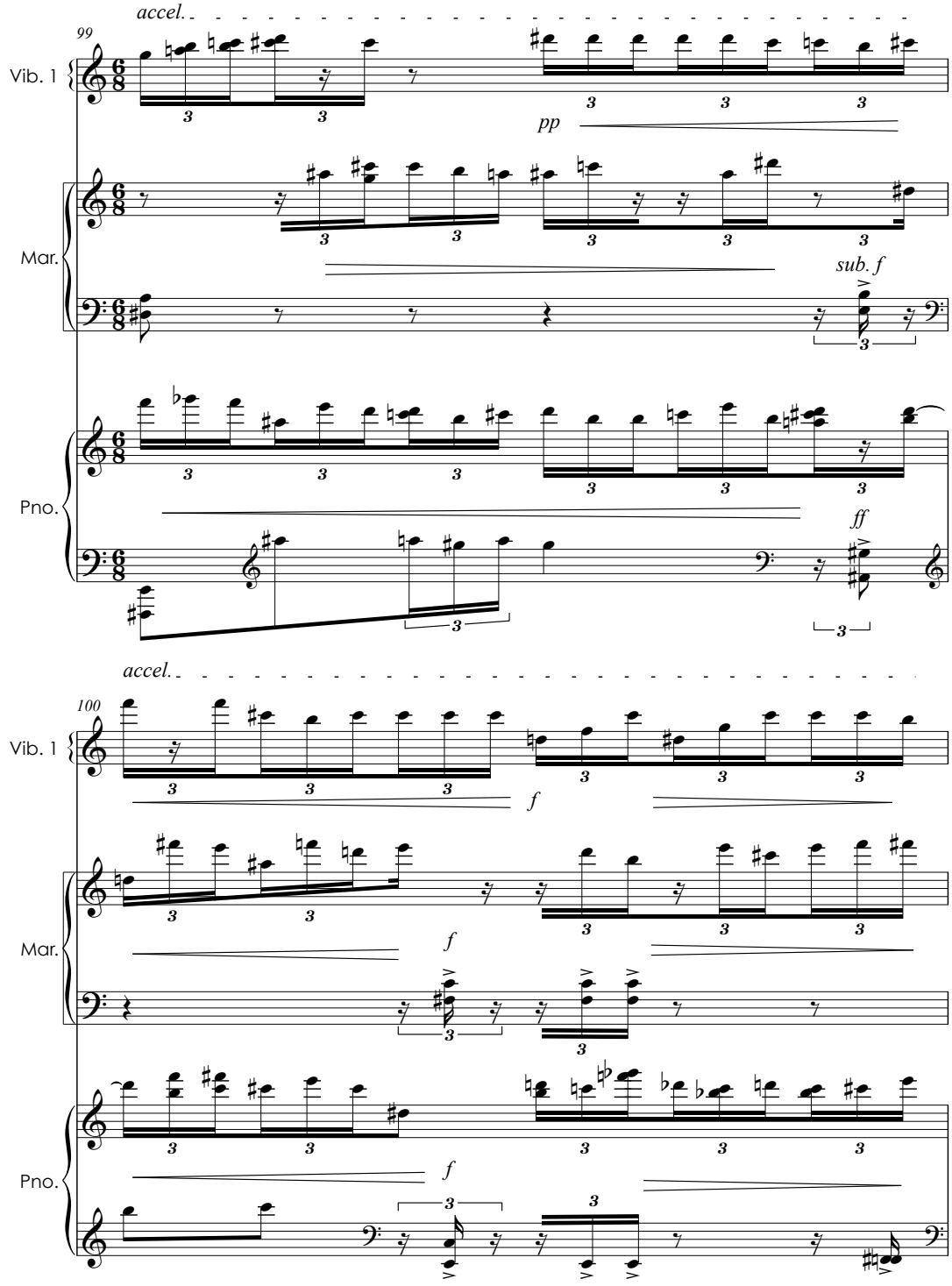

rit.
(♪ = 90)
subito a tempo
(♩. = 60)
84
Vib. 1
pp
Mar.
f
Pno.
mp
sub. f
rit.
86
Vib. 1
mf
Mar.
p
Pno.
p

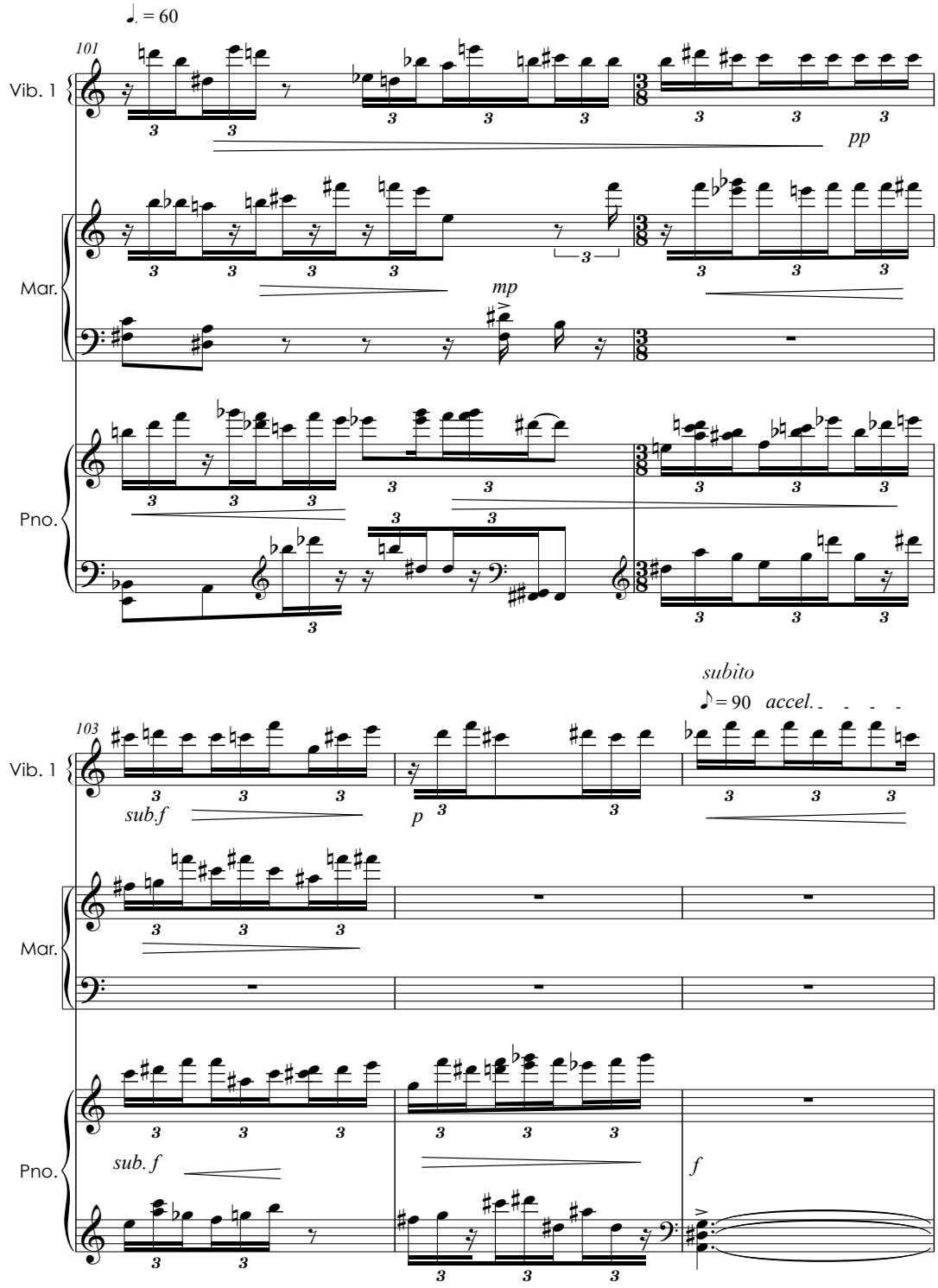

rit.
(♪ = 90)
subito a tempo
(♩. = 60)
88
Vib. 1
mf
Mar.
f
Pno.
f
rit.
90
Vib. 1
f
sub. p
Mar.
f
Pno.
8vb

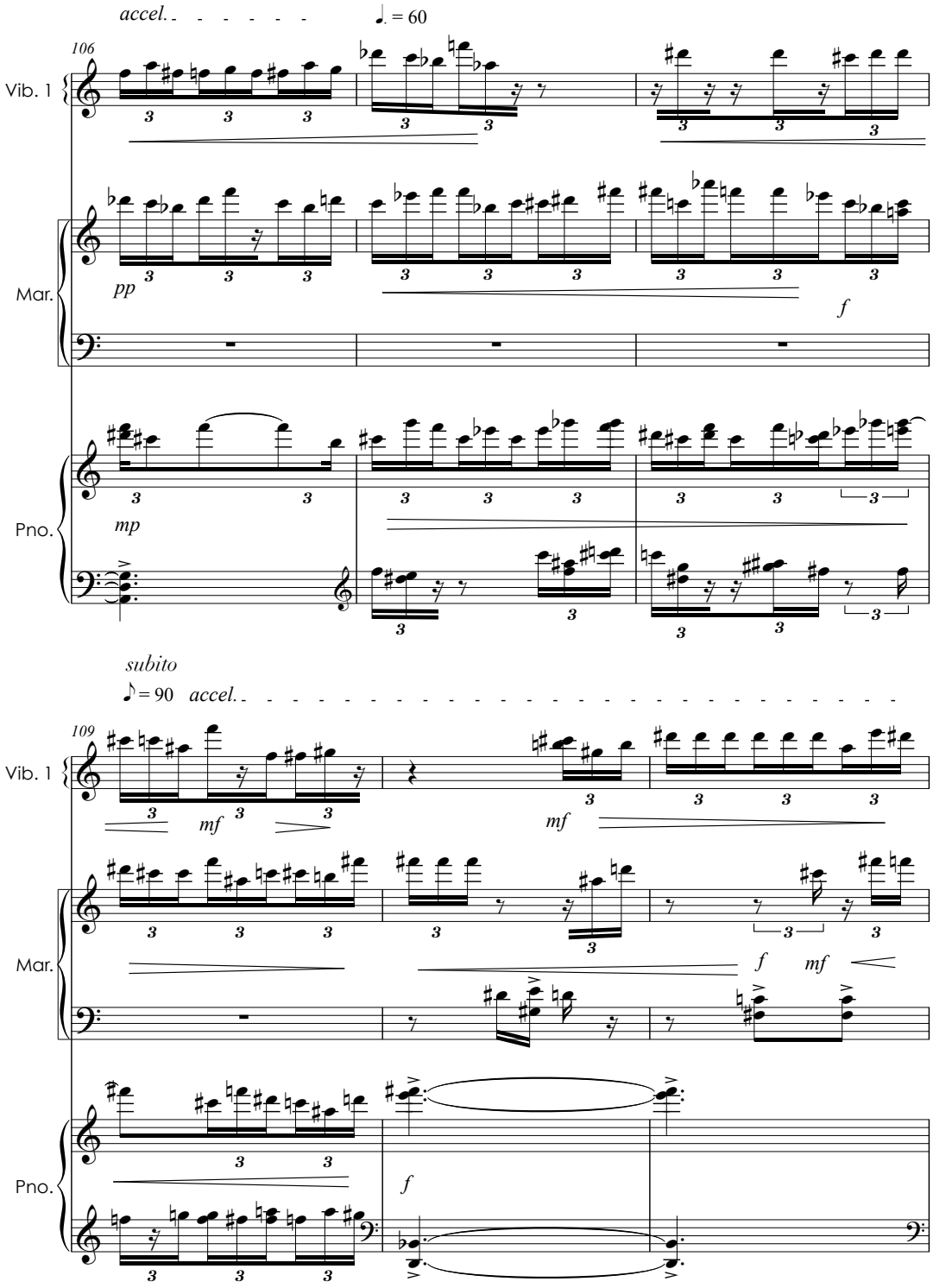

subito a tempo
rit.
(♩. = 60)
92
Vib. 1
mf
Mar.
sub. p
f
Pno.
Slower
(♪ = 90)
94
Vib. 1
mp
Mar.
p
sub. f
mp
Pno.
sub. f
mp

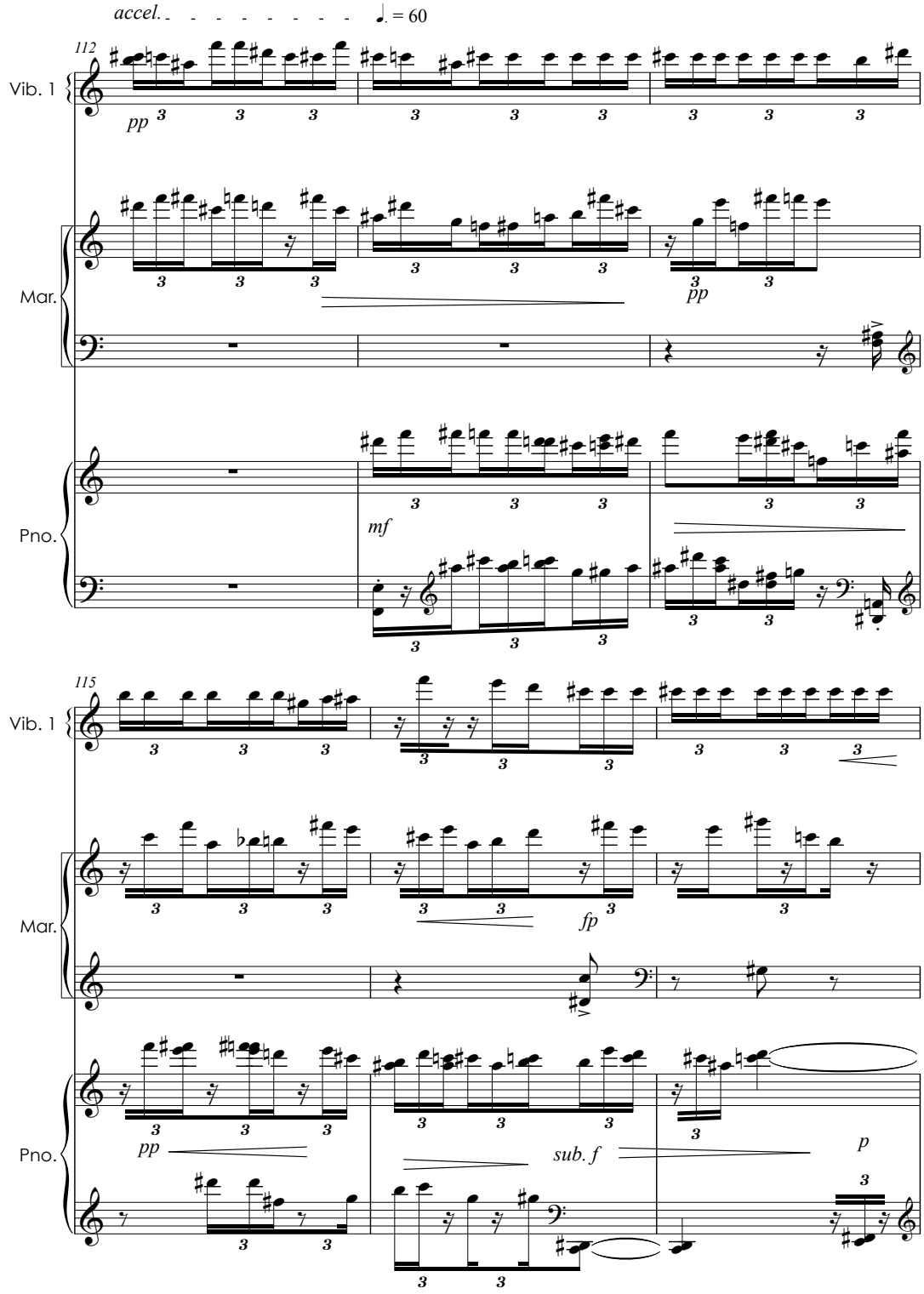

subito a tempo
(♩. = 60)
95
Vib. 1
mf
Mar.
Pno.
ff
f
96
rit.
change to softer mallets
Vib. 1
sub.f
Crot. 2
f
change to softer mallets
Mar.
Pno.
p
f
lay mute across top 1/3 of strings

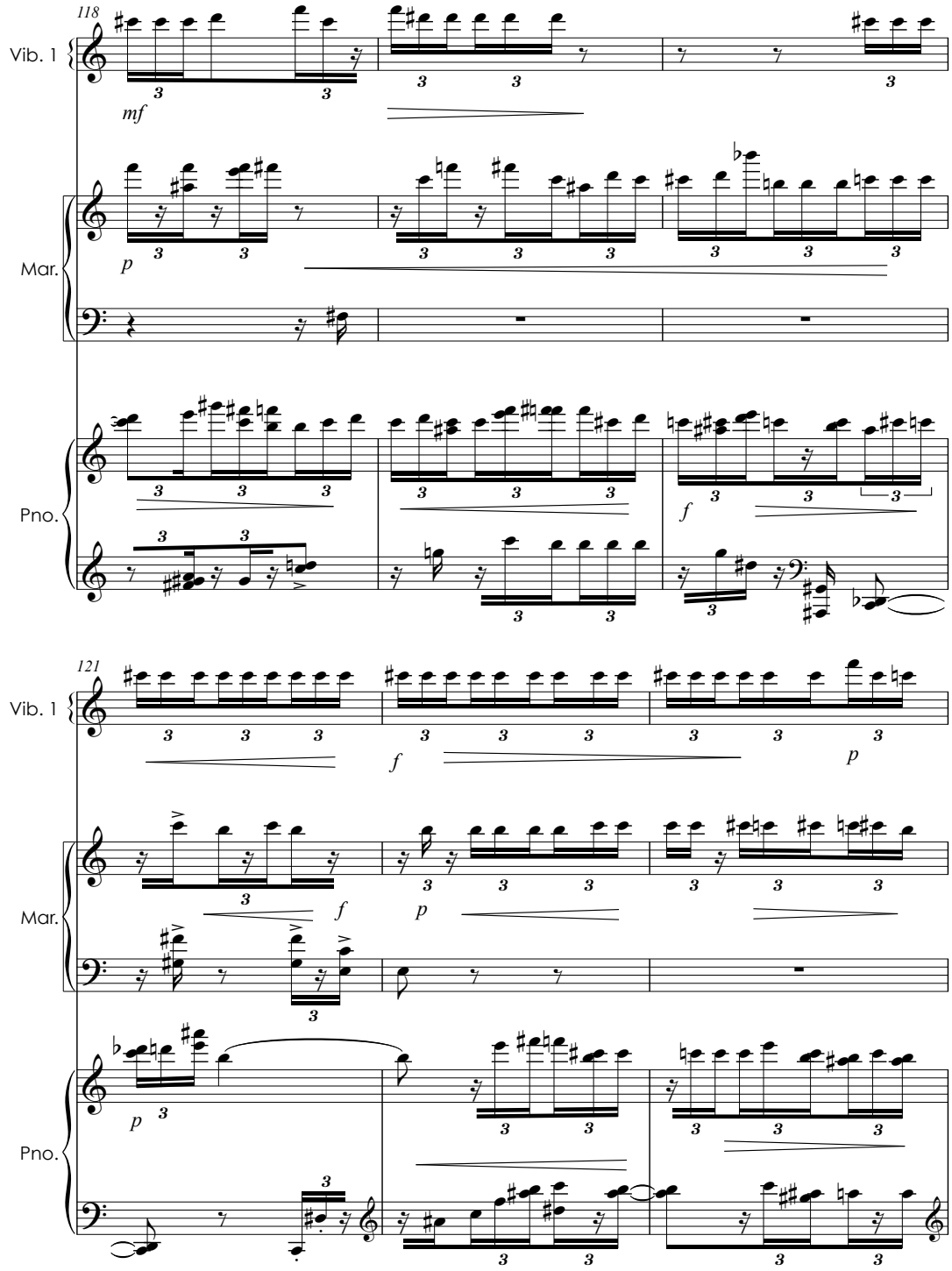

3
♪ = 90
97
Vib. 1
accel.
pp
Mar.
f
p
f
pp
f
muted
8va
ff
p
f
Pno.
soft pedal
accel.
98
Vib. 1
mp
Mar.
pp
Pno.
pp
ff

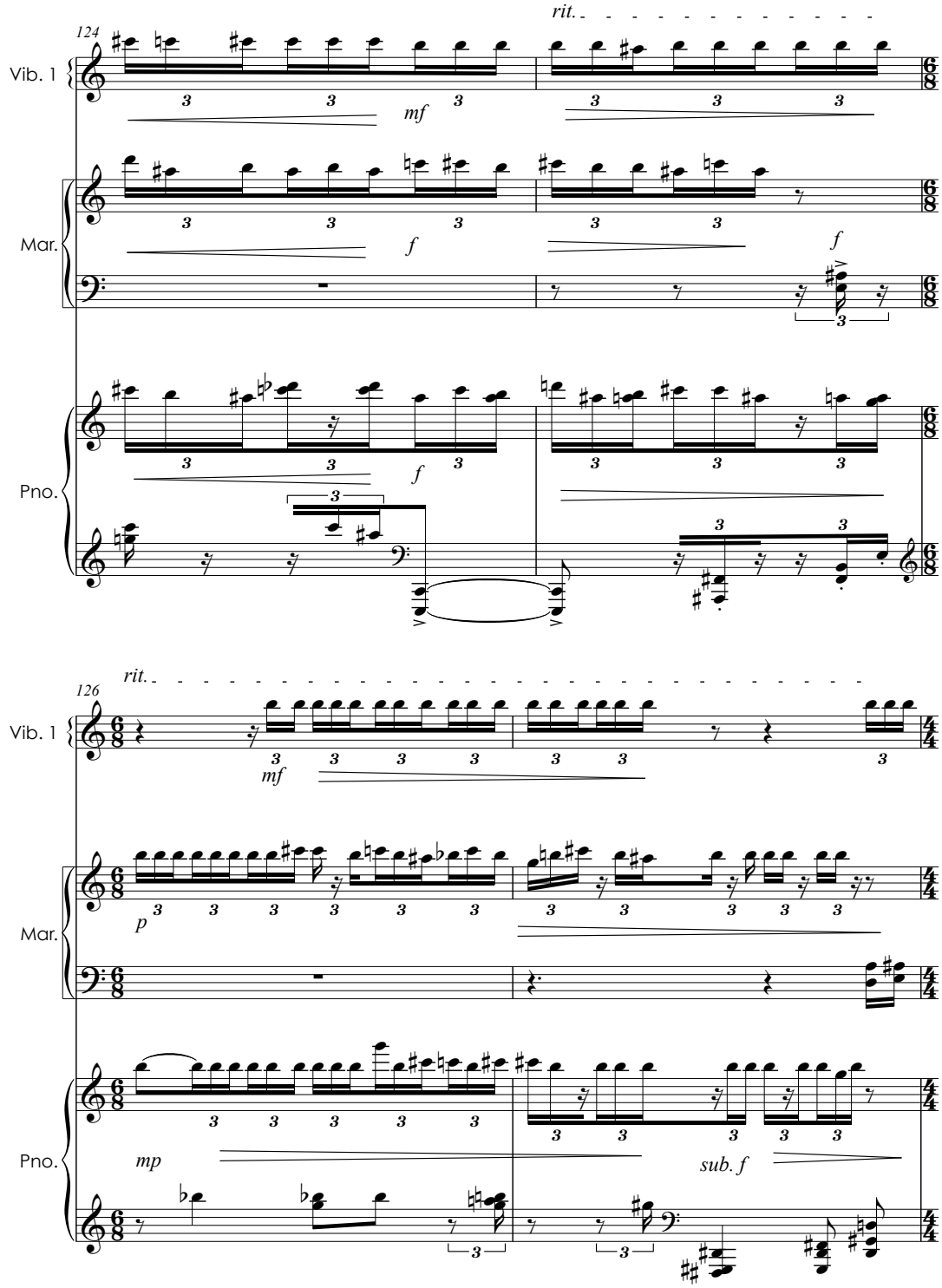

accel.
99
Vib. 1
pp
Mar.
sub. f
Pno.
ff
accel.
100
Vib. 1
f
Mar.
f
Pno.
f

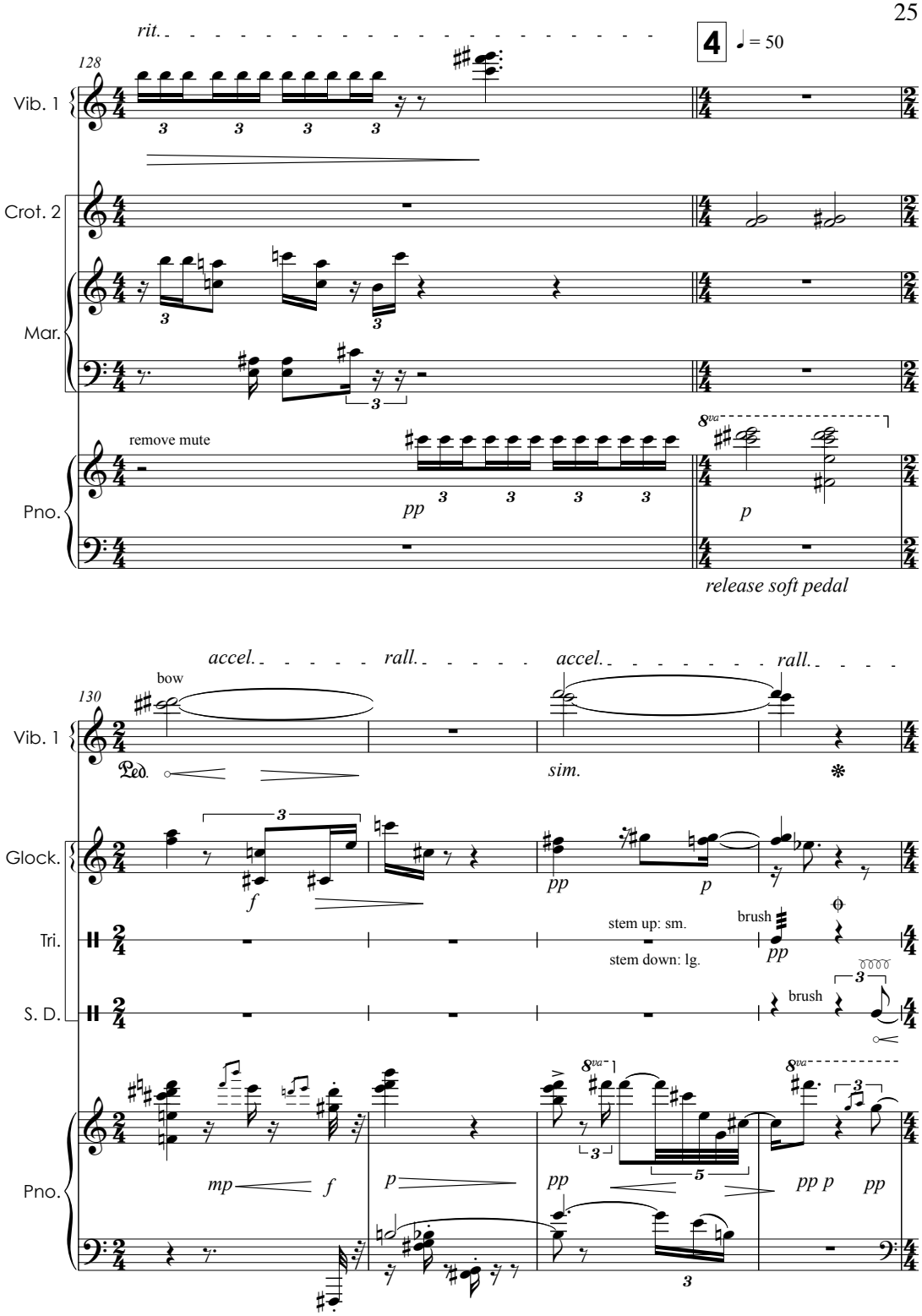

♩. = 60
101
Vib. 1
pp
Mar.
mp
Pno.
subito
♪ = 90 accel.
103
Vib. 1
sub.f
p
Mar.
Pno.
sub. f
f

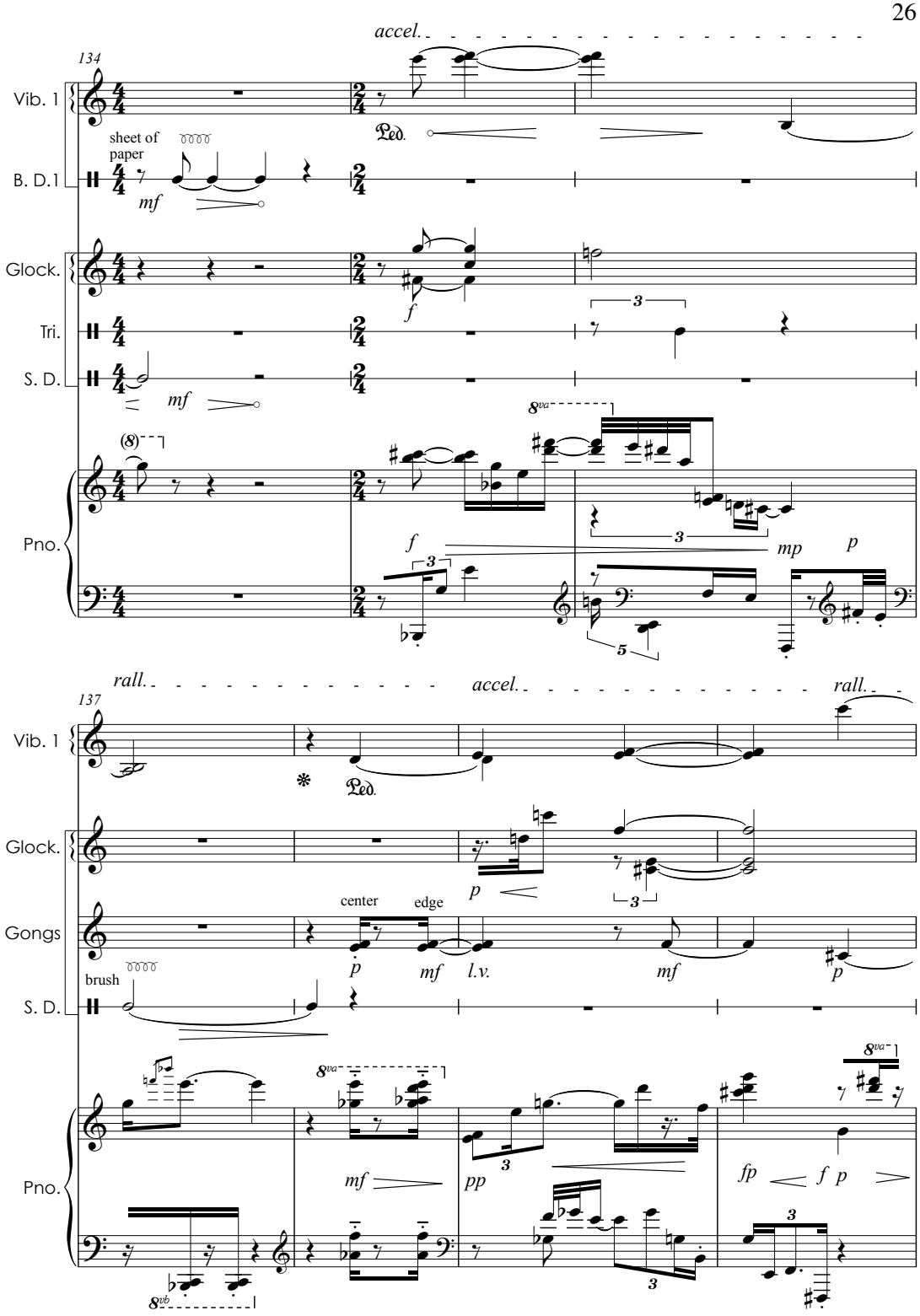

accel.
♩. = 60
106
Vib. 1
Mar.
pp
f
Pno.
mp
subito
♪ = 90 accel.
109
Vib. 1
mf
mf
Mar.
f
mf
Pno.
f

