Waves of Refraction

for guitar and tape

by
Jon Christopher Nelson

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Waves of Refraction (1992) for guitar and tape creates aural illusions which are analogous to the visual illusions of light waves refracted through water. Just as an object submerged in water appears slightly warped and unstable, the guitar refracted by the computer-generated tape sounds altered and mutable. At the beginning of the composition, the tape accurately replicates the guitar sounds. However, the tape quickly undergoes a metamorphosis, becoming more unusual and exploratory as the composition unfolds. The guitar also presents material that changes from nervous and disjunct figuration to more lyric lines. *Waves of Refraction* was commissioned by Carlos Molina, to whom the composition is dedicated. The computer-generated tape was produced in the Florida International University Electronic Music Studio.

Notes for the performer:

Chromatic alterations apply throughout the measure.

The guitar part may be played with a certain amount of liberty. The fermatas and pauses are included to provide the performer with moments to wait for the tape cues (if waiting is necessary). In addition to the exceedingly fast finale and the percussive guitar punctuations throughout the score, there are five different musical styles juxtaposed in this work. These playing styles are marked with rehearsal markings A, B, C, D, and E. Although specific rhythms have been notated within the tempi provided in the score, it may be easier to simply have a rough idea of tempo for each of these styles. The music within the A sections should be fast and the rhythms should be played as accurately as possible. The B sections are slow, introspective sections which usually occur as cadences or cadential extensions. The most lyric sections are played at a moderato tempo and are designated by the rehearsal letter C. Music at any rehearsal letter D should be played as a leggiero arpeggiation at an allegretto tempo. Rehearsal letter E represents a cross between letters C and Din that it should be lyric and tuneful, yet arpeggiated and a little faster than C.

The notation for the tape portion only includes significant cues and entrances. The tape part has been omitted from the score in measures 156-238 and the performer is asked to simply play as fast as possible throughout this section. Upon completing this section, the performer is asked to continue playing in this wild and erratic fashion until the tape cue in m. 240. The performer may take some time getting used to the cues and should feel free to adjust their tempi in response to the cues.

A thick horizontal beam with two thin vertical beams on the right side indicates the moment when the tape part rests.

