ETHAN HILL

MOX

for justly tuned ensemble

mox /moks/, [mɔks] Latin

adverb

soon, afterwards

etymology:
Proto-Indo-European *mokś*

descendants:
Sanskrit *makṣū* “fast; early”
Avestan *mošu* “soon, quickly”
Old Irish *moch* “early”

for Emma Bulloch

bass flute

alto saxophone

bass clarinet

piano (12-ED2)

sine tones

harp (13-limit)

violin

viola

bass drum and gong

ABOUT

In the effort to make just intonation accessible to the listener as well as demonstrate the expressive qualities thereof, *MOX* gradually opens a multi-harmonic musical space. This work begins with an abstract (and perhaps all-encompassing) 1-limit space and ultimately integrates 13-limit (tridecimal) intervals.

NOTATION

Relationships between pitches are largely notated using Marc Sabat's and Wolfgang von Schweinitz's *Helmholtz-Ellis JI Pitch* Notation. To facilitate this notation, cent deviations are also given. With this system the player can become accustomed to the tuneable intervals these symbols represent. See page IV for more information about the *Extended Helmholtz-Ellis JI Pitch Notation.*

The violin mm. 2-53, alto saxophone mm. 94-120 and bass clarinet mm. 120-145 are notated using two deviations from the pitch class *A,* and arrows indicating the upper and lower deviations.

Ratios using a solidus (e.g. 2/3) indicate harmonic intervals and those using a colon (e.g. 2:3) indicate melodic intervals. Each of these will be followed by their interval in cents.

Natural harmonics are notated with diamond noteheads at the harmonic touch-point with an indication of which string to play on and which harmonic should sound. (e.g. IV^3 indicates the third harmonic on string IV). Artificial harmonics are notated with normal noteheads indicating the stopped note and diamond noteheads indicating the touch-point.

Glissandi are notated as diagonal lines preceding the note they affect and should be executed smoothly and directly before the goal note (in the time of a grace note).

Notes and symbols in square brackets should only be realized in the last repeat of a section (e.g. **[≥]**).

This score is notated at concert pitch for all instruments.

PERFORMANCE NOTES

strings

The strings of both the violin and viola are tuned traditionally in pure (Pythagorean) fifths from A 440 (E5 + 2 cents [660 Hz], D4 - 2 cents [293.34 Hz], G3 - 4 cents [195.56 Hz], and the viola's C3 - 6 cents [130.37 Hz]).

Unless otherwise indicated, bowing is free and smooth throughout. Changes may occur during long notes as well as between tied notes.

The piece must be played *senza vibrato*.

The sound that the indication *nasale, brillante* represents can be achieved with a quasi sul ponticello bow position but enough bow pressure to create a full tone.

bass clarinet

The note A1 in m187 can be played with a conical device inserted into the bell of the instrument at the appropriate length while playing the instrument's lowest C♮.

piano

The indication *deprimere silenziosamente* in m.51 requires that the key be depressed slowly enough that the damper is raised from the string without the hammer striking the string.

harp

This piece requires that the harp be tuned according to the following chart:

standard tuning		*new tuning*		
pitch class	12-ED2 frequency in herz	harmonic ratio	deviation from 12-ED2 in cents	new frequency in herz
A	220.00	1:1	0	220.00
B	246.942	9:8	+4	246.942
C♯	277.183	5:4	-14	275.000
D	293.665	11:8	+51	302.500
E	329.628	3:2	+2	330.000
F♯	369.994	13:4	-59	357.500
G	391.995	7:4	-31	385.000

Harmonics up to the fifth partial (two octaves plus a third) are used in this work. These notes are notated with a circle symbol above the note from which the harmonic is played, a plus (+) sign indicating an octave above the string and a number indicating an additional interval above the octave (e.g. 5th partial = ++3).

Pedal changes are notated below the lowest staff.

