# Ink, Colour and Gold on Paper

A quintet by Joe Bates

Full score

# Performance Notes

## Instrumentation

Flute

Horn

14-course theorbo

Violin

Cello

## Duration c. 10'

## Accidentals

This piece is notated with an adapted version of Helmholtz-Ellis Just Intonation (HEJI), with 3-limit and 11-limit accidentals tempered to 24-tone eqaul temperament (24TET). Accidentals last for the whole bar.

♭ ♮ ♯ Standard accidentals indicate 12-tone equal temperament.

𝄫 𝄳 𝄲 𝄪 Quartertone accidentals indicate either 24TET subdivisions, or the eleventh harmonic of the note three octaves and a fourth lower.

Other accidentals indicate different Just tunings against equal temperament. The piece primarily uses 5-, 7-limit and 13-limit accidentals:

𝄮 𝄯 A 5-limit note, i.e. a 5/4 ratio against the 12tet note a major third lower, or the fifth harmonic of the note two octaves and a third lower. 14¢ lower than 12TET.

𝄰 𝄱 An inverted 5-limit note, i.e. a 5/4 ratio agains the 12tet note a major third higher. 16¢ higher than 12TET.

𝄬 A double inverted 5-limit note, i.e. a 5/4 ratio against the 5-limit note a major third higher. 36¢ higher than 12TET.

𝄭 A 7-limit note, i.e. a 7/4 ratio against the 12TET note a minor seventh lower, or the fifth harmonic of the note two octaves and a minor seventh lower. 31¢ lower than 12TET.

𝄩 A 13-limit note, i.e. a 13/8 ratio against the 12TET note a major sixth lower, or the thirteenth harmonic of the note three octaves and a major sixth lower. 60¢ lower than 12TET.

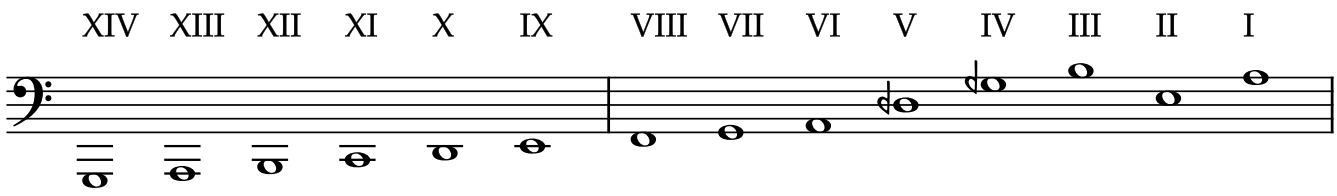
N.B. All 5-limit notes are part of a Justly tuned major or minor triad. Inverted 5-limit notes will almost always be part of a minor triad.

Version 30th March 2024

## Tuning

Theorbo

The theorbo is tuned as follows:




Strings I-XIII are on the petit jeu. If only the first six strings are are on the petit jeu, the low F♯s and A♭s may be transposed up an octave.

Flute

The uneven timbre of alternative microtonal fingerings is welcome in this context.

In faster passages from b81-105, the precise tuning of the microtonal accidentals is less important. They are written so as not to clash with the string instruments, but quartertone approximations will normally suffice.

Horn

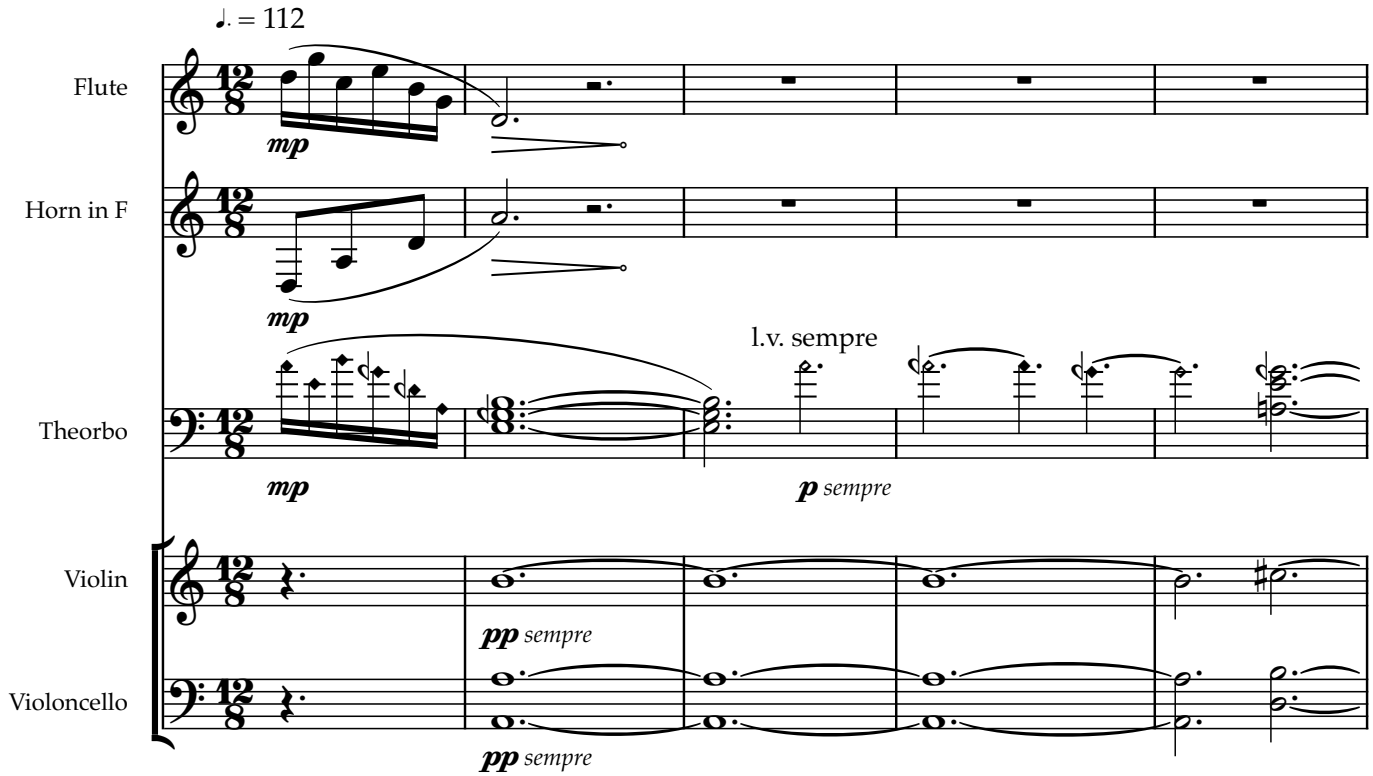
All microtonal accidentals are intended as harmonics of the expected fundamental, with the exception of the up-arrow notes, which must be altered by hand to be in tune with the strings.

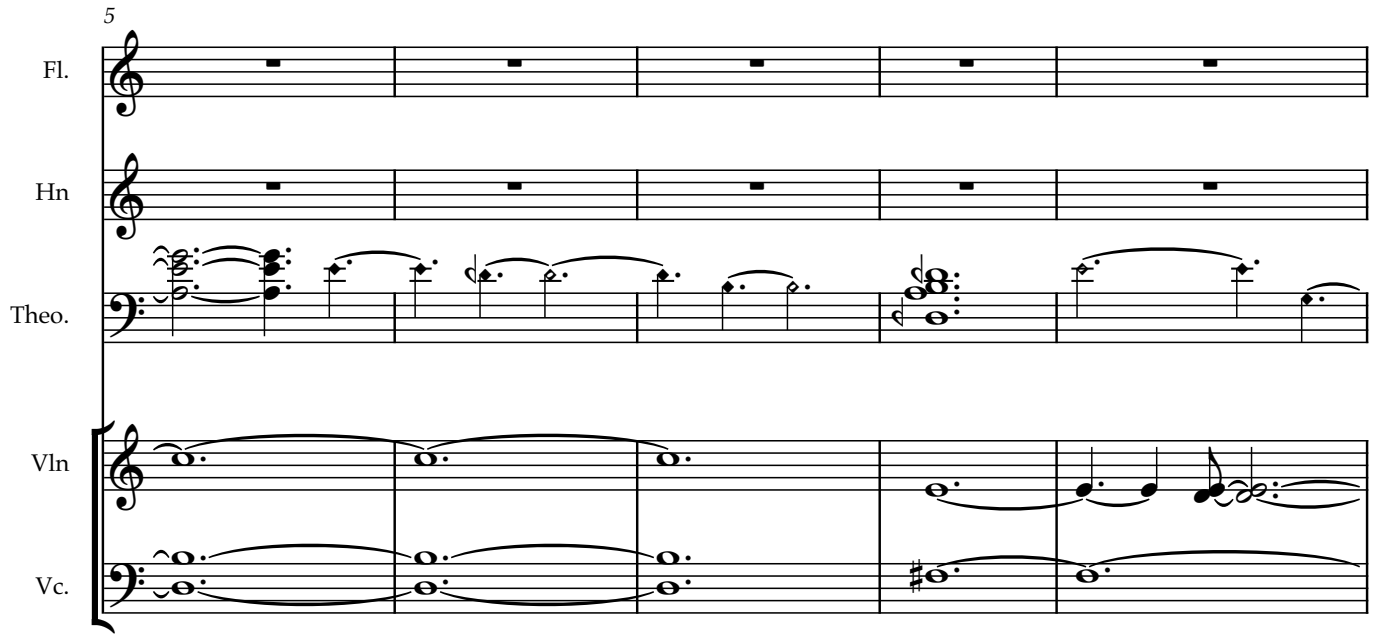
## Figure O to the end, Theorbo

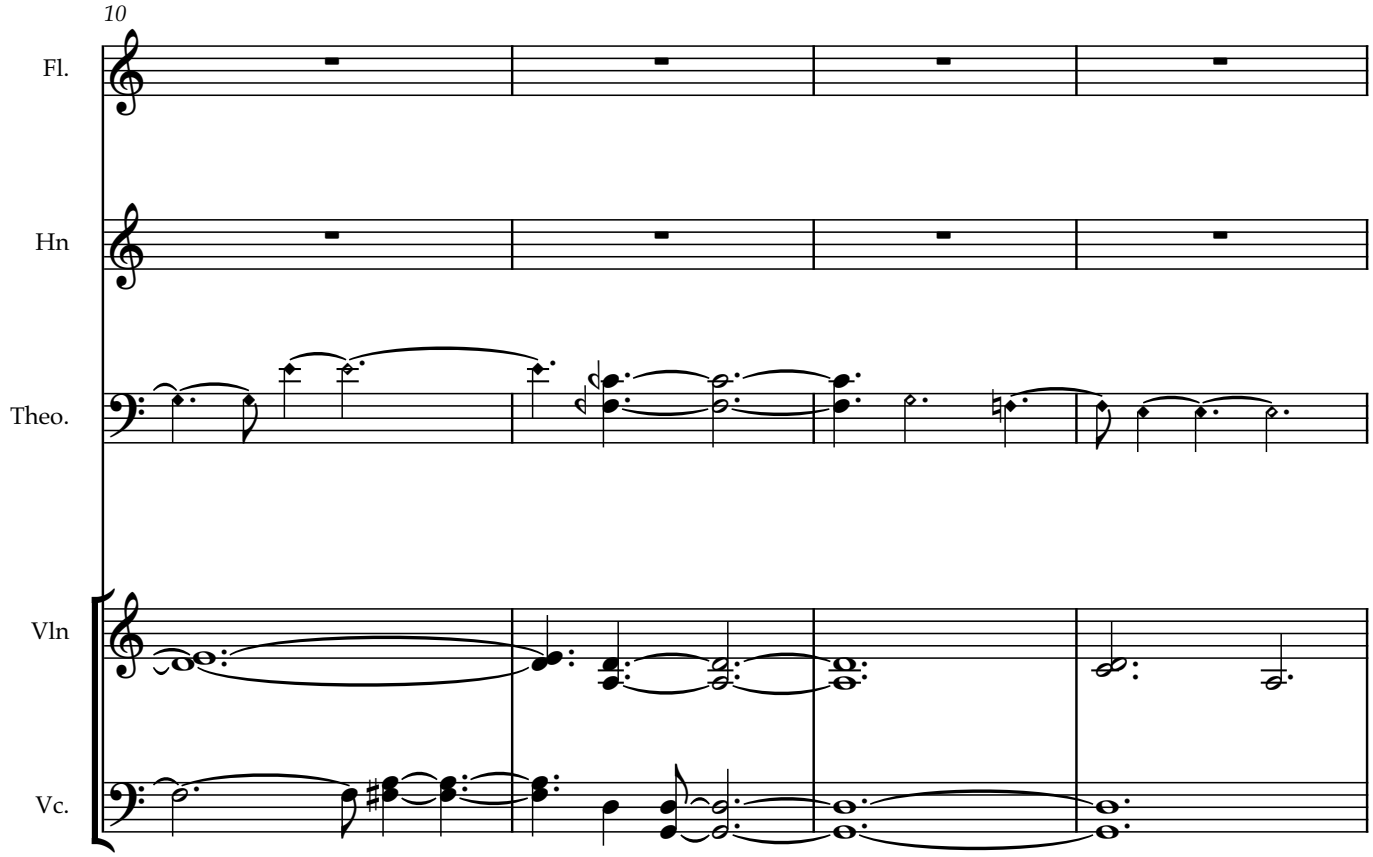
The theorbist improvises the final passage, playing harmonics freely on strings I-VII, in the given rhythm, changing partial as indicated in the lines above the stave.