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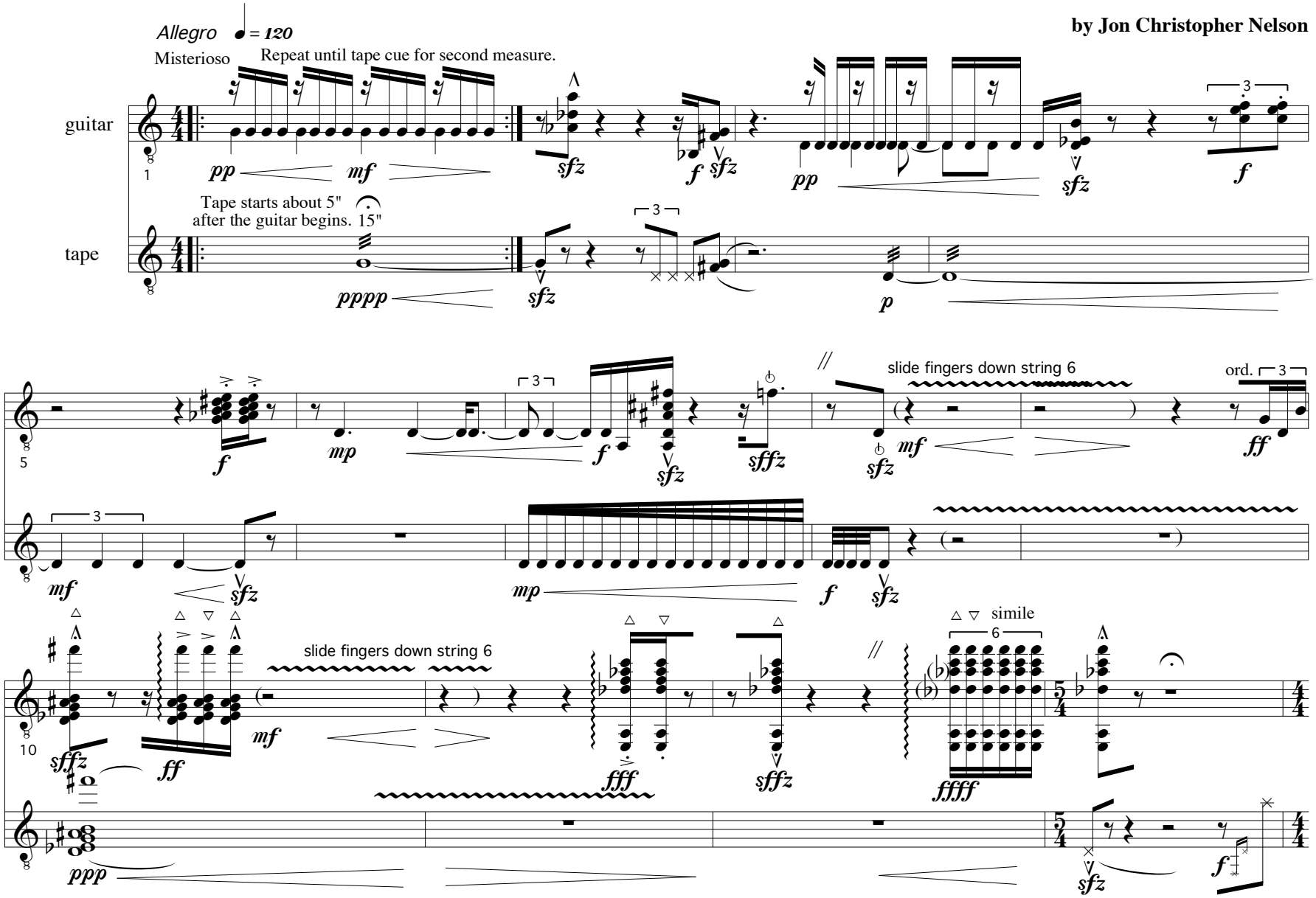
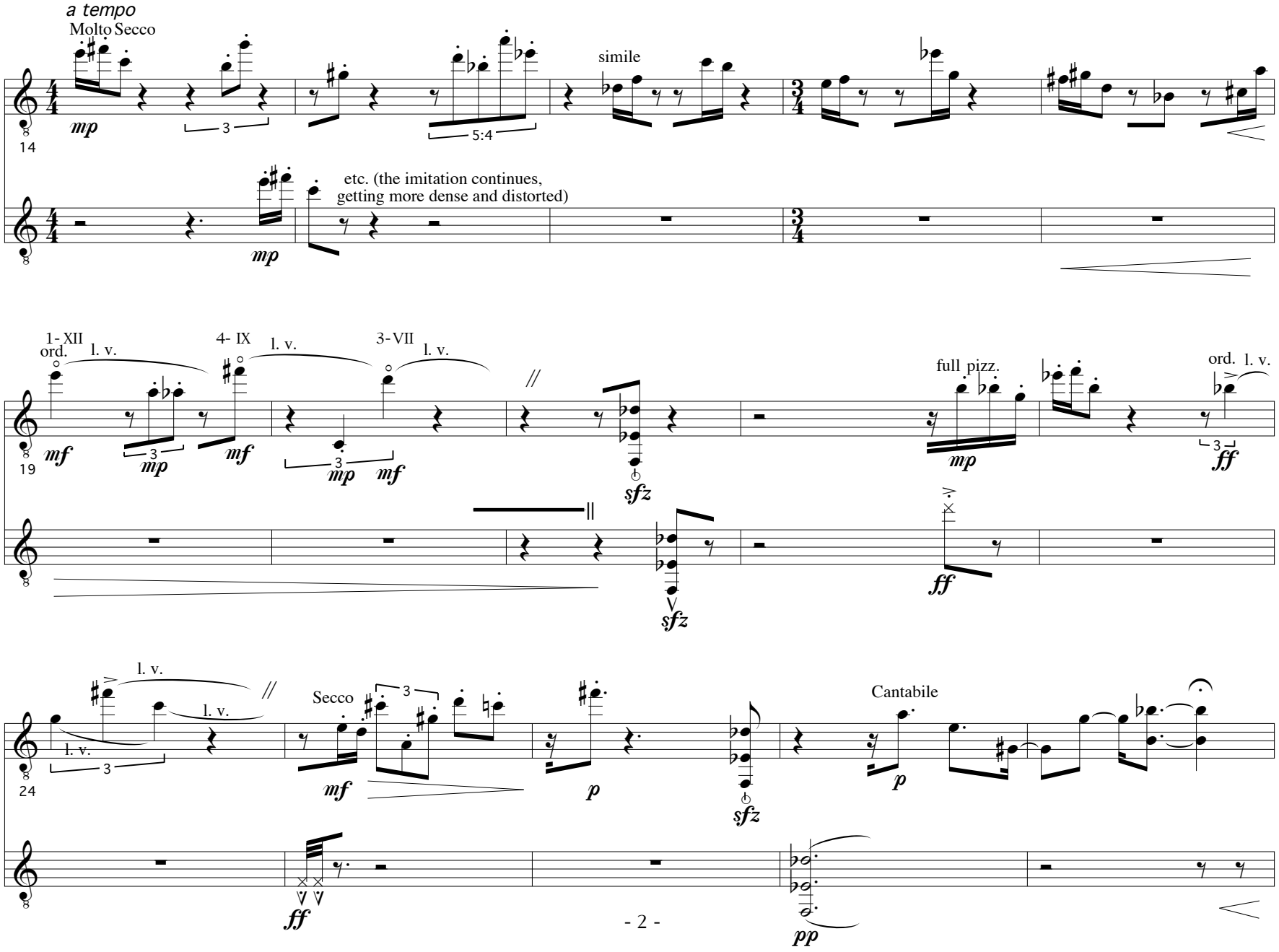
