Simulacrum

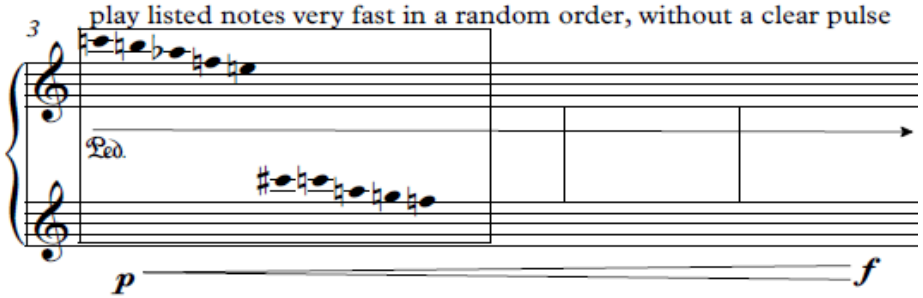
for piano and live-processed electronics

Andrew Martin

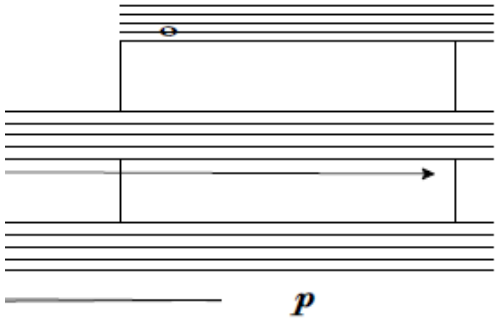
2013

Simulacrum is a Latin word that means “likeness” or “similarity.” My goal in this piece was to transform and mutate the sound of a normal piano into other similar—yet abstract—sounds. To create these sounds, I used a mathematical algorithm known as Fourier analysis inside a visual programming language called Pure Data to perform real time cross-synthesis between the piano and pre-recorded sounds. My process involves applying the spectrum of one sound to another, which is a way of exchanging specific attributes between sounds. I used recordings of French and Spanish speech to give the piano a “mouth,” and recordings of music boxes to create an ethereal and bell-like timbre. During the performance, the pianist is instructed to control specified parameters of the Pure Data Patch by pressing specific keys on a midi keyboard that is connected to a computer running the program. The material in the piano is based on a conflict between voices and bells, which are represented by linear chromaticism and vertical chords respectively. As a twist, the “voices” in the piano trigger electronic “bells,” and the “bells” in the piano trigger electronic voices. As the sounds continue to morph back and forth, the listener may be unsure at times which texture is which.

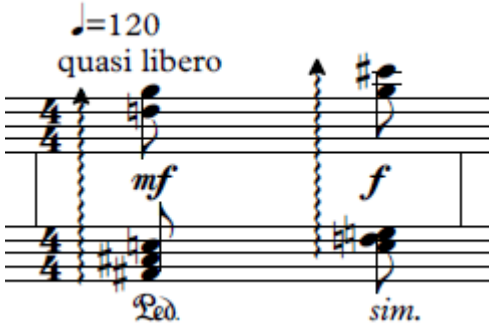
Simulacrum Performance Notes



Notes in boxes should be played as described until the end of the arrow.



Notes that appear on a third staff should be played on a small midi keyboard that is connected to the PD patch.



Rhythms in measures that use whitespace instead of traditional rest notation should be approximated by the performer.