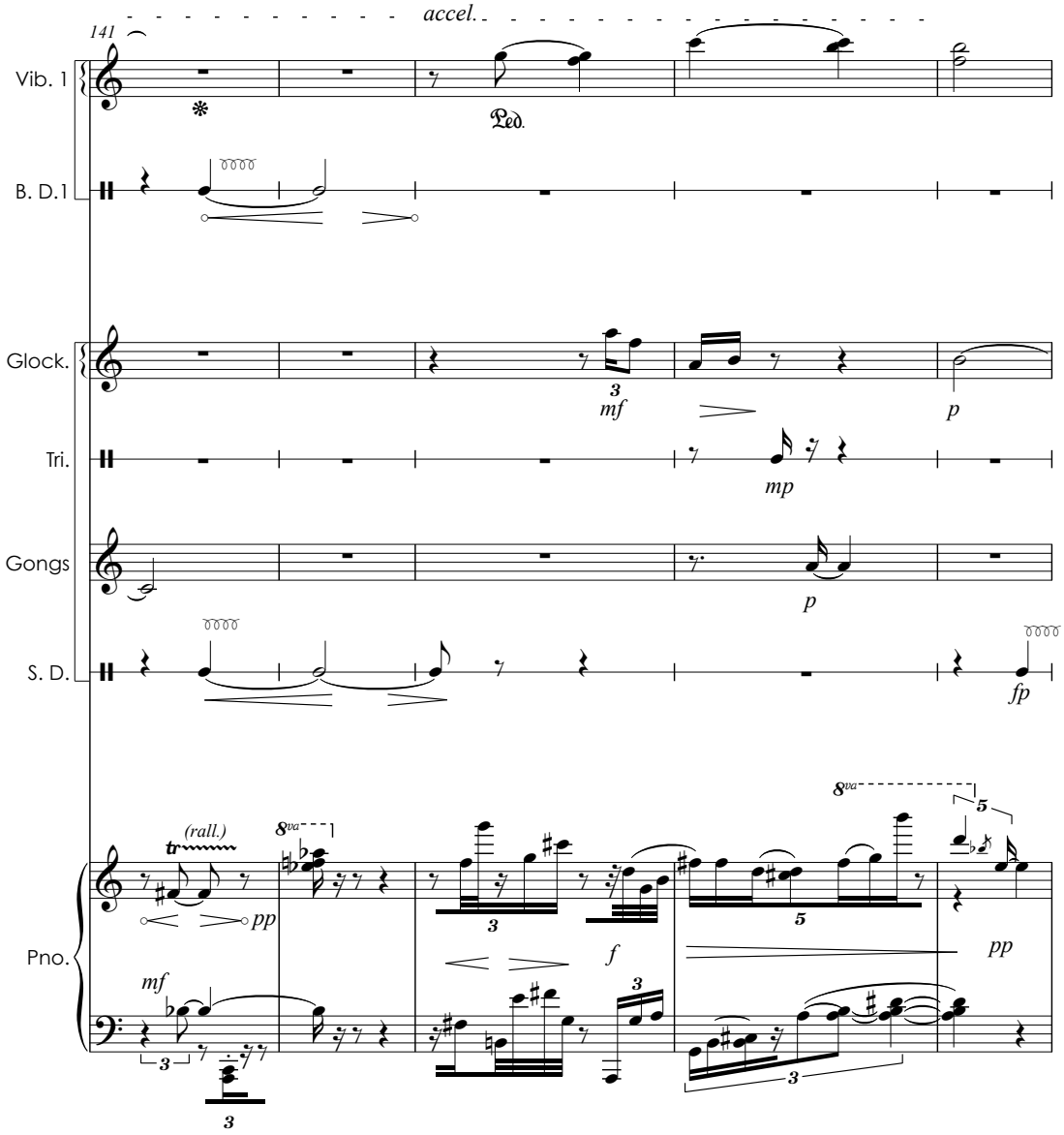

accel.
♩. = 60
112
Vib. 1
pp
Mar.
pp
Pno.
mf
115
Vib. 1
Mar.
fp
Pno.
pp
sub. f
p

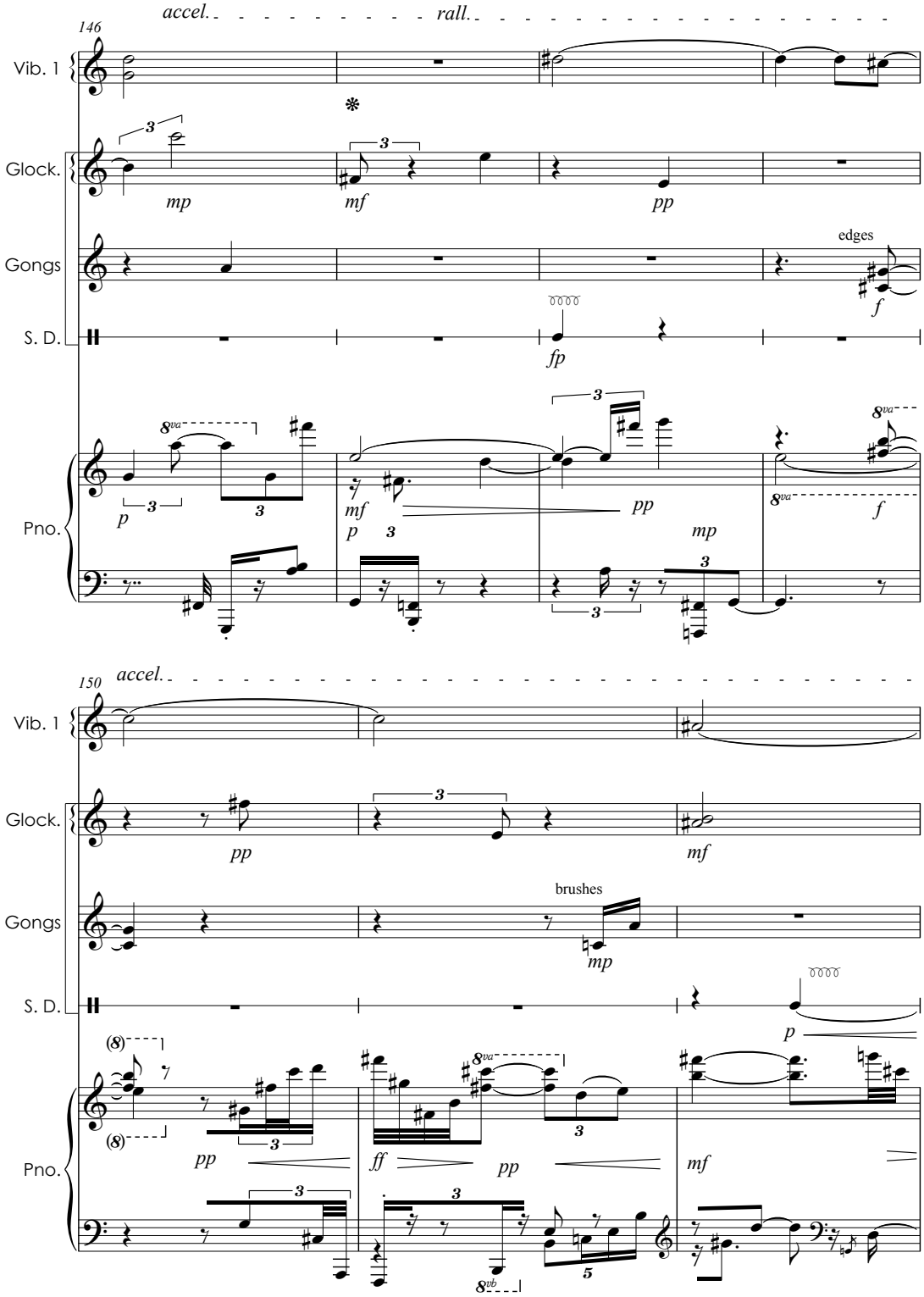

118
Vib. 1
mf
Mar.
p
Pno.
f
121
Vib. 1
f
p
Mar.
f
p
Pno.
p

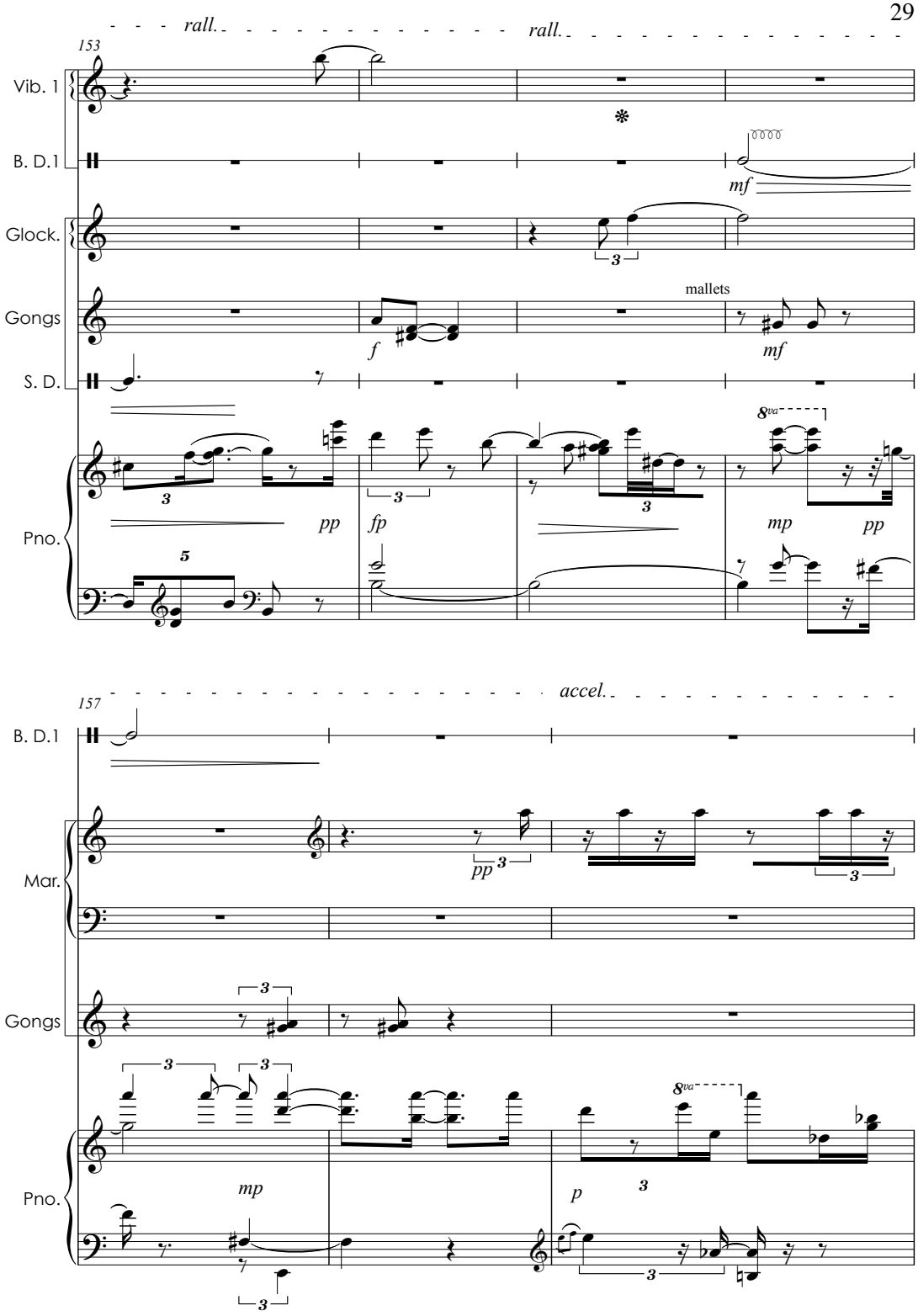

124
rit.
Vib. 1
mf
Mar.
f
f
Pno.
f
126
rit.
Vib. 1
mf
Mar.
p
Pno.
mp
sub. f

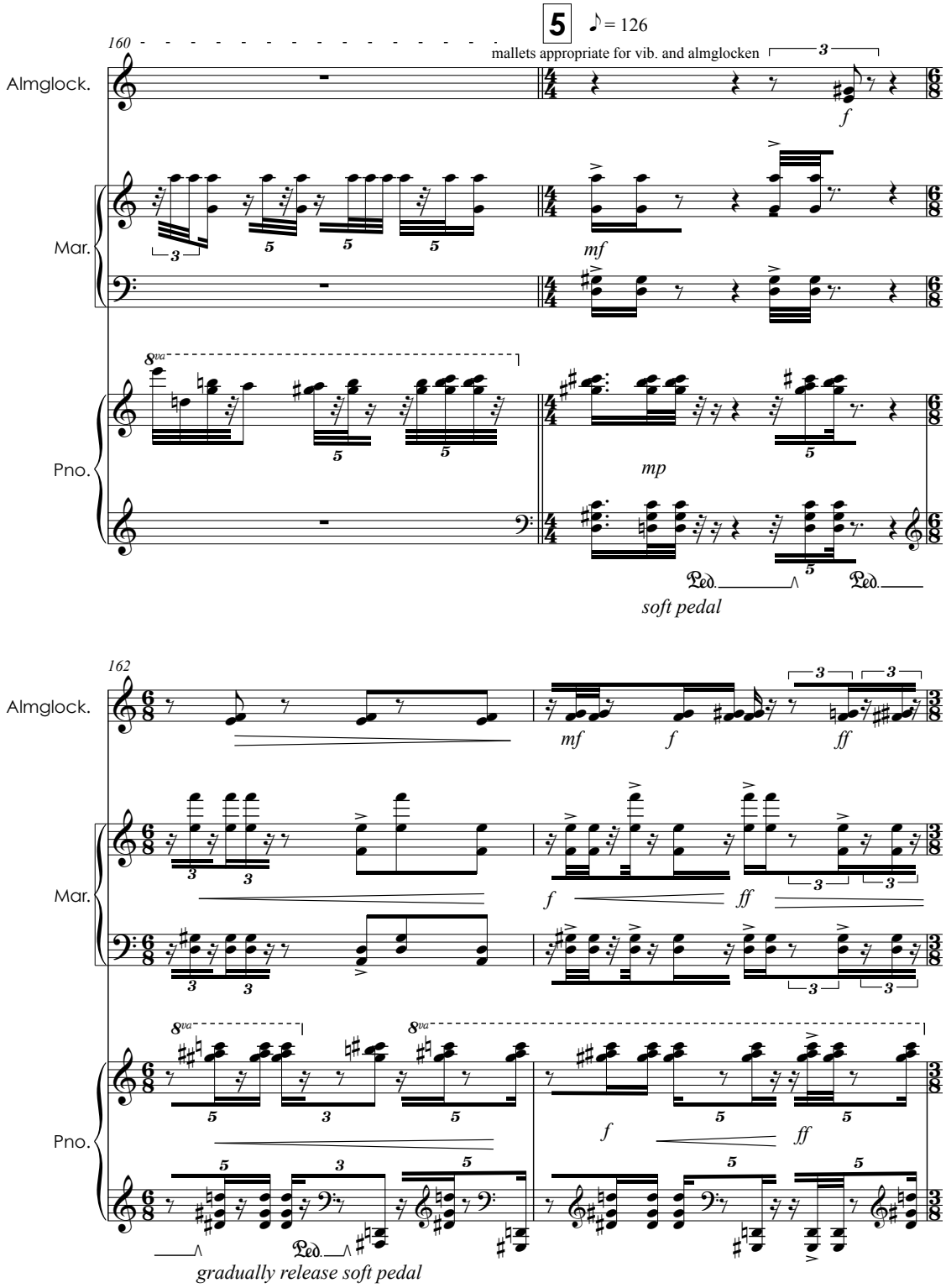

rit.
4
♩ = 50
128
Vib. 1
Crot. 2
Mar.
remove mute
Pno.
pp
p
8va
release soft pedal
accel.
rall.
accel.
rall.
bow
130
Vib. 1
Ped.
sim.
Glock.
f
pp
p
Tri.
stem up: sm.
stem down: lg.
brush
pp
S. D.
brush
Pno.
mp
f
p
pp
pp p
pp

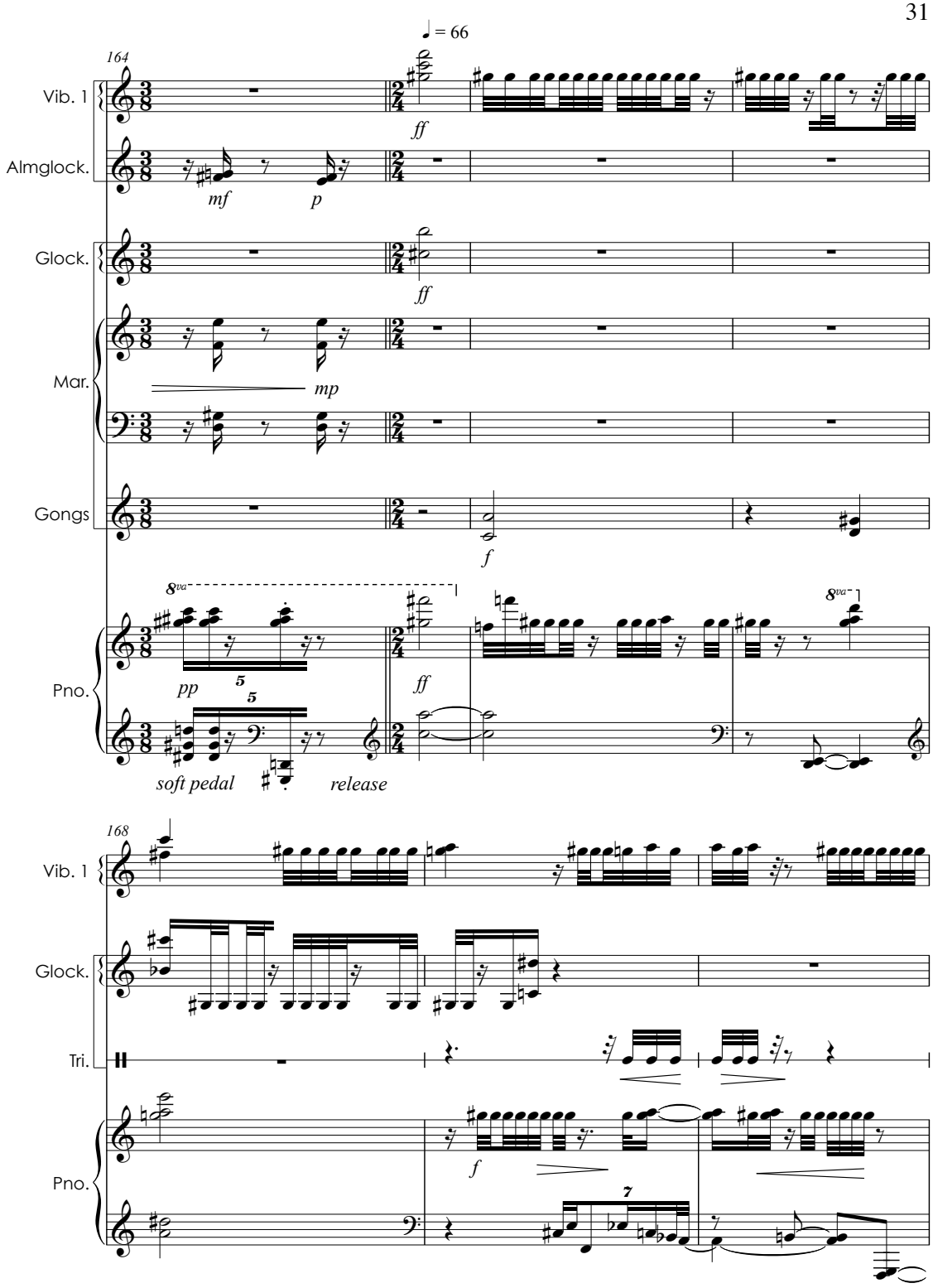

accel.
134
Vib. 1
B. D.1
Glock.
Tri.
S. D.
Pno.
sheet of paper
mf
f
mp
p
rall.
accel.
rall.
137
Gongs
center
edge
brush
l.v.
pp
fp

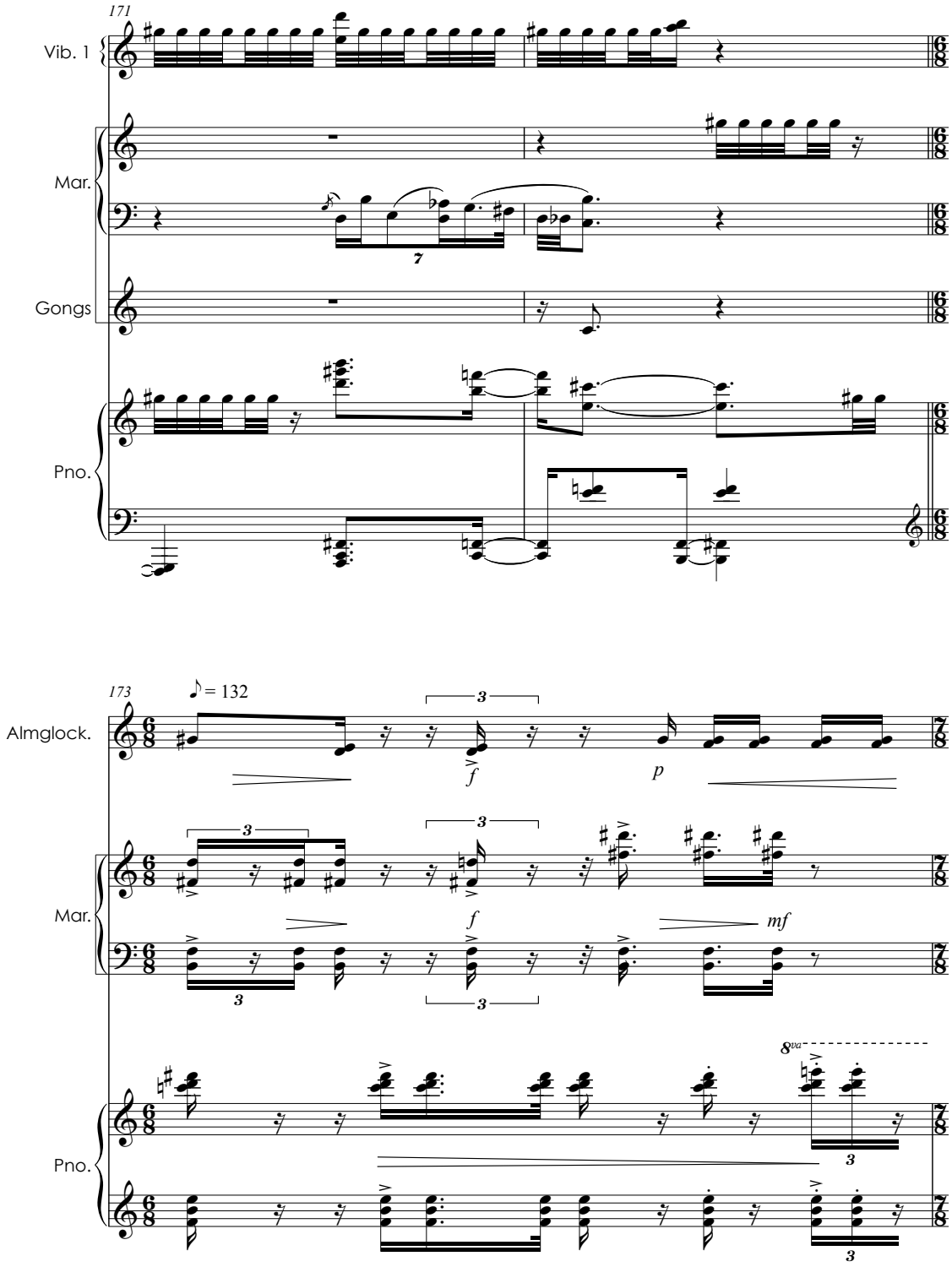

accel.
141
Vib. 1
Ped.
B. D.1
Glock.
mf
p
Tri.
mp
Gongs
p
S. D.
fp
(rall.)
8va
pp
mf
f
pp
Pno.

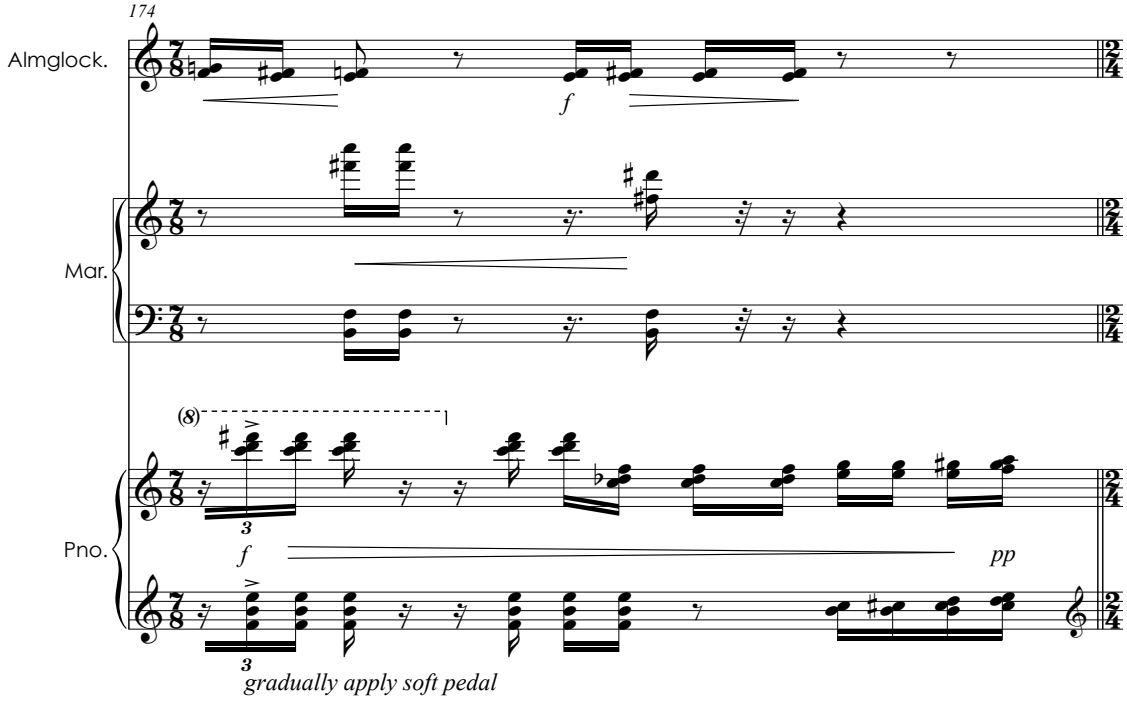

accel.
rall.
146
Vib. 1
Glock.
Gongs
S. D.
Pno.
mp
mf
pp
edges
f
fp
8va
p
mf
p
pp
mp
f
150
accel.
Vib. 1
Glock.
Gongs
S. D.
Pno.
pp
mf
brushes
mp
p
(8)
pp
ff
pp
mf
8va
8vb

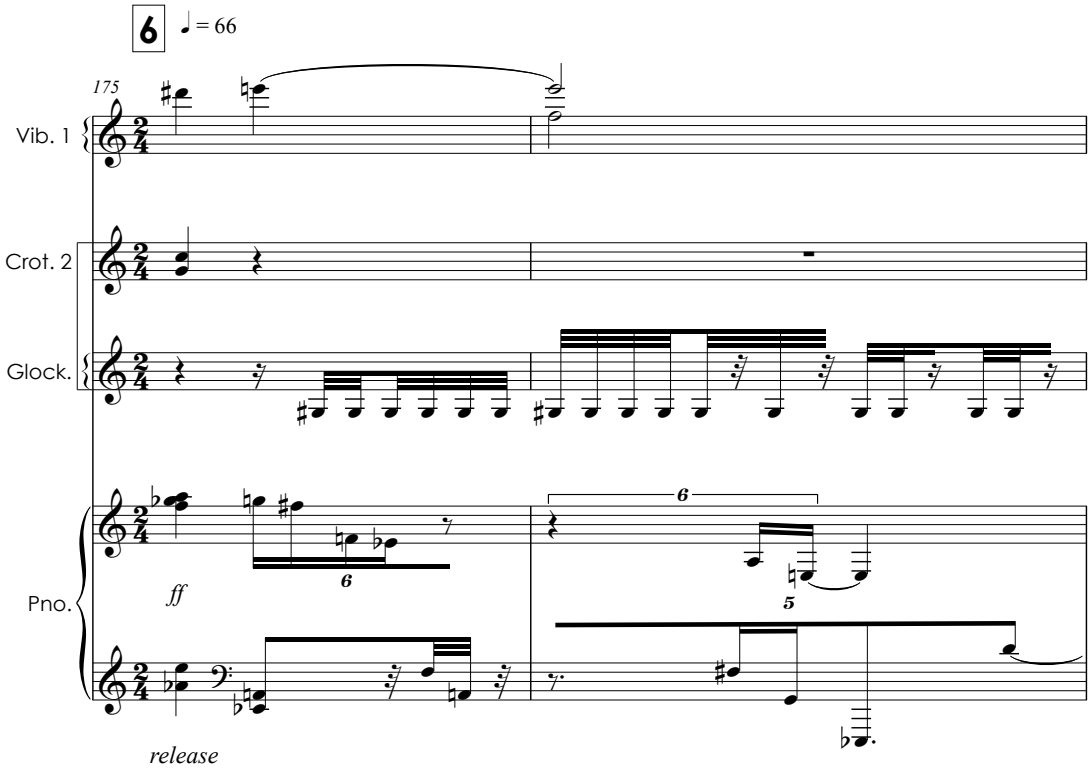

rall.
rall.
153
Vib. 1
B. D.1
Glock.
Gongs
S. D.
Pno.
mallets
mf
f
mf
pp
fp
mp
pp
8va
157
accel.
B. D.1
Mar.
Gongs
Pno.
pp
mp
p
8va

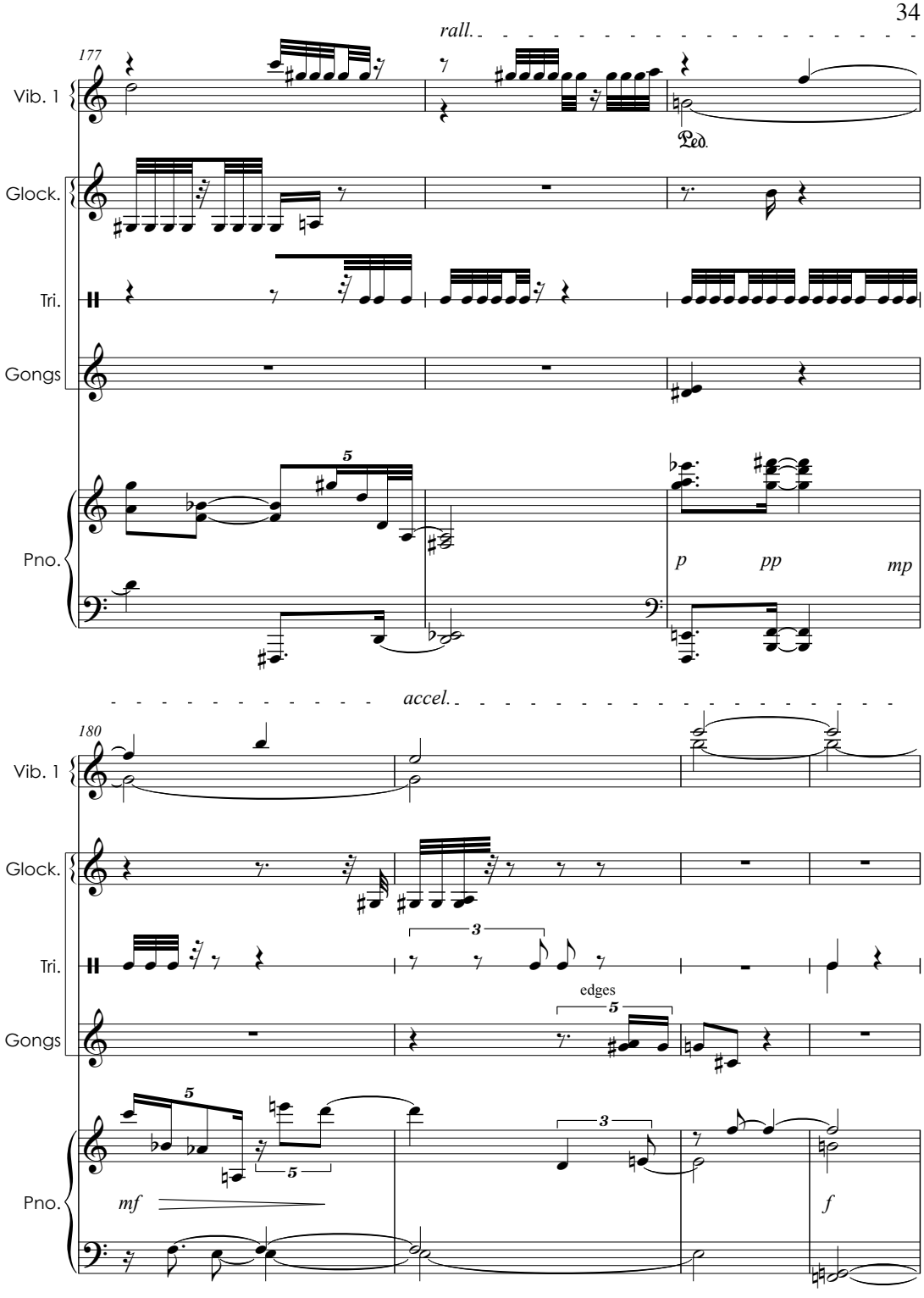

5
♪ = 126
160
mallets appropriate for vib. and almglocken
Almglock.
Mar.
Pno.
f
mf
mp
soft pedal
162
Almglock.
Mar.
Pno.
mf
f
ff
gradually release soft pedal

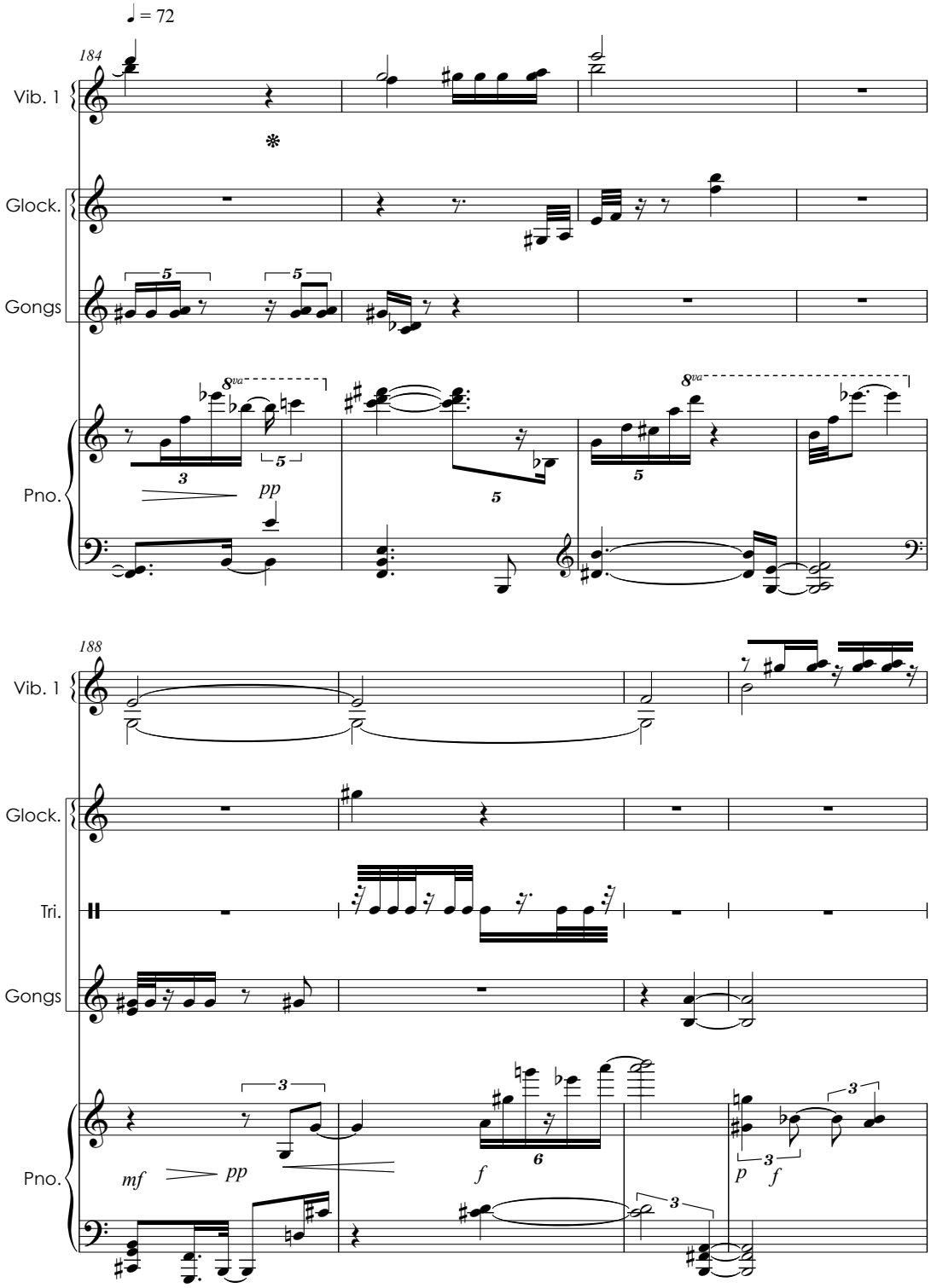

♩ = 66
164
Vib. 1
Almglock.
Glock.
Mar.
Gongs
Pno.
ff
mf
p
mp
f
8va
pp
soft pedal
release
168
Tri.
7