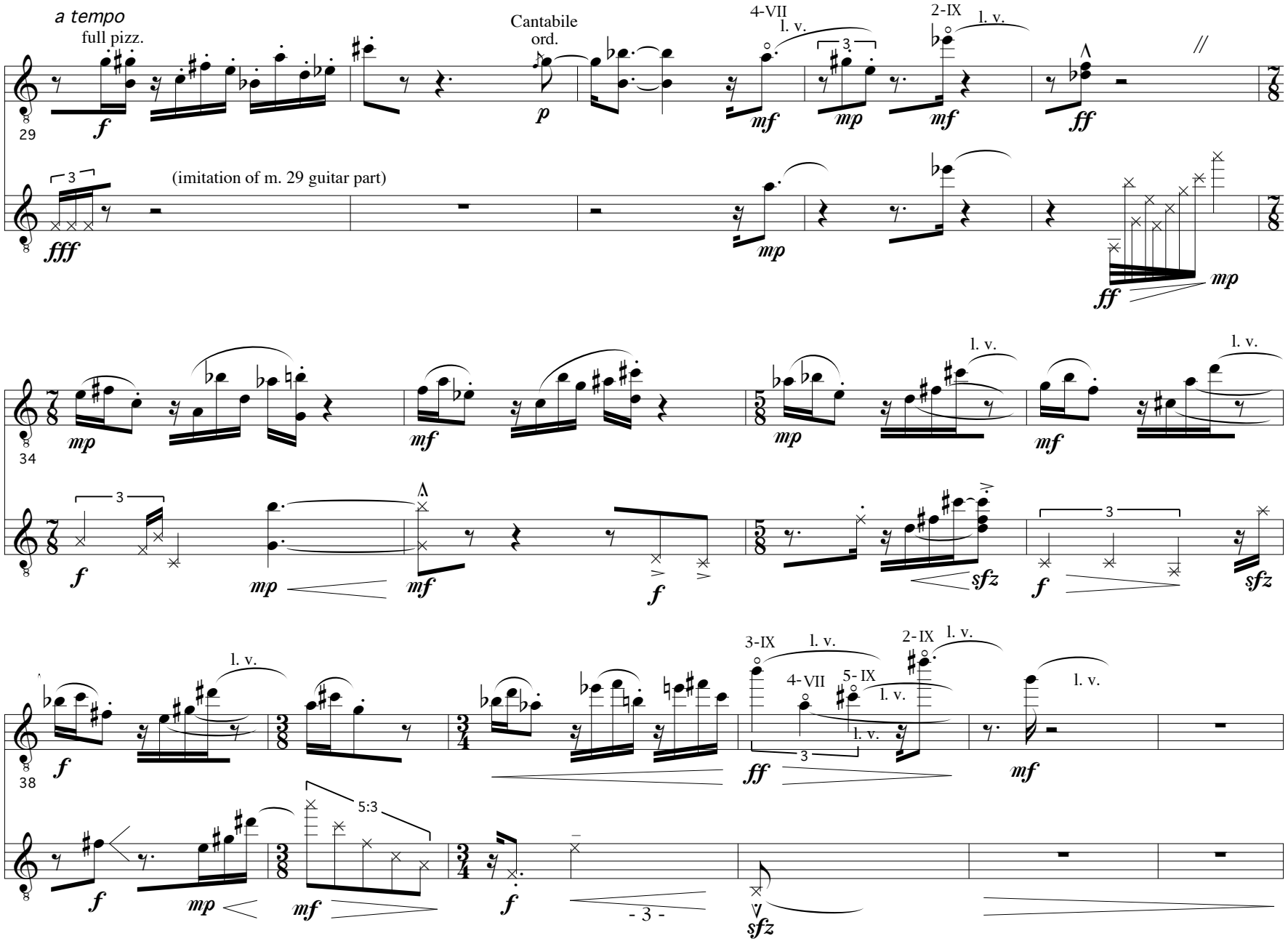
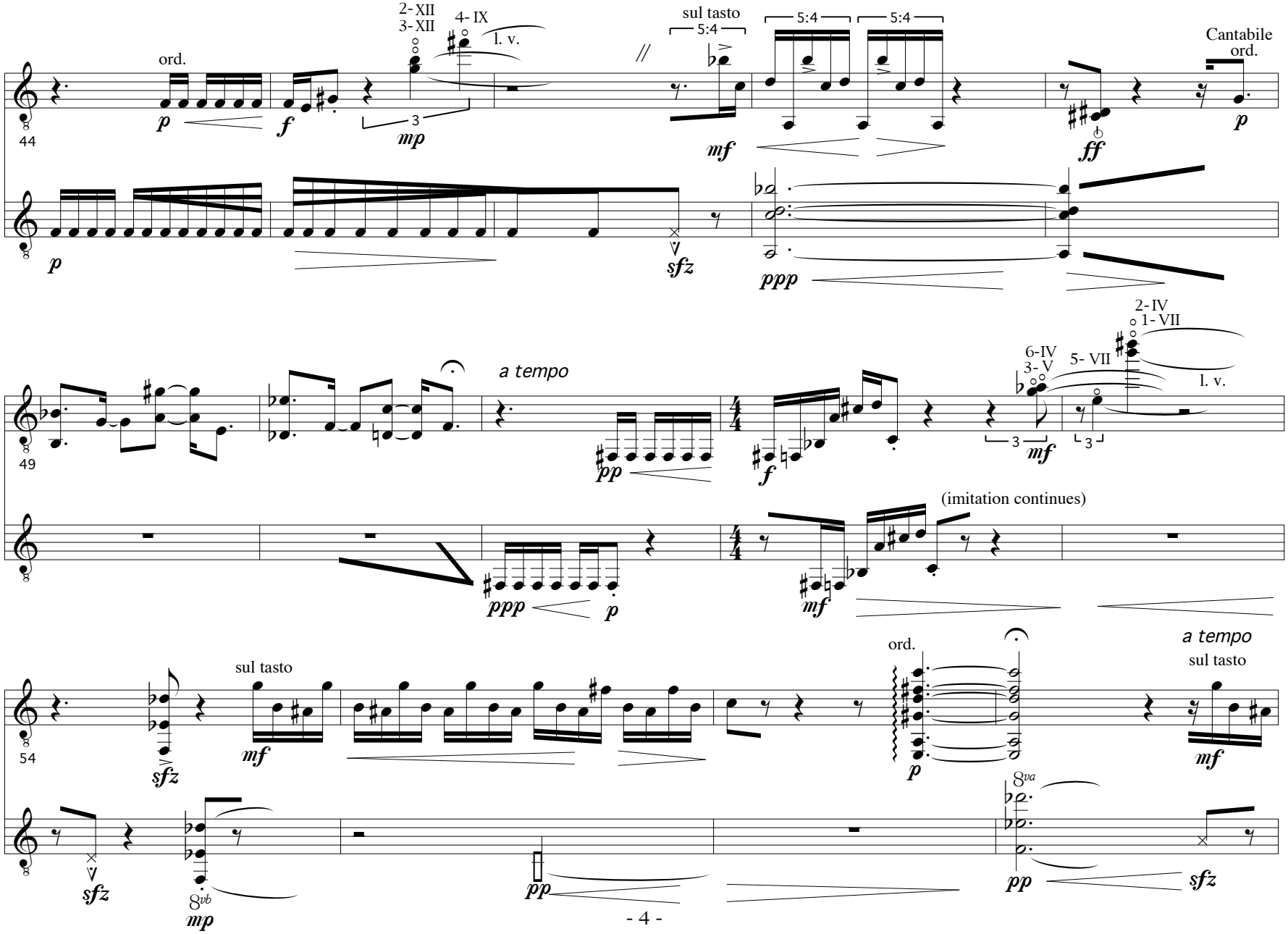
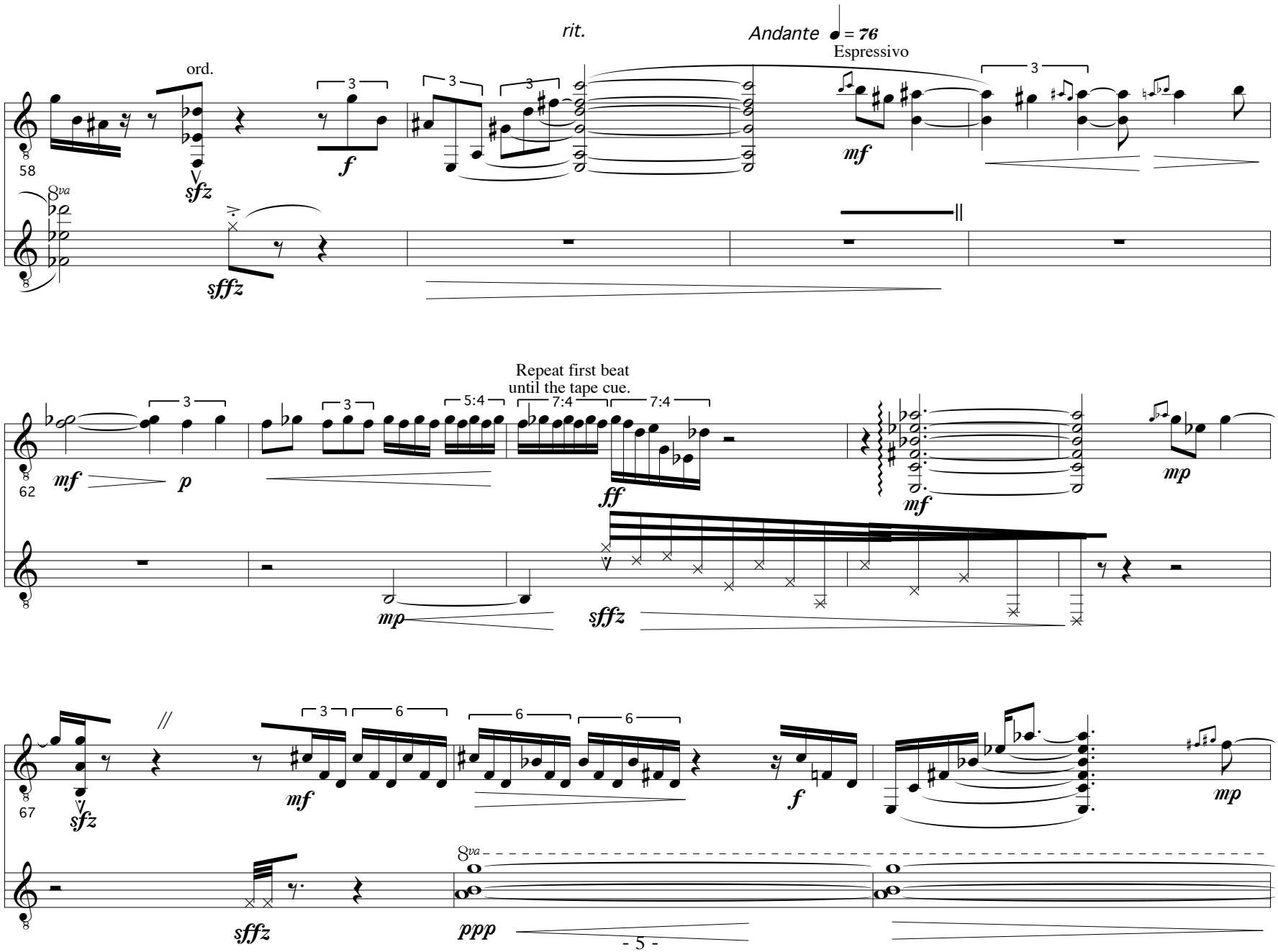
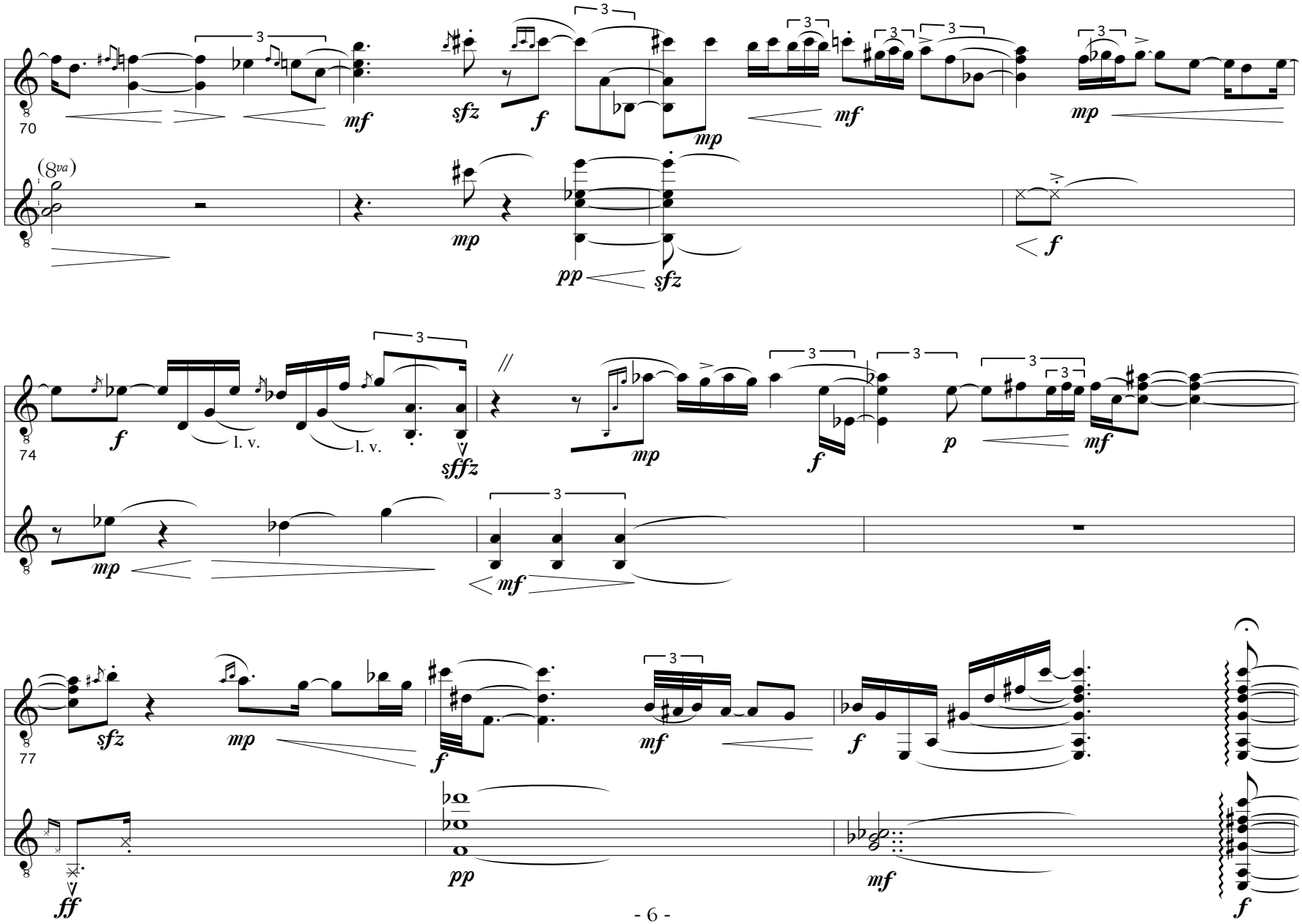