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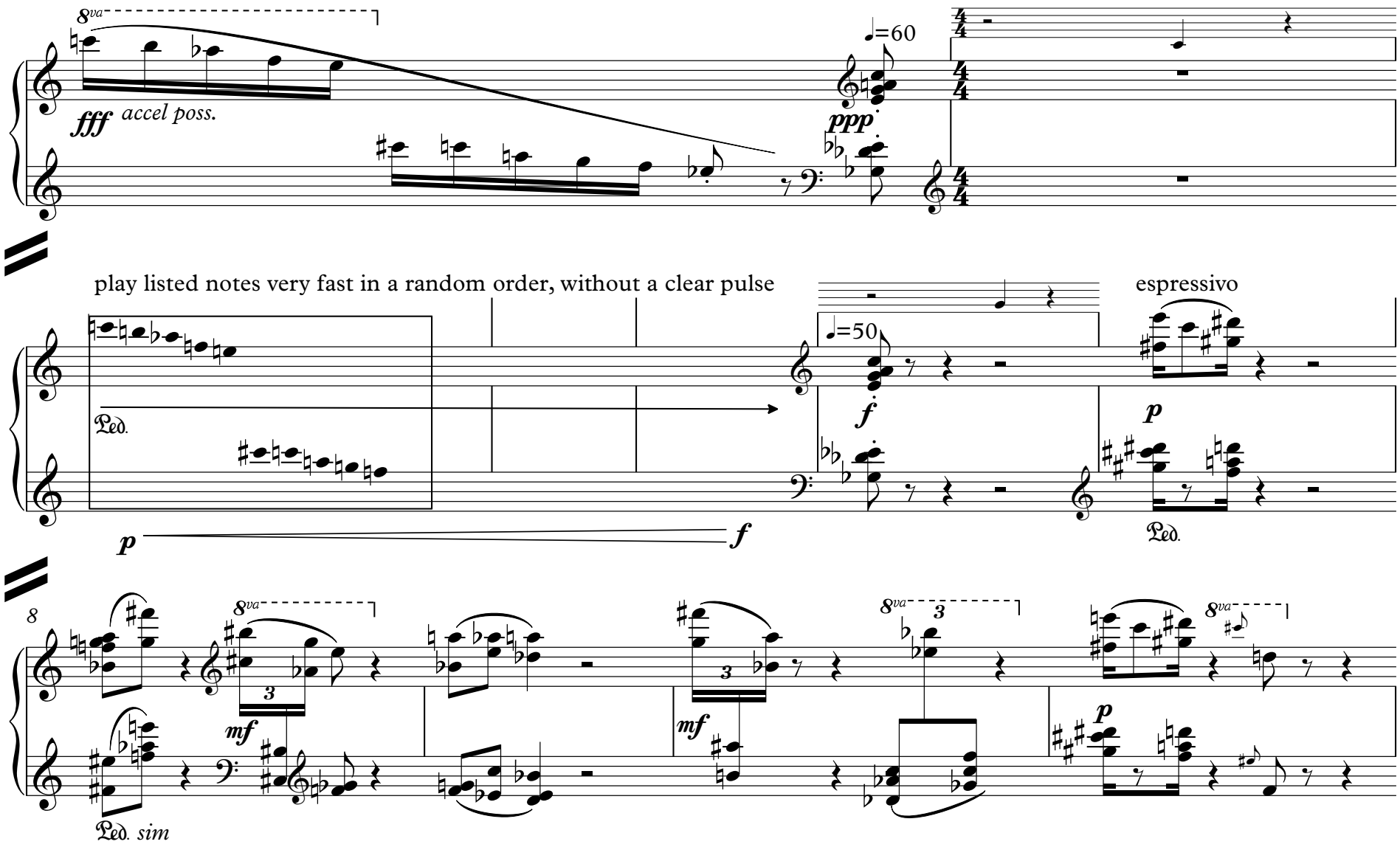
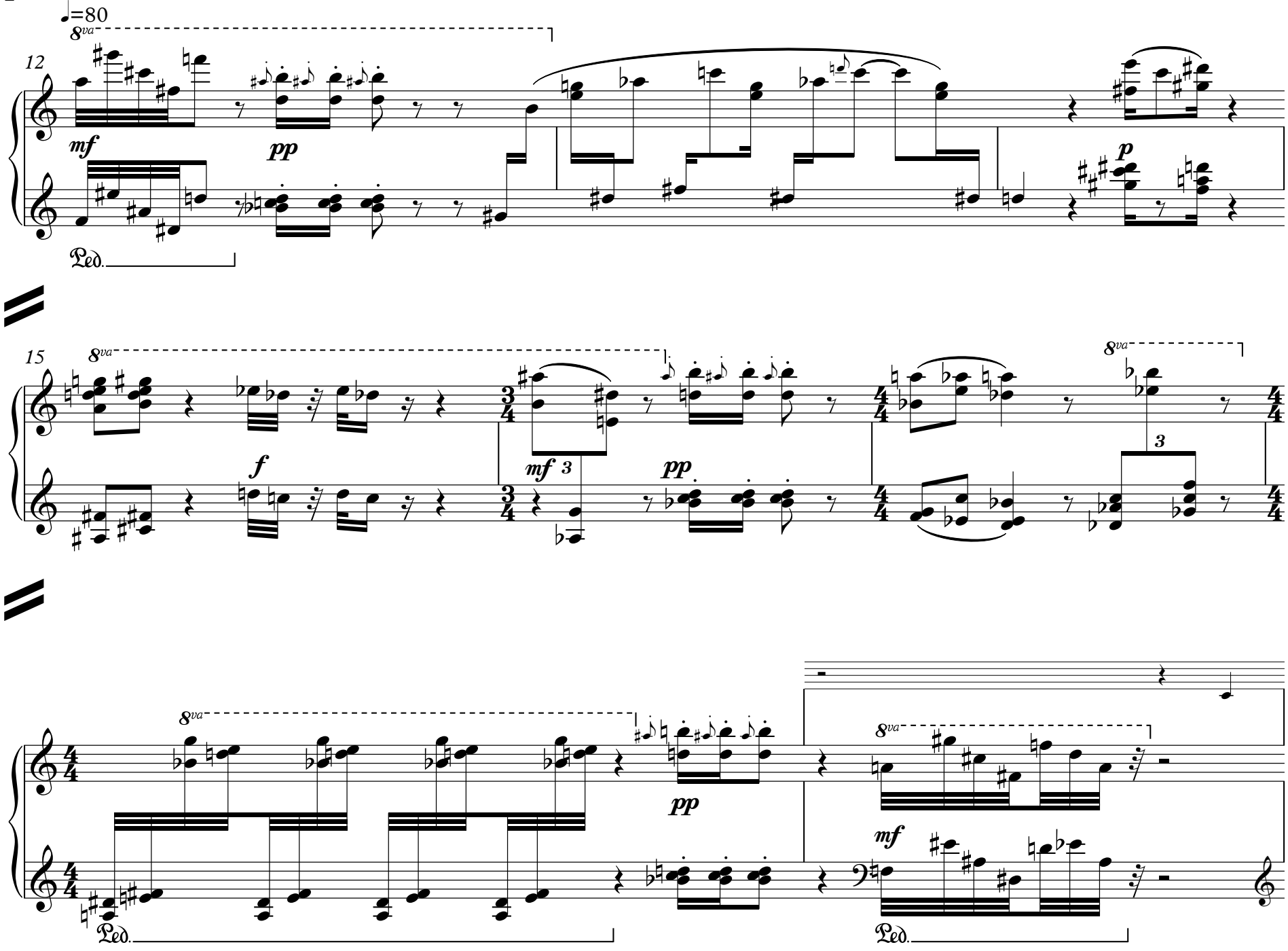