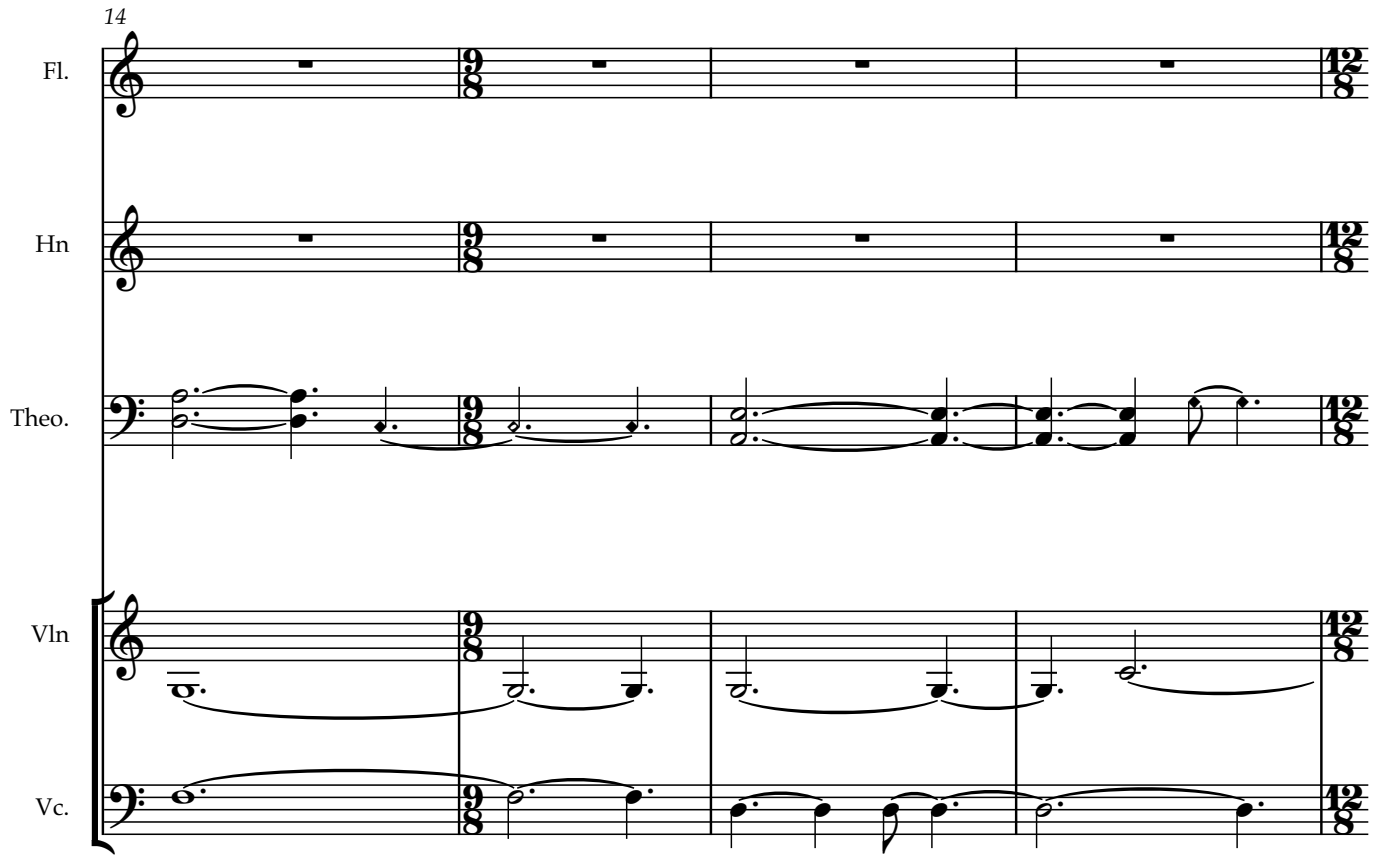
# Ink, Colour and Gold on Paper

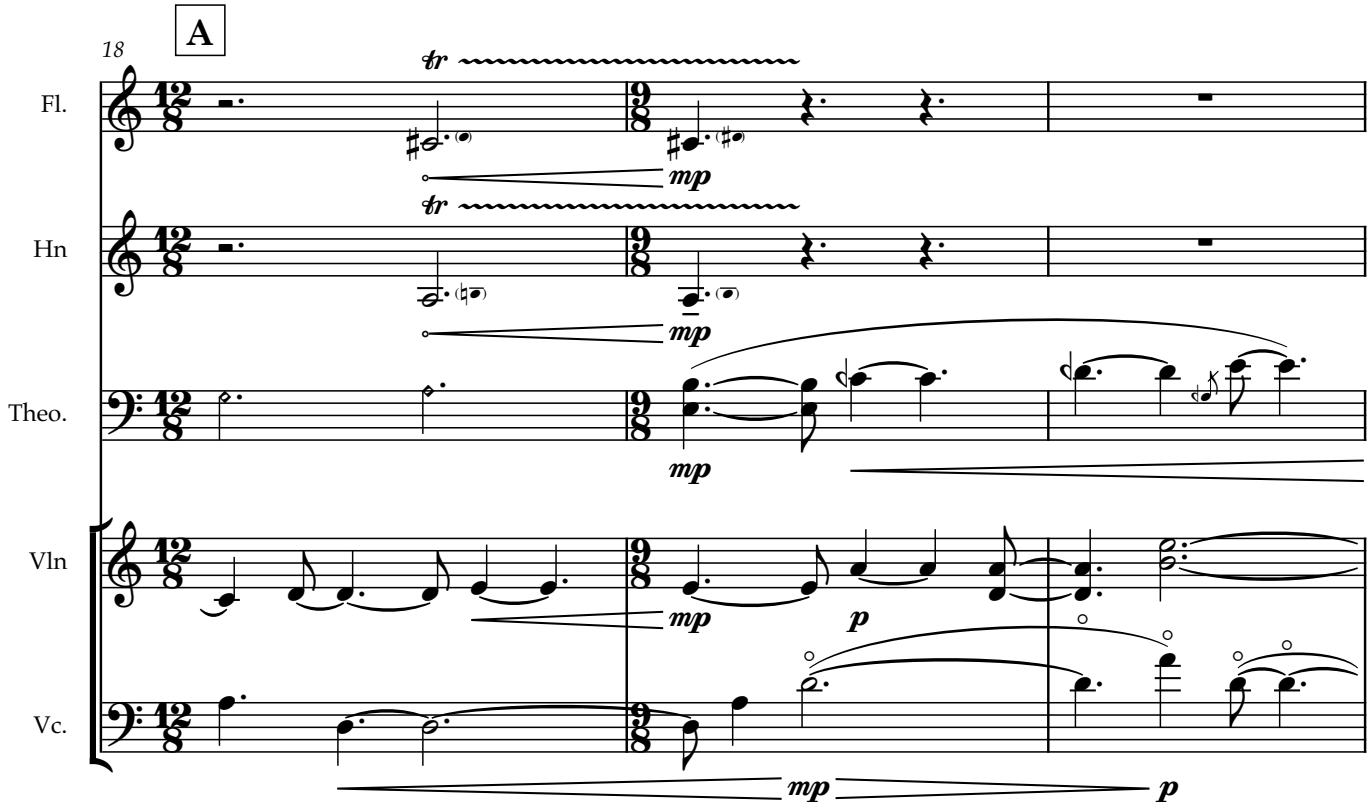
Joe Bates

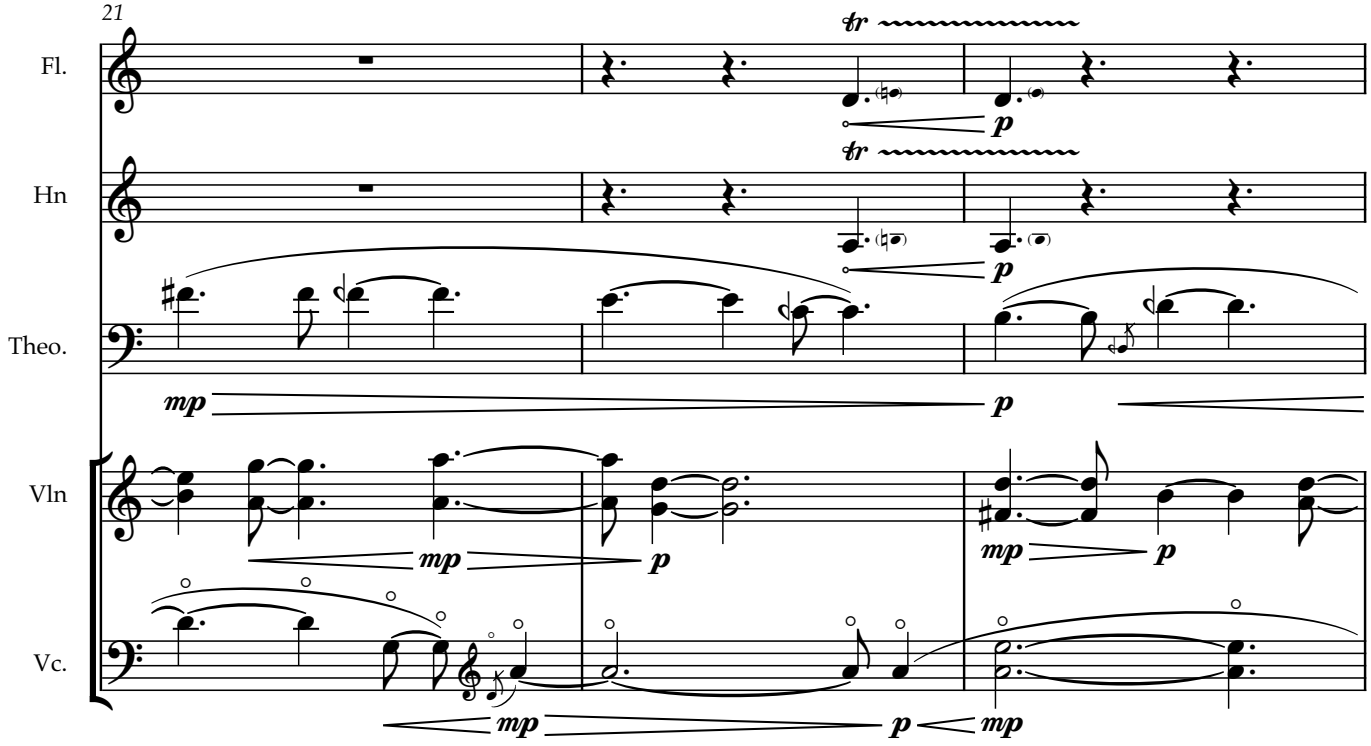


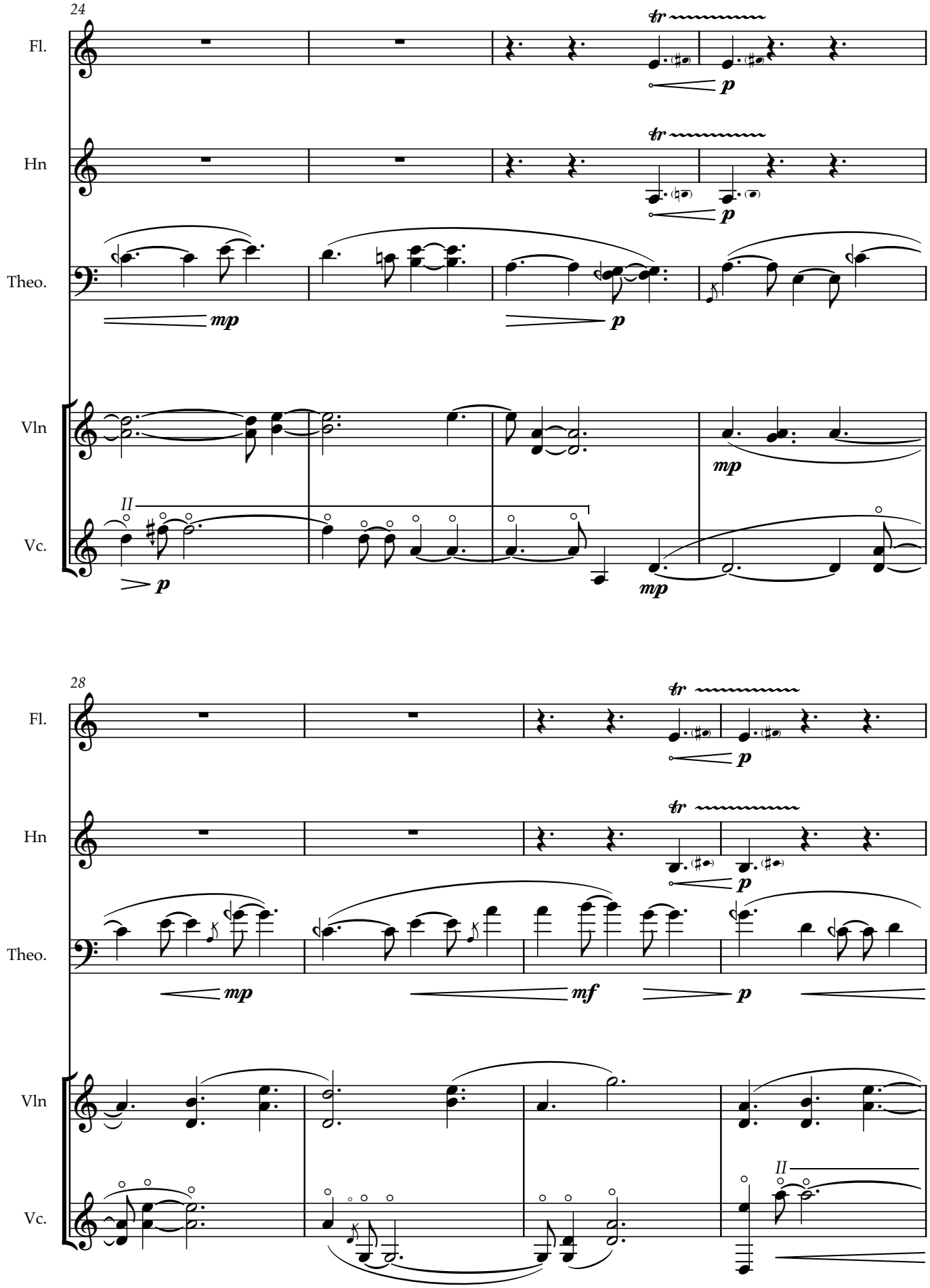



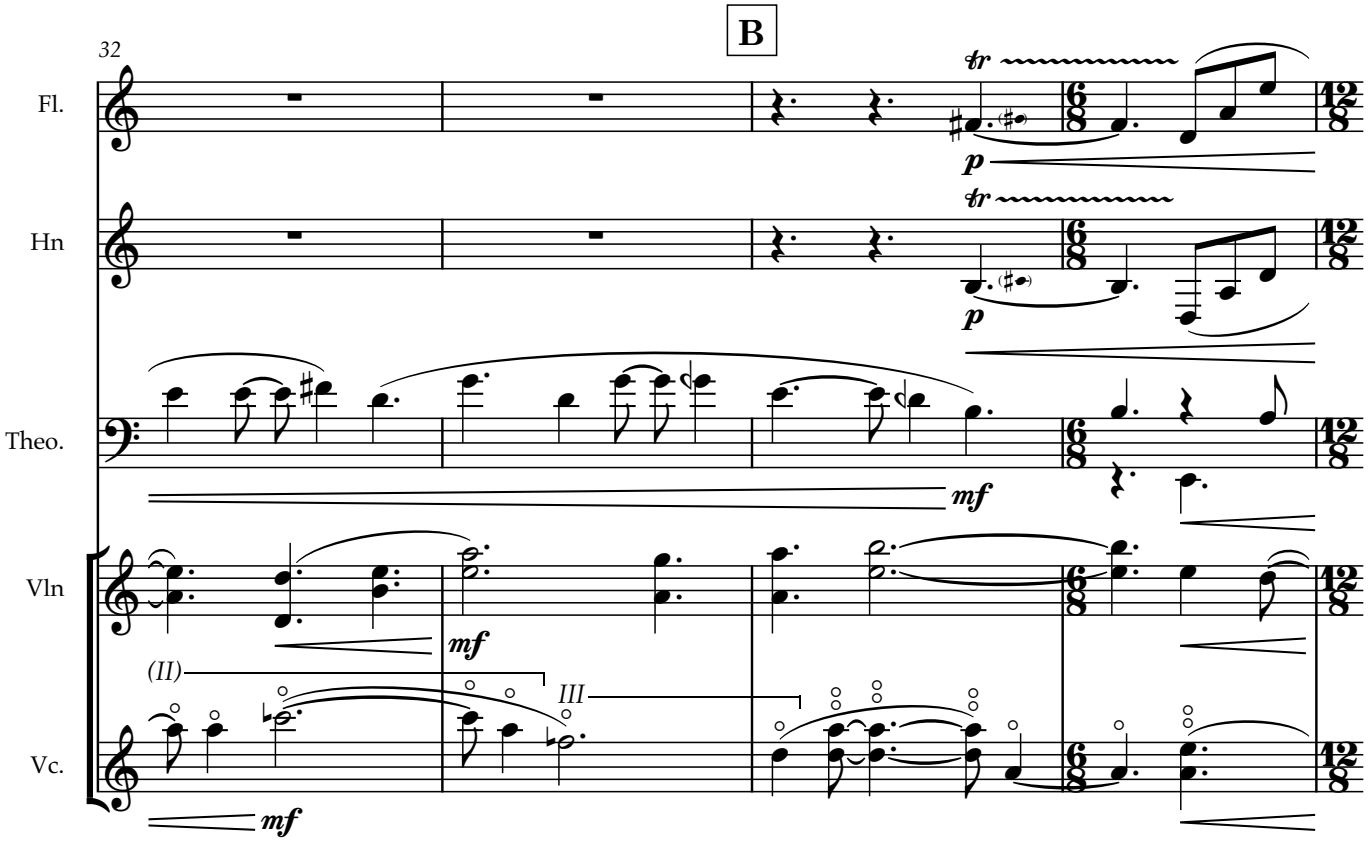

10
Fl.
Hn
Theo.
Vln
Vc.

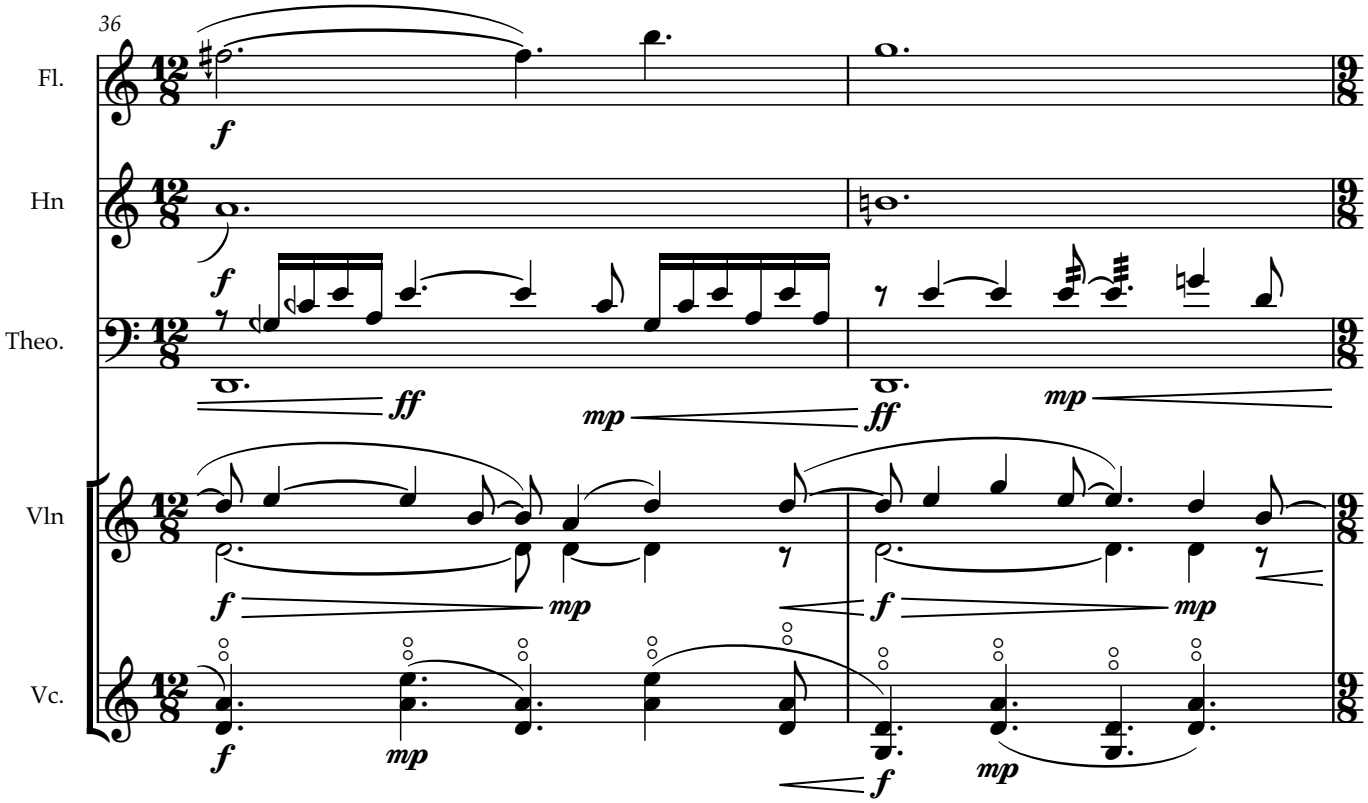

14
Fl.
Hn
Theo.
Vln
Vc.

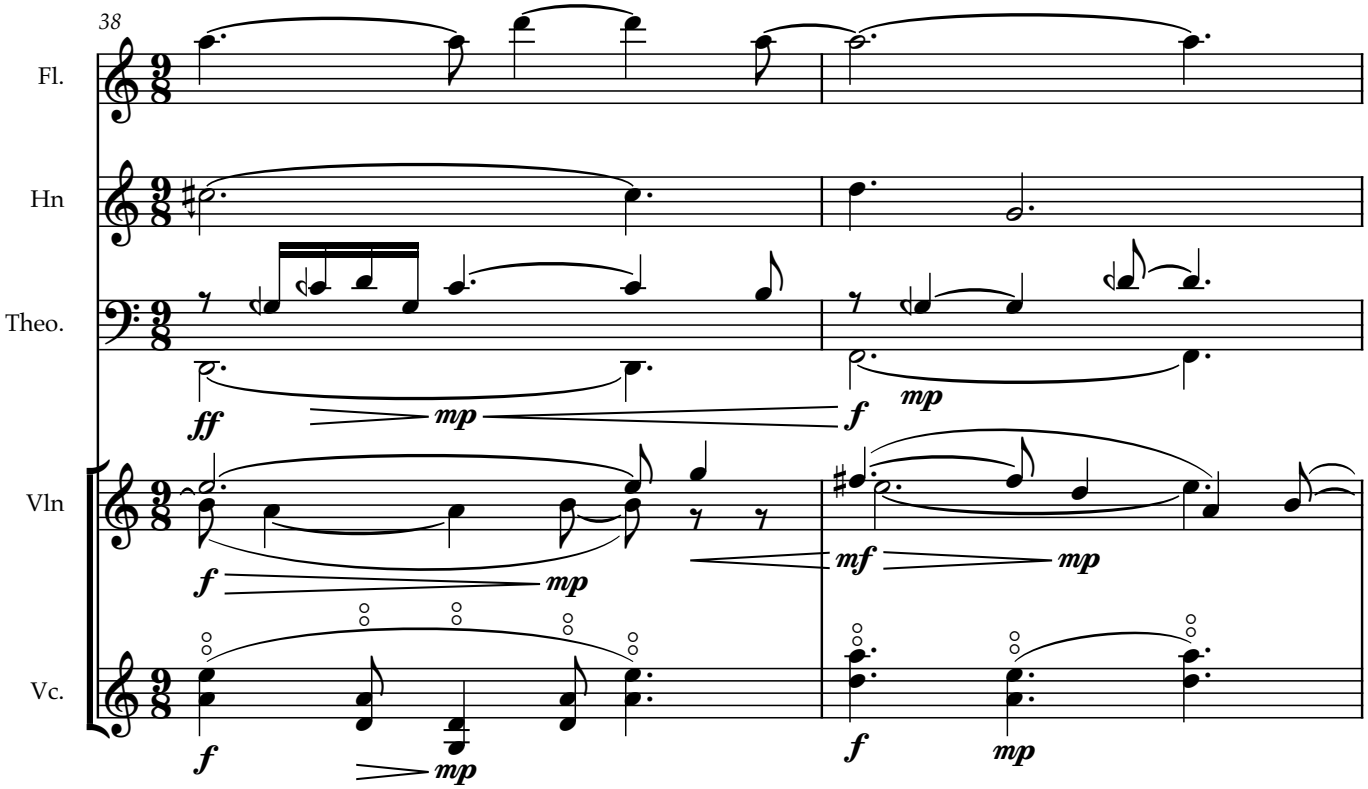

A
18
Fl.
Hn
Theo.
Vln
Vc.
tr
mp
p

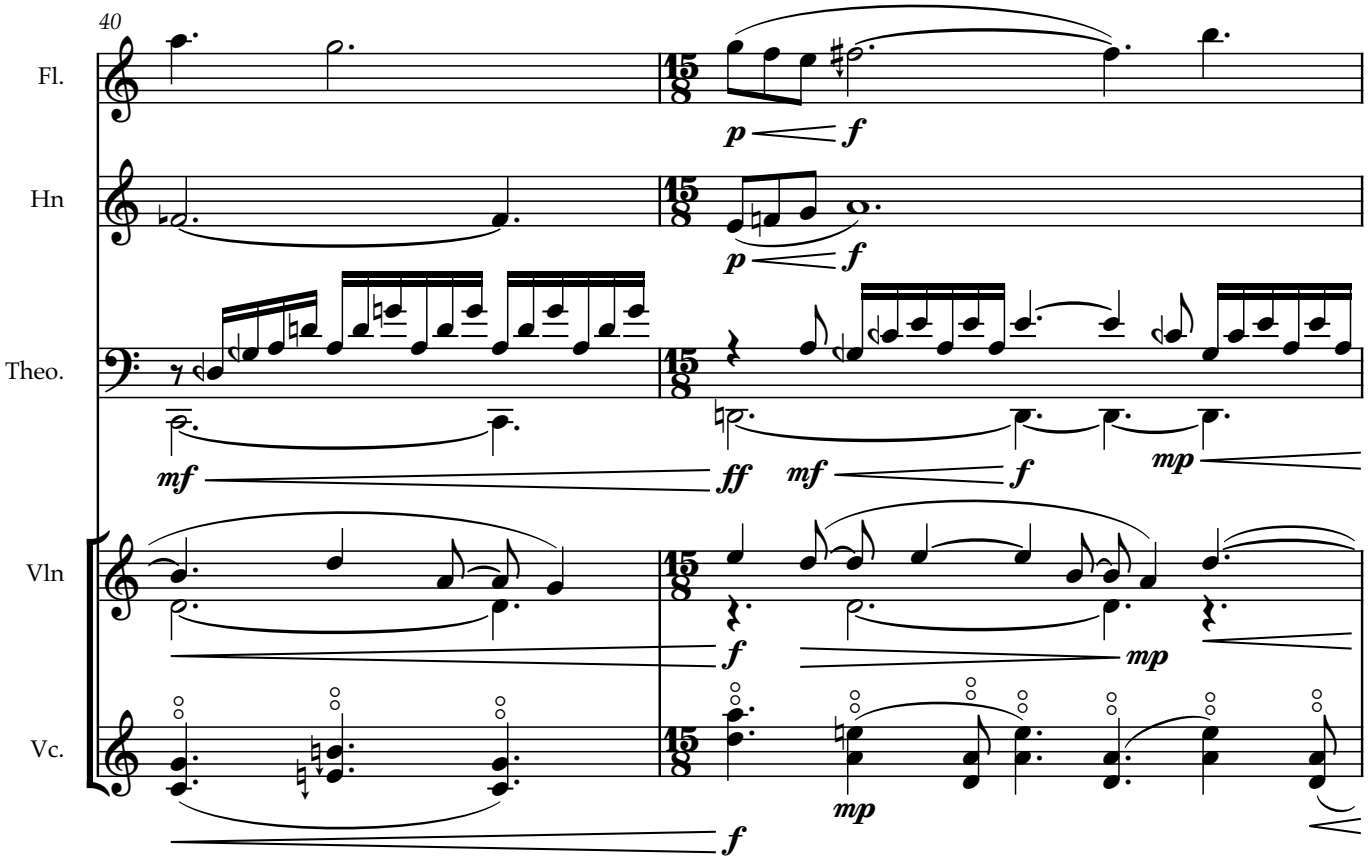

21
Fl.
Hn
Theo.
Vln
Vc.
tr
mp
p

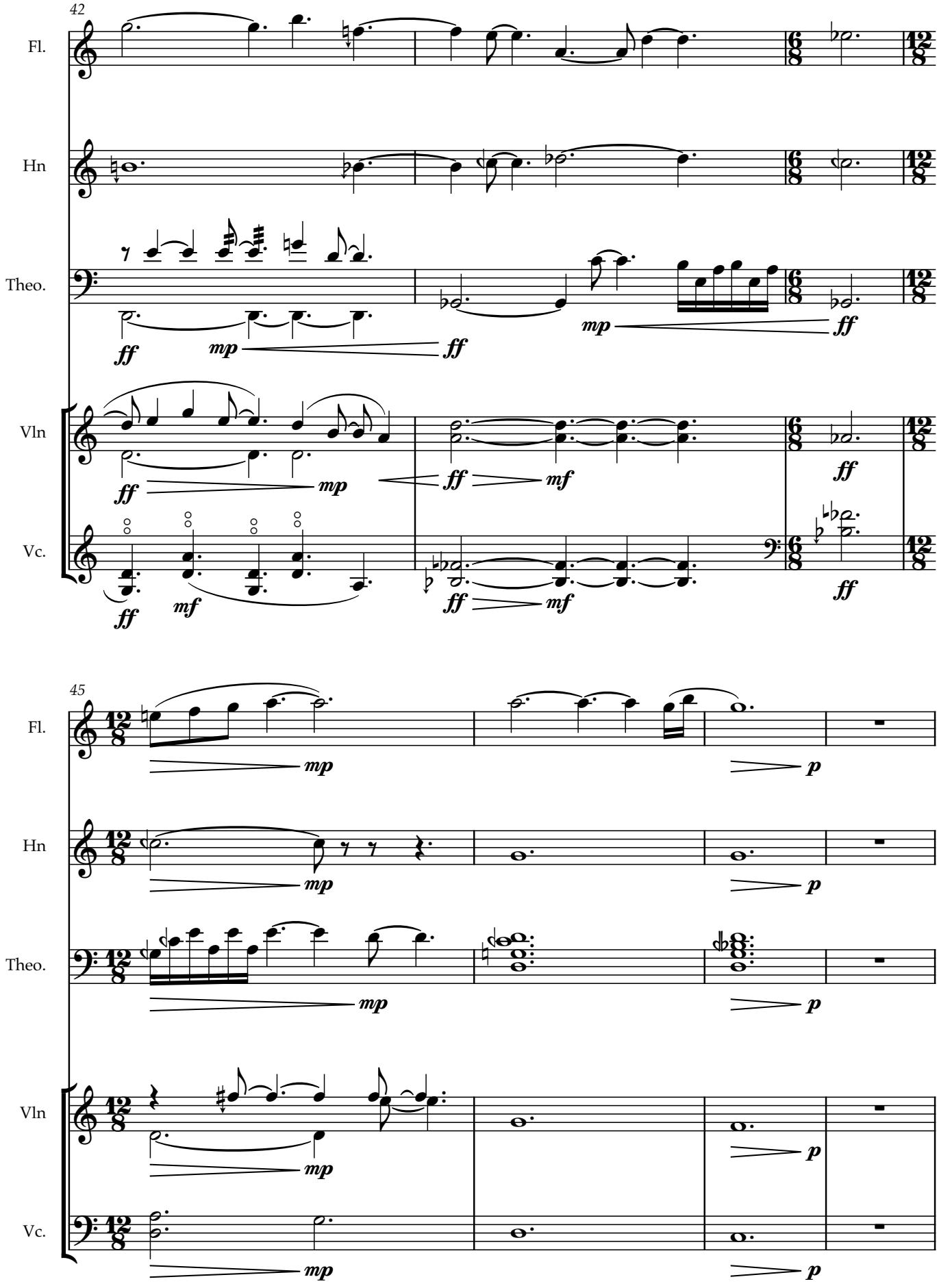

24
Fl.
Hn
Theo.
Vln
Vc.
tr
p
mp
II
28
mf

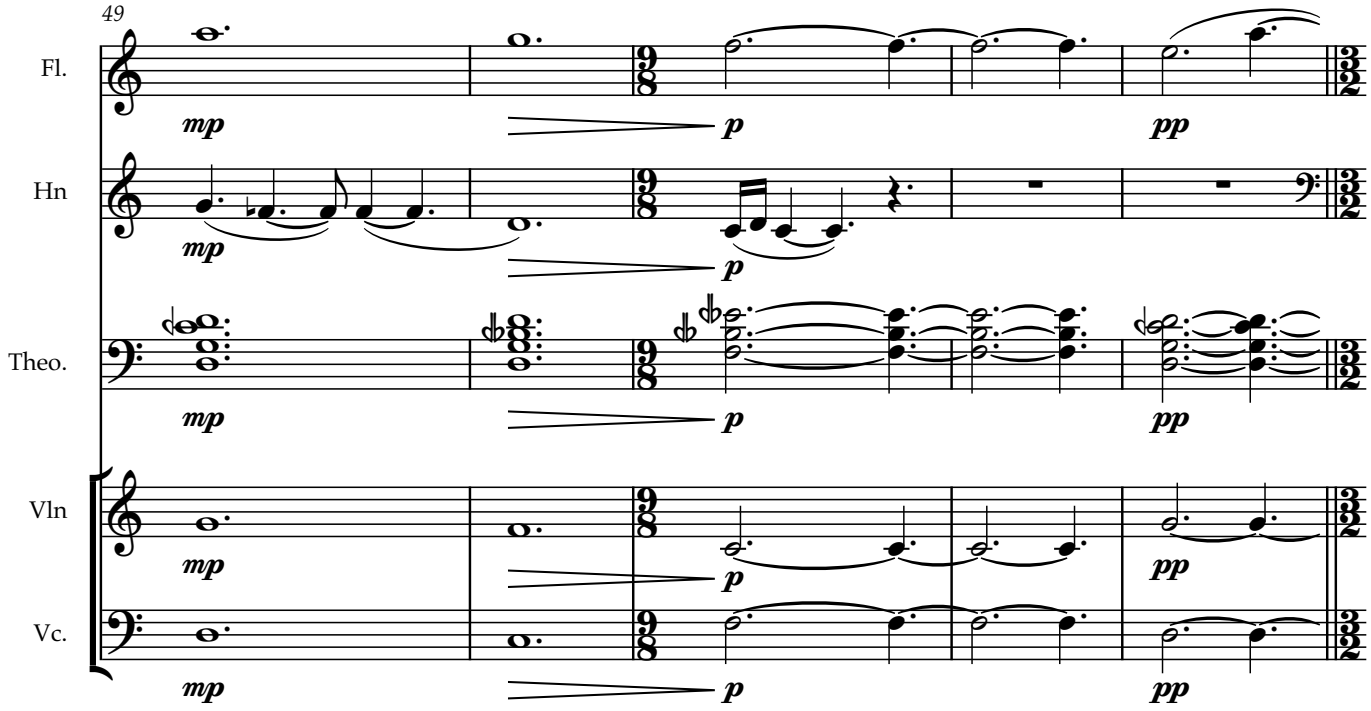

B
32
Fl.
Hn
Theo.
Vln
Vc.
tr
p
mf
(II)
III

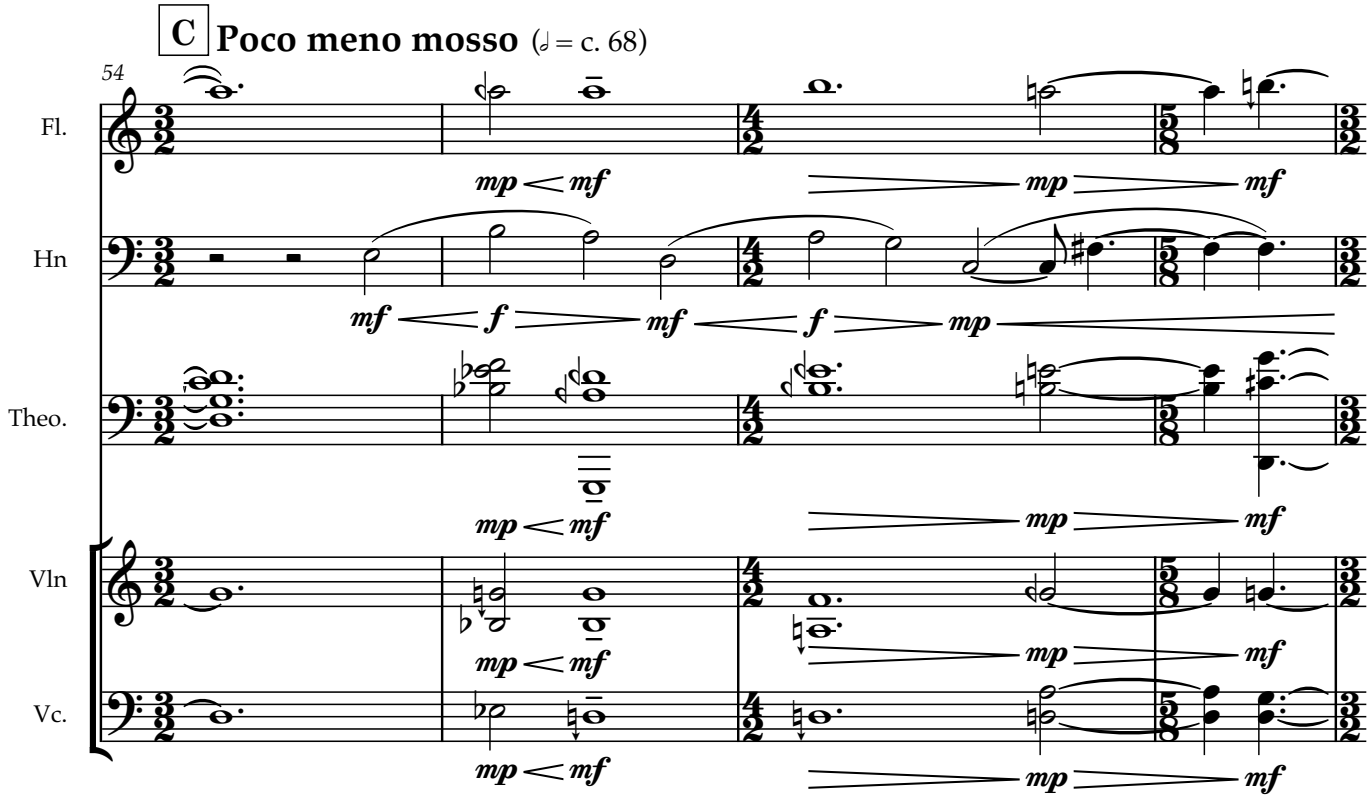

36
Fl.
Hn