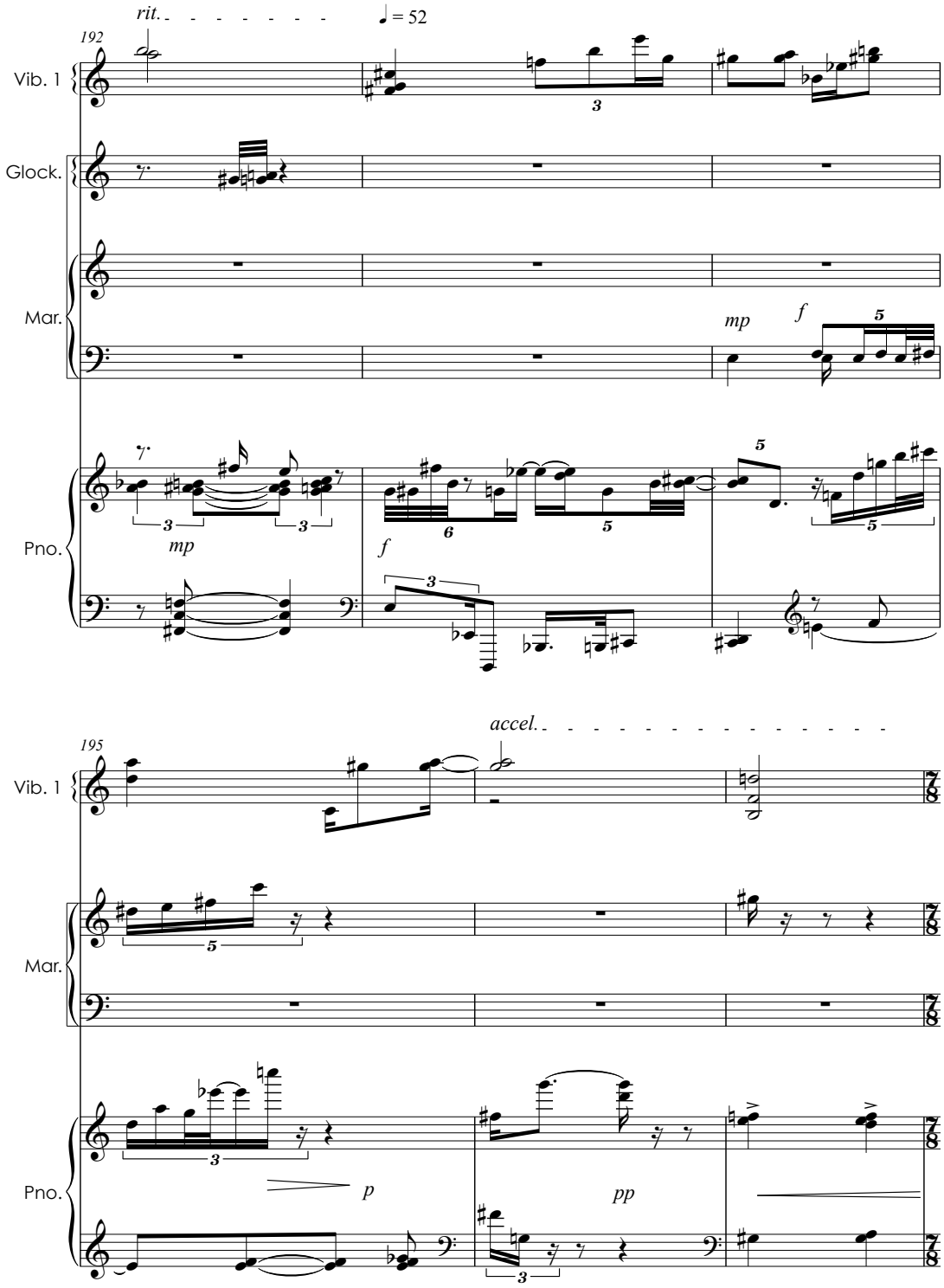

171
Vib. 1
Mar.
Gongs
Pno.
173
♪ = 132
Almglock.
Mar.
Pno.
f
p
f
mf
8va

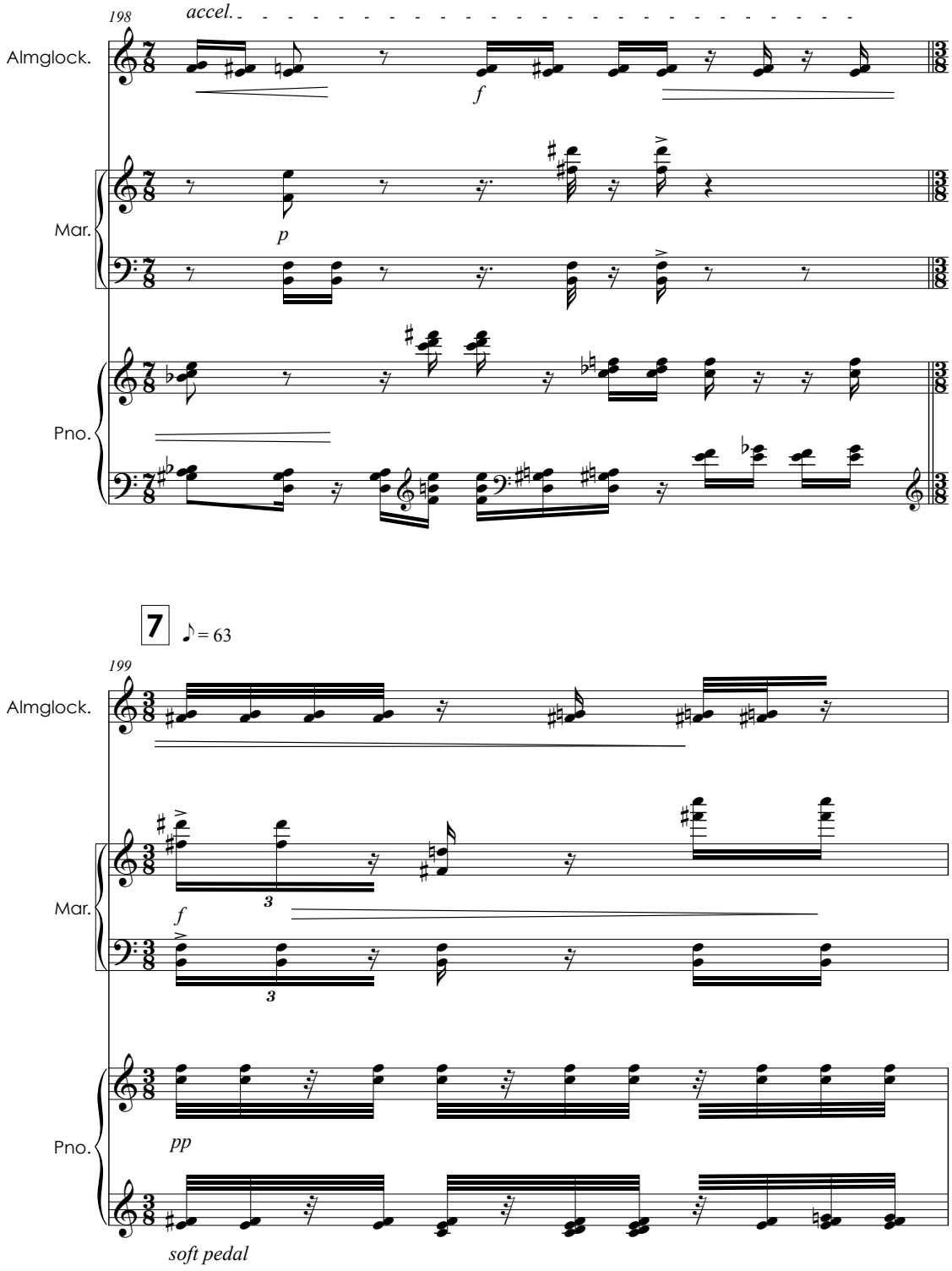

174
Almglock.
f
Mar.
(8)
3
Pno.
f
pp
3
gradually apply soft pedal

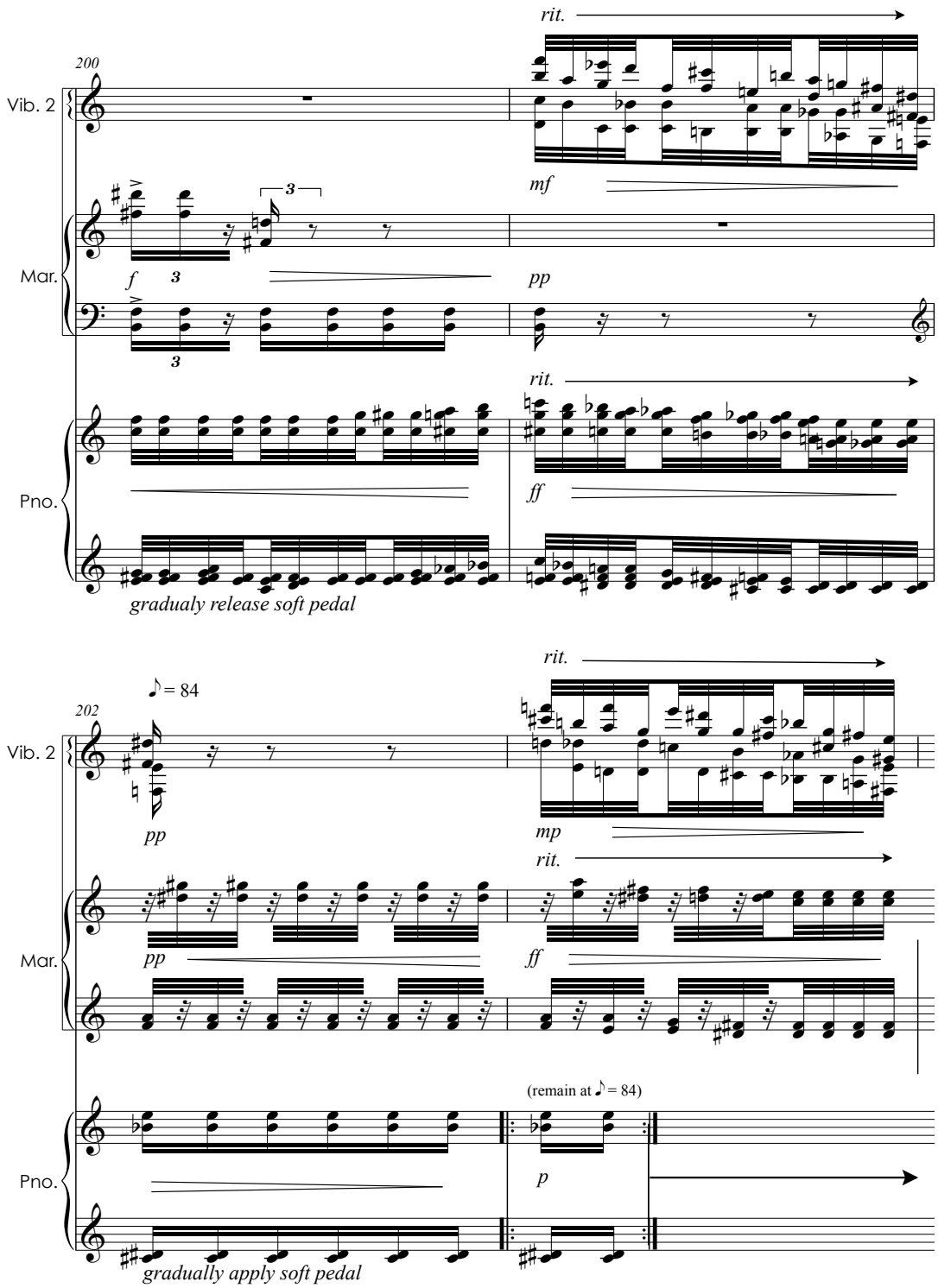

6
♩ = 66
175
Vib. 1
Crot. 2
Glock.
Pno.
ff
6
6
5
release

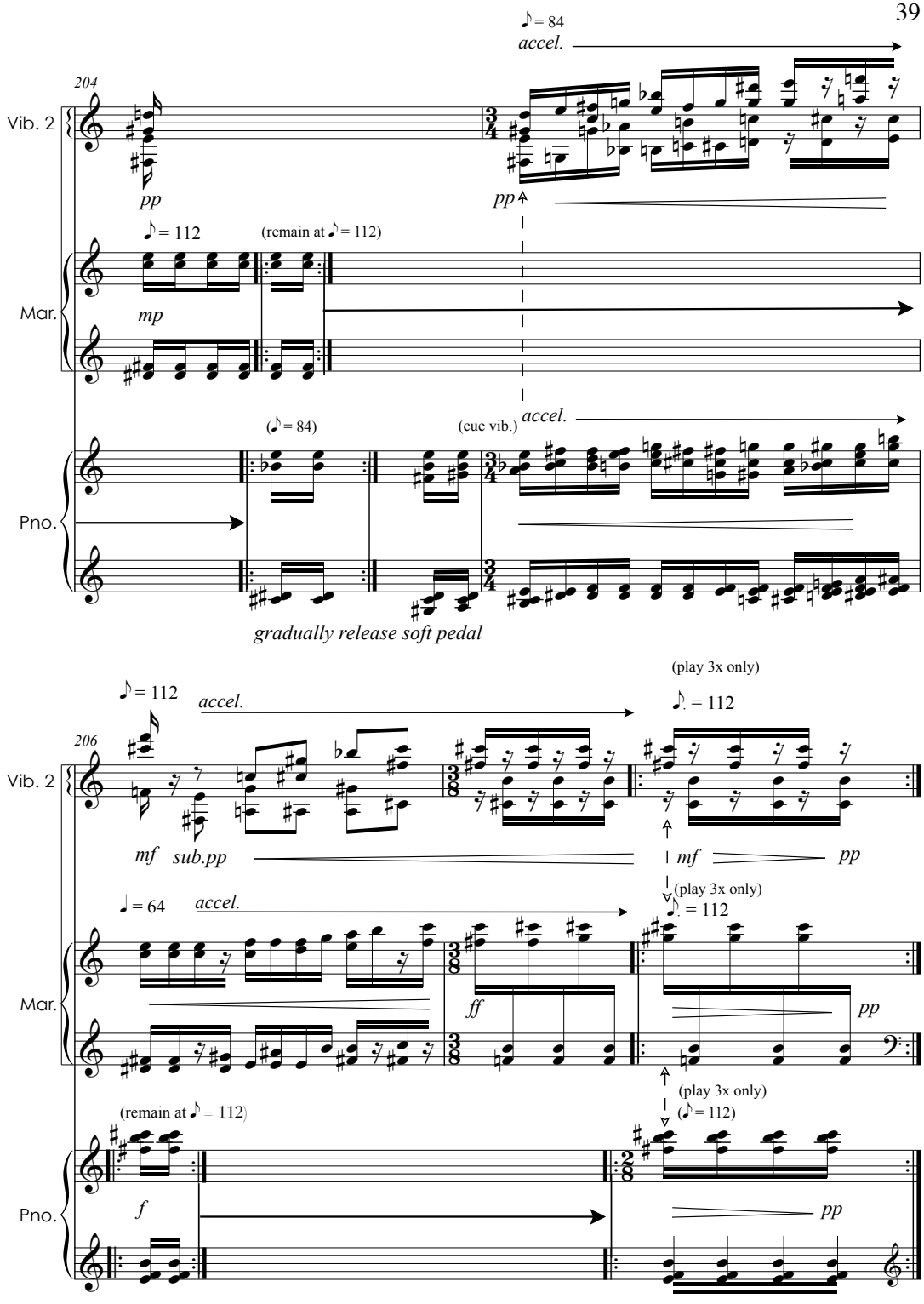

rall.
177
Vib. 1
Glock.
Tri.
Gongs
Pno.
Ped.
p
pp
mp
accel.
180
Vib. 1
Glock.
Tri.
Gongs
Pno.
edges
mf
f

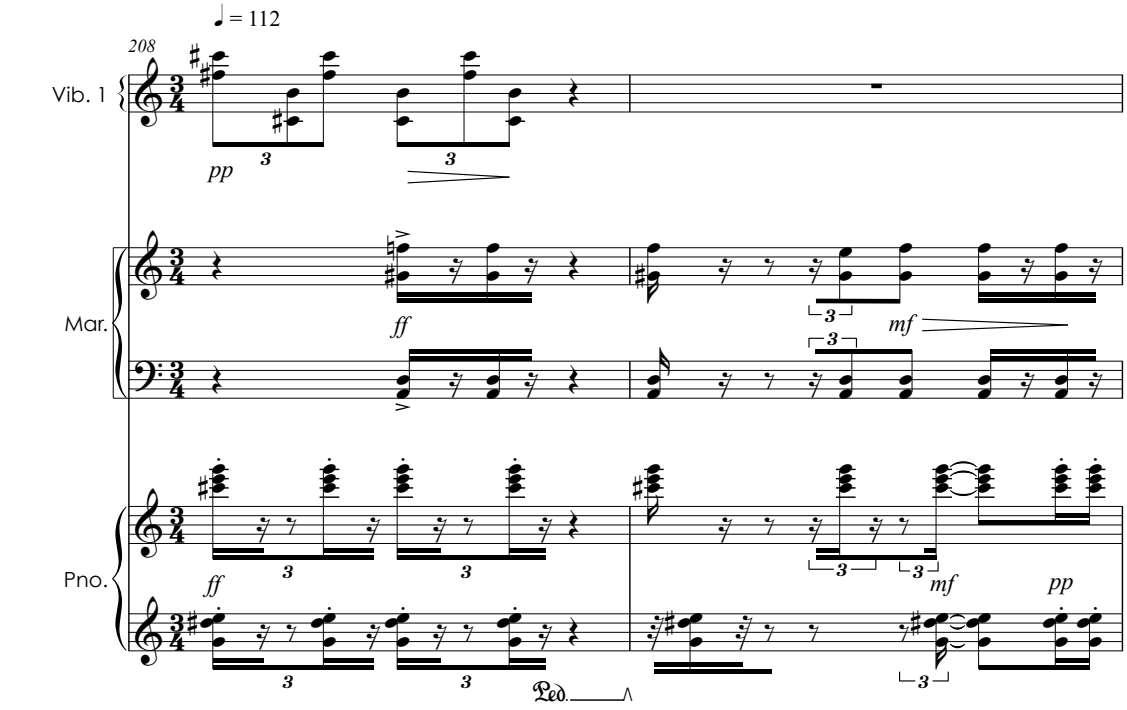

♩ = 72
184
Vib. 1
Glock.
Gongs
Pno.
8va
pp
188
Vib. 1
Glock.
Tri.
Gongs
Pno.
mf
pp
f
p
f

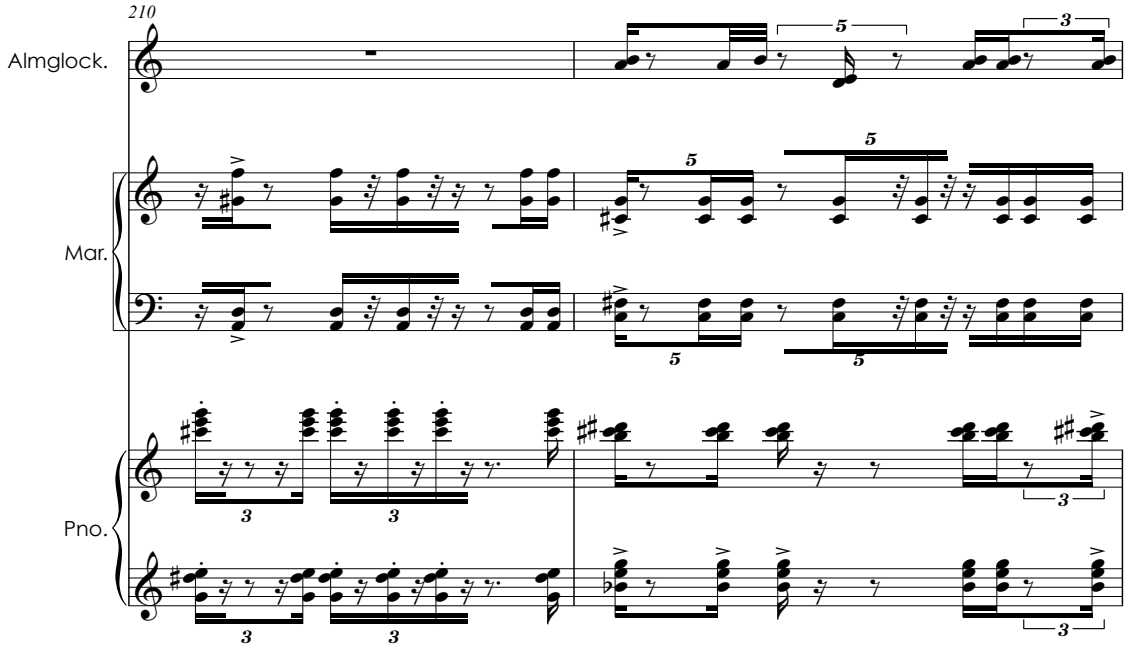

rit.
♩ = 52
192
Vib. 1
Glock.
Mar.
Pno.
mp
f
mp
f
195
accel.
Vib. 1
Mar.
Pno.
p
pp

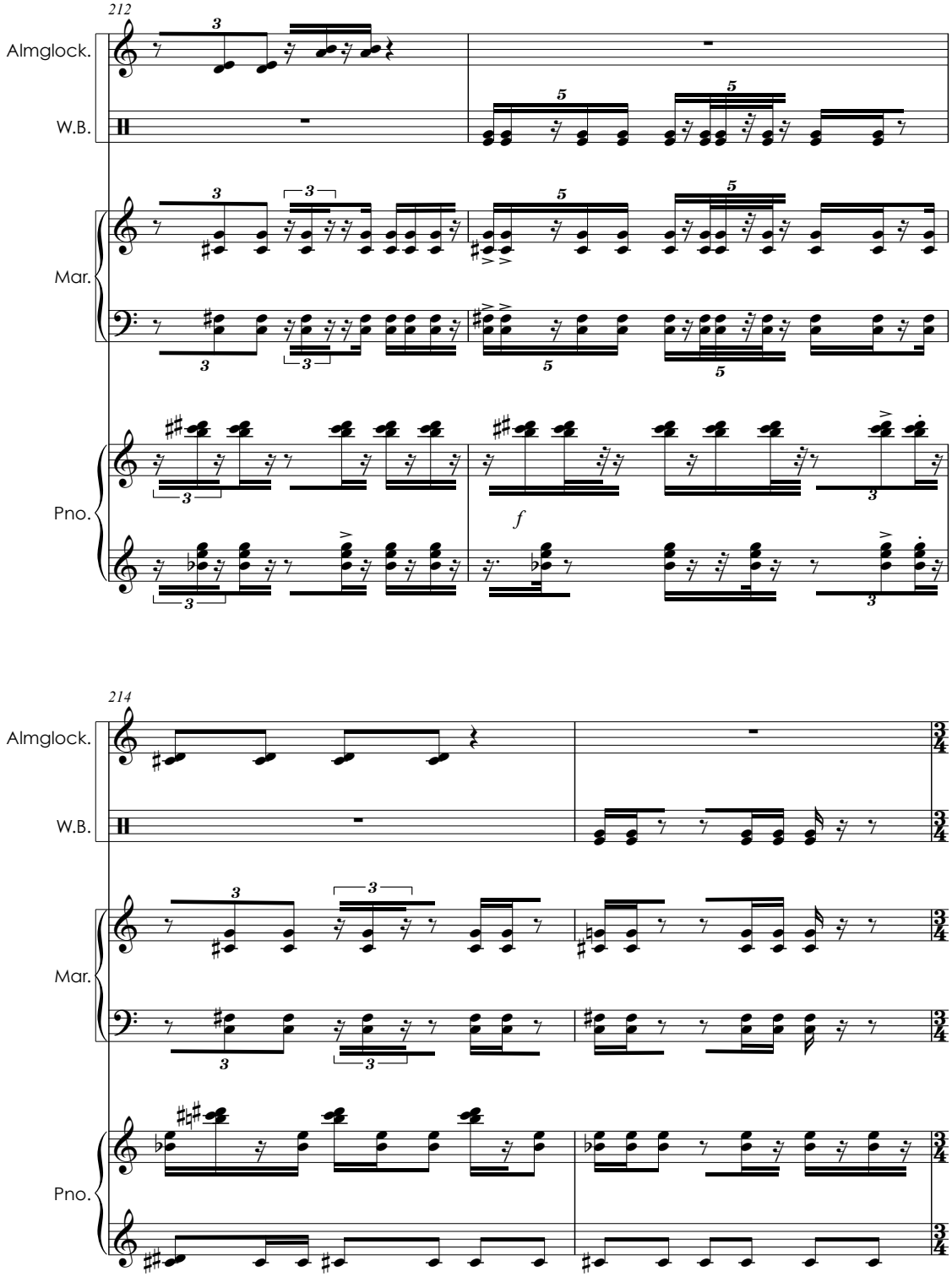

198
accel.
Almglock.
f
Mar.
p
Pno.
7
♪ = 63
199
Almglock.
Mar.
f
3
3
Pno.
pp
soft pedal

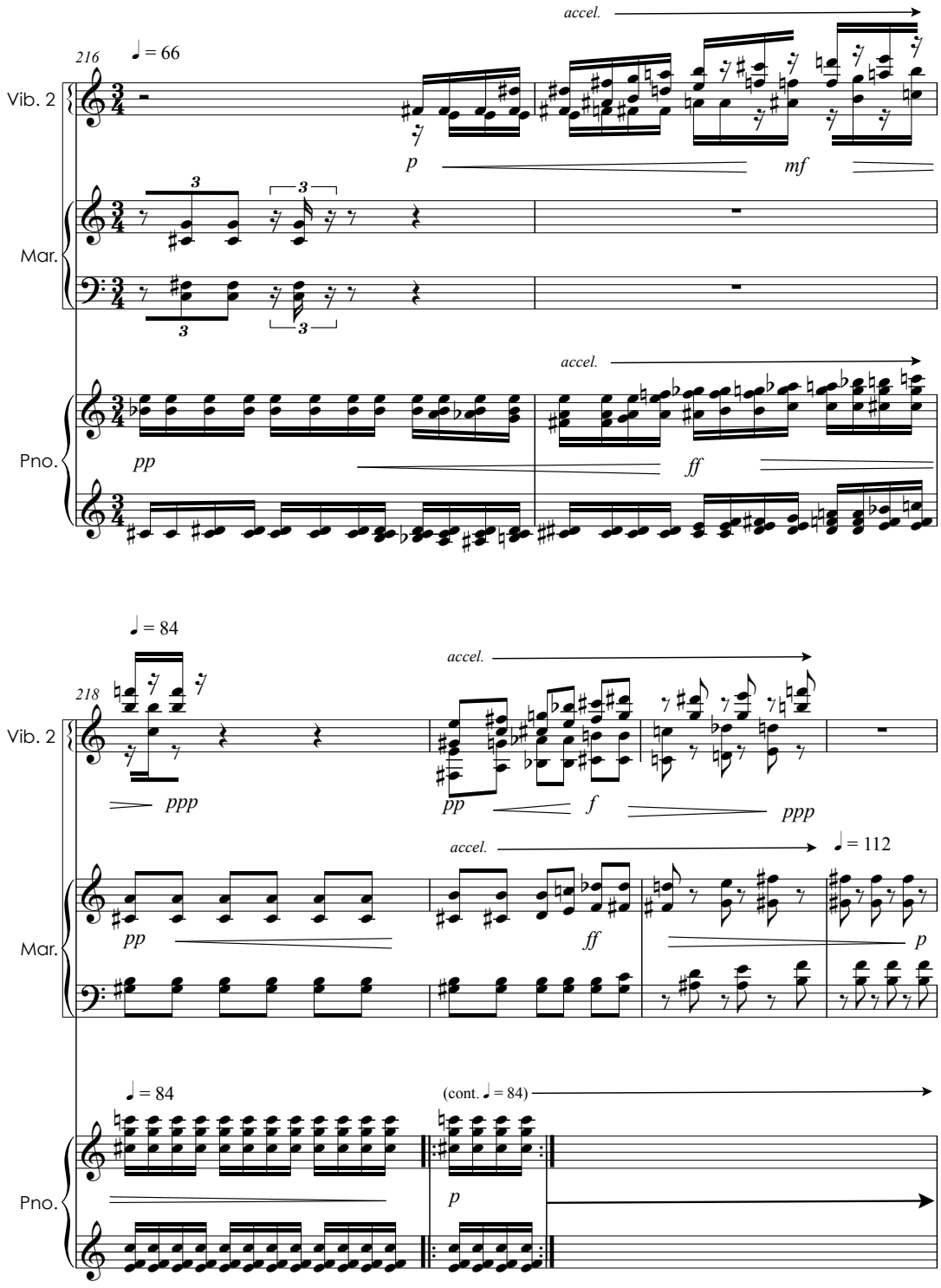

200
Vib. 2
Mar.
Pno.
rit.
mf
f
pp
rit.
ff
gradualy release soft pedal
202
♪= 84
Vib. 2
Mar.
Pno.
rit.
pp
mp
rit.
pp
ff
(remain at ♪= 84)
p
gradually apply soft pedal

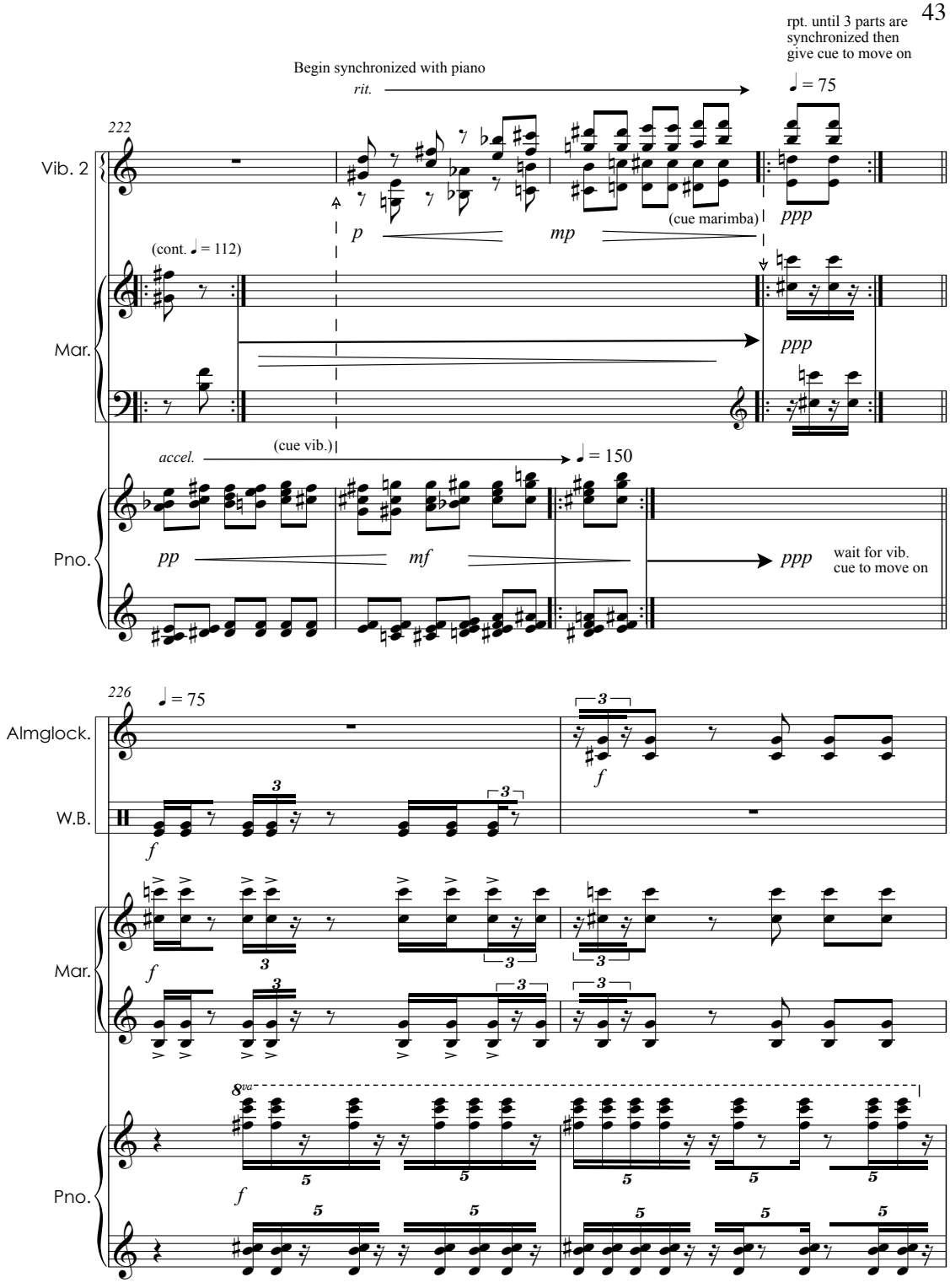

204
Vib. 2
Mar.
Pno.
pp
♪ = 112
(remain at ♪ = 112)
mp
♪ = 84
accel.
pp
(♪ = 84)
(cue vib.)
accel.
gradually release soft pedal
206
♪ = 112
accel.
mf
sub.pp
(play 3x only)
♪. = 112
mf
pp
♩ = 64
accel.
ff
(play 3x only)
♪. = 112
pp
(remain at ♪ = 112)
f
(play 3x only)
(♪ = 112)
pp

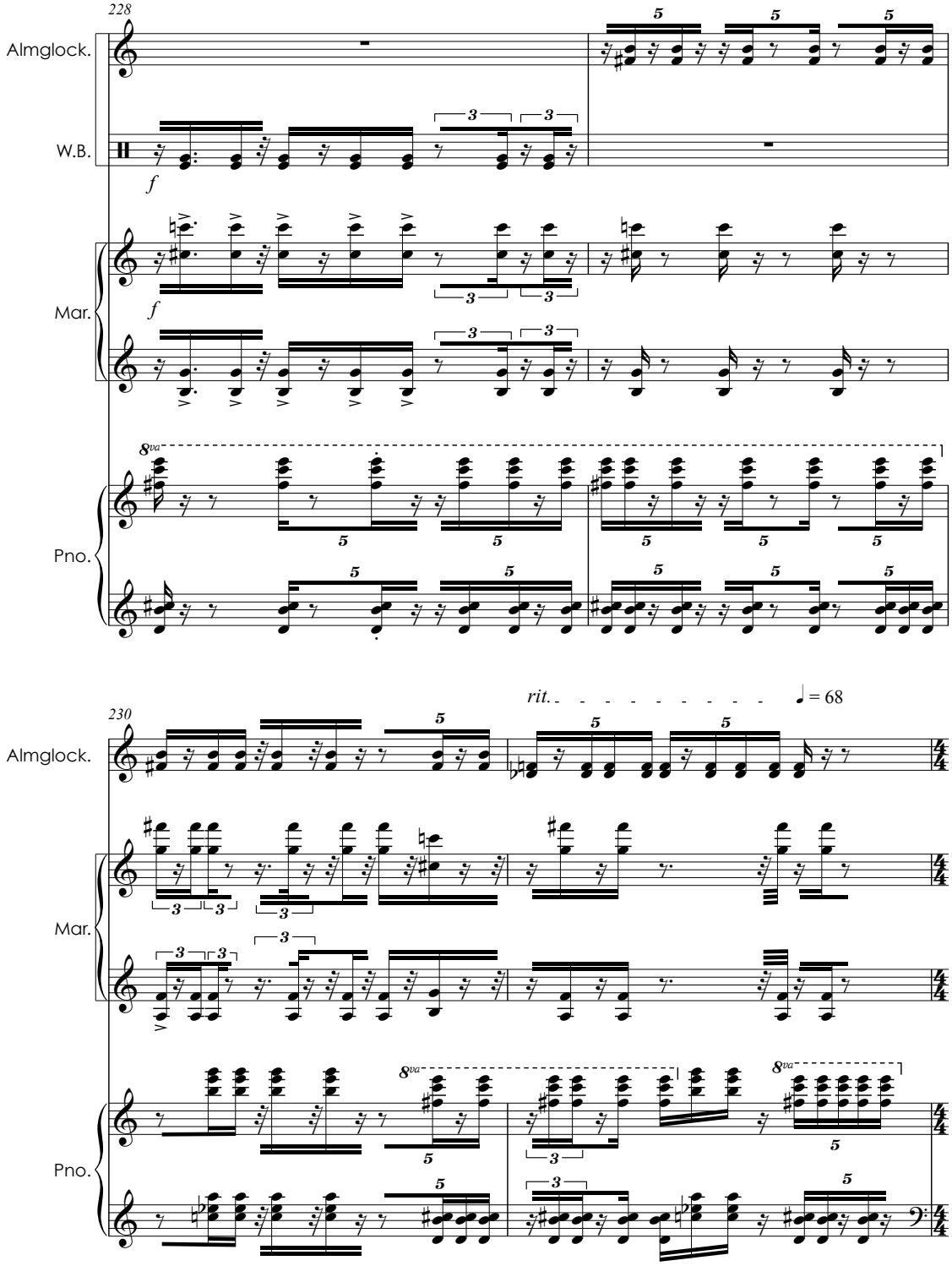

♩ = 112
208
Vib. 1
Mar.
Pno.
pp
ff
mf
pp
Ped.