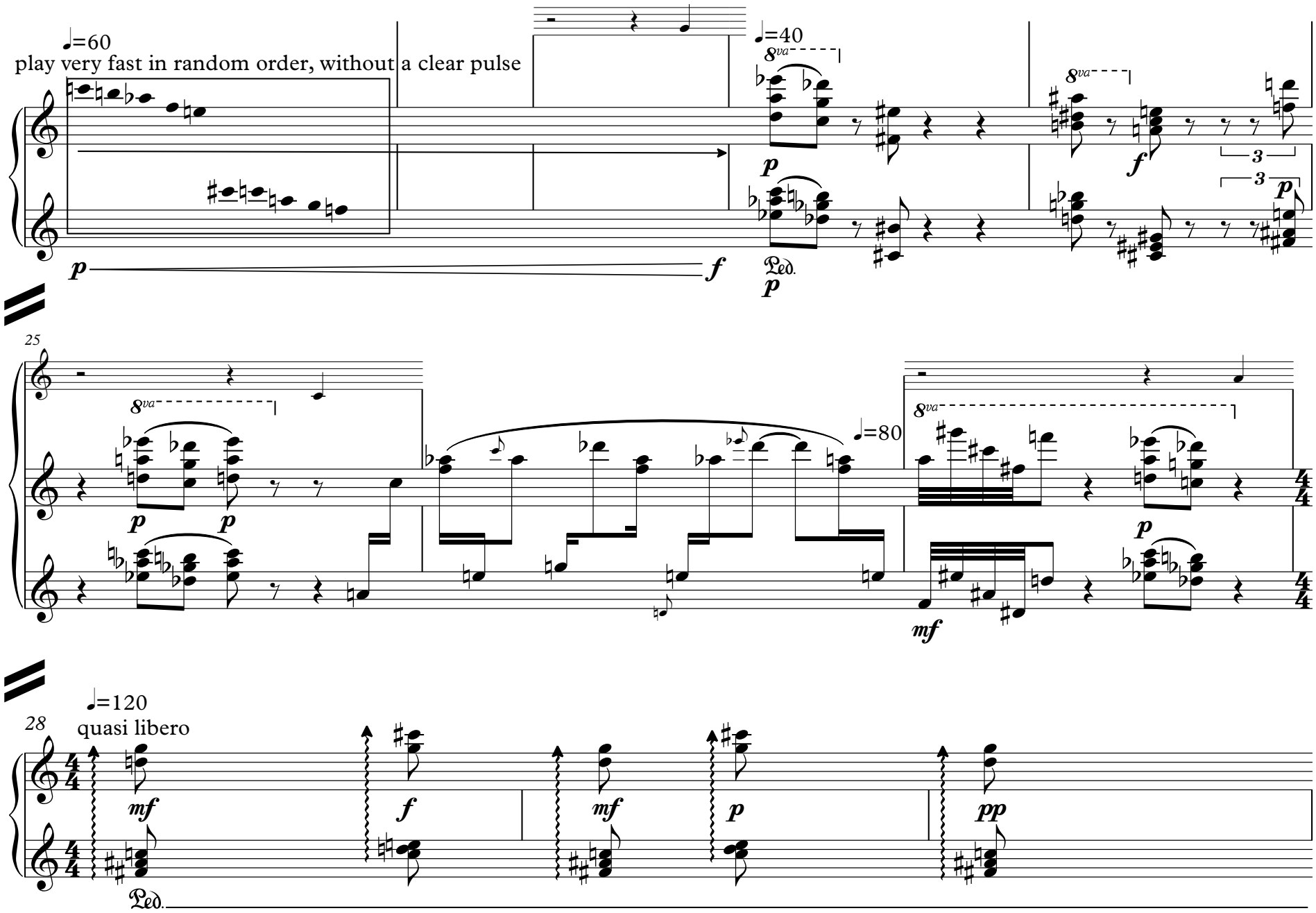
