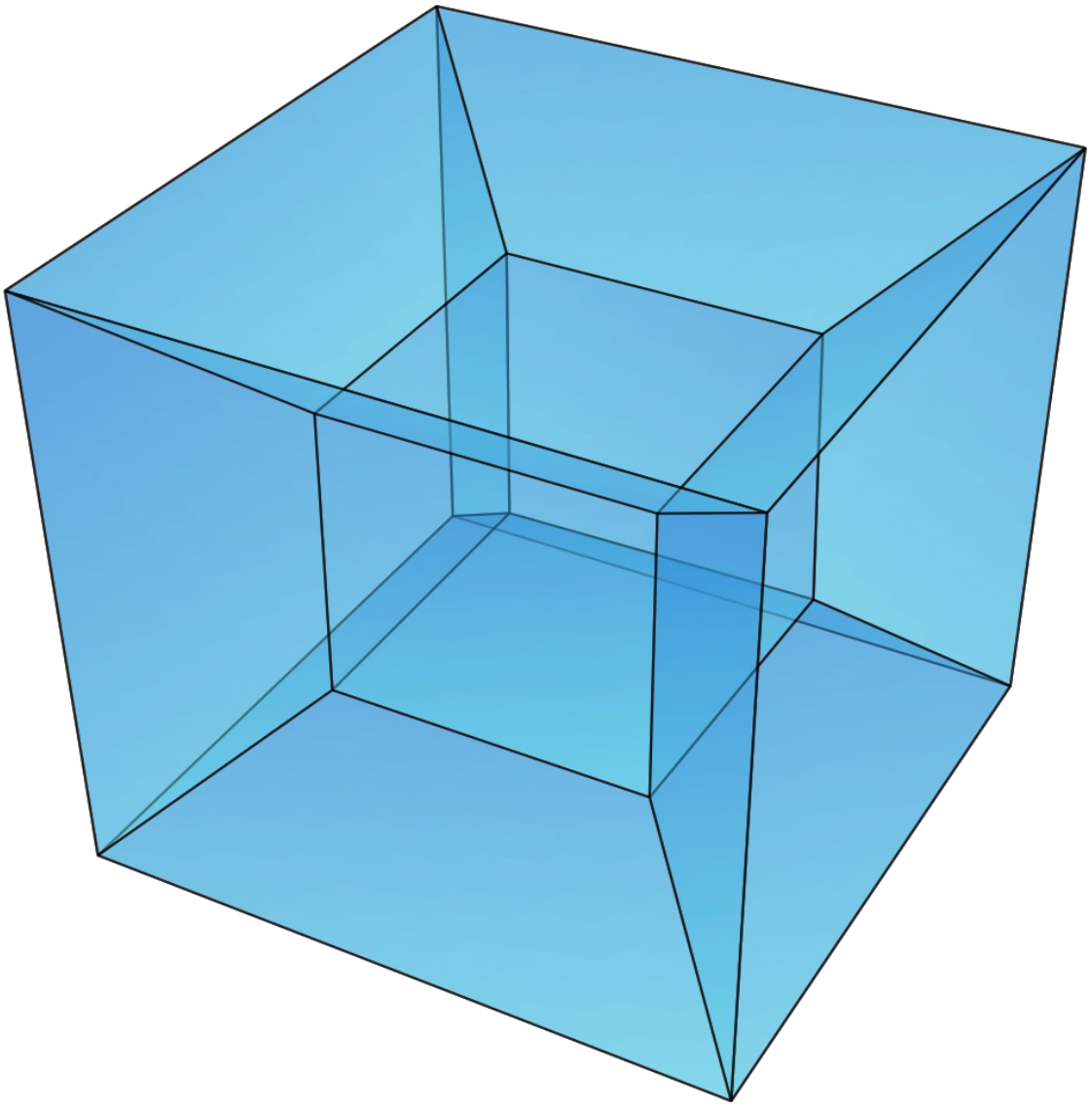
Soňa Vetchá

# Hypercube

*psychoacoustical study*
*for string orchestra, organ, piano, percussions and EA tape*



2018

# Instrumentation:

Vibraphone (1)
Tubular bells (1)
Gong large (1)
Bass drum (1)
Wind chimes (1)
*( 2 percussion  players )*

Piano
Organ

Violin I.
Violin II.
Viola I.
Viola II.
Violoncello I.
Violoncello II.
Contrabas

EA-tape

# About the piece:

**The goal of the piece is try to compose some kind of psychoacoustical study, which will influence by audiotry illusions.**

a) Main inspirational sources were auditory illusions and a four-dimensional cube (hypercube).

b) Shape, proportions and basic principle of Hypercube created some kind of "template" for developing of musical form.

c) Musical structure was composed from the selection of different kind of sound stimuli, which had a potential to trigger the perceptual ambiguity during the listening of the piece in real time (auditory illusions).

d) The difference between the subjectively perceived sound and the real acoustic signal should represent an imaginary 4th dimension. Specifically, the limits of our perceptual possibilities. ..... What can be behind them?

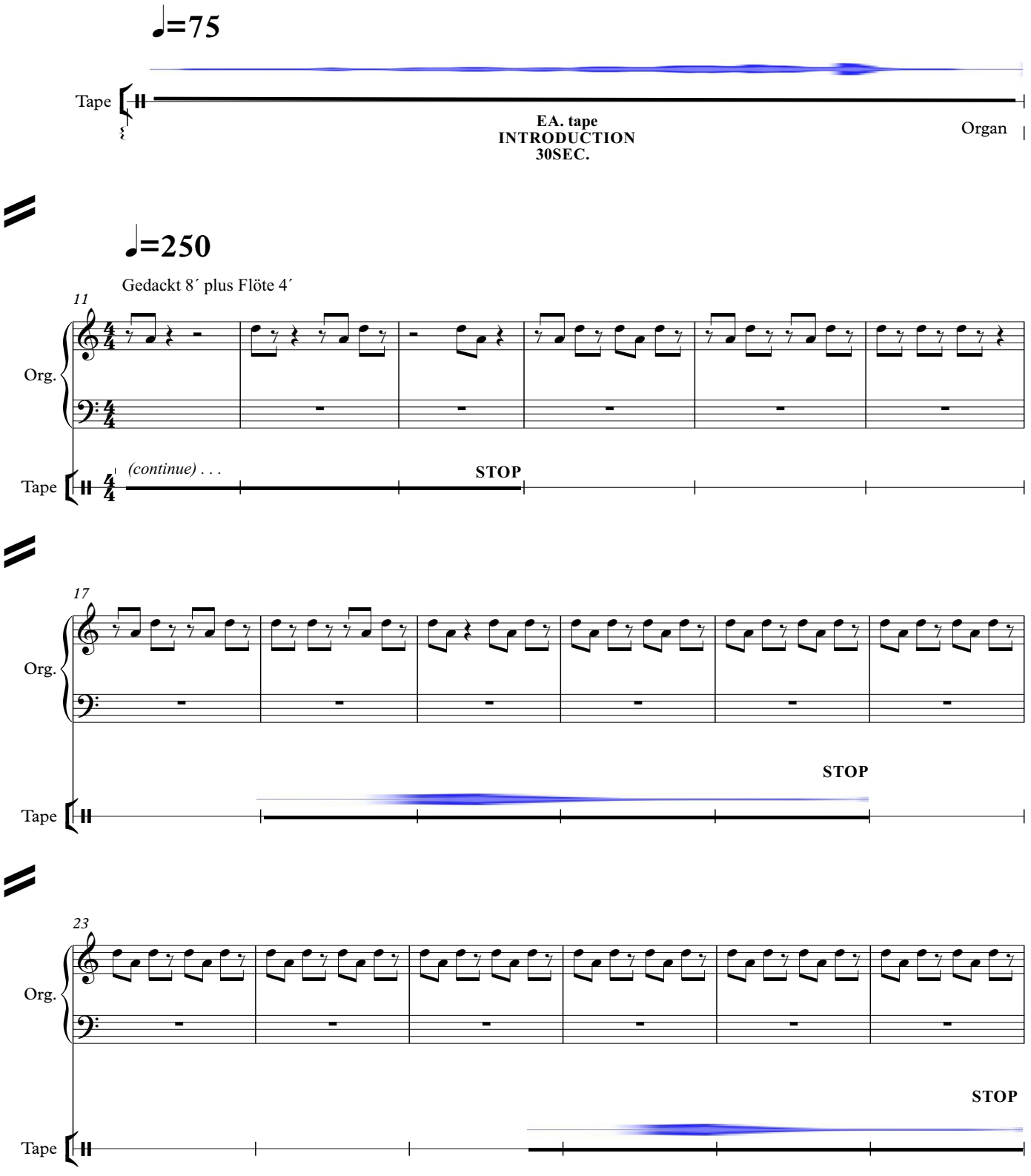
Piece works with a bistable and multistable auditory illusions (analogous to the optical illusion). That means, we are are able to see just one interpretation of the ambigous picture, in this case sound object. In other moment different interpretation (F.E.:vase or faces?). The musical structure also contains combination tones, the principle of the shepard's illusion (feeling of infinite rise / fall). Also my own "illusion", which is based on variable perceiving of the direction of a macro melodical contour (ascending / descending).

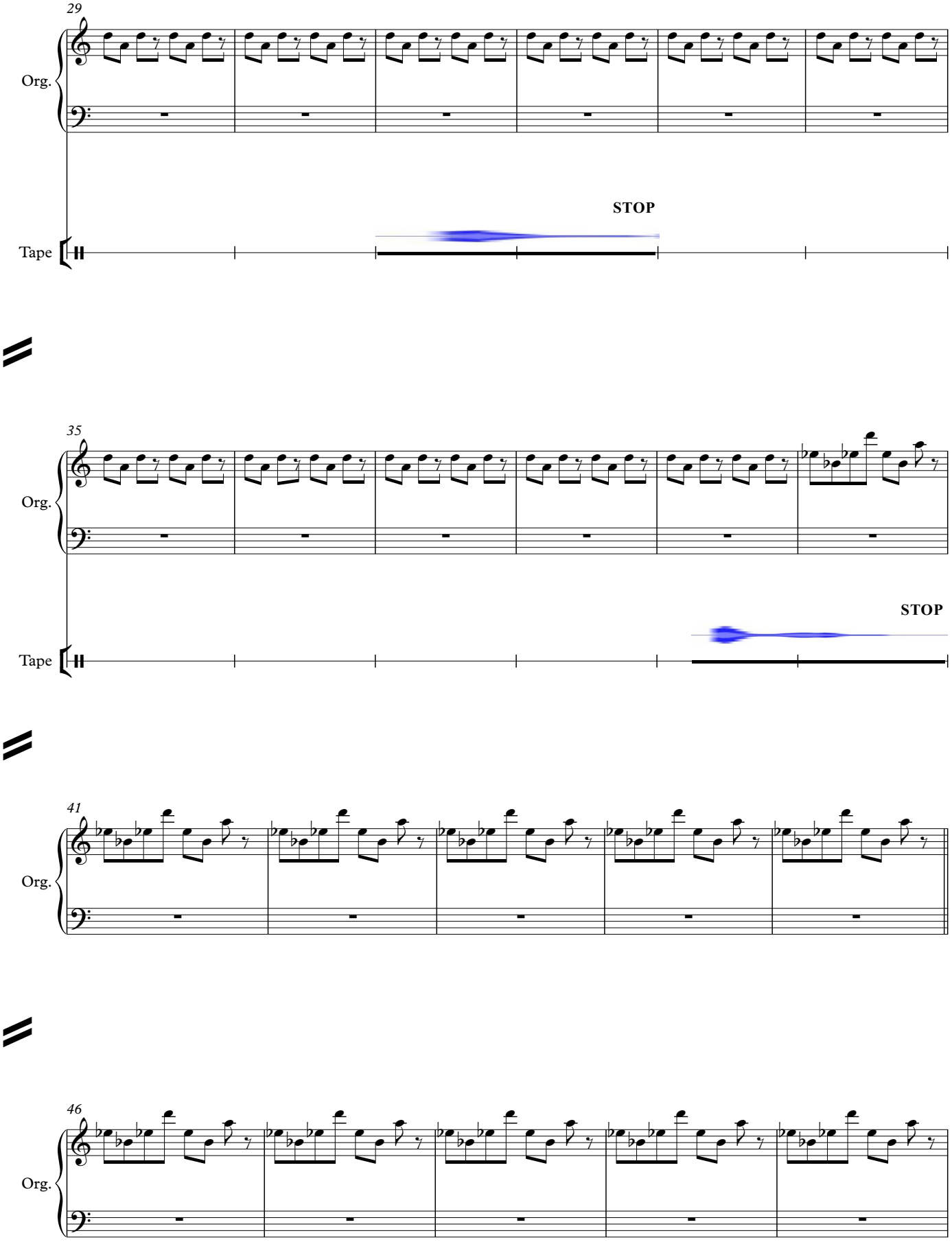
**EA - TAPE**

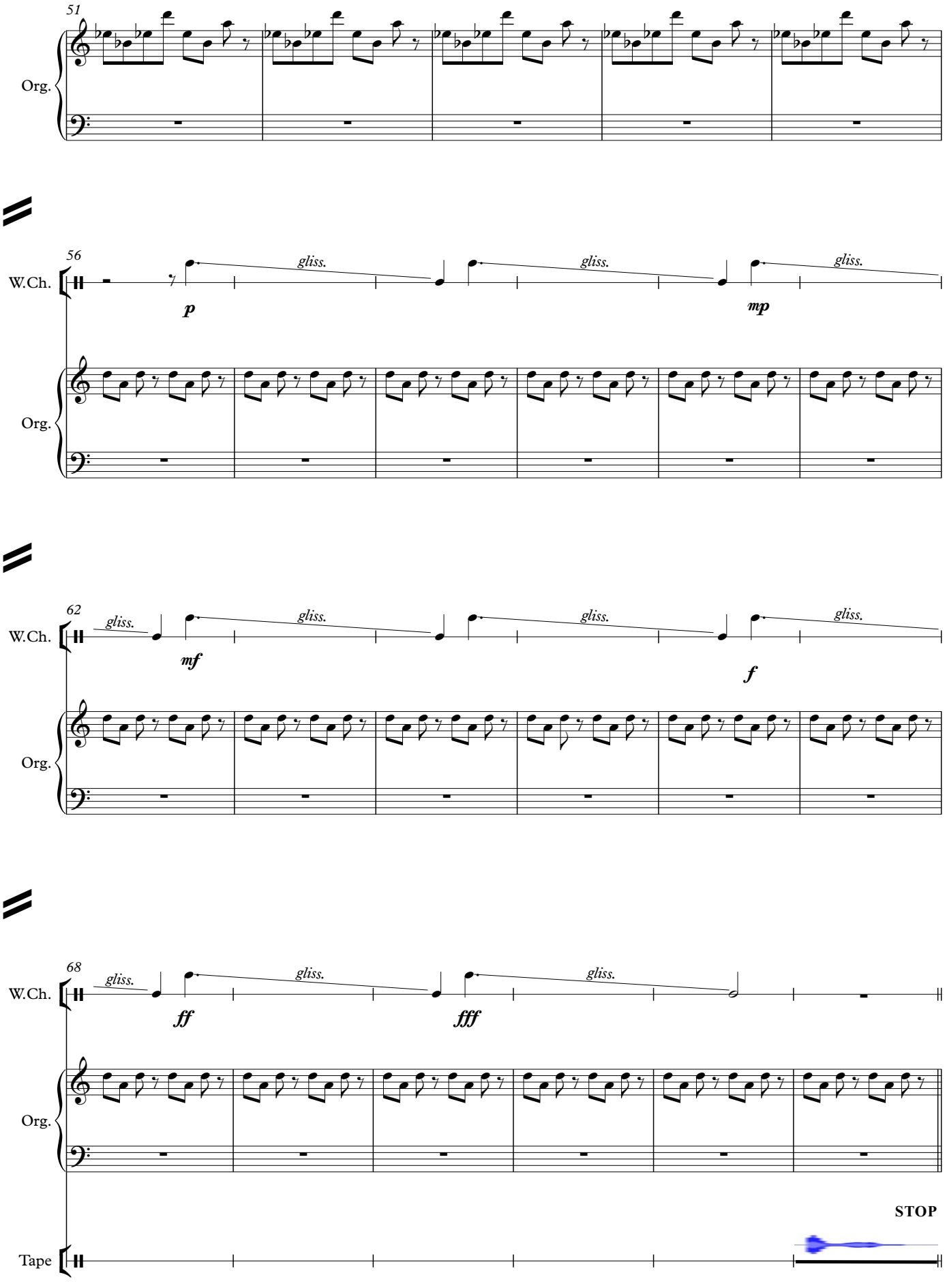
Each sound event (track) is played in real time individually. There is not some other live processing of the sound during the piece, but just playing the prepared sound objects in stereo format. Single tracks have "start points" with the begining of the graphic picutres or with music notation. The approximate endings of the tracks are marked STOP.

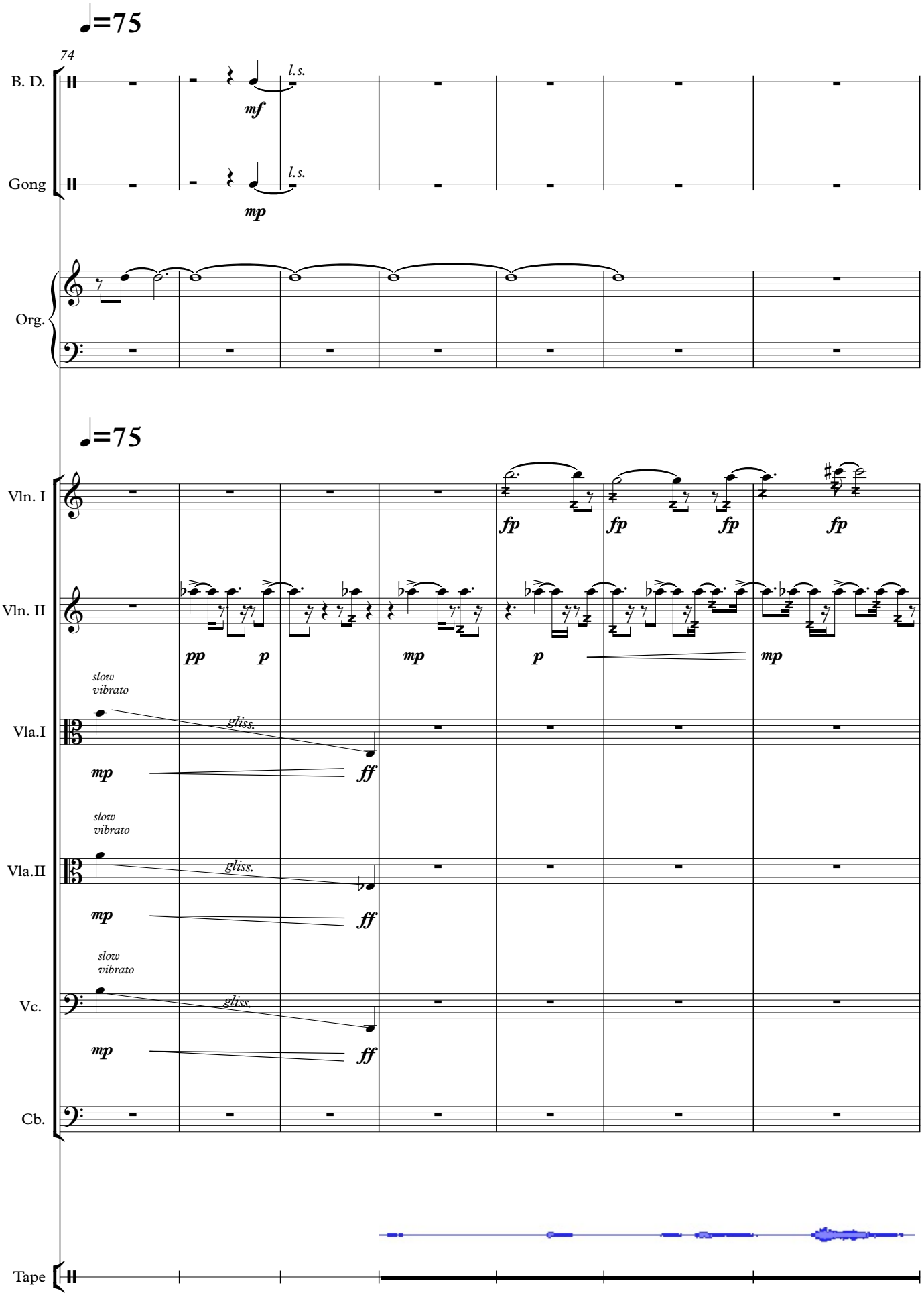
# Hypercube

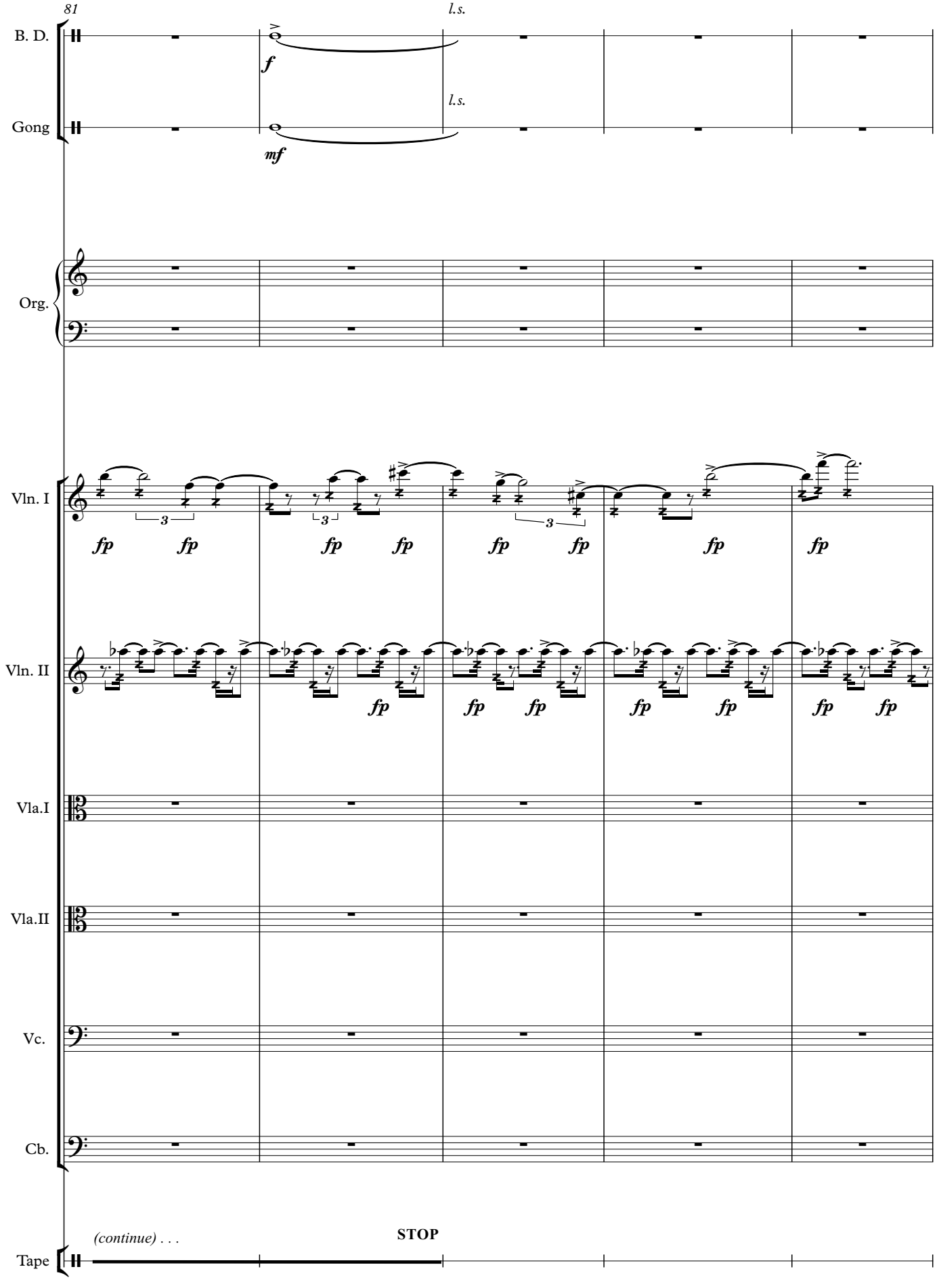
Soňa Vetchá
(*1992)