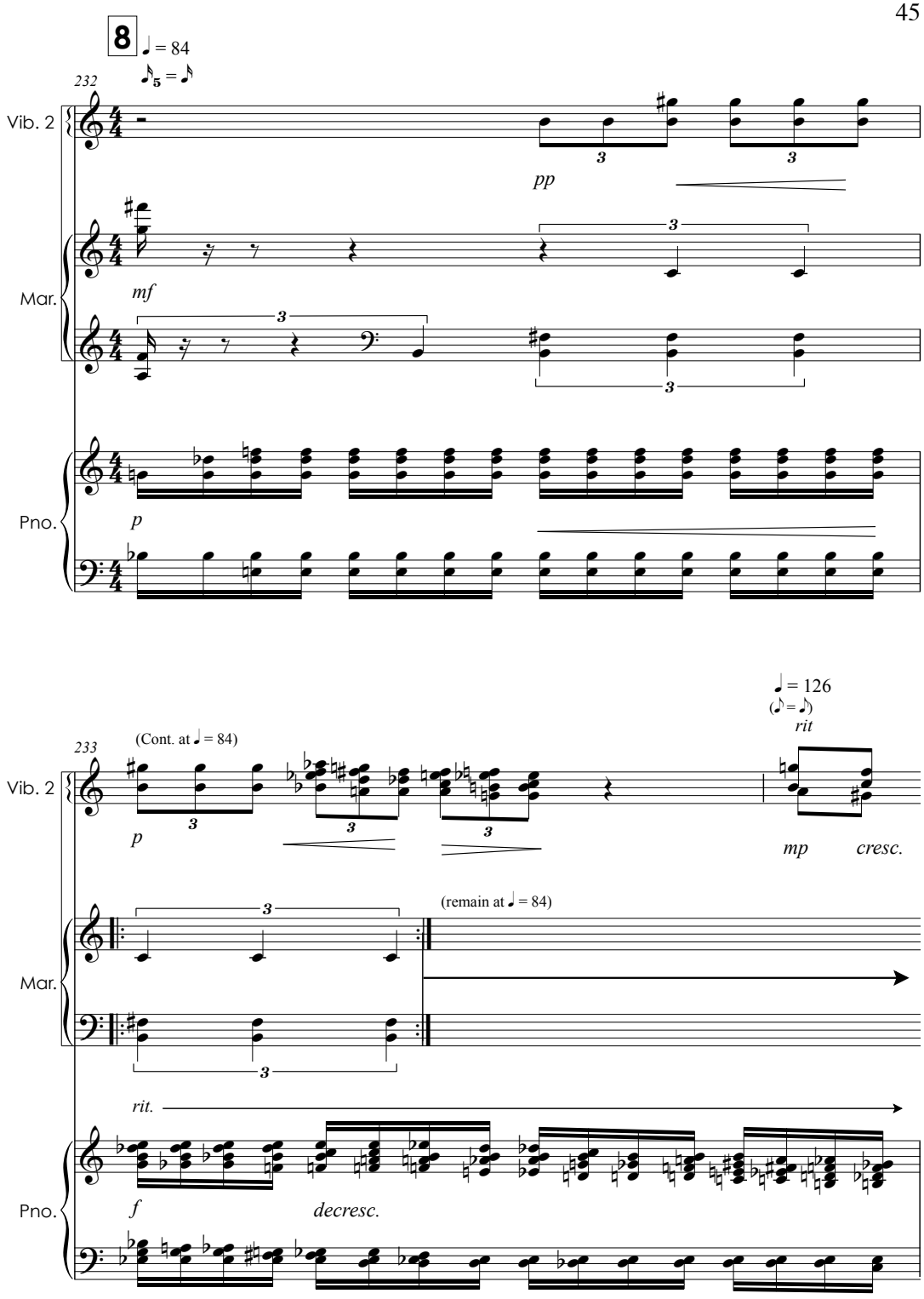

210
Almglock.
Mar.
Pno.

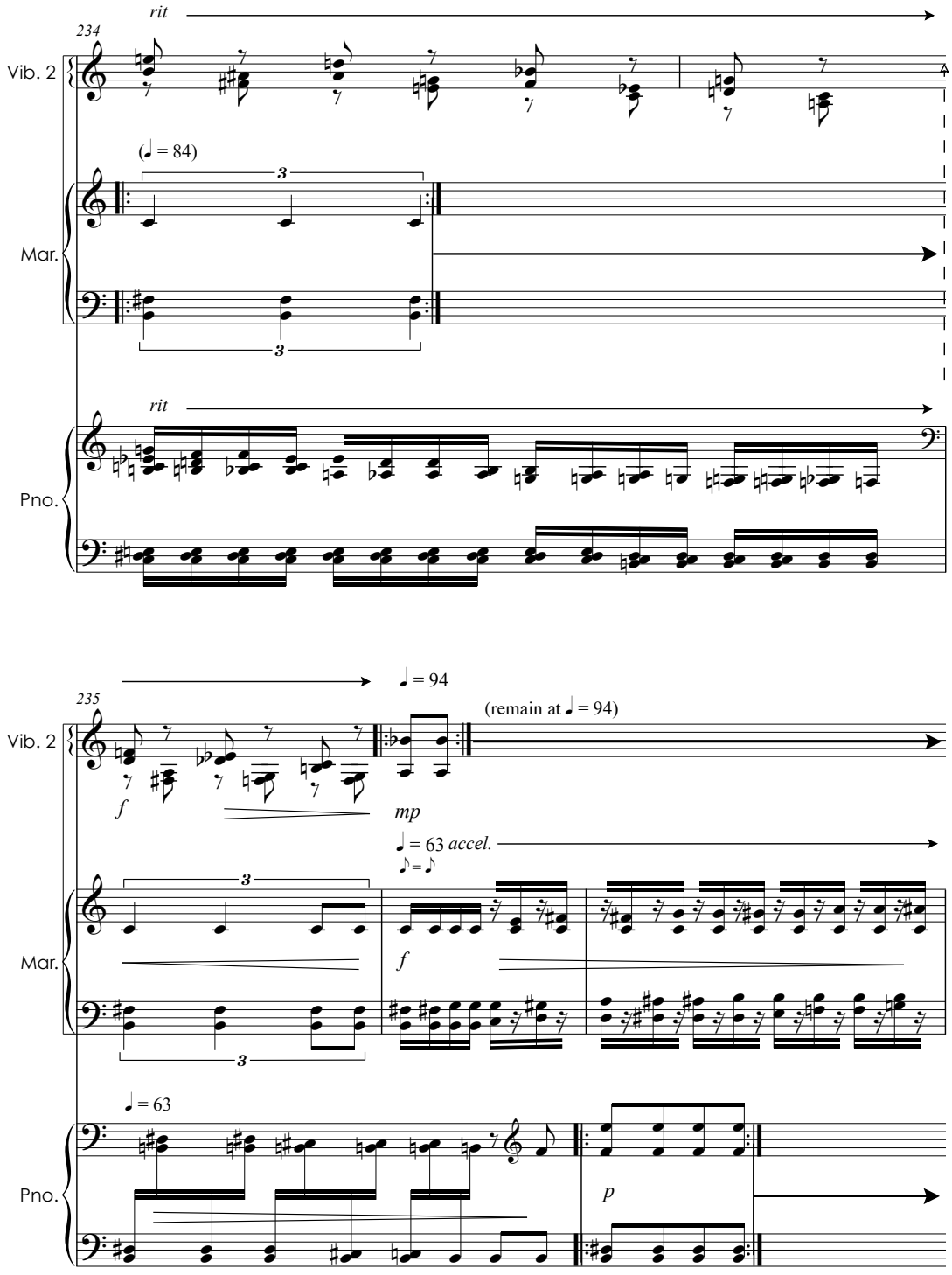

212
Almglock.
W.B.
Mar.
Pno.
f
214
Almglock.
W.B.
Mar.
Pno.

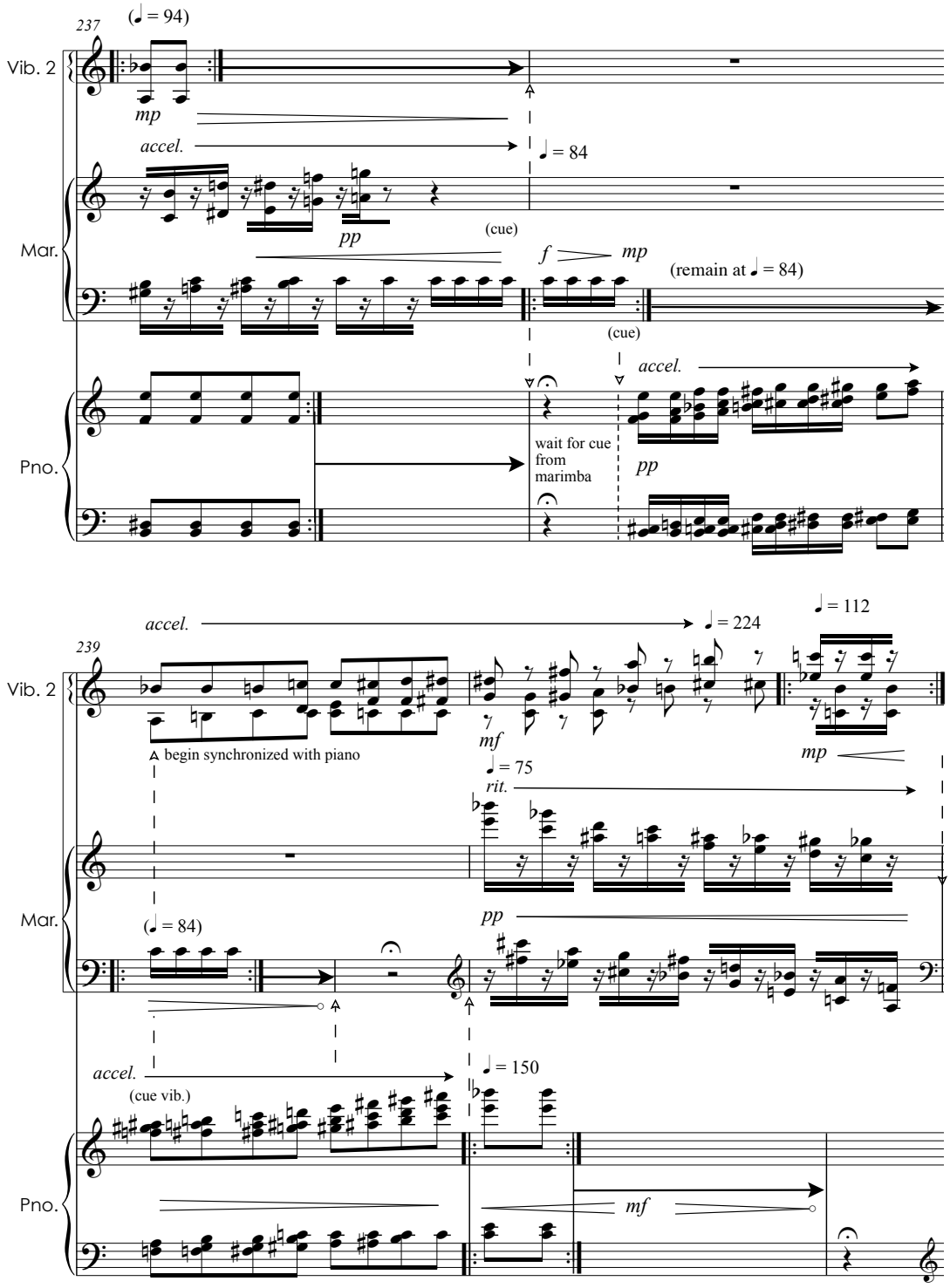

216
♩ = 66
accel.
Vib. 2
Mar.
Pno.
p
mf
pp
ff
218
♩ = 84
ppp
f
♩ = 112
(cont. ♩ = 84)

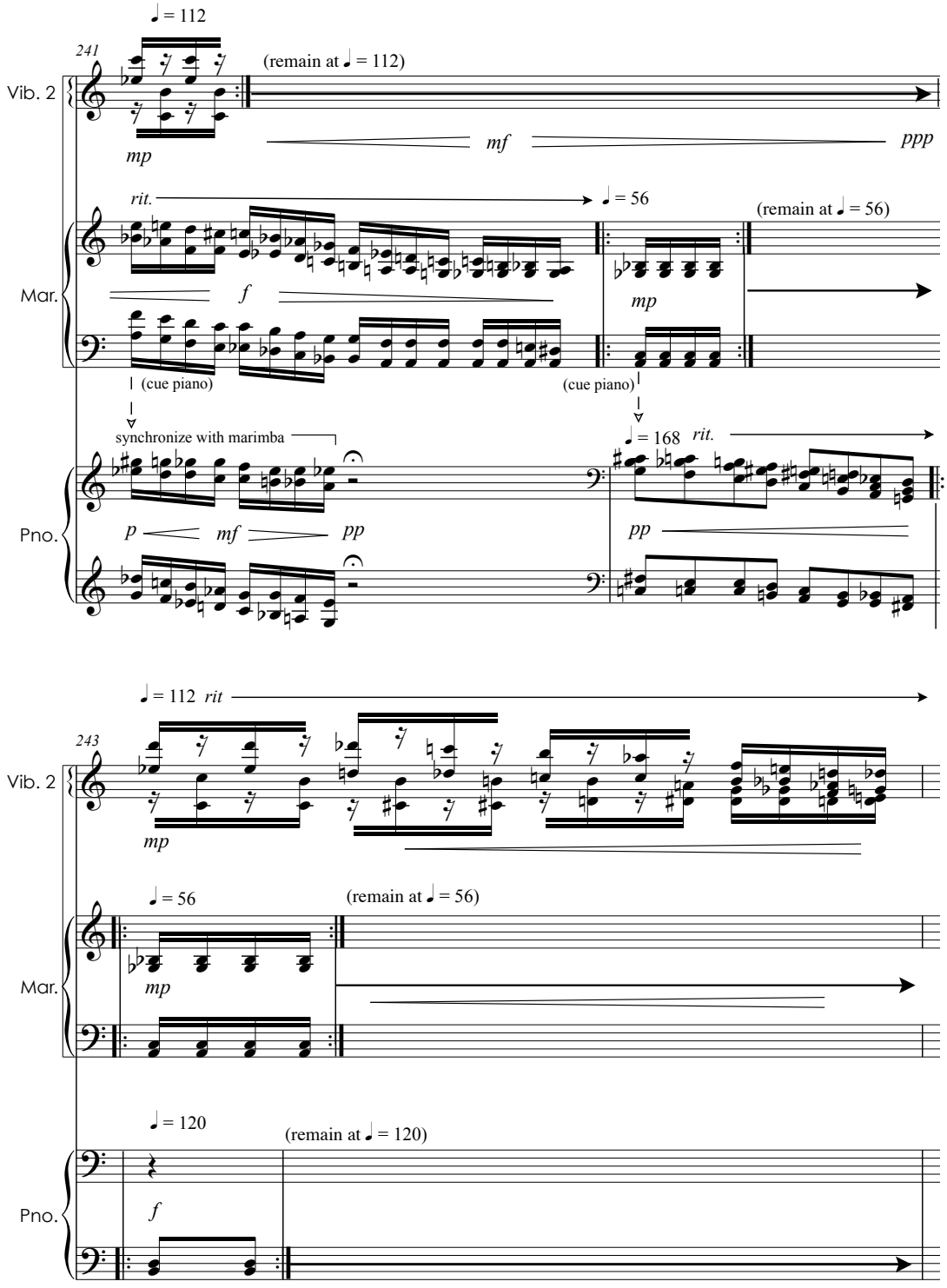

rpt. until 3 parts are synchronized then give cue to move on
Begin synchronized with piano
rit.
♩ = 75
222
Vib. 2
p
mp
(cue marimba)
ppp
(cont. ♩ = 112)
Mar.
ppp
accel.
(cue vib.)
♩ = 150
Pno.
pp
mf
ppp
wait for vib. cue to move on
226
♩ = 75
Almglock.
W.B.
f
Mar.
f
8va
Pno.
f

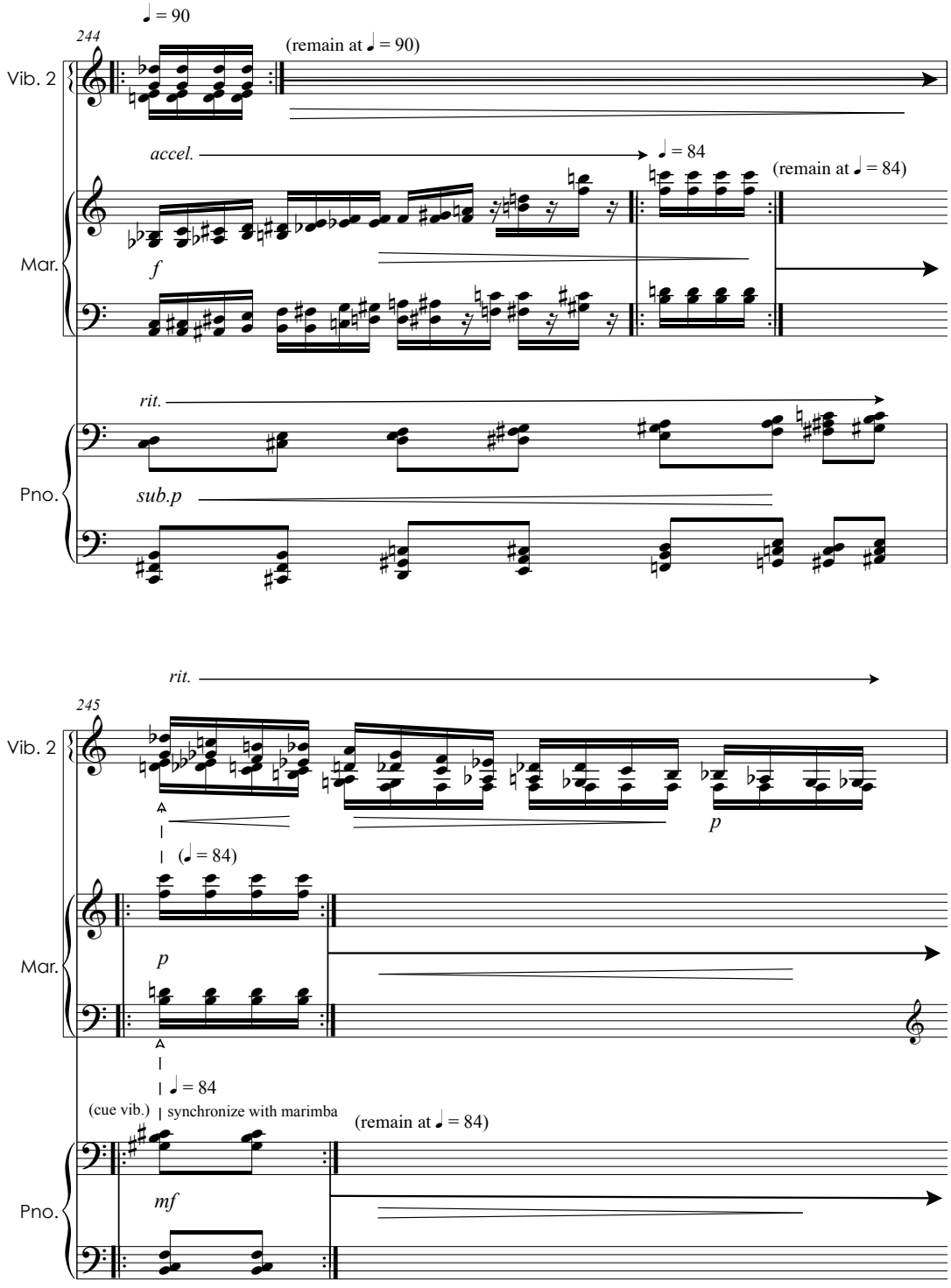

228
Almglock.
W.B.
f
Mar.
f
8va
Pno.
230
rit.
♩ = 68
Almglock.
Mar.
8va
8va
Pno.

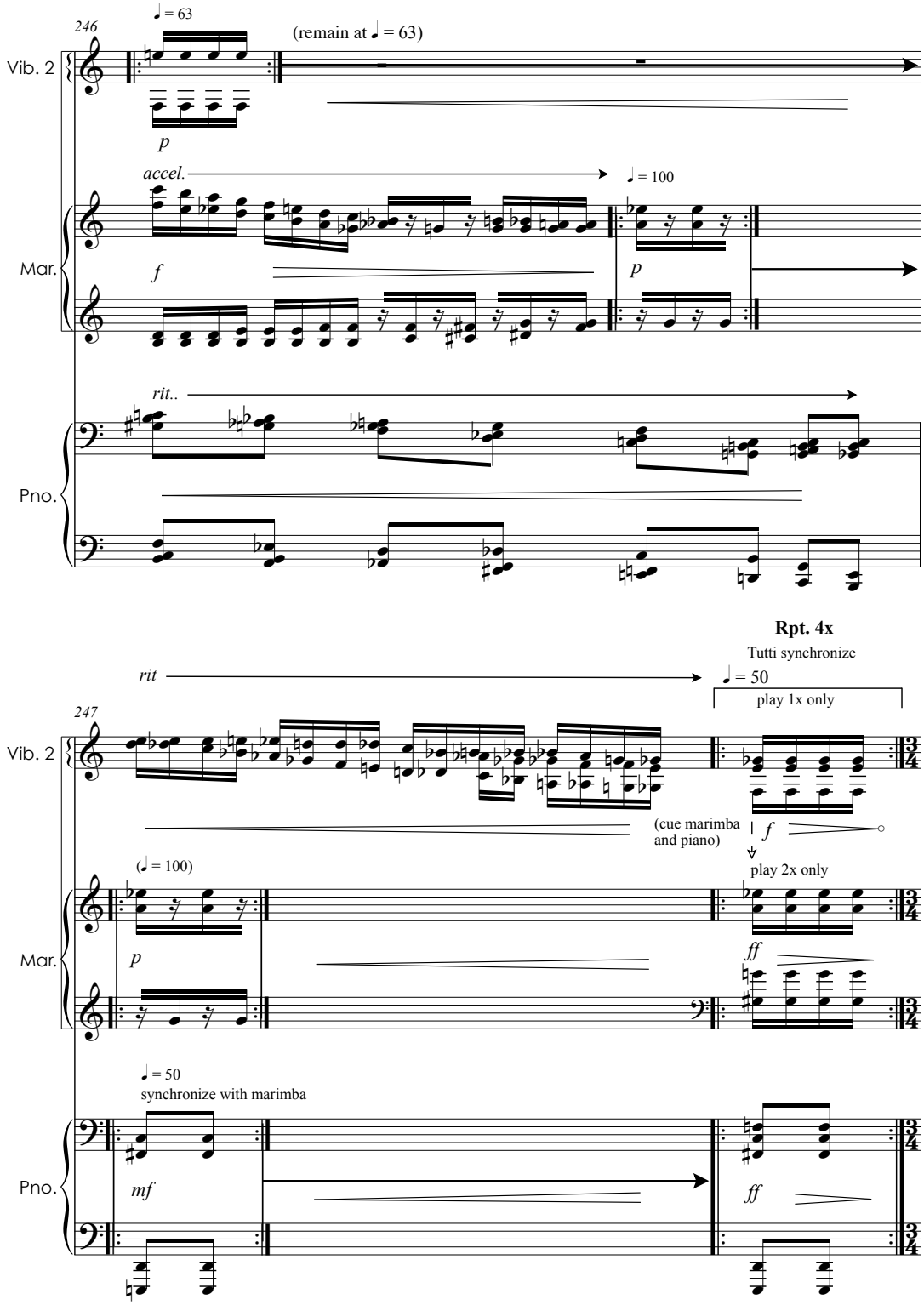

8
♩ = 84
232
Vib. 2
Mar.
Pno.
pp
mf
p
233
(Cont. at ♩ = 84)
♩ = 126
(♪ = ♪)
rit
mp
cresc.
(remain at ♩ = 84)
rit.
f
decresc.

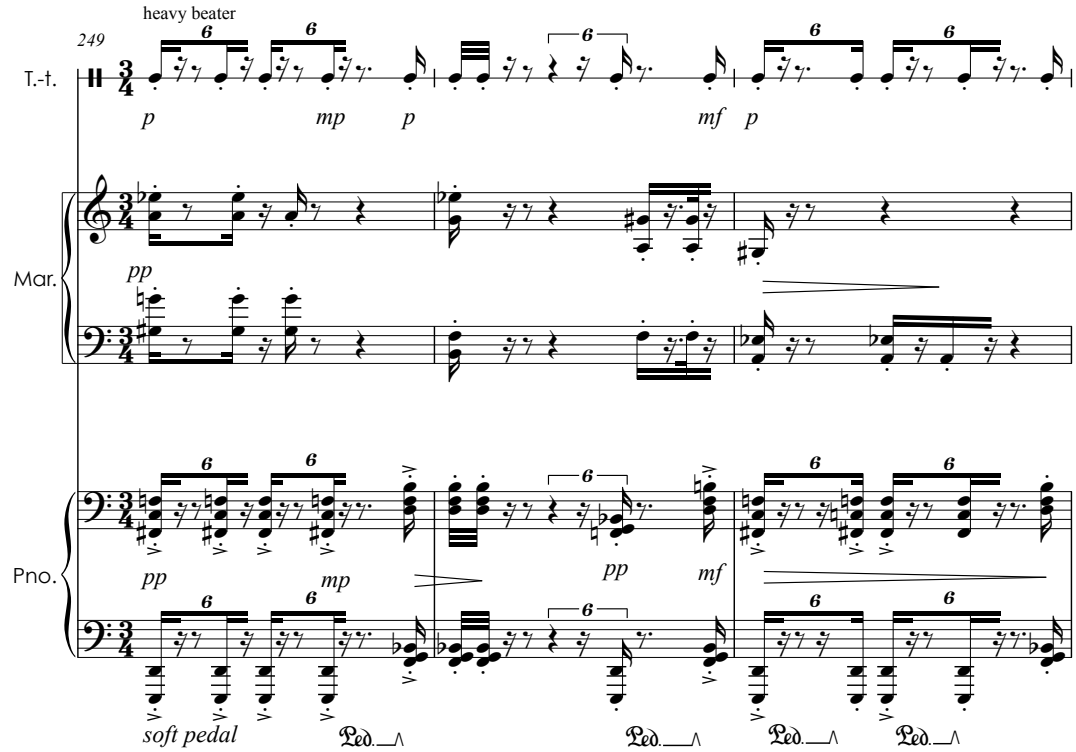

234
rit
Vib. 2
(♩ = 84)
3
Mar.
3
rit
Pno.
235
♩ = 94
(remain at ♩ = 94)
Vib. 2
f
mp
♩ = 63 accel.
♪ = ♪
3
Mar.
f
3
♩ = 63
Pno.
p

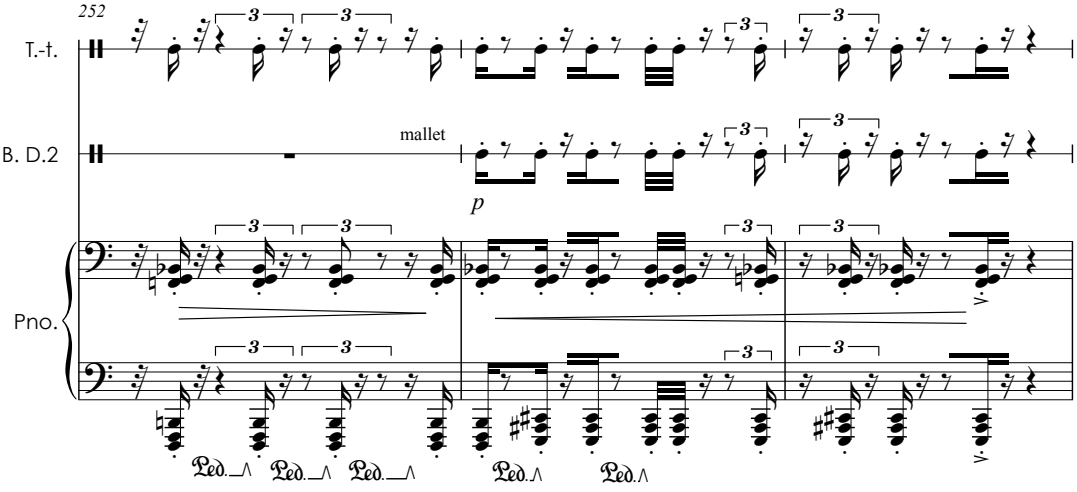

237
(♩ = 94)
Vib. 2
mp
accel.
♩ = 84
Mar.
pp
(cue)
f
mp
(remain at ♩ = 84)
(cue)
Pno.
wait for cue from marimba
accel.
pp
239
accel.
♩ = 224
♩ = 112
Vib. 2
mf
mp
begin synchronized with piano
♩ = 75
rit.
Mar.
(♩ = 84)
pp
accel.
(cue vib.)
♩ = 150
Pno.
mf

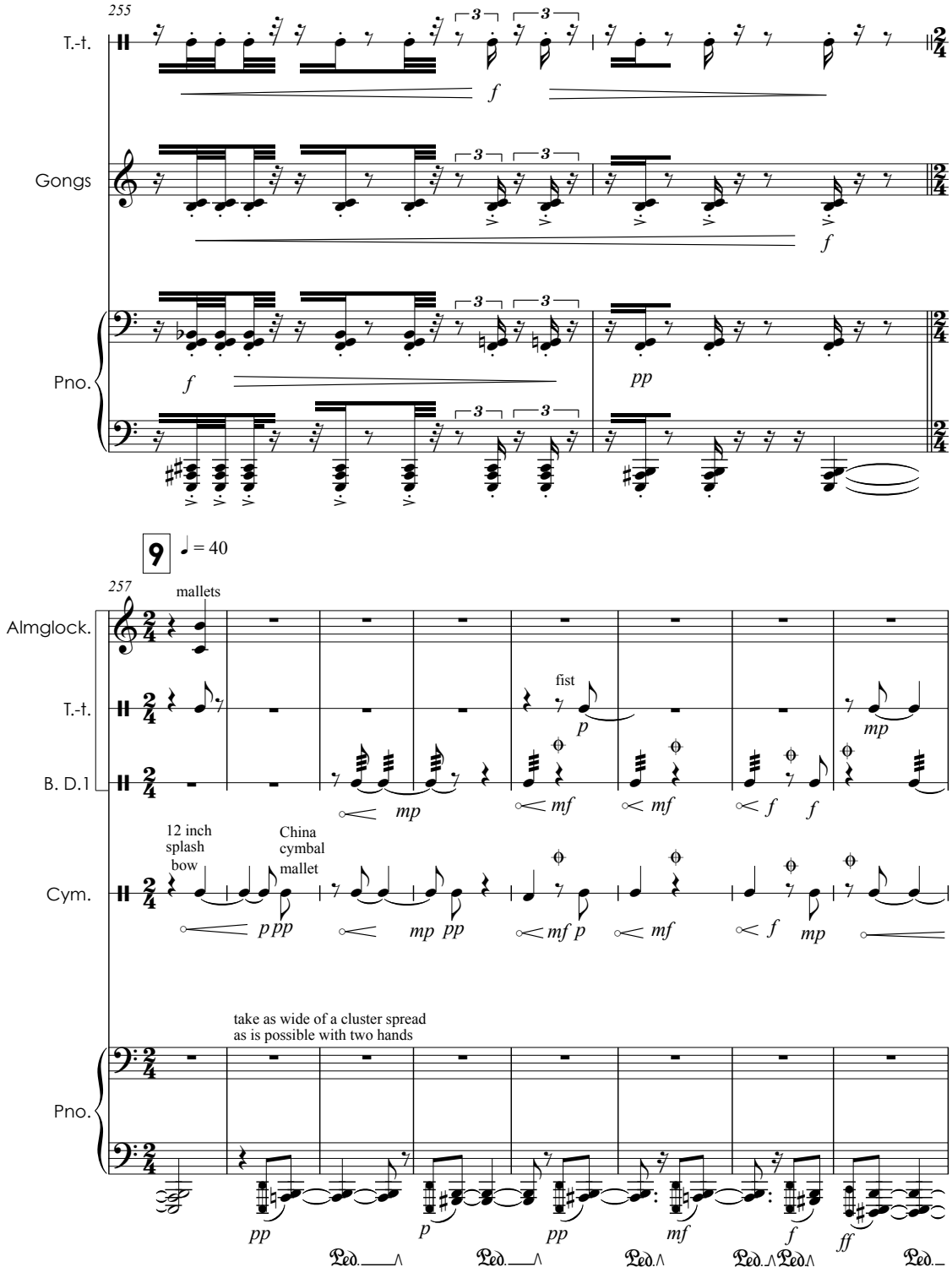

241
♩ = 112
(remain at ♩ = 112)
Vib. 2
mp
mf
ppp
rit.
♩ = 56
(remain at ♩ = 56)
Mar.
f
mp
(cue piano)
(cue piano)
synchronize with marimba
♩ = 168
rit.
Pno.
p
mf
pp
pp
243
♩ = 112 rit
Vib. 2
mp
♩ = 56
(remain at ♩ = 56)
Mar.
mp
♩ = 120
(remain at ♩ = 120)
Pno.
f