Theo.
Vln
Vc.
f
ff
mp

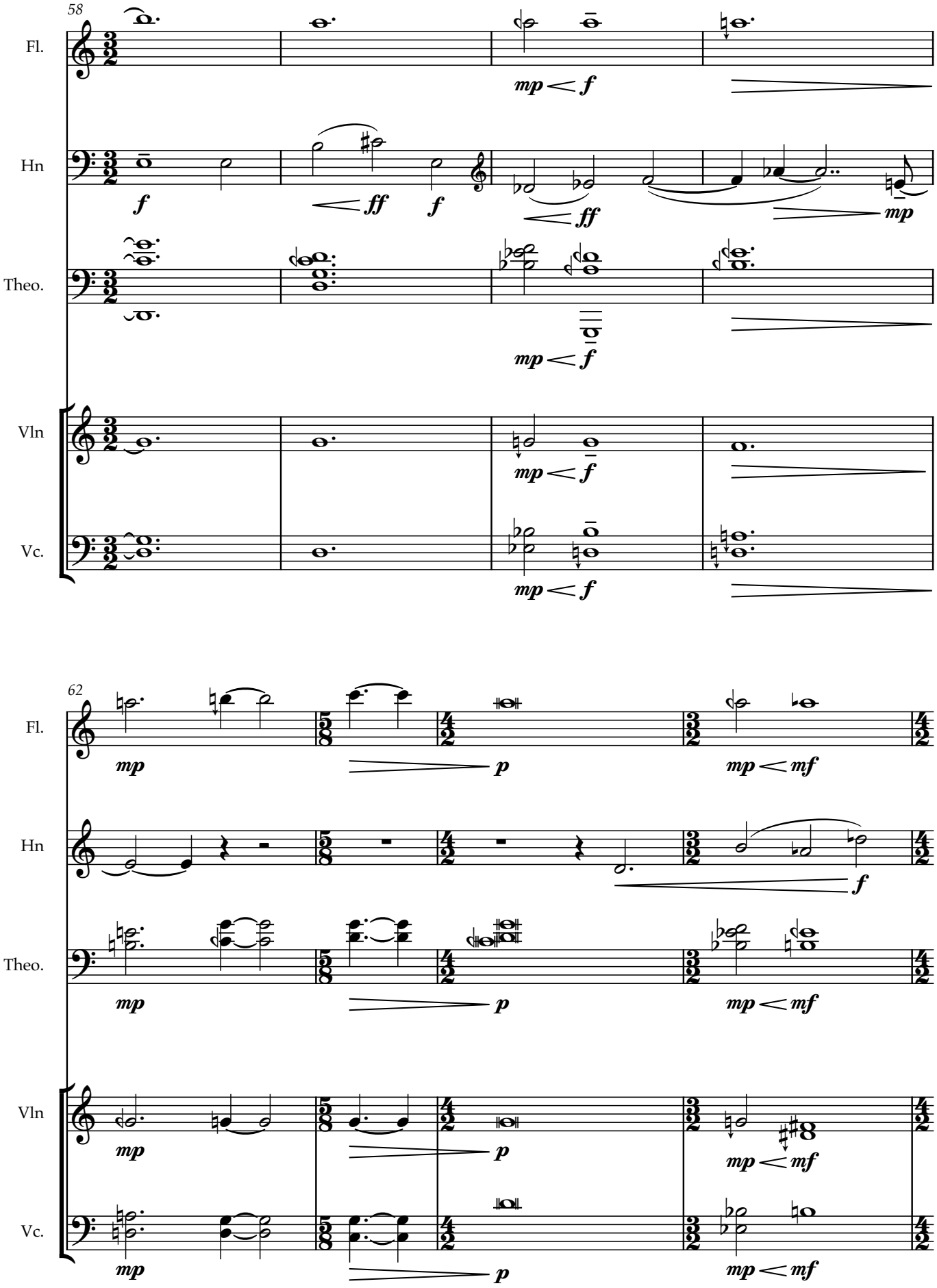

38
Fl.
Hn
Theo.
Vln
Vc.
ff
mp
f
mp
f
mp
mf
mp
f
mp
f
mp

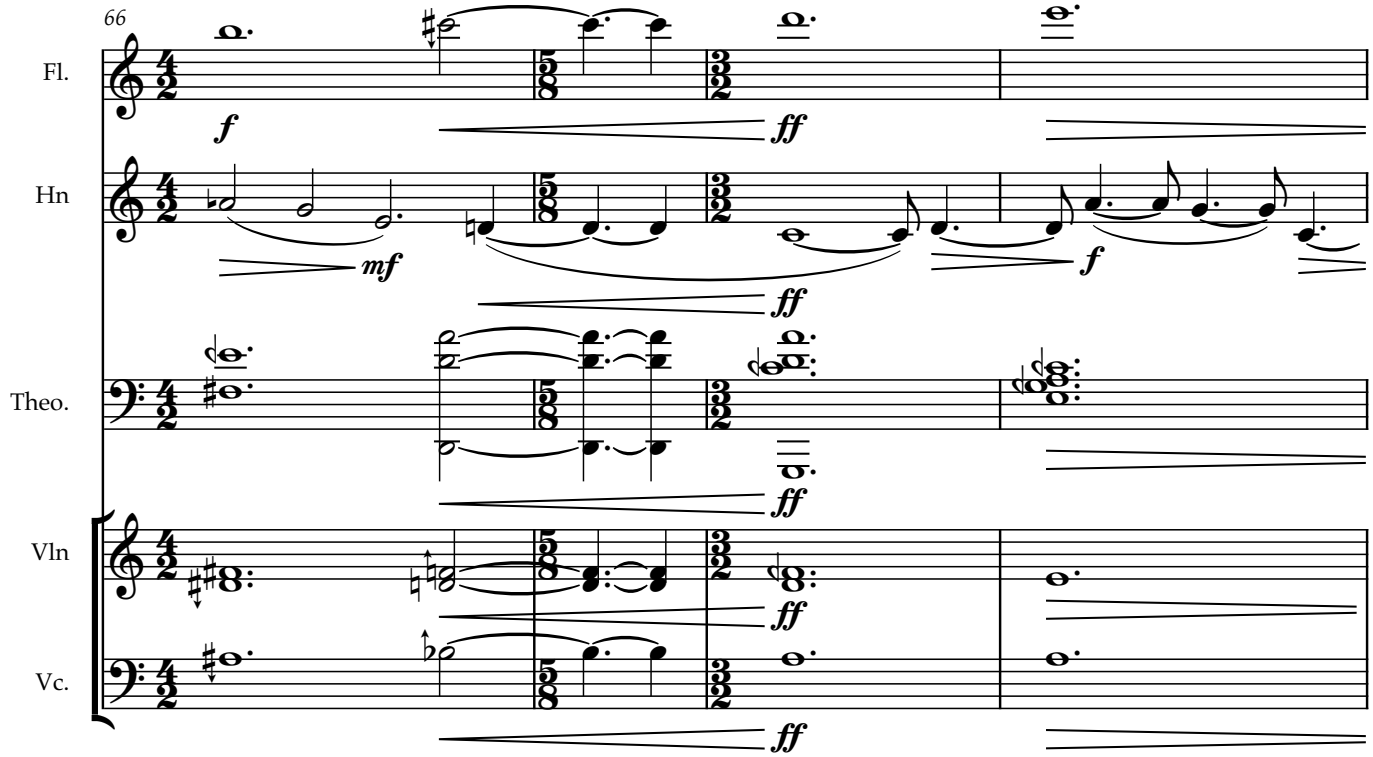

40
Fl.
Hn
Theo.
Vln
Vc.
p
f
p
f
mf
ff
mf
f
mp
f
mp
f
mp

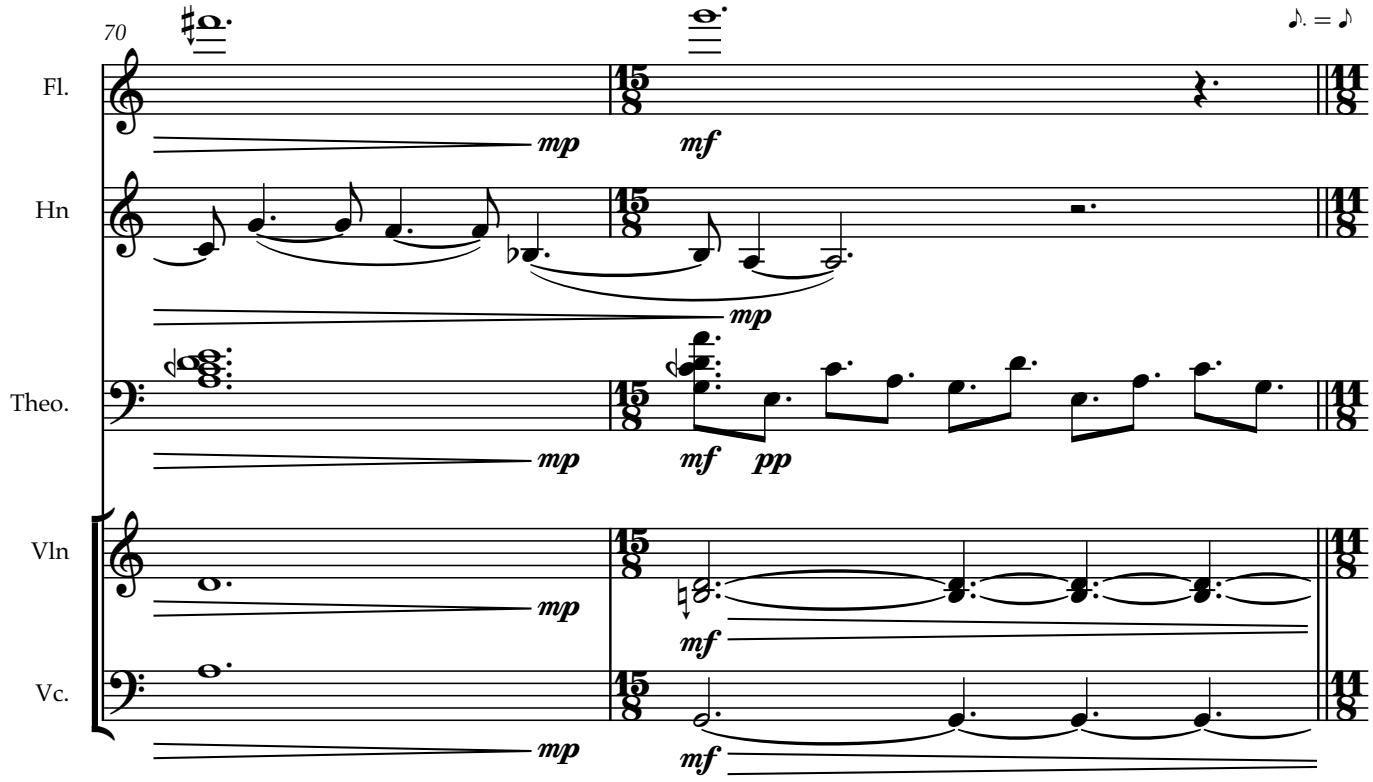

42
Fl.
Hn
Theo.
Vln
Vc.
45
Fl.
Hn
Theo.
Vln
Vc.

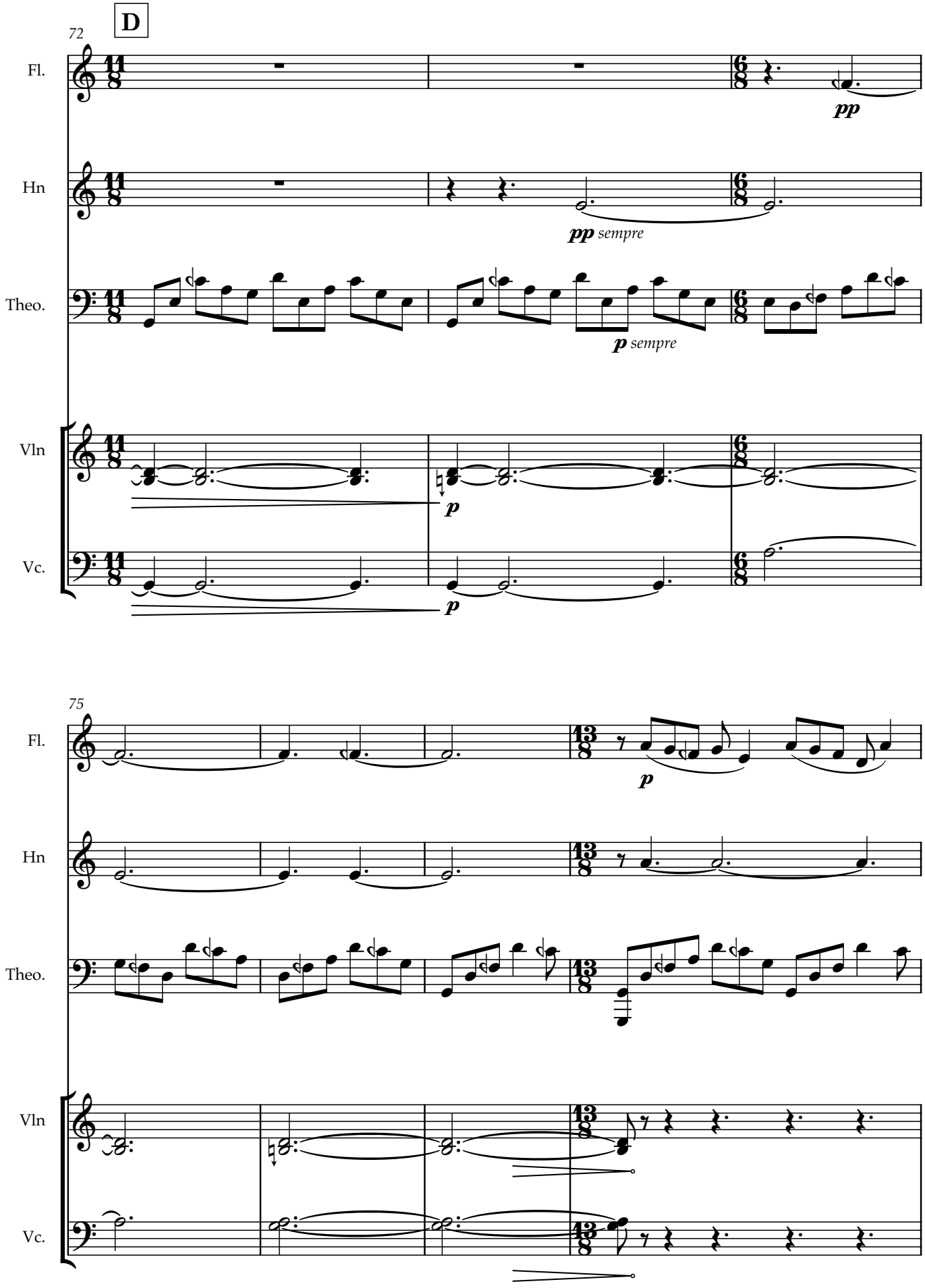

49
Fl.
Hn
Theo.
Vln
Vc.
mp
p
pp

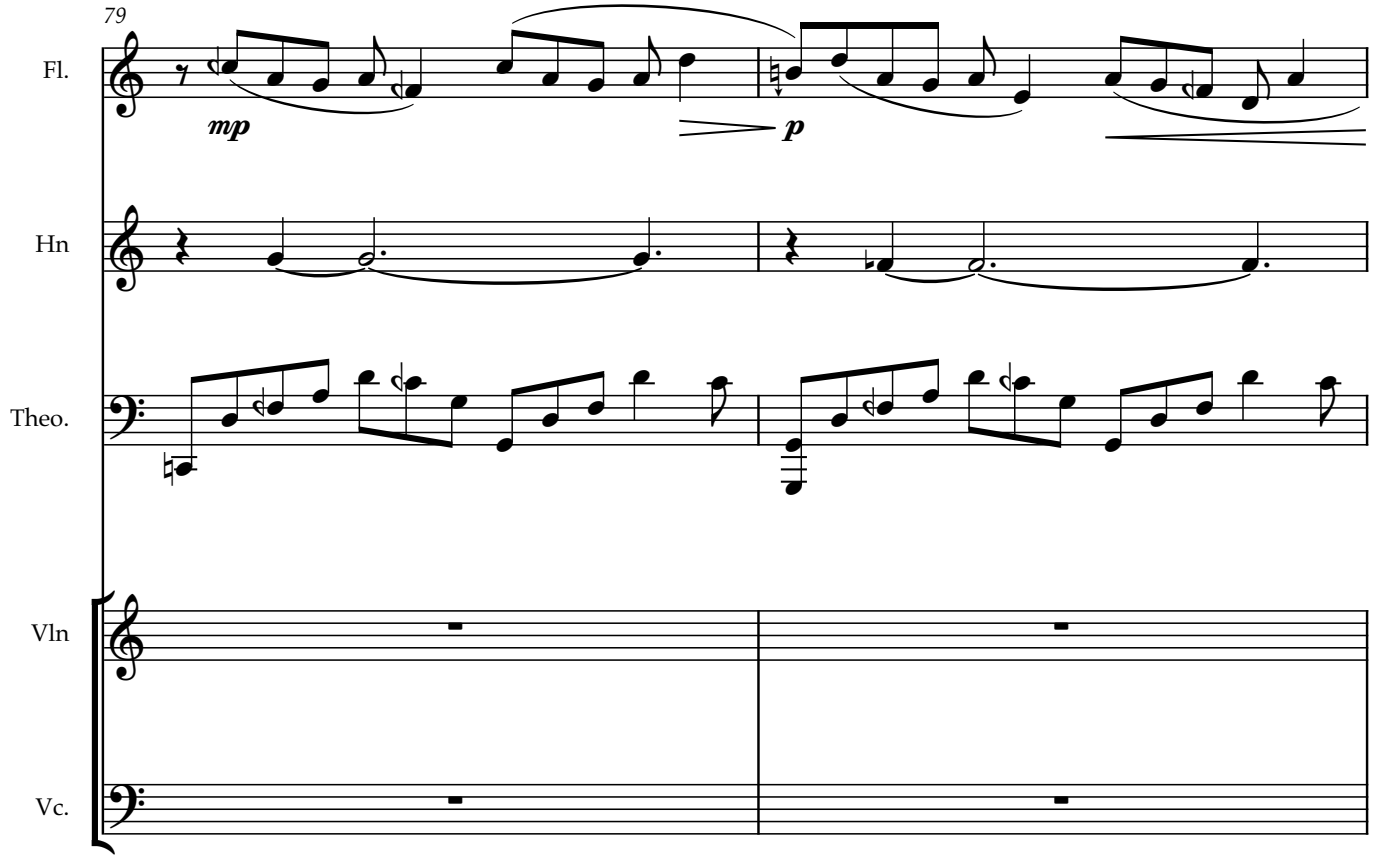

C Poco meno mosso (𝅗𝅥 = c. 68)
54
Fl.
Hn
Theo.
Vln
Vc.
mp < mf
mp
mf
f

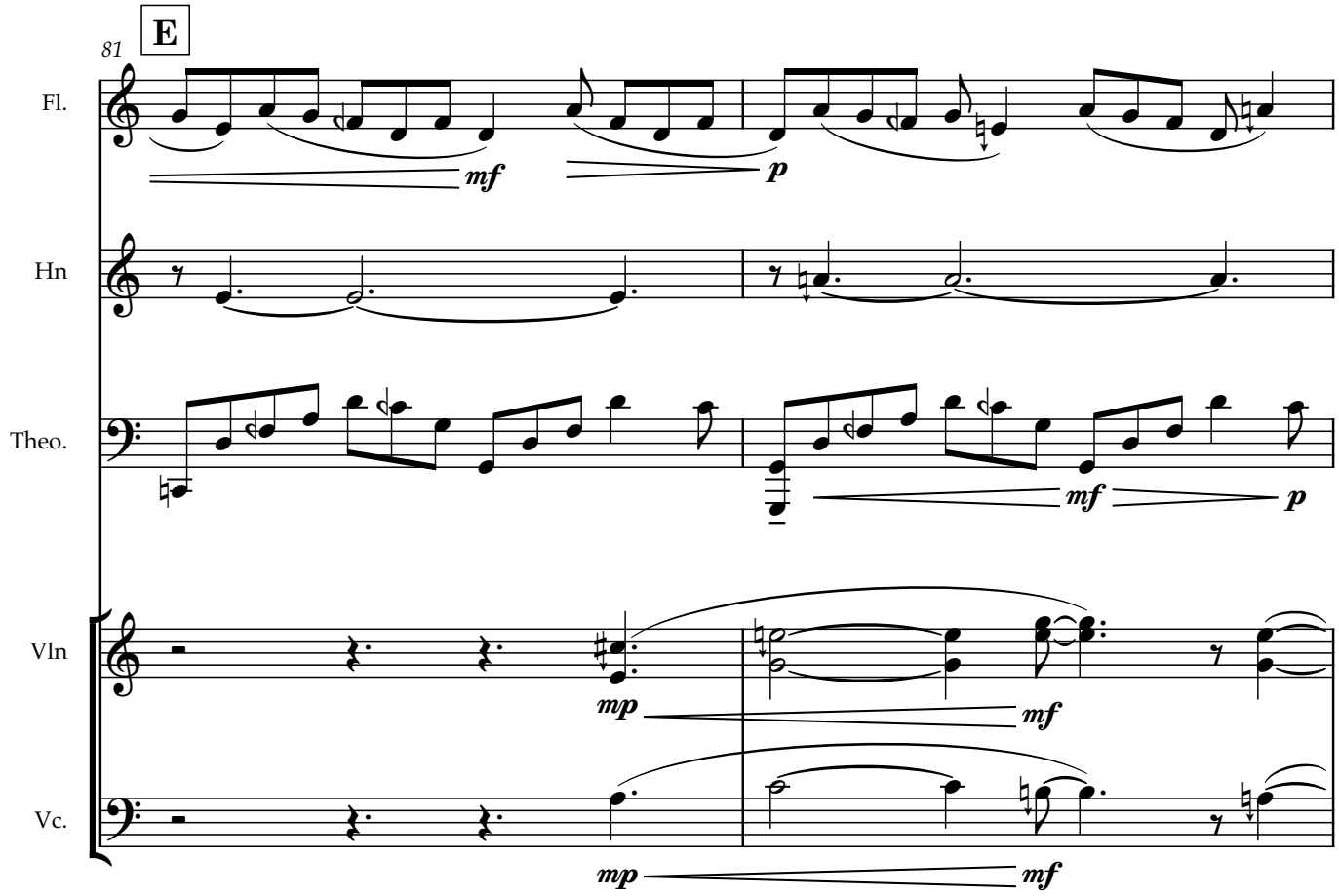

58
Fl.
Hn
Theo.
Vln
Vc.
mp < f
f
ff
mp
62
p
mp < mf

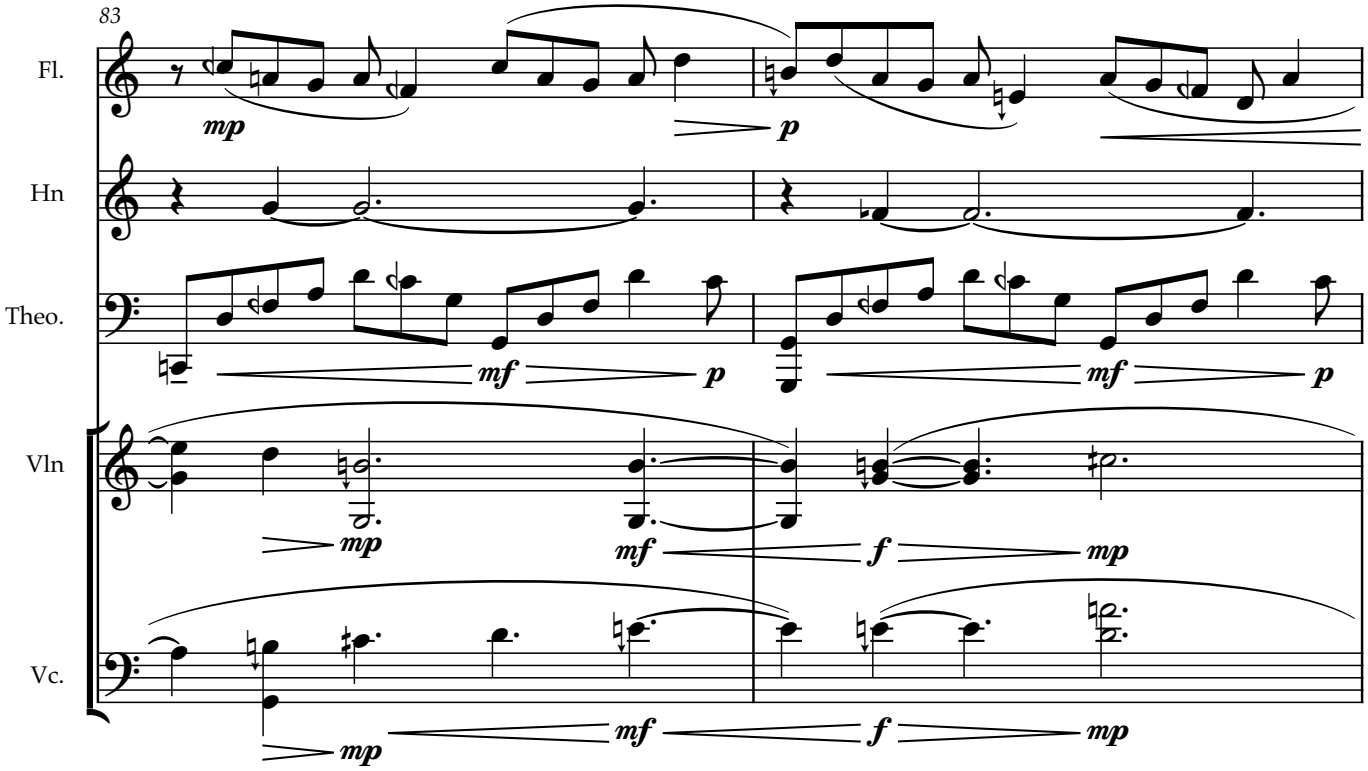

66
Fl.
Hn
Theo.
Vln
Vc.
f
ff
mf
f
ff
ff
ff

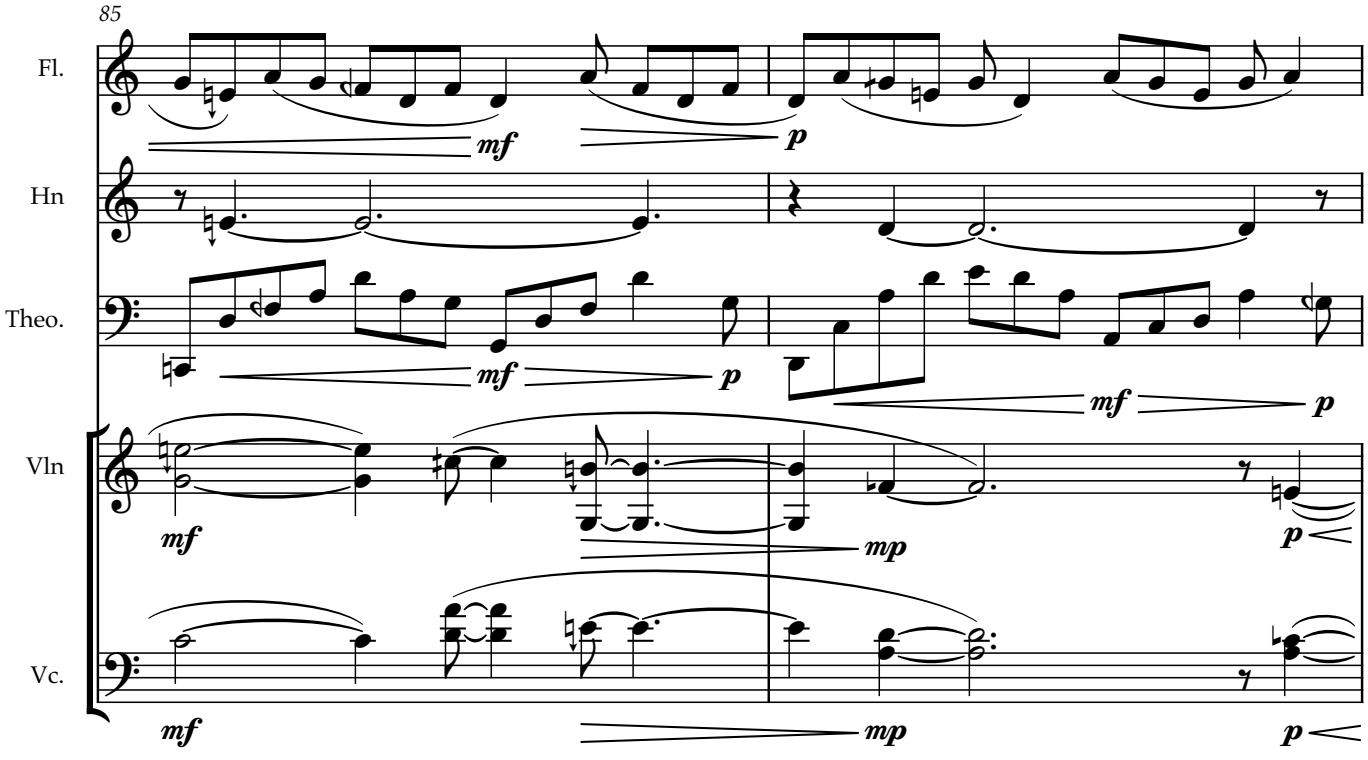