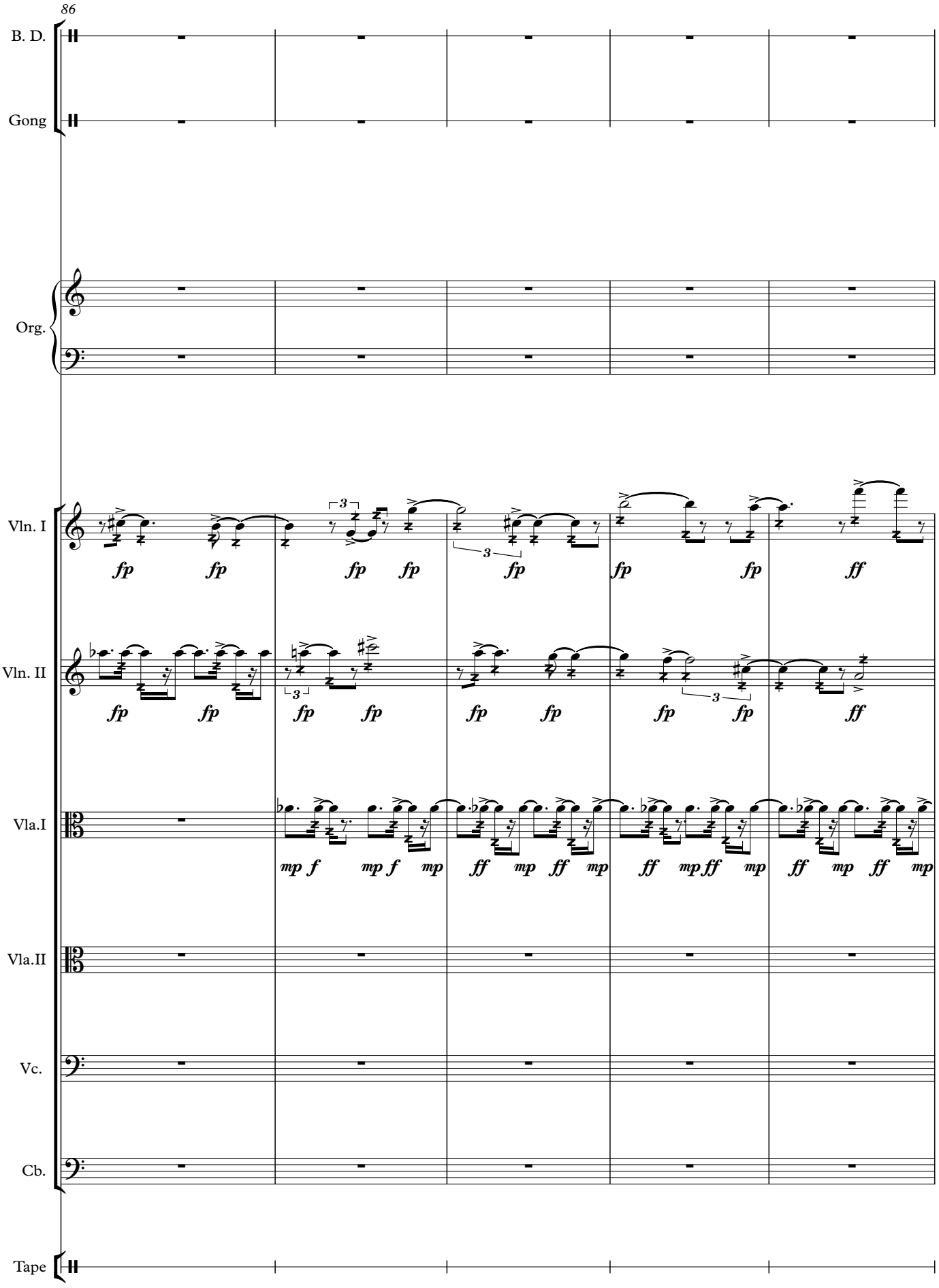


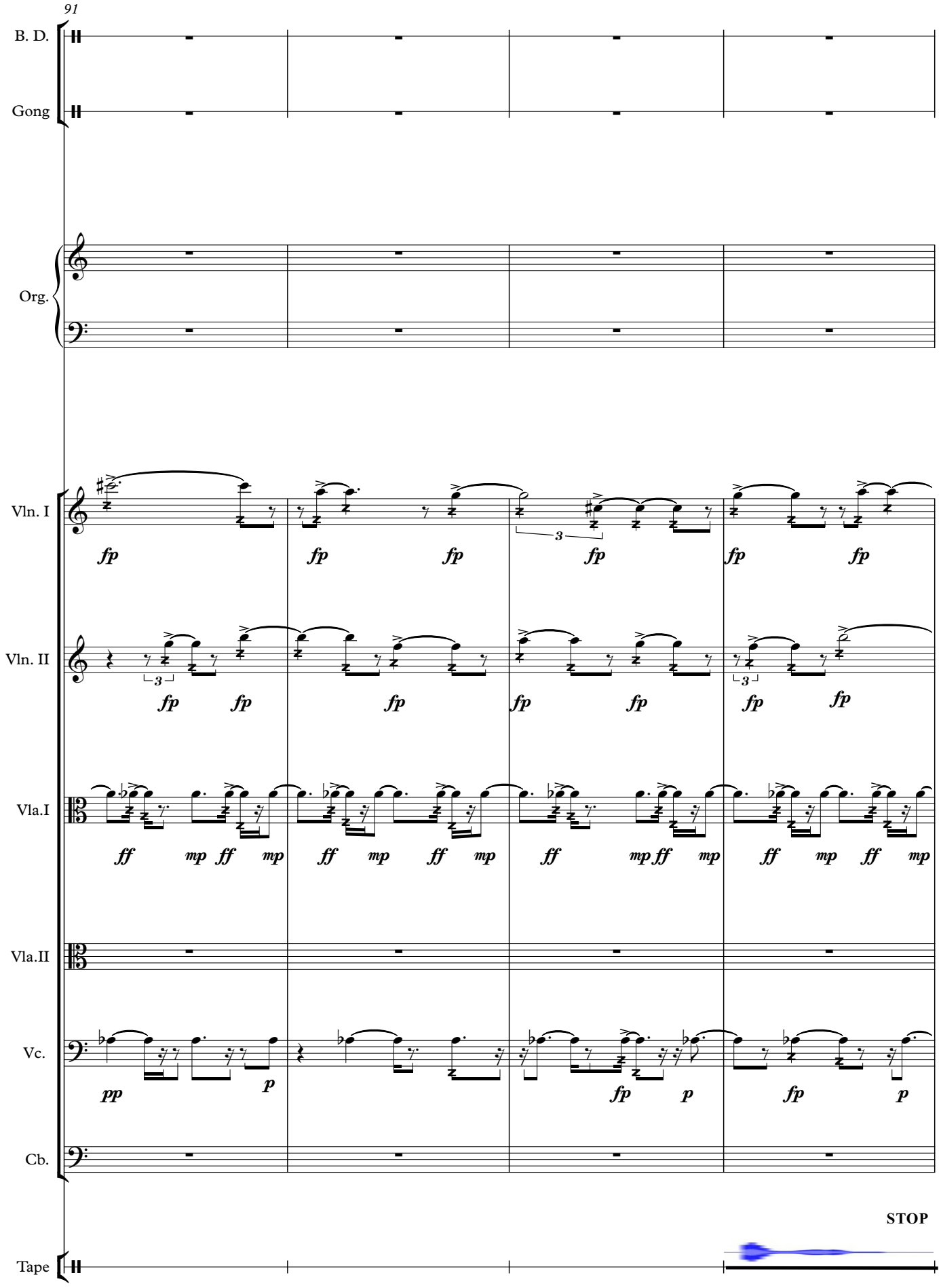

29
Org.
STOP
Tape
35
Org.
STOP
Tape
41
Org.
46
Org.

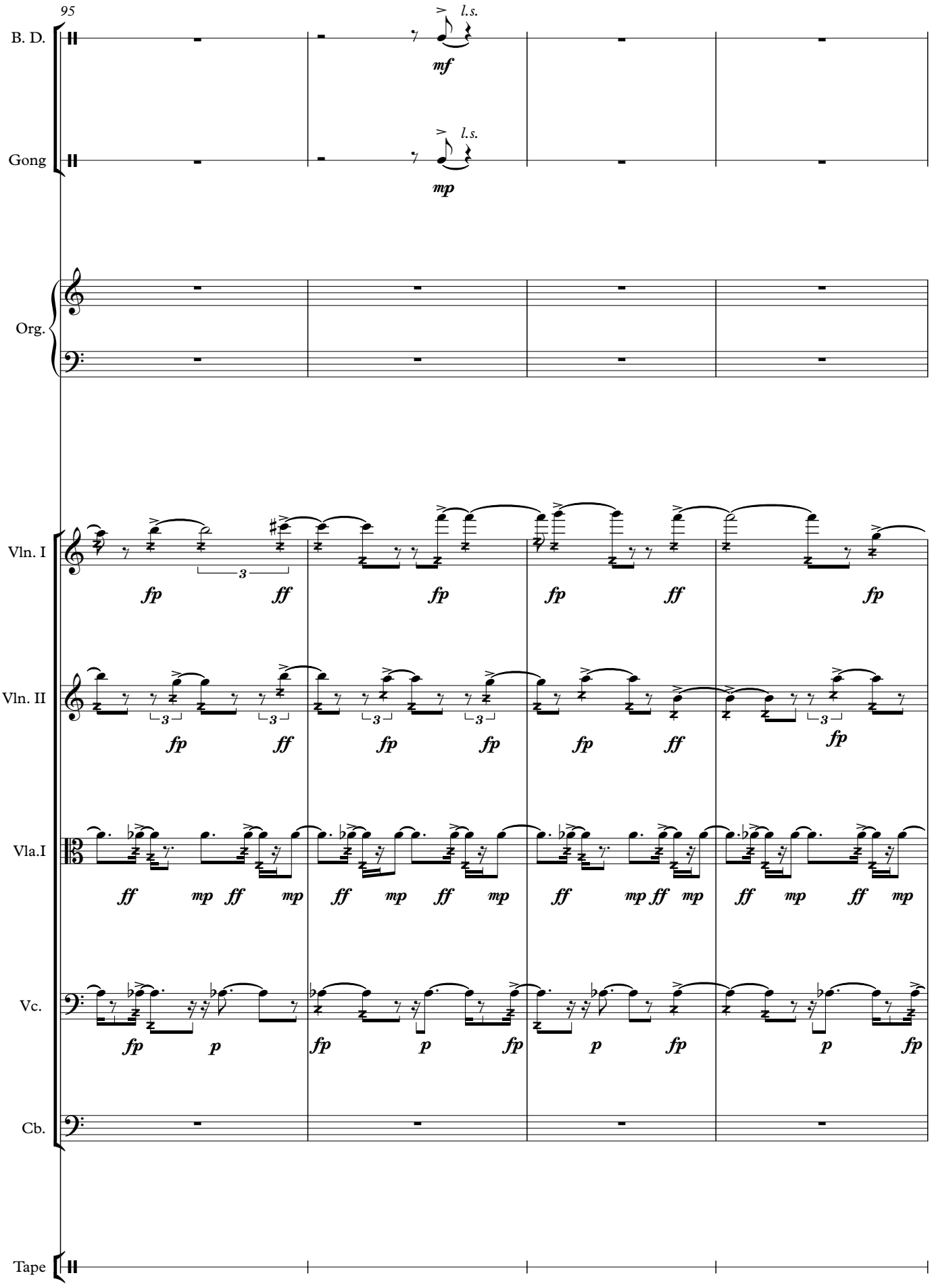

51
Org.
56
W.Ch.
gliss.
gliss.
gliss.
p
mp
Org.
62
W.Ch.
gliss.
gliss.
gliss.
gliss.
mf
f
Org.
68
W.Ch.
gliss.
gliss.
gliss.
ff
fff
Org.
STOP
Tape

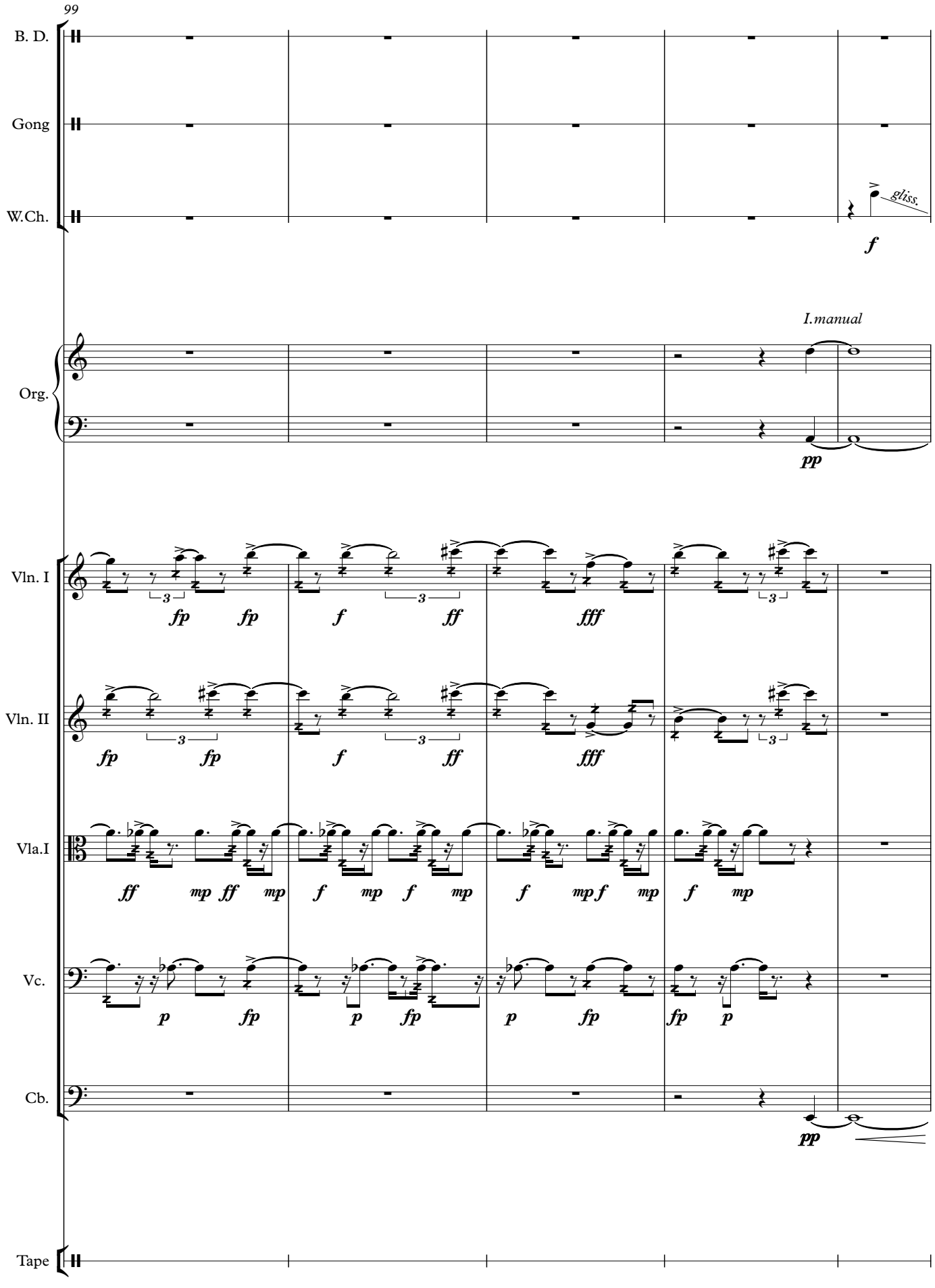

♩=75
74
B. D.
l.s.
mf
Gong
l.s.
mp
Org.
♩=75
Vln. I
fp
fp
fp
fp
Vln. II
pp
p
mp
p
mp
slow vibrato
Vla.I
gliss.
mp
ff
slow vibrato
Vla.II
gliss.
mp
ff
slow vibrato
Vc.
gliss.
mp
ff
Cb.
Tape

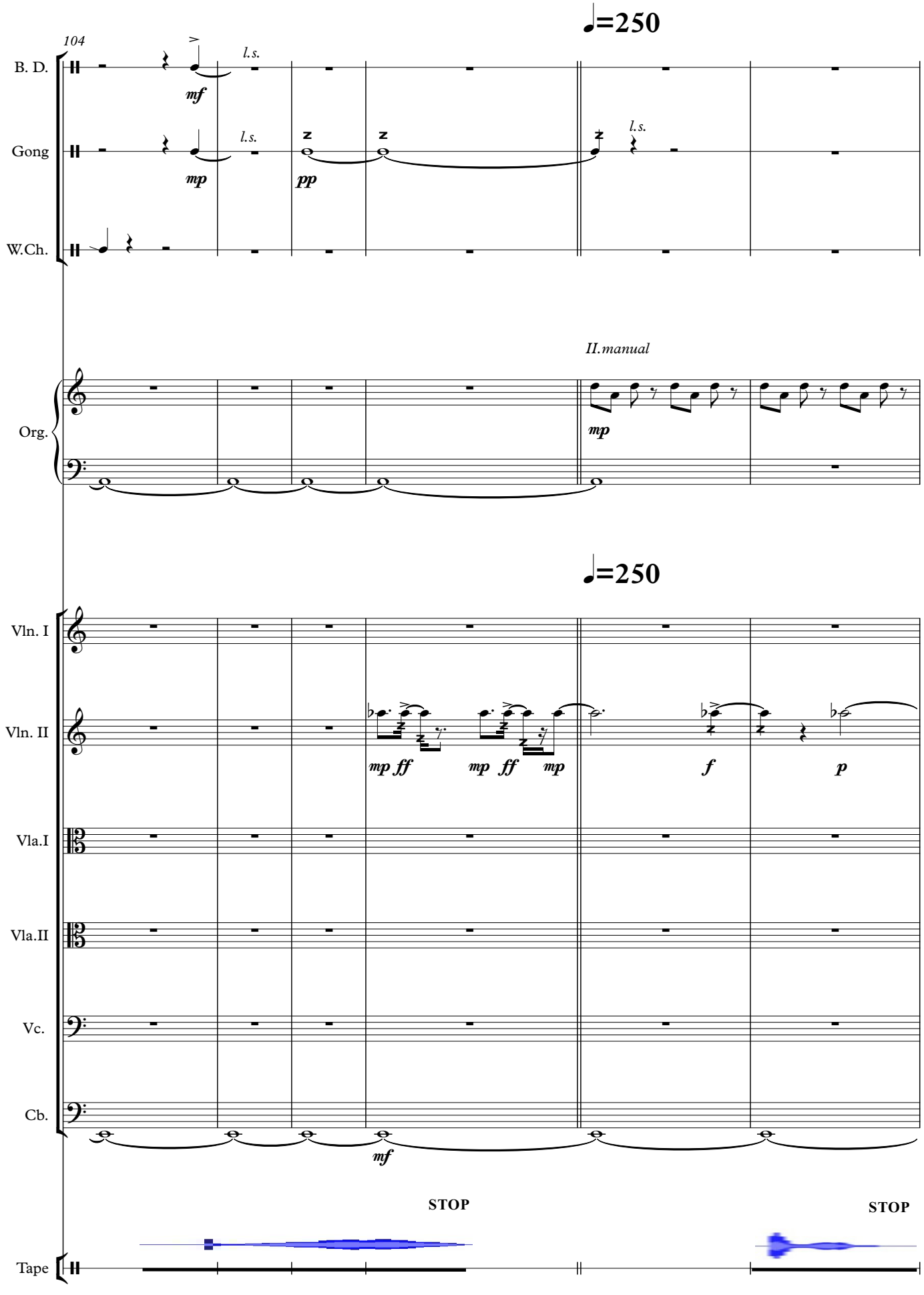

81
l.s.
B. D.
f
l.s.
Gong
mf
Org.
Vln. I
fp
Vln. II
fp
Vla.I
Vla.II
Vc.
Cb.
(continue) . . .
STOP
Tape

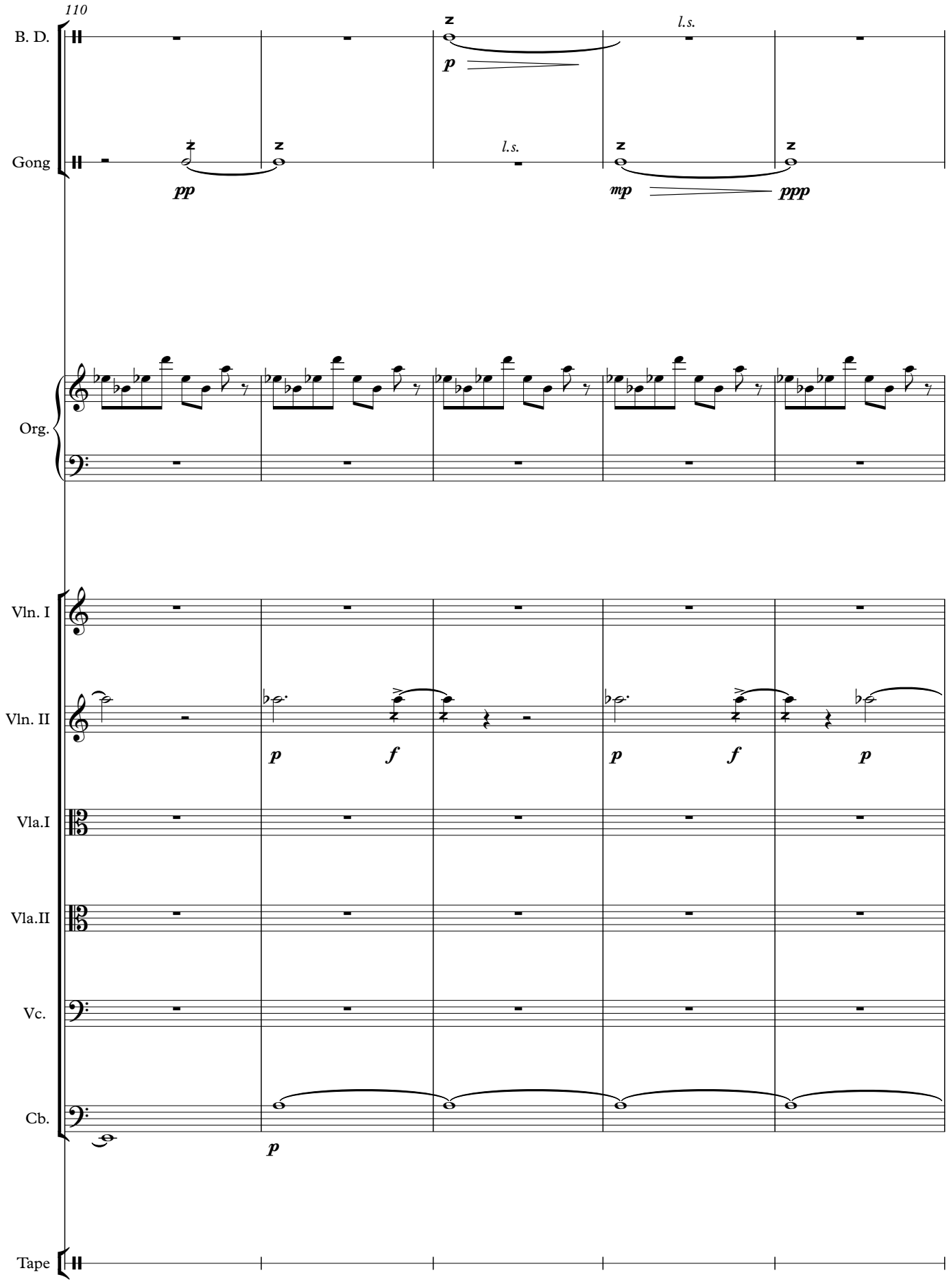

86
B. D.
Gong
Org.
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
Tape

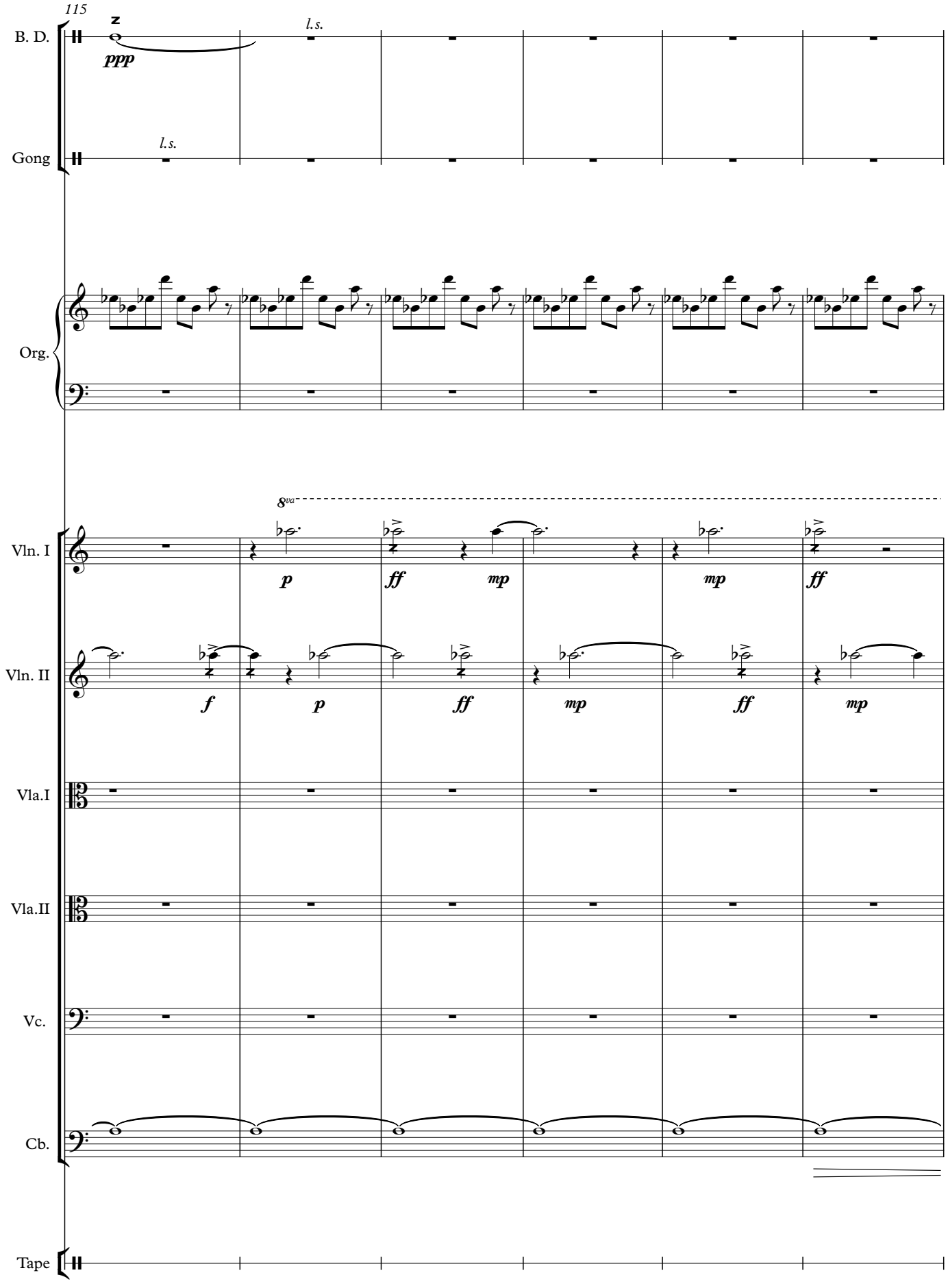

91
B. D.
Gong
Org.
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
Tape
STOP

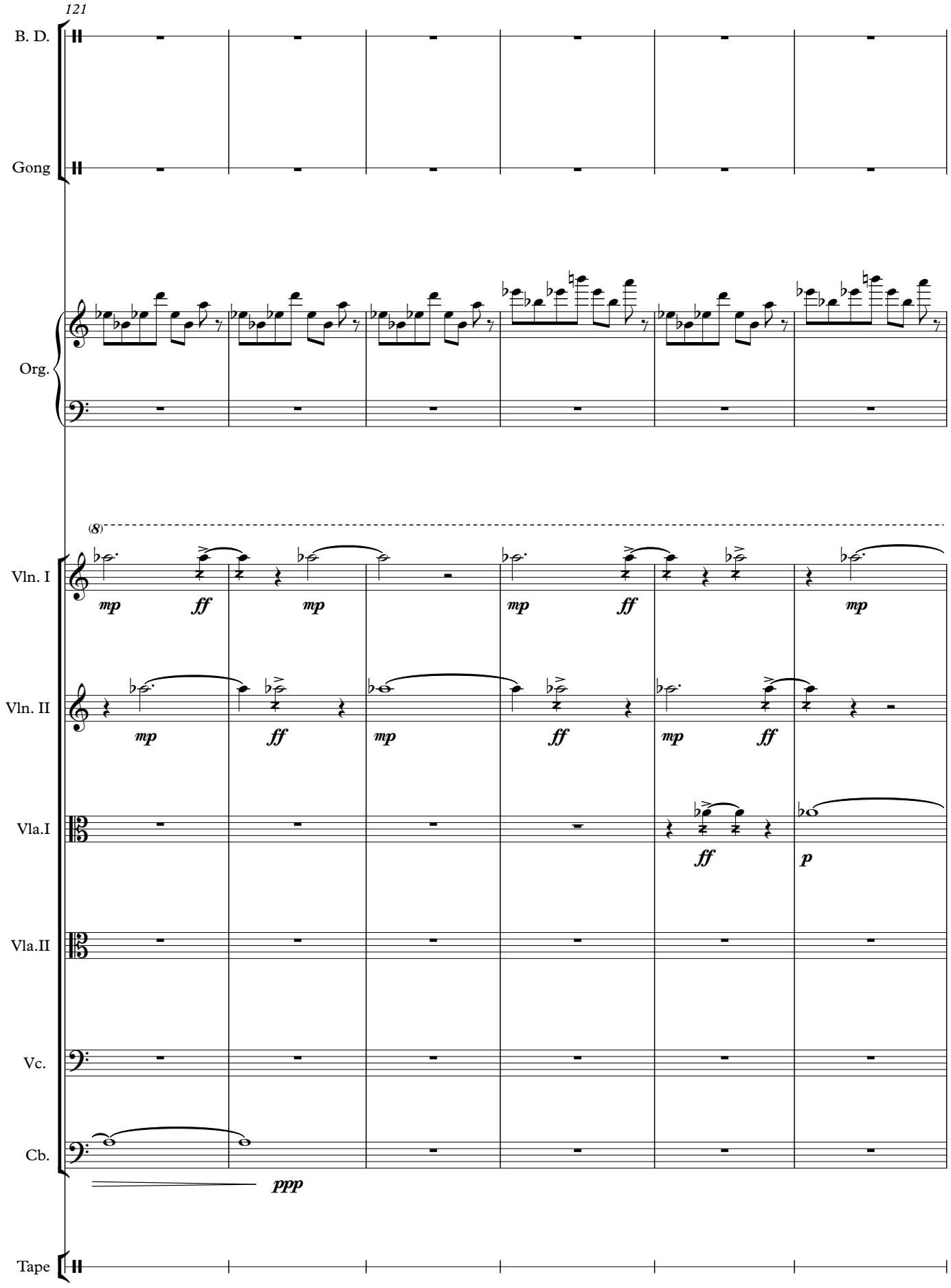

95
B. D.
l.s.
mf
Gong
l.s.
mp
Org.
Vln. I
fp ff fp fp ff fp
Vln. II
fp ff fp fp fp ff fp
Vla.I
ff mp ff mp ff mp ff mp ff mp ff mp ff mp
Vc.
fp p fp p fp p fp p fp
Cb.
Tape