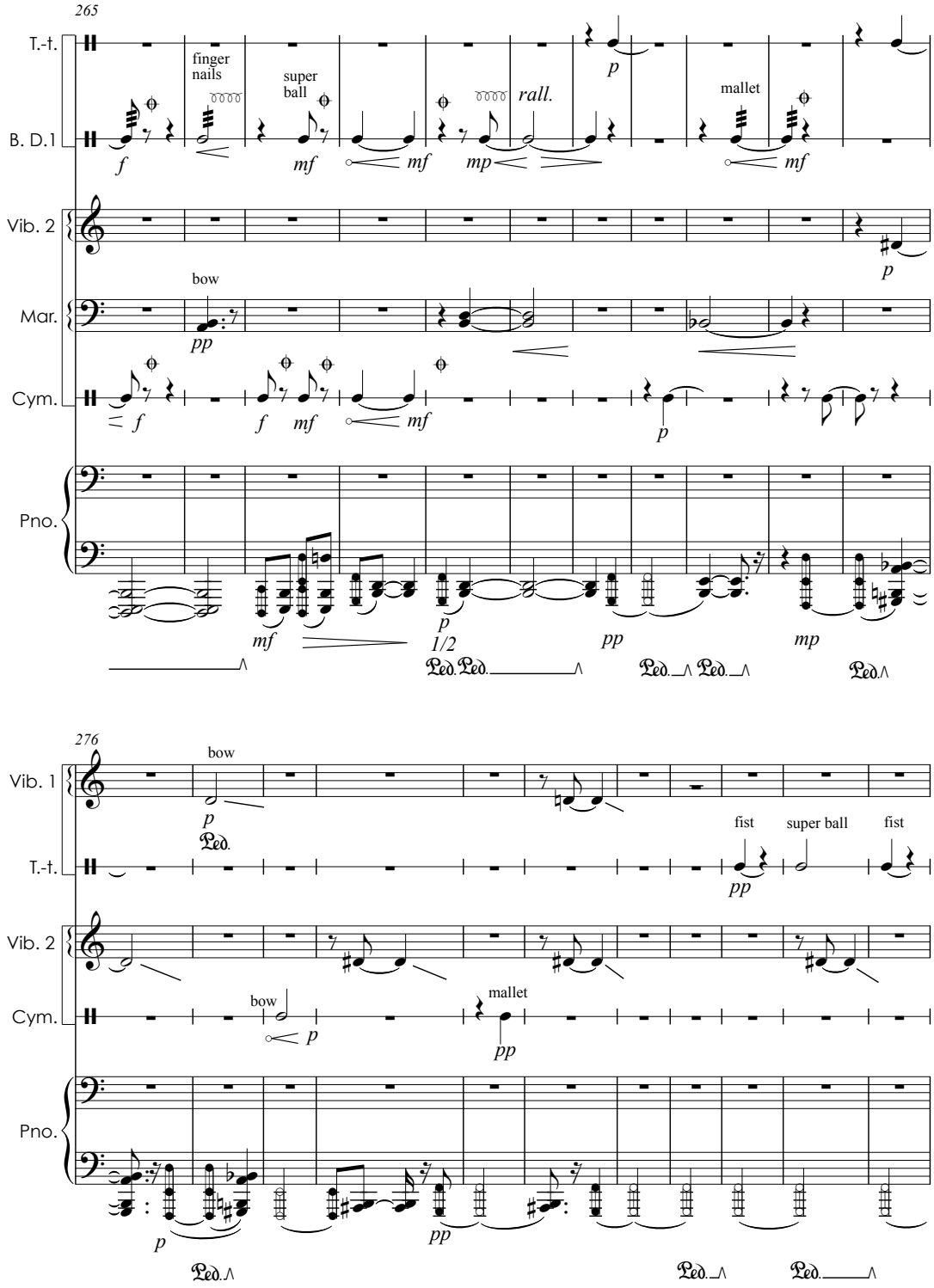

244
♩ = 90
(remain at ♩ = 90)
Vib. 2
accel.
♩ = 84
(remain at ♩ = 84)
Mar.
f
rit.
Pno.
sub.p
rit.
245
Vib. 2
p
(♩ = 84)
Mar.
p
♩ = 84
(cue vib.)
synchronize with marimba
(remain at ♩ = 84)
Pno.
mf

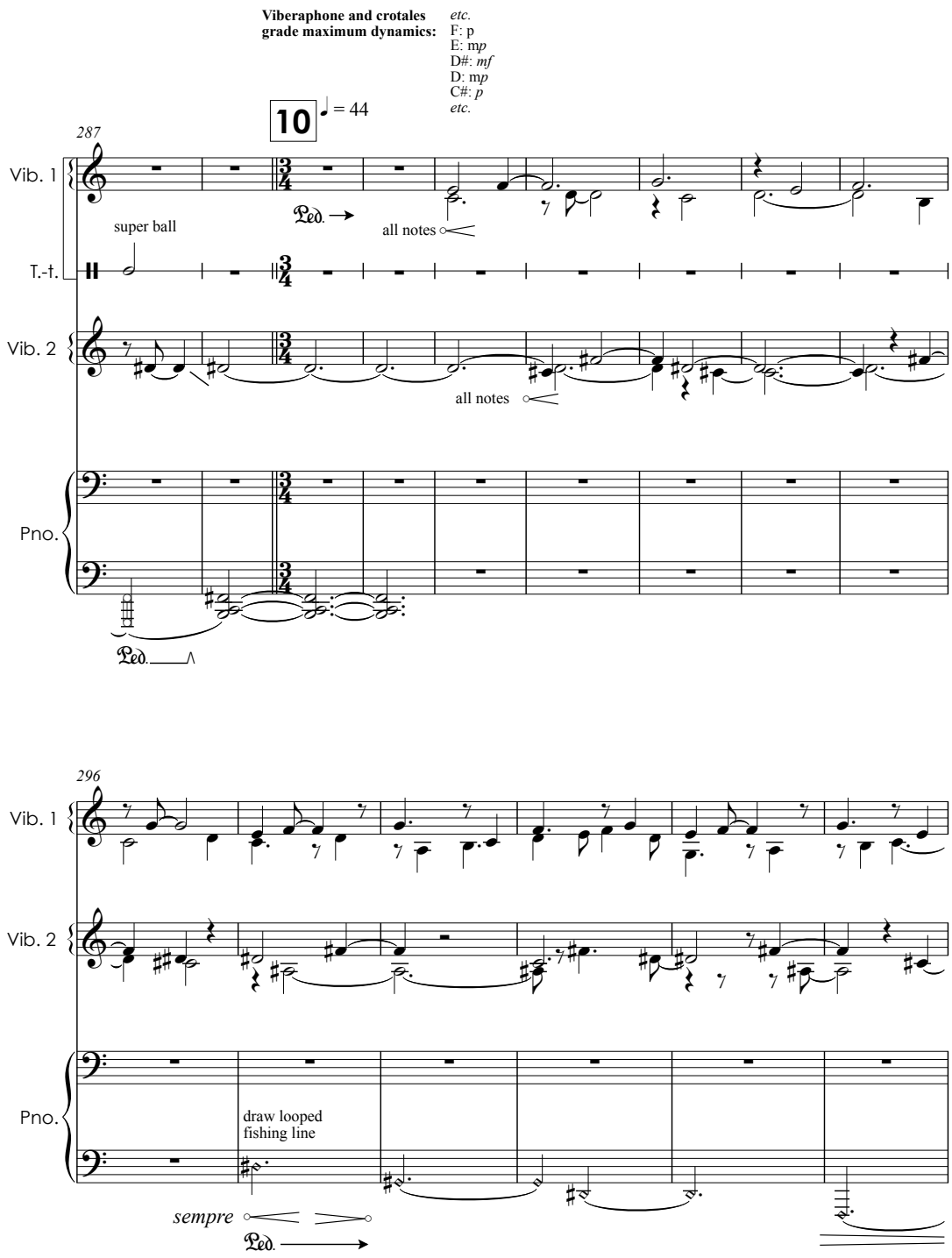

246
♩ = 63
(remain at ♩ = 63)
Vib. 2
p
accel.
♩ = 100
Mar.
f
p
rit..
Pno.
Rpt. 4x
Tutti synchronize
rit
♩ = 50
play 1x only
247
Vib. 2
(cue marimba and piano)
f
play 2x only
(♩ = 100)
Mar.
p
ff
♩ = 50
synchronize with marimba
Pno.
mf
ff

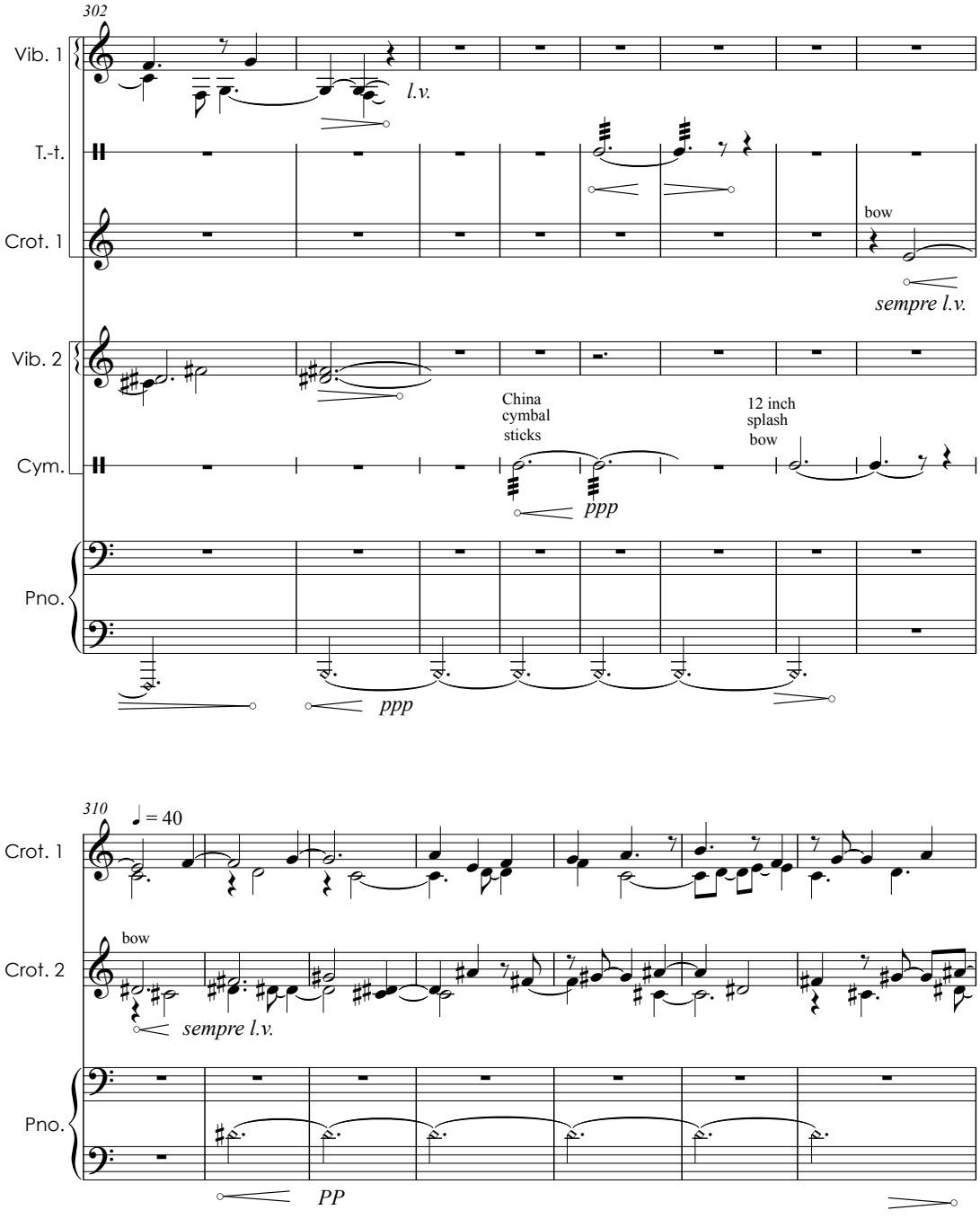

heavy beater
249
T.-t.
p
mp
p
mf
p
Mar.
pp
Pno.
pp
mp
pp
mf
soft pedal
Ped.
Ped.
Ped.
Ped.

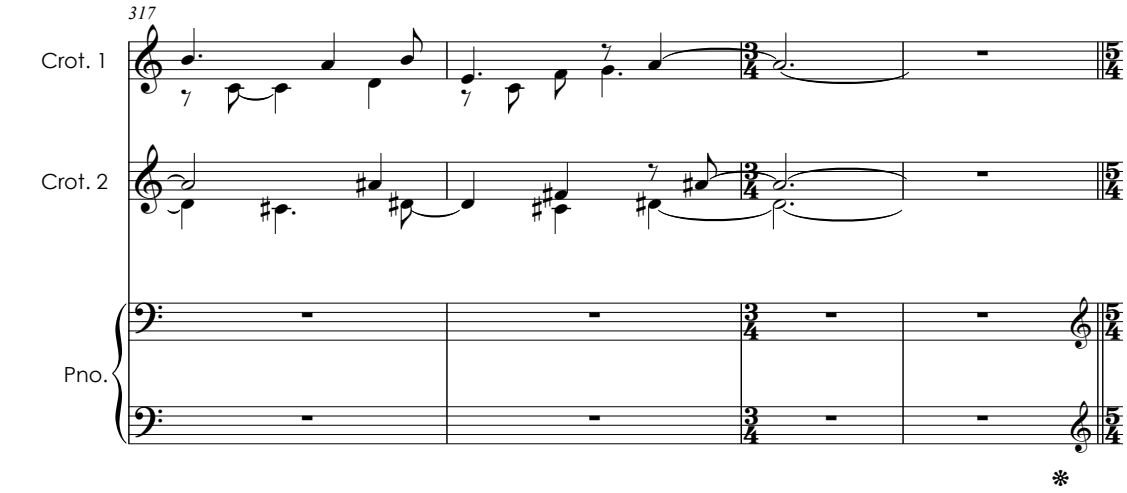

252
T.-t.
B. D.2
mallet
p
Pno.
Ped.
Ped.
Ped.
Ped.
Ped.

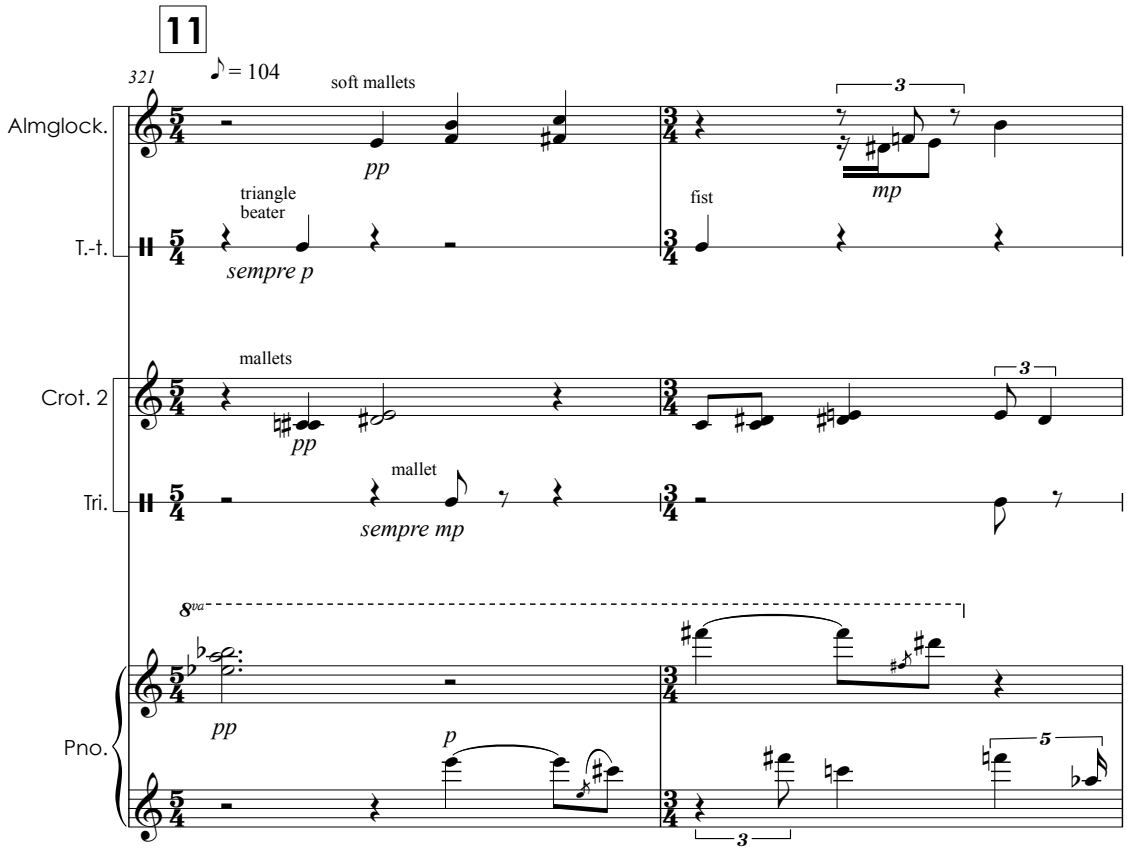

255
T.-t.
Gongs
Pno.
9
♩ = 40
257
mallets
Almglock.
T.-t.
fist
B. D.1
12 inch
splash
bow
China
cymbal
mallet
Cym.
take as wide of a cluster spread
as is possible with two hands
Pno.

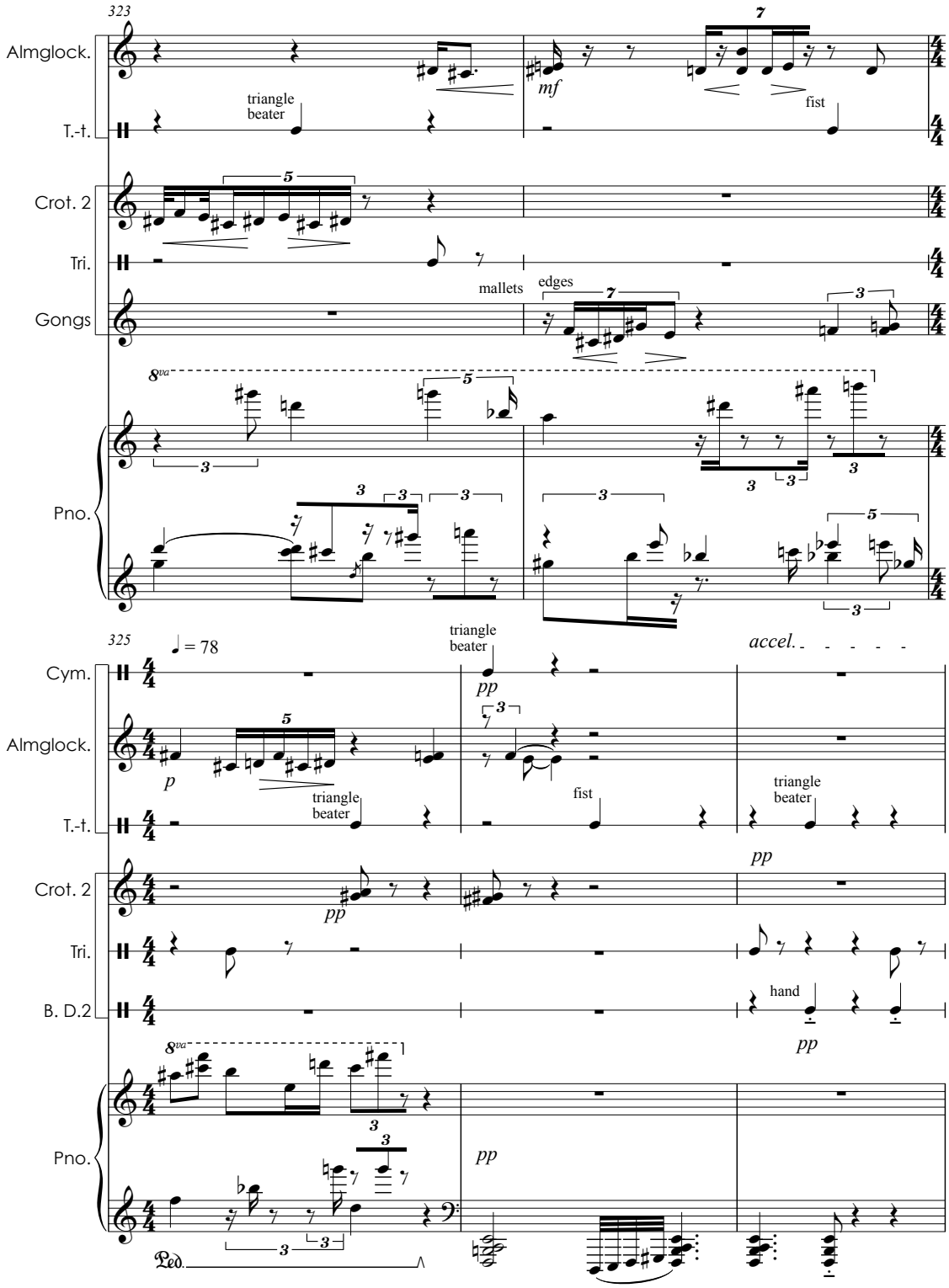

265
T.-t.
B. D.1
finger nails
super ball
rall.
mallet
Vib. 2
bow
Mar.
Cym.
Pno.
1/2
276
Vib. 1
fist
super ball
fist
Vib. 2
Cym.
bow
mallet
Pno.

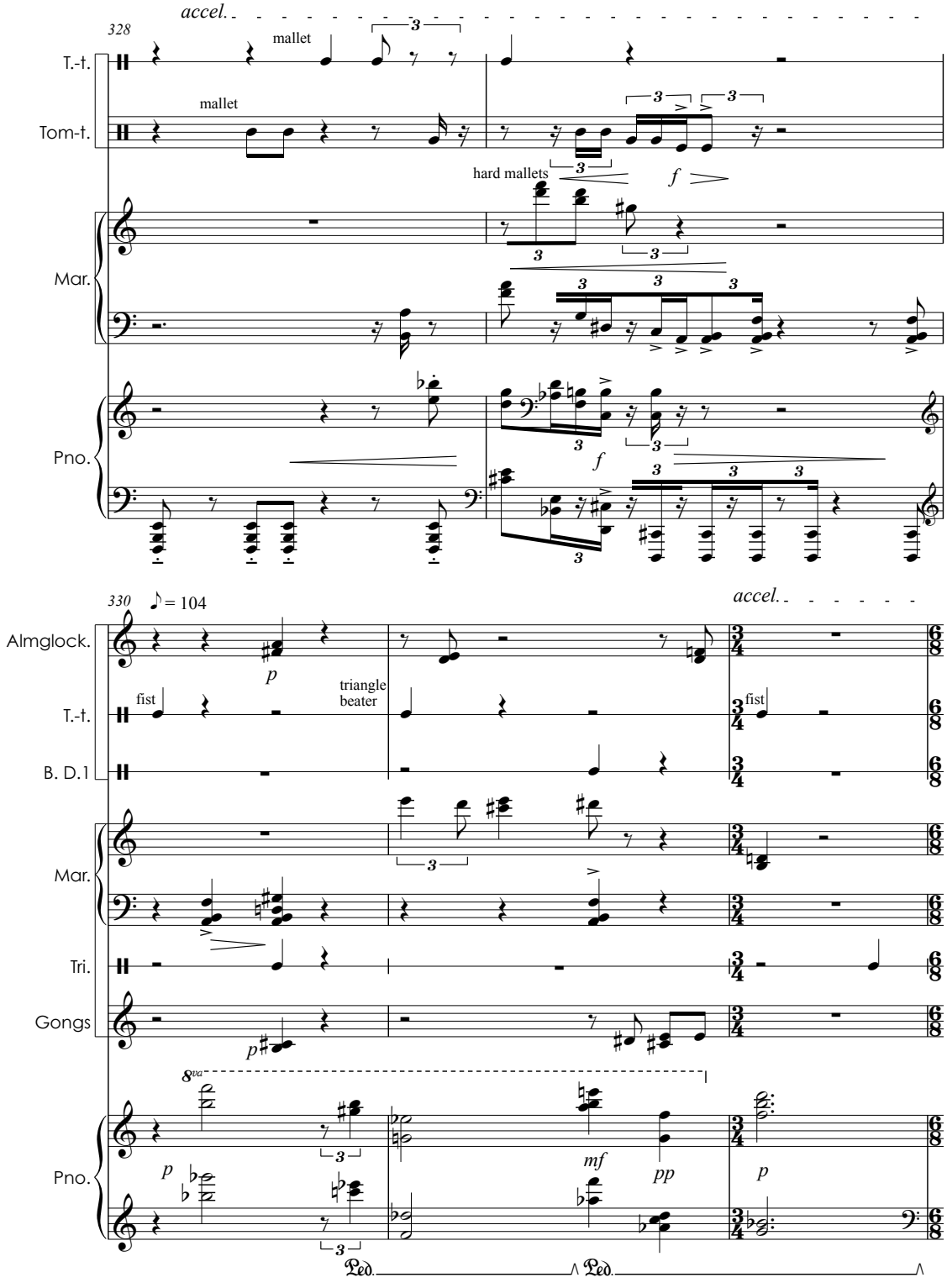

Viberaphone and crotales grade maximum dynamics:
etc.
F: p
E: m*p*
D#: *mf*
D: m*p*
C#: *p*
etc.
10
♩ = 44
287
Vib. 1
super ball
all notes
T.-t.
Vib. 2
all notes
Pno.
Ped.
296
Vib. 1
Vib. 2
Pno.
draw looped fishing line
sempre
Ped.

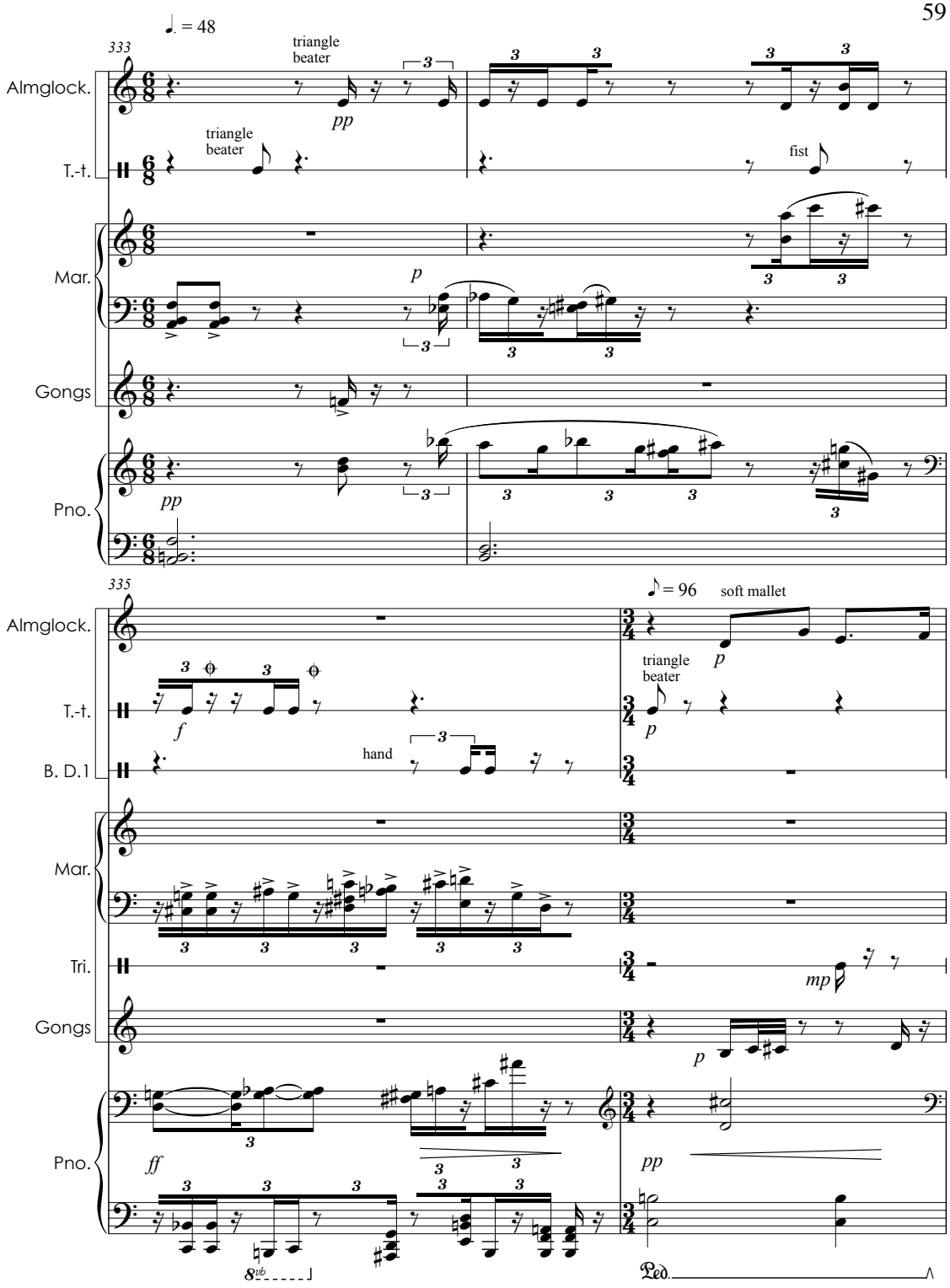

302
Vib. 1
l.v.
T.-t.
Crot. 1
bow
sempre l.v.
Vib. 2
China
cymbal
sticks
12 inch
splash
bow
Cym.
ppp
Pno.
ppp
310
♩ = 40
Crot. 1
bow
Crot. 2
sempre l.v.
Pno.
PP