70
♪. = ♪
Fl.
Hn
Theo.
Vln
Vc.
mp
mf
mp
mp
mf pp
mp
mf
mp
mf

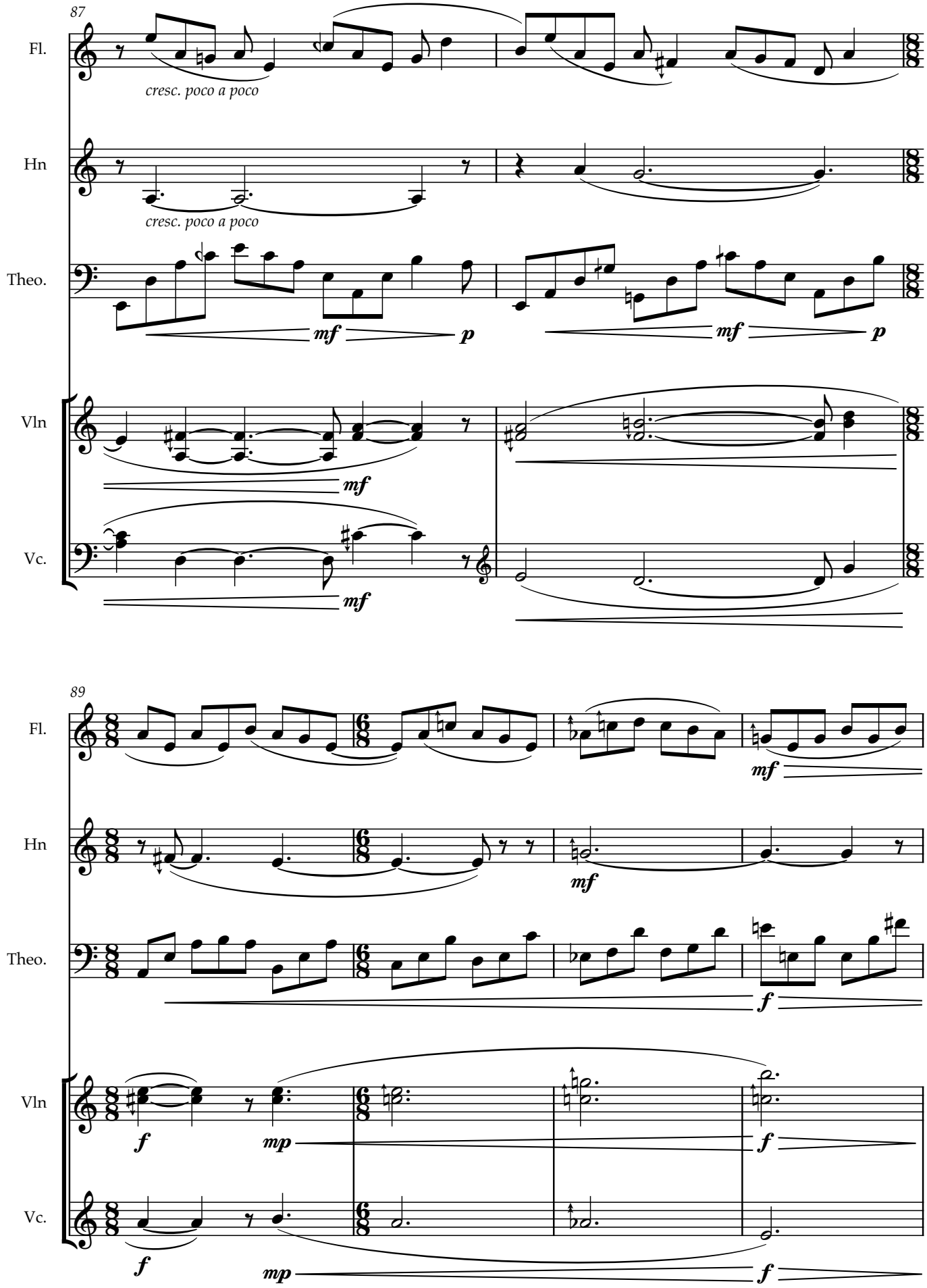

D
72
Fl.
Hn
Theo.
Vln
Vc.
pp
pp sempre
p sempre
p
p
75
Fl.
Hn
Theo.
Vln
Vc.
p

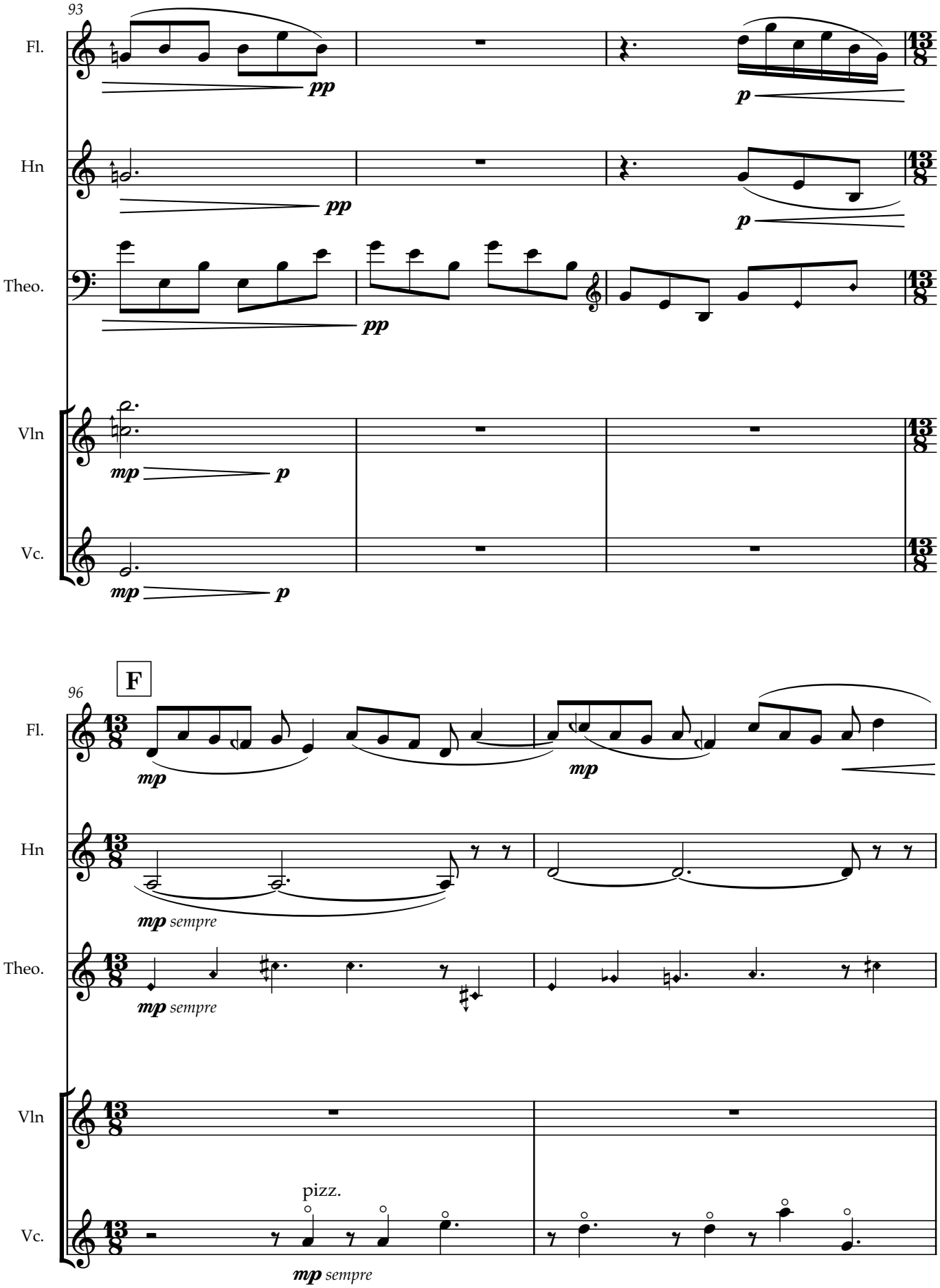

79
Fl.
mp
p
Hn
Theo.
Vln
Vc.

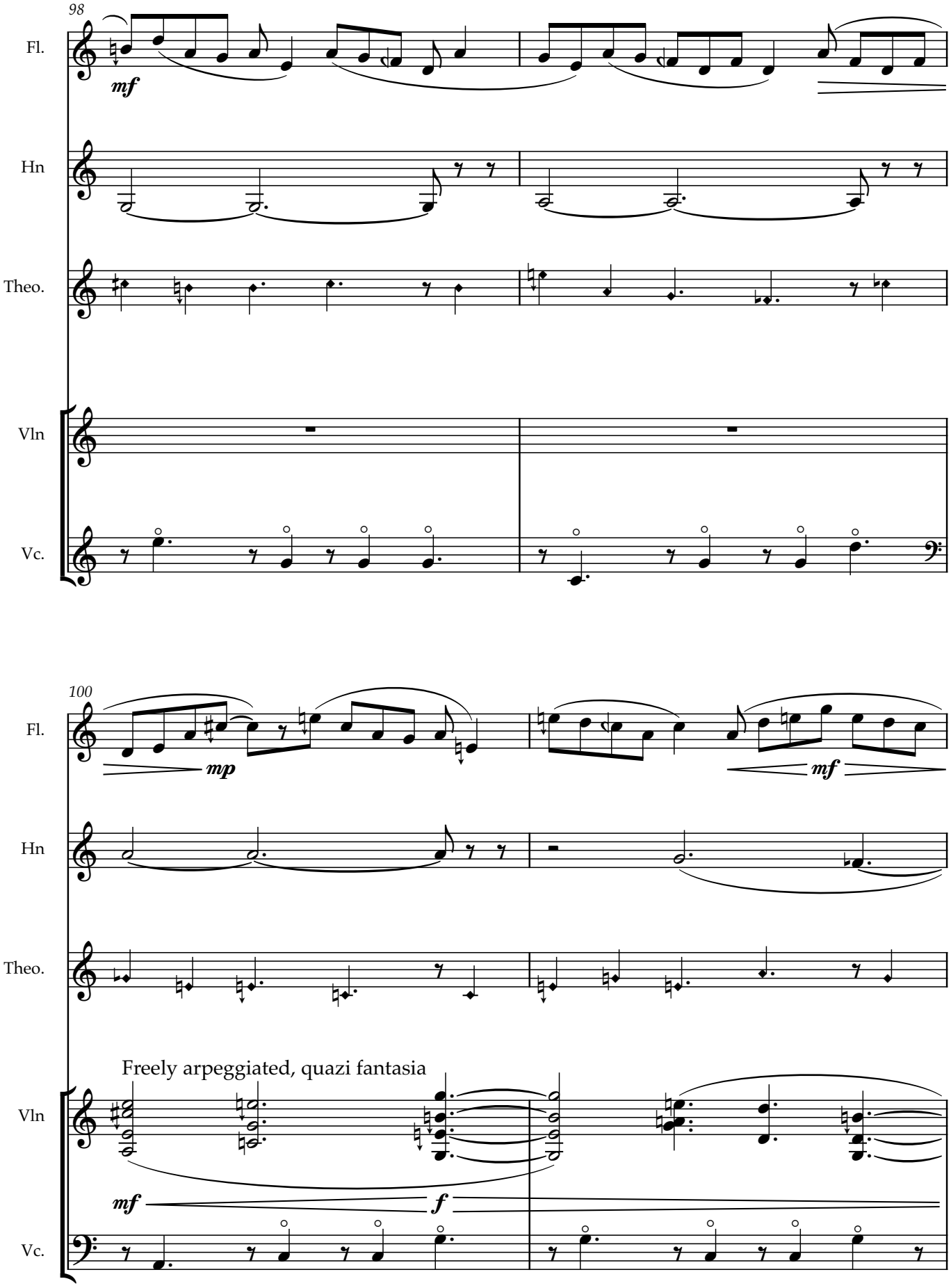

E
81
Fl.
mf
p
Hn
Theo.
mf
p
Vln
mp
mf
Vc.
mp
mf

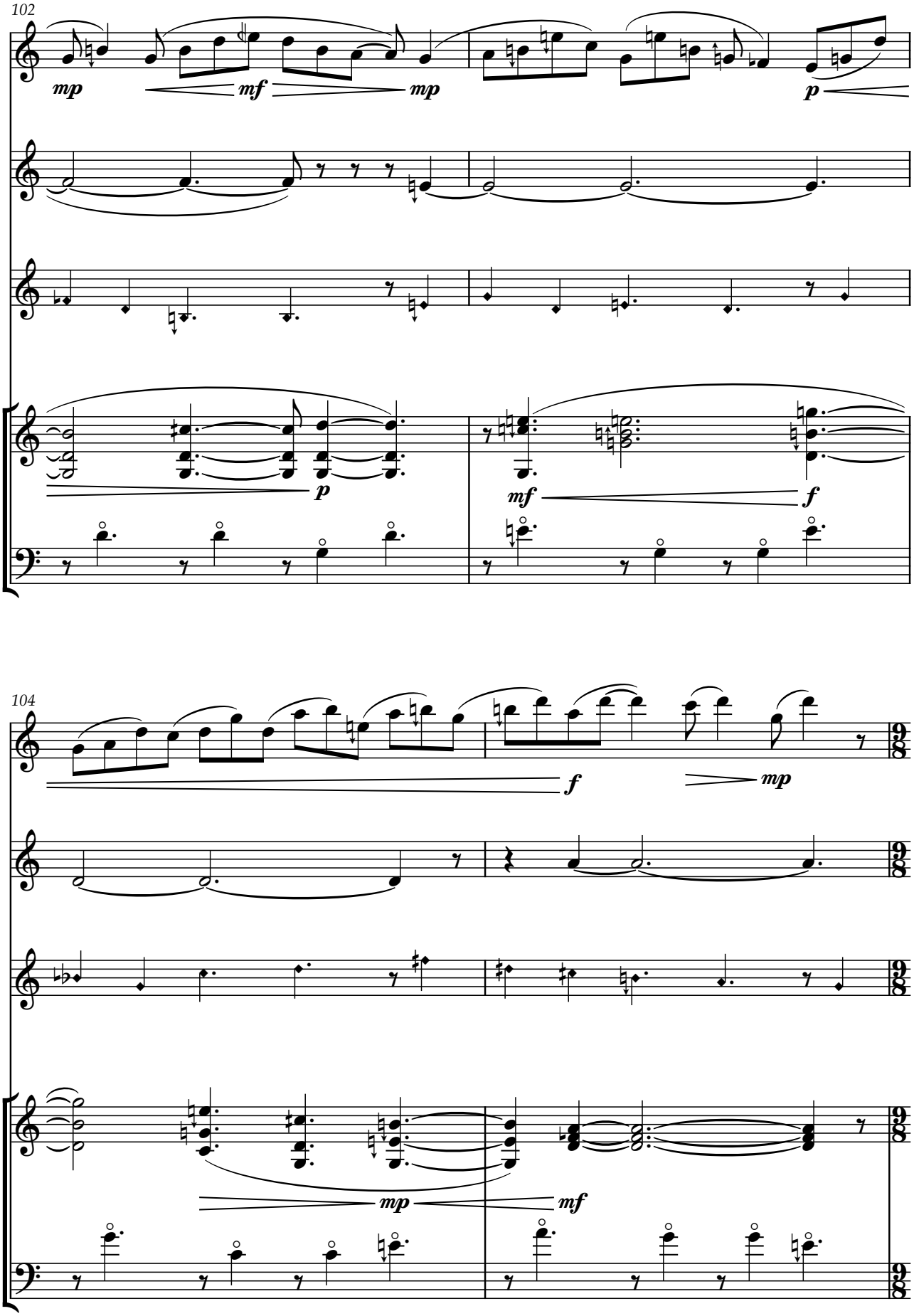

83
Fl.
Hn
Theo.
Vln
Vc.
mp
p
mf
p
mf
p
mp
mf
f
mp
mp
mf
f
mp

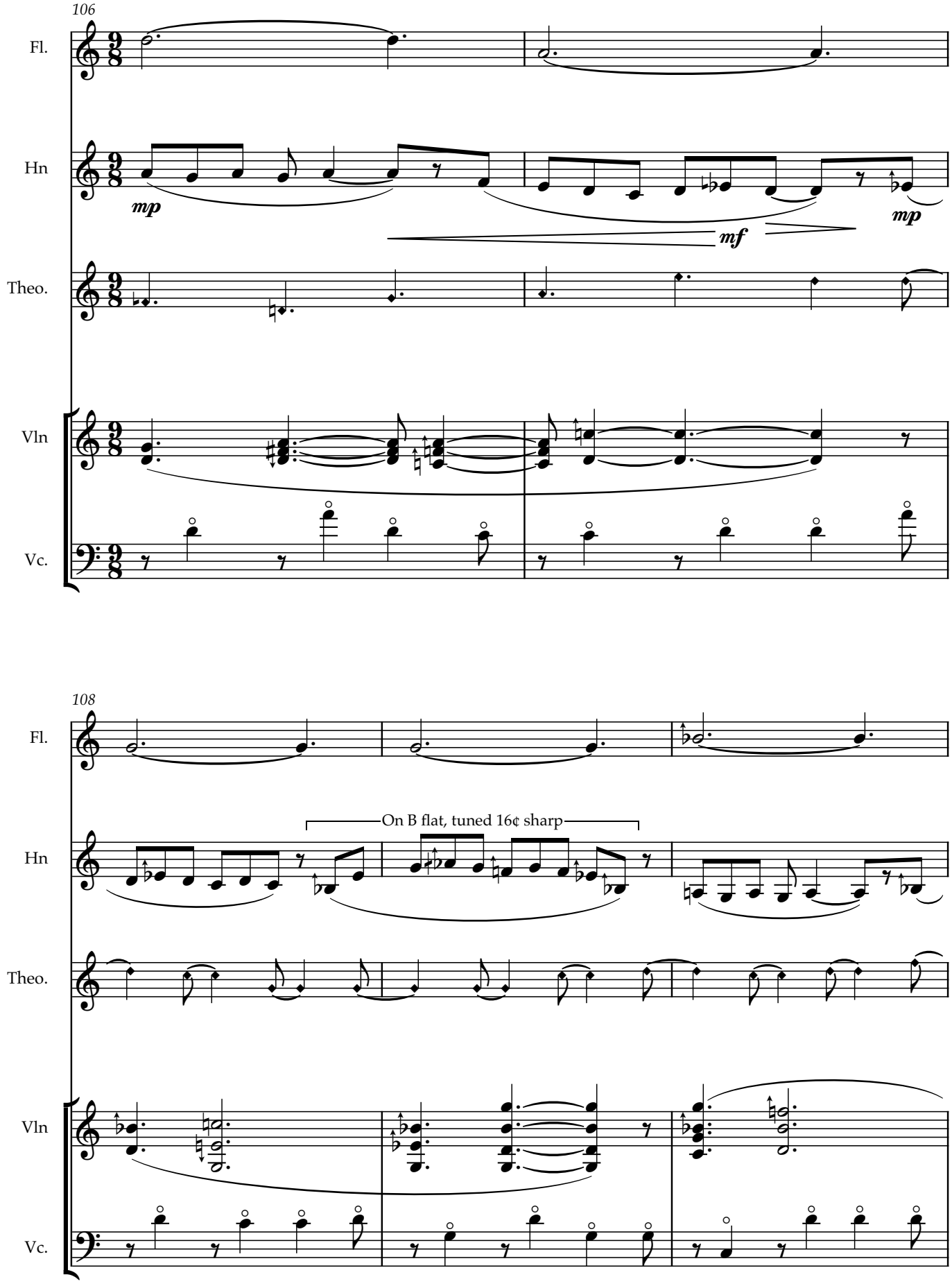

85
Fl.
Hn
Theo.
Vln
Vc.
mf
p
mf
p
mf
p
mf
mp
p
mf
mp
p

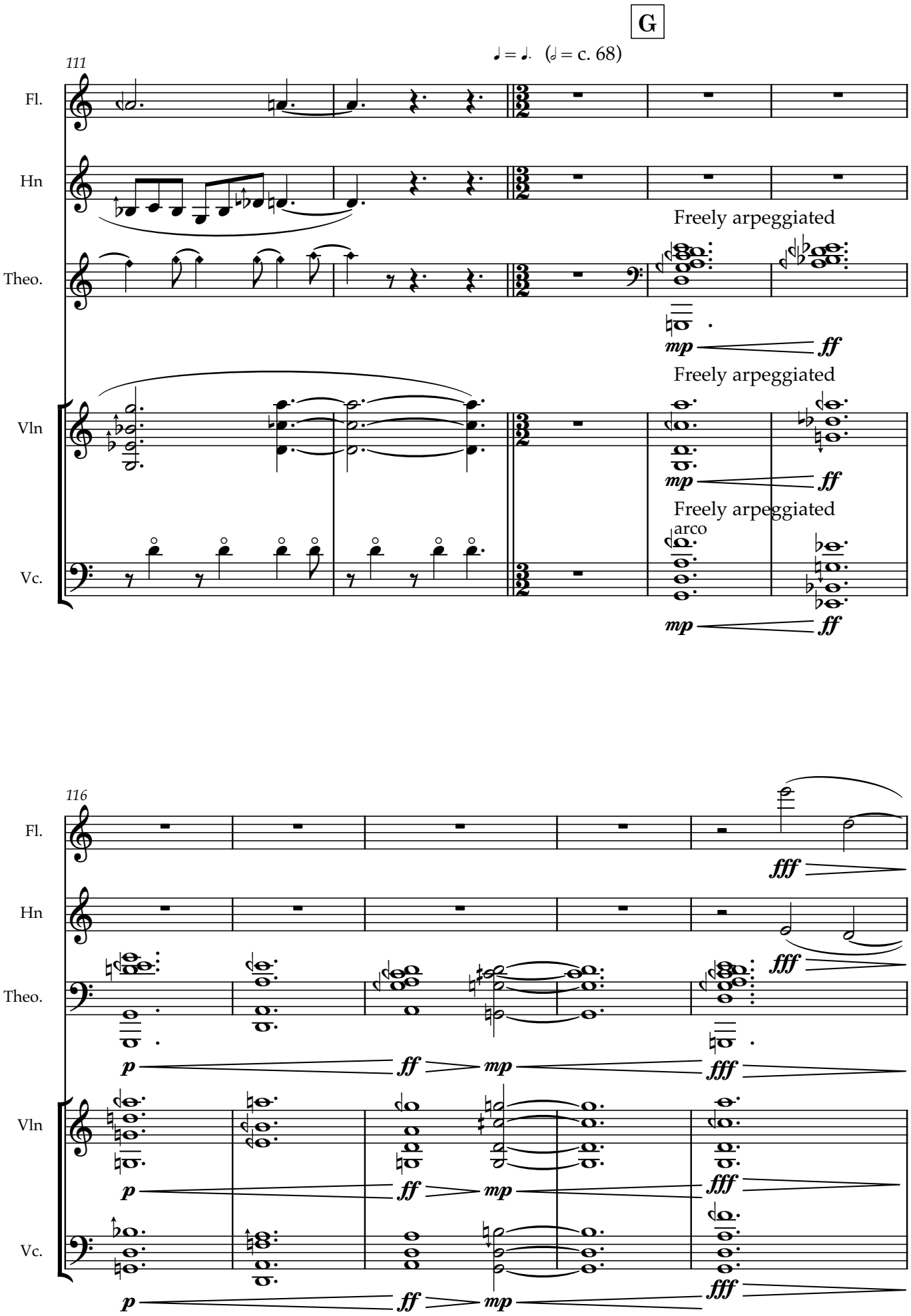

87
Fl.
cresc. poco a poco
Hn
cresc. poco a poco
Theo.
mf
p
mf
p
Vln
mf
Vc.
mf
89
Fl.
mf
Hn
mf
Theo.
f
Vln
f
mp
f
Vc.
f
mp
f