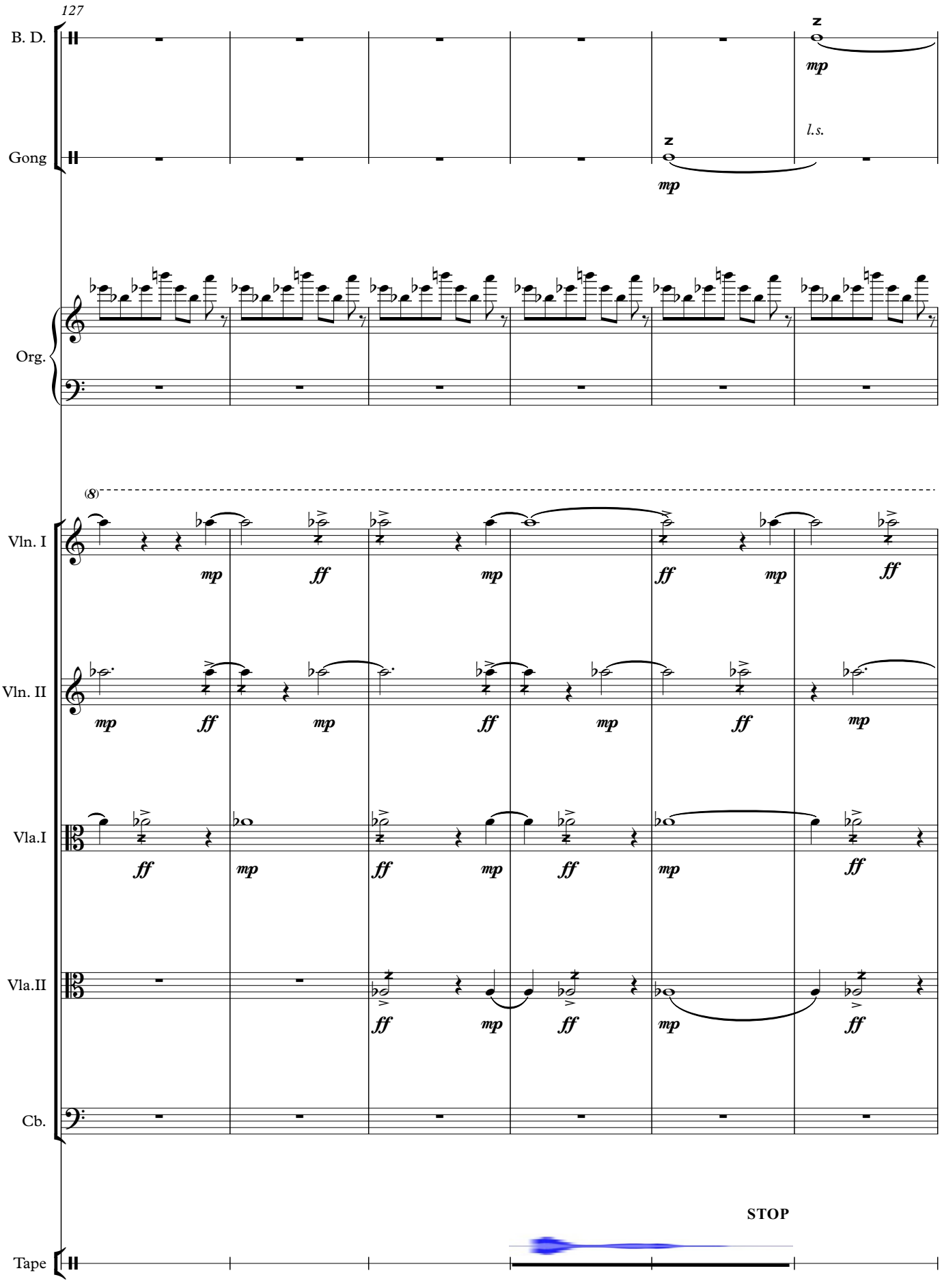

99
B. D.
Gong
W.Ch.
gliss.
f
I.manual
Org.
pp
Vln. I
Vln. II
Vla.I
Vc.
Cb.
Tape

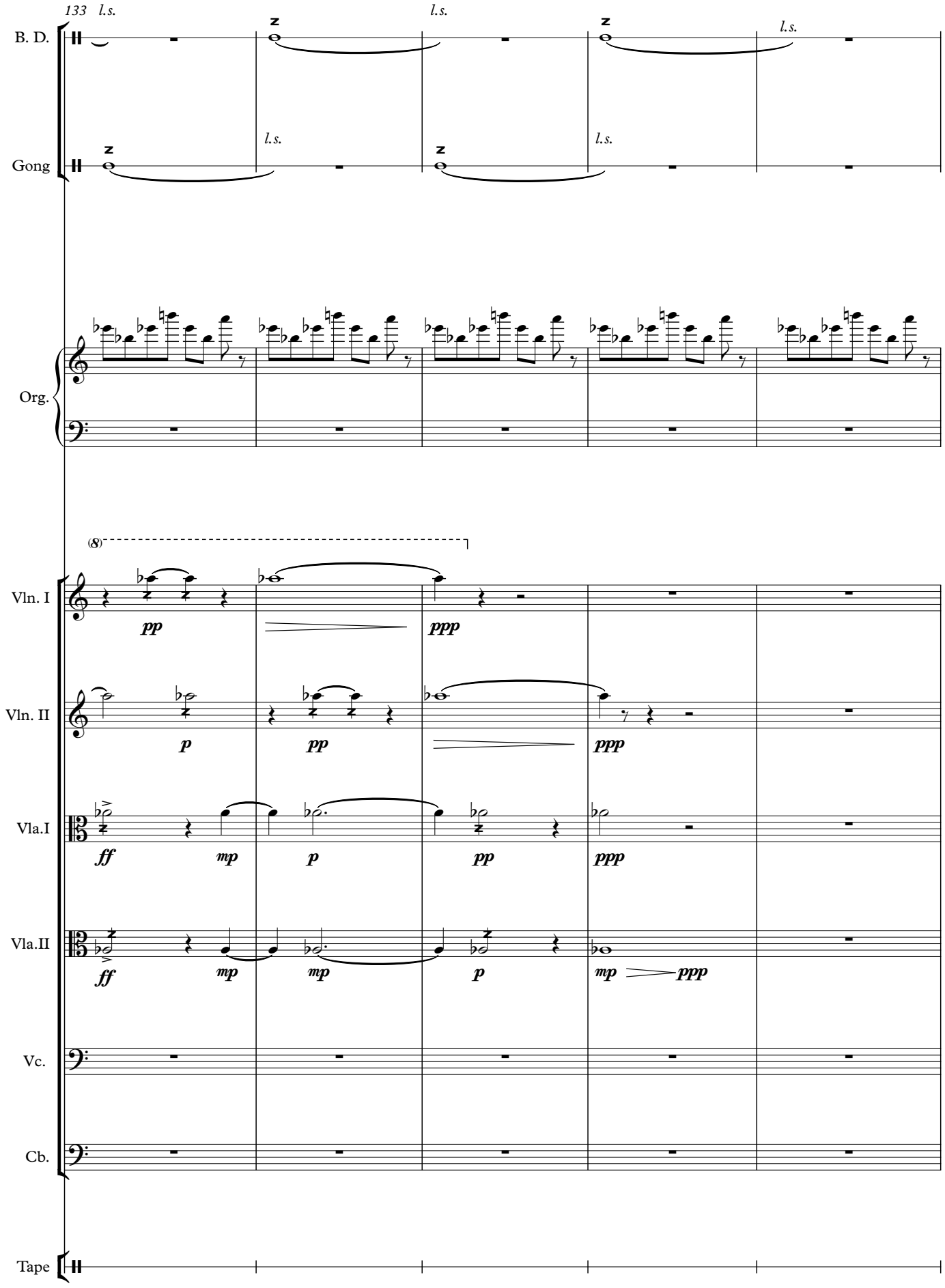

♩=250
104
B. D.
Gong
W.Ch.
l.s.
mf
mp
pp
II.manual
Org.
♩=250
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
mp ff
mp ff mp
f
p
mf
STOP
STOP
Tape

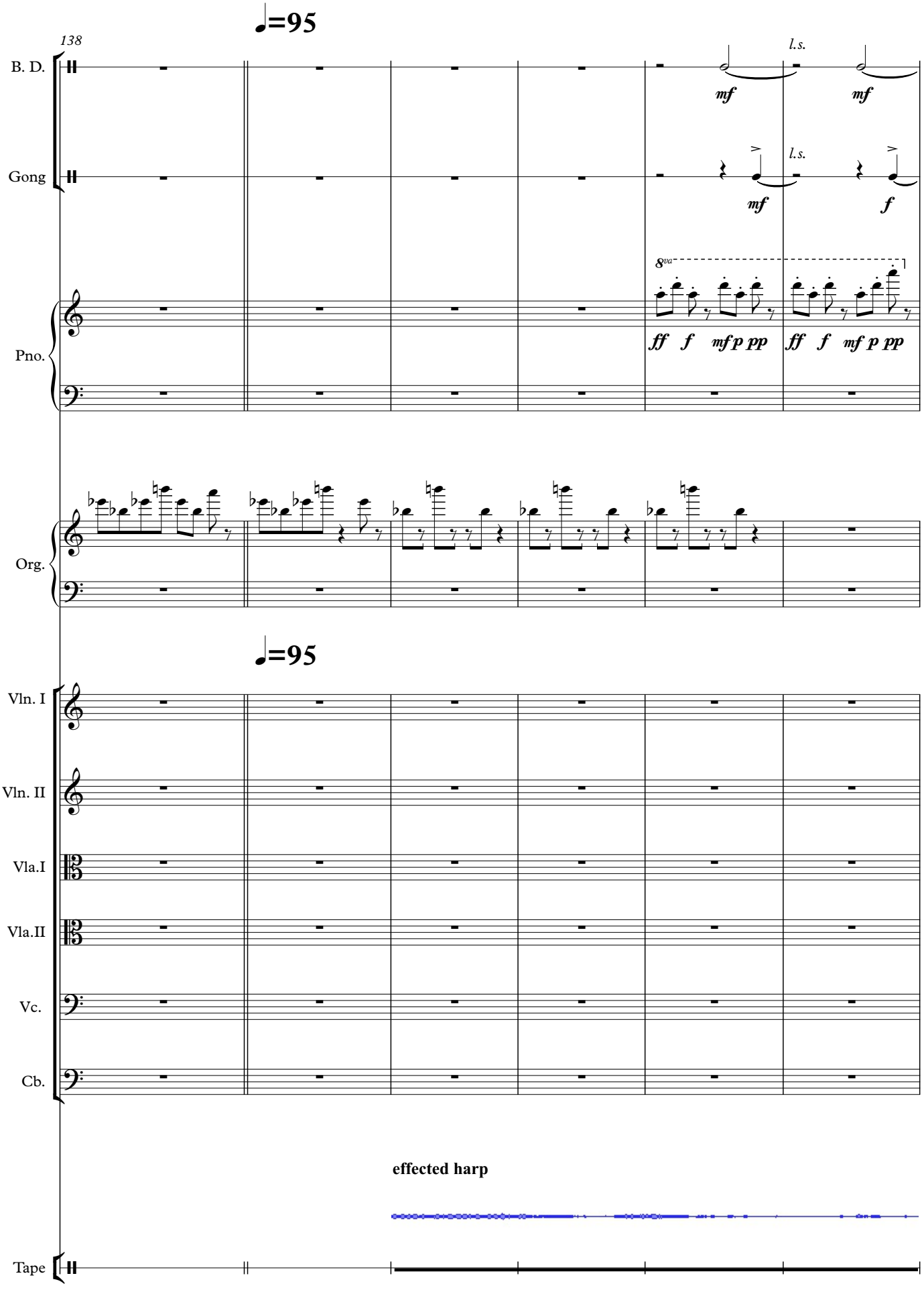

110
B. D.
Gong
l.s.
l.s.
pp
p
mp
ppp
Org.
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
Tape
p
f
p
f
p
p

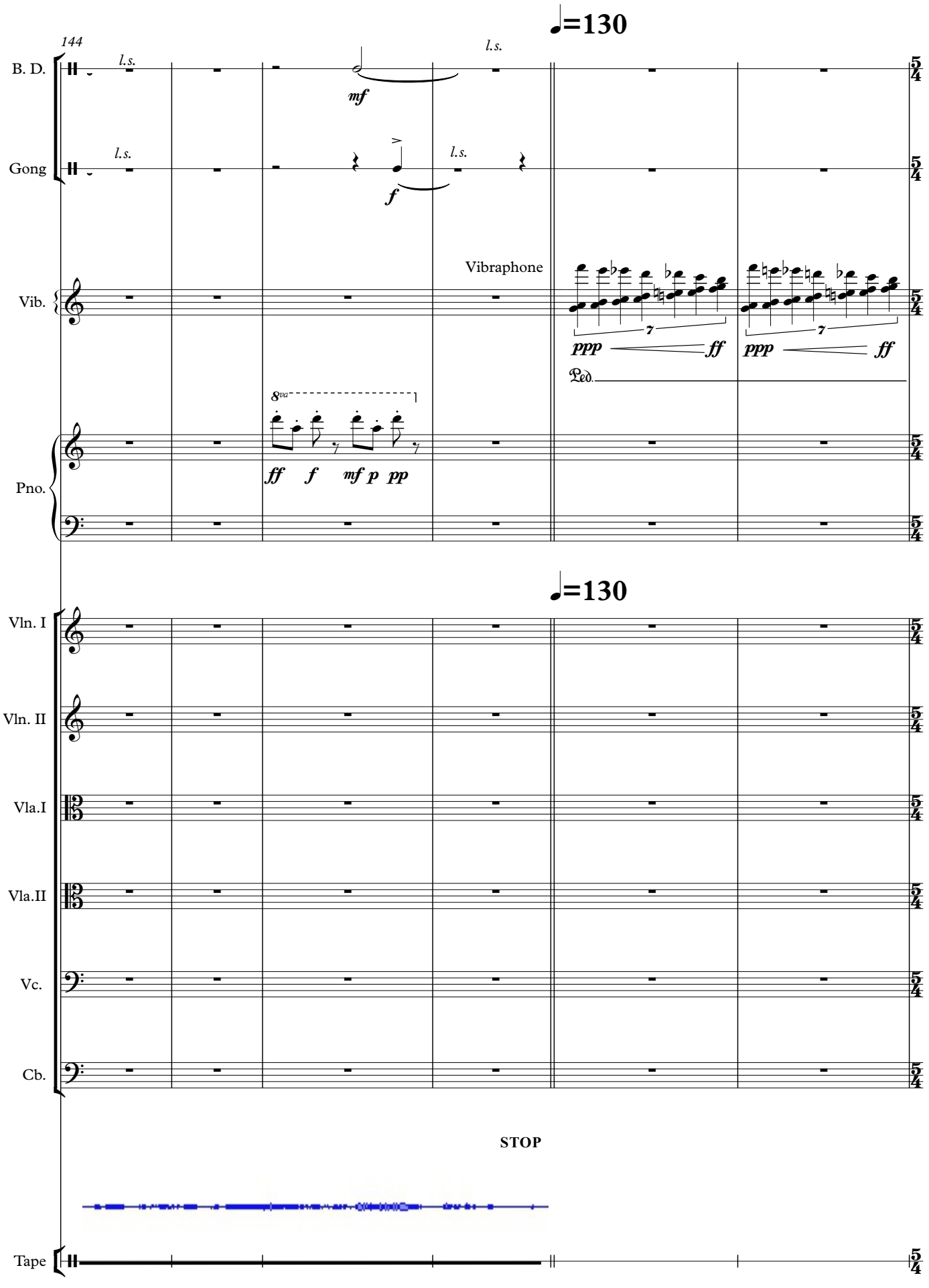

115
B. D.
ppp
l.s.
Gong
l.s.
Org.
8va
Vln. I
p
ff
mp
mp
ff
Vln. II
f
p
ff
mp
ff
mp
Vla.I
Vla.II
Vc.
Cb.
Tape

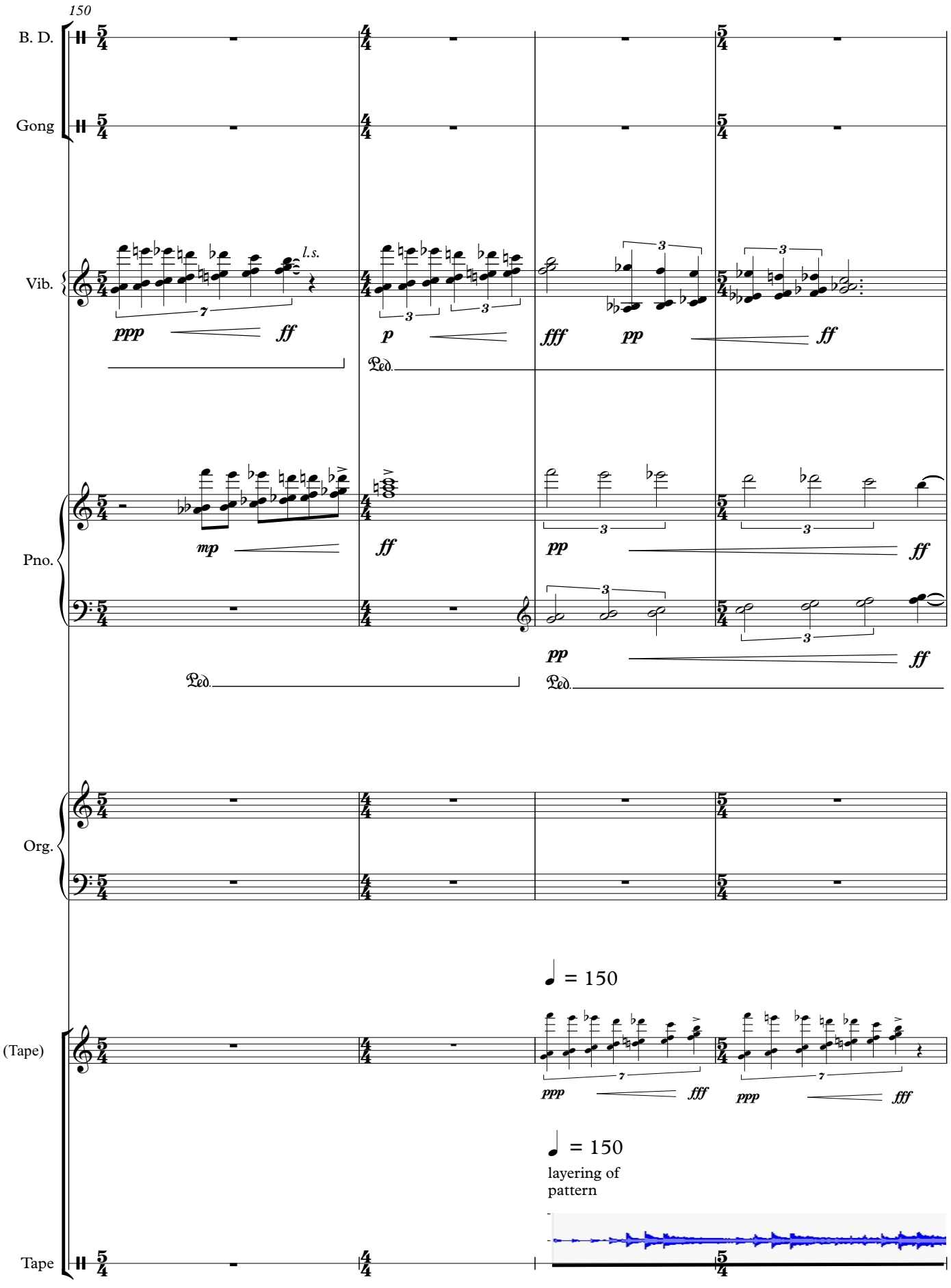

121
B. D.
Gong
Org.
(8)
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
Tape
mp
ff
mp
mp
ff
mp
mp
ff
mp
ff
mp
ff
ff
p
ppp

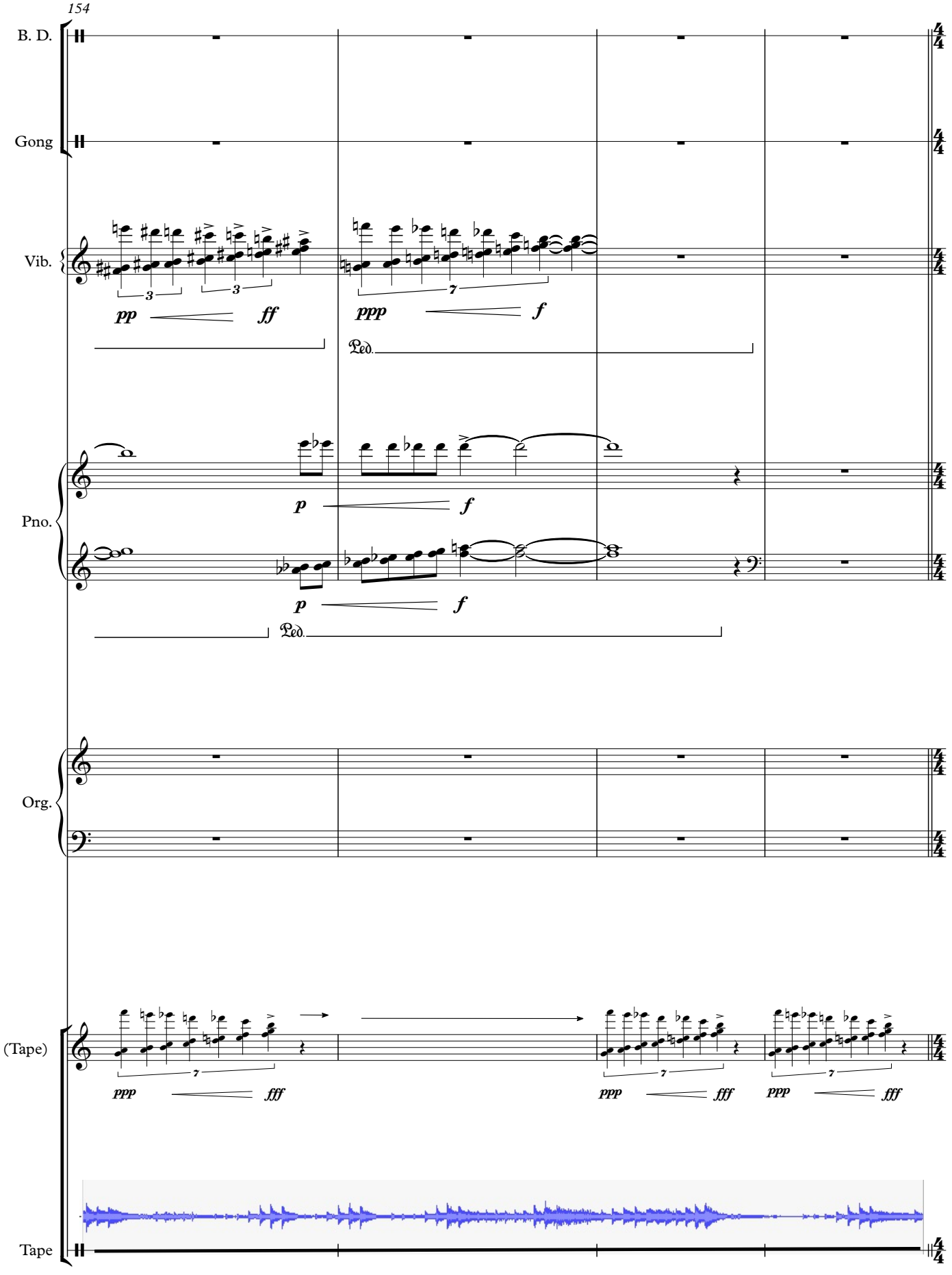

127
B. D.
Gong
Org.
Vln. I
Vln. II
Vla.I
Vla.II
Cb.
Tape
mp
l.s.
ff
(8)
STOP

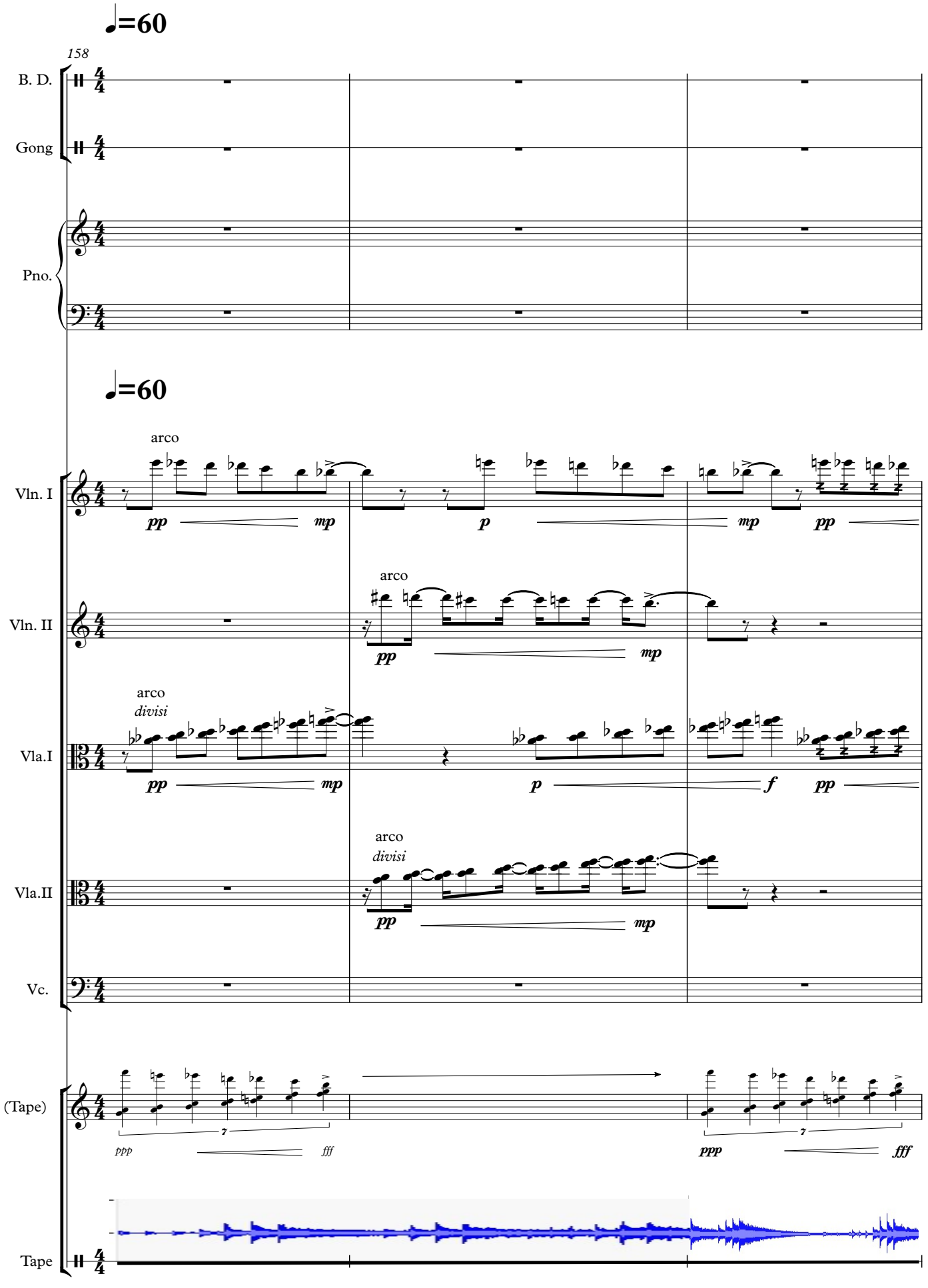

133
l.s.
B. D.
Gong
Org.
(8)
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
Tape
pp
ppp
p
ff
mp