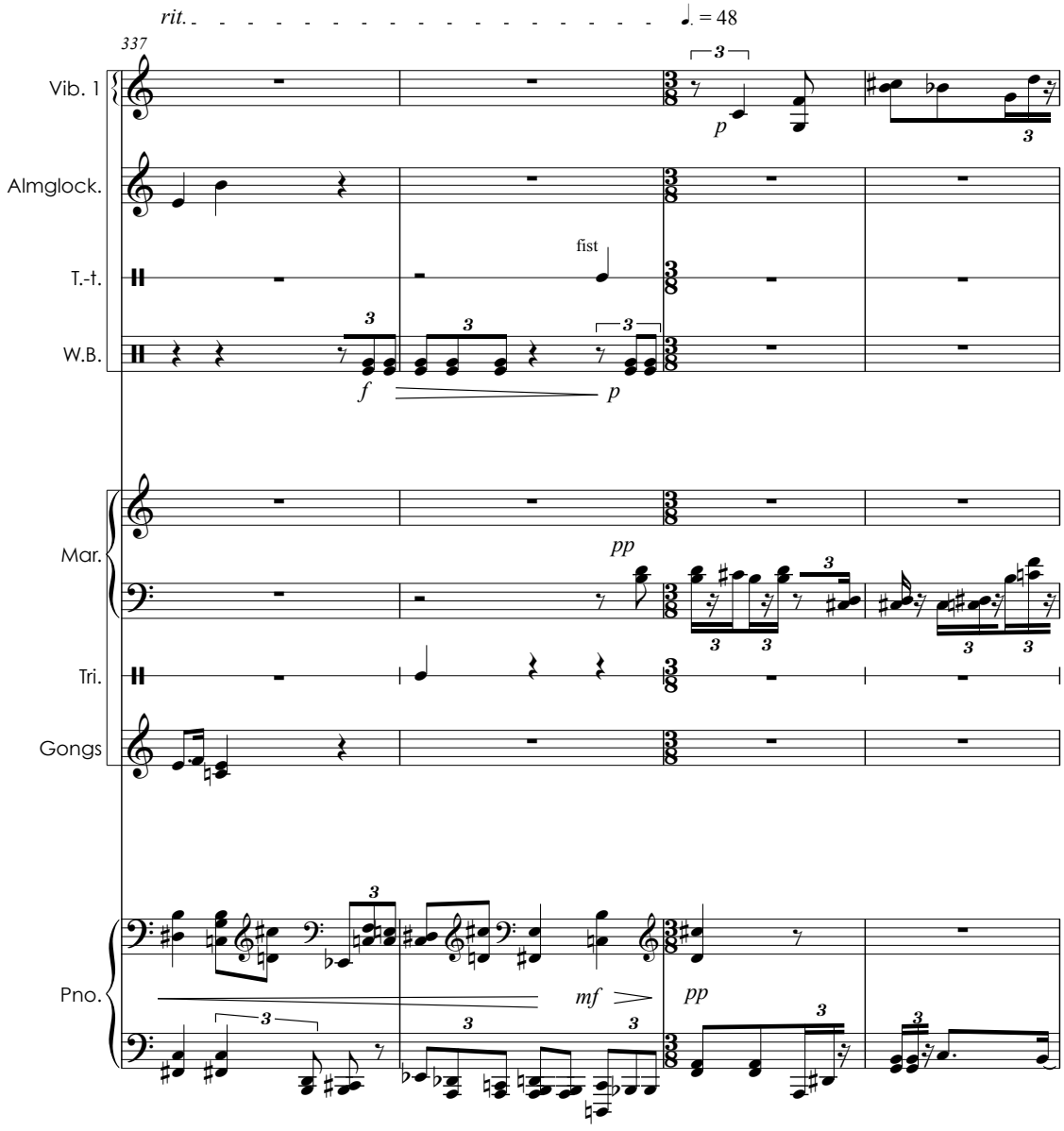

317
Crot. 1
Crot. 2
Pno.

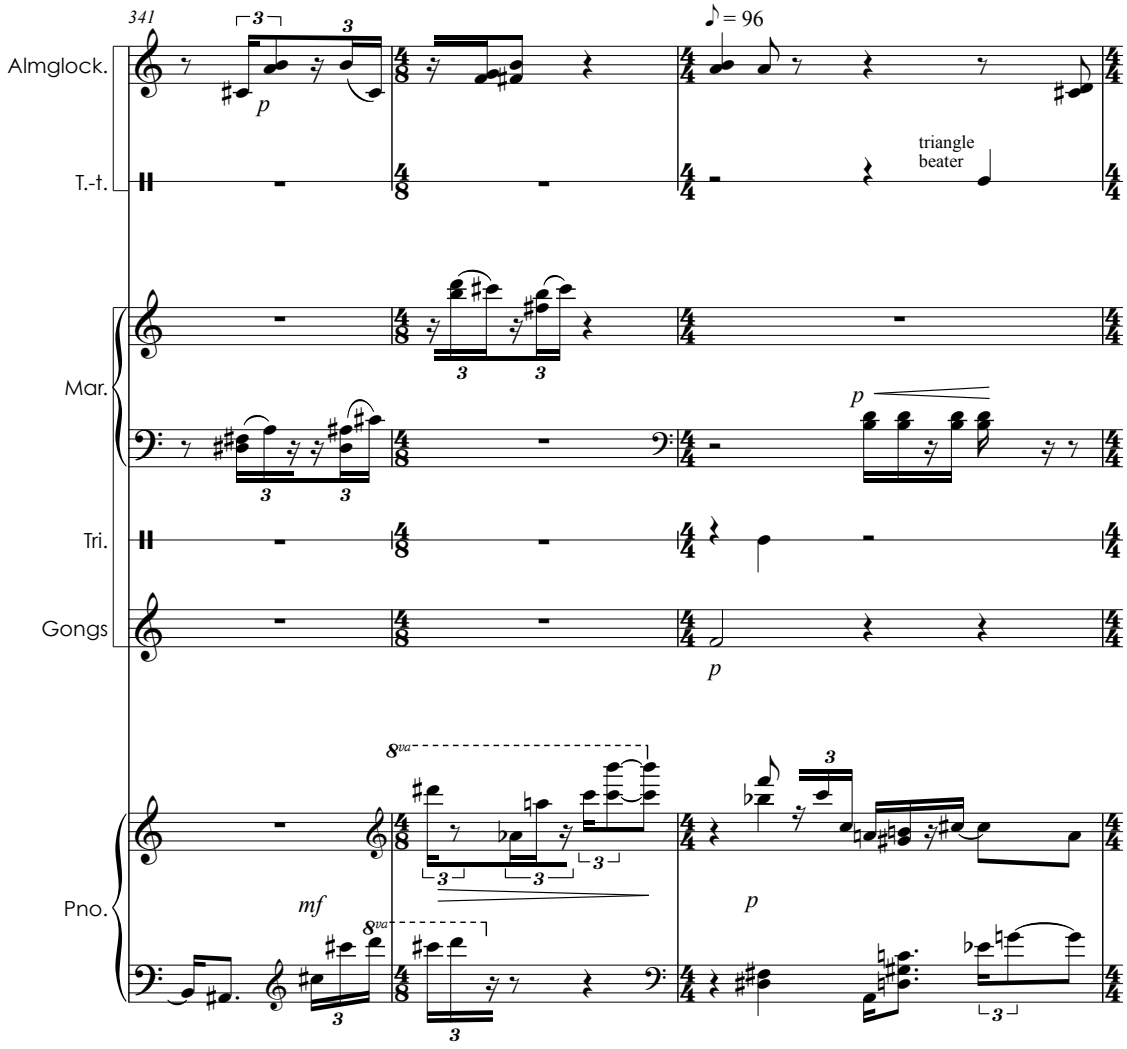

11
321
♪ = 104
Almglock.
soft mallets
pp
mp
T.-t.
triangle beater
sempre p
fist
Crot. 2
mallets
pp
Tri.
mallet
sempre mp
8va
Pno.
pp
p

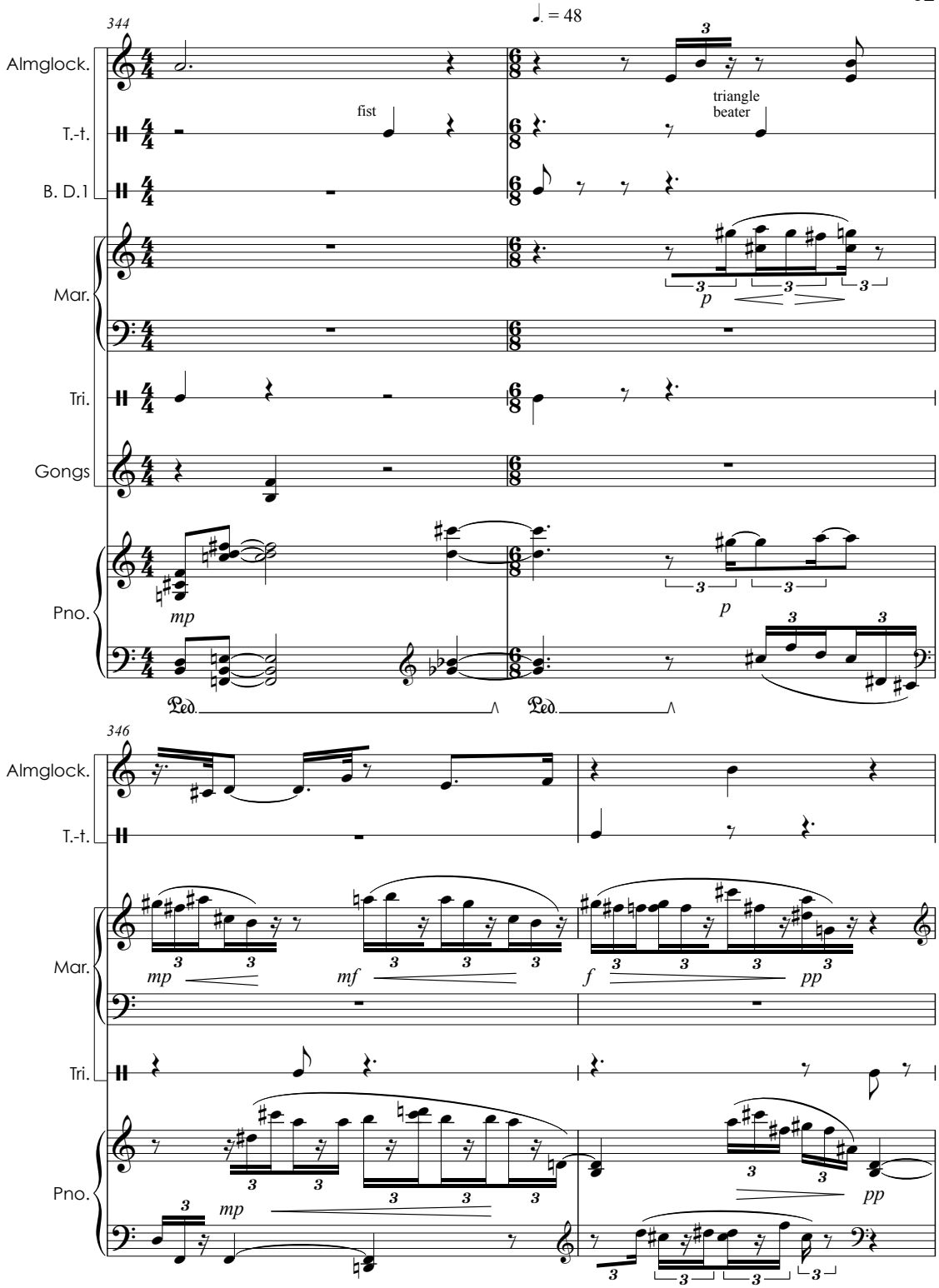

accel.
323
Almglock.
T.-t.
triangle beater
mf
fist
Crot. 2
Tri.
Gongs
mallets
edges
8va
Pno.
325
♩ = 78
Cym.
Almglock.
T.-t.
triangle beater
p
pp
fist
accel.
triangle beater
Crot. 2
Tri.
B. D.2
hand
Pno.
Ped.

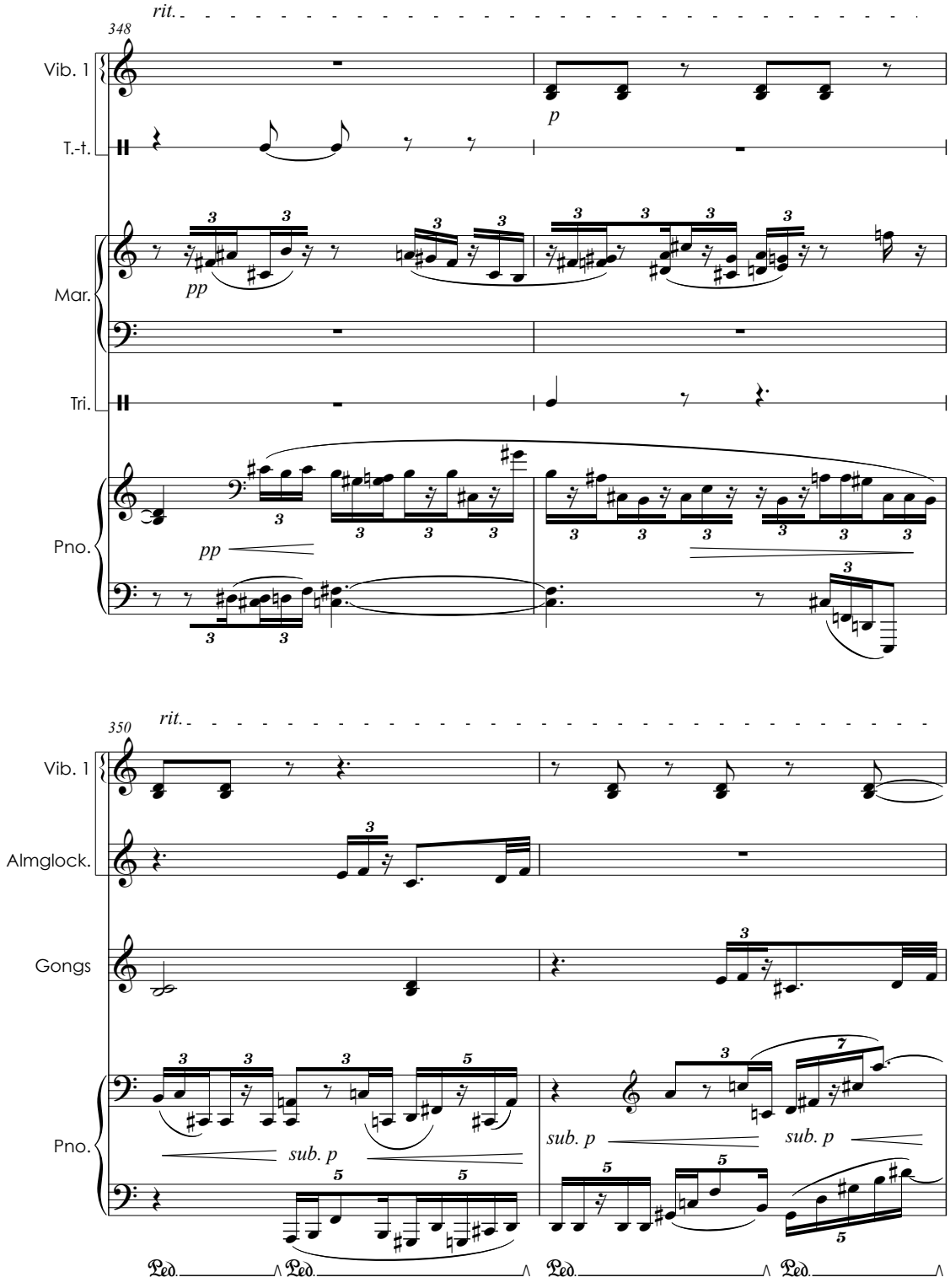

accel.
328
mallet
T.-t.
mallet
Tom-t.
hard mallets
f
Mar.
Pno.
f
330
♪ = 104
accel.
Almglock.
p
T.-t.
fist
triangle beater
fist
B. D.1
Mar.
Tri.
Gongs
p
8va
Pno.
p
mf
pp
p
Ped.
Ped.

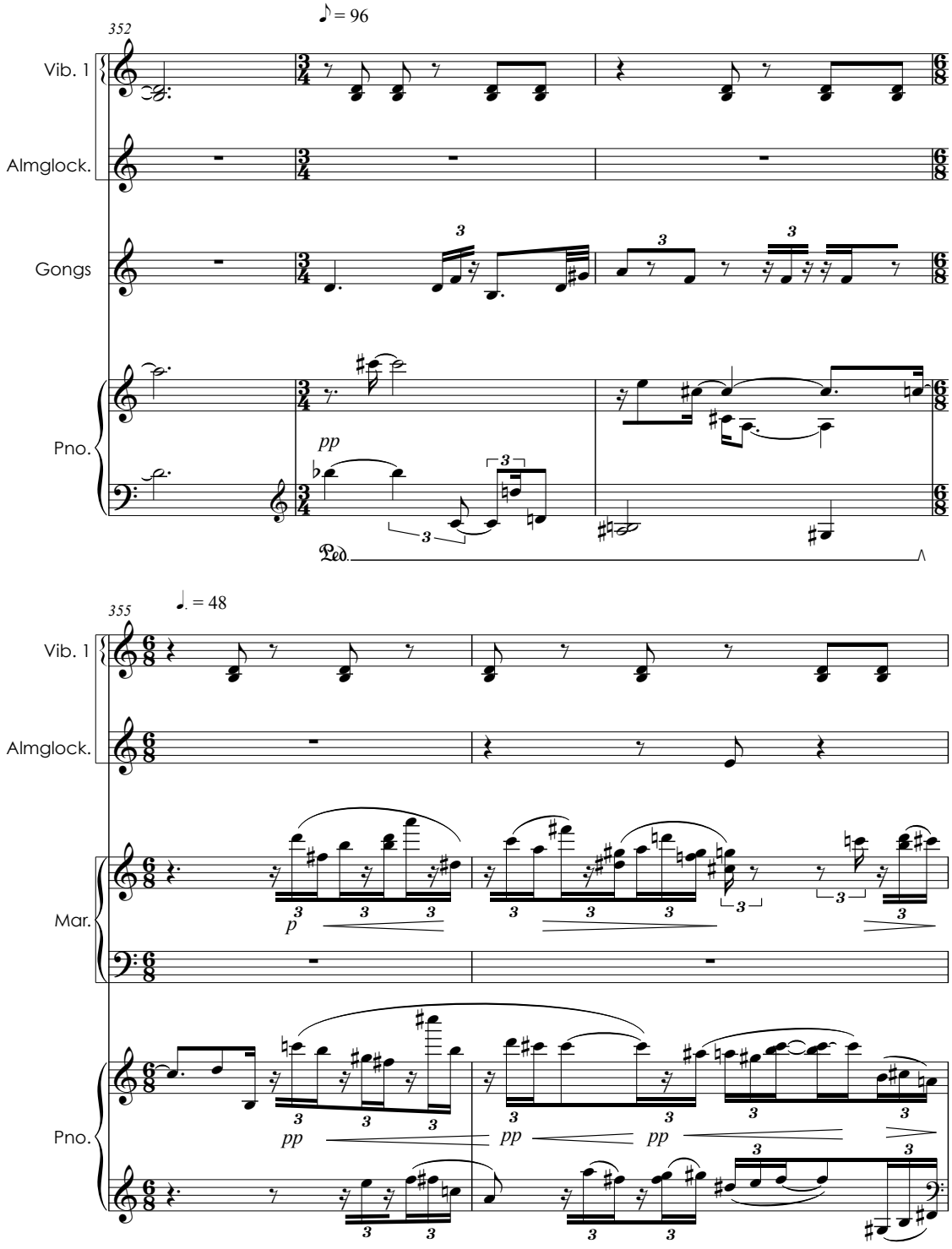

♩. = 48
333
triangle beater
Almglock.
T.-t.
pp
triangle beater
fist
Mar.
p
Gongs
Pno.
pp
335
♪ = 96
soft mallet
Almglock.
T.-t.
B. D.1
f
hand
triangle beater
p
Mar.
Tri.
mp
Gongs
p
Pno.
ff
pp
8vb
Ped.

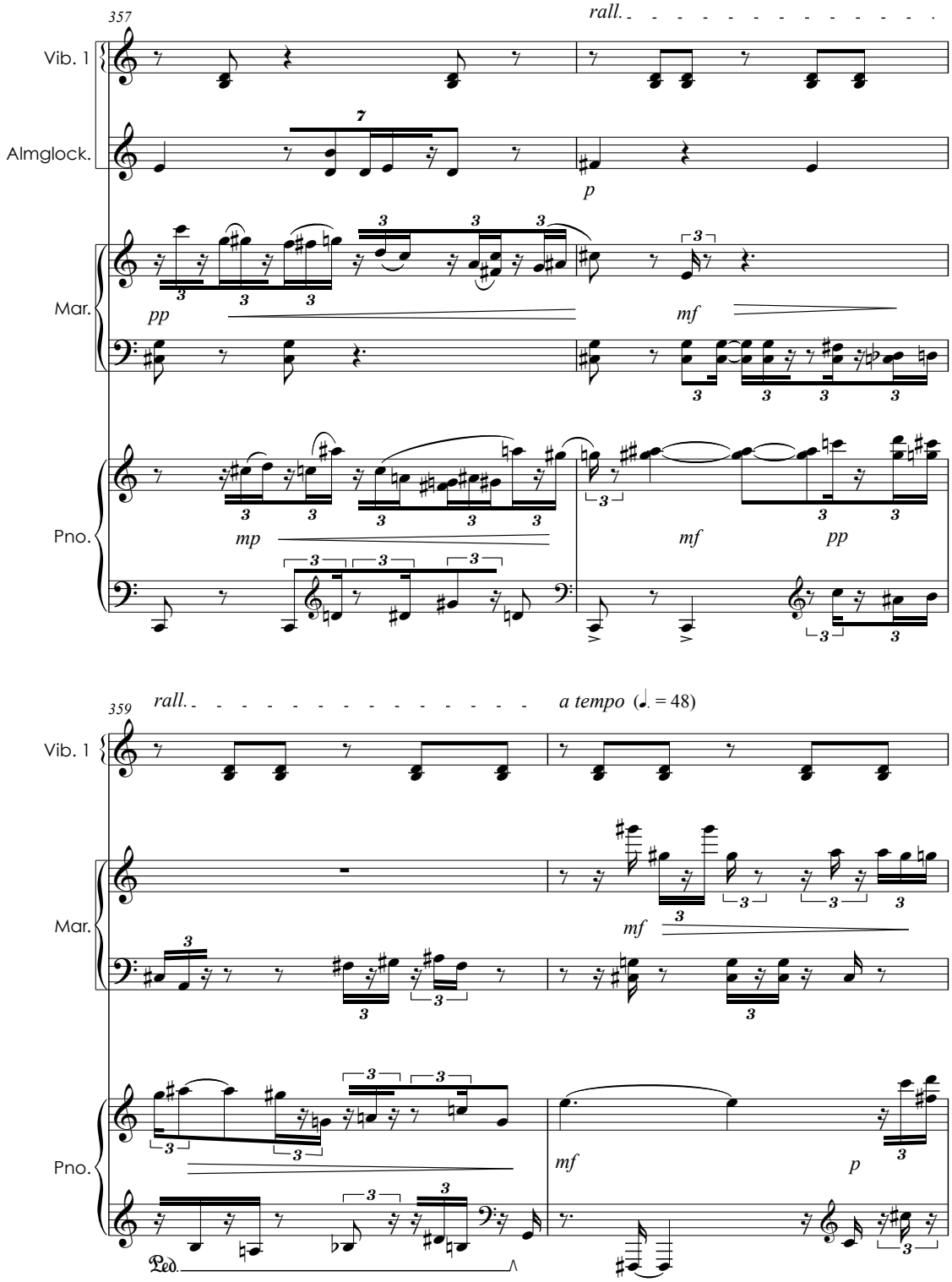

rit.
♩. = 48
337
Vib. 1
Almglock.
T.-t.
fist
W.B.
Mar.
Tri.
Gongs
Pno.
p
f
p
pp
mf
pp

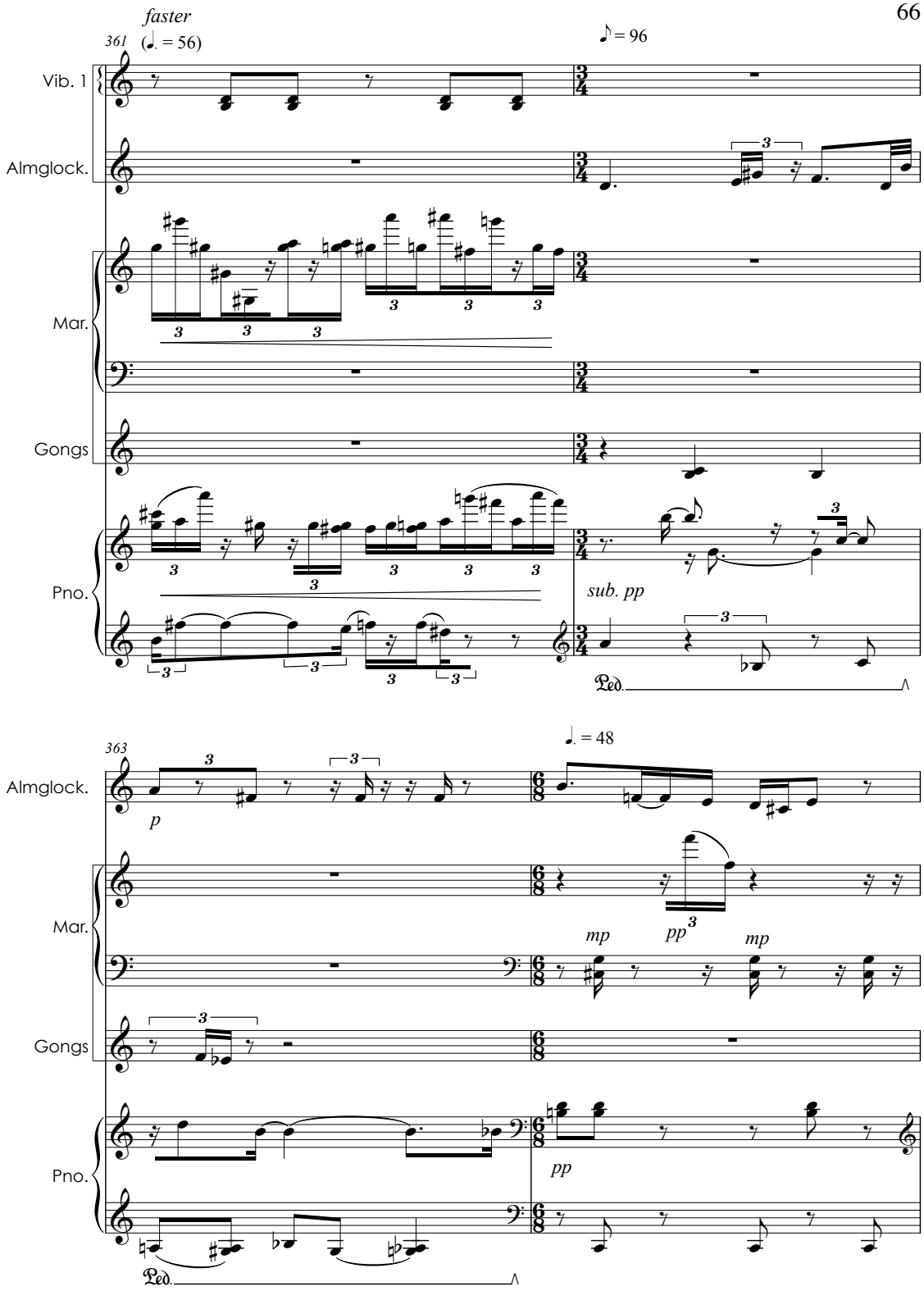

341
♪ = 96
Almglock.
T.-t.
triangle
beater
Mar.
Tri.
Gongs
Pno.
p
mf
8va

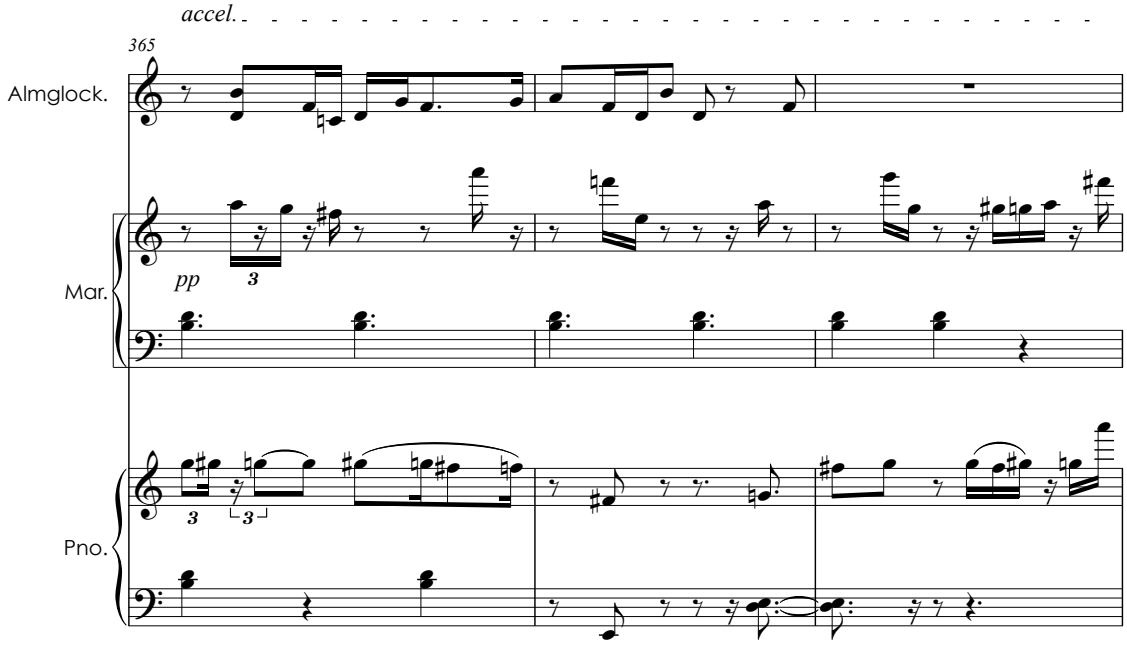

344
♩. = 48
Almglock.
T.-t.
B. D.1
fist
triangle
beater
Mar.
Tri.
Gongs
Pno.
mp
p
Ped.
346
Almglock.
T.-t.
Mar.
Tri.
Pno.
mp
mf
f
pp

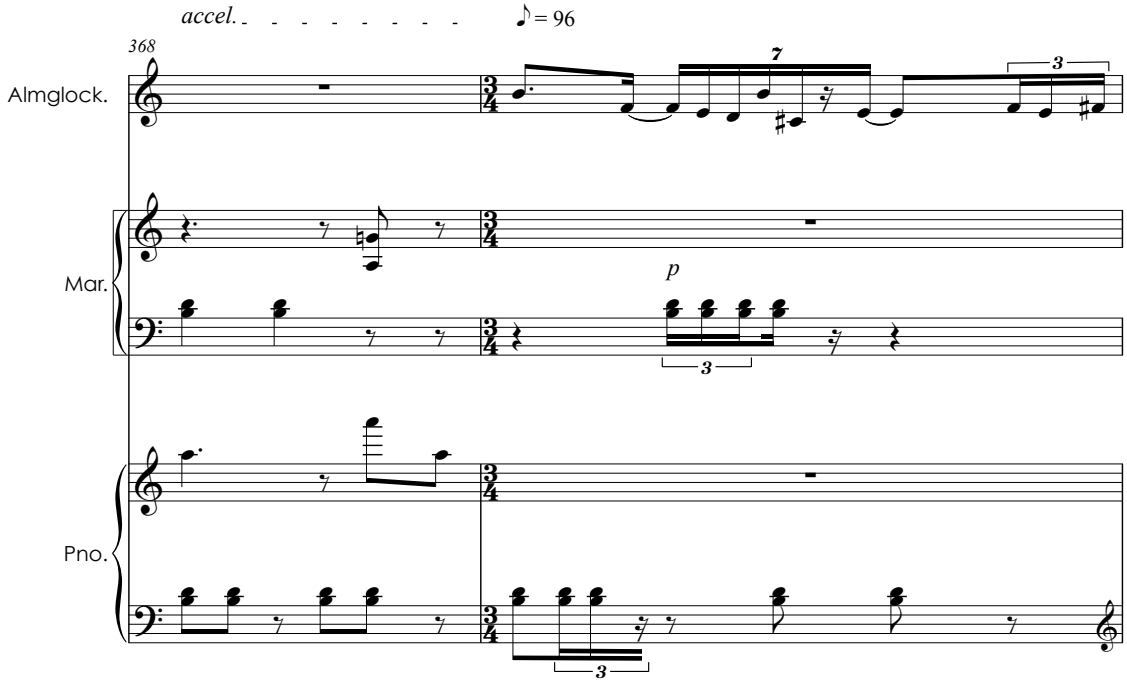

rit.
348
Vib. 1
T.-t.
Mar.
Tri.
Pno.
p
pp
pp
rit.
350
Vib. 1
Almglock.
Gongs
Pno.
sub. p
sub. p
sub. p
Ped.
Ped.
Ped.
Ped.

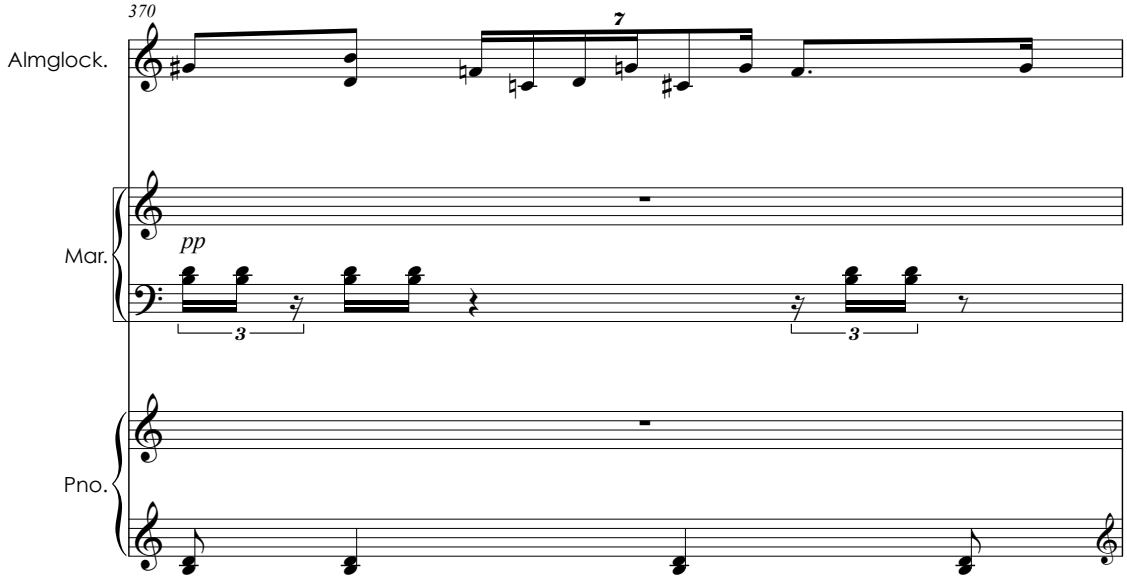

352
♪ = 96
Vib. 1
Almglock.
Gongs
Pno.
pp
Ped.
355
♩. = 48
Vib. 1
Almglock.
Mar.
Pno.
p
pp
pp
pp

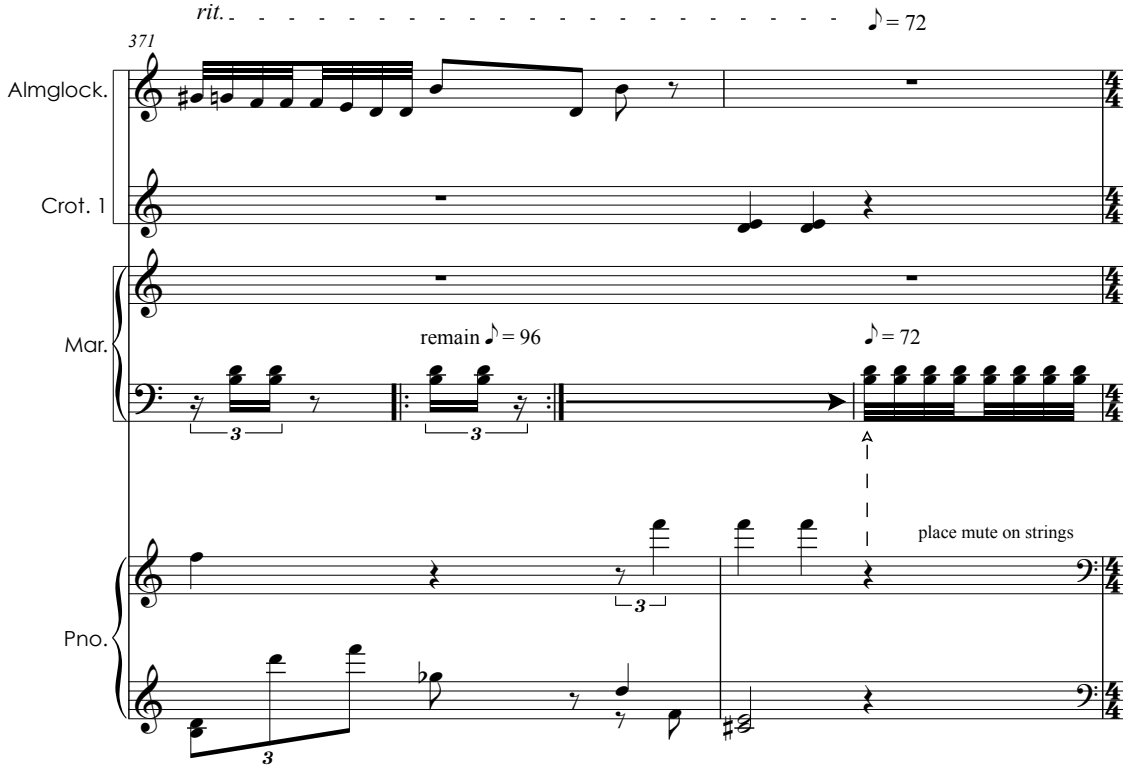

357
rall.
Vib. 1
Almglock.
p
Mar.
pp
mf
Pno.
mp
mf
pp
359
rall.
a tempo (♩. = 48)
Vib. 1
Mar.
mf
Pno.
mf
p
Ped.