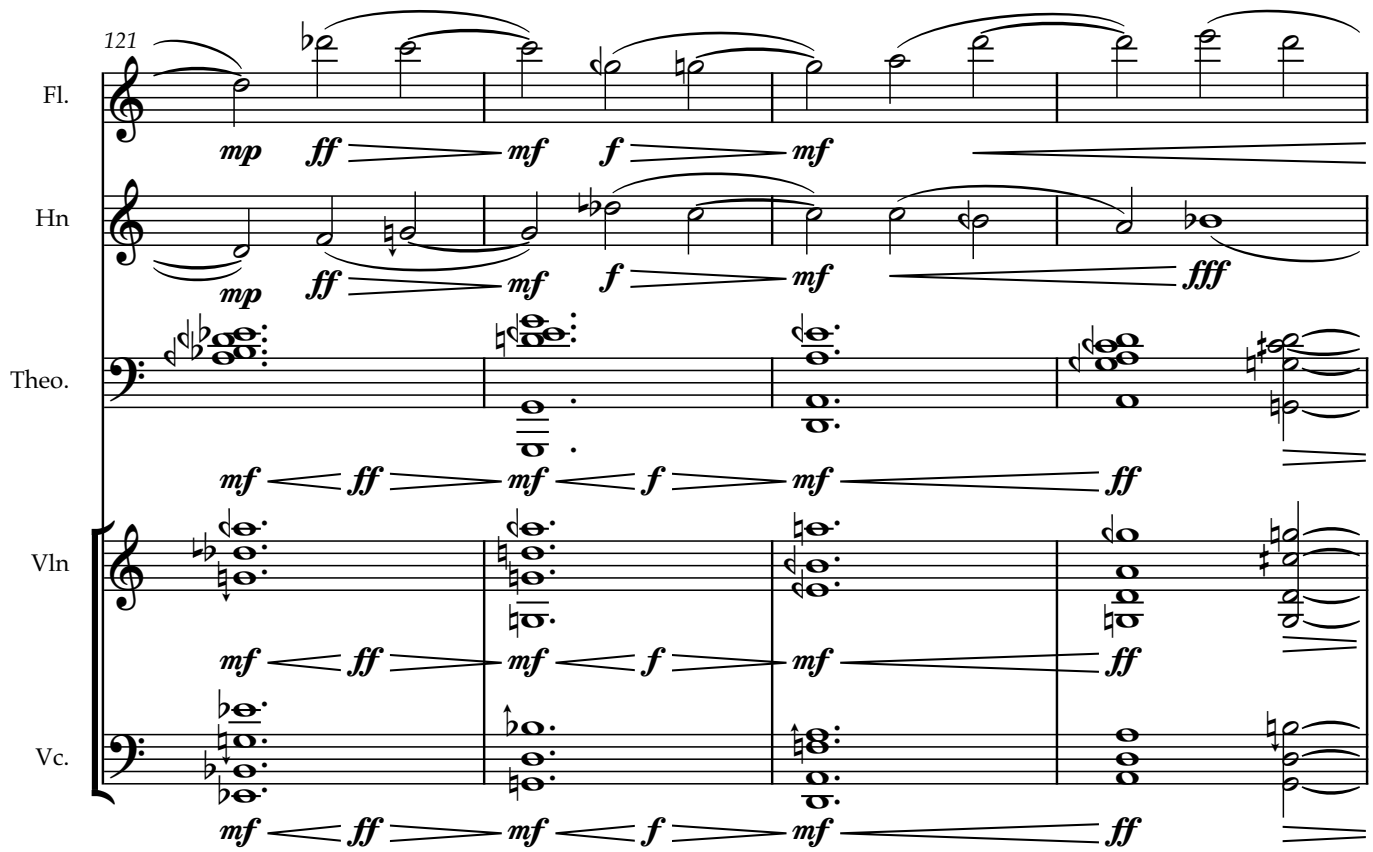

93
Fl.
pp
p
Hn
pp
p
Theo.
pp
Vln
mp
p
Vc.
mp
p
F
96
Fl.
mp
mp
Hn
mp sempre
Theo.
mp sempre
Vln
pizz.
Vc.
mp sempre

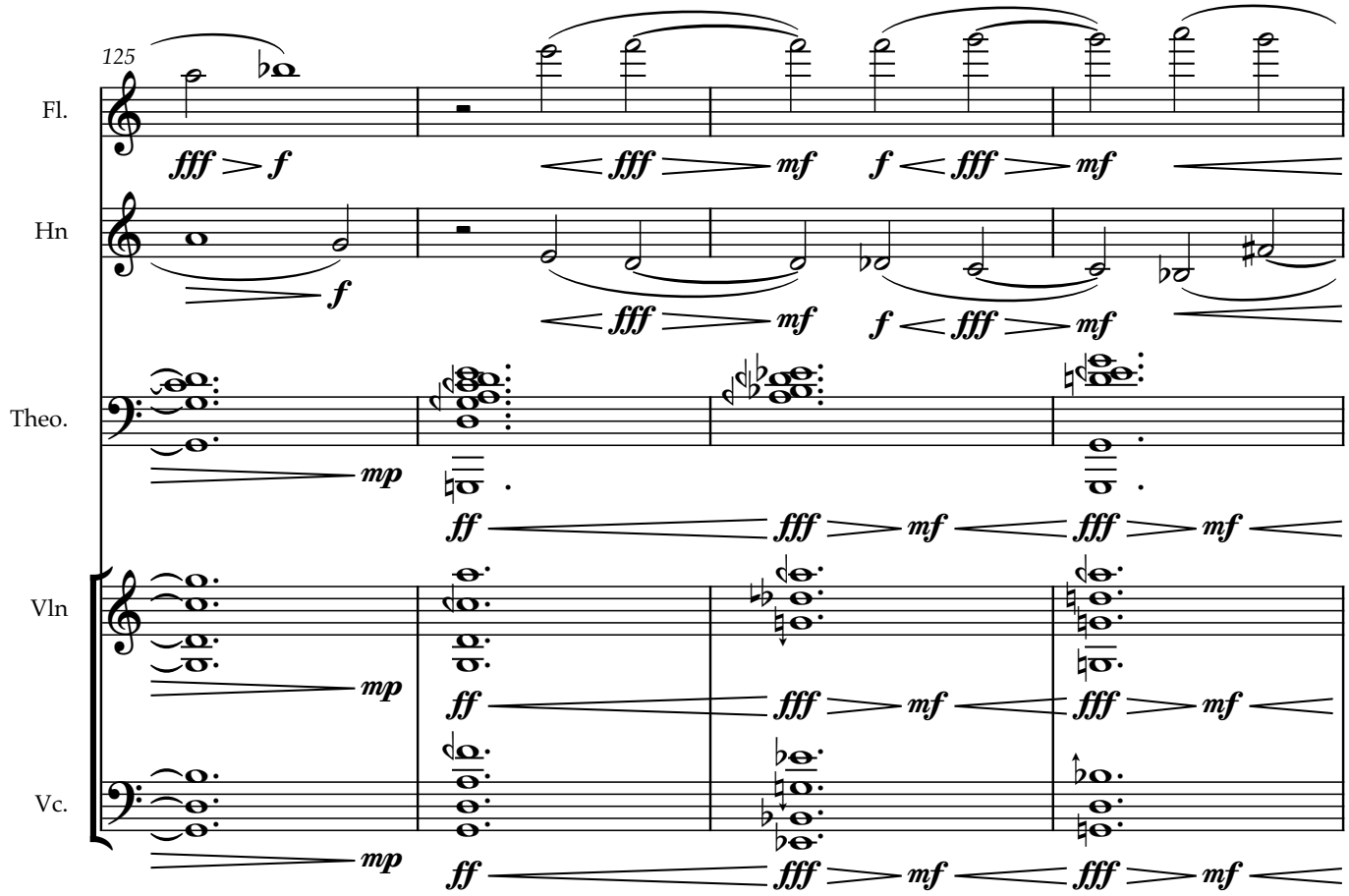

98
Fl.
mf
Hn
Theo.
Vln
Vc.
100
Fl.
mp
mf
Hn
Theo.
Freely arpeggiated, quazi fantasia
Vln
mf
f
Vc.

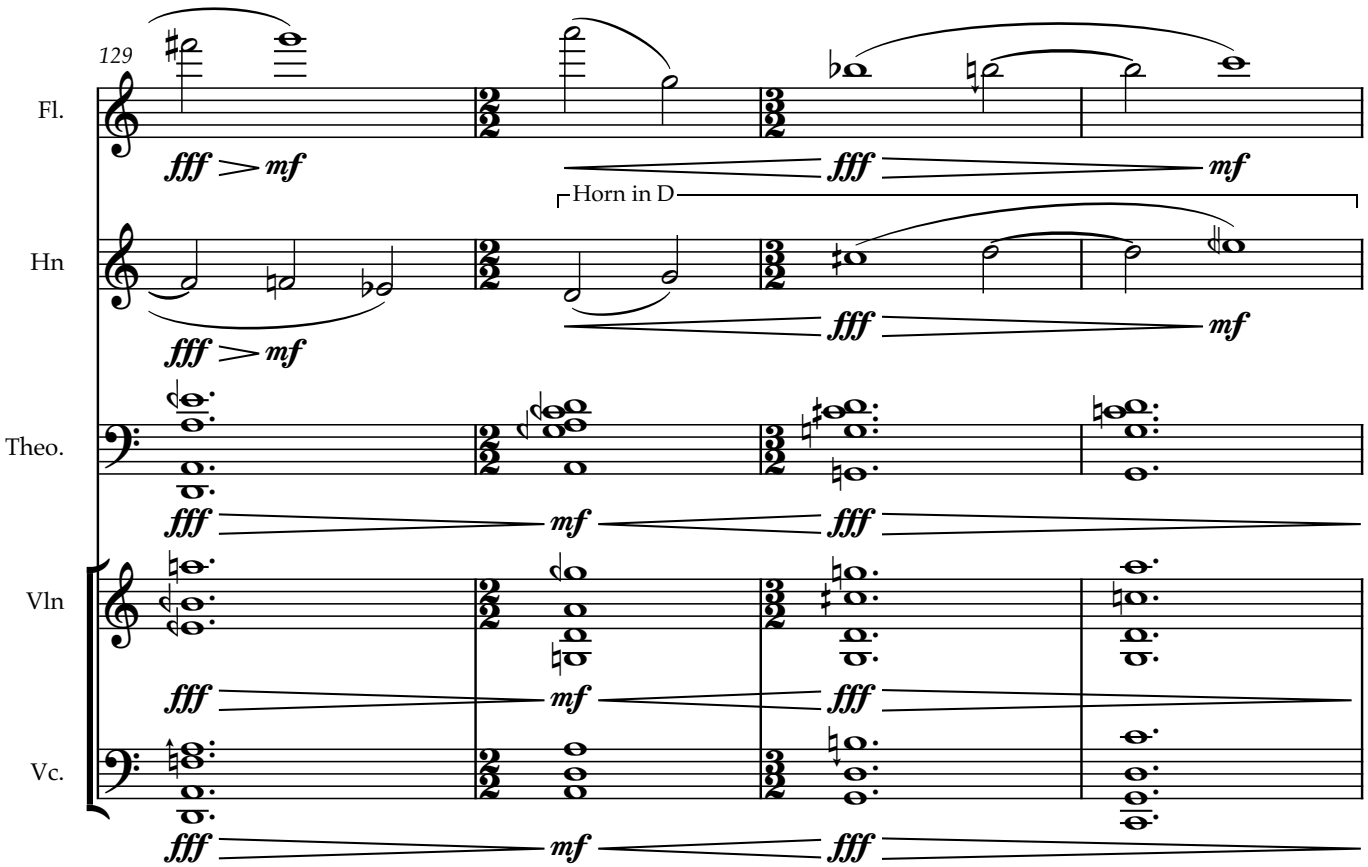

102
Fl.
Hn
Theo.
Vln
Vc.
mp
mf
mp
p
p
mf
f
104
Fl.
Hn
Theo.
Vln
Vc.
f
mp
mp
mf

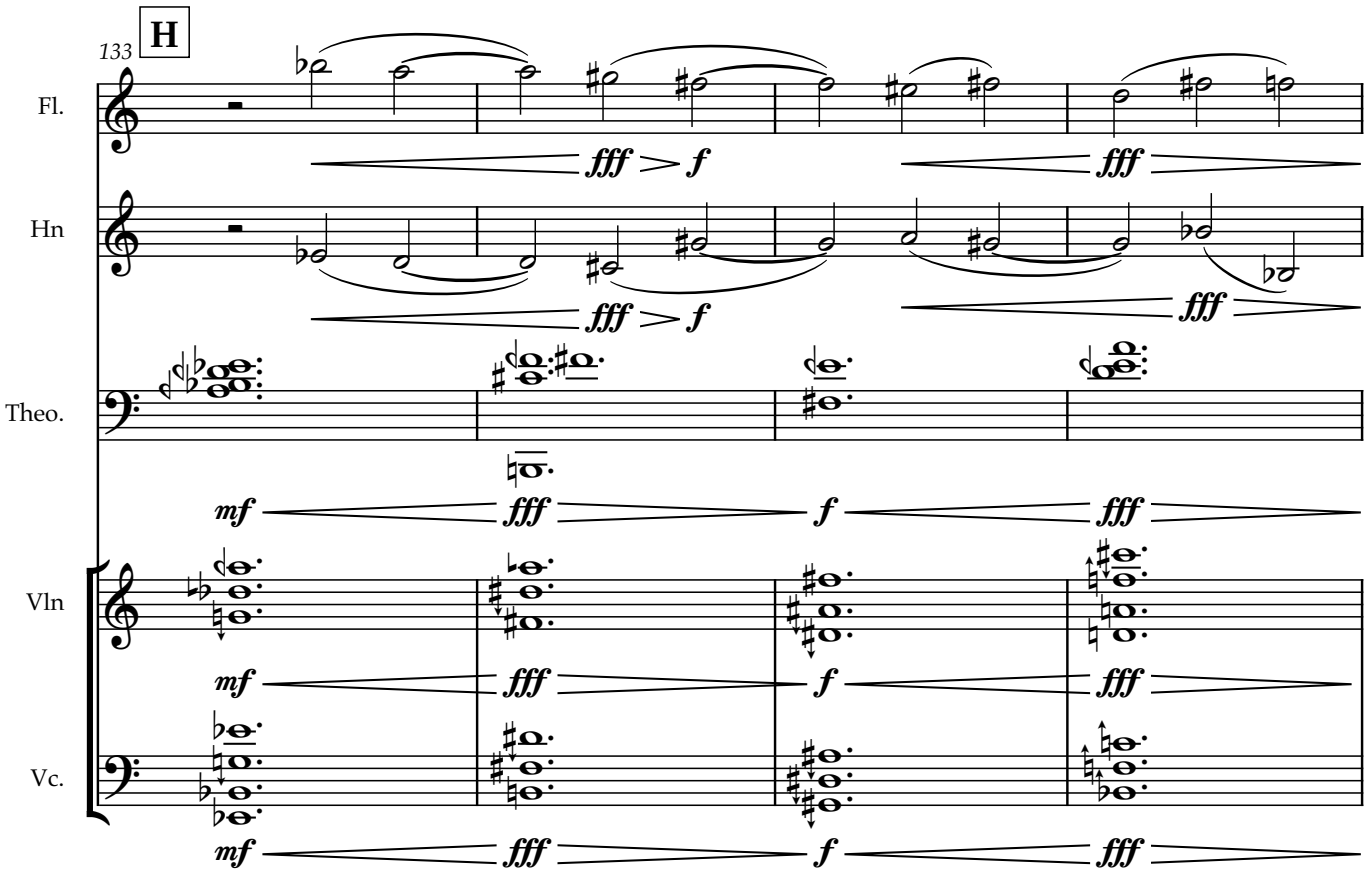

106
Fl.
Hn
mp
mf
mp
Theo.
Vln
Vc.
108
Fl.
Hn
On B flat, tuned 16¢ sharp
Theo.
Vln
Vc.

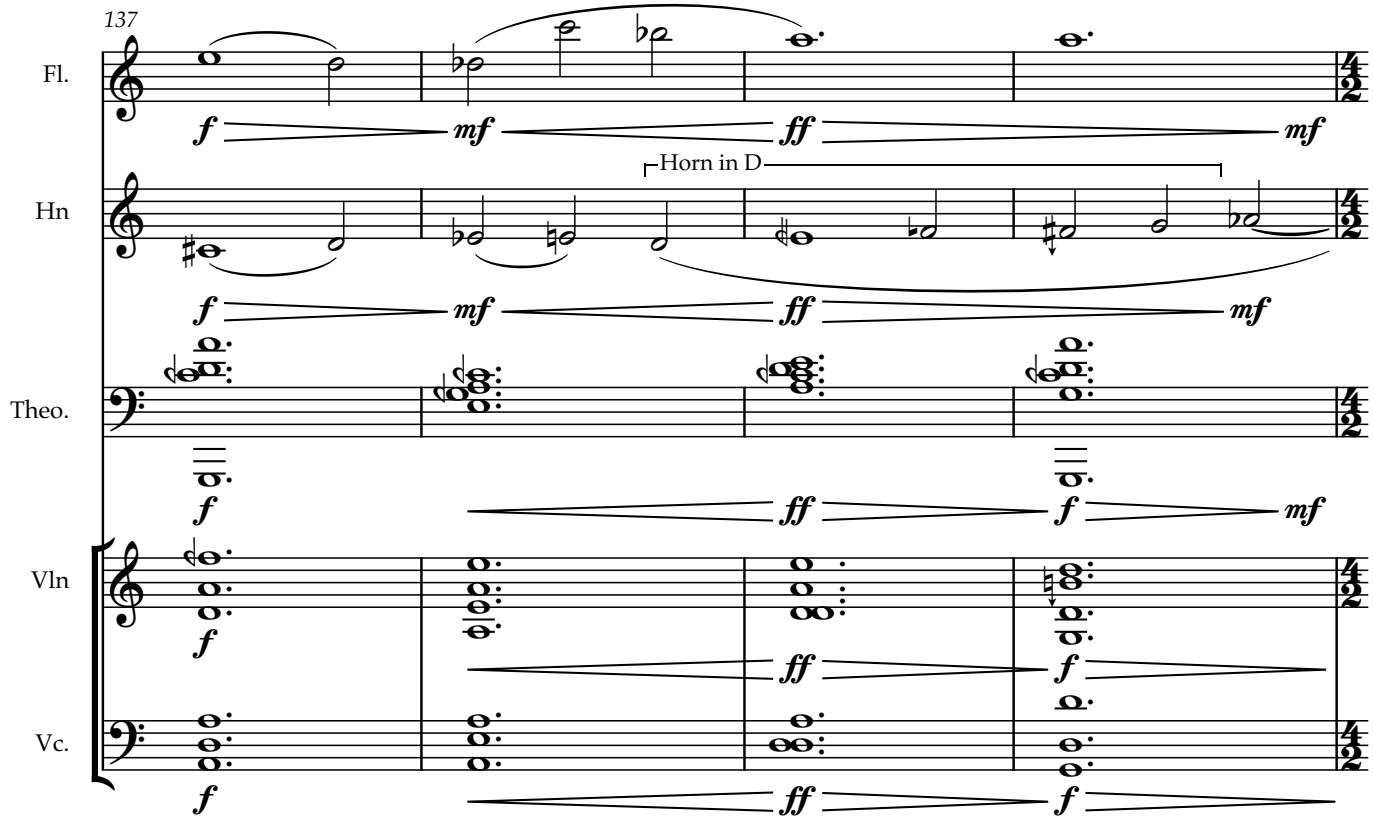

G
♩ = ♩. (𝅗𝅥 = c. 68)
111
Fl.
Hn
Theo.
Vln
Vc.
Freely arpeggiated
mp
ff
Freely arpeggiated
mp
ff
Freely arpeggiated
arco
mp
ff
116
Fl.
Hn
Theo.
Vln
Vc.
fff
fff
p
ff
mp
fff
p
ff
mp
fff
p
ff
mp
fff