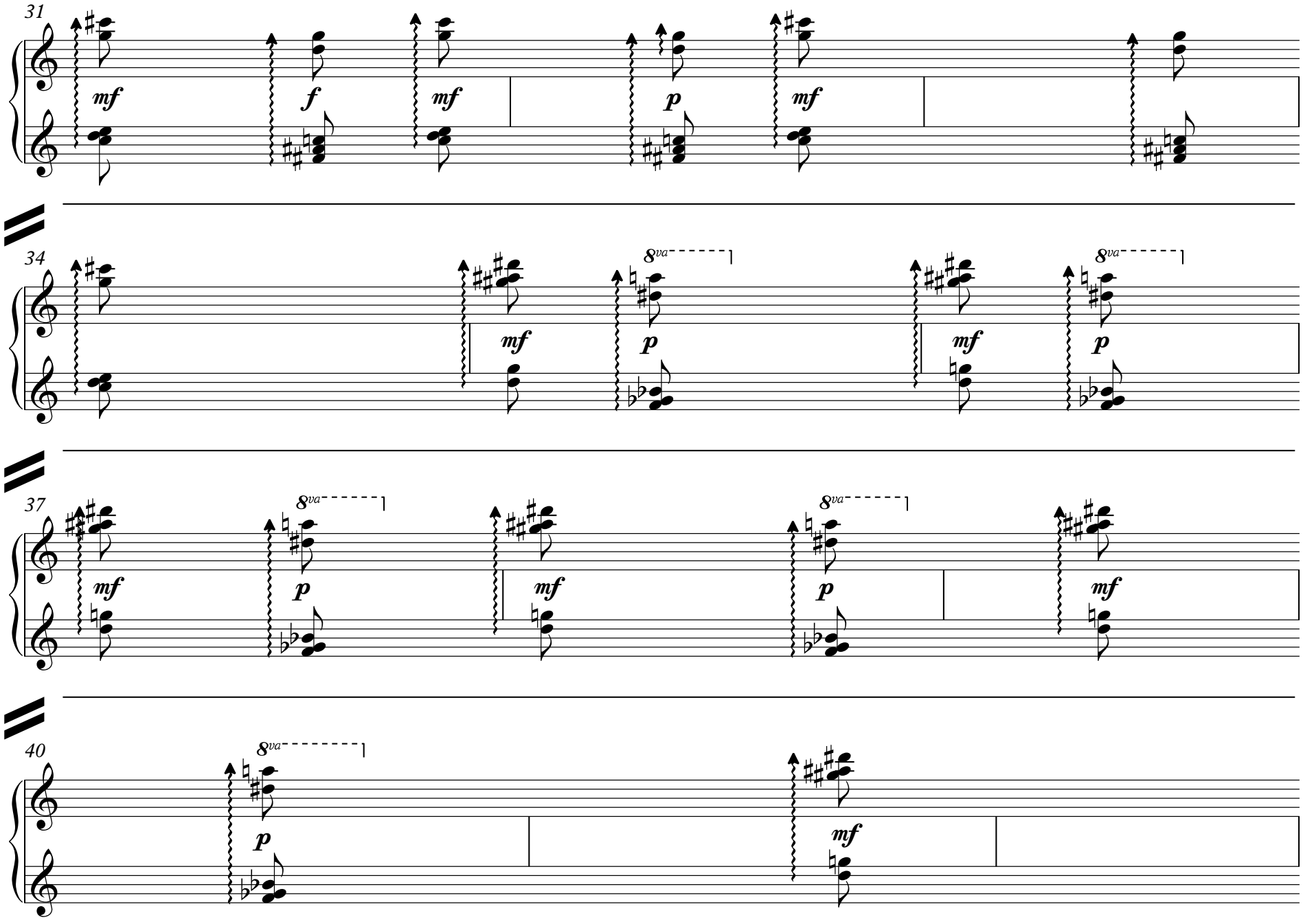
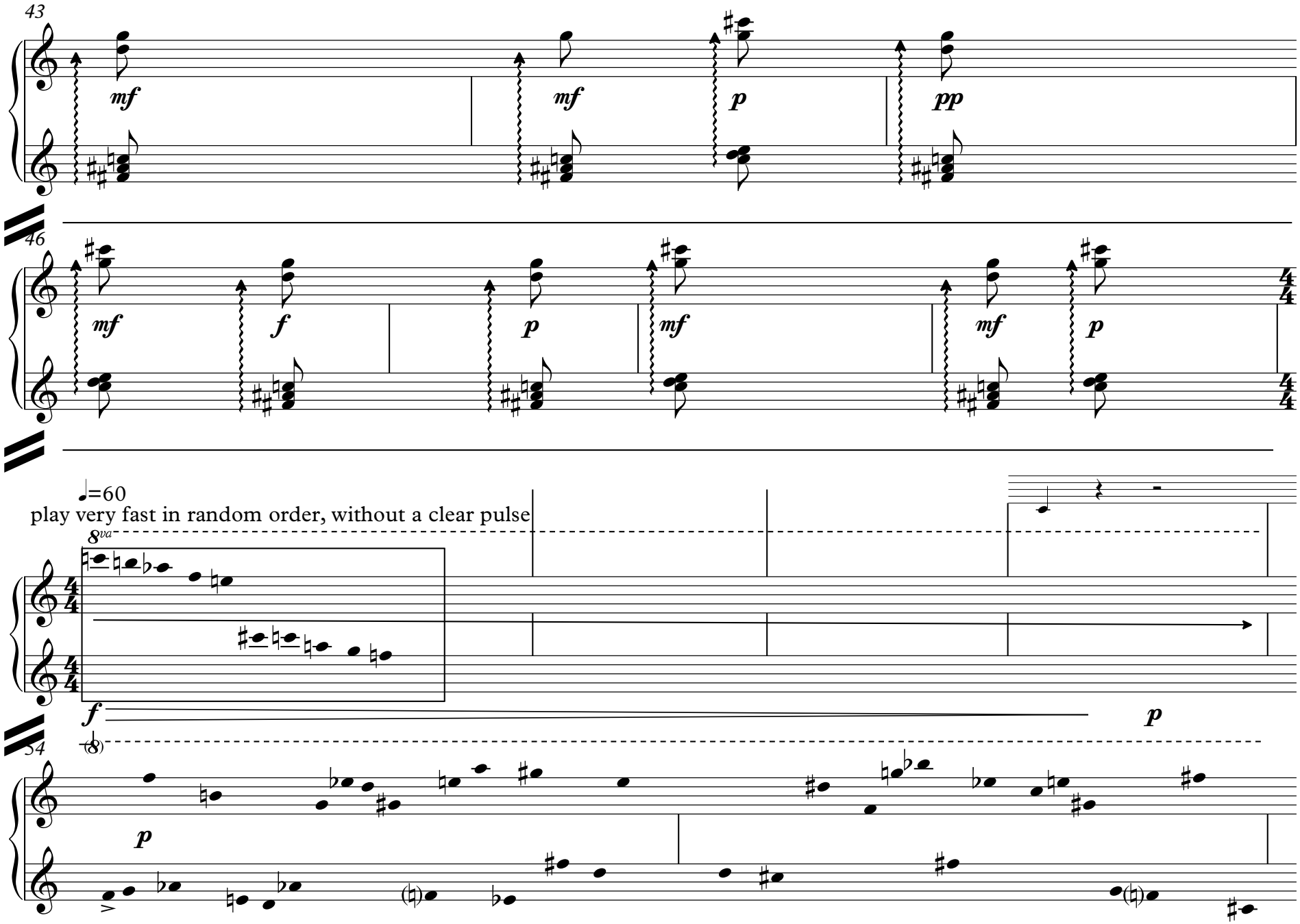