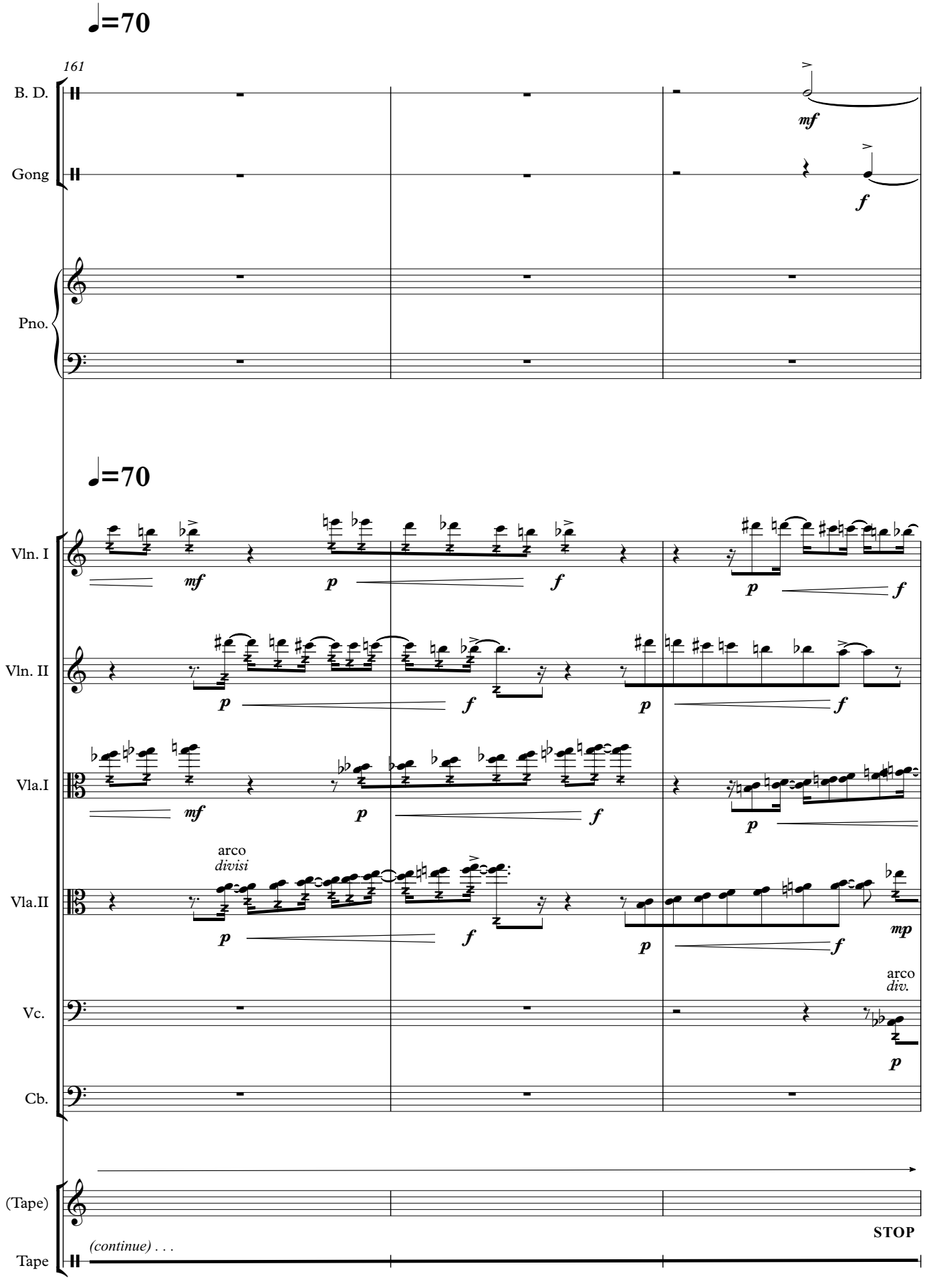

♩=95
138
B. D.
l.s.
mf
mf
Gong
l.s.
mf
f
8va
ff f mf p pp
ff f mf p pp
Pno.
Org.
♩=95
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
effected harp
Tape

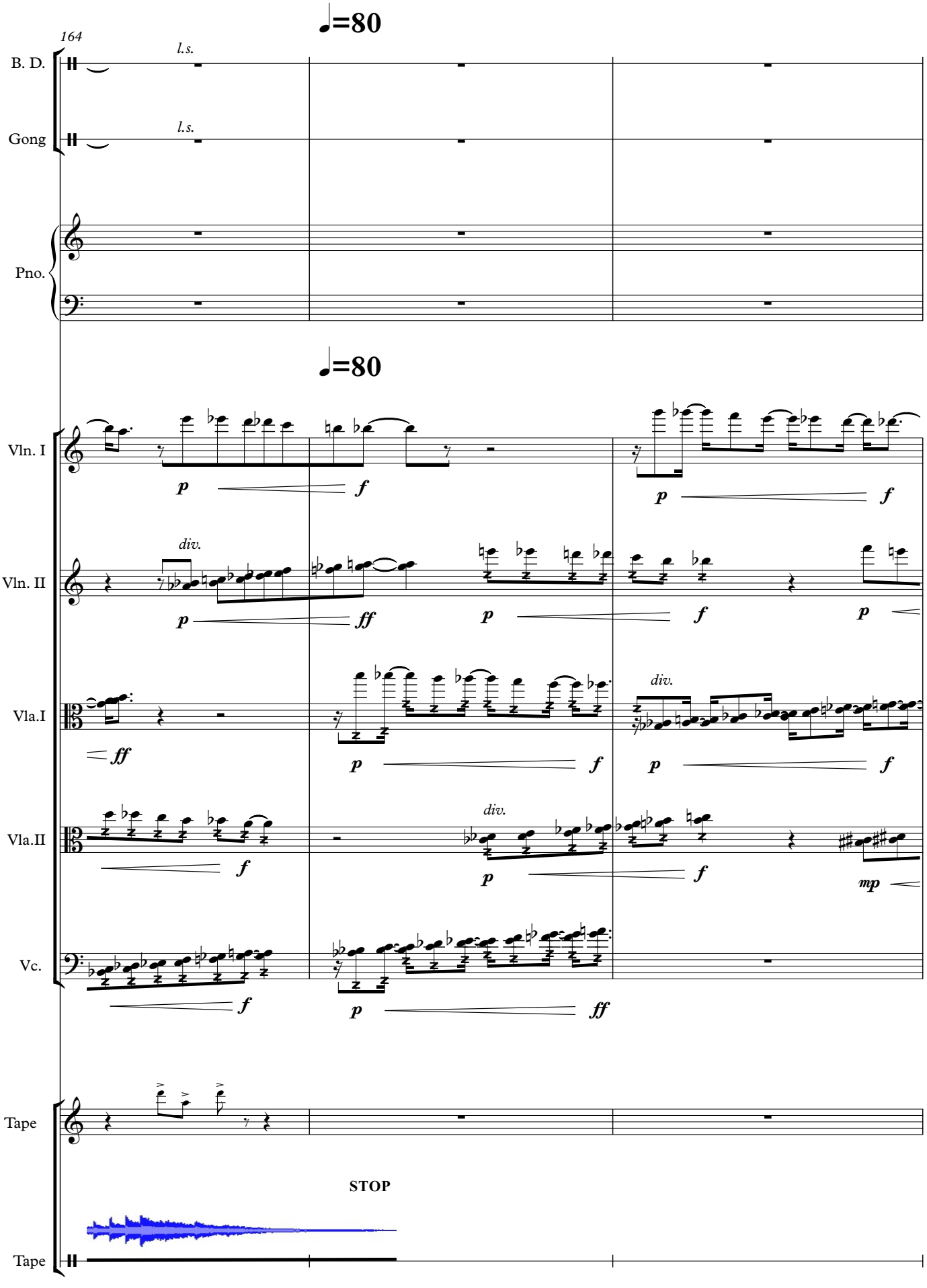

144
♩=130
B. D.
Gong
Vib.
Pno.
l.s.
mf
f
Vibraphone
ppp
ff
Ped.
8va
ff f mf p pp
♩=130
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
STOP
Tape

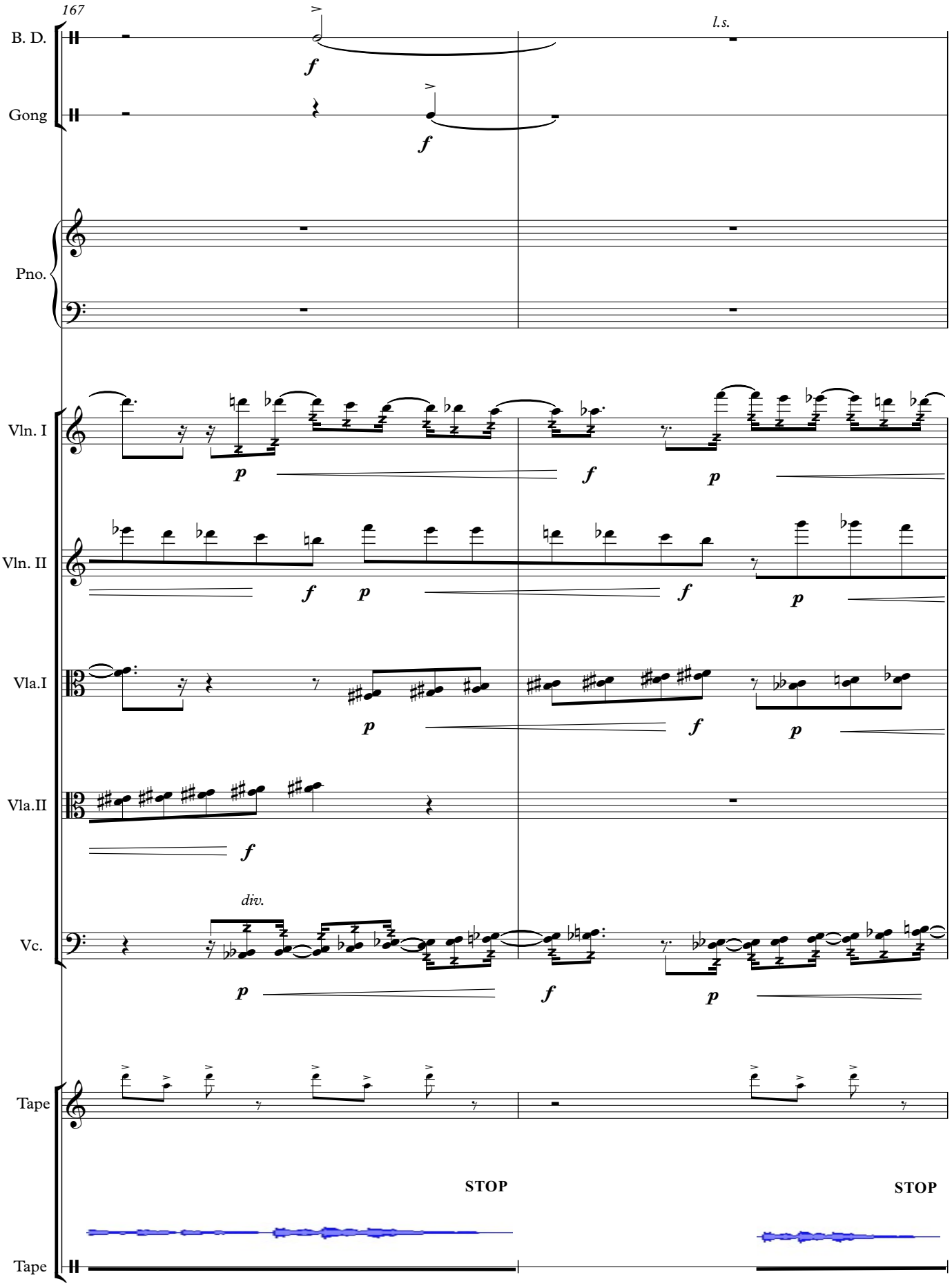

150
B. D.
Gong
Vib.
l.s.
ppp
ff
p
fff
pp
ff
Pno.
mp
ff
pp
ff
pp
ff
Org.
(Tape)
♩ = 150
ppp
fff
ppp
fff
♩ = 150
layering of
pattern
Tape

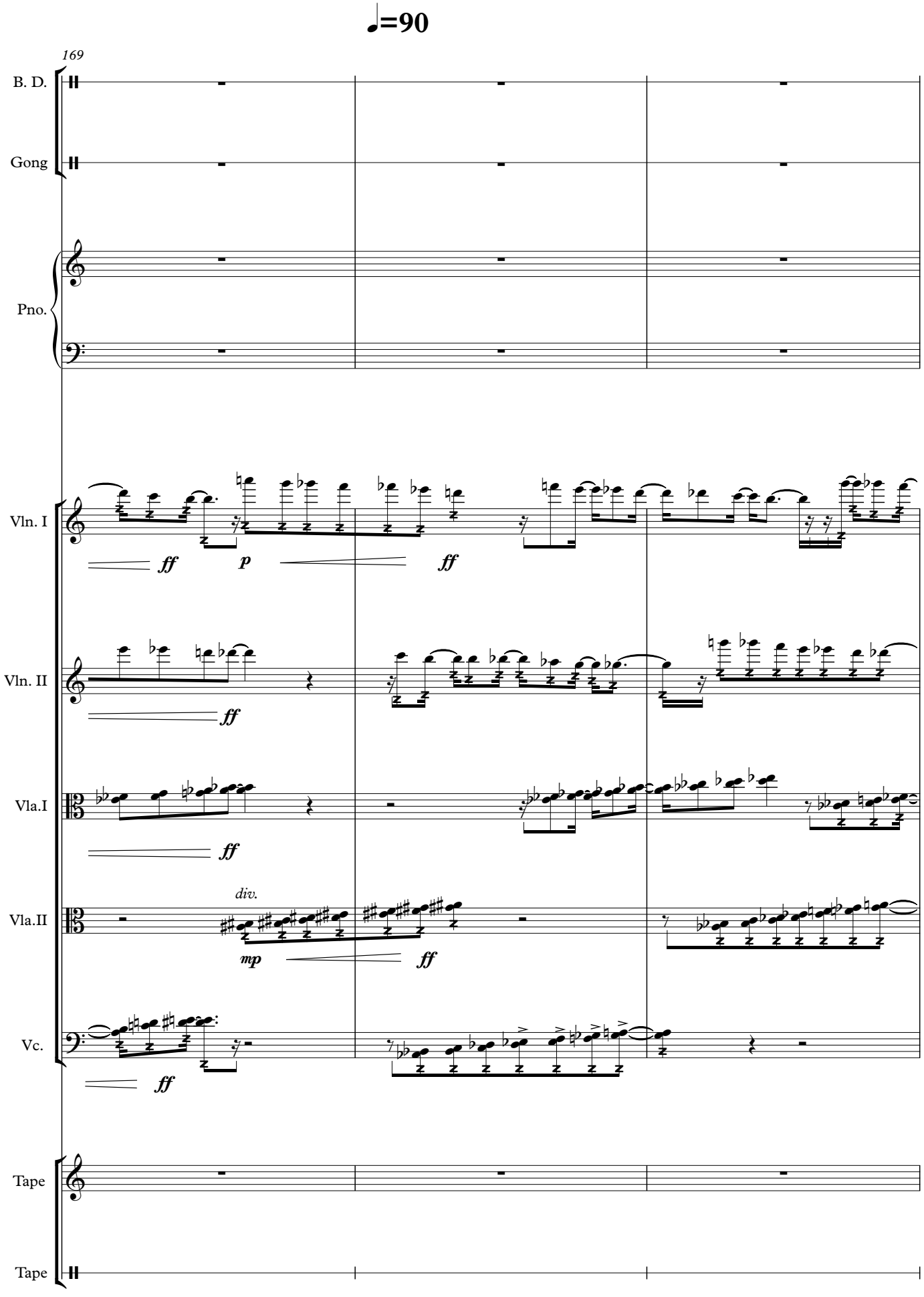

154
B. D.
Gong
Vib.
pp
fff
ppp
f
Ped.
Pno.
p
f
p
f
Ped.
Org.
(Tape)
ppp
fff
ppp
fff
ppp
fff
Tape

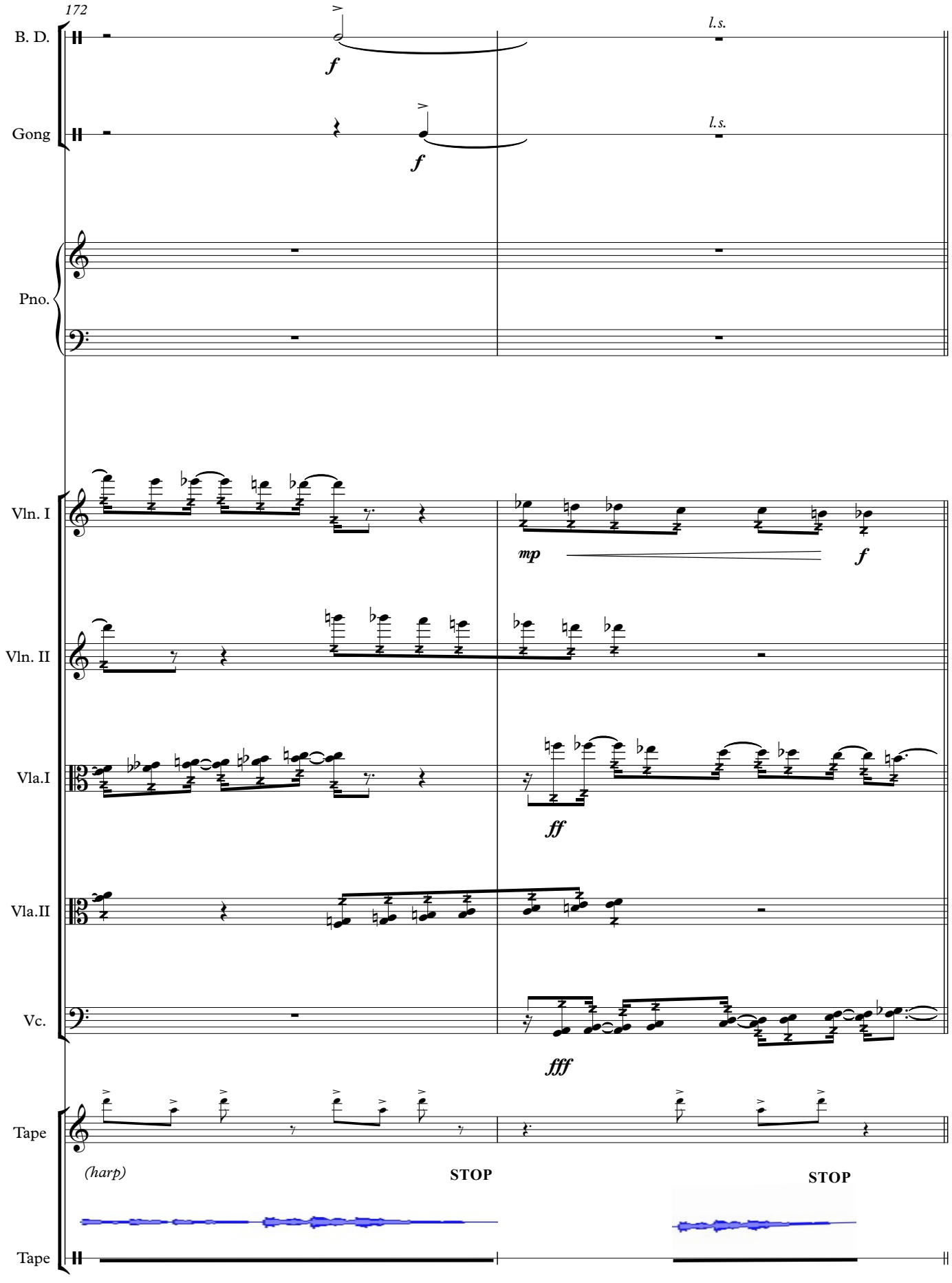

♩=60
158
B. D.
Gong
Pno.
♩=60
arco
Vln. I
pp
mp
p
mp
pp
arco
Vln. II
pp
mp
arco
divisi
Vla.I
pp
mp
p
f
pp
arco
divisi
Vla.II
pp
mp
Vc.
(Tape)
7
ppp
fff
7
ppp
fff
Tape

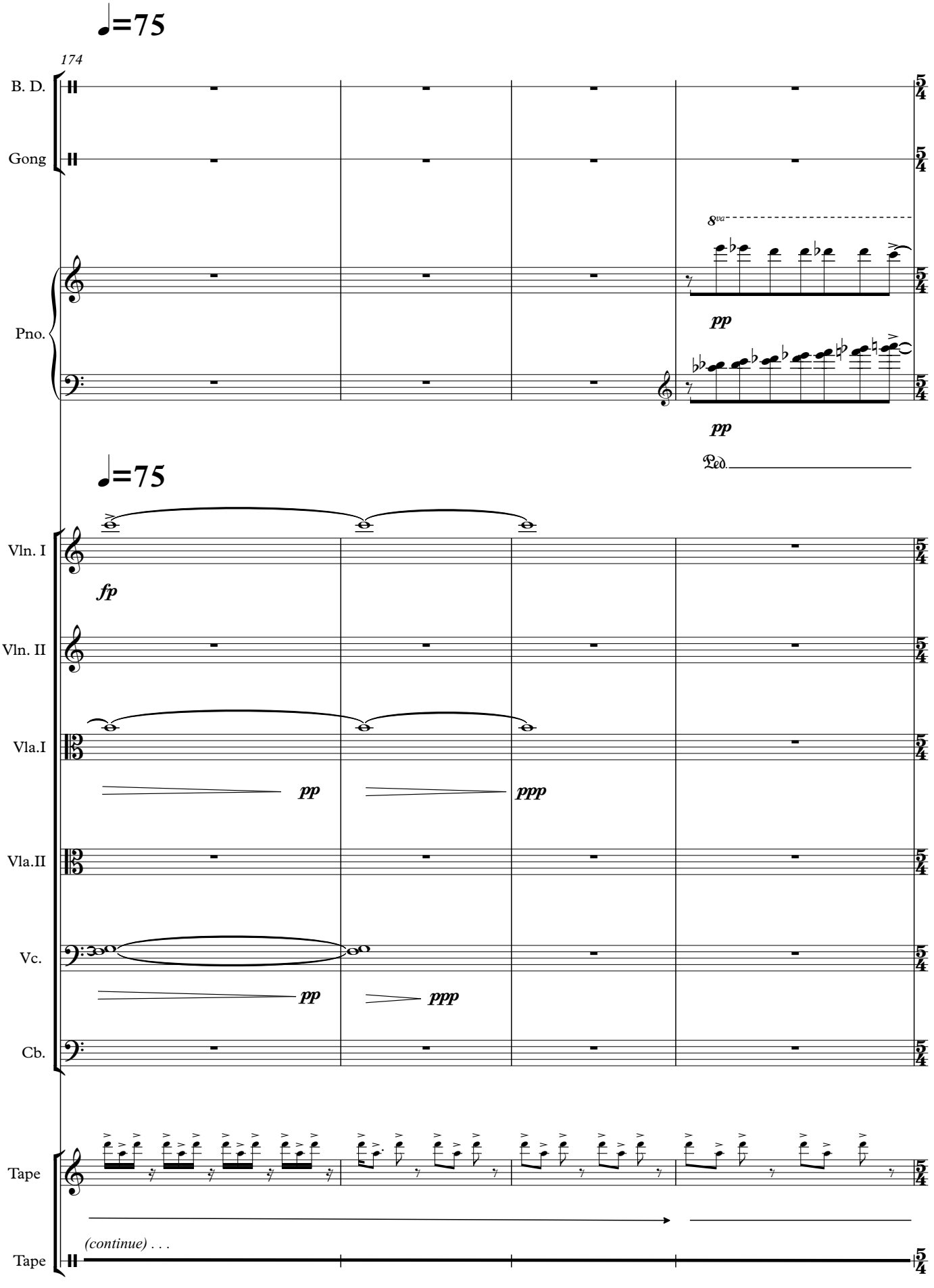

♩=70
161
B. D.
Gong
Pno.
mf
f
♩=70
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
arco
divisi
arco
div.
mp
(Tape)
STOP
(continue) . . .
Tape

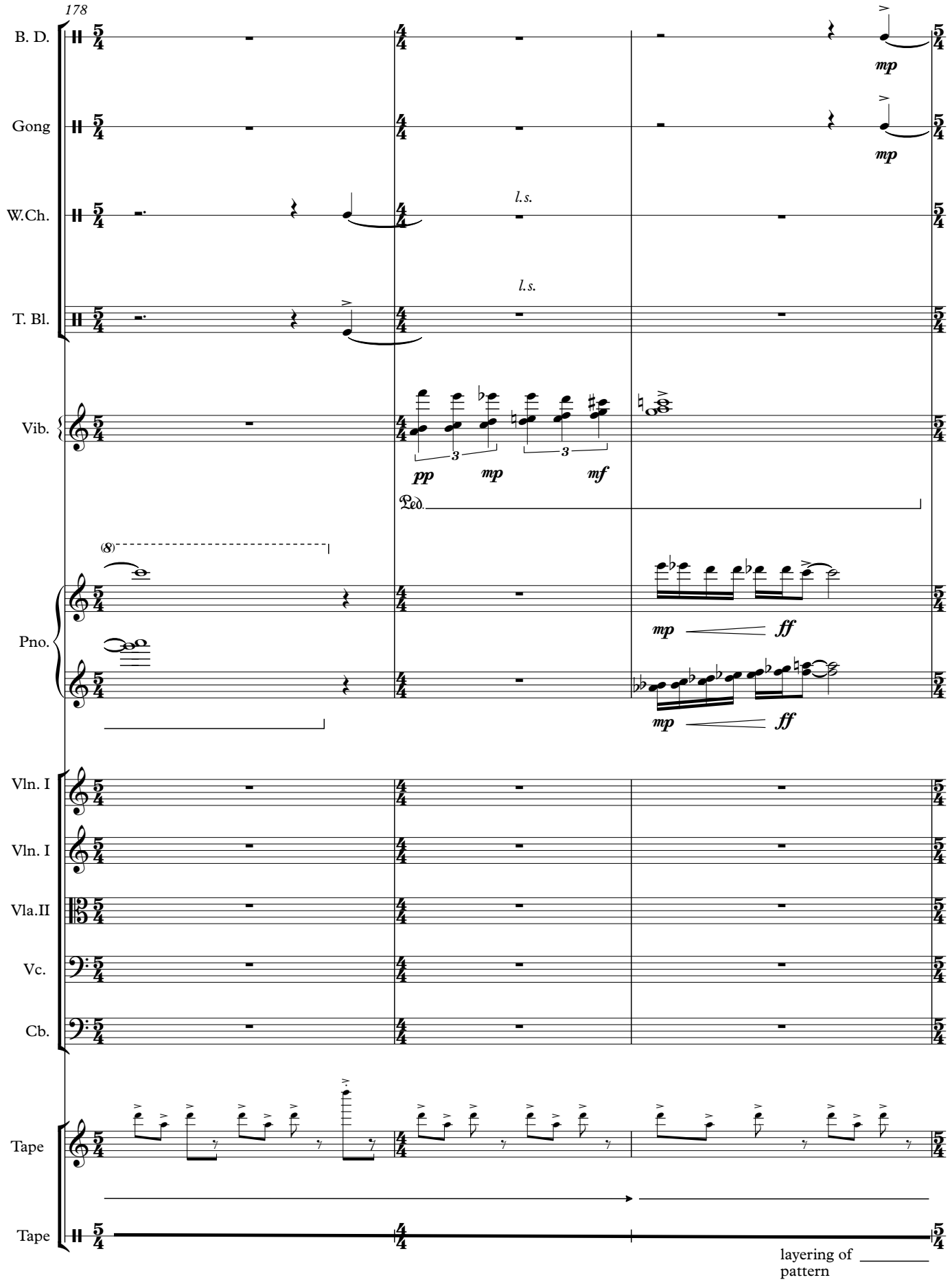

♩=80
164
B. D.
l.s.
Gong
l.s.
Pno.
♩=80
Vln. I
Vln. II
div.
Vla.I
div.
Vla.II
div.
Vc.
Tape
STOP
Tape