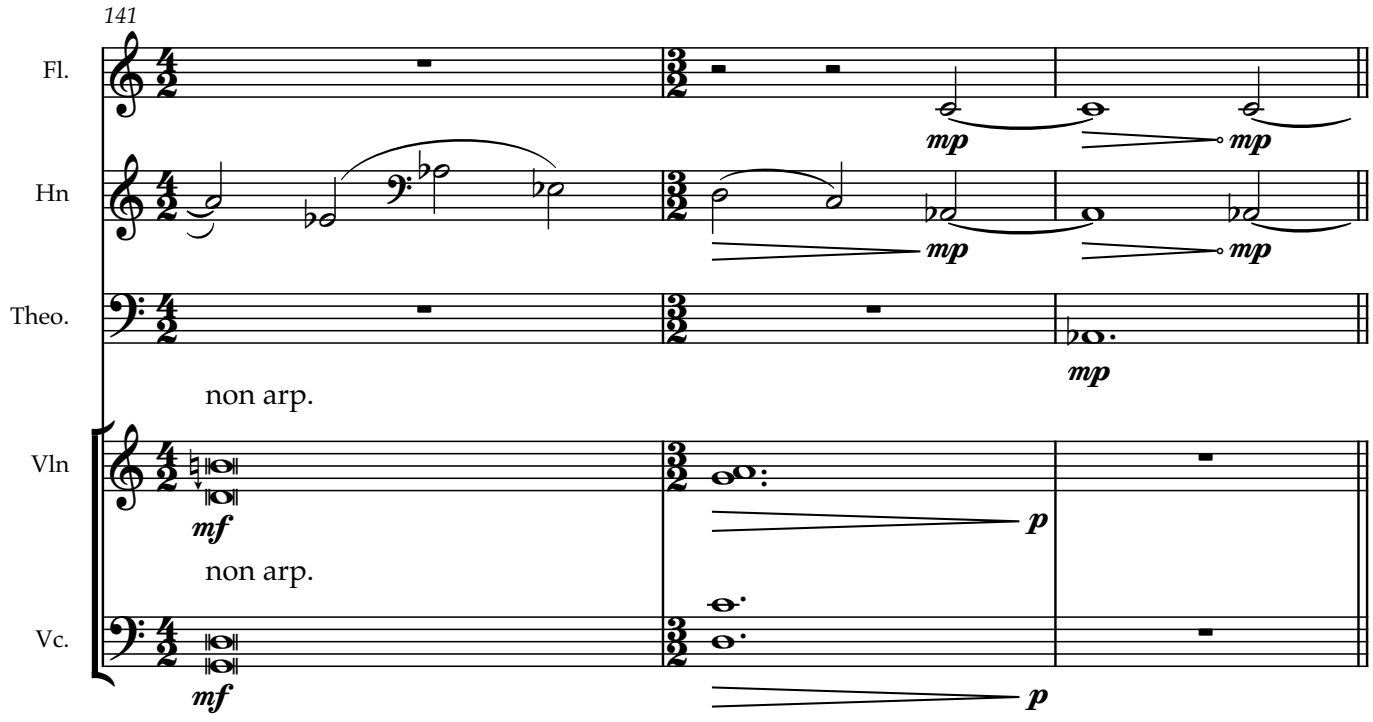

121
Fl.
Hn
Theo.
Vln
Vc.

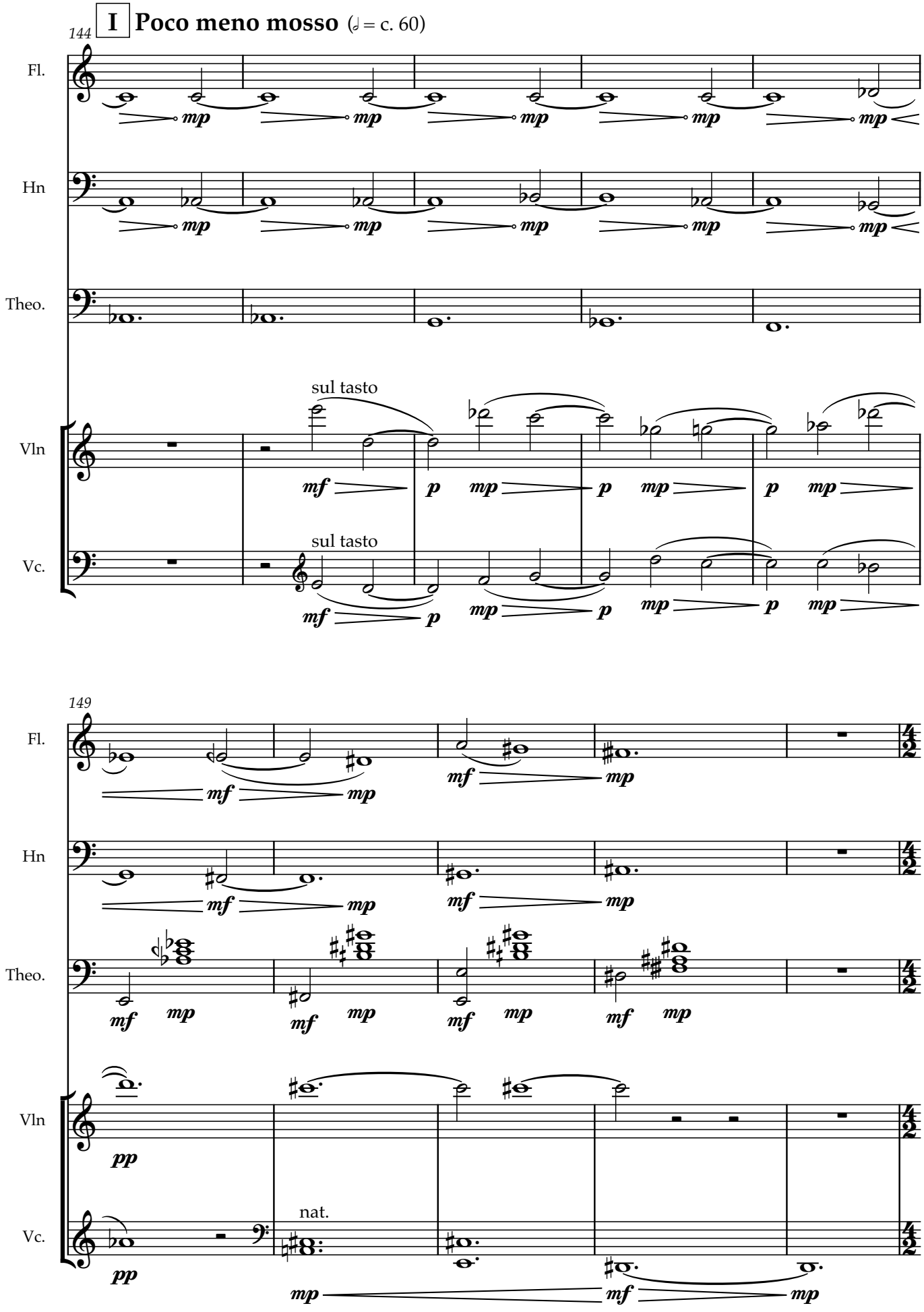

125
Fl.
Hn
Theo.
Vln
Vc.

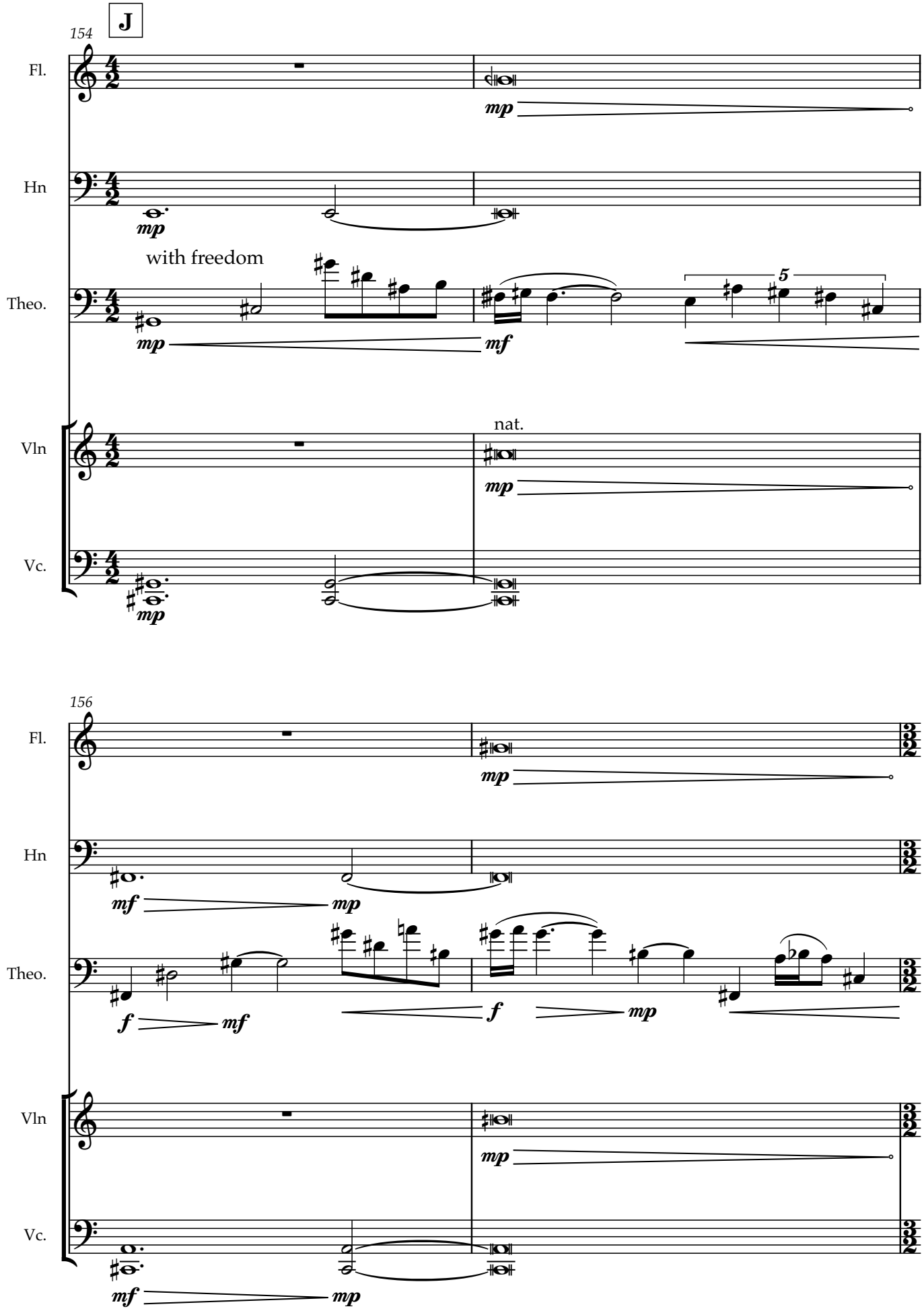

129
Fl.
Hn
Horn in D
Theo.
Vln
Vc.
fff > mf
fff
mf

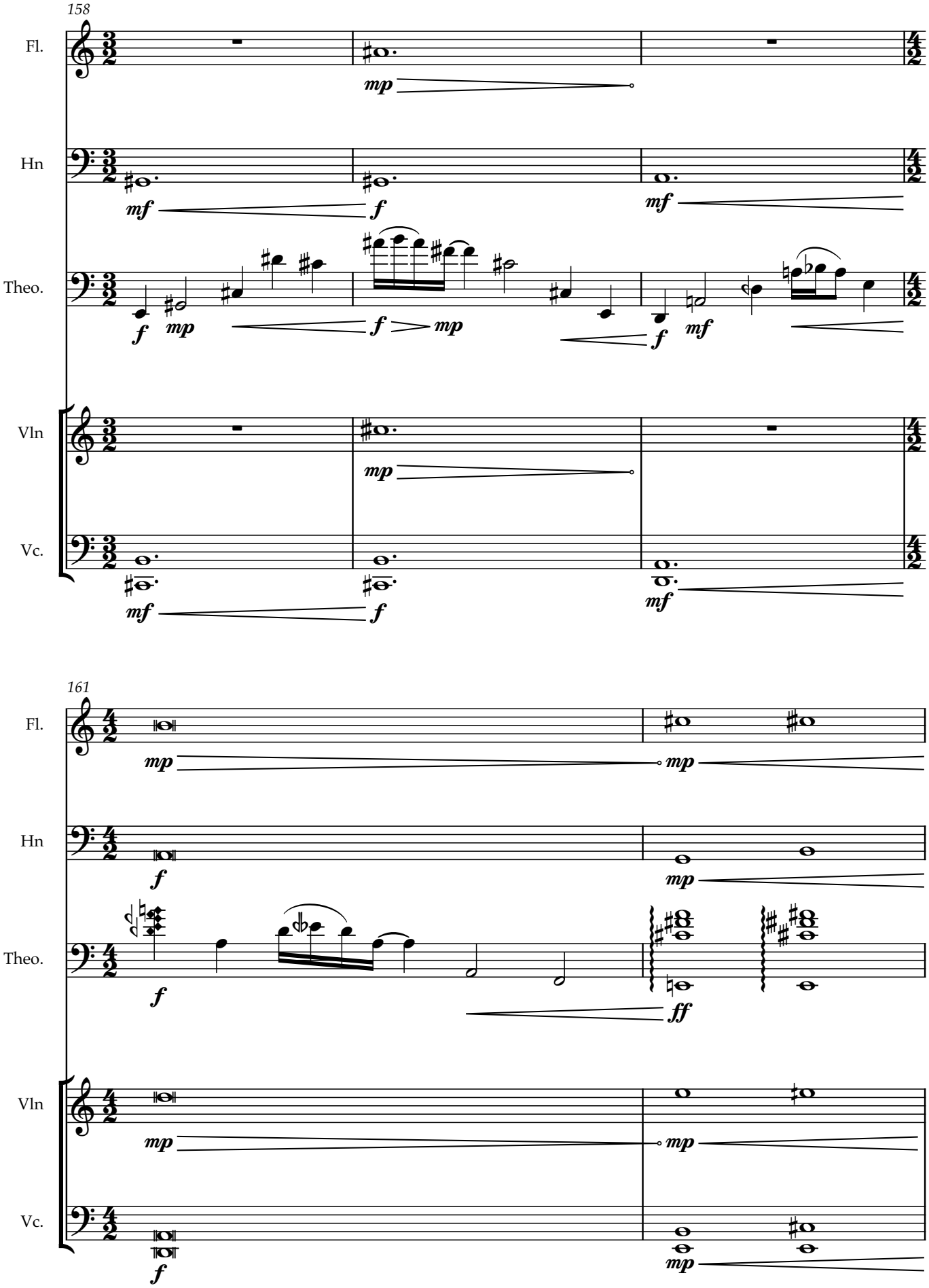

133
H
Fl.
Hn
Theo.
Vln
Vc.
fff > f
fff
mf
f

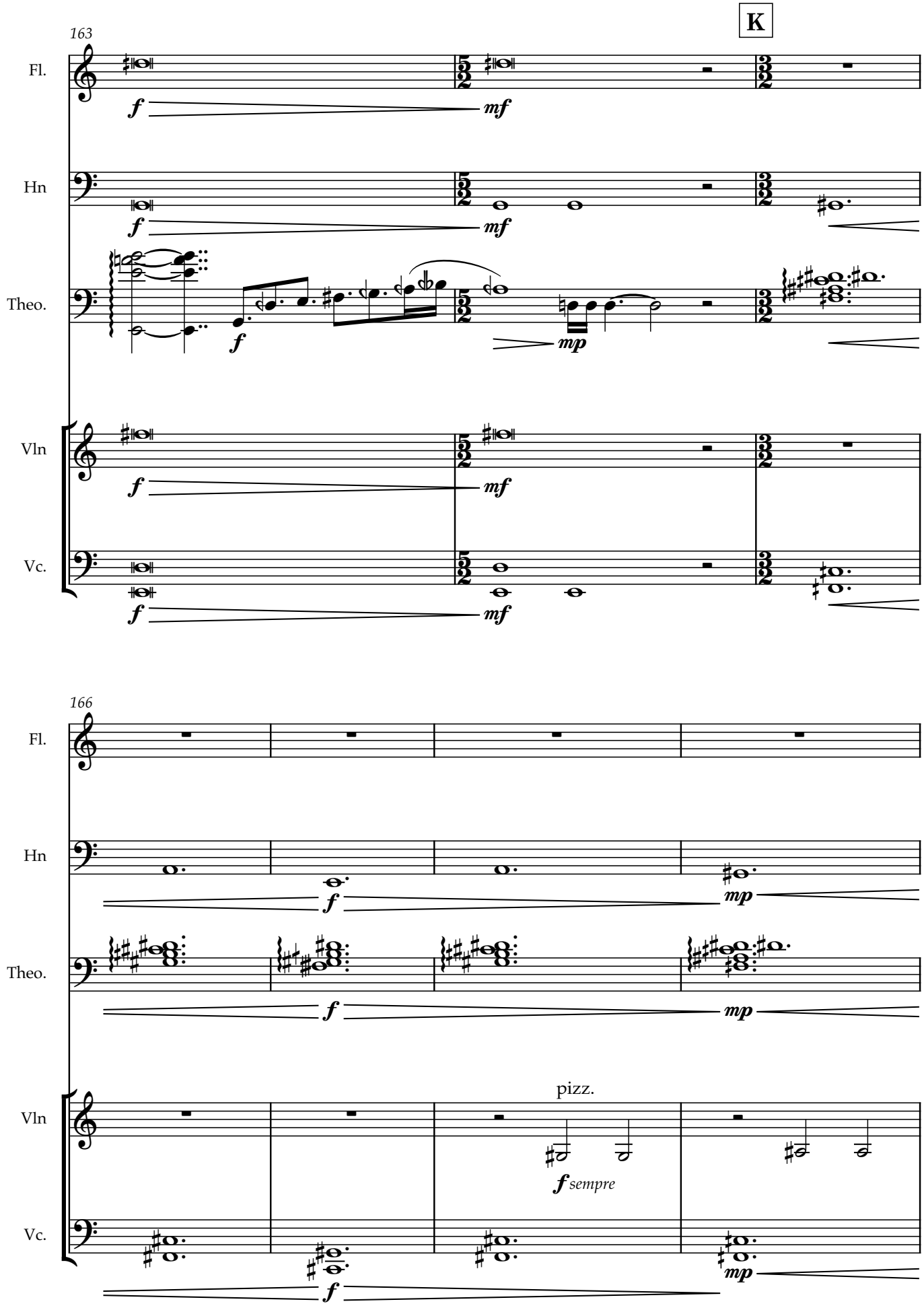

137
Fl.
Hn
Horn in D
Theo.
Vln
Vc.
f
mf
ff
mf

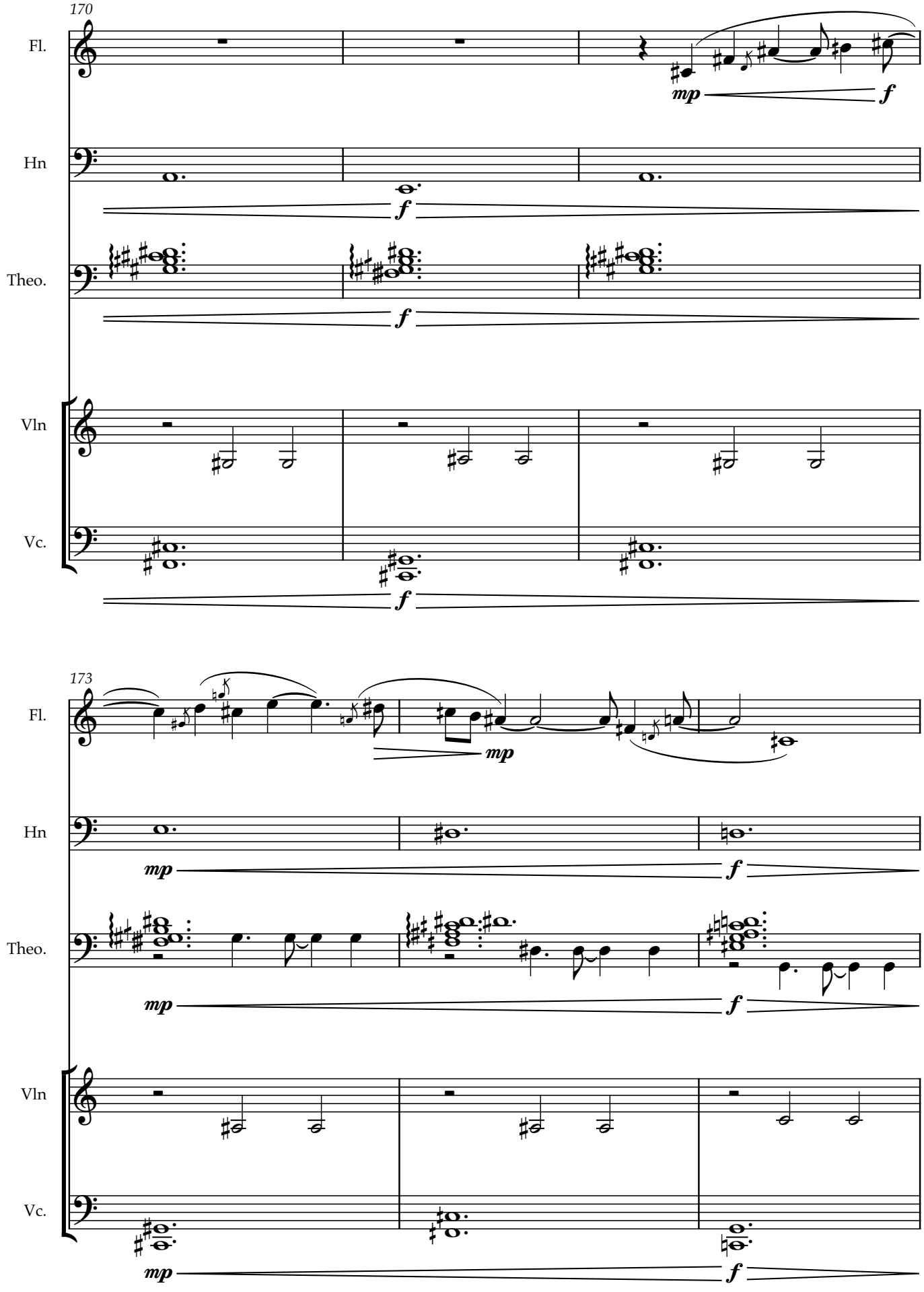

141
Fl.
Hn
Theo.
Vln
Vc.
mp
mf
p
non arp.
non arp.

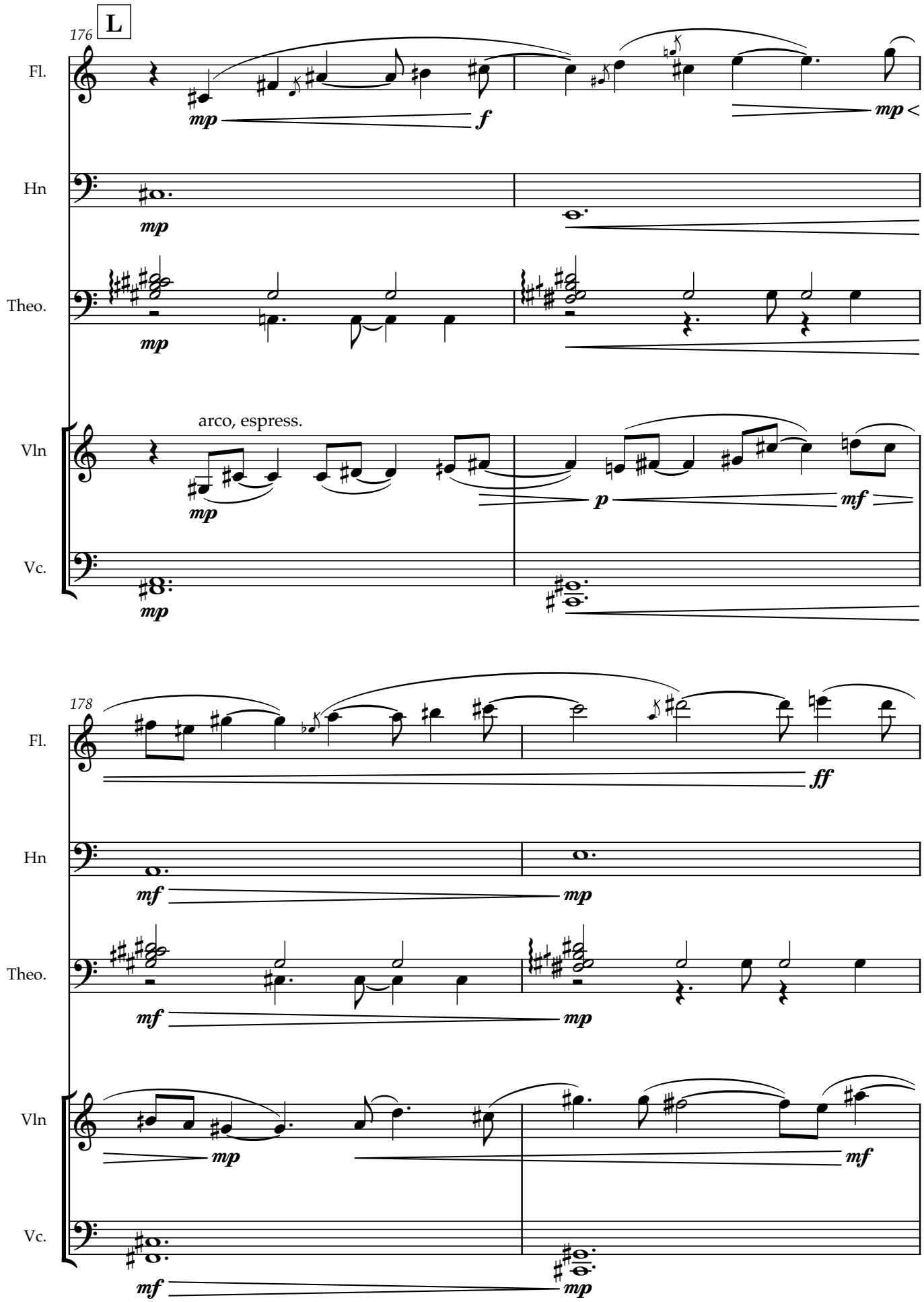

144
I Poco meno mosso (𝅗𝅥 = c. 60)
Fl.
Hn
Theo.
Vln
Vc.
sul tasto
sul tasto
149
nat.

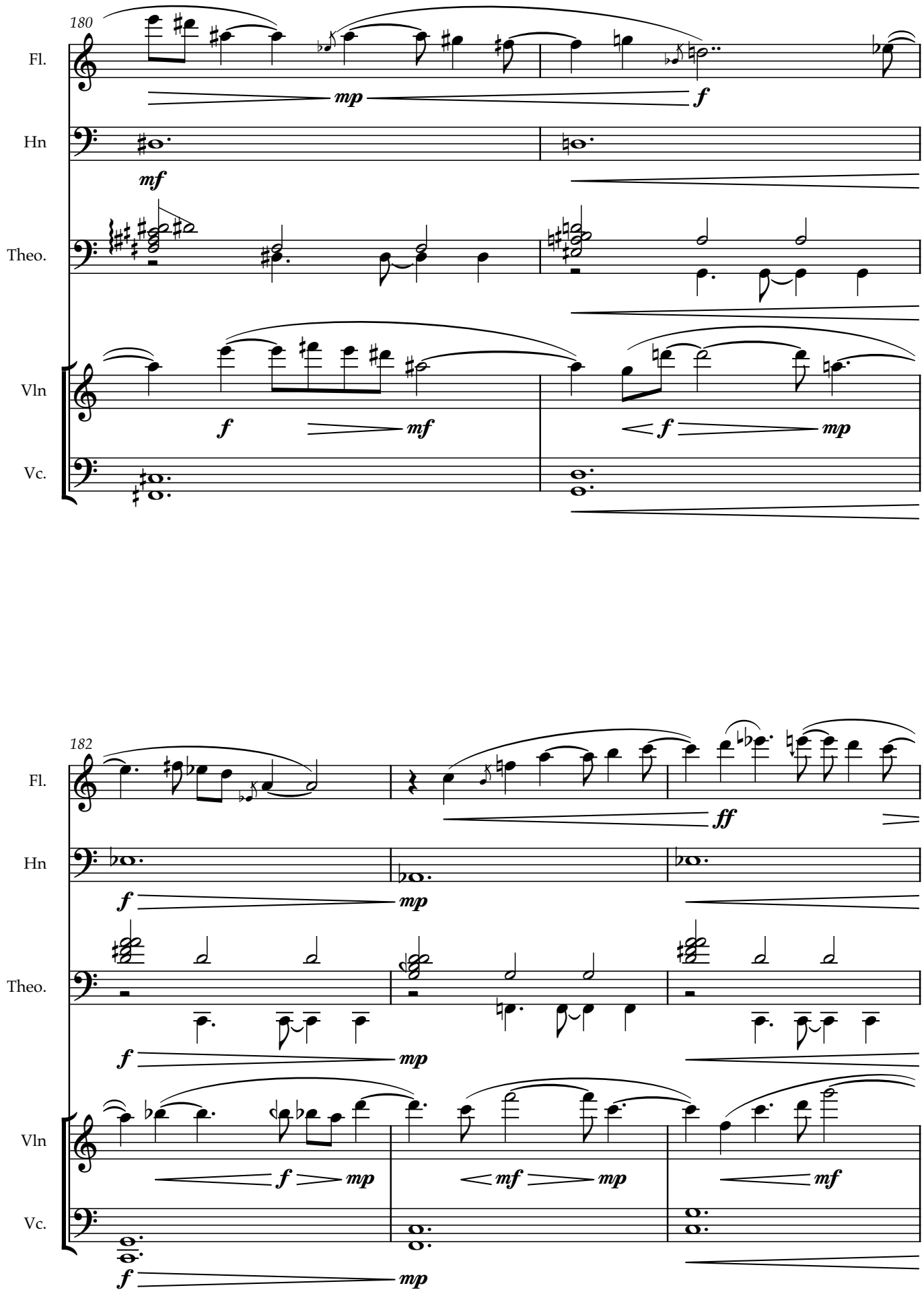

J
154
Fl.
Hn
Theo.
Vln
Vc.
mp
with freedom
mf
5
nat.
156
f
mf

