fabrication

for trumpet and electronics

christopher burns

Fabrication begins with a series of fragments. Elements of trumpet technique, like breathing and tonguing, are presented in isolation, rather than the combinations of ordinary playing. This acoustic study of the trumpet is taken up by other splinters of material: natural harmonics are used to produce distortions of pitch and timbre, and the performer creates acoustic disruptions with mutes, and by singing into the instrument. Eventually the trumpet is metaphorically constructed from its component techniques - just in time for a more literal disassembly.

While *Fabrication* is obsessed with trumpet acoustics, it is entirely dependent upon electronics. Many of the sounds used in the piece are too quiet to be heard in performance. And so the microphone serves as a microscope, revealing otherwise inaudible sounds. The electronics gradually take on an active role as well, transforming and extending the sound of the trumpet beyond its acoustic limits.

Performance notes:

Dynamic changes are instantaneous unless explicitly connected by hairpins.

The notated microtones are not to be played as quarter-tones but as smaller downward inflections, in each case generated by a "flat" member of the natural harmonic series. All microtones are notated with an accidental, and fingerings provided. Ordinary (equal-tempered) accidentals persist until the end of the measure; reminder accidentals are provided for all but repeated notes. Trills are frequently between two or more fingerings which produce the same pitch; fingerings are provided and the secondary pitch indicated in parentheses.

The modifications to the instrument required at mm. 117, 135, and 144 (removal of the third slide, the second valve, and the mouthpiece, respectively) tend to divorce sounding pitch from conventional fingerings, and to make sounding pitch unpredictable in general. In instances where fingering and notated result diverge, the fingerings are to be heeded, and the notation to be used as indication of general contour.

Glissandi are generally half-valved; exceptions are noted in the score ("third slide"). After m. 117 half-valving is generally not necessary to produce glissandi.

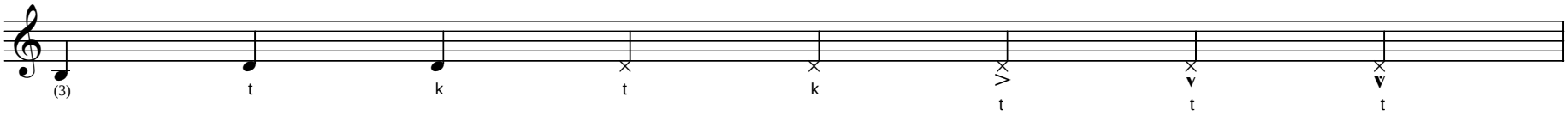
International phonetic alphabet symbols used: [s:] as is sue; [x:] as in German Ach; [f:] as in fife; [t:] as in to; [k:] as in cast.

Electronics setup:

The electronics may be realized with either one or three microphones (indicated in the score as I, II, and III). I is for amplification only, and should produce sound from a loudspeaker or speakers as close to the player as possible. II and III apply different types of signal processing and should be routed through a computer to loudspeakers in other parts of the hall if possible. If a single microphone is used, a sound engineer must be available to route the mic output to the different setups as indicated in the score.

Software realizations for the piece are currently available for the Max/MSP and Pd environments; please contact the composer (via email: <cburns@ccrma.stanford.edu>) for details.

Special notations:

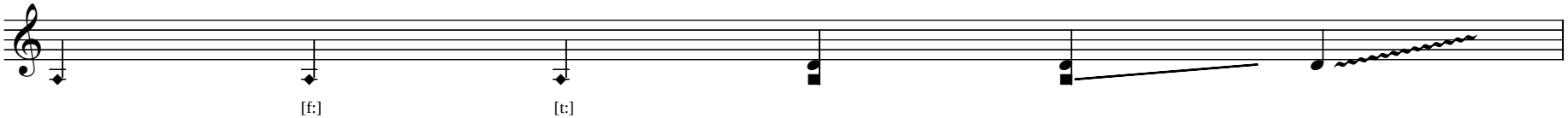


half-valve (also used in glissandi)

tonguing indications

tongue only

(increasing scale of accent intensity for tonguing)



breath only

unvoiced phoneme, sustained for duration (international phonetic alphabet)

tonguing sustained by breath for duration (also [k:])

ordinary pitch combined with sung multiphonic; sung note at any effective pitch

sung multiphonic with glissando in specified direction

"wild" glissando: complex contour achieved by improvised fingering and lip changes