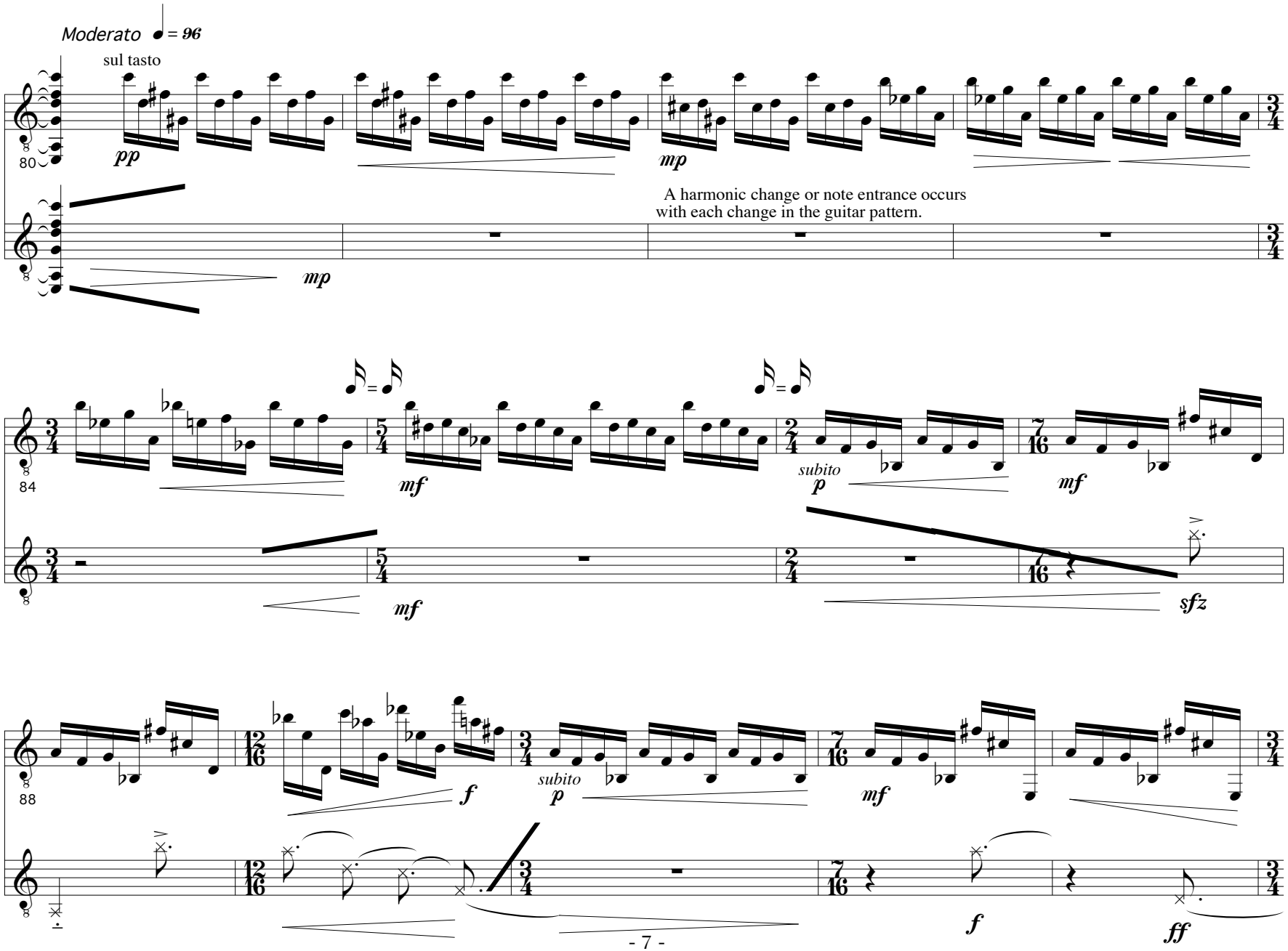

a tempo
Molto Secco
mp
14
3
5:4
simile
etc. (the imitation continues,
getting more dense and distorted)
mp
1- XII
ord.
l. v.
4- IX
l. v.
3- VII
l. v.
mf
19
mp
mf
mp
mf
sfz
full pizz.
mp
ord. l. v.
ff
sfz
ff
l. v.
l. v.
l. v.
24
3
Secco
mf
p
sfz
Cantabile
p
ff
pp