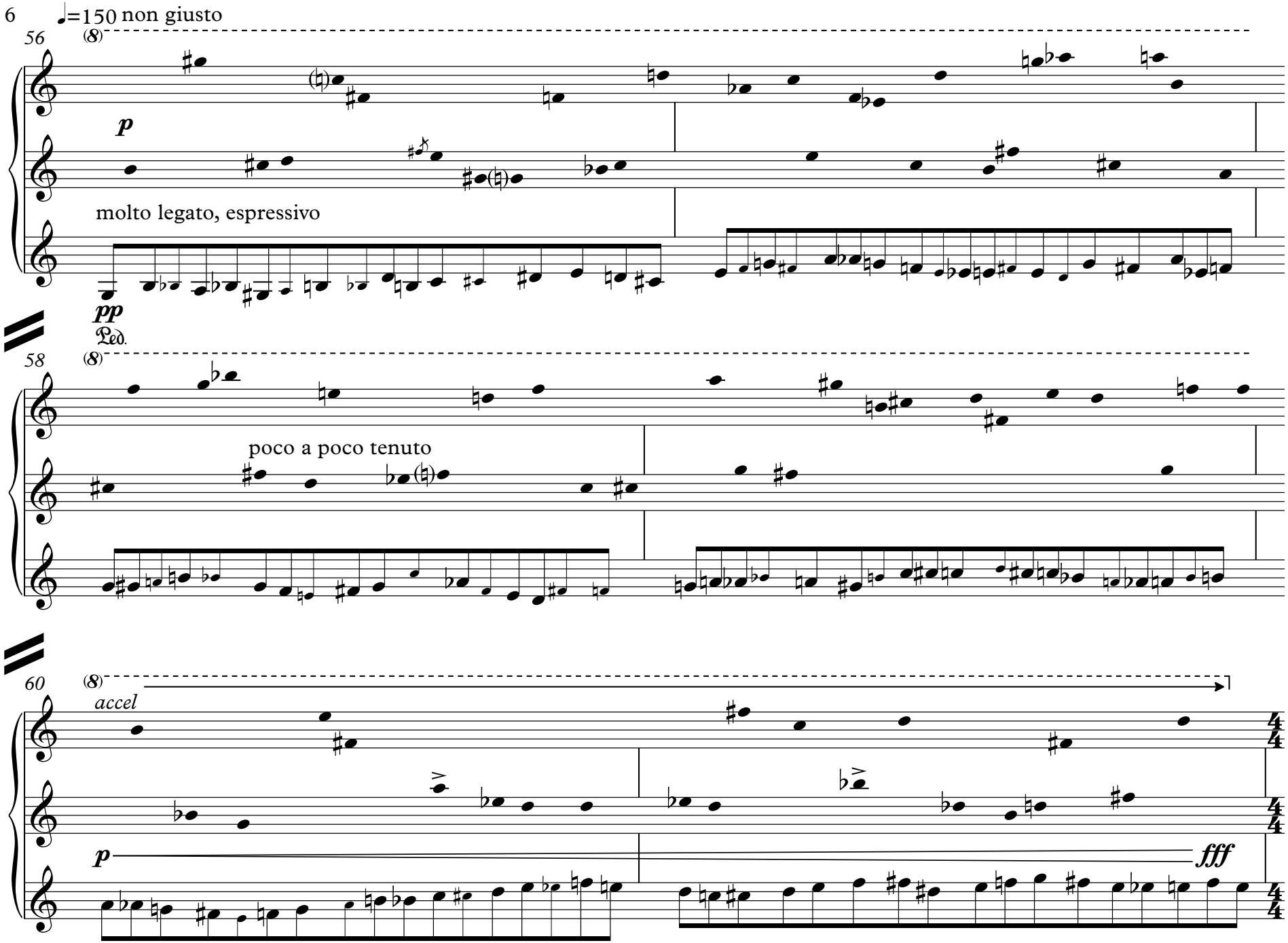