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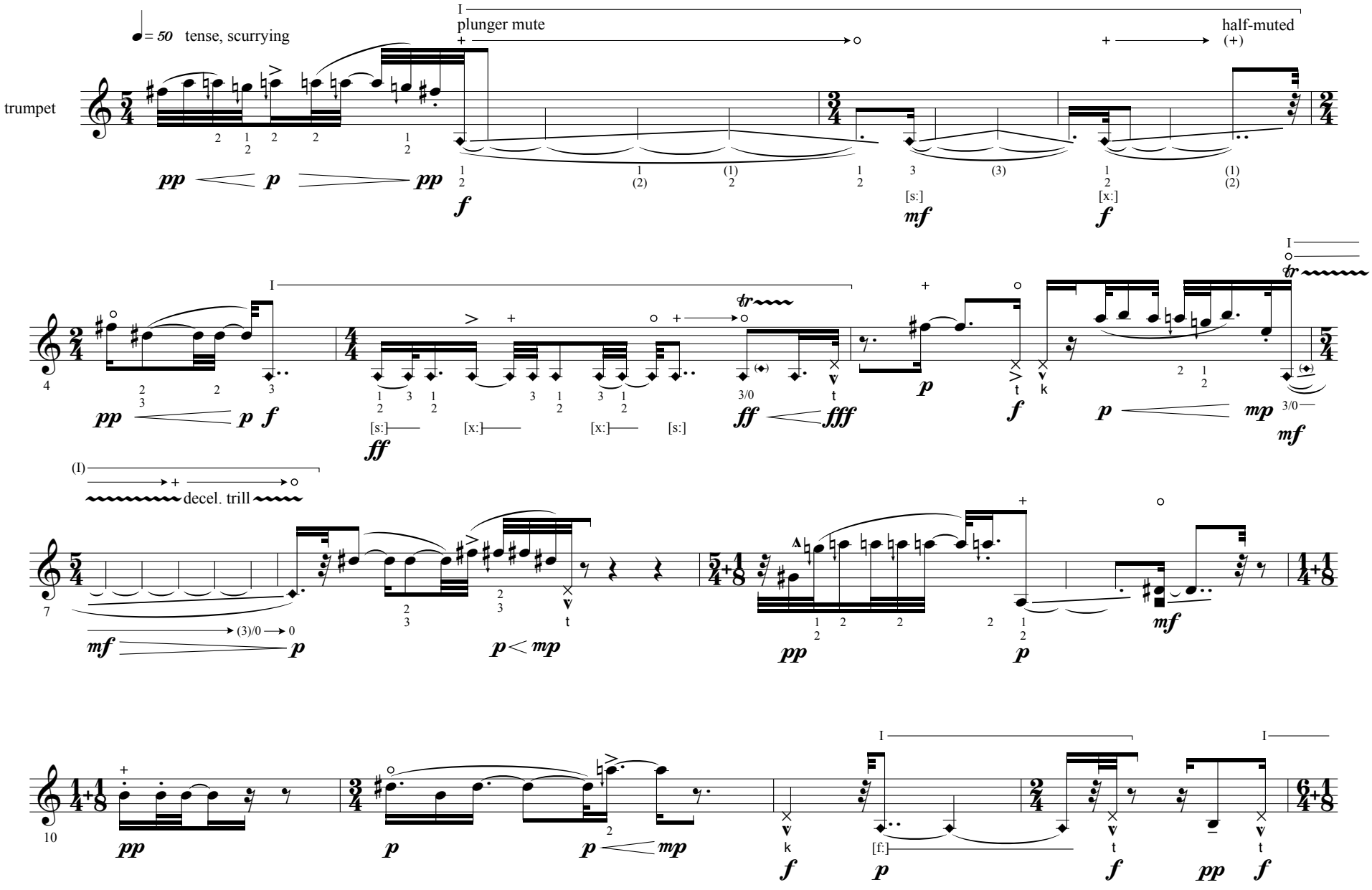
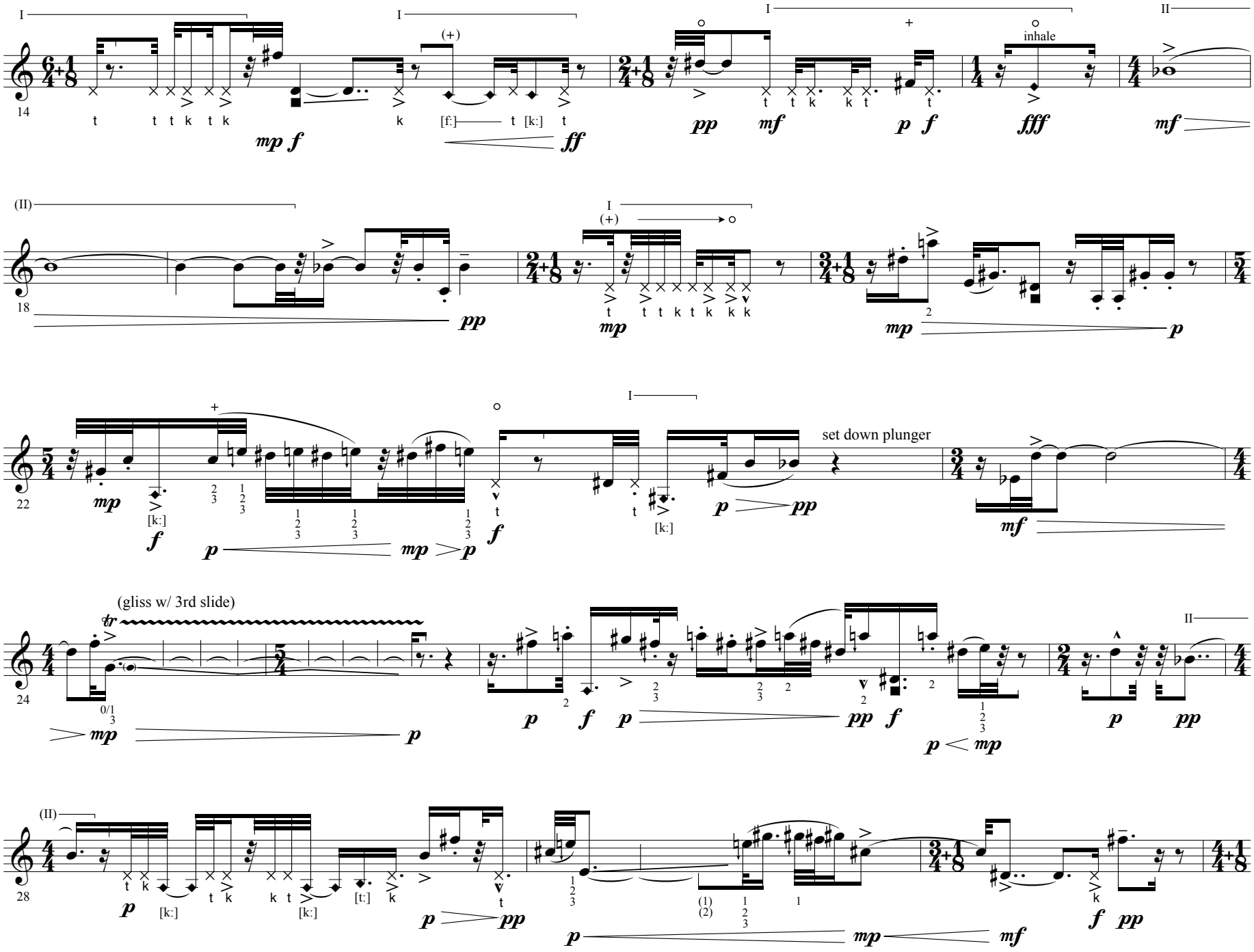