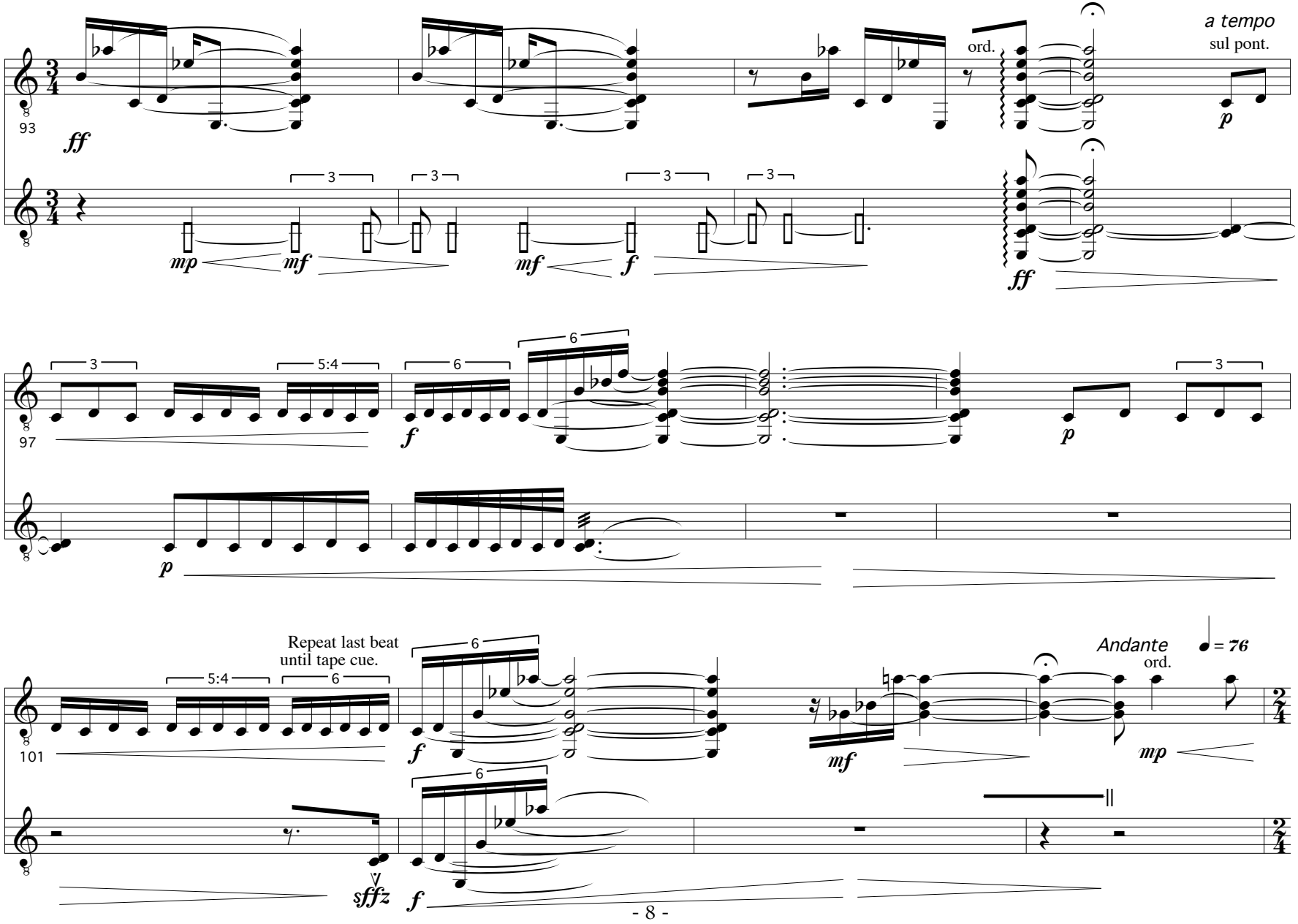

a tempo
full pizz.
Cantabile
ord.
4-VII
l. v.
2-IX
l. v.
29
(imitation of m. 29 guitar part)
34
3-IX
l. v.
4- VII
5- IX
l. v.
2-IX
l. v.
38
5:3
- 3 -

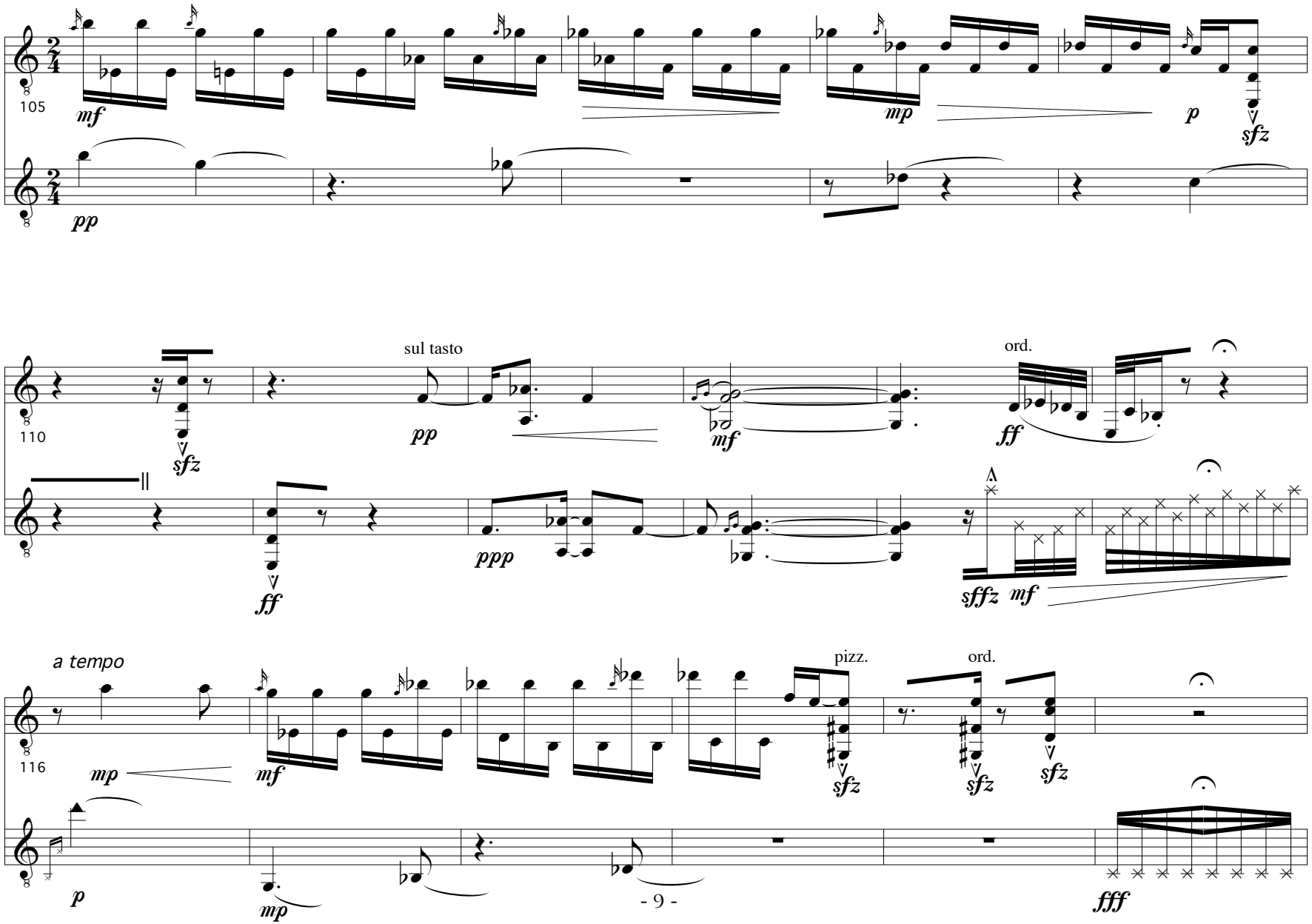

44
ord.
p
f
2- XII
3- XII
4- IX
l. v.
3
mp
sul tasto
5:4
5:4
5:4
mf
ff
Cantabile
ord.
p
p
sfz
ppp
49
a tempo
pp
f
6-IV
3- V
5- VII
2- IV
1- VII
l. v.
3
3
mf
ppp
p
(imitation continues)
mf
54
sfz
sul tasto
mf
ord.
p
a tempo
sul tasto
mf
sfz
8vb
mp
pp
8va
pp
sfz