MOX

for justly tuned ensemble

Ethan Hill (2018)

Voix Céleste

♩ = 56

Bass Flute

second time only

±0

pp *ma piena voce senza vibrato*

pp

p

Alto Saxophone

second time only

±0

pp *ma piena voce senza vibrato*

pp

ppp

Bass Clarinet

Piano

Keyboard

p

Harp

pp

Violin

1. +13 -7 +13 -7 sim.
2. +20 -7 +20 -7 sim.

±0

p

Viola

second time only

±0

pp *ma piena voce senza vibrato*

pp

pp

Bass Drum

at gong

15

B. Fl.

ppp

pp

p *sub.*

p

A. Sax.

pp

p *sub.*

p

B. Cl.

[second time only]

±0

pp

Pno

Kbd

Hp

Vln

Vla

pp

p *sub.*

p

B. Dr.

A

28

B. Fl.

A. Sax.

B. Cl.

Pno

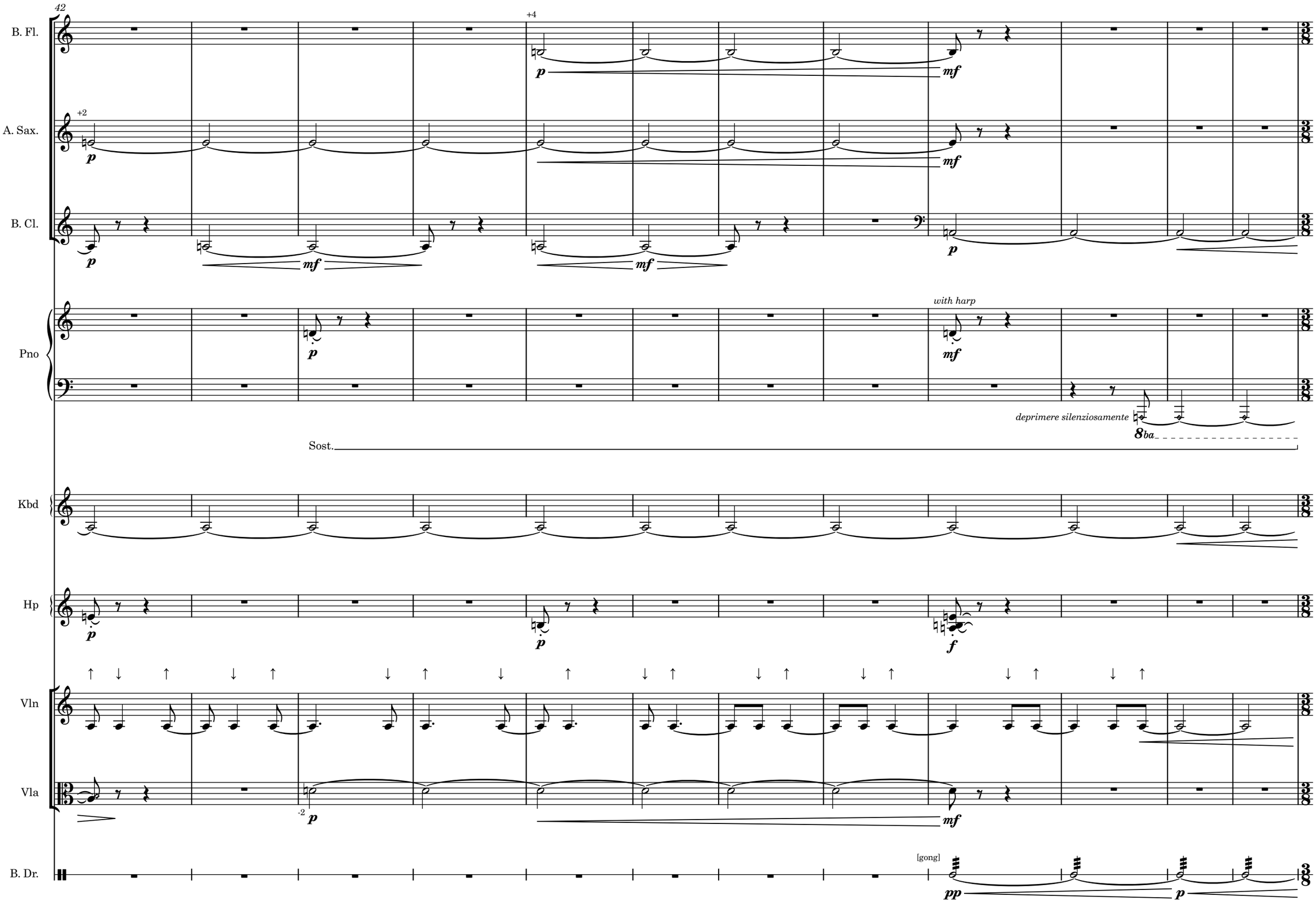
Kbd

Hp

Vln

Vla

B. Dr.


42
B. Fl.
+4
p
mf
A. Sax.
+2
p
mf
B. Cl.
p
mf
mf
p
Pno
p
with harp
mf
deprimere silenziosamente
8ba
Sost.
Kbd
Hp
p
p
f
Vln
Vla
-2
p
mf
B. Dr.
[gong]
pp
p

Rohr Schamelei
Erzähler

B ♩= 118

54

[3x]

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

Vln

Vla

B. Dr.

with flute

second time only

second time only

nasale, brillante

nasale, brillante

p.d.l.t.

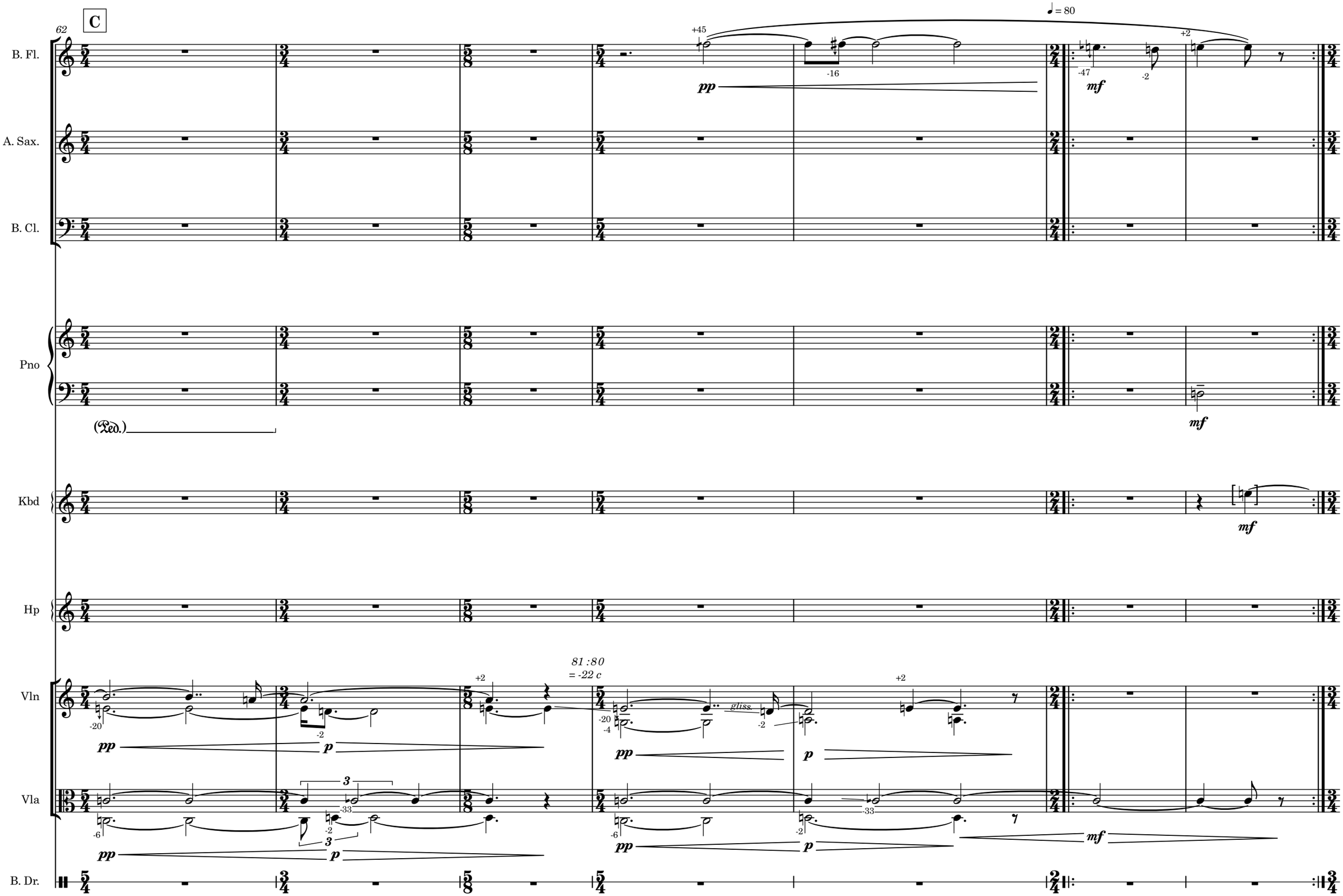
[s.p.]