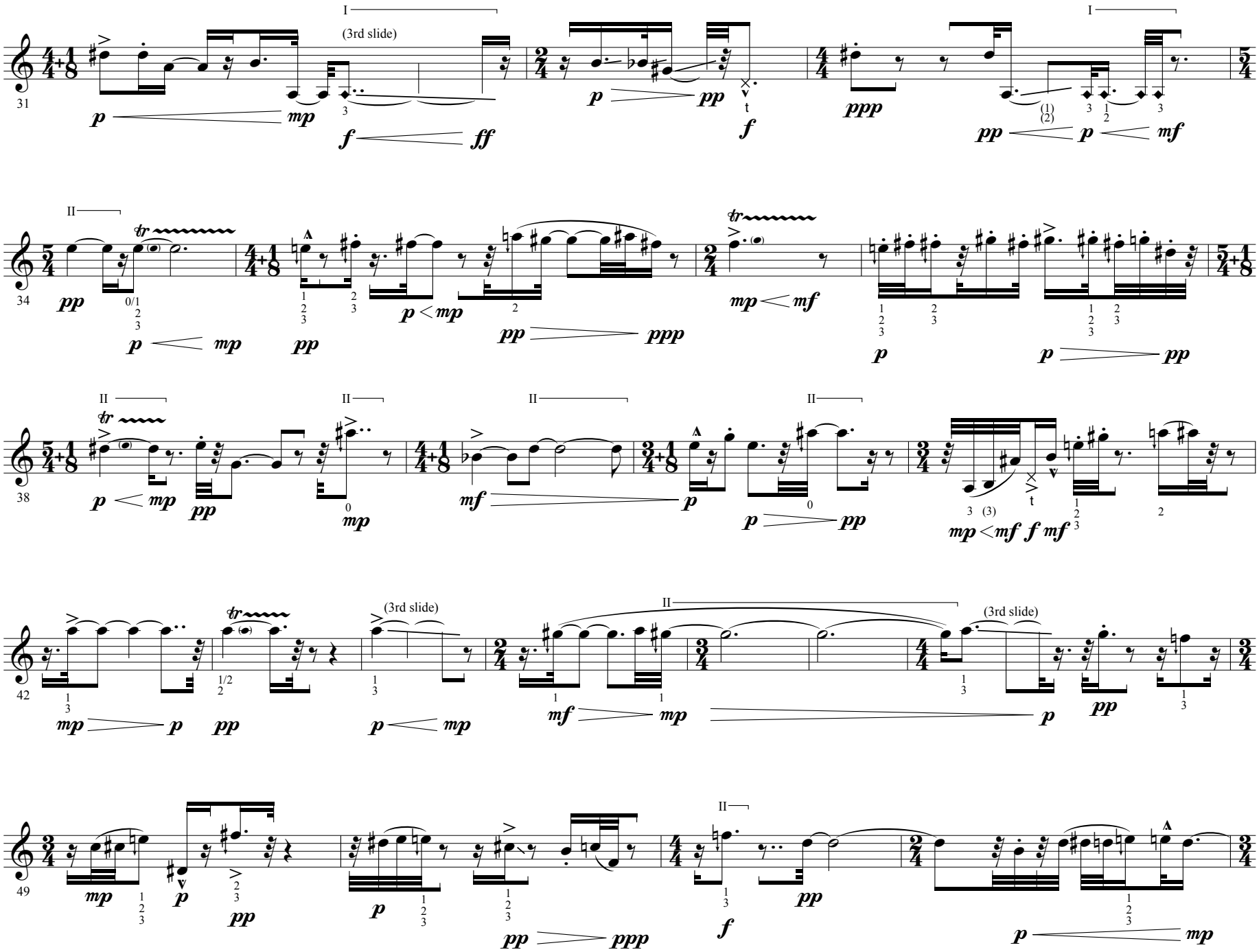