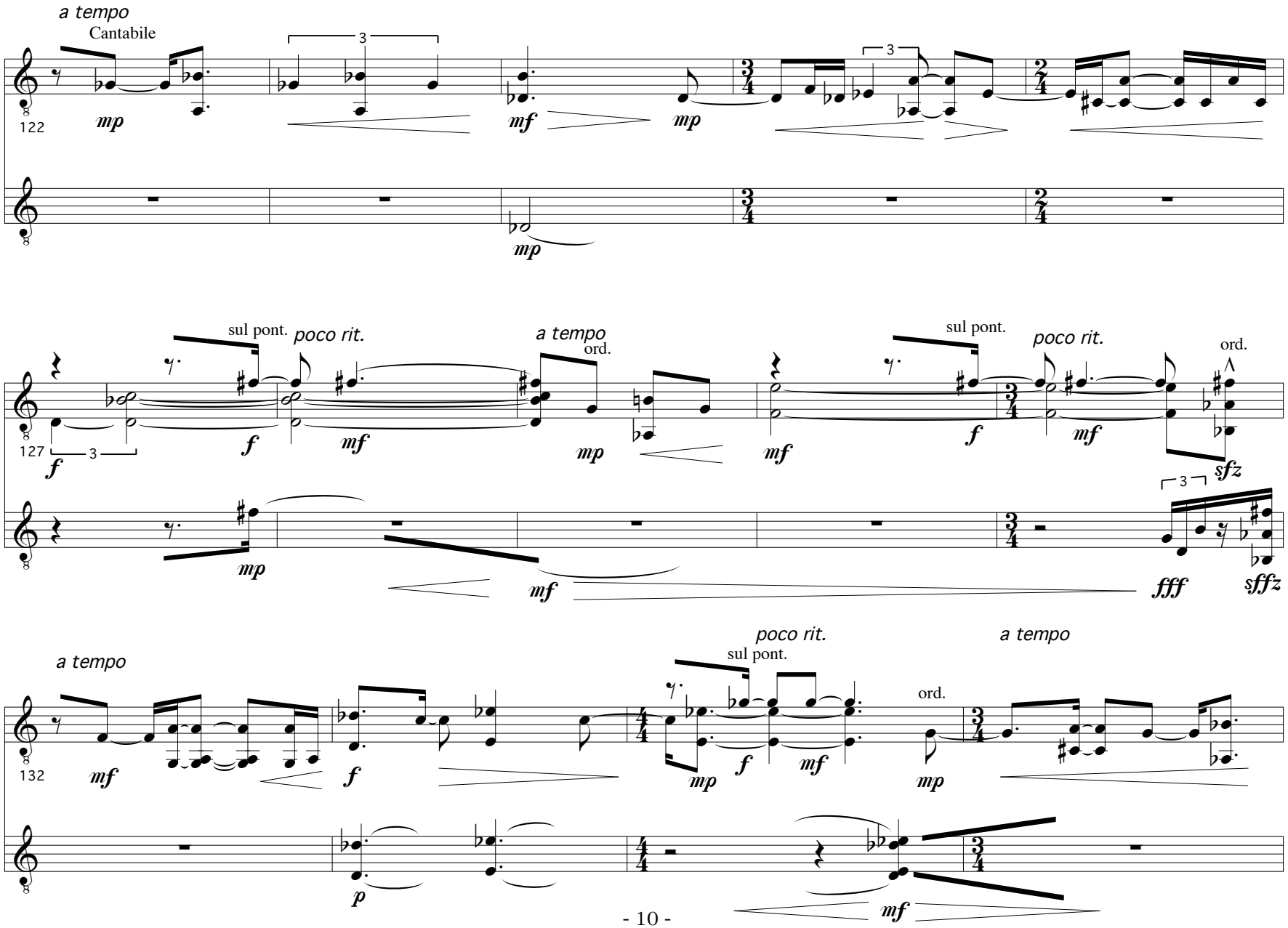

rit.
Andante ♩ = 76
Espressivo
ord.
58
sfz
f
mf
8va
sffz
Repeat first beat
until the tape cue.
62
mf
p
ff
mp
sffz
67
sfz
mf
f
mp
sffz
ppp

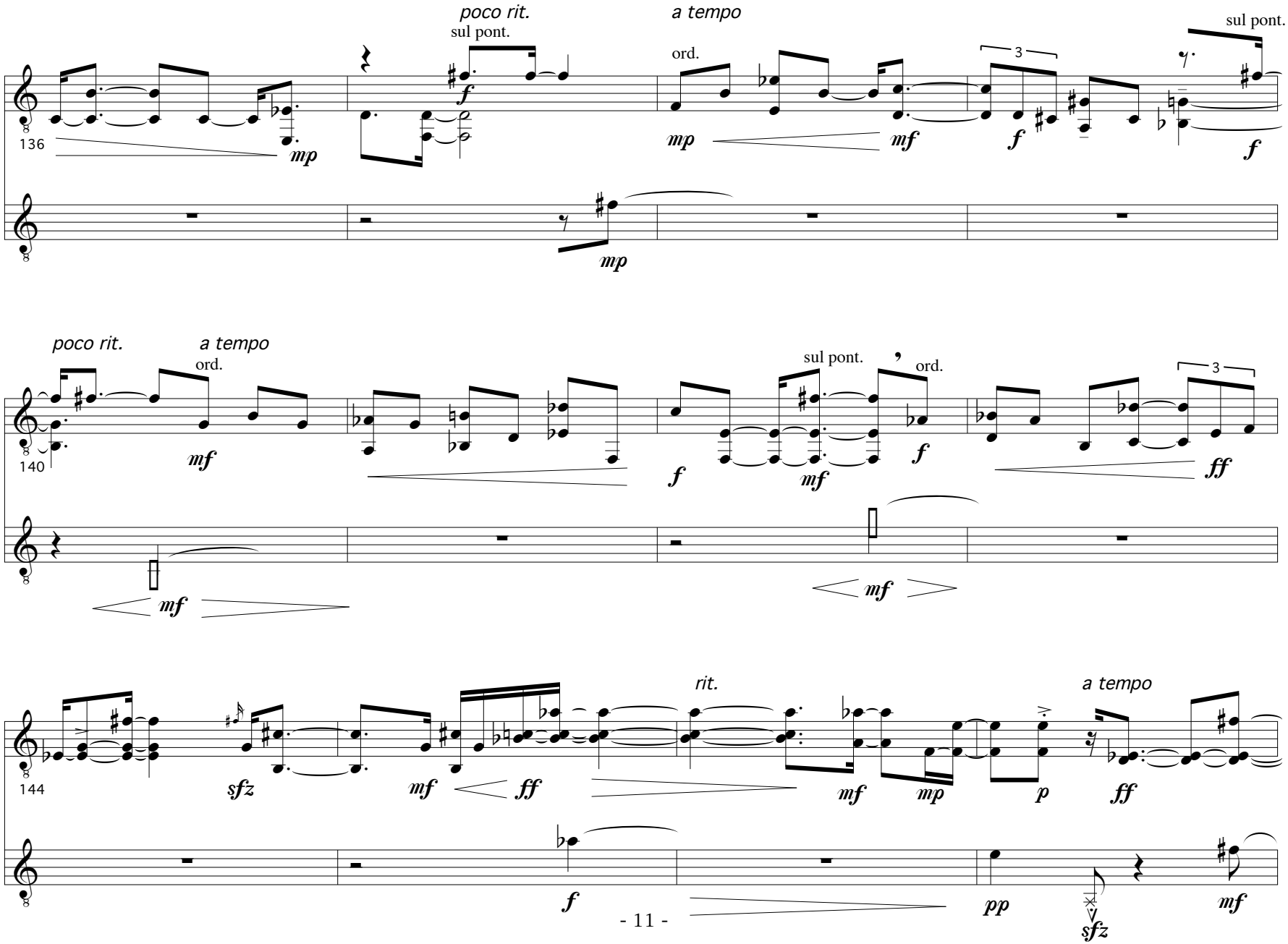

70
(8va)
mf
sfz
f
mp
mf
mp
mp
pp
sfz
f
74
f
l. v.
l. v.
sffz
mp
f
p
mf
mp
mf
77
sfz
mp
f
mf
f
ff
pp
mf
f