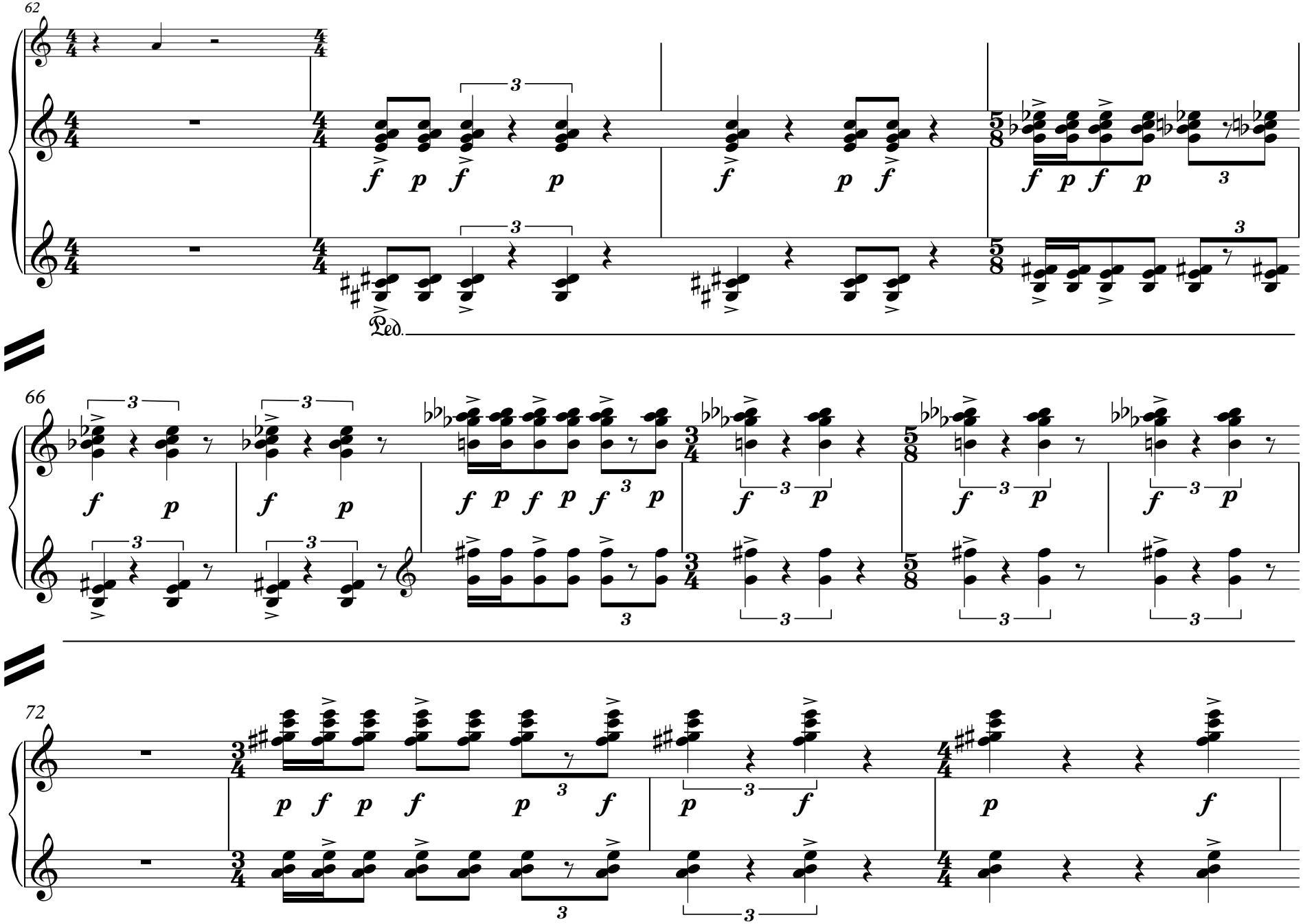

♩=80
12
8va
mf
pp
p
Ped.
15
8va
f
mf 3
pp
8va
3
8va
pp
8va
mf
Ped.
Ped.

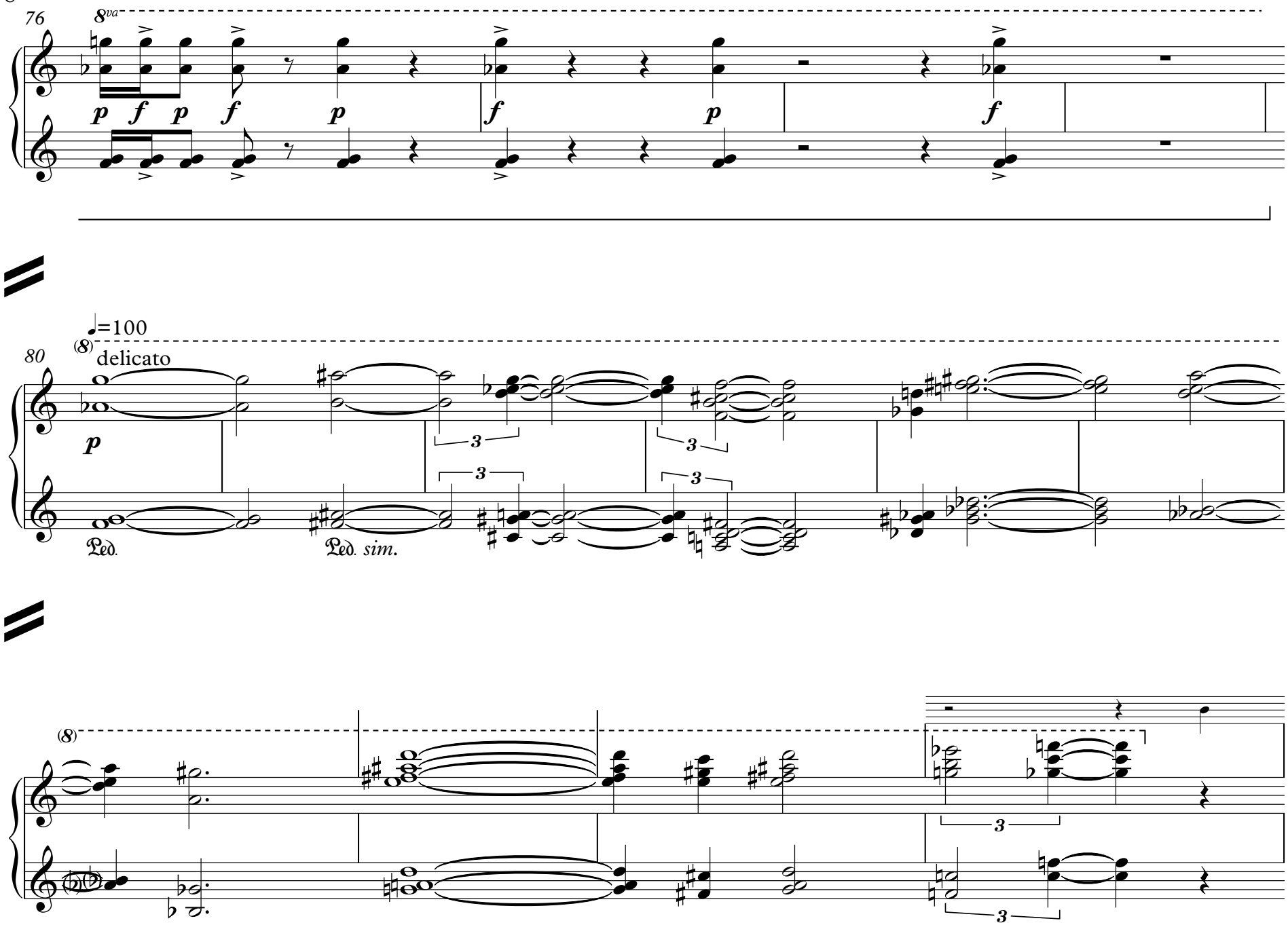

♩=60
play very fast in random order, without a clear pulse
♩=40
8va
p
f
Ped.
3
25
♩=80
mf
28
♩=120
quasi libero
pp