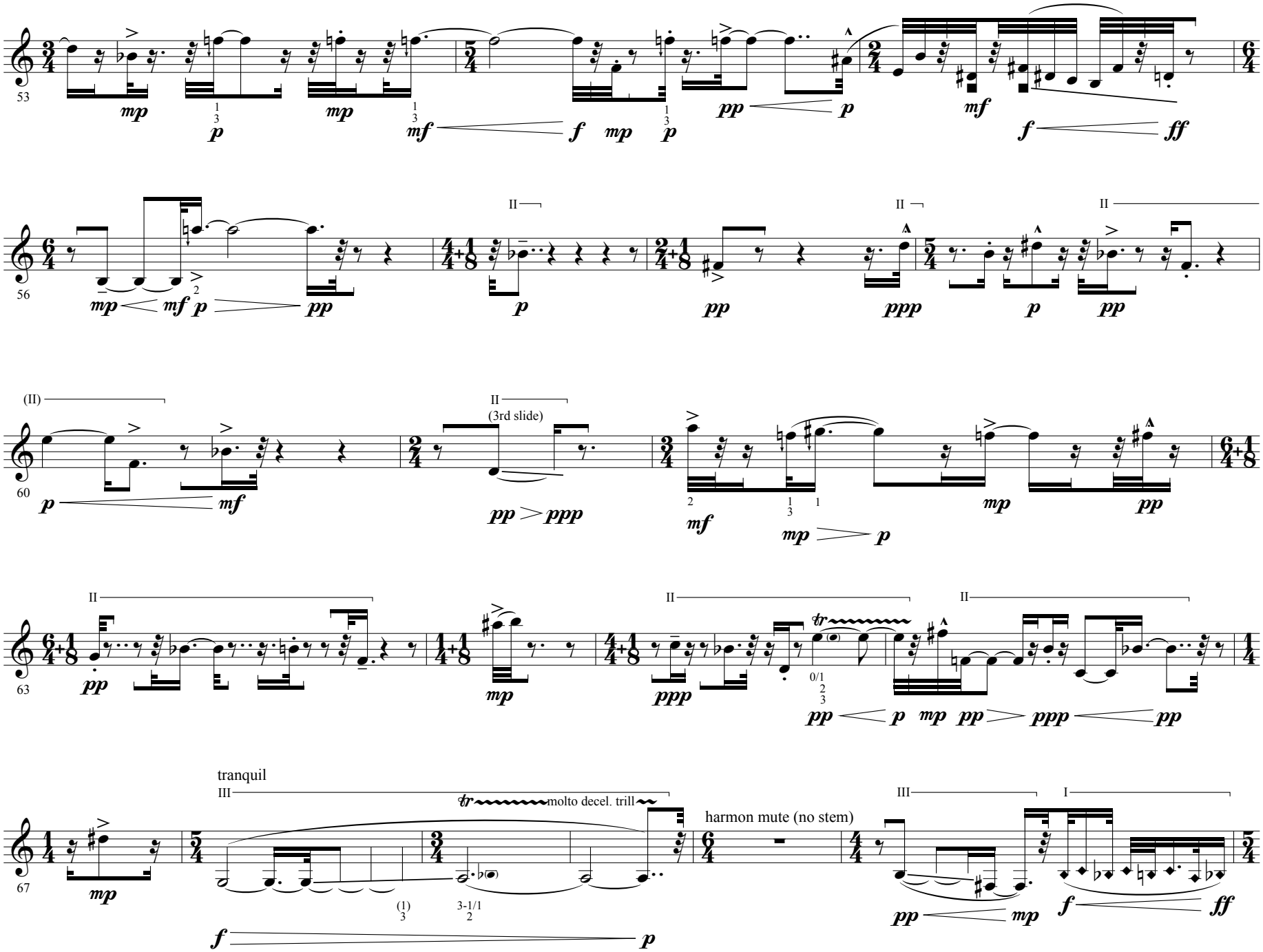
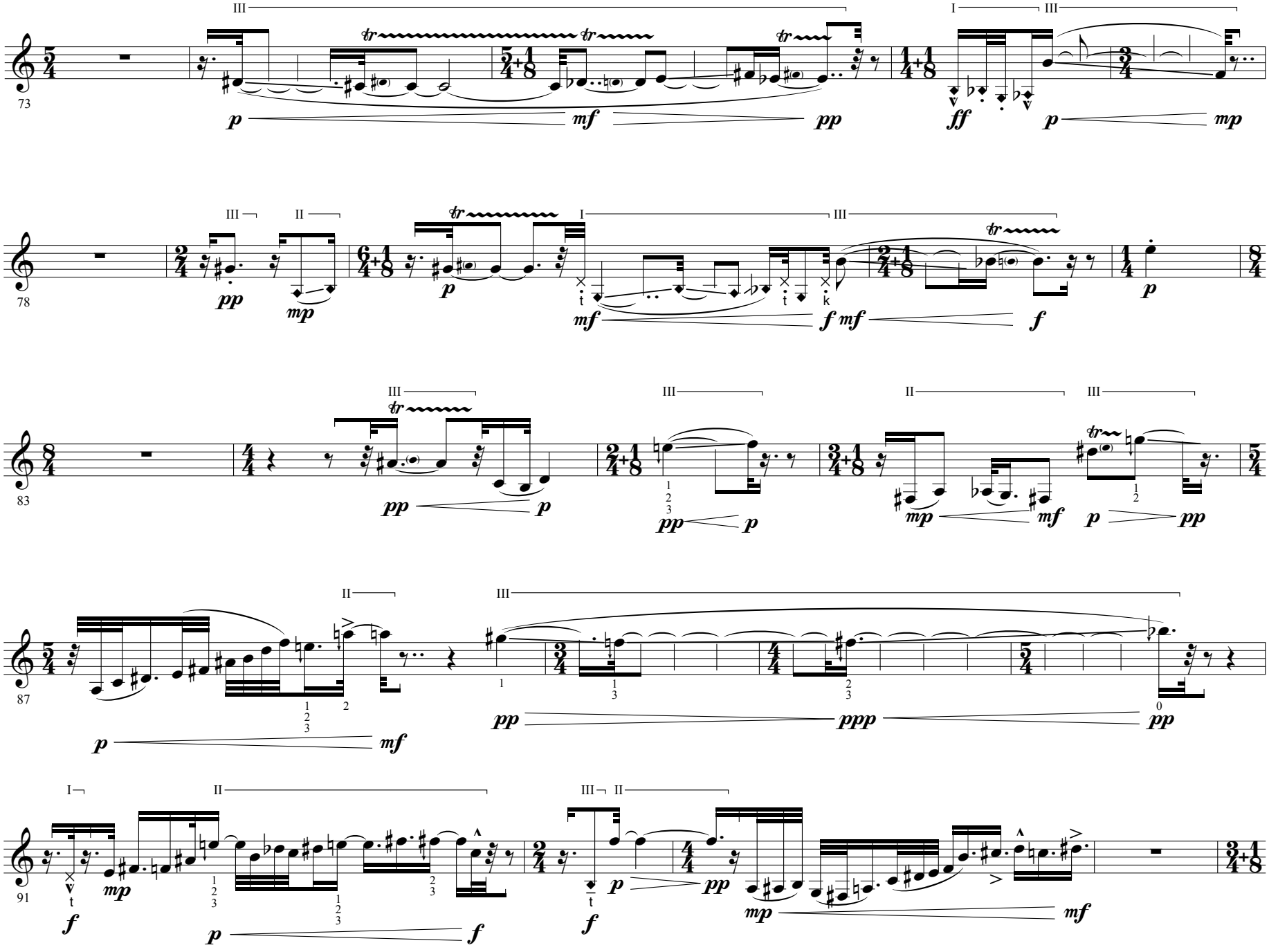