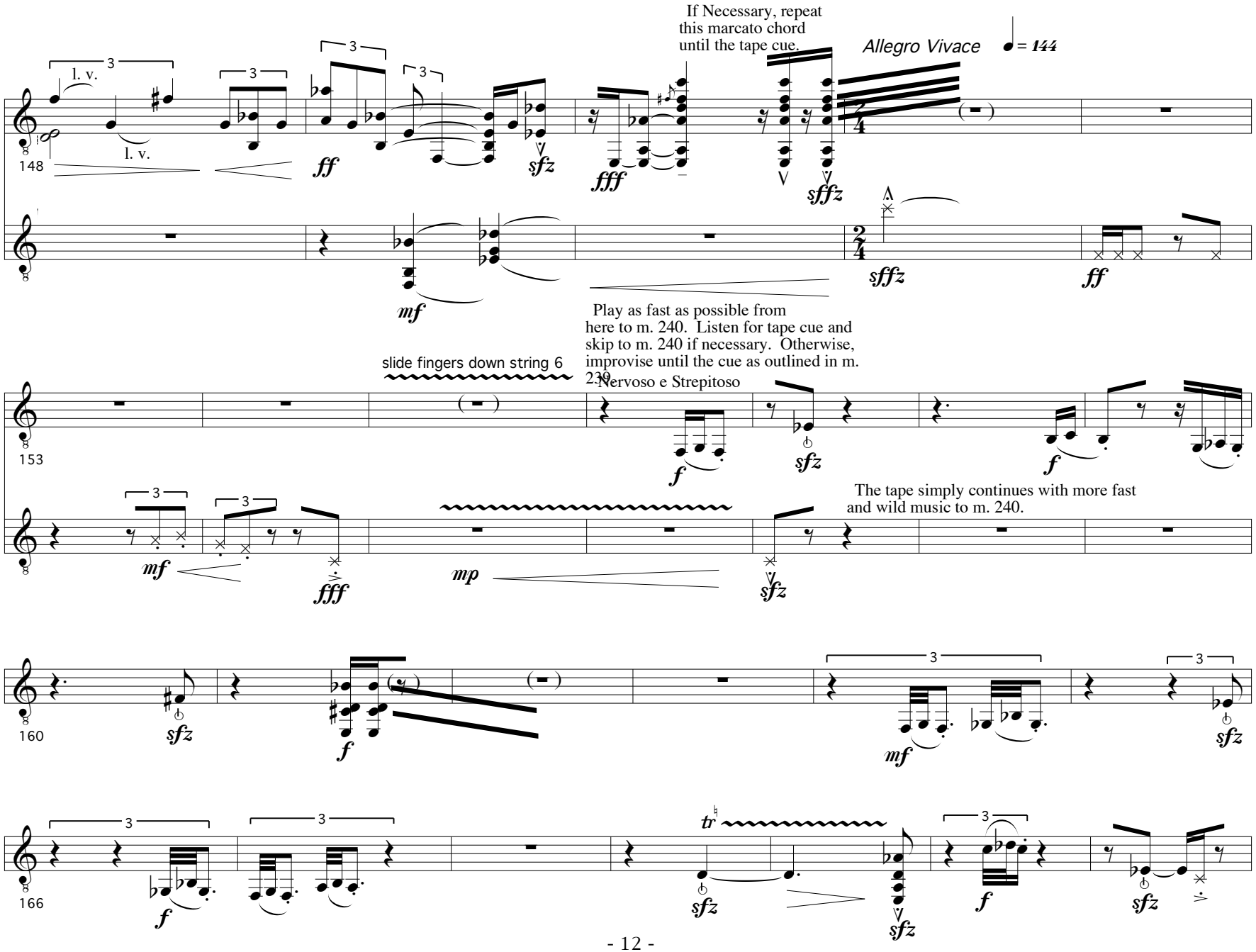

Moderato ♩ = 96
sul tasto
pp
mp
A harmonic change or note entrance occurs with each change in the guitar pattern.
mp
84
mf
mf
subito p
mf
mf
sfz
88
f
subito p
mf
f
ff

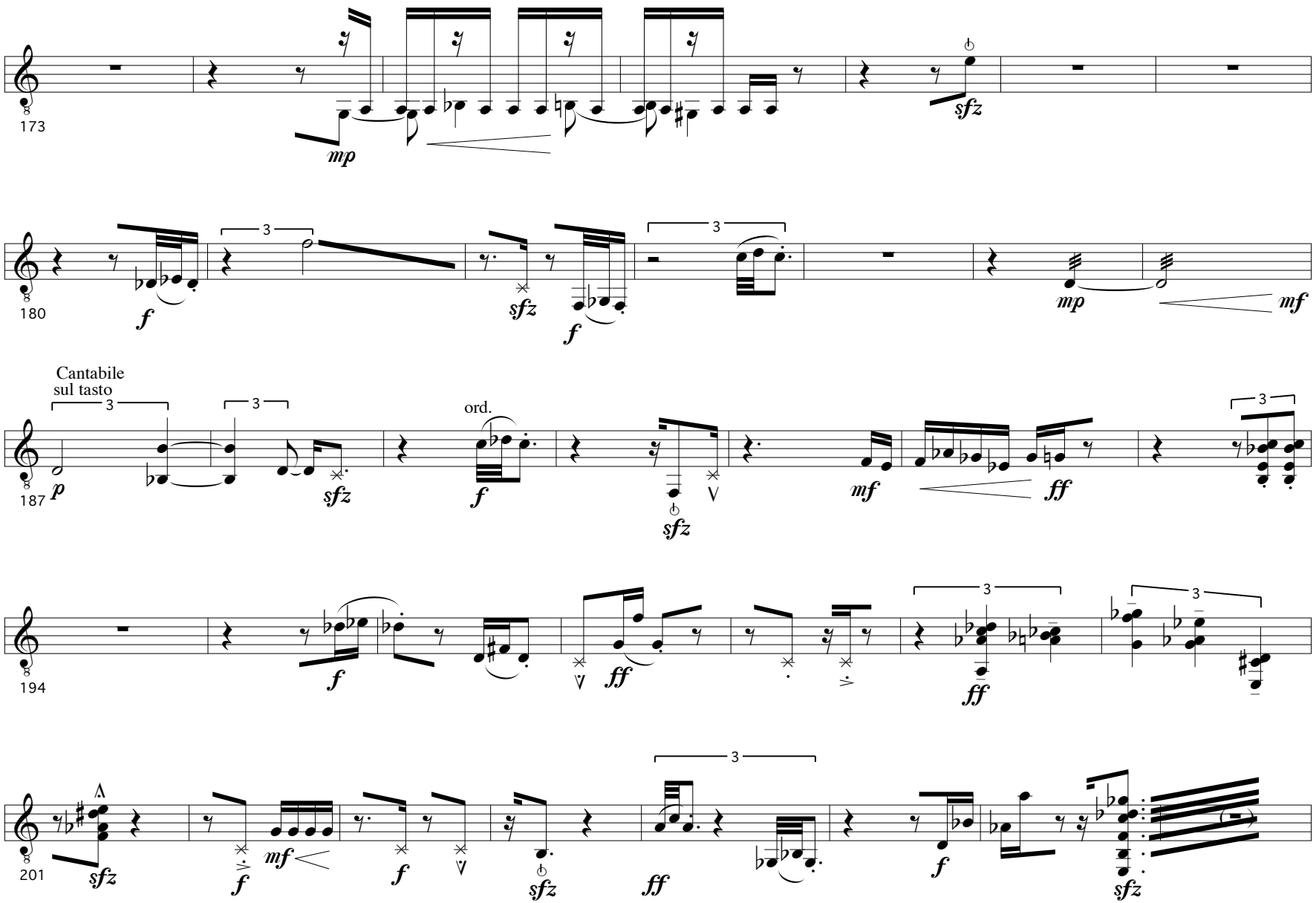

93
ff
mp
mf
mf
f
ff
ord.
a tempo
sul pont.
p
97
f
p
p
101
Repeat last beat
until tape cue.
f
mf
Andante
ord.
= 76
mp
sffz
f