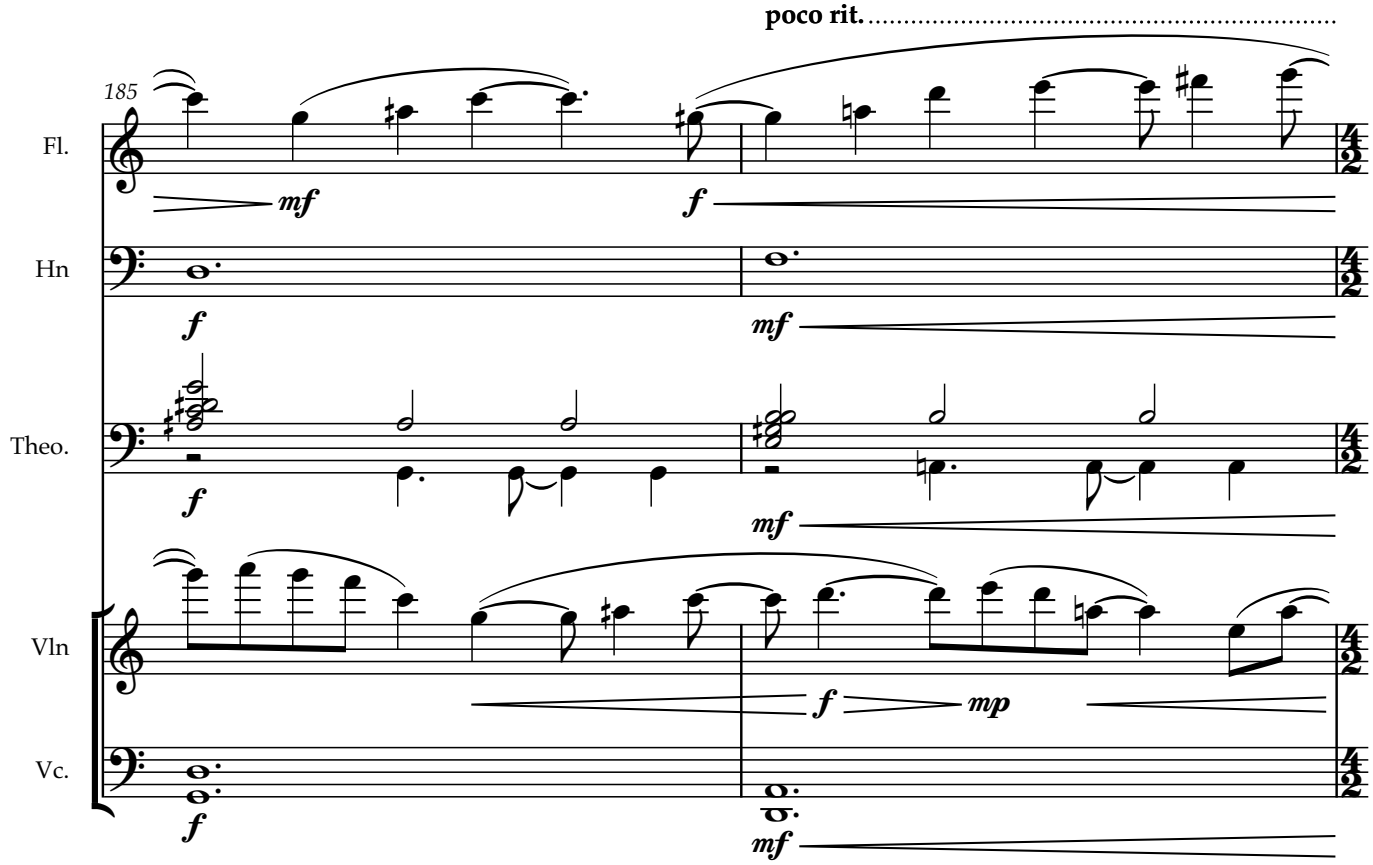

158
Fl.
Hn
Theo.
Vln
Vc.
161
Fl.
Hn
Theo.
Vln
Vc.

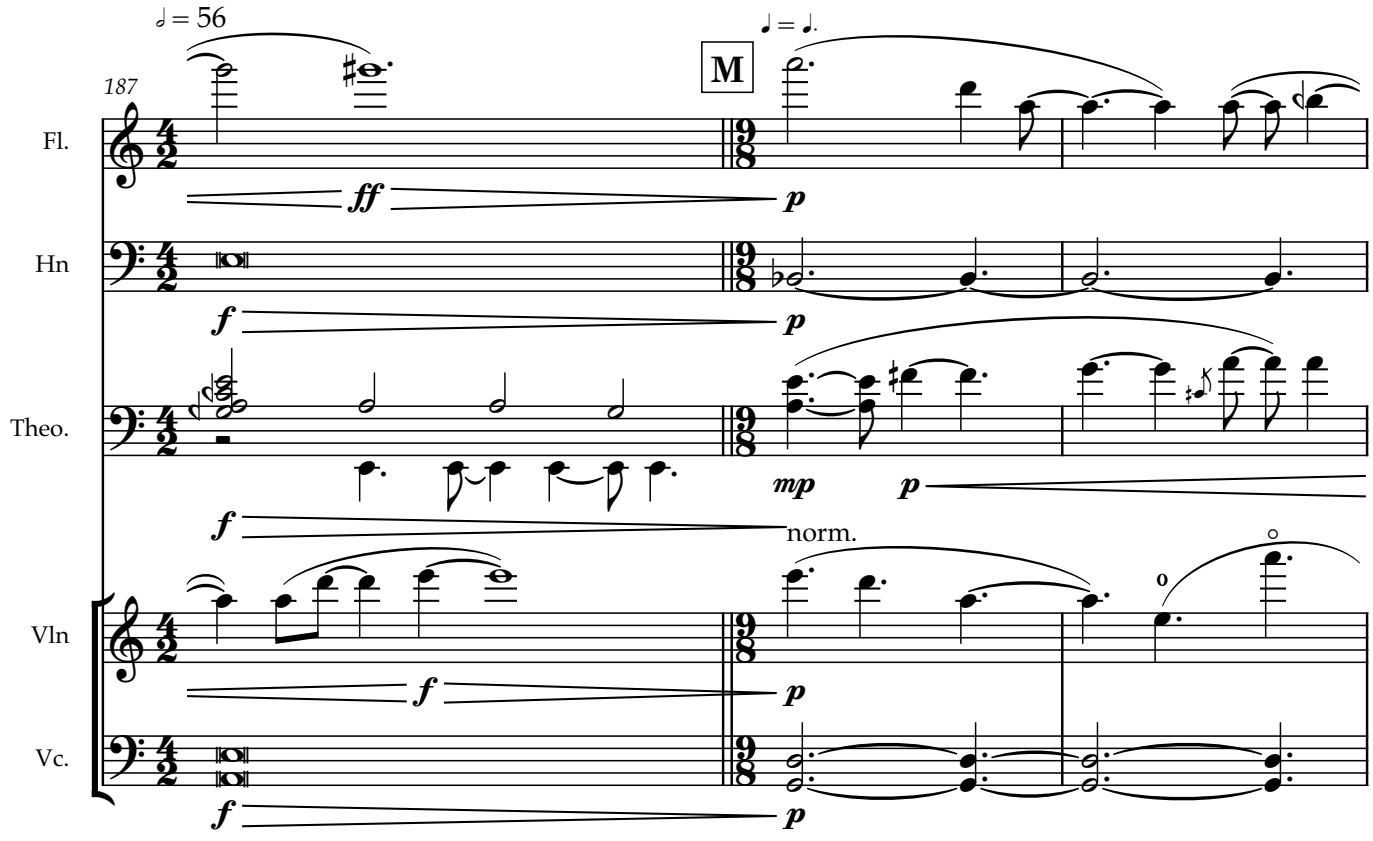

163
K
Fl.
Hn
Theo.
Vln
Vc.
f
mf
mp
166
pizz.
f sempre

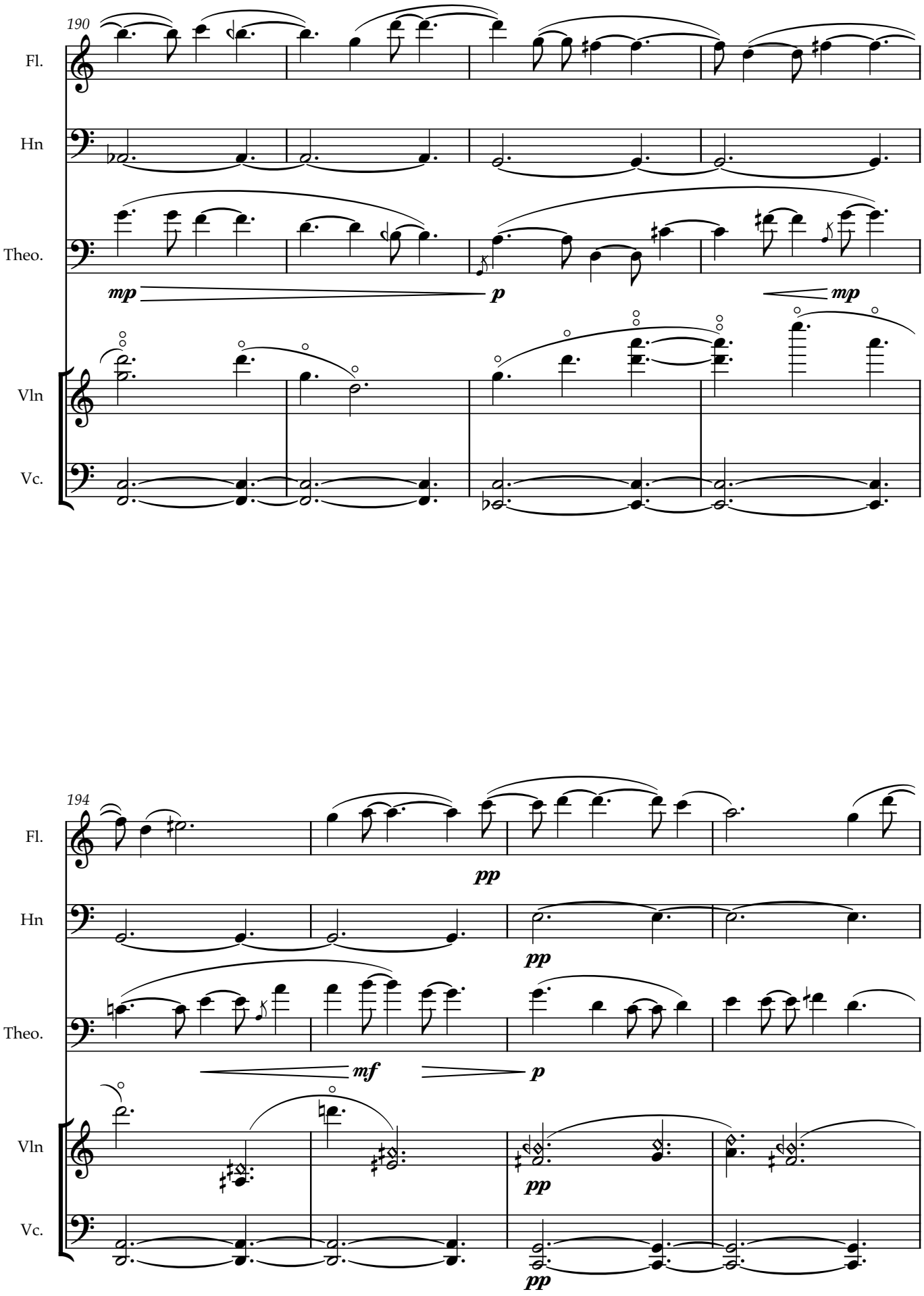

170
Fl.
Hn
Theo.
Vln
Vc.
mp
f
173
Fl.
Hn
Theo.
Vln
Vc.
mp
f

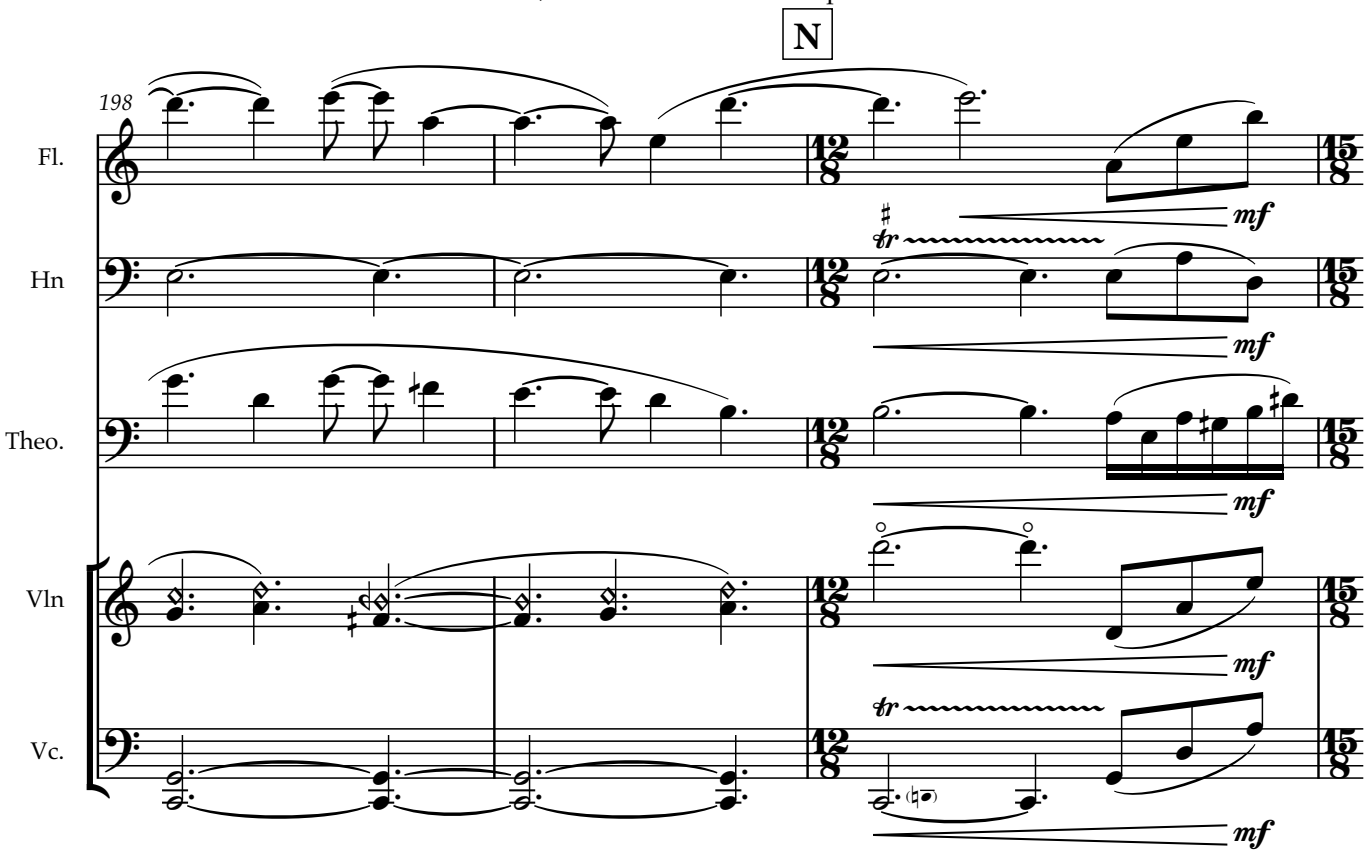

176
L
Fl.
Hn
Theo.
Vln
Vc.
arco, espress.
178
Fl.
Hn
Theo.
Vln
Vc.

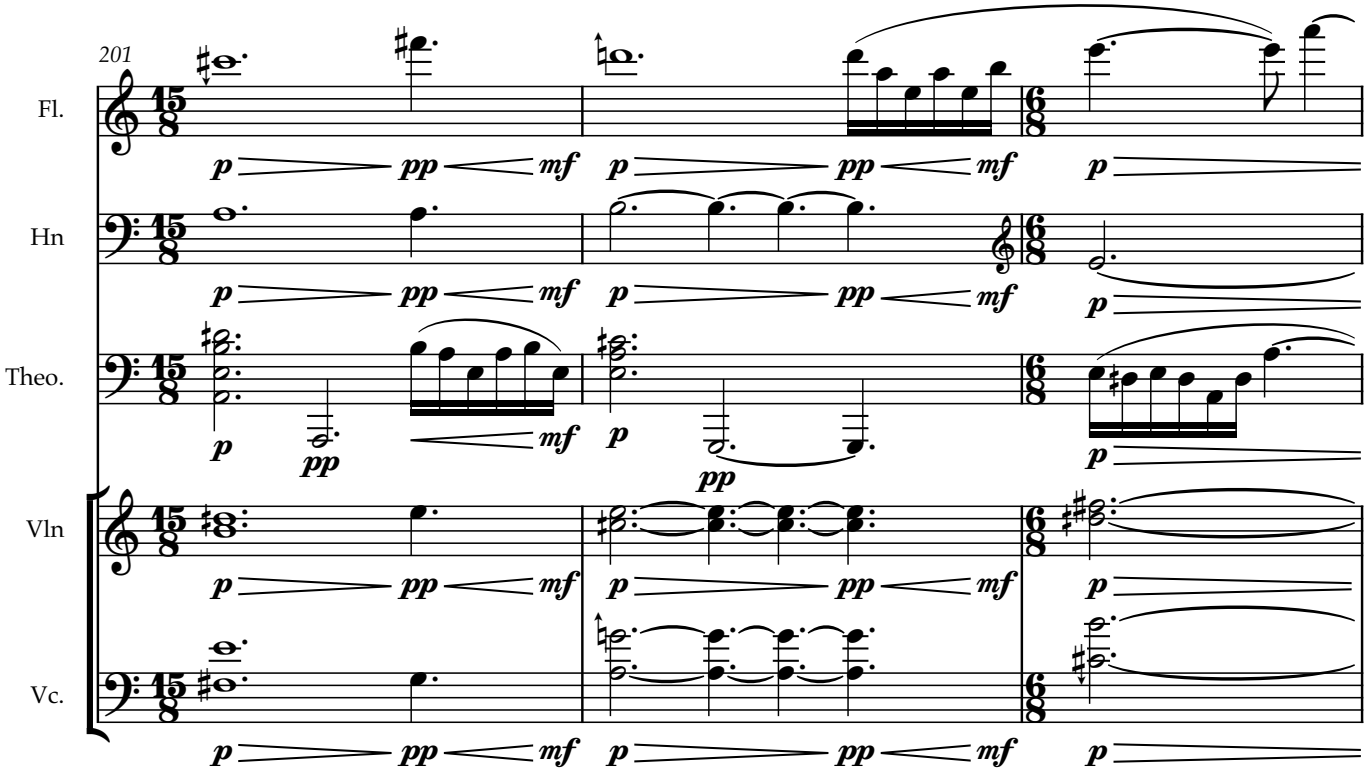

180
Fl.
Hn
Theo.
Vln
Vc.
mp
f
mf
f
mf
f
mp
182
Fl.
Hn
Theo.
Vln
Vc.
ff
f
mp
f
mp
f
mp
mf
mp
mf
f
mp

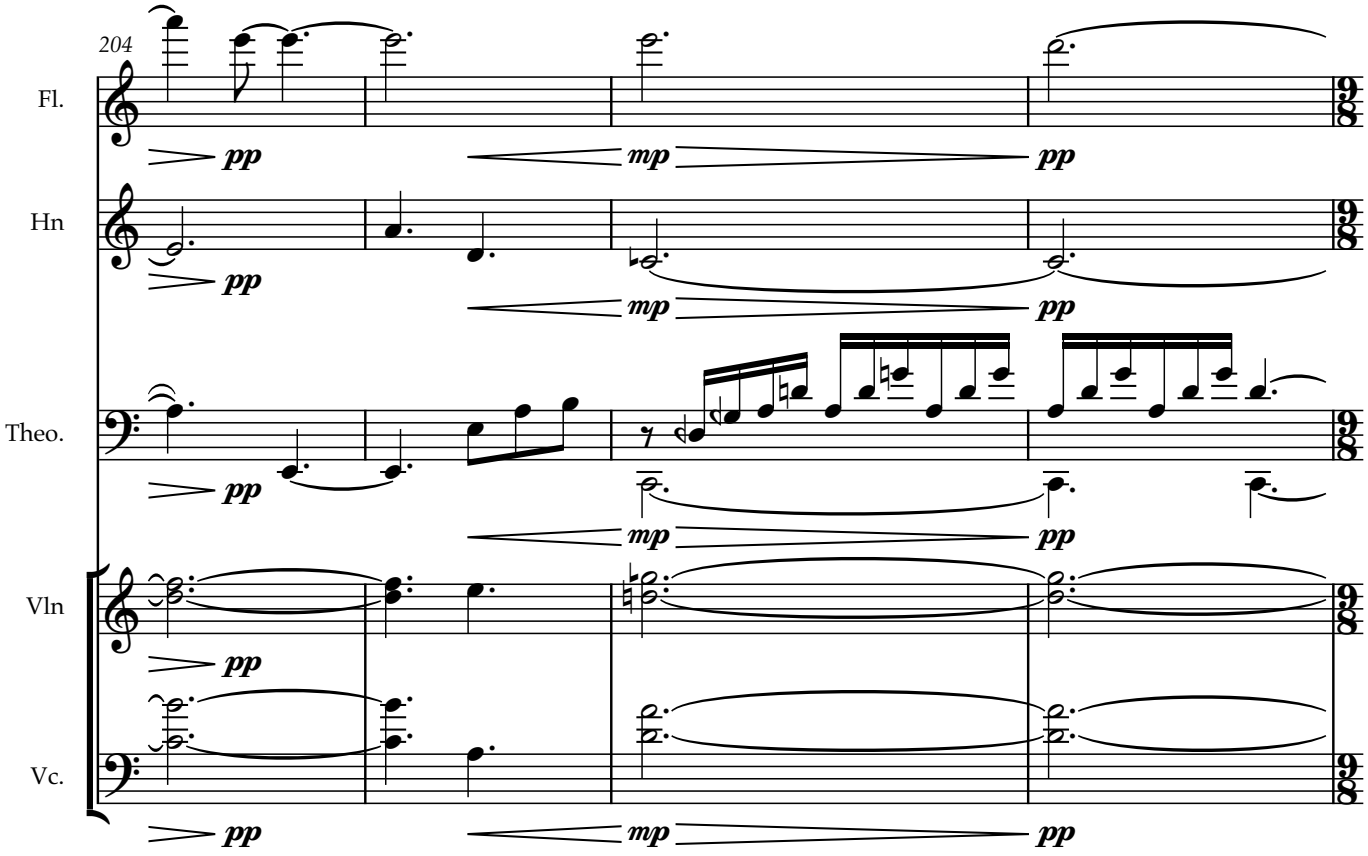

poco rit.
185
Fl.
Hn
Theo.
Vln
Vc.
mf
f
mp

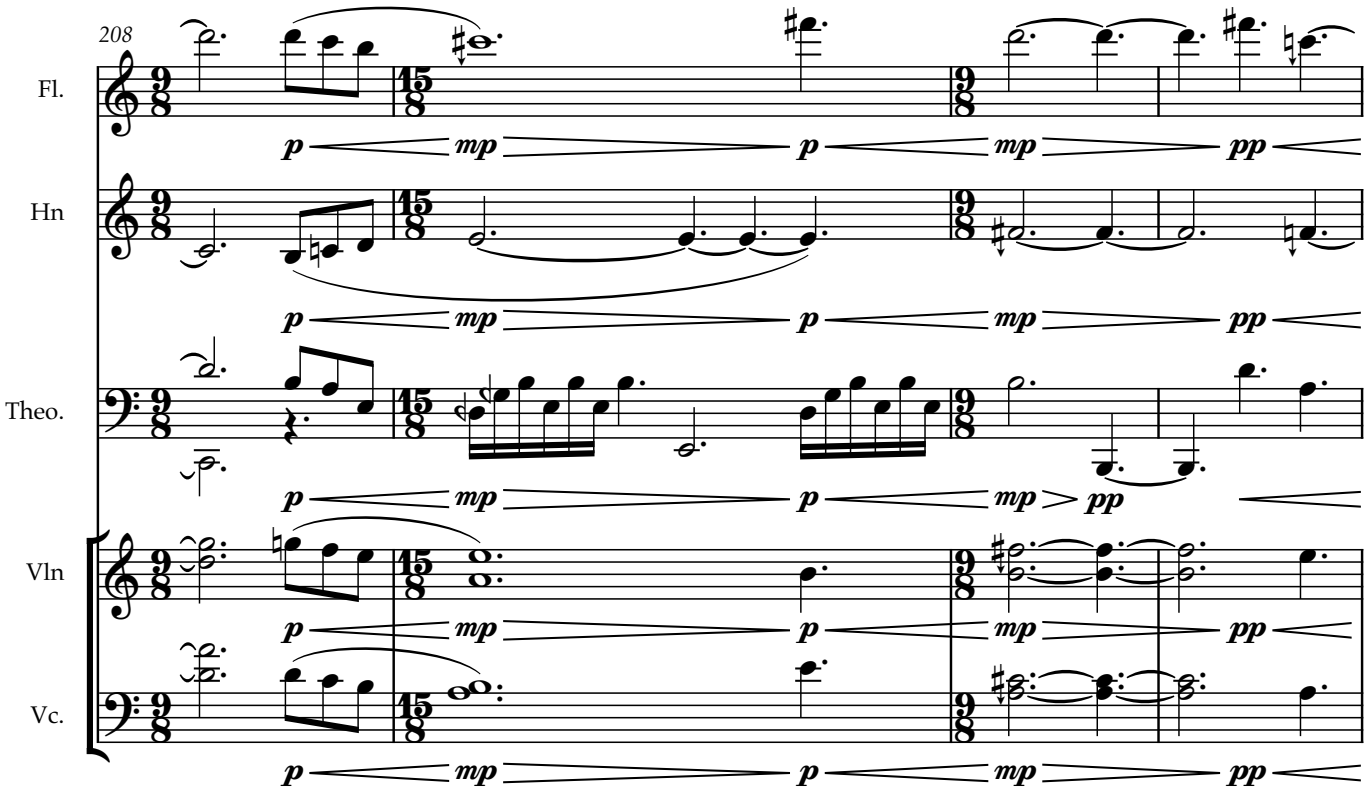

♩ = 56
♩ = ♩.
187
M
Fl.
Hn
Theo.
Vln
Vc.
ff
f
p
mp
norm.