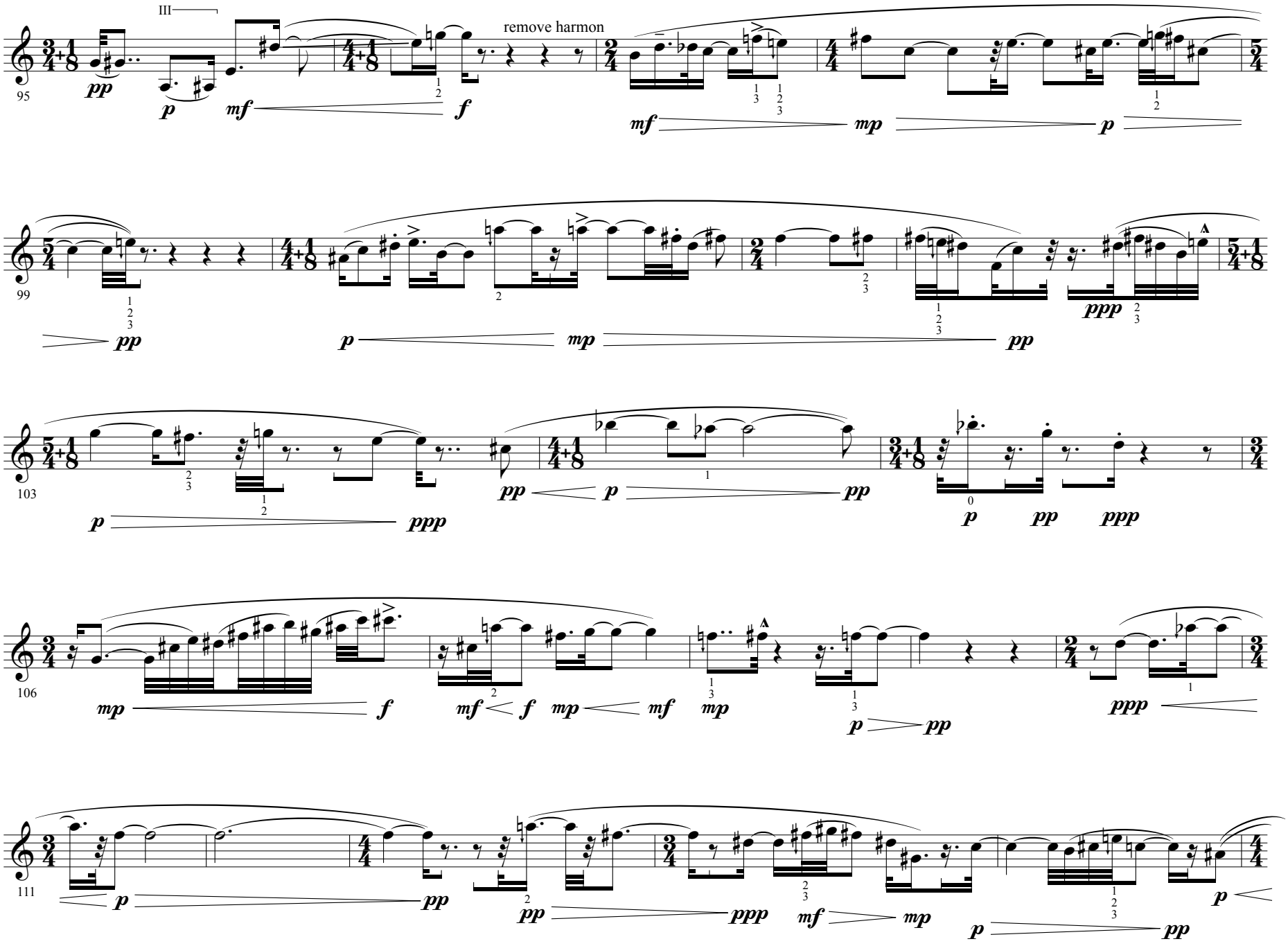