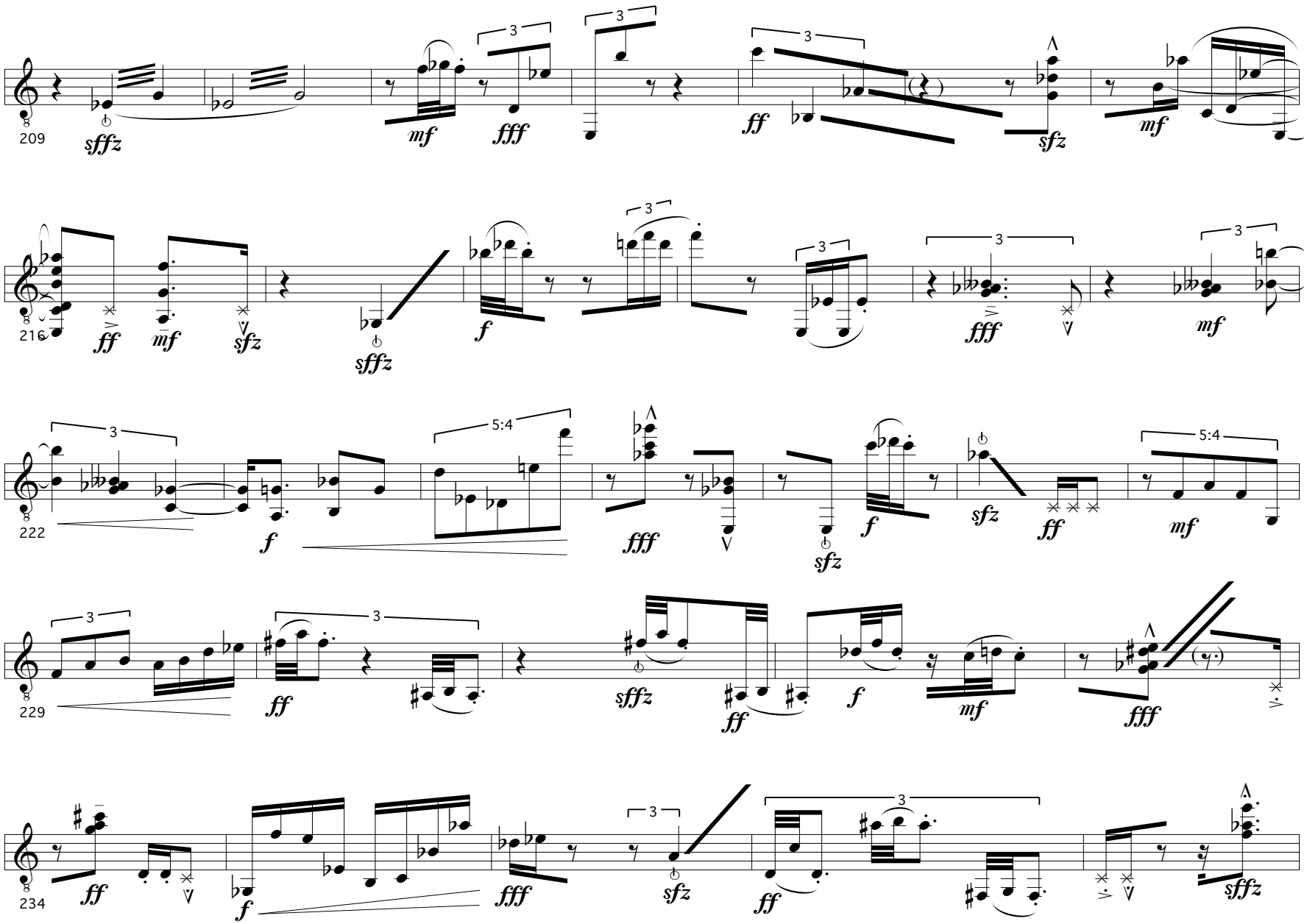

105
mf
pp
mp
p
sfz
110
sul tasto
pp
mf
ord.
ff
sfz
ff
ppp
sffz
mf
a tempo
116
mp
mf
pizz.
ord.
sfz
sfz
sfz
p
mp
fff

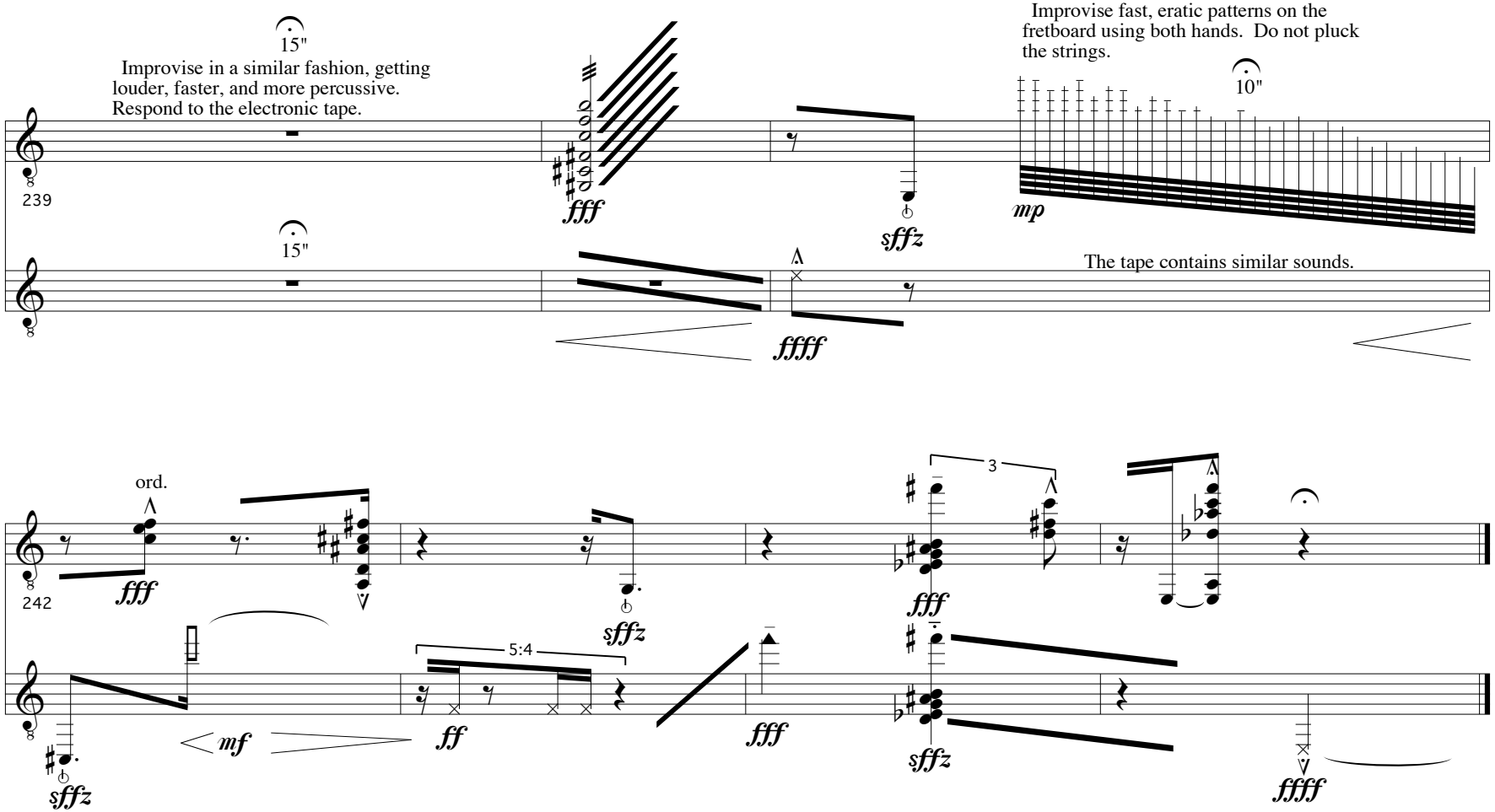

a tempo
Cantabile
122
mp
mf
mp
mp
sul pont.
poco rit.
a tempo
ord.
127
f
mf
mp
mf
sul pont.
poco rit.
ord.
f
mf
sfz
mp
mf
fff
sffz
a tempo
132
mf
f
poco rit.
sul pont.
mp
f
mf
ord.
mp
a tempo
p
mf


poco rit.
sul pont.
a tempo
ord.
sul pont.
136
mp
f
mp
mf
3
f
f
mp
poco rit.
a tempo
ord.
sul pont.
ord.
140
mf
f
mf
f
3
ff
mf
mf
rit.
a tempo
144
sfz
mf
ff
mf
mp
p
ff
f
pp
sfz
mf


If Necessary, repeat this marcato chord until the tape cue.
Allegro Vivace
♩ = 144
l. v.
l. v.
148
ff
sfz
fff
sffz
mf
sffz
ff
Play as fast as possible from here to m. 240. Listen for tape cue and skip to m. 240 if necessary. Otherwise, improvise until the cue as outlined in m. 239.
slide fingers down string 6
Nervoso e Strepitoso
153
f
sfz
f
mf
fff
mp
sfz
The tape simply continues with more fast and wild music to m. 240.
160
sfz
f
mf
sfz
166
f
tr
sfz
sfz
f
sfz


173
mp
sfz
180
f
sfz
f
mp
mf
Cantabile
sul tasto
187
p
sfz
ord.
f
sfz
mf
ff
194
f
ff
ff
201
sfz
f
mf
f
sfz
ff
f
sfz


209
sfffz
mf
fff
ff
sfz
mf
216
ff
mf
sfz
sfffz
f
fff
mf
222
f
fff
sfz
f
sfz
ff
mf
229
ff
sfffz
ff
f
mf
fff
234
ff
f
fff
sfz
ff
sffz


15"
Improvise in a similar fashion, getting louder, faster, and more percussive. Respond to the electronic tape.
239
fff
sffz
Improvise fast, eratic patterns on the fretboard using both hands. Do not pluck the strings.
10"
mp
15"
ffff
The tape contains similar sounds.
ord.
242
fff
sffz
3
fff
sffz
mf
5:4
ff
fff
sffz
ffff