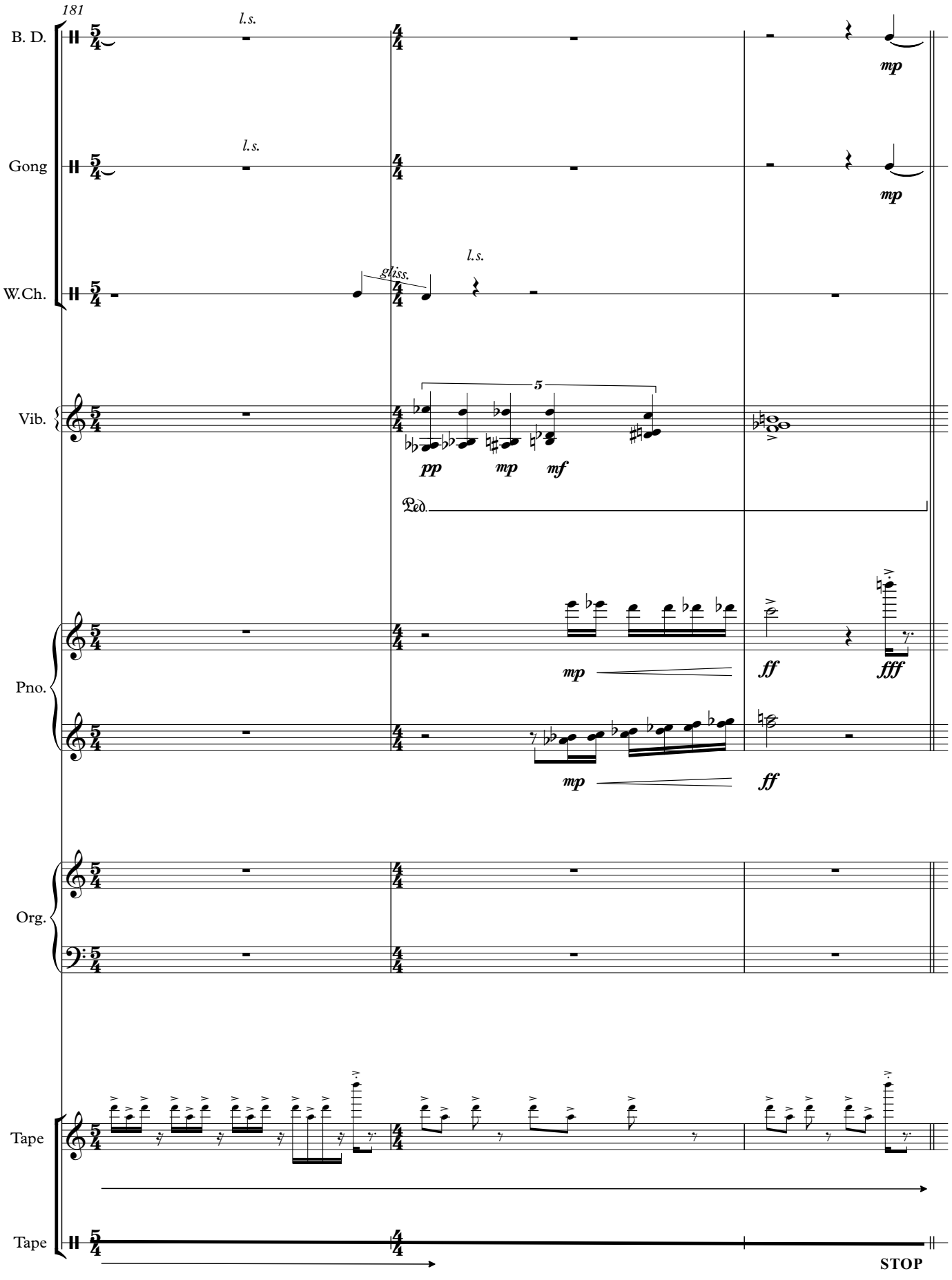

167
B. D.
Gong
Pno.
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Tape
Tape
l.s.
div.
STOP
STOP

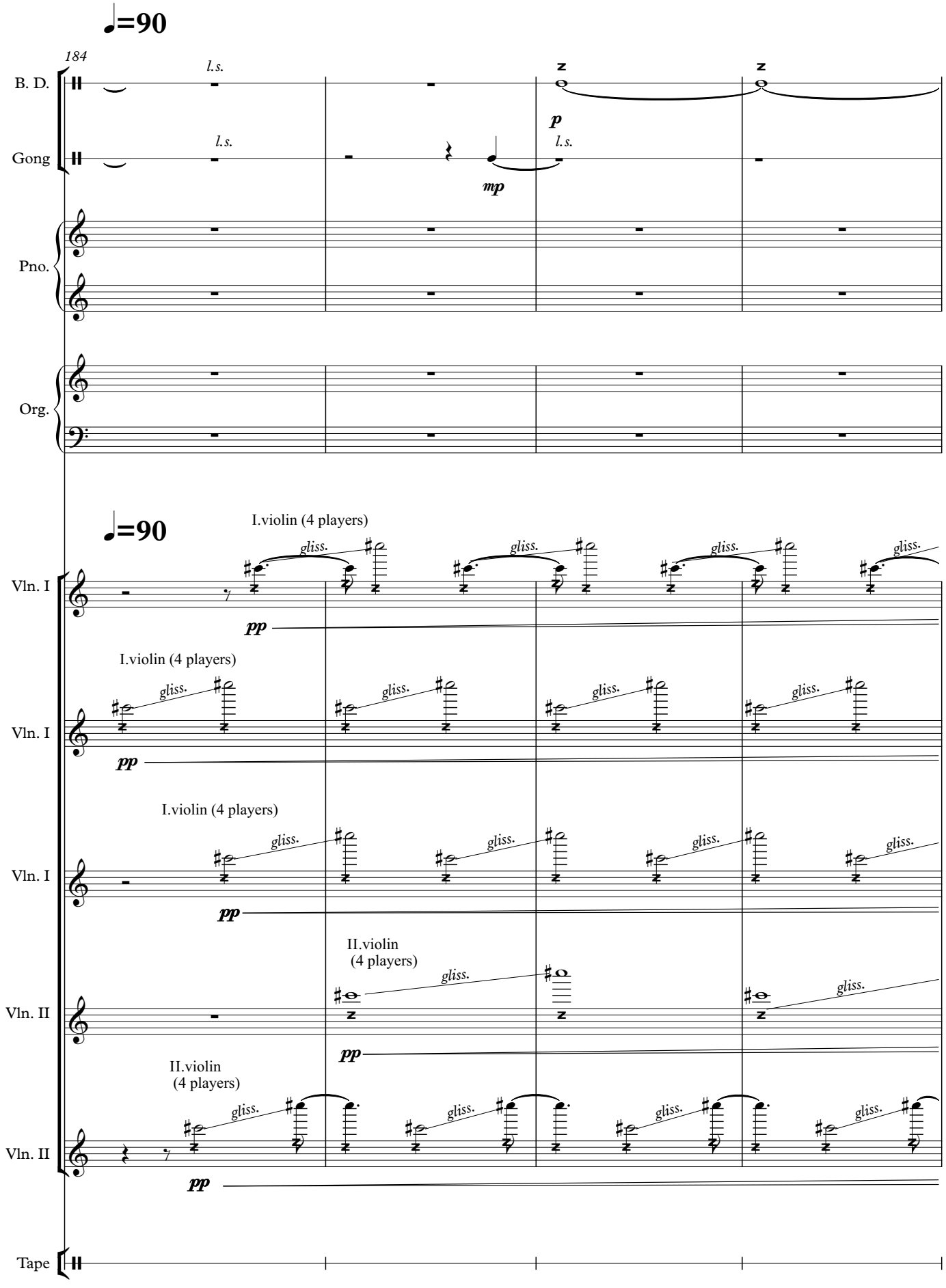

♩=90
169
B. D.
Gong
Pno.
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Tape
Tape
ff
p
ff
ff
ff
div.
mp
ff
ff

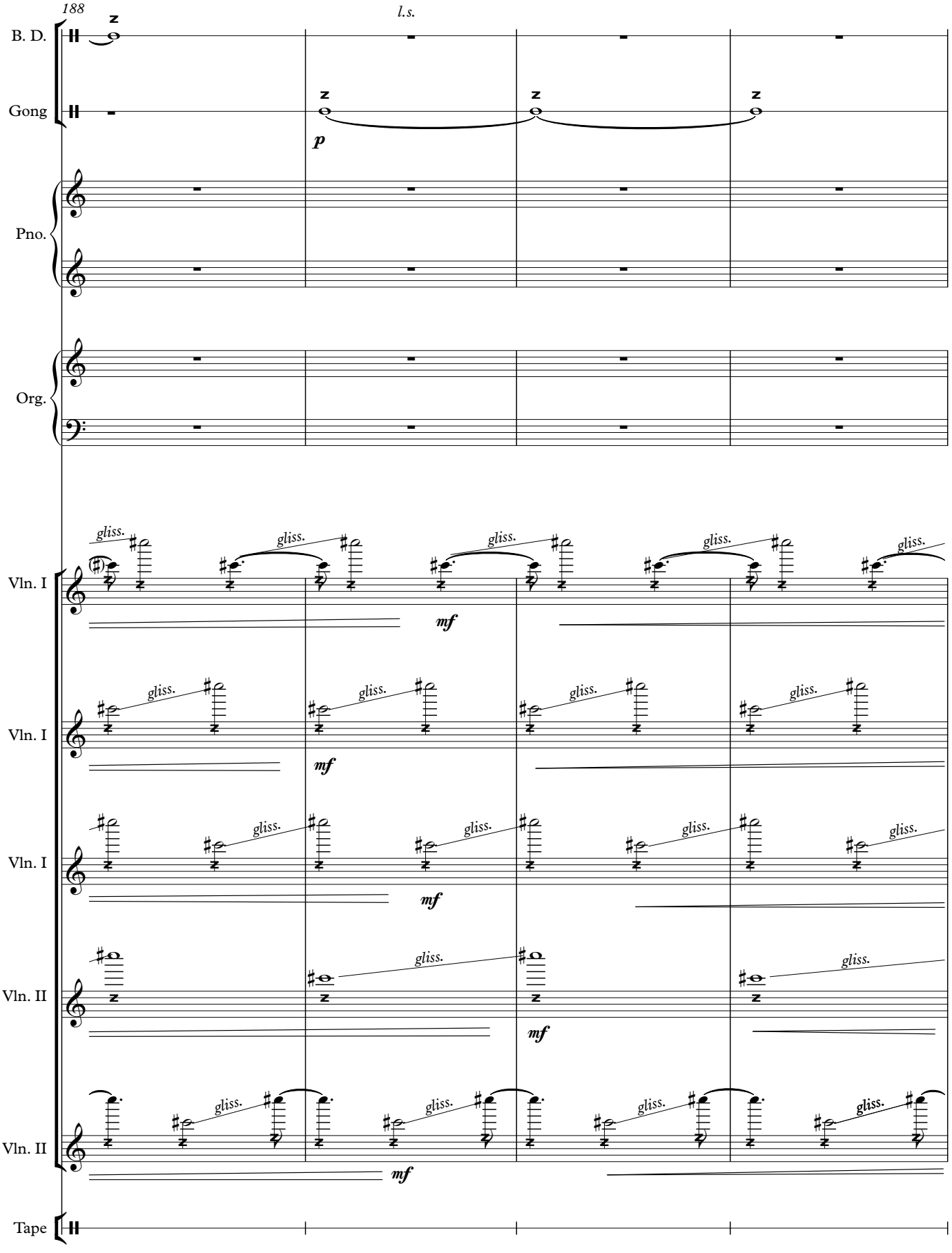

172
B. D.
l.s.
Gong
l.s.
Pno.
Vln. I
mp
f
Vln. II
Vla.I
ff
Vla.II
Vc.
fff
Tape
(harp)
STOP
STOP
Tape

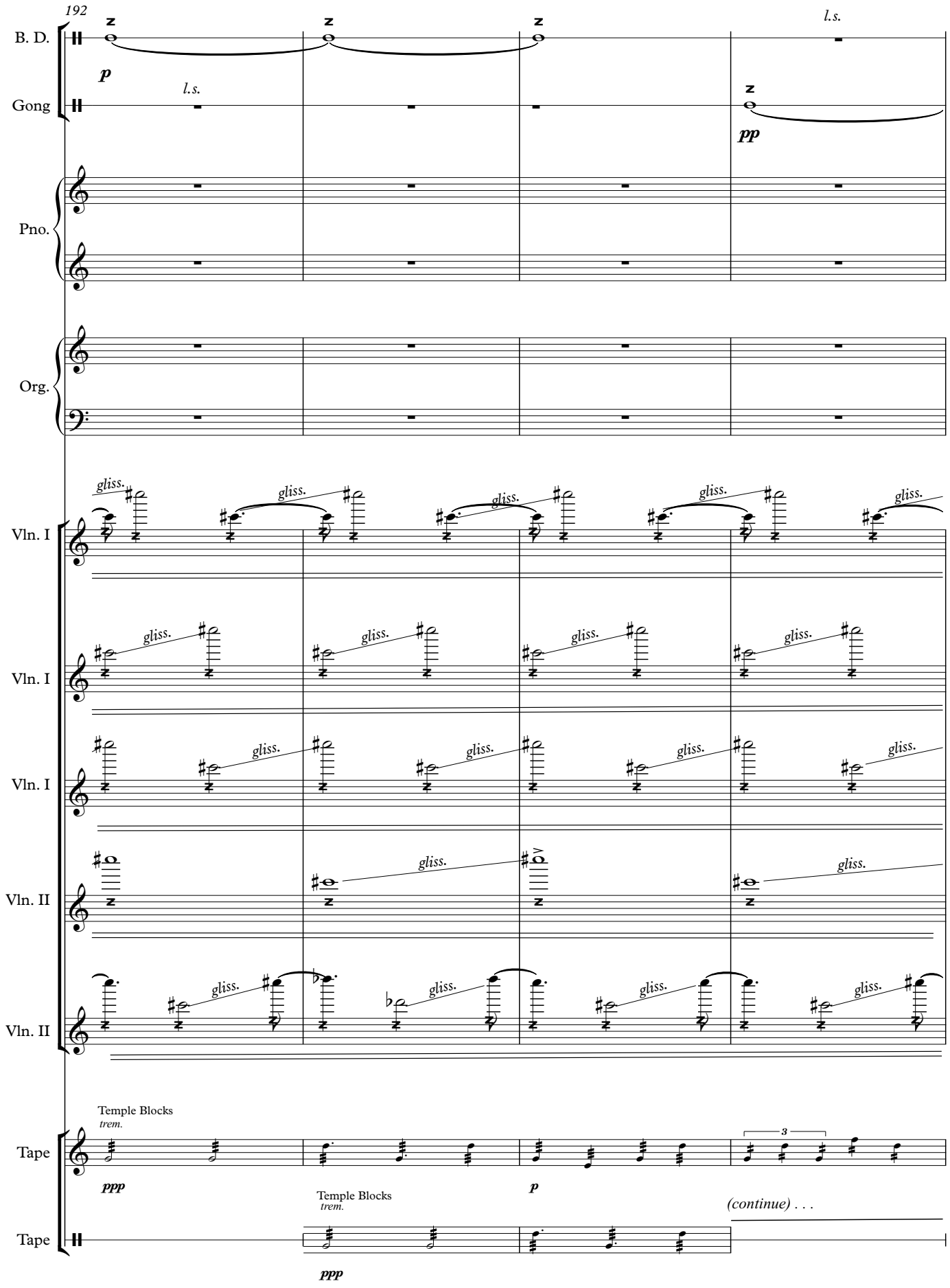

♩=75
174
B. D.
Gong
Pno.
8va
pp
pp
Ped.
♩=75
Vln. I
fp
Vln. II
Vla.I
pp
ppp
Vla.II
Vc.
pp
ppp
Cb.
Tape
(continue) . . .
Tape

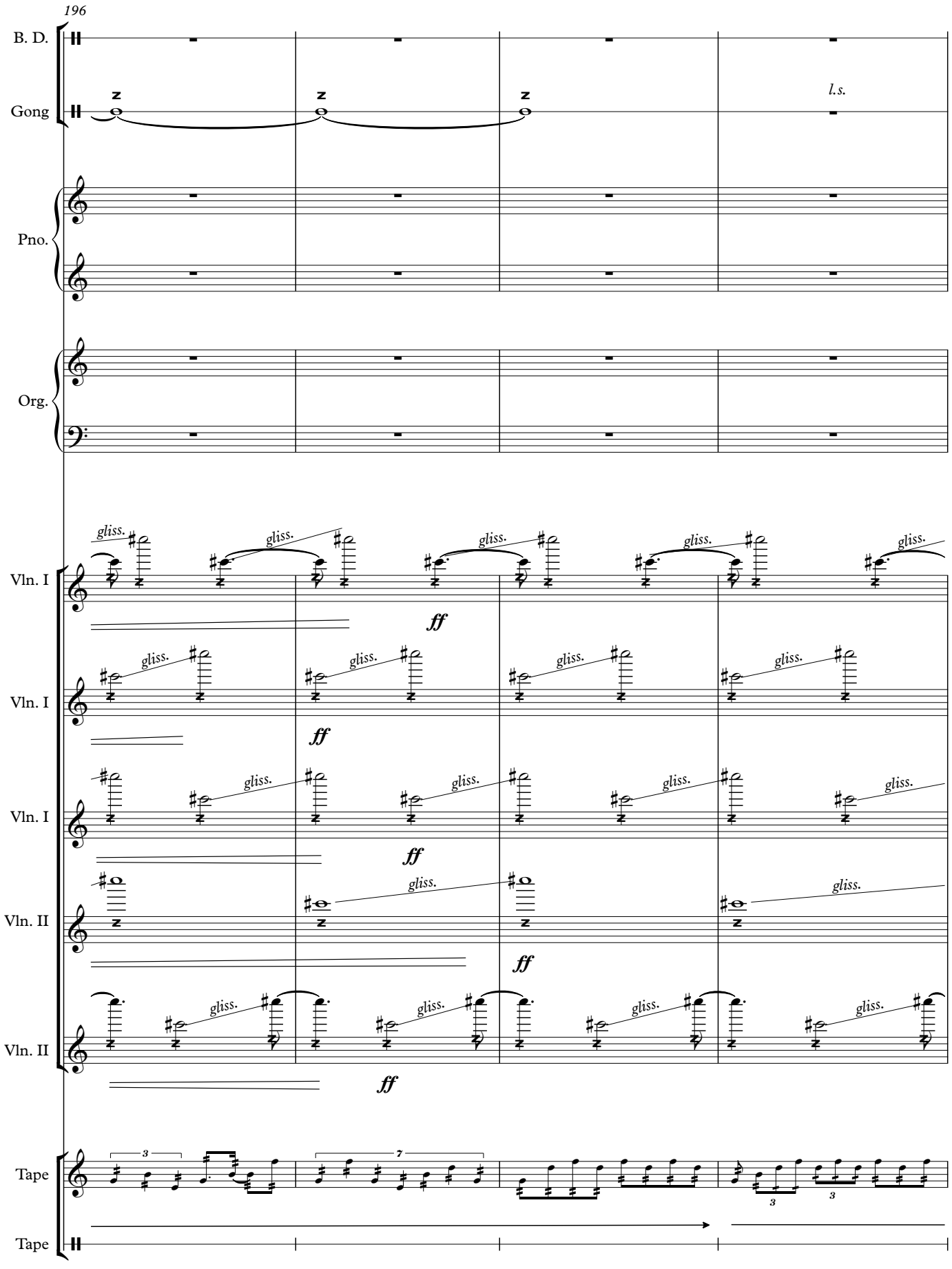

178
B. D.
Gong
W.Ch.
T. Bl.
Vib.
Pno.
Vln. I
Vln. I
Vla.II
Vc.
Cb.
Tape
Tape
l.s.
l.s.
mp
mp
pp
mp
mf
Ped.
mp
ff
mp
ff
layering of pattern

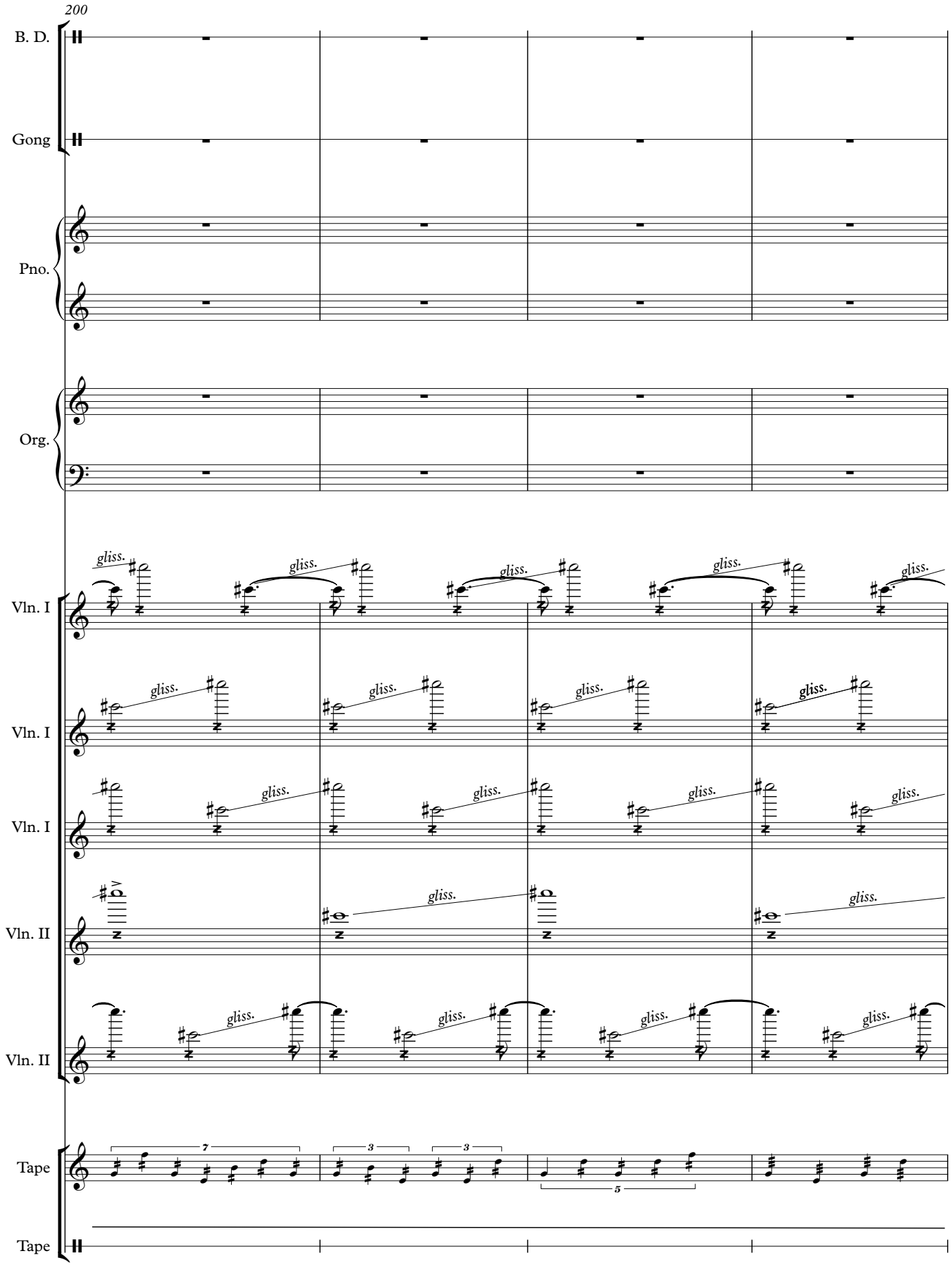

181
B. D.
l.s.
mp
Gong
l.s.
mp
W.Ch.
gliss.
l.s.
Vib.
5
pp
mp
mf
Ped.
Pno.
mp
ff
fff
mp
ff
Org.
Tape
Tape
STOP

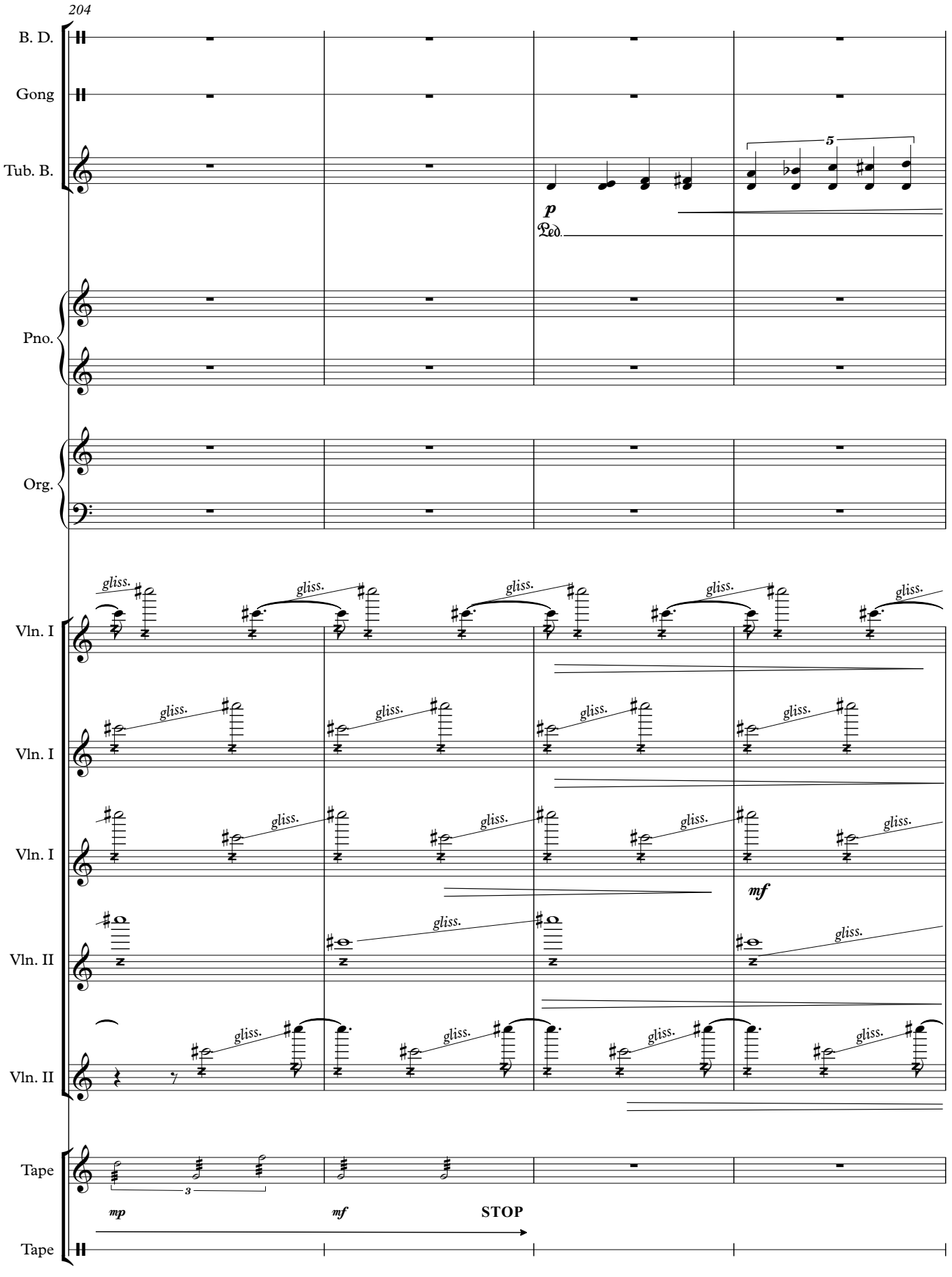

♩=90
184
B. D.
Gong
Pno.
Org.
l.s.
p
mp
♩=90
I.violin (4 players)
Vln. I
Vln. II
II.violin
(4 players)
gliss.
pp
Tape

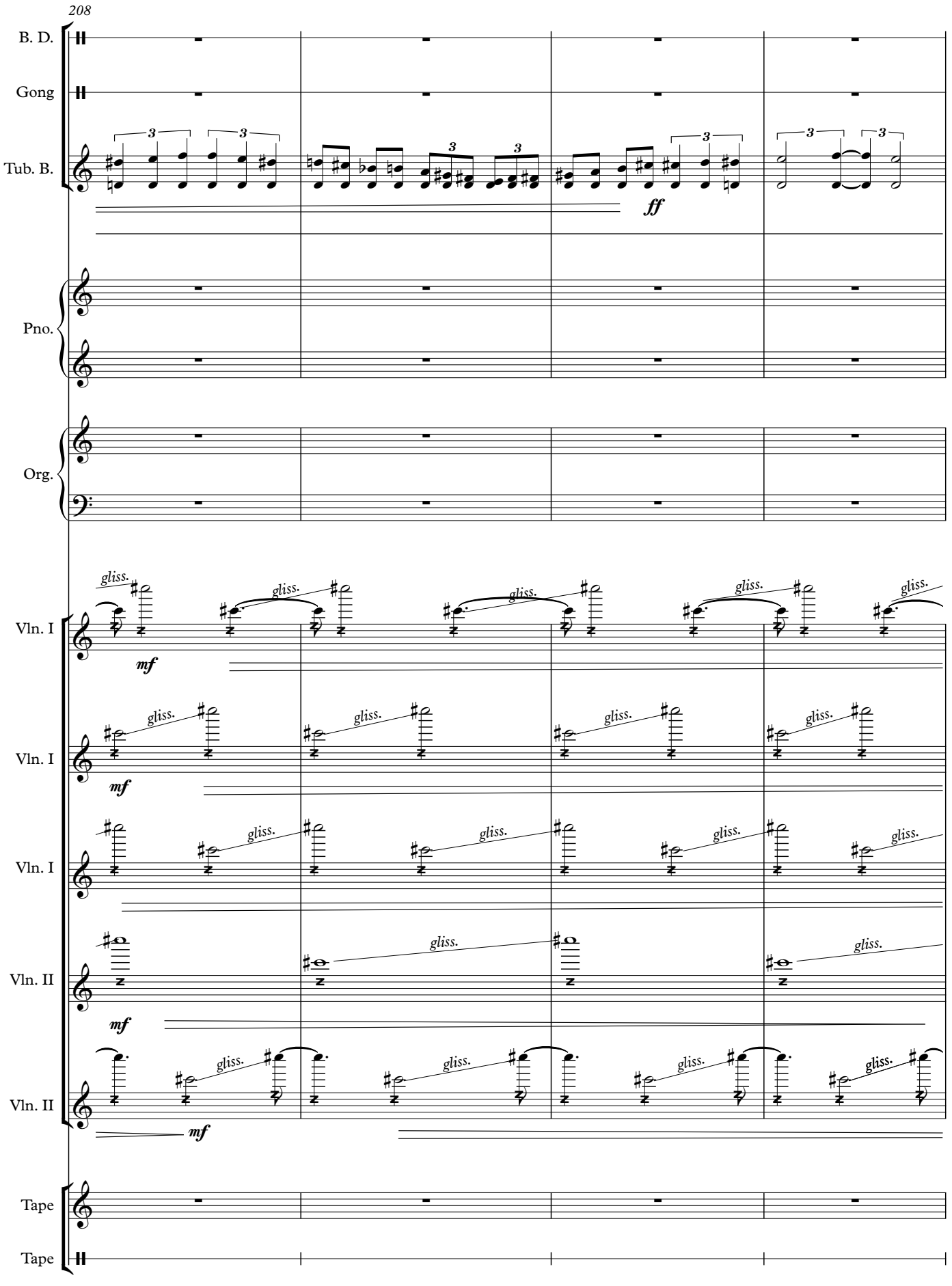

188
l.s.
B. D.
Gong
Pno.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
Tape
gliss.
p
mf