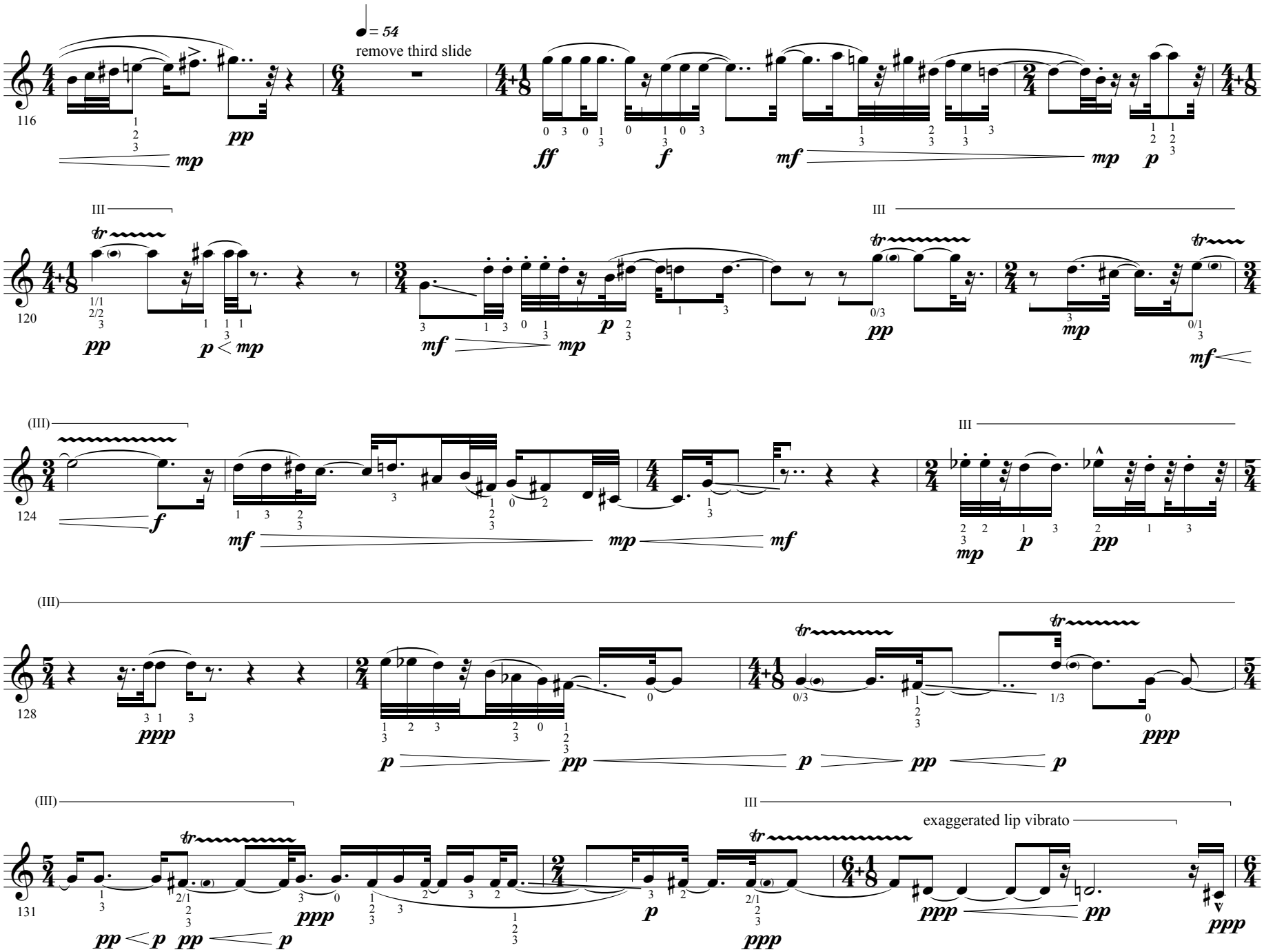

I
II
(II)
(+)
inhale
set down plunger
(gliss w/ 3rd slide)
14
18
22
24
28
mp f
ff
pp
mf
p f
fff
mp
p
[k:]
[f:]
[t:]
(1)
(2)