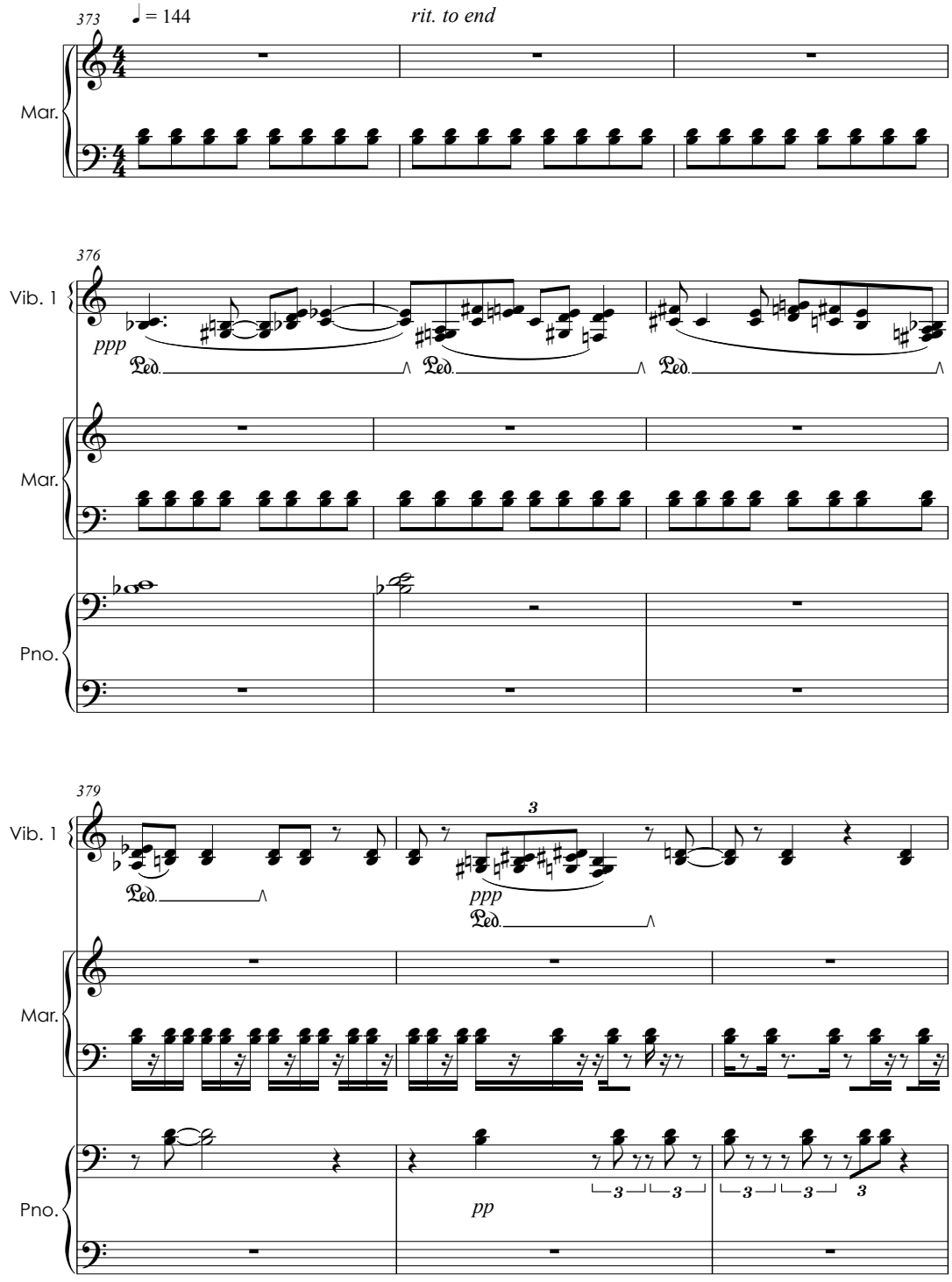

faster
361
(♩. = 56)
♪ = 96
Vib. 1
Almglock.
Mar.
Gongs
Pno.
sub. pp
Ped.
363
♩. = 48
Almglock.
p
Mar.
mp
pp
mp
Gongs
Pno.
pp
Ped.

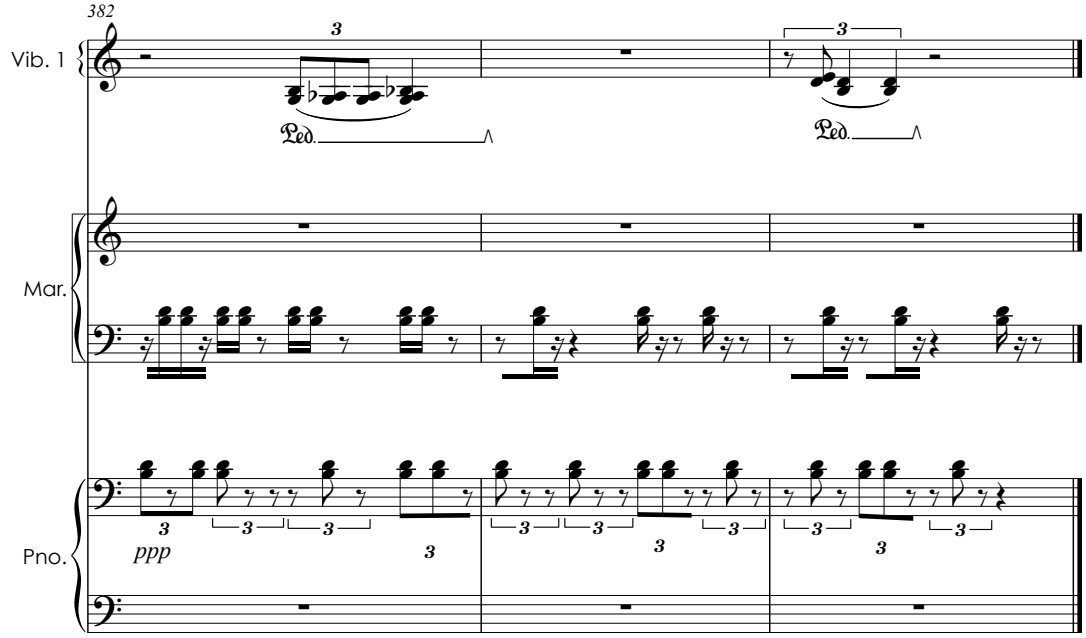

accel.
365
Almglock.
Mar.
pp
3
Pno.
3
3


accel.
♪ = 96
368
Almglock.
7
3
Mar.
p
3
Pno.
3


370
Almglock.
7
Mar.
pp
3
3
Pno.


rit.
♪ = 72
371
Almglock.
Crot. 1
Mar.
remain ♪ = 96
3
3
♪ = 72
place mute on strings
3
Pno.
3


373
♩ = 144
rit. to end
Mar.
376
Vib. 1
ppp
Ped.
Ped.
Ped.
Mar.
Pno.
379
Vib. 1
3
Ped.
ppp
Ped.
Mar.
Pno.
pp
3
3
3
3
3


382
Vib. 1
Mar.
Pno.
ppp

Analysis of Le Labyrinth de Chartres

This analysis will begin by introducing the inspiration of the piece and the manner in which this inspiration became a large-scale structure for the piece. It will then consider how the inspirational idea of the piece influenced the creation of the material and give a more detailed description of how each section of the piece works.

Le Labyrinthe de Chartres takes as its inspiration the stone labyrinth laid in the floor of the *Cathédrale Notre-Dame de Chartres*. Located 48 miles north-west of the city of Orleans, the Cathedral, constructed between 1190-1250, is one of the most remarkable and well preserved pieces of High Gothic architecture in the world. Around 150 of the original 176 stained glass windows remain, having famously been removed during World War II, hidden around the region, and subsequently cleaned and replaced following the War.

The Medieval eleven-circuit labyrinth, laid in the nave floor around 1200, is 42 feet in diameter, and located 100 feet from the primary west entrance. The center of the labyrinth is equidistant to the center of the cathedral's transept as the transept to the center of the apse, thereby creating a symbolic/contemplative focal point within the space that balances the practical/spiritual focal point of the apse.

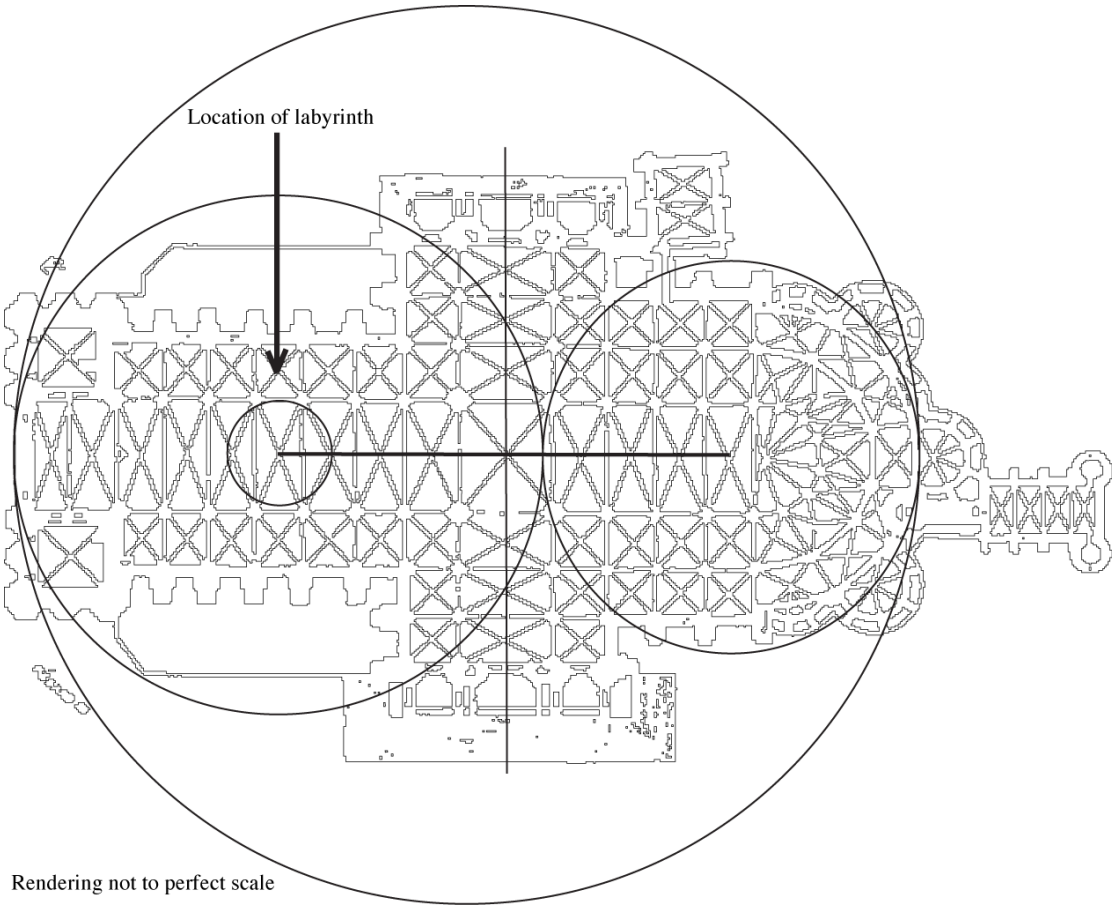


Figure 1: Basic floor plan of the *Cathédrale Notre-Dame de Chartres* highlighting geometric proportions of main architectural features.
Original rendering based on public domain floor plan image available at http://commons.wikimedia.org.

Figure 2: Detail of the labyrinth of Chartres.
Public domain image obtained from http://commons.wikimedia.org

The inspirationally relevant feature of this structure is a center location surrounded by a continuous path making eleven spiraling circuits around (toward or away from, depending on your perspective) the center. Key to this is the divorcing of the progress of the path from the conceptual idea of continuous concentric circles around the center. That is, although the path is essentially a spiral, it does not simply continue in a unidirectional loop expanding away from its origin, but rather meanders, constantly turning back on itself in the direction from which it just came. The path moves across the concentric circles without ever completing a full cycle of 360 degrees, retracing the same path in the adjacent circuit.

Let us call this phenomenon a "convoluted spiral." Imagine walking this convoluted spiral, beginning from the center and moving outward. Once the center and the views it affords have been contemplated, everything else along the path is only the

replay of a memory, a shadow of the initial view, approached from a different direction, slightly nearer, slightly further away. The path is slow, steady and continuous, but turns sharply, spinning the wanderer 180 degrees with each move to a new concentric circle (a step to a new platform, so to speak). Therefore each section of the path is of a particular type; all sections resemble each other, but none are the same.

The very act of walking it is a paradox: while offering a sense of direction, of forward motion, the wanderer goes nowhere, and yet upon completion, the wanderer is in a very different place than the place of departure. It is motion without direction, a journey that is not a journey, as the act of wandering out from the center is the act of moving from a location to a non-location (to "not-the center"), the longest possible route from within a fixed object to outside of that object. Further while the decision to wander through must be initiated by the wanderer, the subsequent wanderings are determined completely by the path itself. There is no choice to be made on the part of the wanderer except to continue to move forward, however, were such a wanderer to be observed from the outside, it would appear, given the constant sharp turns of retracement, that a great deal of will is being exercised, if perhaps exercised pointlessly in the circuitous retracing of steps already gone over. In a sense, it is an act of extreme futility, and yet offers the possibility for revelation.

I began working on this piece by making explorations of possible isomorphic translations of the specific convoluted spiral of this particular labyrinth, including its physical dimensions and the pattern it traces through its concentric circles (location of 180 degree turns etc.). Ultimately, I determined that a simpler, less literal interpretation

of this idea would result in a more satisfying and comprehensible musical form, lest the material devolve into an incomprehensibly flip-flopping set of micro-variations.

For convenience, sections of the piece will be discussed according to the rehearsal numbers that begin each section.

The work begins with an introductory piano solo, section 0, the "center," and is followed by eleven variously interlocking sections. This is less a series of variations on the original, and more a streaming flow of derivations of the material and ideas that came before; as the piece progresses, the material moves further and further away from the defining characteristics of the opening piano solo without ever truly "developing" that material in any meaningful sense of the word. Hopefully, the effect is that of a long dissipation, of a journey unfolding wherein the end of the journey, while maintaining certain familiar qualities, bares only slight resemblance to the beginning. This correlates to a shift in the nature of "meaning" throughout the piece. The musical elements that are meaningful at the beginning are virtually absent at the end; we move from within to without, and meaning must be located in other places as we progress. The challenge posed by this idea, then, was to create a convincing shift in musical language over the course of the piece without it sounding like an inexplicable or aimless shift in linguistic tendencies. The shift must be compelling without drawing too much attention to itself, lest we mentally fall off the path as we listen.

As the circuits of the physical labyrinth do not move continuously along one expanding set of concentric loops, there are moments within the piece where the material retraces, or moves in a direction that brings it closer to the material of the opening piano

solo. The most significant examples of this, to be discussed in greater detail later, are the music of section 4 and the music that begins section 11. Following the rhythmically aggressive and increasingly dense music of sections 2 and 3, section 4 regains the slow pulse and heavy rhythmic gravity that is so central to the opening solo. As will be discussed later, the nature of the rhythmic gravity is not *the same* as in the opening, but the effect is of a large halt in the accumulating energy of the rhythmic stream, and a return to previous forms of interaction. Section 11 regains a melodic and harmonic focus reminiscent of section 0 that has been completely absent in the preceding sections.

Expanding time proportions and the manner in which they interlock are the key means by which the idea of the labyrinth guides the structure of the piece. As a compositional conceit, each section was originally established within a 32-bar framework. This 32-bar framework lends a periodic sameness to each section, and, as time expands and contracts, ultimately slowing down broadly over the course of the piece, this framework imposes itself more and more intensely on the compositional process. If the first loop away from the center (section 1) is only ¼ the time of the last loop (section 11), this necessarily implies certain things about the nature of the music occupying each of those sets of 32 bars: tempi can only get so slow before they are no longer rational (below, say, 40 bpm, one starts to understand not the beat unit of the meter but the subdivision of the beat unit as primary).

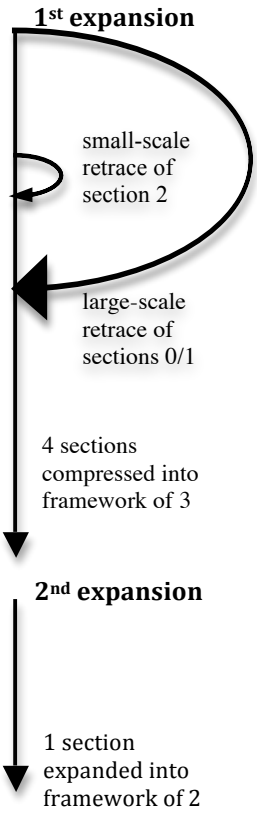
Tempo and meter shift throughout the piece according to the proportional real-time "demands" of each section. Once the tempi and meters were established, and material written, there was a balancing give and take process to better align the demands

of the sectional time proportions and the nature of the material filling each section. Some sections became slightly faster, some slightly slower, both with the intent of intensifying the effect of the material within each section. The overarching relationships of sections, while not as rigorously defined as they were at the conceptual outset, remained within a margin of perceptible continuous expansion.

There are two primary large-scale processes at work in the piece: expansion of interlocking time frames, and rotation and dissolution of musical material. The first table below outlines the time structure and interlocking timeframes:

Table 1: Time proportions of Le Labyrinthe de Chartres.

Section (labeled according to rehearsal #)	**Measures**	**Approx. time**	**Approx. time of grouped sections**
0	1 – 32	2:30	2:30
1	33 – 64	1:00	1:00
2	65 – 96	:50	internal rotation / expansion of material 2:00
3	97 – 128	1:10	
4	129 – 160	1:30	1:30
5	161 – 174	:45	internal rotation / expansion of material, many small scale retraces of material 4:15
6	175 – 198	:45	
7	199 – 231	1:15	
8	232 – 256	1:30	
9	257 – 288	1:45	1:45
10	289 – 320	2:30	2:30
11	321 – 384	4:00	4:00



Section 0 should be understood as setting a baseline for proportional time. From there, sections 1 – 3 start off at half the length of section 0 and expand incrementally. This is followed by a retracement in section 4 (both of time and of material). Sections 5 – 8 begin again and undergo a similar expansion, but the cumulative energy of these sections can also be understood as one large group with a series of interlocking pieces, which together act as the next "rotation" following sections 1 – 4. That is, sections 5 – 8 are not a break from sections 1 – 4, but a retracement of the first contraction / expansion time process combined with a drastic outward expansion of energy. Section 9 then marks the beginning of a second large process of expansion. The time of this section is nearly twice that of where the first rotation began (section 1), the energy moves in the opposite direction and the material is a mere shadow of the material that opened the piece. Rather than directing us toward an accumulation of energy, section 9 begins a process of dissipation of energy; rather than become denser with material, the final sections become sparser.

Note also that sections 5 – 8 occupy a total of 96 bars, or the equivalent of three 32-bar sections. To compensate for this truncation (an accumulation of density on a structural level rather than on a beat to beat level, and a significantly more chaotic organization of short pieces of contrasting material) section 11 is a double section of 64 bars (a manifestation of structural sparseness). The idea of this tradeoff was to further exaggerate the effect of the rotation / expansion / accumulation / dissipation processes that guide the structure of the entire piece.

Contemplations on the nature of the labyrinth and the experience of wandering through it also guided the types of material used in the piece and the selection of kinds of processes that unfold. Key ideas in the development of musical material involve issues of density, figure and shadow, and loop structures – energetically static forms that give the false appearance of directionality. As each type of material appears in the piece it proposes a baseline by which to understand that material. Subsequent appearances of similar kinds of material are almost always "further out" in the circle. That is, in a relative, backward-looking sense, they become more vague in nature, lacking the anchors that held together and gave meaning to the earlier incarnation of similar material, but no less rigorously defined *as itself*. It is only in comparison to previous versions of certain material that the material seems to have lost some critical aspect of its nature. This is the reason each subsequent section cannot be discussed as a "variation" of some former section or idea. Variations shed new light upon familiar material, but here, the rotation of material does little to shed light on previous material. It is simply an expanding progression of similar material unfolding in a semi-cyclic fashion. It is the essence of the aimless journey.

The chart below gives a brief description of the type of material in each section, and how it can be understood in relation to surrounding sections.

Table 2: Summary of types of material in Le Labyrinthe de Chartres.

Section	Short description
0	*recitativo* traditionally oriented relationships of melody and harmony, melodic embellishments of a main line
1	bright "shadow" of 0; harmonically slower, melodically faster; explosion of energy, and shift away from the apparent baseline of section 0
2/3	intertwining palindromic canonic loops
4	gravitational objects and resonant shadows; harmonic sequence of section 0 and similar melodic ideas of section 1, but a retrace of energy
5 – 8:	*sections 5-8 introduce process as an element of the language*
measures: 161-164, 173-174, 208-215, 226-231, 249-256	repeated chords (figures) with immediately articulated harmonic echoes (shadows); purely "vertical music," rhythmically aggressive, but has "directionality" only through slowly shifting timbre; shifting timbre results in loss of harmony (that which defined the "figure" at the beginning), a process within itself
measures: 165-172, 175-198,	two sections merged as a single process of evolution from streaming flow of single pitch, expanding outward and slowing as it goes, purely "horizontal music", repeated note figure a shadow of sections 2/3, but losing rhythmic energy and devolving into a gravitationally weak shadow of section 4; a process of shift from one thing to another
measures: 199-207, 216-225, 232-248,	rhythmic loops; (rhythmic Shepard Tone) combination and reorganization of previous two sections, a process within itself
9	cluster (shadow) and resonance (figure); also a derivation of characteristics previously seen: repeated notes, rise and fall of melodic motion, weakening of harmonic voice as it progresses
10	pitch loops; (pitch Shepard Tone) second half is shadow of first half in terms of pitch clarity and tessitura
11	dissipating passacaglia (rhythmic loop); interruptions in passacaglia by shadows of old material compel the passacaglia to become a shadow of itself; ends with non-metric, non-rhythmic repeated notes

Notice the oscillating juxtaposition of focuses on figure/shadow structures and loop structures. The figure/shadow structures can be understood as offering contemplation of a series of slowly shifting objects. The loop structures can be understood as offering contemplation of types of static motion (sometimes overtly static, sometimes deceptively static). Neither is purely fixed or purely evolving. Both offer different types of meeting points of stasis and motion.

The rest of the analysis will walk through each section and describe it in greater detail.

Section 0 is in the style of a free *recitativo*. It hangs in balance between strong metric organization and free, almost improvisatory figuration. Organized into four 8-bar phrases, it establishes certain baselines for the piece, from which subsequent processes will depart. It is the center, the contemplation of a state of being, adhering to the Baroque doctrine of unified affect. It exists within a steady state unto itself, unaffected by the melodic, harmonic and tempo movements inside of it. It is rich in potential for variation, potential that ultimately goes untapped. “Process” has no importance or meaning in this section; it is a group of notes and rhythms that attempt to define themselves according to themselves. The sense of pulse, while undergoing continuous flex, gentle push and pull, is essentially static, likewise the tessitura of pitches, sitting almost exclusively in a baritone register. There are no competing forces within the section, drawing attention or compelling a shift of meaning or focus. In this regard, it is the most traditional type of music in the piece. Were the harmony more traditionally organized around clearly hierarchical pitch centers and the rhythm within a slightly narrower scope of possible

subdivision, this music could be of an earlier era. Everything about section 0 is heavily contained, but in performance ought to sound entirely improvised.

The harmonic material of section 0 was generated by melodically embellishing a 32-bar "*cantus firmus*."

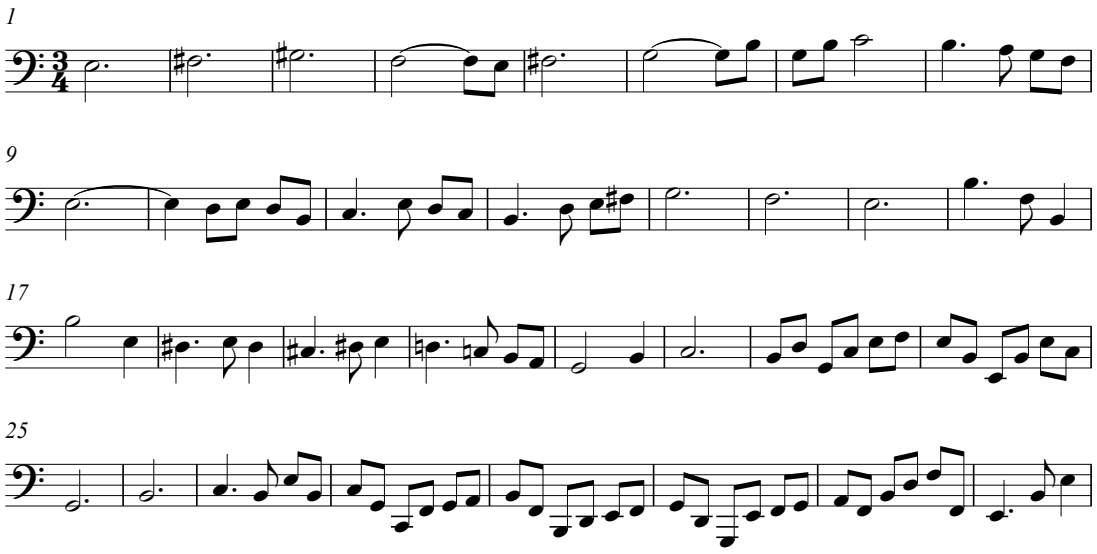


Figure 3: 32-bar melodic framework for section 0.

The harmony that sits around this *cantus firmus* ("around" because the *cantus firmus* occupies neither top nor bottom voice, but is treated more as a means to focus melodic motion) meanders from the E-focus at the beginning to the B-focus of m.16 and back, but when we reach m.32, we have already lost some of the harmonic color and richness of the opening:

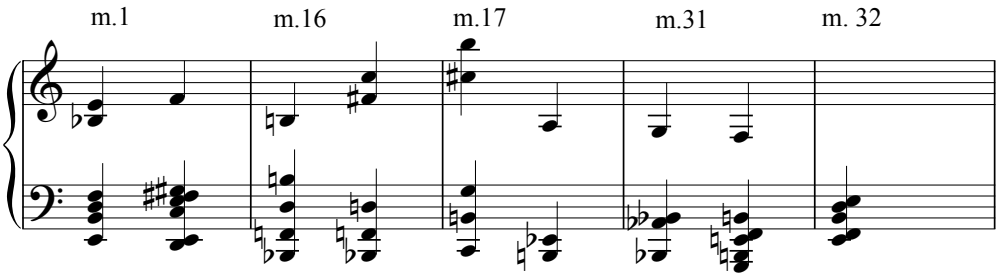


Figure 4: Long-range harmonic shift and return of m.1/16/32.

As we approach the end of the section, melodic motion speeds up, embellished by trills and runs that muddy the harmony (a phenomenon that is further exacerbated by the pedal indications), and implicate the impending shift to section 1:

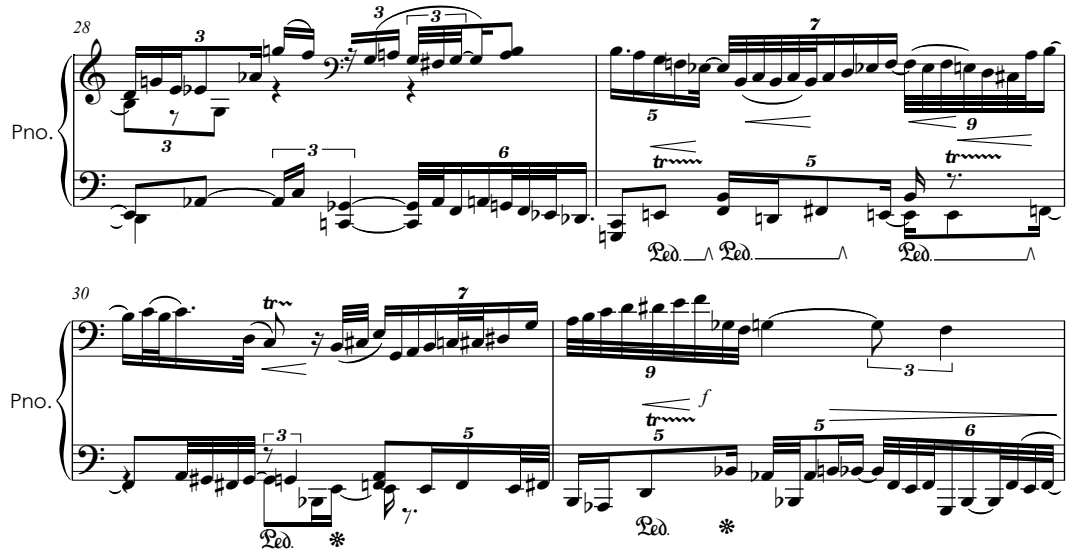


Figure 5: Measures 28-31. Running melodic fragments overwhelm the steady pulse and harmonic orientation that had defined the section.

After section 0 was written as a melodically intertwining development of the *cantus firmus*, a harmonic scheme was derived from the intertwining melodic voices. This harmonic scheme was then used in some capacity to generate all of the subsequent harmonic content.

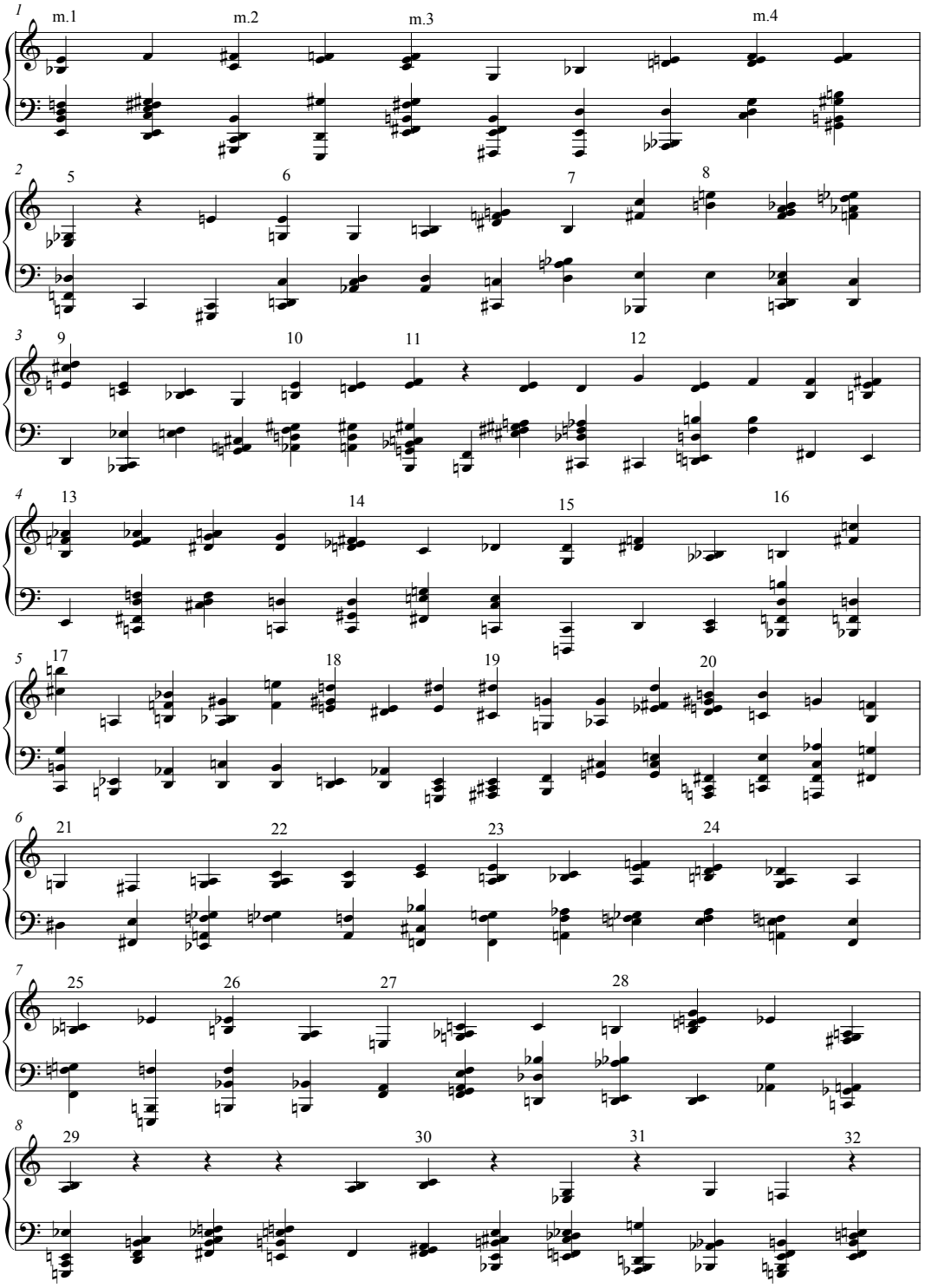


Figure 6: Chord series derived from melodic framework of section 0.

Section 1 is built as a shadow (or perhaps anti-shadow) to section 0, an energetic explosion of section 0. The timbre of the piano is reinforced and brightened with the addition of the vibraphone and shift to a higher tessitura. The constantly leaping figuration that begins the section replaces the melodically "focused" figuration of section 0. The figuration of this section can be understood as an erratically spiking needle; these movements do not draw away from the general flow of the section, which is in fact slower than that of section 0, but rather encircle it. Section 1 contains underpinning hints of the harmonic flow of section 0, but this harmony is distorted via a pitch mapping process and the erratic, leaping figuration. The harmony here is significantly less meaningful to the nature of this music. In a sense, the material of section 0 becomes distorted outward in section 1, both faster and slower, brighter (in timbre and tessitura) and yet less distinct, like stepping out from a dark room onto a busy street, the apparent beginning of a journey.

Following the skeletal framework of sustained tones at the beginning of section 1 set beneath the harmonic reduction of the first four bars reveals how the harmony parallels the harmony of section 0. Section 1 was originally derived by pitch mapping tones of section 0 outwards, but then expanded by re-applying elements of the original harmony of section 0 and embellishing these pitches with neighboring half-steps. The element of embellishing by neighboring half-step recurs throughout the piece, particularly in quick melodic passages, but also occurs at slower harmonic levels, as seen below. The processes of taking fixed elements of the previous section, mapping them to

something new, and reapplying a layer of the element as it originally appeared was also a common technique used throughout the piece for deriving new but related material.