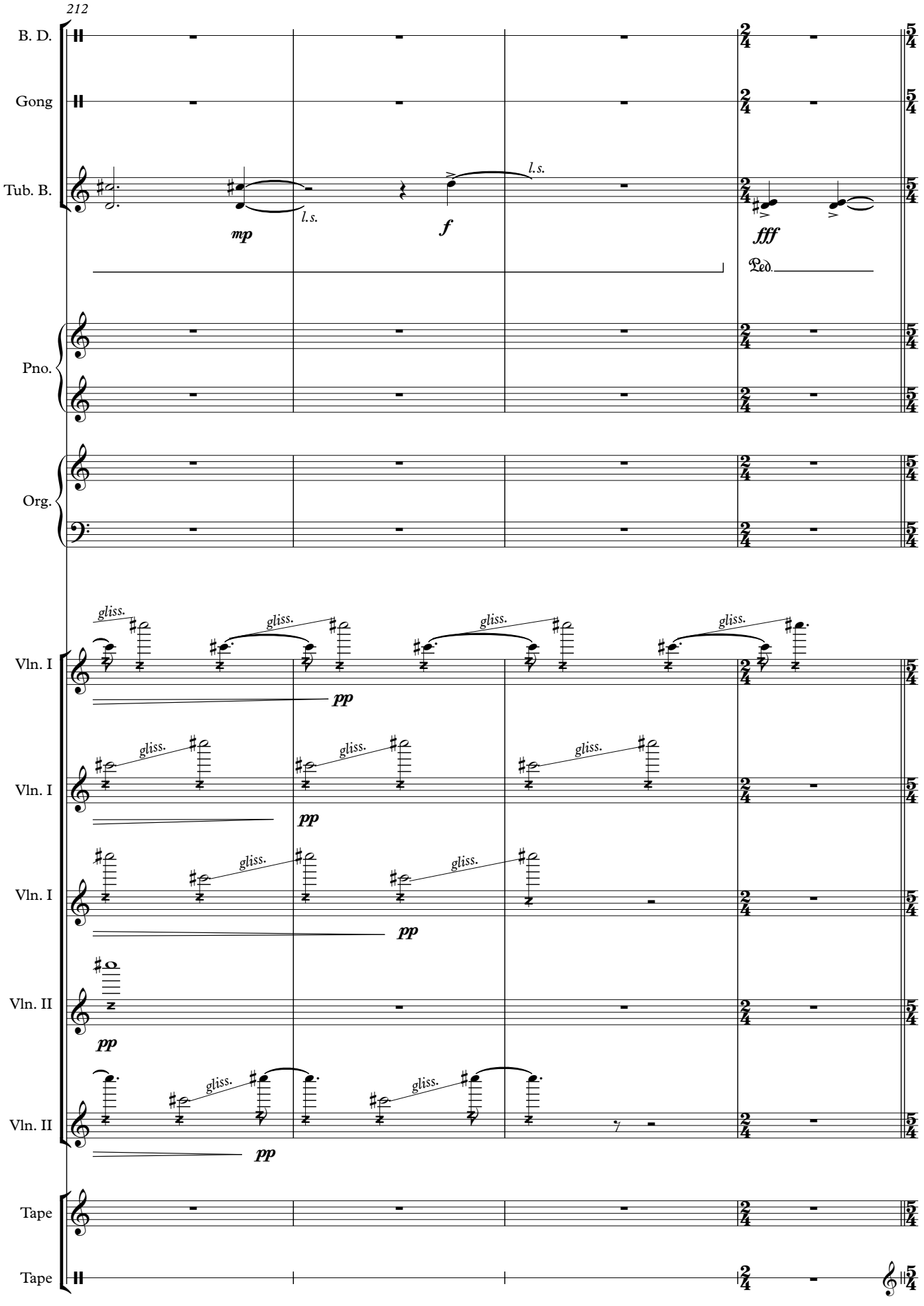

192
B. D.
Gong
Pno.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
Tape
Tape
l.s.
p
pp
gliss.
Temple Blocks
trem.
ppp
3
(continue) . . .

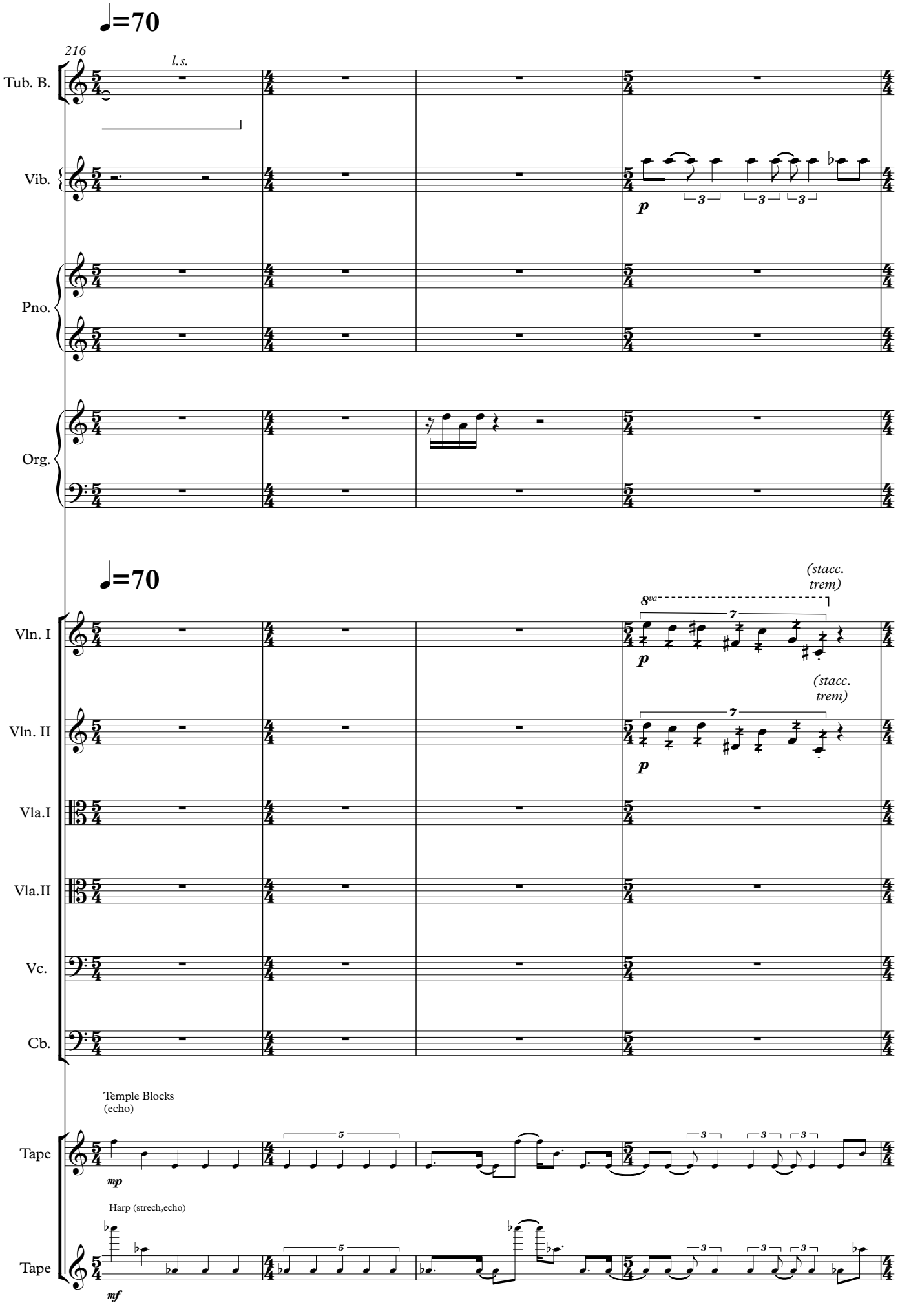

196
B. D.
Gong
l.s.
Pno.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
gliss.
ff
Tape
Tape

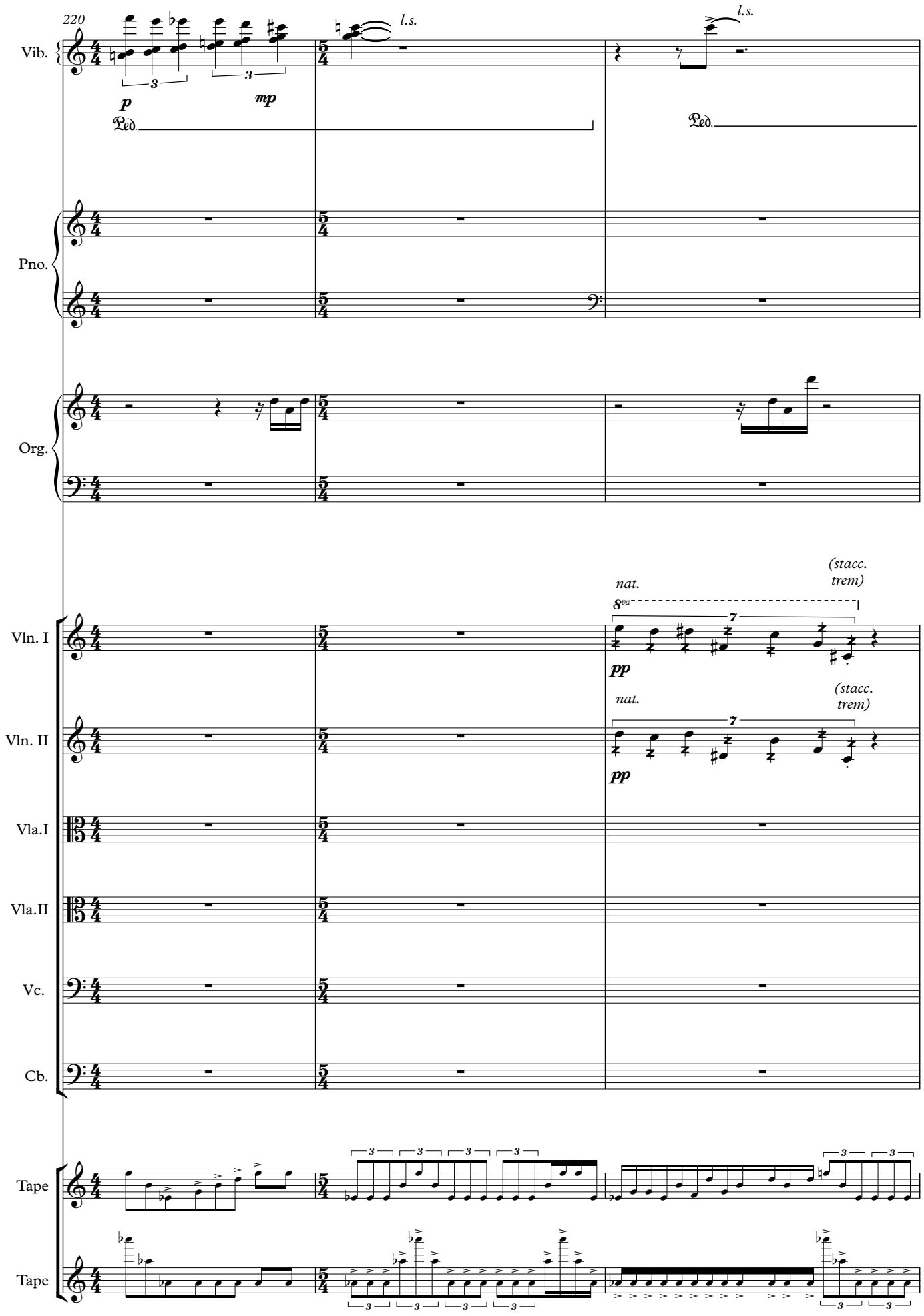

200
B. D.
Gong
Pno.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
Tape
Tape
gliss.
7
3
3
5

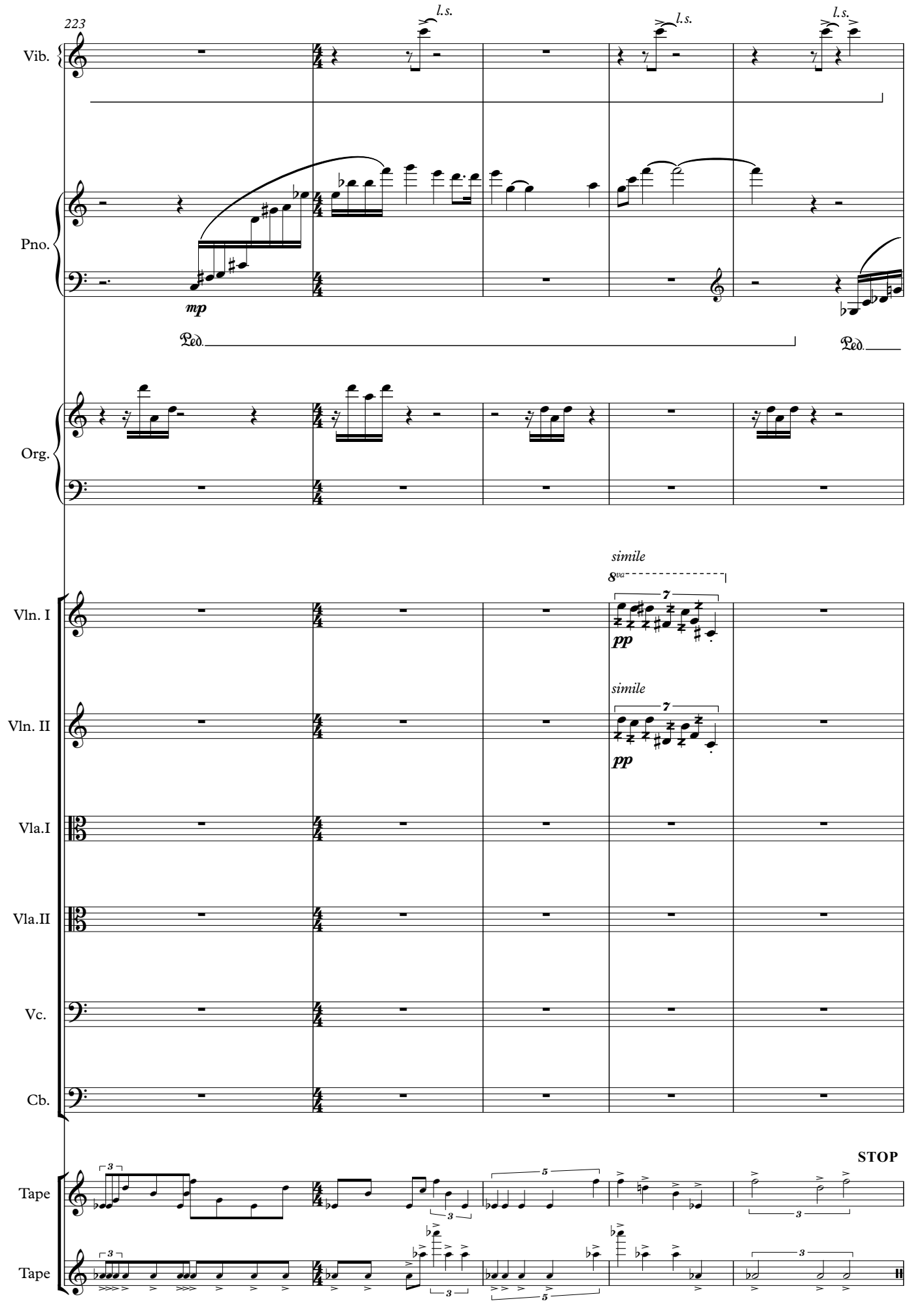

204
B. D.
Gong
Tub. B.
5
p
Ped.
Pno.
Org.
Vln. I
gliss.
Vln. I
Vln. I
mf
Vln. II
Vln. II
Tape
3
mp
mf
STOP
Tape

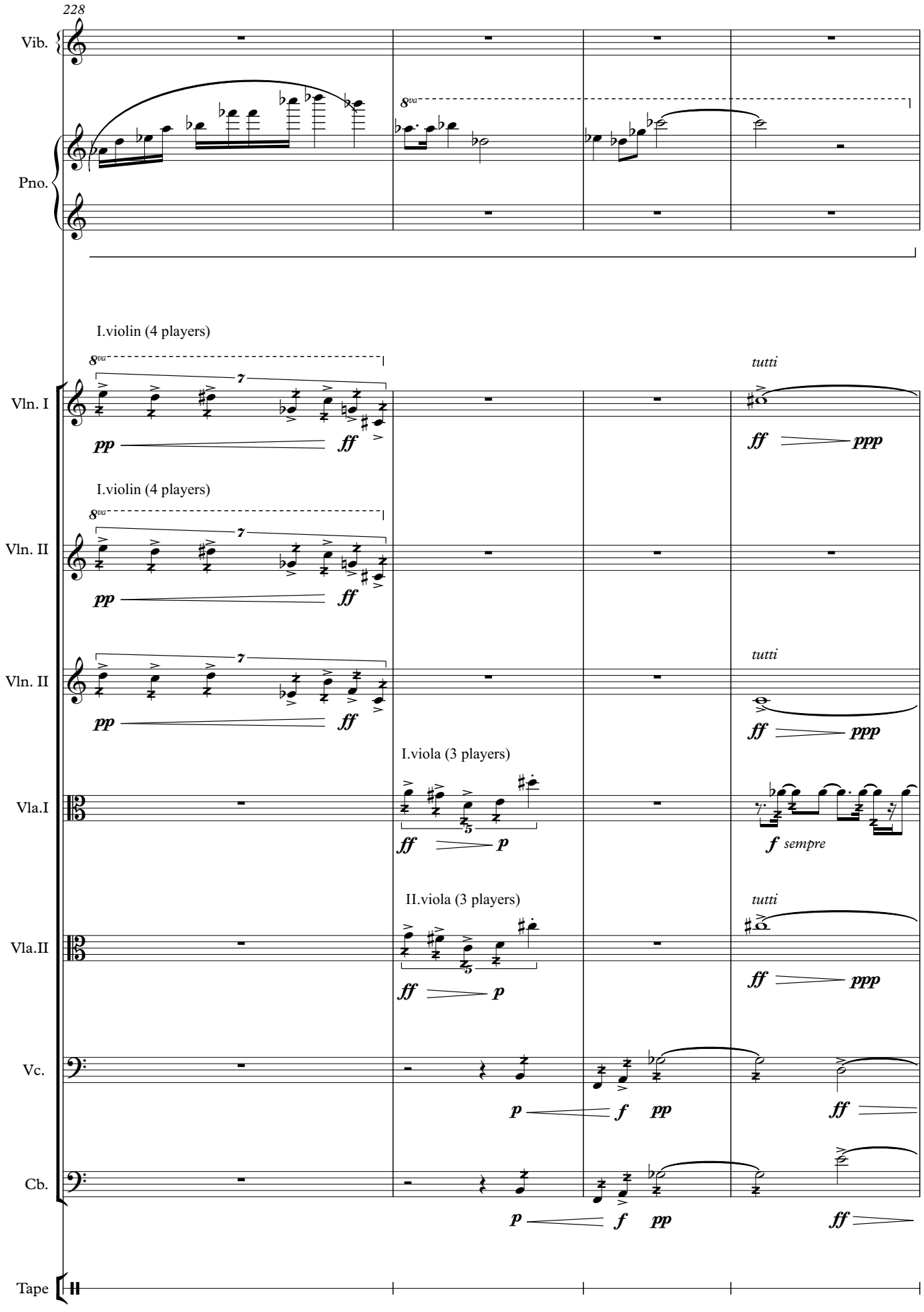

208
B. D.
Gong
Tub. B.
ff
Pno.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
gliss.
mf
Tape
Tape

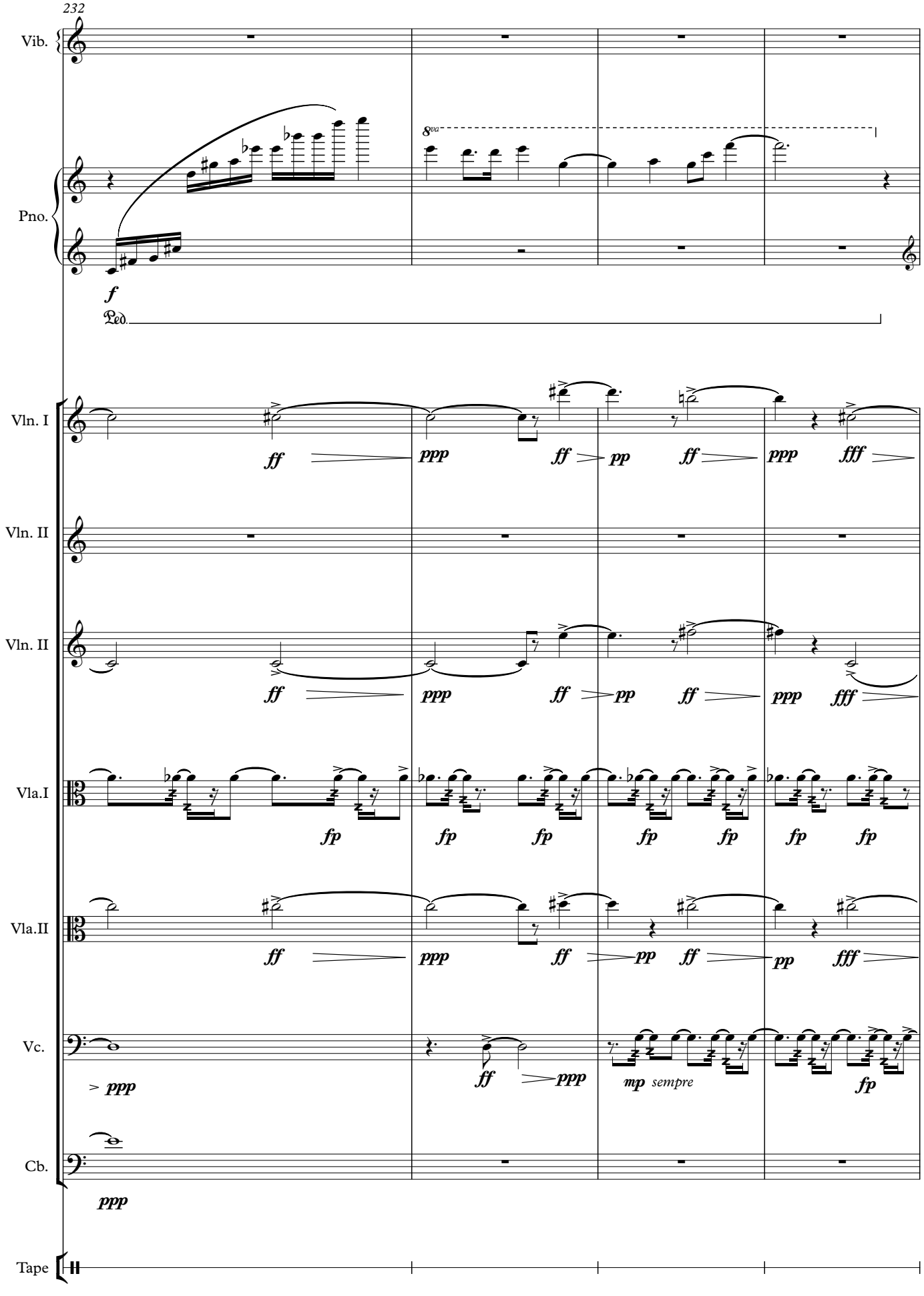

212
B. D.
Gong
Tub. B.
mp
l.s.
l.s.
f
l.s.
fff
Ped.
Pno.
Org.
Vln. I
gliss.
pp
Vln. I
gliss.
pp
Vln. I
gliss.
pp
Vln. II
pp
Vln. II
gliss.
pp
Tape
Tape

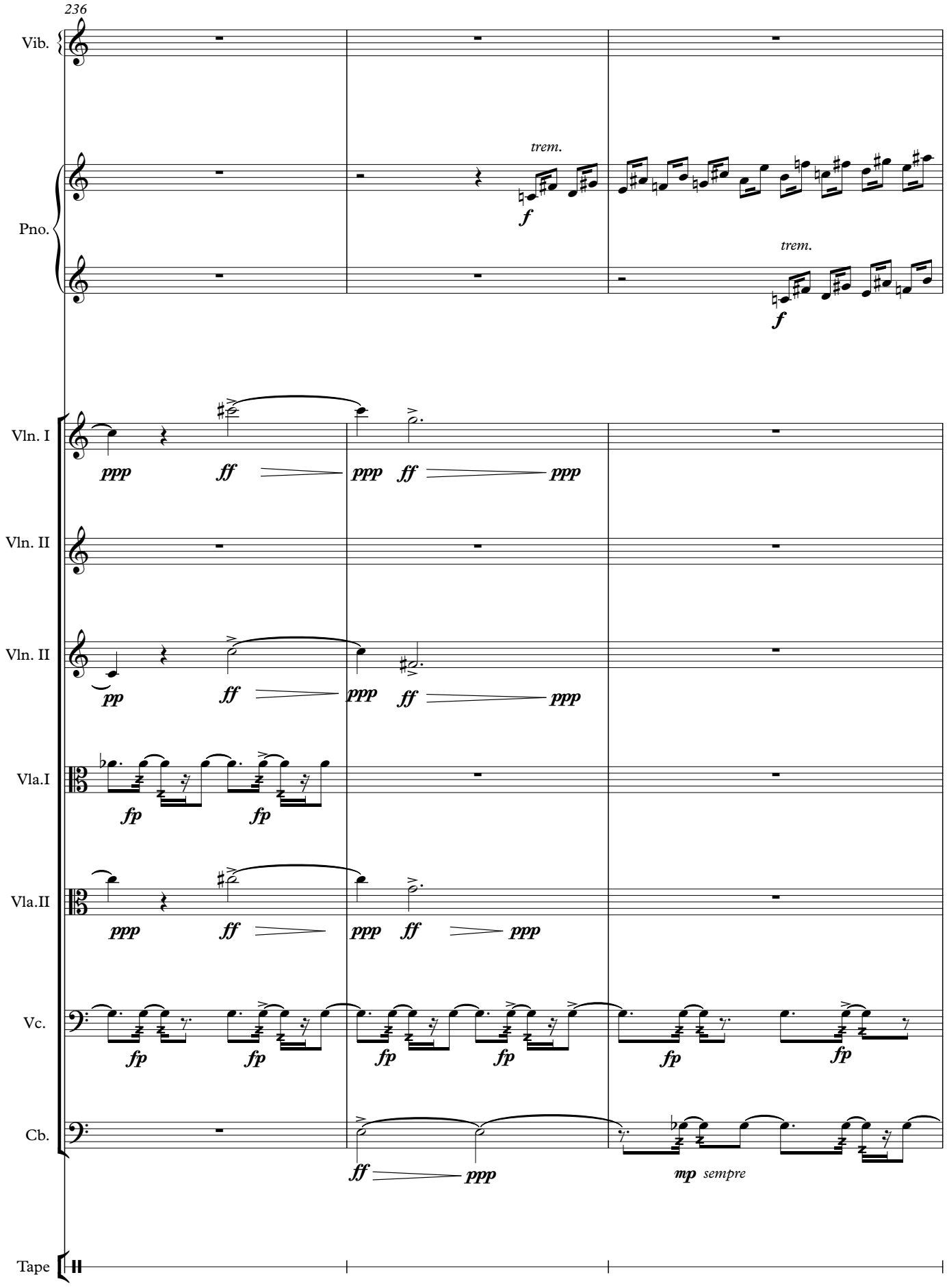

♩=70
216
l.s.
Tub. B.
Vib.
p
Pno.
Org.
♩=70
(stacc. trem)
8va
Vln. I
p
(stacc. trem)
Vln. II
p
Vla.I
Vla.II
Vc.
Cb.
Temple Blocks (echo)
Tape
mp
Harp (strech,echo)
Tape
mf