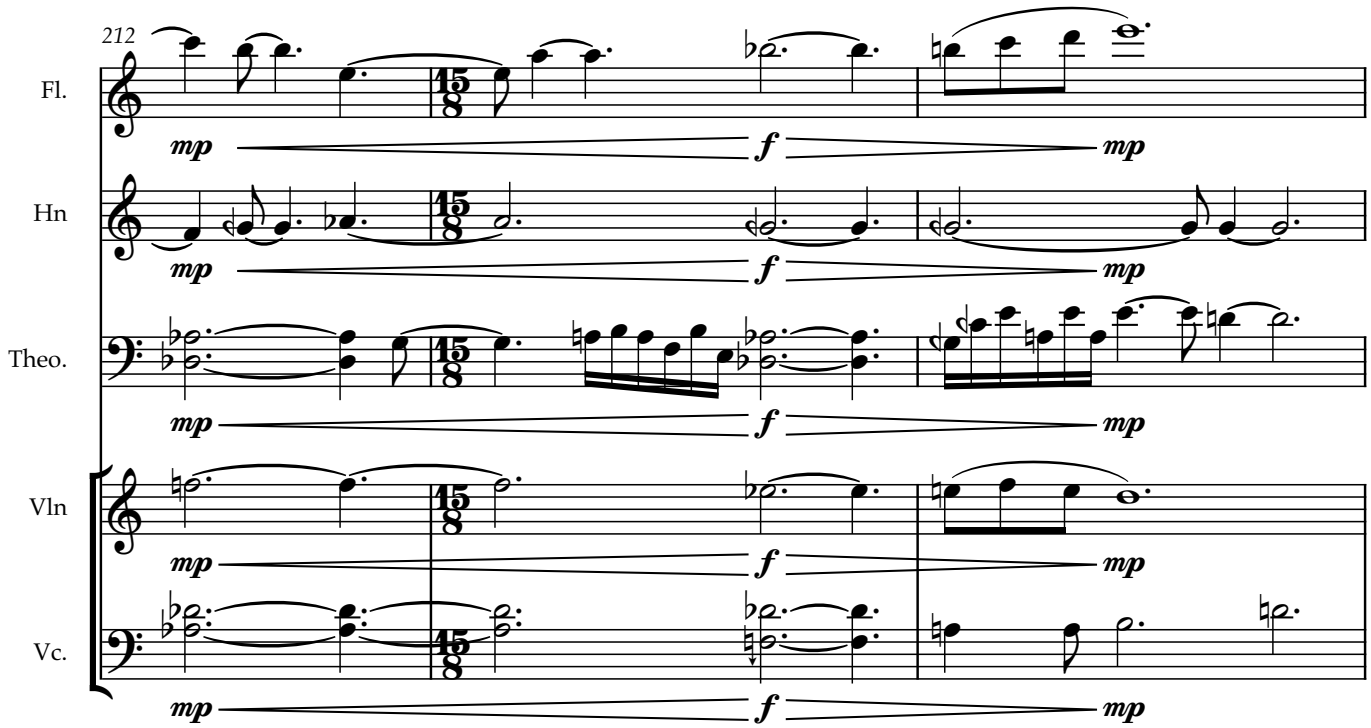

190
Fl.
Hn
Theo.
mp
p
mp
Vln
Vc.
194
Fl.
pp
Hn
pp
Theo.
mf
p
Vln
pp
Vc.
pp

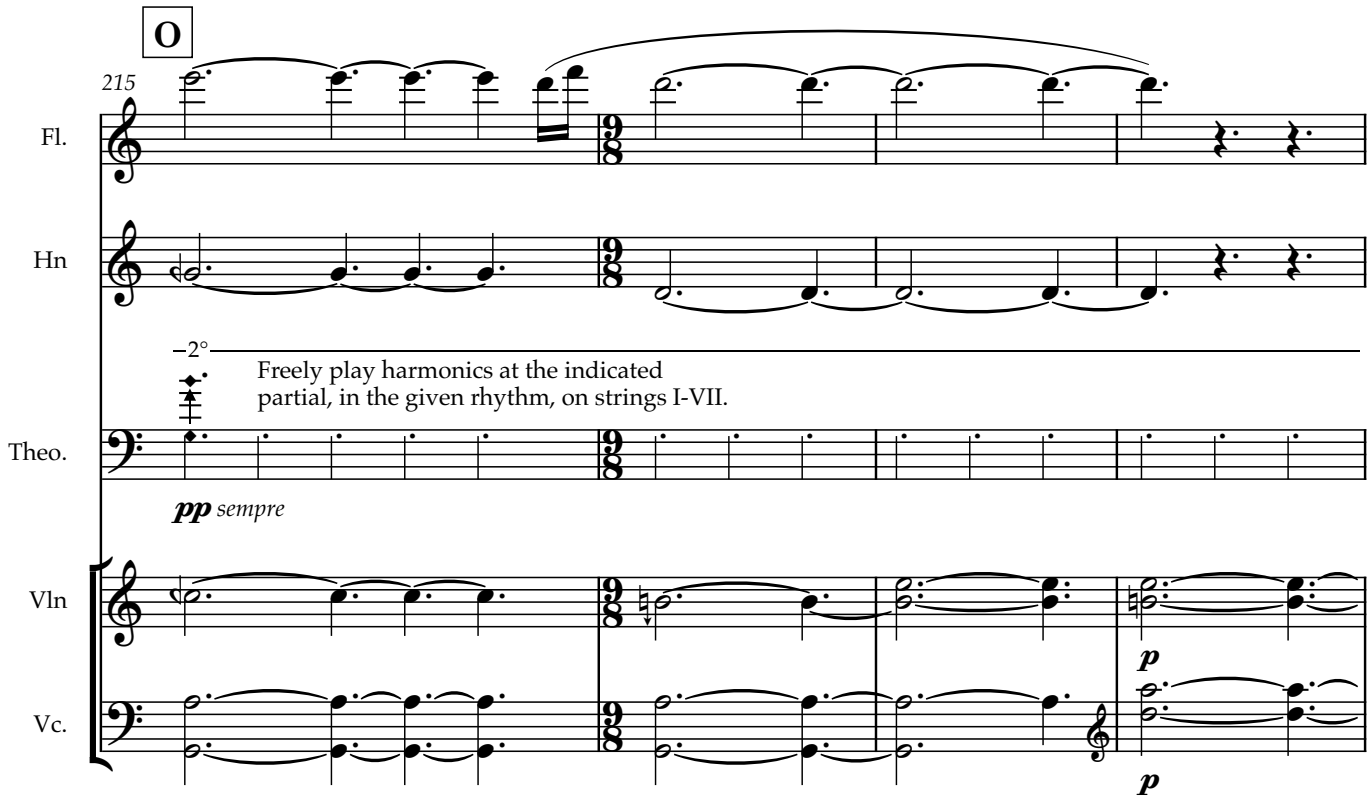

N
198
Fl.
Hn
Theo.
Vln
Vc.
mf
tr

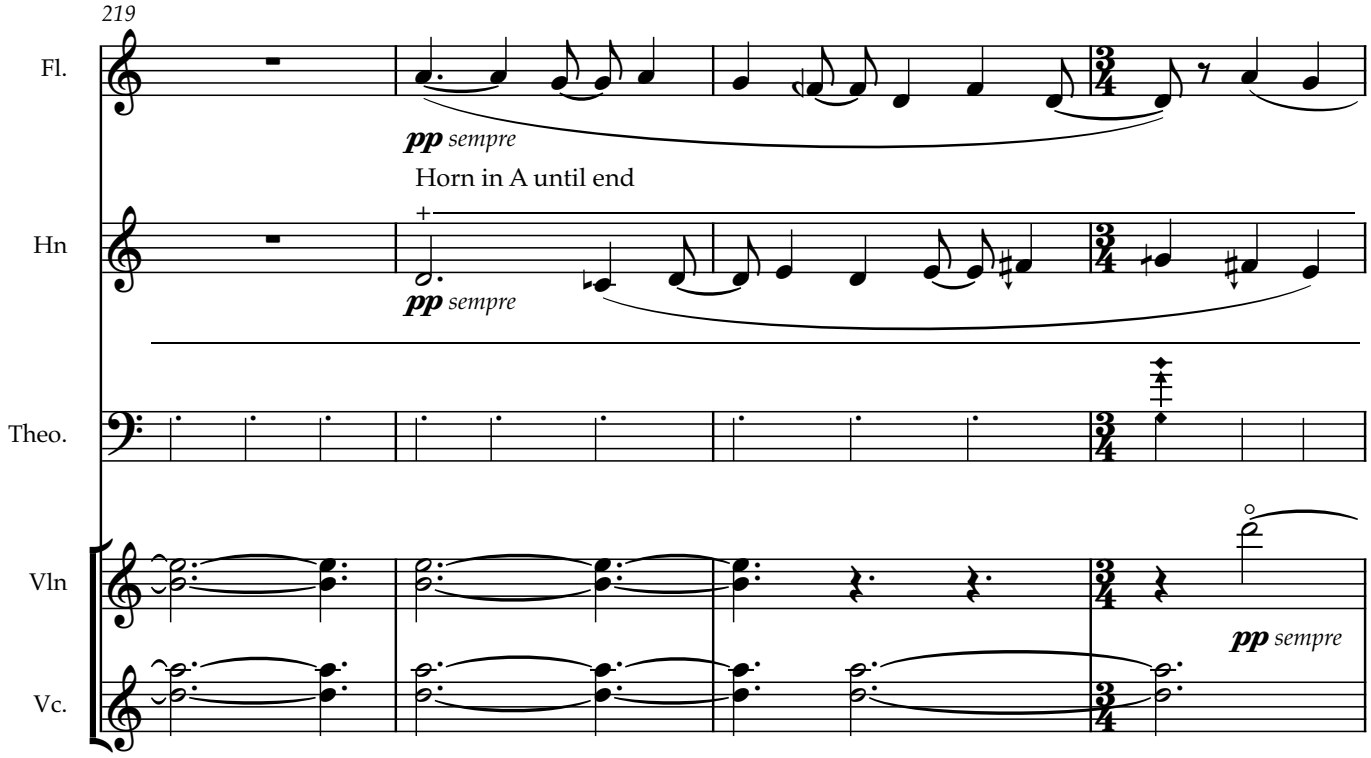

201
Fl.
Hn
Theo.
Vln
Vc.
p
pp
mf

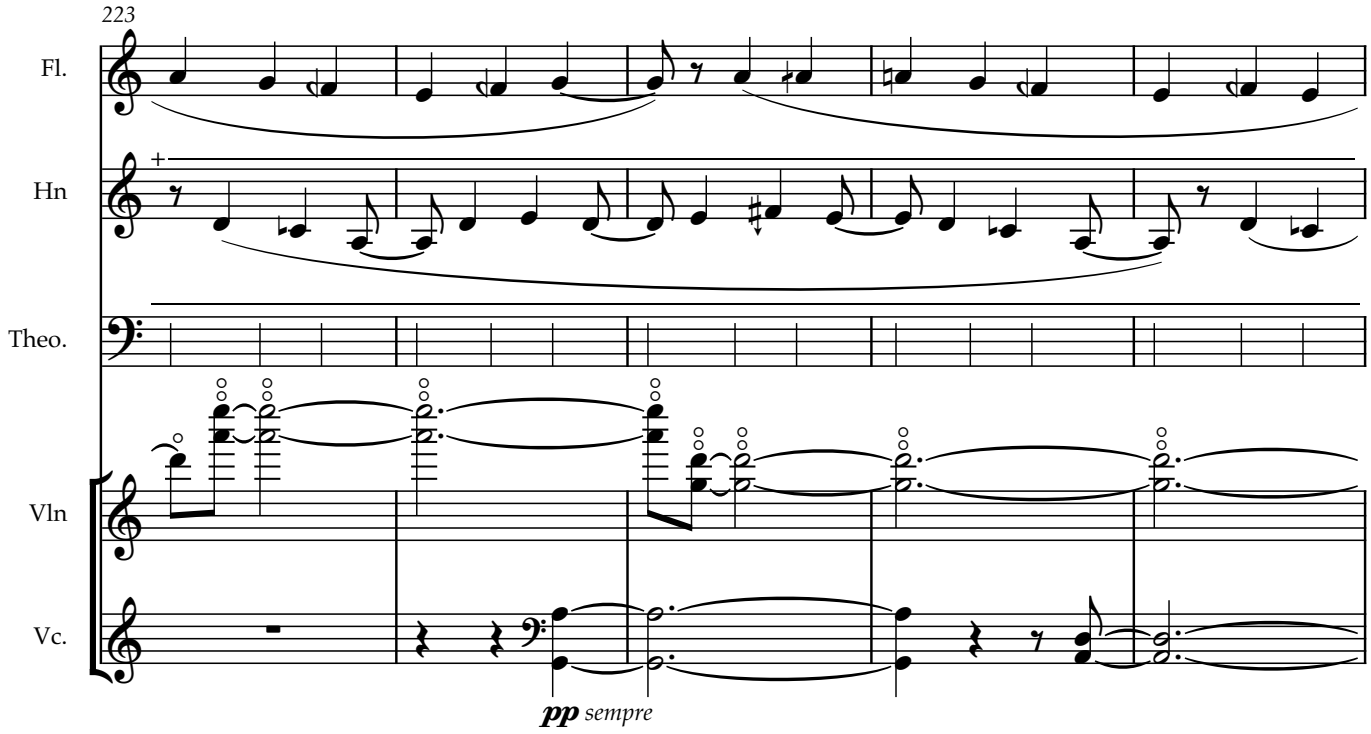

204
Fl.
Hn
Theo.
Vln
Vc.
pp
mp
pp

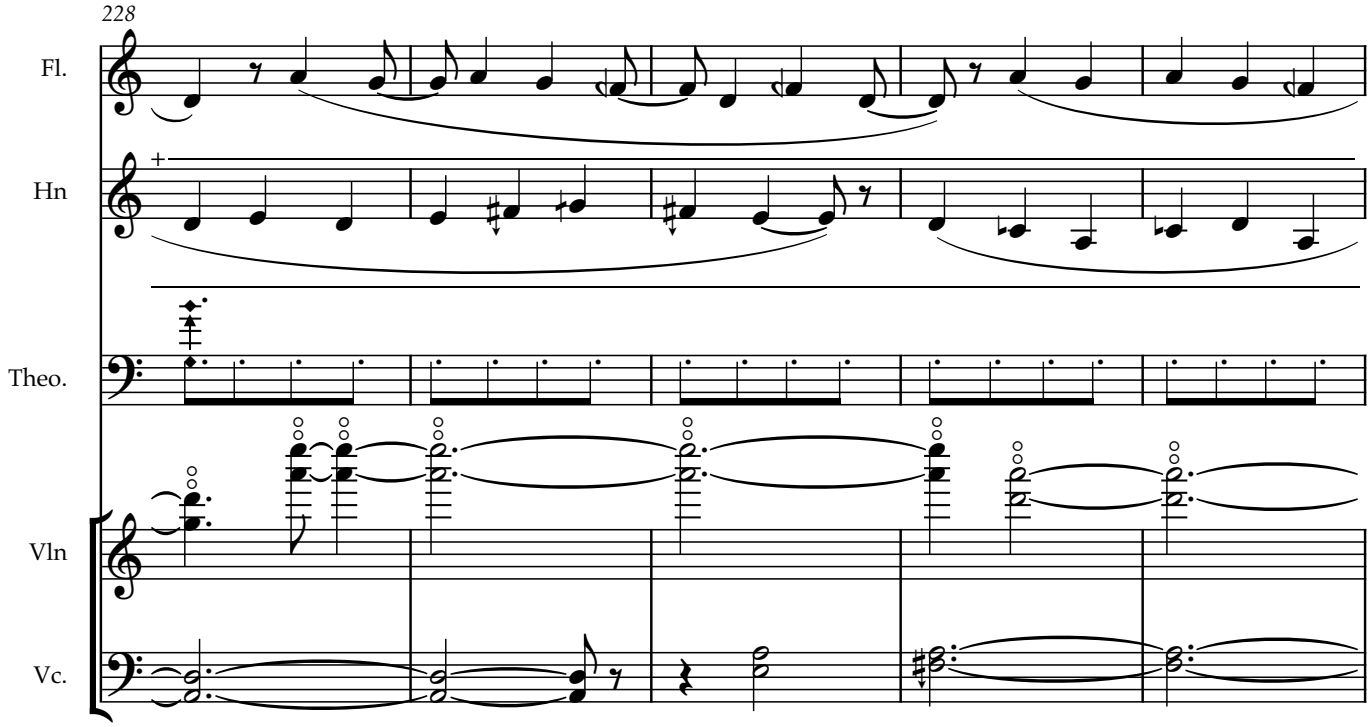

208
Fl.
Hn
Theo.
Vln
Vc.
p
mp
p
mp
pp

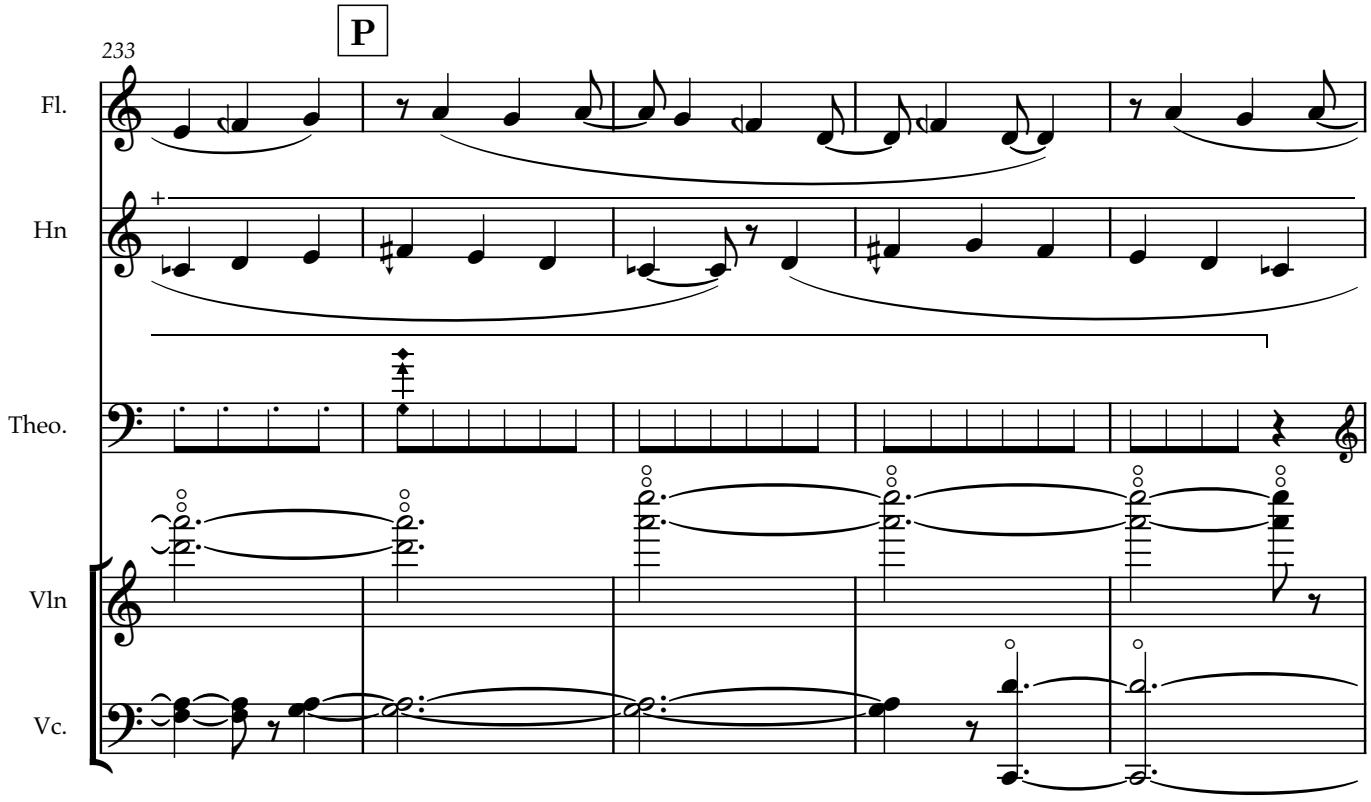

212
Fl.
Hn
Theo.
Vln
Vc.
mp
f
mp

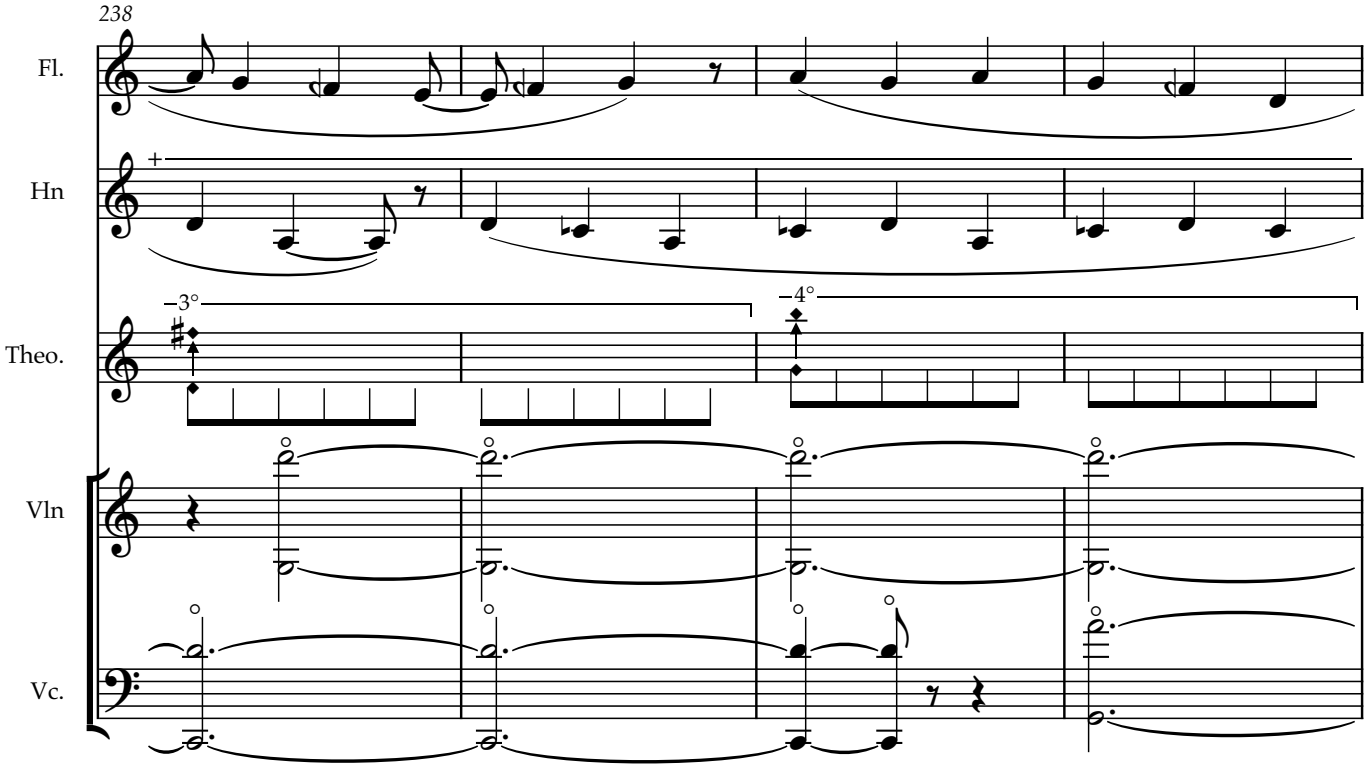

O
215
Fl.
Hn
−2°
Freely play harmonics at the indicated
partial, in the given rhythm, on strings I-VII.
Theo.
pp sempre
Vln
Vc.
p
p

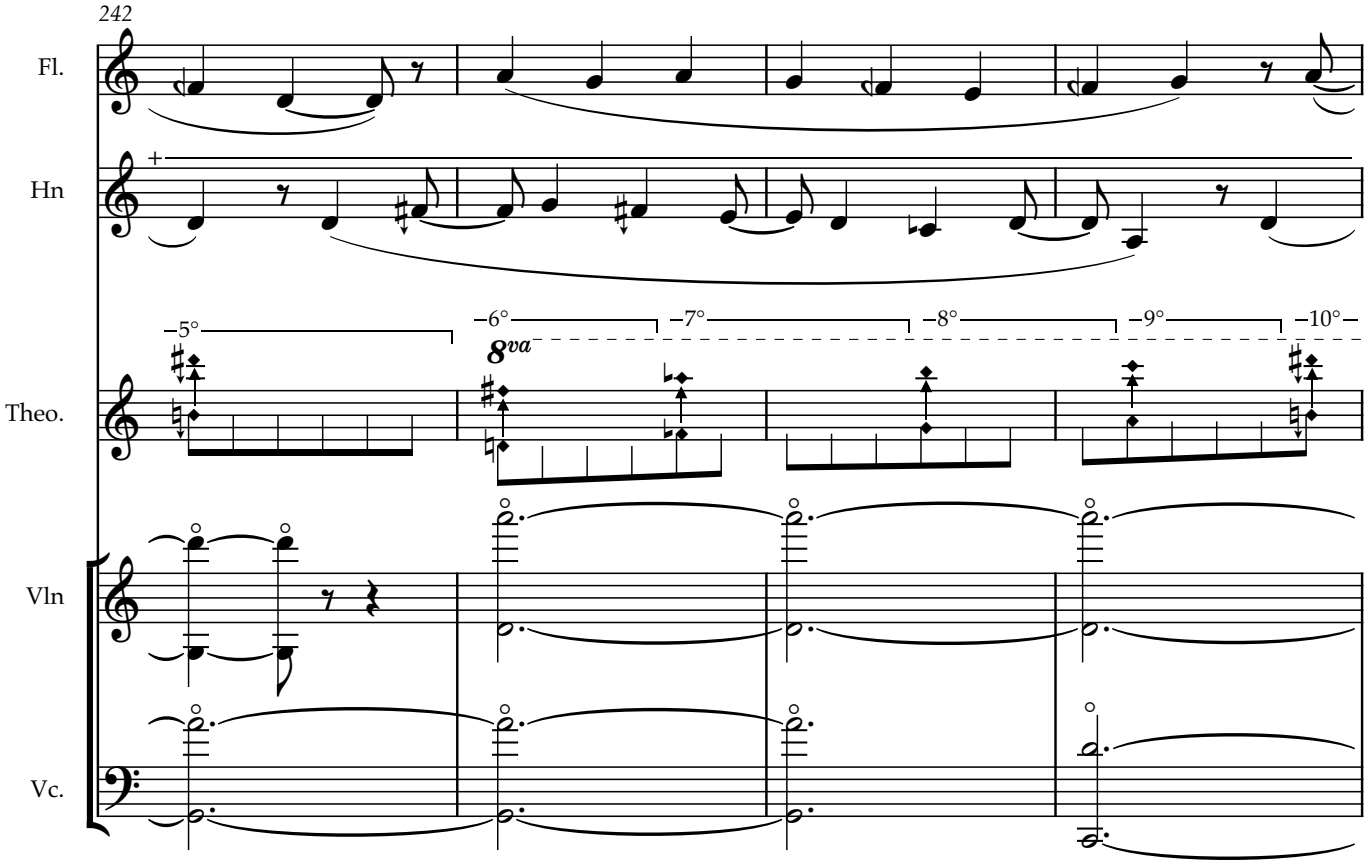

219
Fl.
pp sempre
Horn in A until end
Hn
pp sempre
Theo.
Vln
pp sempre
Vc.

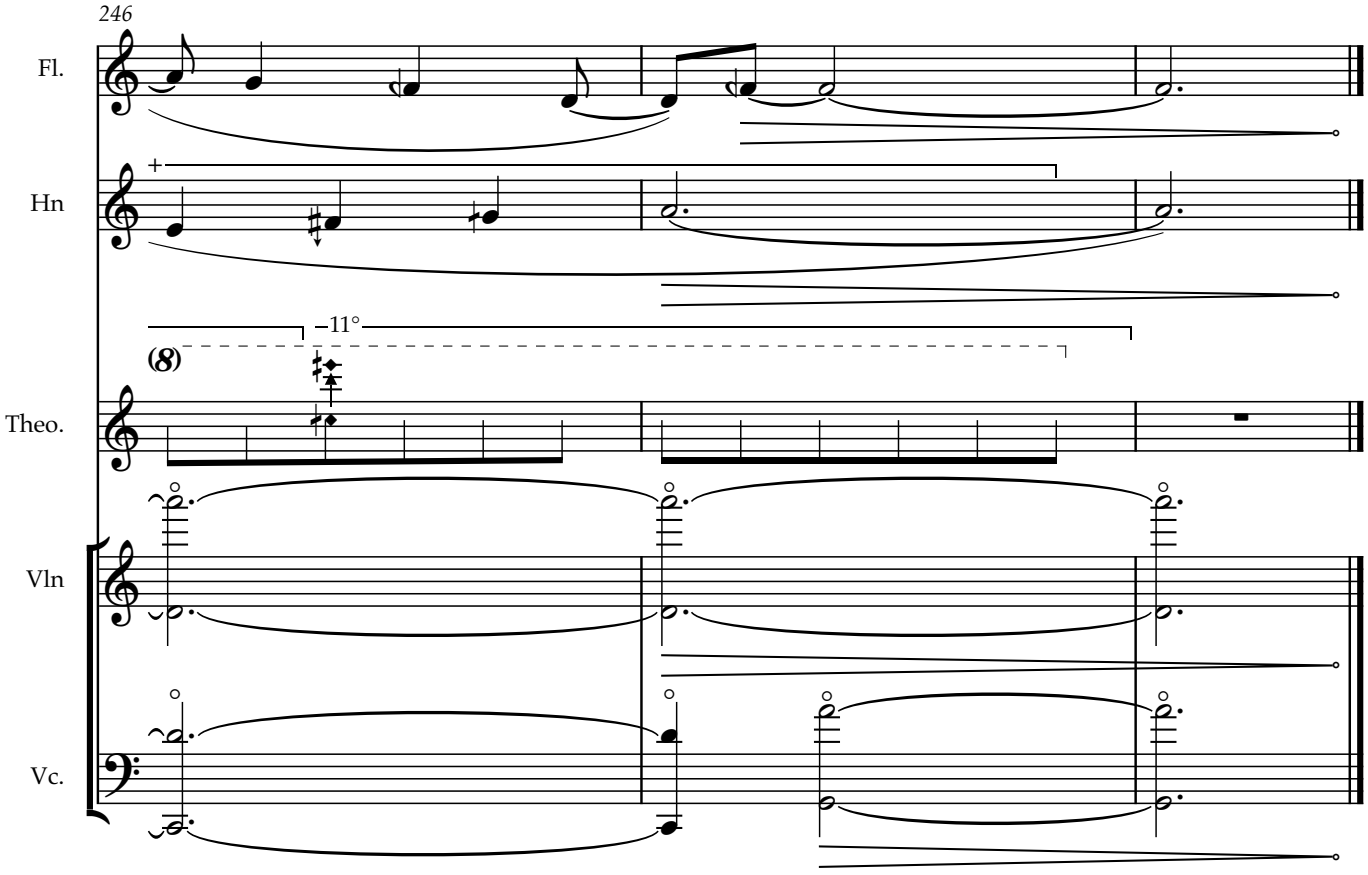

223
Fl.
Hn
Theo.
Vln
Vc.
pp sempre


228
Fl.
Hn
Theo.
Vln
Vc.


P
233
Fl.
Hn
Theo.
Vln
Vc.


238
Fl.
Hn
Theo.
Vln
Vc.
–3°
–4°


242
Fl.
Hn
Theo.
Vln
Vc.
–5°
–6°
–7°
–8°
–9°
–10°
8va


246
Fl.
Hn
+
–11°
(8)
Theo.
Vln
Vc.