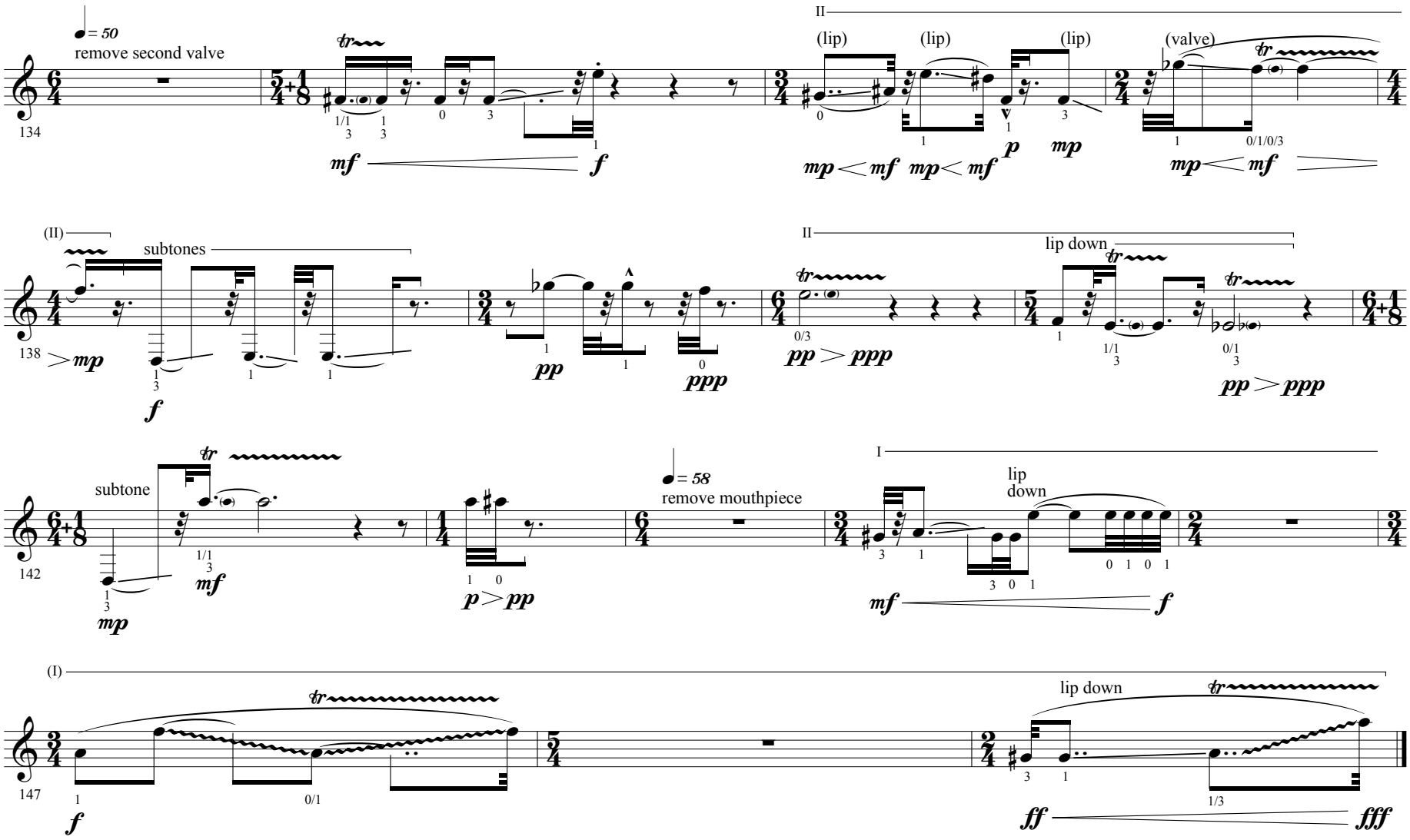

31
I
(3rd slide)
p mp
f ff
p pp
f
ppp
I
pp p mf
34
II
pp
p mp
pp
p < mp
pp ppp
mp < mf
p
p pp
38
II
p < mp
pp
mp
mf
p
p pp
mp < mf f mf
42
(3rd slide)
mp p
pp
p < mp
mf mp
II
p
(3rd slide)
pp
49
mp
p
pp
p
pp ppp
II
f
pp
p mp


53
56
60
63
67
tranquil
molto decel. trill
harmon mute (no stem)


73
78
83
87
91


III
remove harmon
95
99
103
106
111


♩ = 54
remove third slide
116
pp
mp
ff
f
mf
mp
p
III
120
pp
p < mp
mf
mp
p
III
pp
mp
mf
(III)
124
f
mf
mp
mf
III
mp
p
pp
(III)
128
ppp
p
pp
p
pp
p
ppp
(III)
131
pp < p
pp
p
ppp
p
III
ppp
pp
ppp
exaggerated lip vibrato


♩= 50
remove second valve
134
mf
f
II
(lip)
(lip)
(lip)
(valve)
p
mp
mp < mf
mp < mf
mp < mf
(II)
subtones
138
mp
f
pp
ppp
II
lip down
pp > ppp
pp > ppp
subtone
142
mp
mf
p > pp
♩= 58
remove mouthpiece
I
lip
down
mf
f
(I)
147
f
lip down
ff
fff