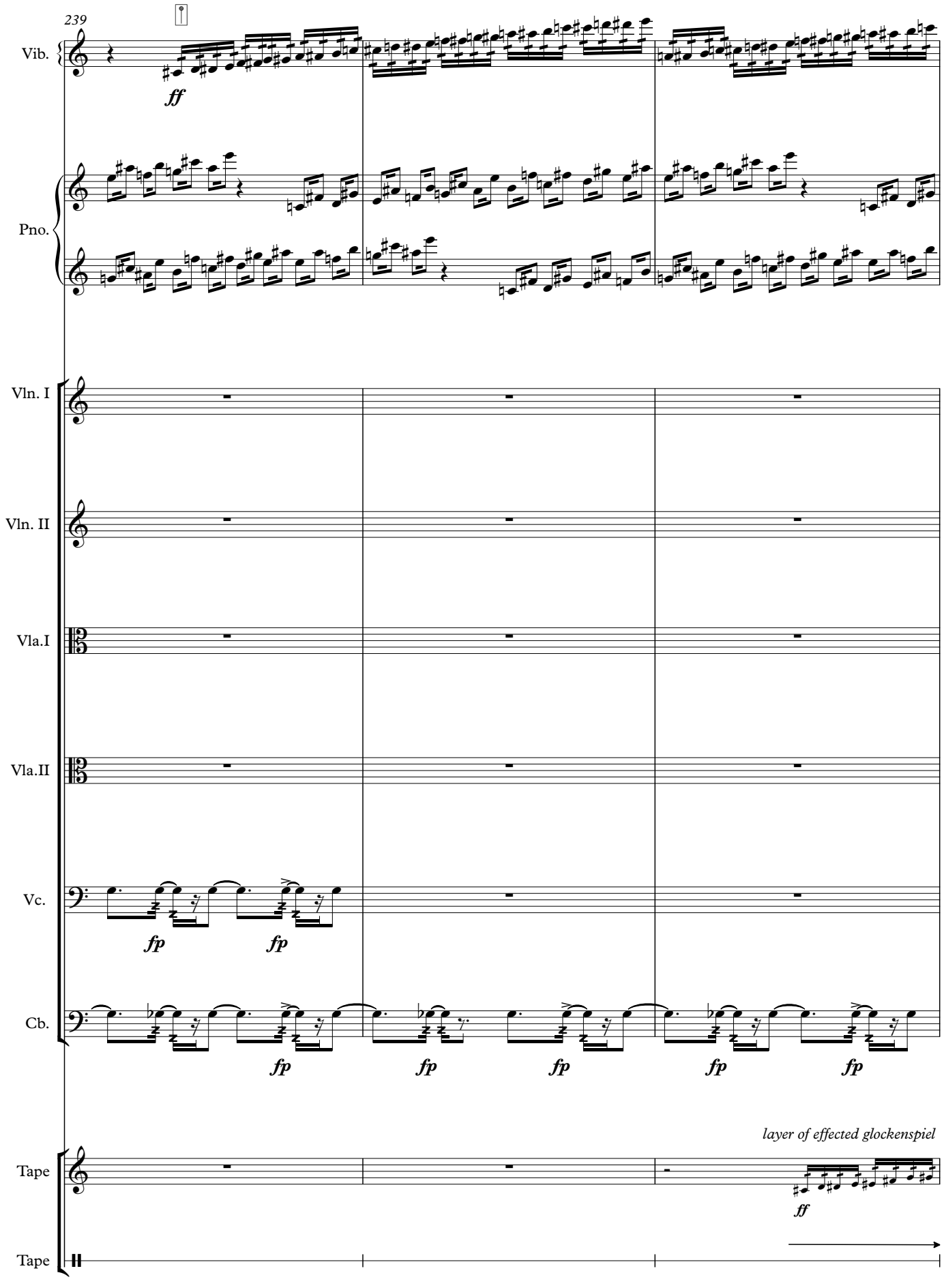

220
Vib.
p
mp
Ped.
l.s.
Ped.
l.s.
Pno.
Org.
Vln. I
nat.
8va
(stacc. trem)
pp
Vln. II
nat.
(stacc. trem)
pp
Vla.I
Vla.II
Vc.
Cb.
Tape
Tape

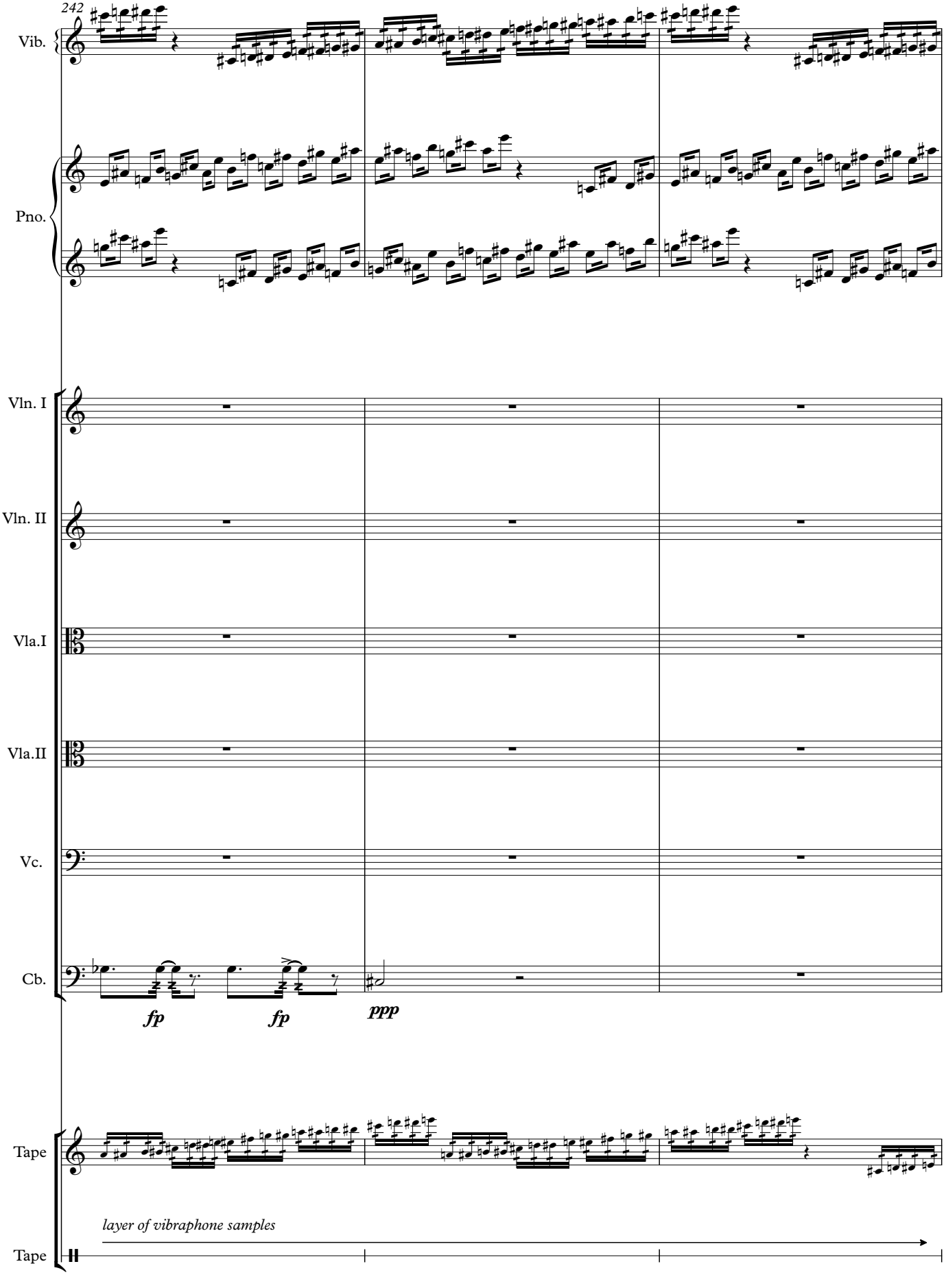

223
Vib.
l.s.
l.s.
l.s.
Pno.
mp
Ped.
Ped.
Org.
simile
8va
7
pp
Vln. I
simile
7
pp
Vln. II
Vla.I
Vla.II
Vc.
Cb.
STOP
Tape
Tape

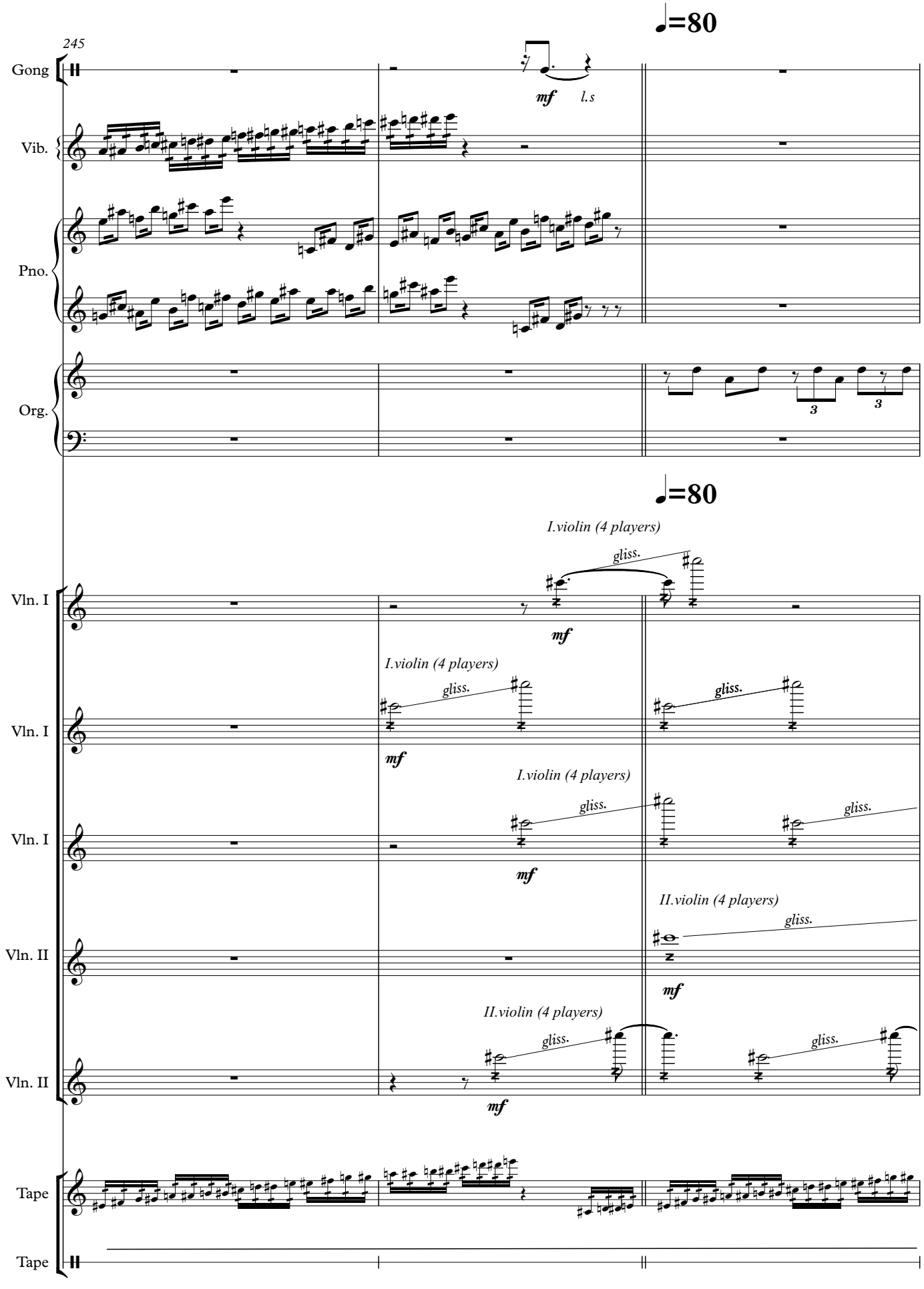

228
Vib.
Pno.
I.violin (4 players)
Vln. I
Vln. II
I.violin (4 players)
Vln. II
tutti
I.viola (3 players)
Vla.I
II.viola (3 players)
Vla.II
Vc.
Cb.
Tape
pp
ff
ppp
p
f
sempre

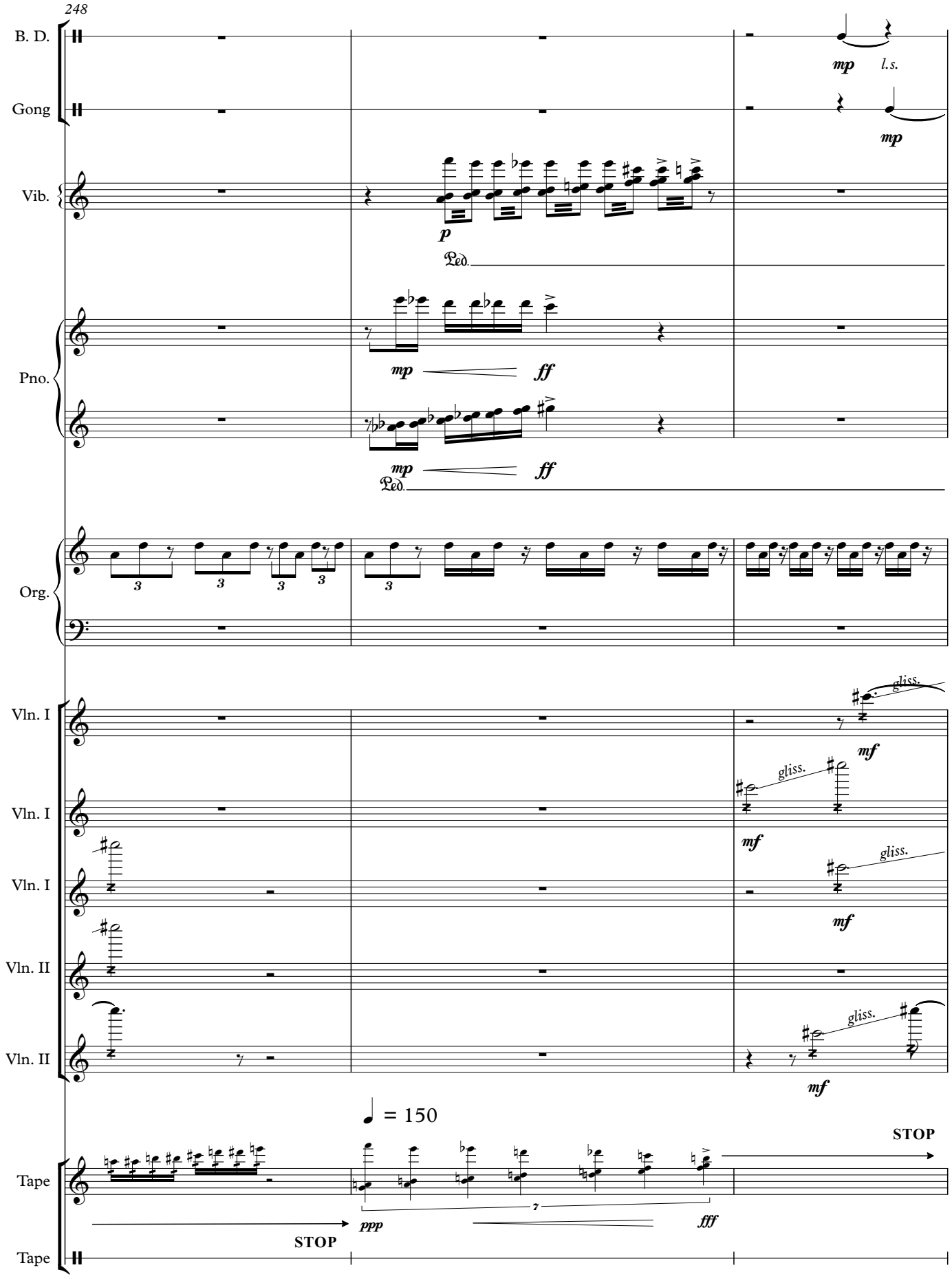

232
Vib.
Pno.
8va
f
Ped.
Vln. I
Vln. II
Vln. II
Vla.I
Vla.II
Vc.
Cb.
Tape
ff
ppp
pp
fff
fp
> ppp
mp sempre

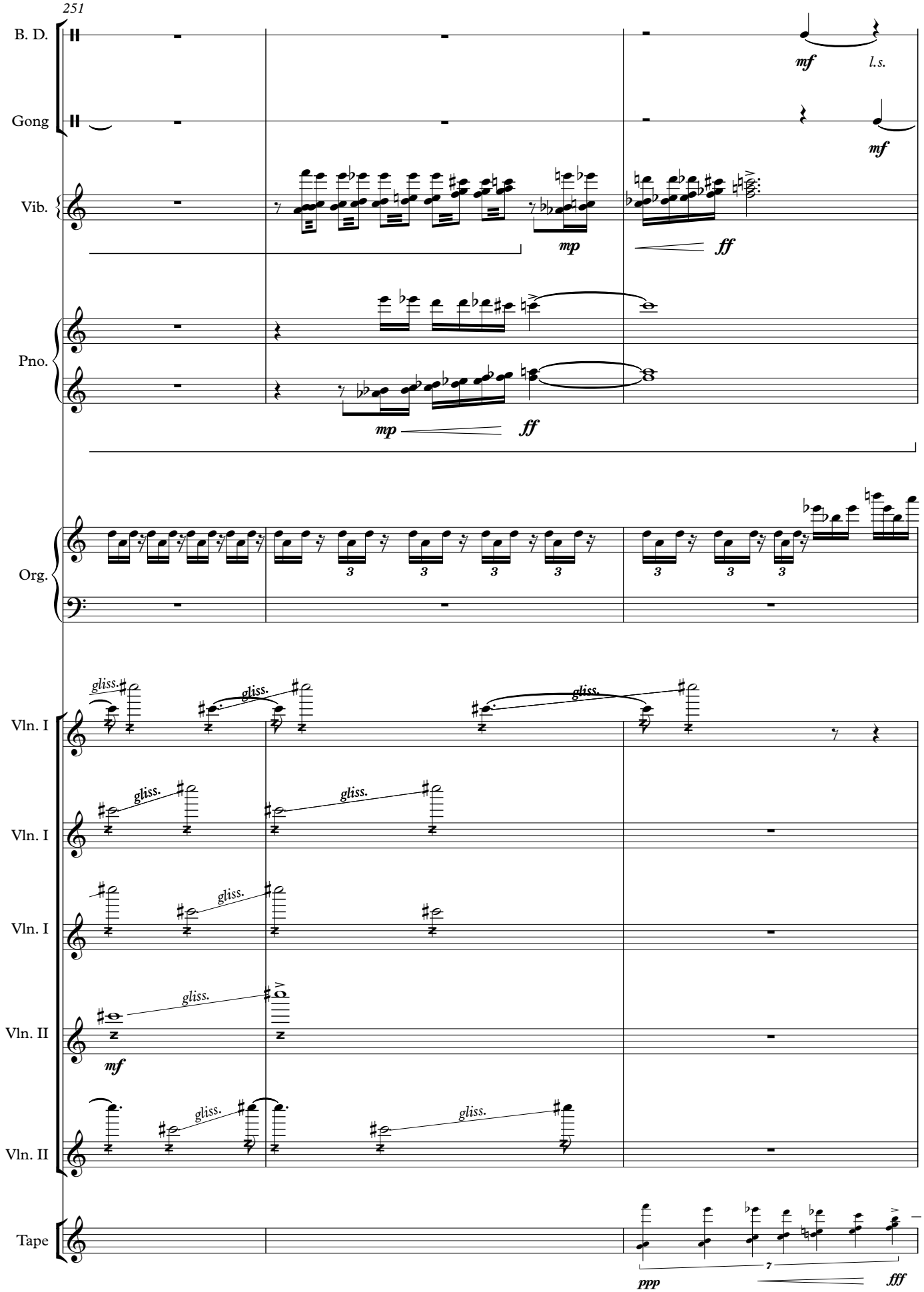

236
Vib.
Pno.
trem.
f
trem.
f
Vln. I
ppp
ff
ppp
ff
ppp
Vln. II
Vln. II
pp
ff
ppp
ff
ppp
Vla.I
fp
fp
Vla.II
ppp
ff
ppp
ff
ppp
Vc.
fp
fp
fp
fp
fp
fp
Cb.
ff
ppp
mp sempre
Tape

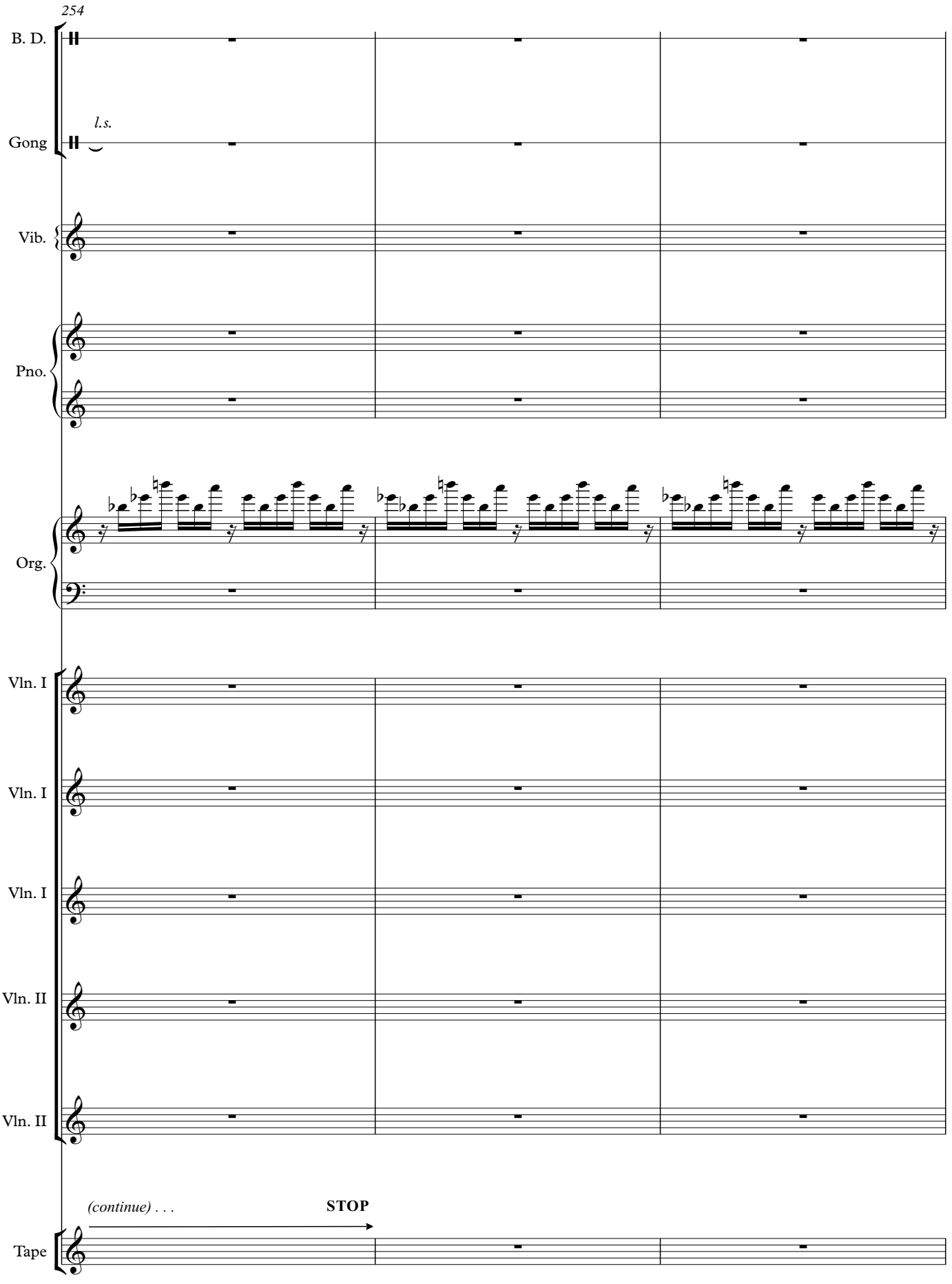

239
Vib.
ff
Pno.
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
fp
fp
Cb.
fp
fp
fp
fp
fp
layer of effected glockenspiel
Tape
ff
Tape