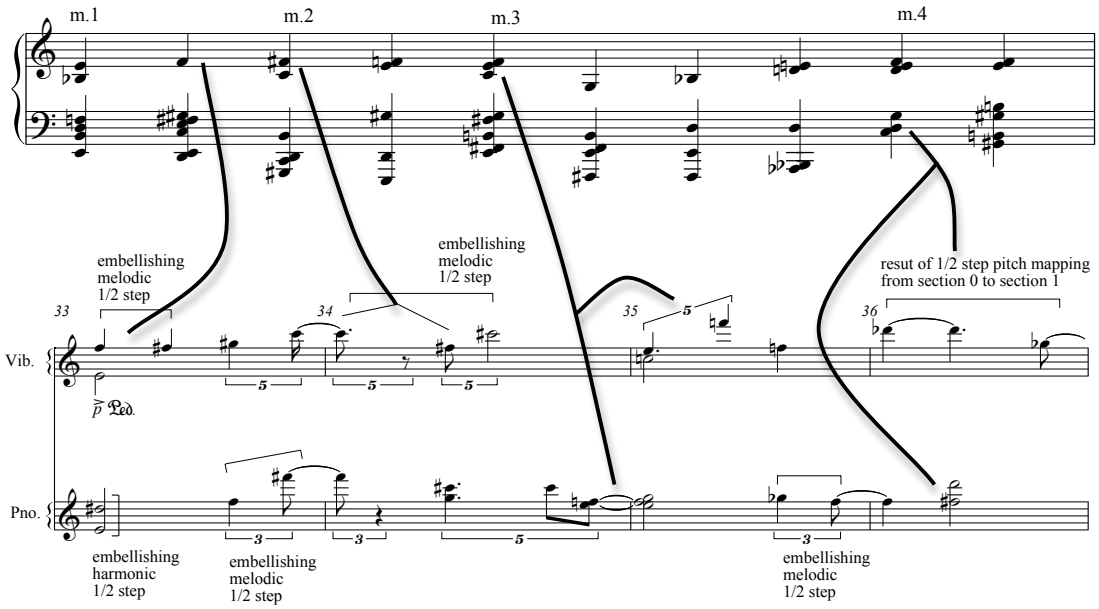


Figure 7: Harmonic framework of m.1 – 4 compared to skeletal outline of m.33 – 36.
All other material in this section can be considered noise disrupting the signal of connection between section 0 and section1.

One could trace all of m.33 – 64 in the same fashion.

Sections 2 and 3 are an intertwined set of palindromic canons and the first example of energetically static loop structures. To create sections 2 and 3, a melodic line was derived from section 0, which was then set as a 2-voice canon at the distance of a 16th note, the secondary line using the retrograde of the primary line (less a canon in any meaningful sense of the word than a very fast echo, a double iteration, a figure with a tiny shadow). This 2-voice figure/shadow stream was then set canonically against itself at a distance of a full bar. Note that in the illustration below, the full 32-bar canonic line is not

given to compare the end of the bottom system with the beginning of the top system, but the top system is in fact the retrograde of the bottom system.

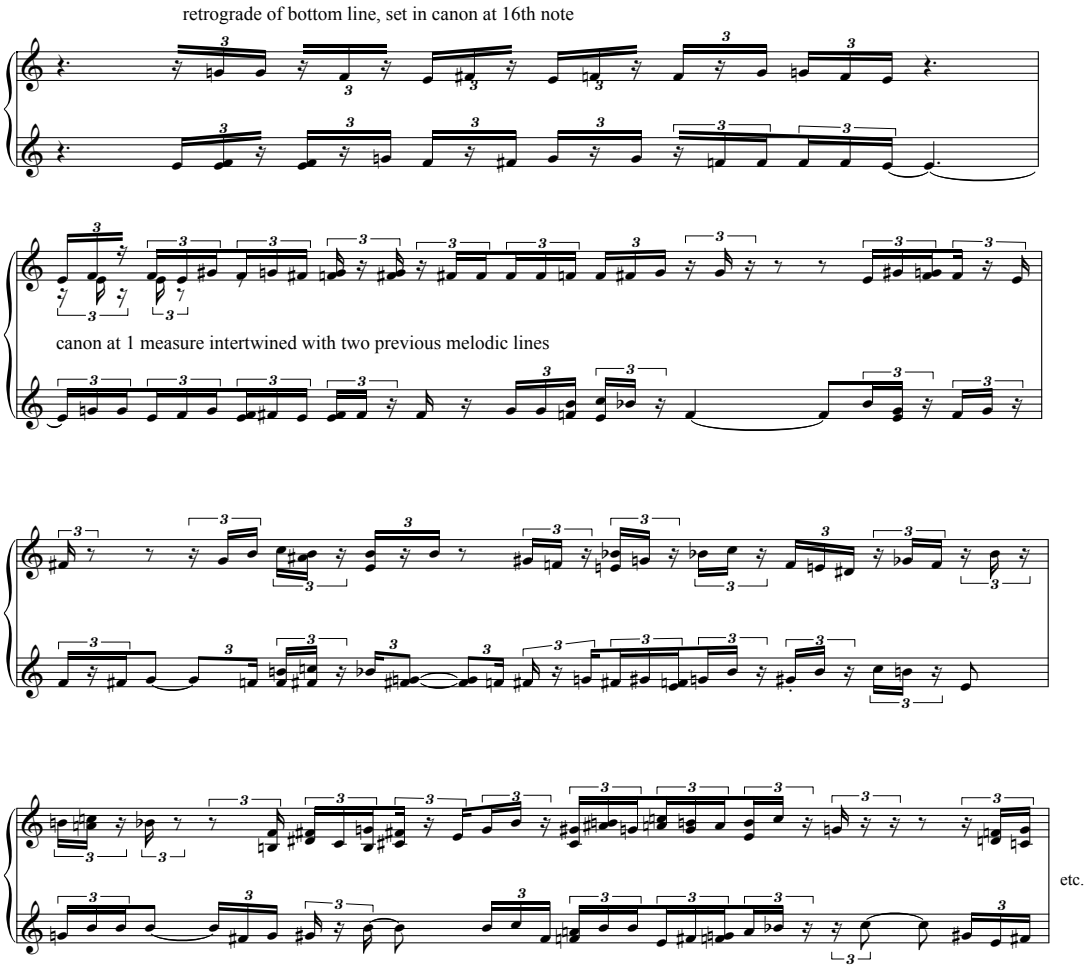


Figure 8: Early sketch of the first four bars of section 2.

Once this canonic line had been developed, empty space was filled as much as possible with streams of repeated pitches, and some of the more overt melodic motion was stripped away. This highlights another common working technique: after working through a rigorously constructed piece of music, I often then work to smudge or blur the

rigor of the idea being developed. This creates a nature in the music where there is ambiguity between material that is "part of the process" and material that is "not part of the process." The music retains something of its rigorous constructive nature, but without being fully audible. This is not done just at the level of pitch relationships. The orchestration and registration of section 2 (an octave higher than the sketch above) were also specifically chosen to blur the clarity of each voice. This calls for a delicate balance. Too much structure is uninteresting, but too much blurring becomes incomprehensible. Ultimately both phenomena coexist within the piece at once, signal and noise together, often making it nearly impossible in the final version to extract one from the other.

After developing these interlocking canonic imitations, the entire section was then marked by an erratic/a-metric large-scale "pseudo-tactus" of staccato chords, also derived from the harmonic scheme of section 0.

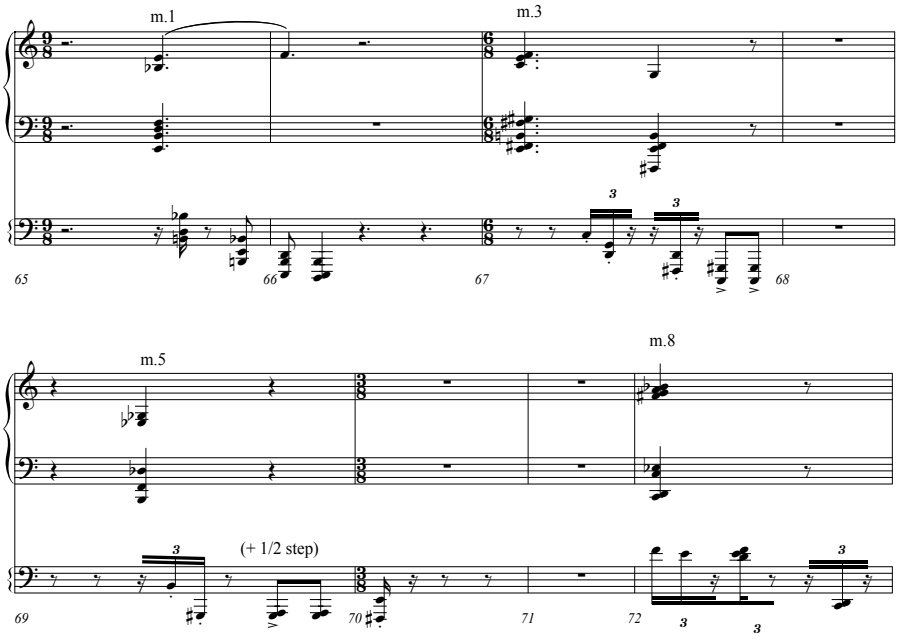


Figure 9: Bass "tactus" of m.65 – 72 as compared to harmony of m.1-8.

Meanwhile, the vibraphone outlines a rising and falling line, a slow version of the first few bars of section 0's *cantus firmus*, broken up by interjections of canonic material that leak over from the other voices.

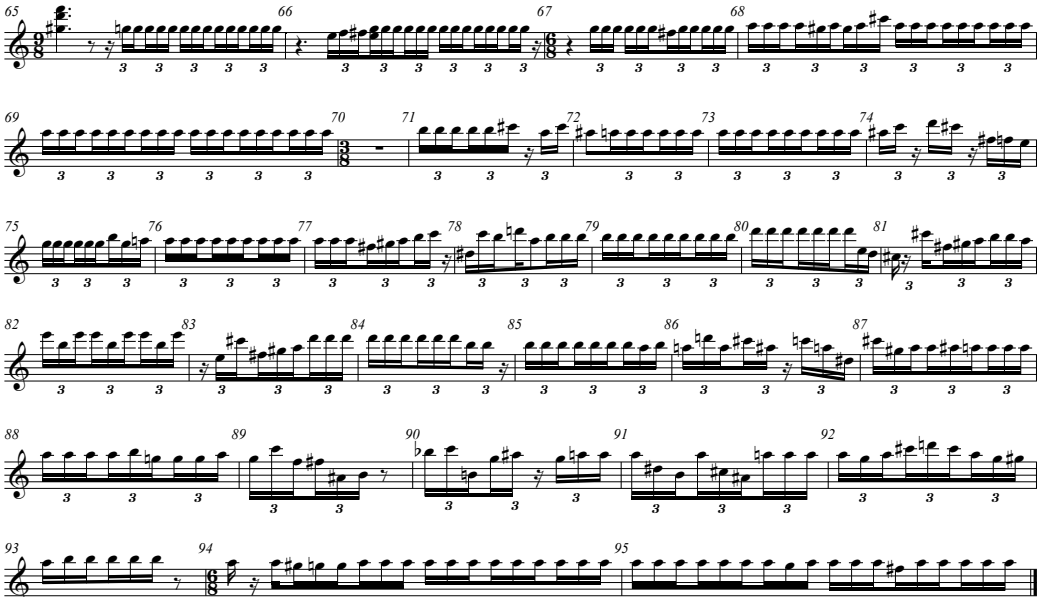


Figure 10: Isolated vibraphone part of m.65 – 95. The line drifts generally upward from G to E, then almost back. At the point that it ought to return to the opening G, we move on to Section 3, the focus of which then becomes upward drift.

The entire object of section 2 is then repeated in reverse, and pitch shifted up to create section 3. Whereas the arc of the vibraphone in section 2 was essentially understandable as an arc, in section 3 it is continuously imposed upon by material from the canon. The slow motion of the vibraphone gets absorbed into the frantic music of the intertwined canons.

Sections 2 and 3 appear to be driving toward something, appear to have focused the rhythmic intensity introduced in section 1 into an actual direction, but in fact are just retracing their own steps, on both a small and large scale.

Section 4 is a pause in the accumulation of frantic energy and is much more in the style of the *recitativo* of section 0. However, in section 4, each gesture is conceived of as an object with a center of gravity. Each player rushes to an arrival point at the center of each gesture and then falls away. Each group of combined gestures becomes an object, a figure with a shadow of hanging resonance.

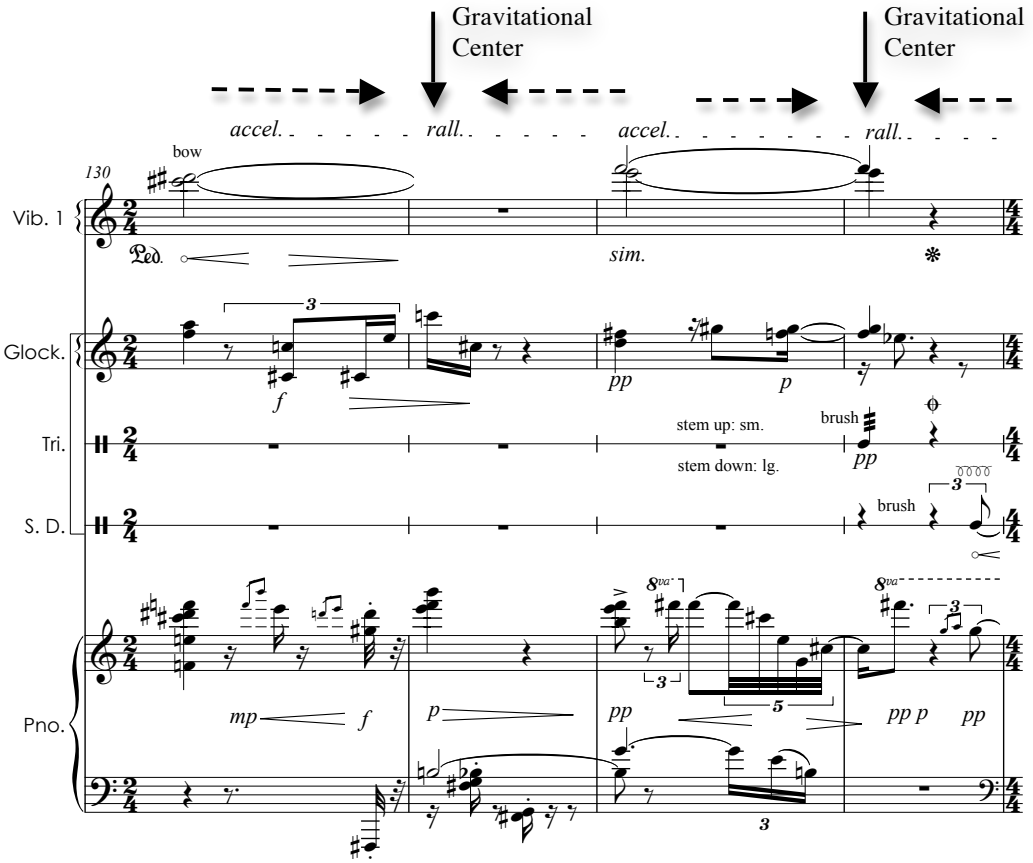


Figure 11: M.130 – 133, illustrating the center of each "object."

Section 4 is itself a metric shadow of the more regular organization of section 0. That is, sections 1 – 3 have increasingly less metric organization, moving toward frantic repetition of notes and chaotic, almost a-rhythmic gestures; these things in combination necessarily destroy a sense of organizing meter. Section 4 does not have regular metric organization, per se (we do not feel steadily recurring cycles of a fixed number of beats), but is guided by a clear relationship of rhythm to pulse. Further, the steady flex of tempo as *accelerandos* and *rallentandos*, are a shadow of the same in section 0, here less understandable as flex in pulse, but clearly contributing to the sense of falling onto the gravitational center of each object. In terms of time (1:30), it is half way between section 1 (1:00) and sections 2/3 (2:00), but because of the radical shift in energy and density feels paradoxically to be the longest section yet heard. This is a type of retrace analogous to the path of the physical labyrinth, as it moves closer to the center further along the path.

Sections 5 – 8 combine together four different types of material. First, at m.161 (and subsequent similar sections; see Table 2 above for detailed list) there are sharply articulated chords with very quick echoing resonances, a very direct and immediate incarnation of figure and shadow.

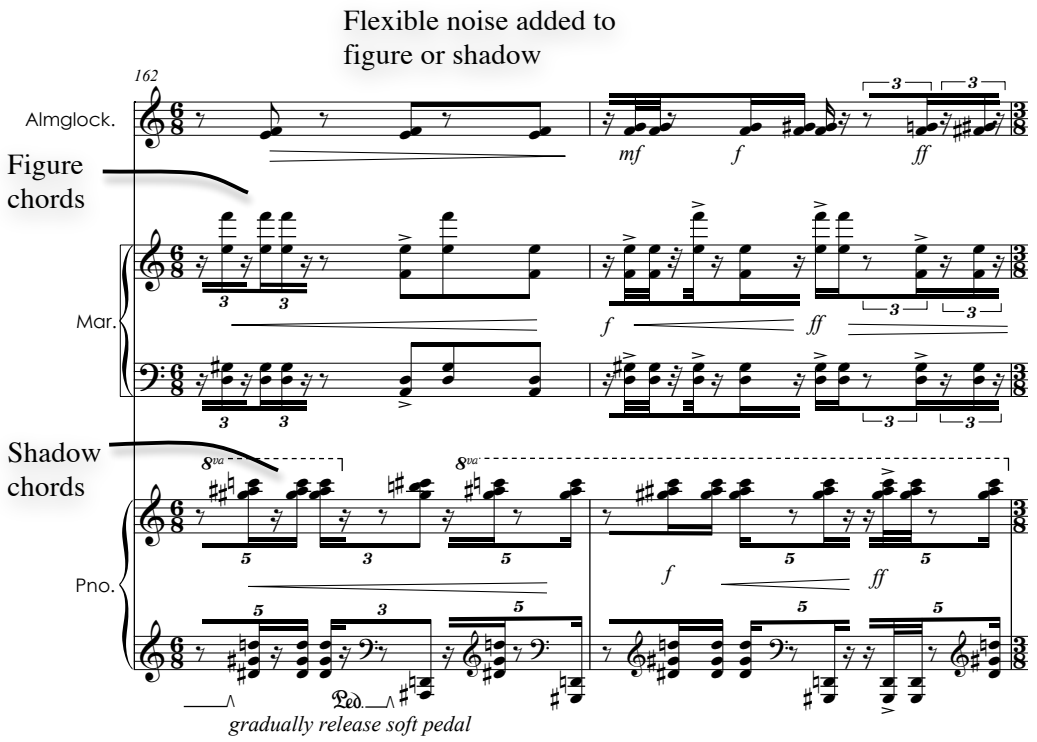


Figure 12: M.162-163, illustrating quick articulations of figure chords and shadow chords.

This material undergoes a slow timbral shift throughout sections 5 – 8, finally devolving into the hollow thumping of m. 249 – 256.

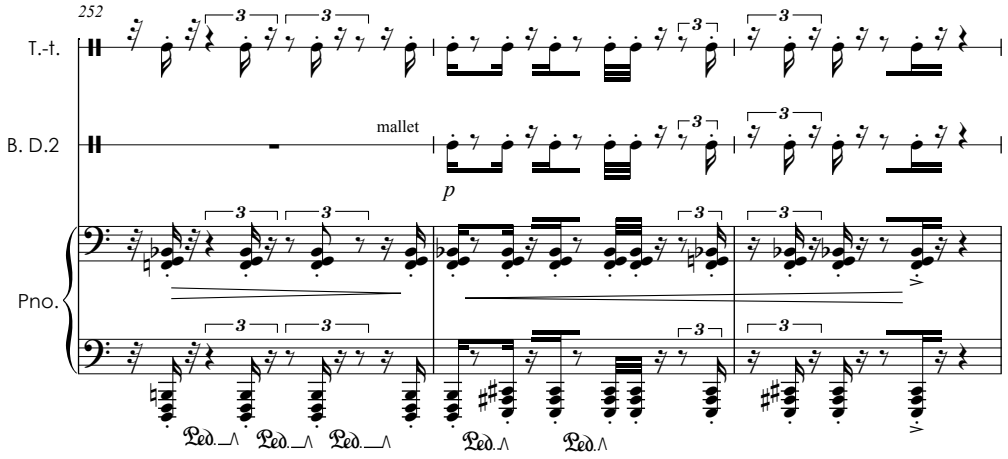


Figure 13: M.252 – 254. Extremely low, dense piano chords are little more than noise coloring the thump of the tam-tam and bass drum.

The second type of material in this section is found at m.165 and in subsequent similar sections (see Table 2 above for specific measures). This material is based on a repeated-note figure that we understand to be the shadow of sections 2/3, and which, over the course of the section, devolves into a less organized shadow of the gravitational objects that are the focus of section 4. That is, this section of material retraces the progress from sections 2/3 to section 4 as one evolving section, but the material here is all of a dissipated nature. The repeated note figure of this section (beginning at m.165) has a clear surface relationship to the previous repeated note music of sections 2/3, but lacks the canonic structure and melodic intertwining of the earlier sections; it lacks even the false appearance of motion and apparent interest and focus of sections 2/3. The repeated notes that served as a static ground (the background) in the canonic material of sections 2/3 here take over and occupy the foreground. The material of this section is a mere shadow of the previous canonic content.

Finally, at m.199 (section 7) horizontal (repeated notes) and vertical (thick chords) combine to create quickly pulsing chords, a new field of saturating sound. Push and pull of tempo has been present to some degree throughout the entire piece so far, but here takes on the focus of the section. The pulsing chords of section7 go through a series of *accelerandos* and *ritardandos* (see Table 2 above for specific measure), each new tempo seeming to emerge as a sub-division of the pervious tempo. This creates a circular motion of tempi (the effect of which is reinforced by rising and falling semi-chromatic chords and accompanying shifts in dynamic). The end result is a rhythmic Shepard Tone.

A Shepard Tone is an auditory illusion analogous to the spinning barber pole: via superimposed loops of material (in this case superimposed *acclerandos* and *ritardandos*) this material gives the constant and aggressive appearance of motion without actually moving.

This idea can also be understood as a simplified canon, each new voice that emerges chases after the voice that came before. This is the next version of the energetic loop that goes nowhere, and in this instance completely overwhelms all of the material that came before it. Executing this technique requires that all three players play the same kind of material, thus obliterating the kinds of musical relationships that were previously meaningful. The trio becomes less a trio and more one spinning instrument. In this regard, it becomes a series of loops of forgetting, the most compelling sense of forward motion with the least directionality. The music simply gets faster and slower, rising and falling in semi-chromatic waves. It purges the first half of the piece of harmonic, melodic and metric gravity; it establishes a new focus of musical meaning not on pitch and rhythmic material, or even on objects, but on the unfolding process. Process as a point of importance had been hinted at starting in section 5 with the timbral shift of chords, but here the process is overt and unquestionable. While being highly organized, the continuous pulse-based / anti-metric nature of the music exists on the opposite end of the spectrum of the highly metric but non-repeating rhythm of the opening *recitativo*.

The remaining sections of the piece are all large-scale shadows of ideas that came before. Section 9 makes an immediate 180-degree turn from the previous sections and proposes a sonic reversal of the idea of figure and shadow. The harmonically diffuse

cluster (the indistinct shadow) precedes the harmonically clear resonance (the defined figure). The resonances of each cluster outline a simple falling and rising motion that has now come to replace the highly developed *cantus firmus* that guided section 0. More akin to breathing than walking (or running), it too is a weak shadow of the intense rise and fall motion of section 7. This can also further be understood as a derivation of the staccato chords that opened section 5 and closed section 7, and the repeated note music of section 6, radically retarded and stretched out. In a sense section 9 is a kind of "opposite music," a shadow of everything that combined to create sections 5-8.

Section 10 takes the slow melodic rise and fall of section 9 (the new "*cantus firmus*") and merges it with the repeated loop concept to create a melodic Shepard Tone that shadows the rhythmic Shepard Tone of section 7. The bowed vibraphone lines sing out an upward drift analogous to the *accelerandos* of the previous section (and a more immediately apparent version of the slow upward drift of section 3), but which stays centered around a constant pitch (D#). To further aggravate the steadiness of the D# in the midst of the cloud of rising pitches of the vibraphone, the piano outlines a downward arpeggio in m. 297 – 303, placing the central D# in a new harmonic relationship to each bass tone, allowing the D# to conceptually "rise" through the overtone series as the piano notes descend.

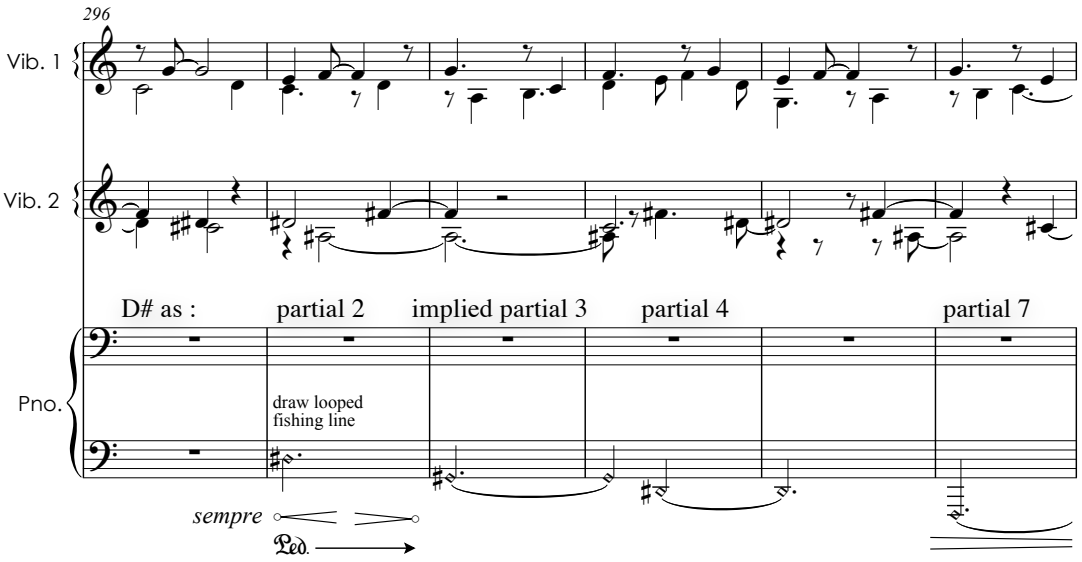


Figure 14: M.296 – 301 showing the renewed harmonic interpretation of steady D# at center of the pitch Shepard Tone loop.

This music is then repeated as a less distinct shadow version performed on the crotales (a significant upward drift from the vibraphone).

This is music that continues to spin, but goes nowhere. The simple rising chromatic scale, a pure gesture devoid of direction or content, is as far from the melodic *recitativo* of section 0 as we can go, only in this instance we have gained a thorough understanding of our lack of directional progress. Whereas the exciting pulsing of section 7 may have led us to believe that the piece could be developing a focused directionality, that the shift to a focus on process may be leading somewhere, here no such pretense is possible. This is as close to stasis, the large outer loops of the labyrinth devoid of concentric gravity, as we can come while continuing to move and without falling out of it completely.

Section 11 is a final retrace and rotation of the general motion of the entire piece. It begins as a simple rhythmic *passacaglia* between triangle and tam-tam (harmonically and melodically empty), re-establishing a weak pulse and moving us back toward the center.

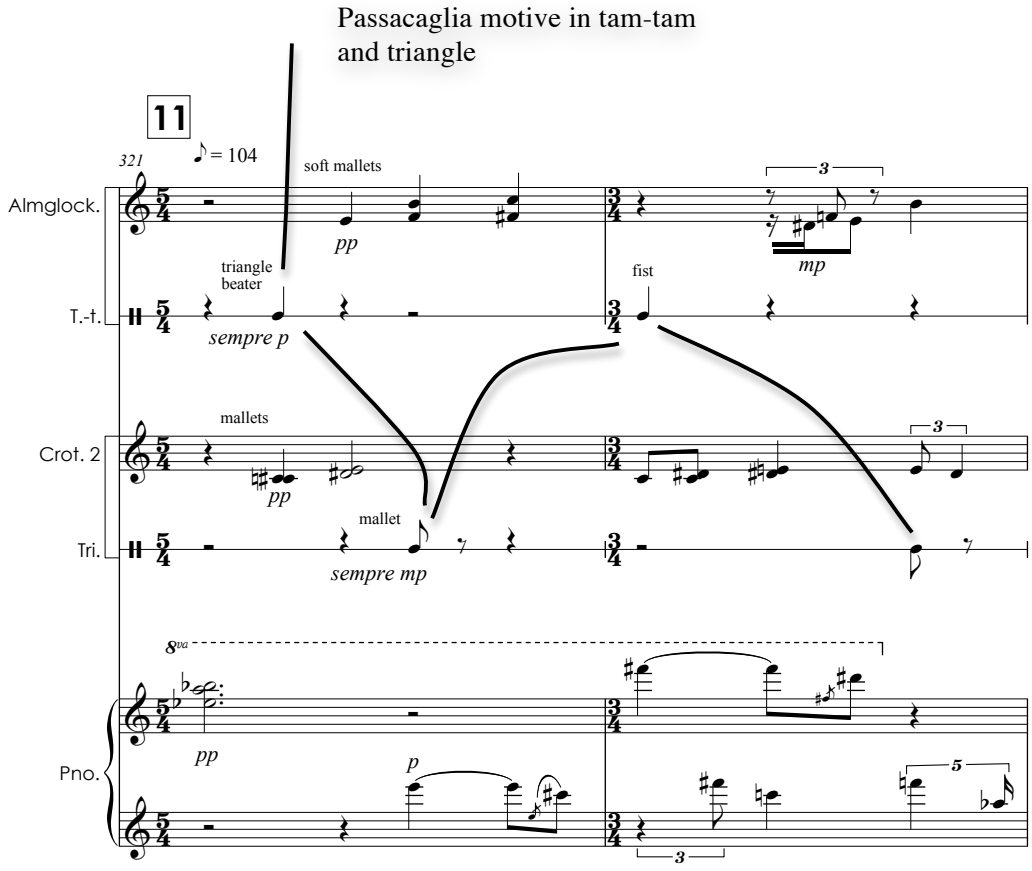


Figure 15: Passacaglia motive of section 11.

At first, the *passacaglia* motive manages to repeat at the same rhythmic interval regardless of shifts in meter and tempo, but each time we revisit a type of material that is familiar to us (for example, m.329 draws on the ideas of sections 5-8; m.345 – 351 draw on the material of section 2/3, as do m.355 – 361), the steady flow gets interrupted and

the *passacaglia* dissipates slightly. By m. 348, the *passacaglia* motive has essentially vanished and has begun to be replaced by the repeated minor 3rd motive that will dominate the end of the piece.

The vagueness of the material becomes a kind of saturation of references held together by the smallest points of contact to previous materials.

Ultimately the passacaglia unravels completely, and we are left with metrically indistinct, rhythmically static repeated pitches with no melodic motion or meaningful harmonic content. Within itself, section 11 once again traces the transition from slow metric tactus (reminiscent of section 0) to metrically meaningless repeated notes (reminiscent of sections 5-8); section 11 retraces the progress of the entire piece in a large shadow form.

The entire piece began with a rich and colorful chord over a low E and throughout section 0 explored harmonic color relationships to that opening chord and low E. The piece ends harmonically nowhere, a floating minor-3rd (the 5th and 7th derived from that low E), but with no points of reference and with no harmonic grounding, this minor third is nothing but a shadow. The final bars are a shadow of the opening harmonies, a shadow of the complexly layered canons of sections 2/3, a shadow of all of the different types of pulsing music we have heard. It is a singular focus completely outside the spirals of material and meaning that made up the rest of the piece. This section could have occupied a full 32 bars on its own, but at a mere 12 bars, it is even a kind of structural shadow, transitioning to a new material too late and lacking the impetus to form a complete section of its own. It appears too quickly and vanishes too quickly, not giving us enough

time even to contemplate its nature and how it might stand in relation to the rest of the piece. The falling harmonies of the vibraphone at the end only hint that this repeated pulse may have something to do with where we started this journey. These motives are drawn from the harmony of the end of section 0, but themselves devolve into now familiar falling chromatic lines, settling on the repeated minor 3rd motive.

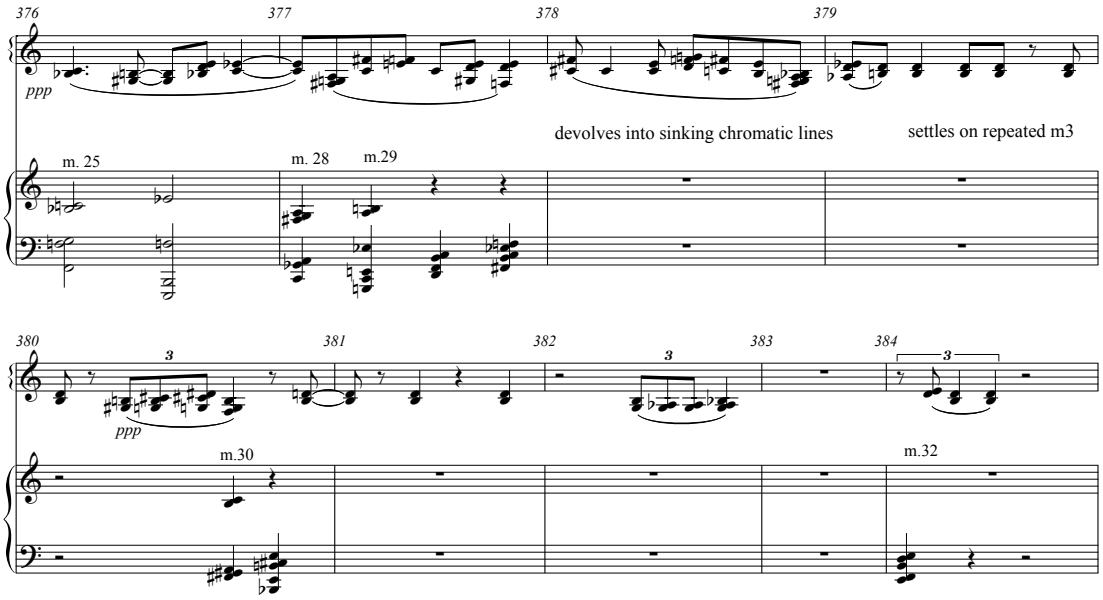


Figure 16: Vibraphone ending with related chords of section 0.

We started somewhere and here end nowhere.