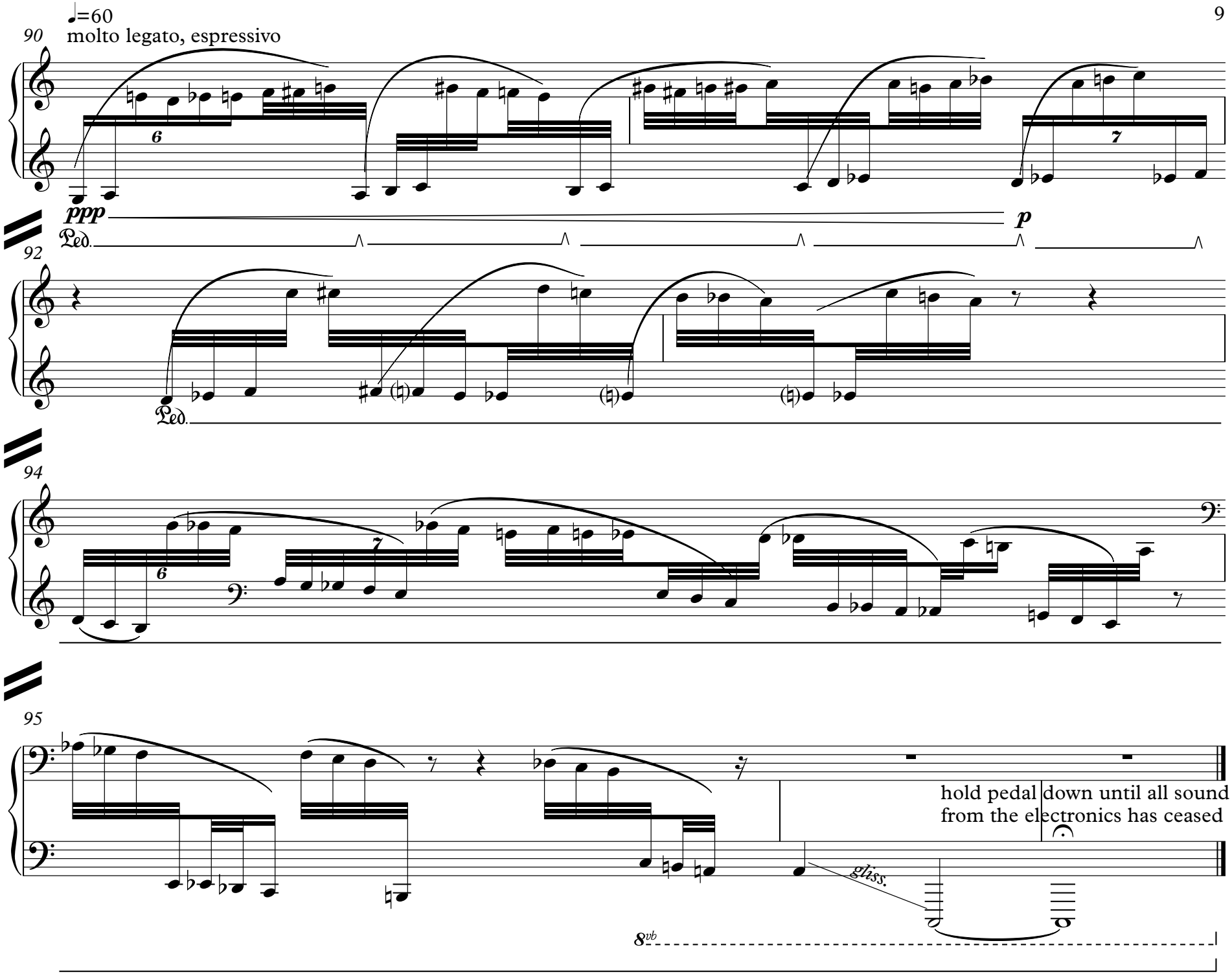

31
mf
f
mf
p
mf
34
mf
p
8va
mf
p
8va
37
mf
p
8va
mf
p
8va
mf
40
p
8va
mf


43
mf
mf
p
pp
46
mf
f
p
mf
mf
p
♩=60
play very fast in random order, without a clear pulse
8va
f
p
54
p


♩=150 non giusto
56
(8)
p
molto legato, espressivo
pp
Ped.
58
(8)
poco a poco tenuto
60
(8)
accel
p
fff


62
Ped.
66
72


76
8va
p f p f p f p f
80
♩=100
(8)
delicato
p
3
Ped.
Ped. sim.
(8)


♩=60
molto legato, espressivo
90
ppp
p
Ped.
92
Ped.
94
95
hold pedal down until all sound
from the electronics has ceased
gliss.
8vb