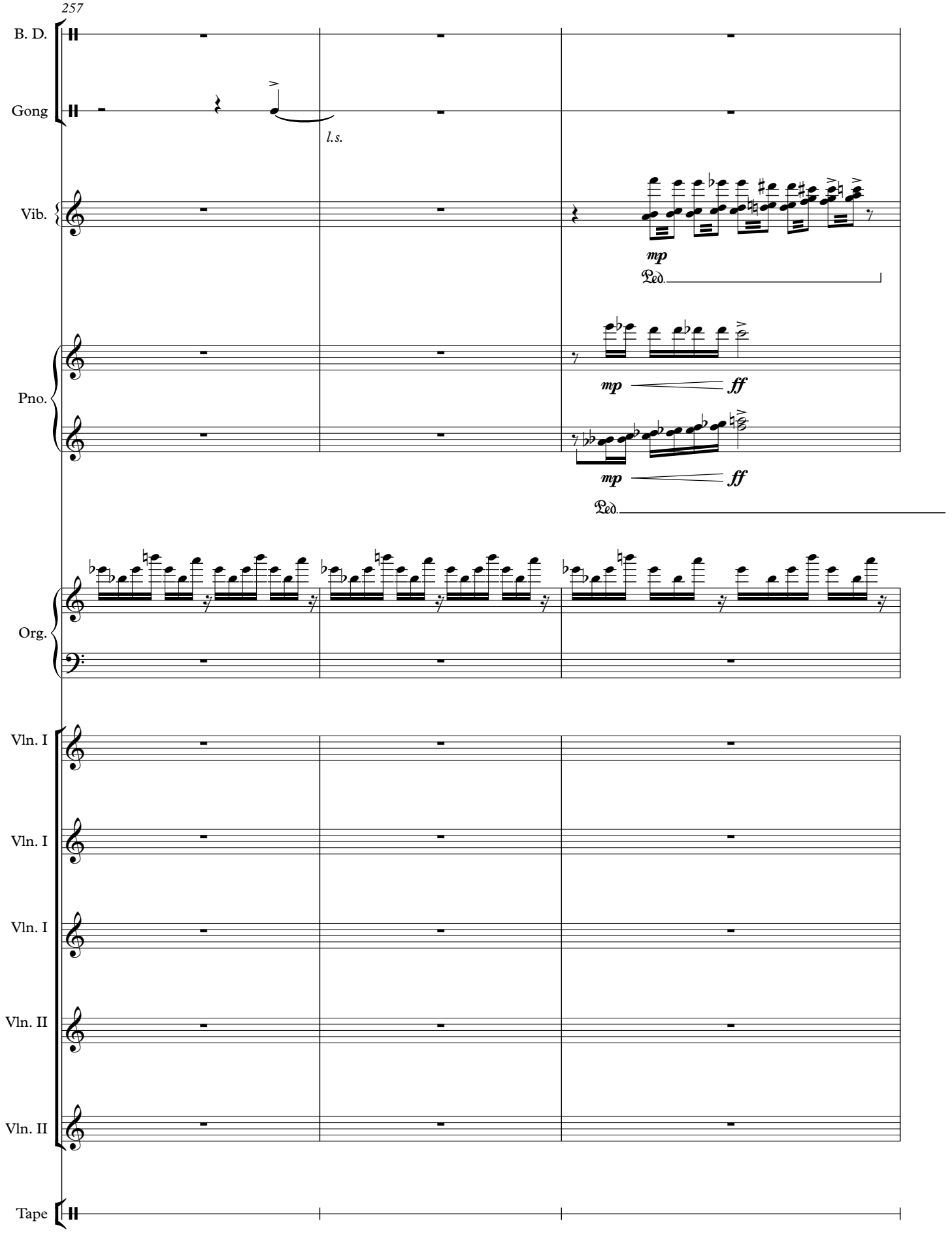

242
Vib.
Pno.
Vln. I
Vln. II
Vla.I
Vla.II
Vc.
Cb.
fp
fp
ppp
Tape
layer of vibraphone samples
Tape

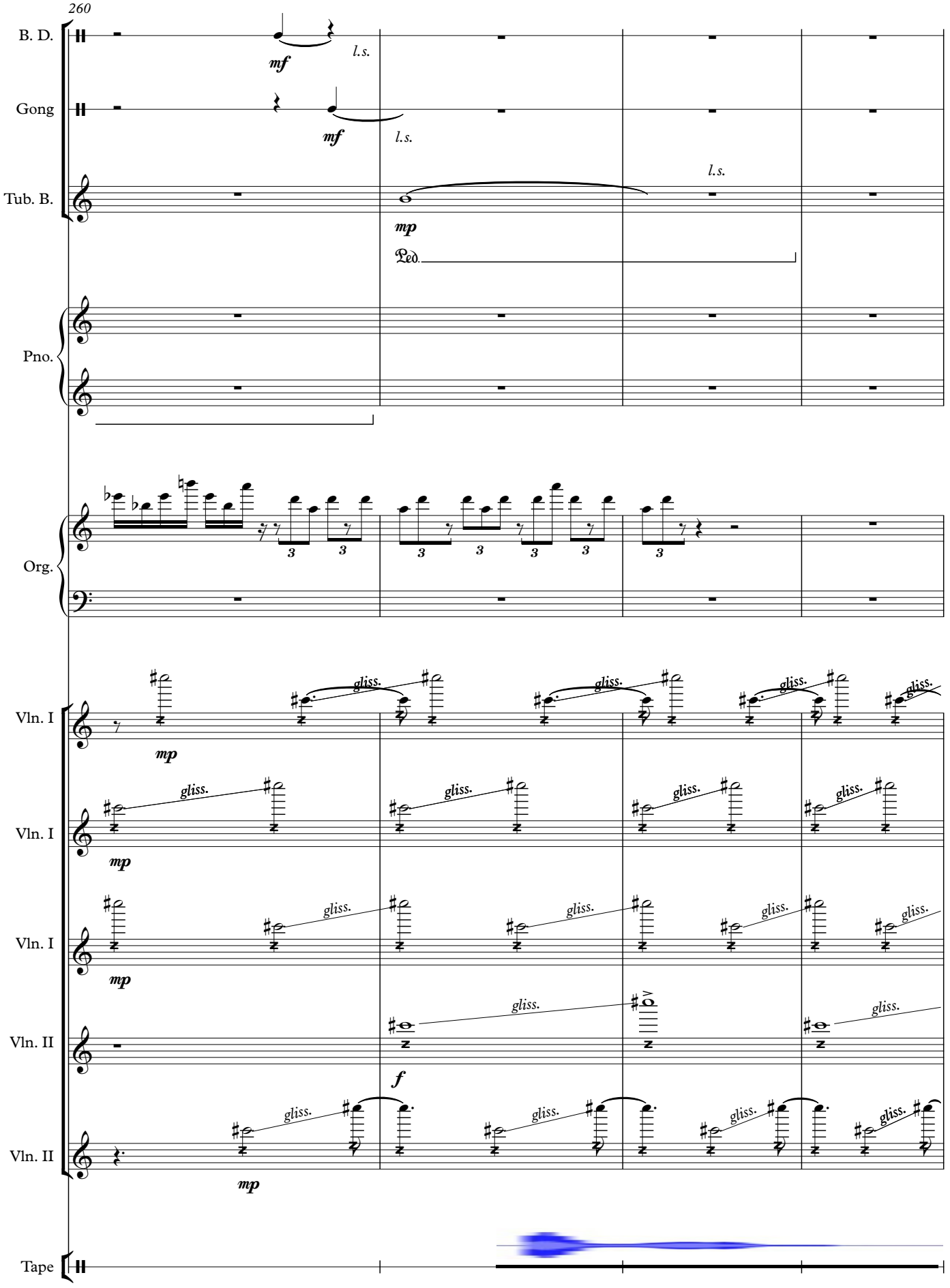

245
♩=80
Gong
mf
l.s
Vib.
Pno.
Org.
3
3
♩=80
I.violin (4 players)
gliss.
Vln. I
mf
I.violin (4 players)
gliss.
gliss.
Vln. I
mf
I.violin (4 players)
gliss.
gliss.
Vln. I
mf
II.violin (4 players)
gliss.
Vln. II
mf
II.violin (4 players)
gliss.
gliss.
Vln. II
mf
Tape
Tape

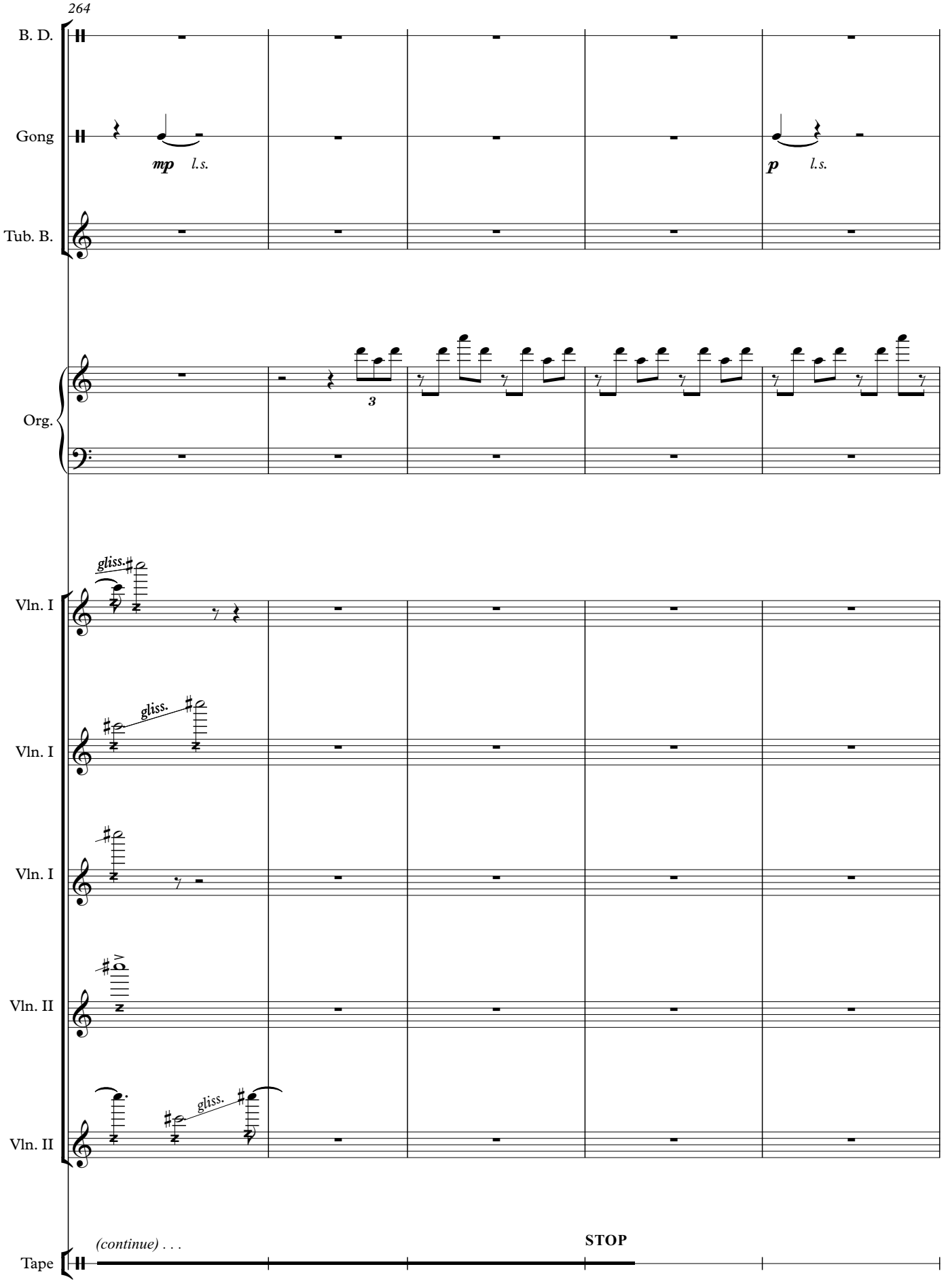

248
B. D.
Gong
Vib.
Pno.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
Tape
Tape
mp
l.s.
mp
p
Ped.
mp
ff
mp
ff
Ped.
gliss.
mf
gliss.
mf
gliss.
mf
gliss.
mf
♩ = 150
STOP
ppp
fff
STOP

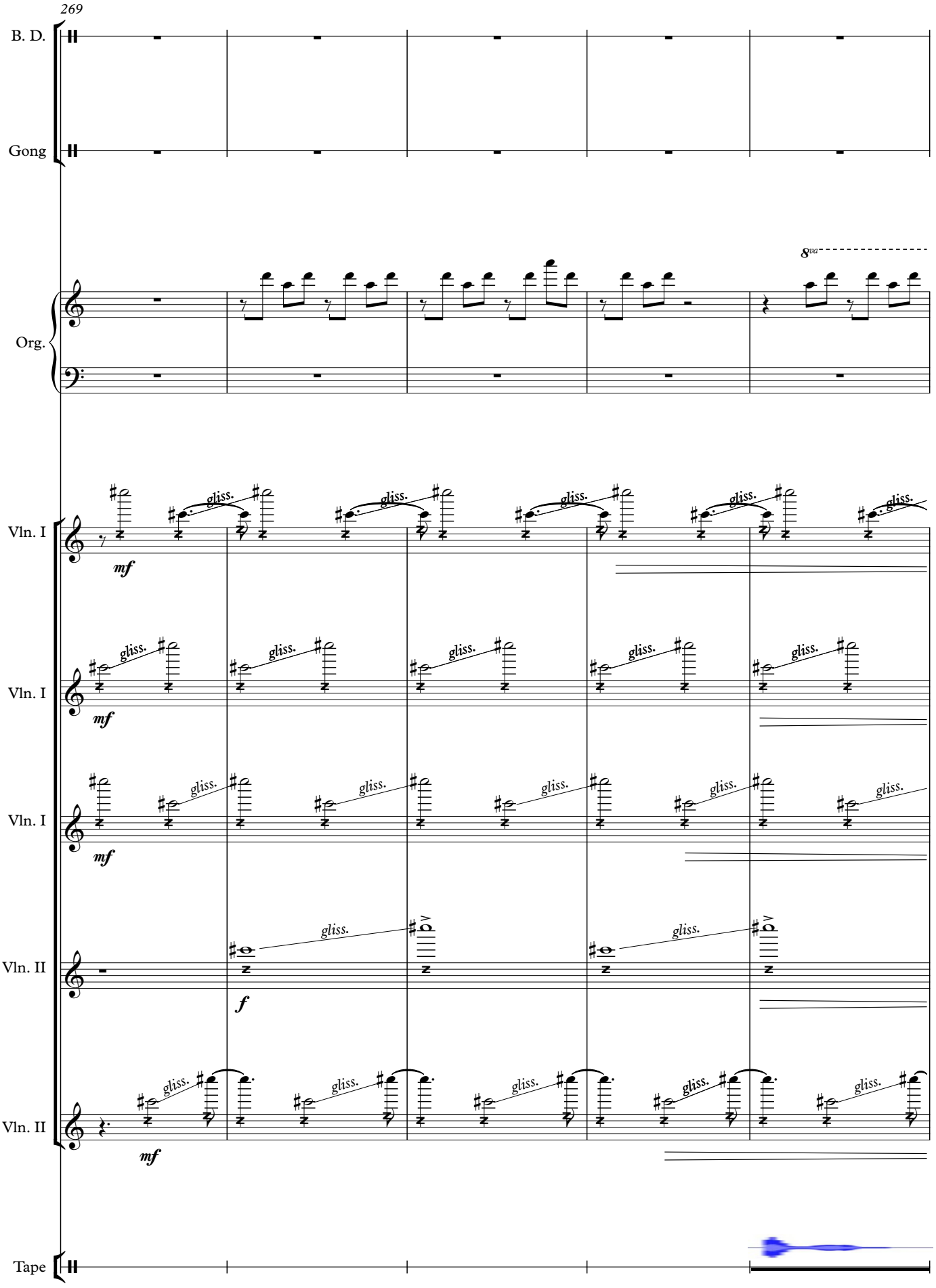

251
B. D.
mf
l.s.
Gong
mf
Vib.
mp
ff
Pno.
mp
ff
Org.
3
Vln. I
gliss.
Vln. I
gliss.
Vln. I
gliss.
Vln. II
gliss.
mf
Vln. II
gliss.
Tape
ppp
fff

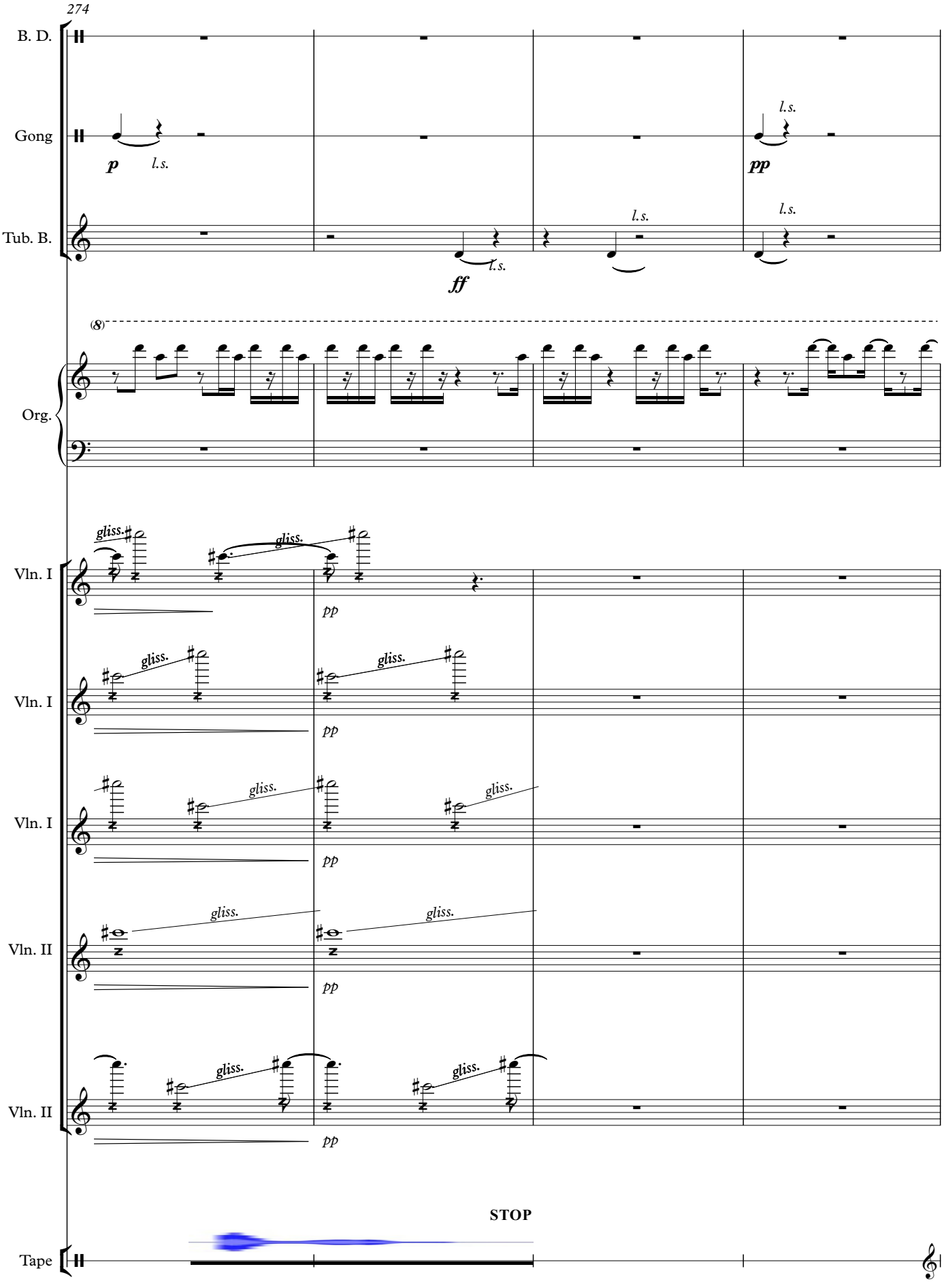

254
B. D.
Gong
l.s.
Vib.
Pno.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
(continue) . . .
STOP
Tape

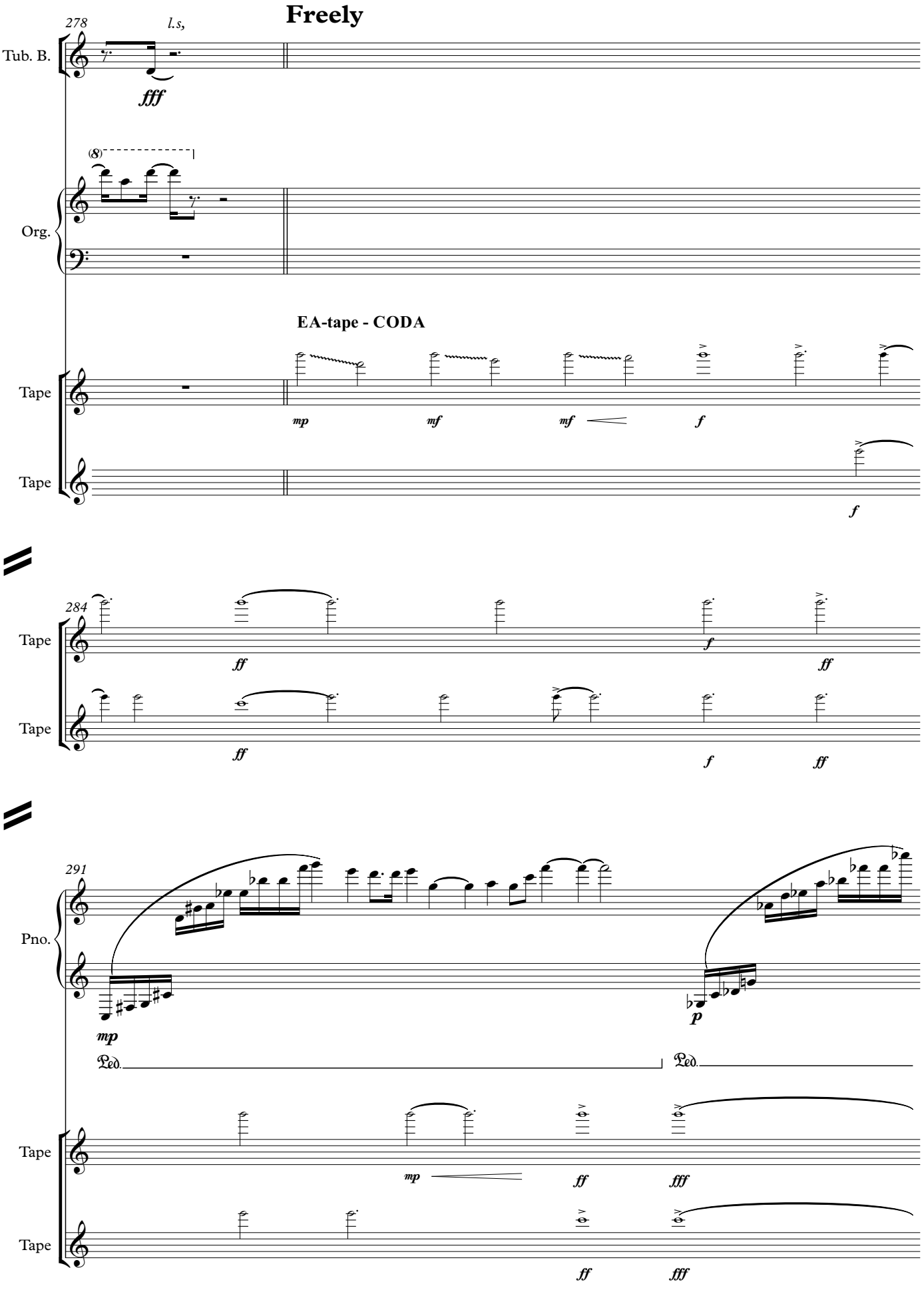

257
B. D.
Gong
l.s.
Vib.
mp
Ped.
Pno.
mp
ff
mp
ff
Ped.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
Tape

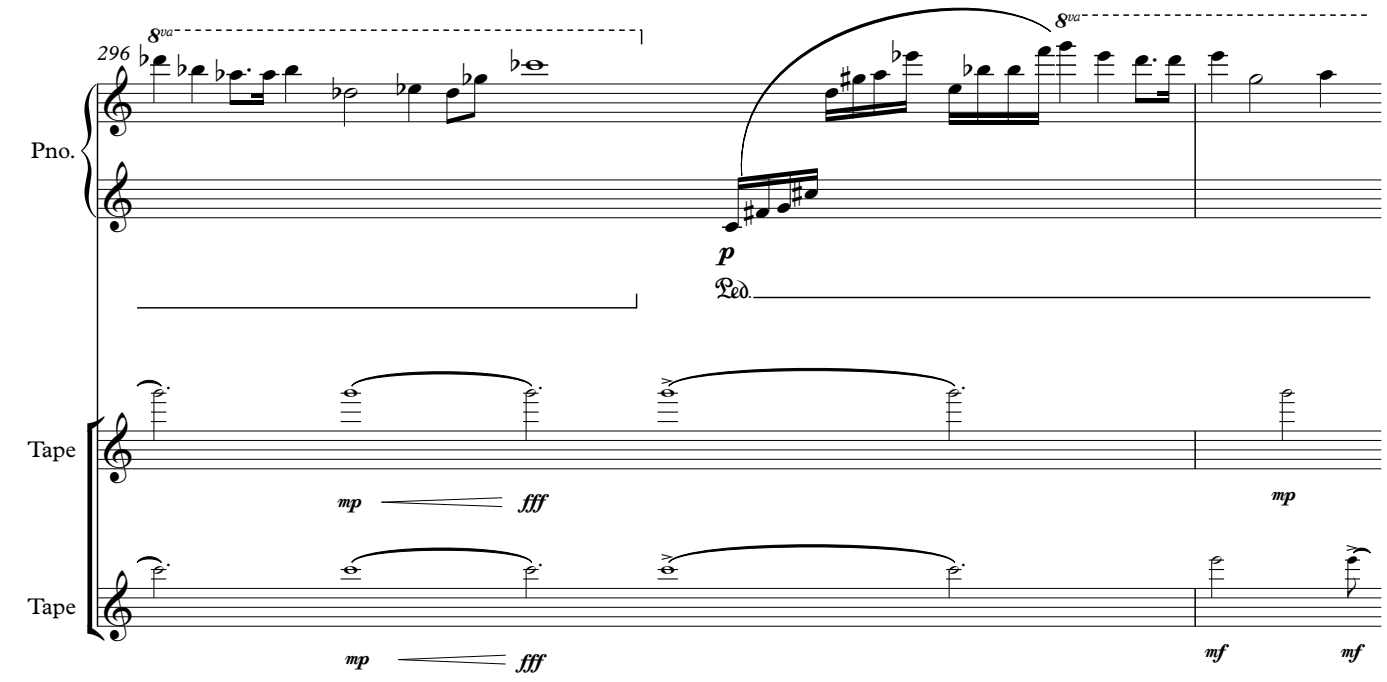

260
B. D.
Gong
Tub. B.
Pno.
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
Tape
mf
l.s.
mp
Ped.
gliss.
f

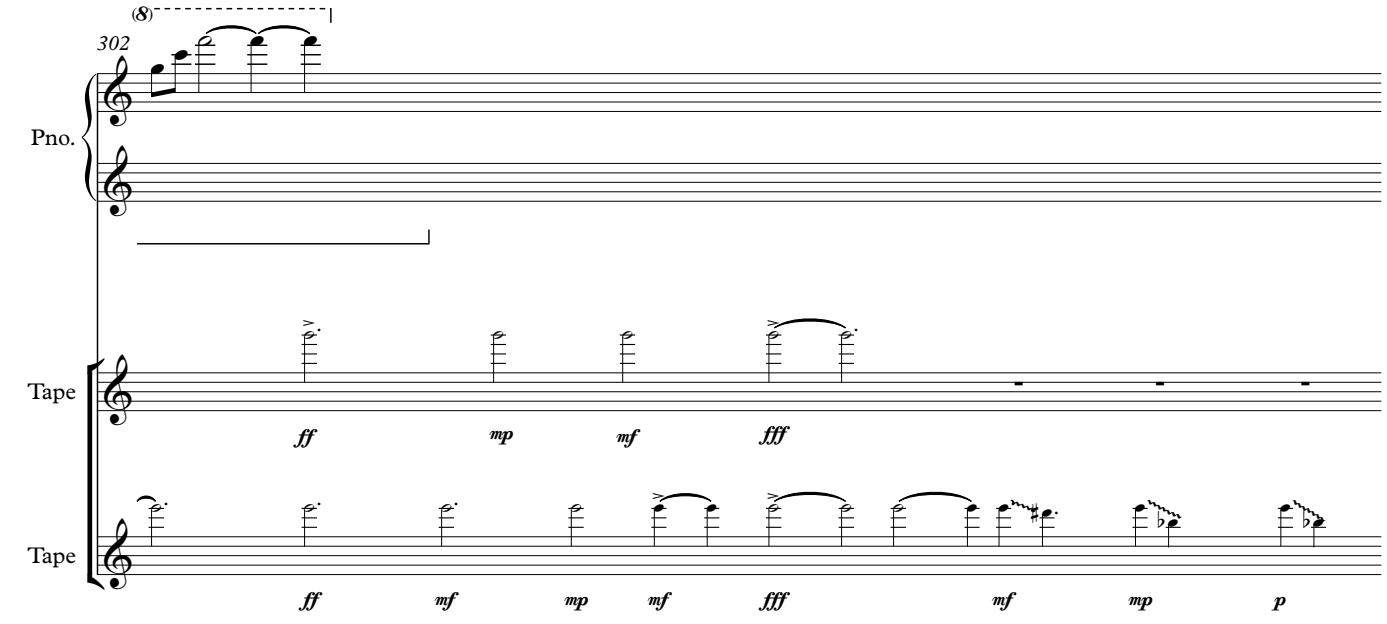

264
B. D.
Gong
mp l.s.
p l.s.
Tub. B.
Org.
3
gliss.
Vln. I
gliss.
Vln. I
Vln. I
Vln. II
gliss.
Vln. II
(continue) . . .
STOP
Tape

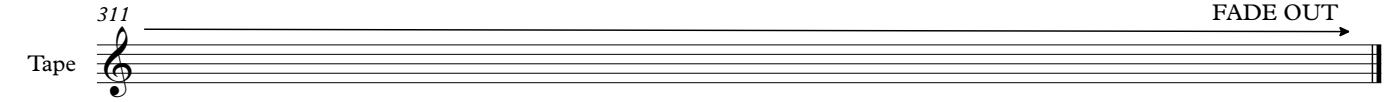

269
B. D.
Gong
Org.
8va
Vln. I
mf
gliss.
Vln. I
mf
gliss.
Vln. I
mf
gliss.
Vln. II
f
gliss.
Vln. II
mf
gliss.
Tape


274
B. D.
Gong
Tub. B.
p
l.s.
ff
pp
(8)
Org.
Vln. I
Vln. I
Vln. I
Vln. II
Vln. II
gliss.
pp
STOP
Tape


Freely
278
l.s,
Tub. B.
fff
(8)
Org.
EA-tape - CODA
Tape
mp
mf
mf
f
Tape
f
284
Tape
ff
f
ff
Tape
ff
f
ff
291
Pno.
mp
p
Ped.
Ped.
Tape
mp
ff
fff
Tape
ff
fff




## EA TAPE - EPILOG