ord.

s.p.

ord.

to bass drum


C
62
B. Fl.
A. Sax.
B. Cl.
Pno
(Ped.)
Kbd
Hp
Vln
Vla
B. Dr.
♩ = 80
+45
-16
-47
-2
+2
pp
mf
81 :80
= -22 c
-20
-4
gliss.
p
-6
-33
3

D *Vox Humana* ♩ = 60

69

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

Vln

Vla

B. Dr.

legato

quasi s.t.

IV

III

gliss.

D# -49

sotto voce

Cor de Nuit

E ♪ = 120

75

[3x]

B. Fl.

last time tacet

A. Sax.

last time tacet

B. Cl.

Pno

senza pedal

Kbd

Hp

Vln

first time tacet

45:44
-39c

21:22
+81c

44:45
+39c

Vla

3°/II

B. Dr.

82

F [3x]

1.2. 3.

Voix Céleste

♪ = 45

B. Fl.

A. Sax. [1st time tacet]

B. Cl. [1st time tacet]

Pno

Kbd

Hp

Vln [3rd time tacet]

Vla

B. Dr.

22:21

-81c

respiro

[Bass drum]

[3x]
perdendosi

Cor de Nuit
♪ = 120

[7x]
1. ♩=120
2. 110
3. 100
4. 90
5. 80
6. 70
7. 60

MOX

90

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

Vln

Vla

B. Dr.

G *Voix Céleste*
second time only

-31
p

ma piena voce

last time only

1. +13 -7
2. +20 -7

+13 -7 sim.
+20 -7 sim.

+4

second time only

-31
p
[take pitch from bass flute]

p.d.l.t.

respiro
+4
pp
D#-48
81:80
-22c
33:32
-53c
-14
-2
+4
-31

[bass drum]
p
to gong

100

B. Fl.

A. Sax.

B. Cl.

+4

gliss.

+31

p

mp

[take pitch from bass flute]

-31

p

[take pitch from violin]

gliss.

+22

mp

Pno

Kbd

Hp

Vln

Vla

second time only

II7

-19

p

B. Dr.

110

B. Fl.

A. Sax.

B. Cl.

64:63
-27c

gliss

-4

-31

p

mp

Pno

Kbd

Hp

Vln

second time only

-31

[pitch from viola]

p

gliss.

Vla

[second time only]

-17

[pitch from bass clarinet]

p

B. Dr.

120

H

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

Vln

Vla

B. Dr.

mf

p

mp

pp

p.d.l.t.

ben articulato
sotto voce

[gong]

II7

F♯+40

I

130

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

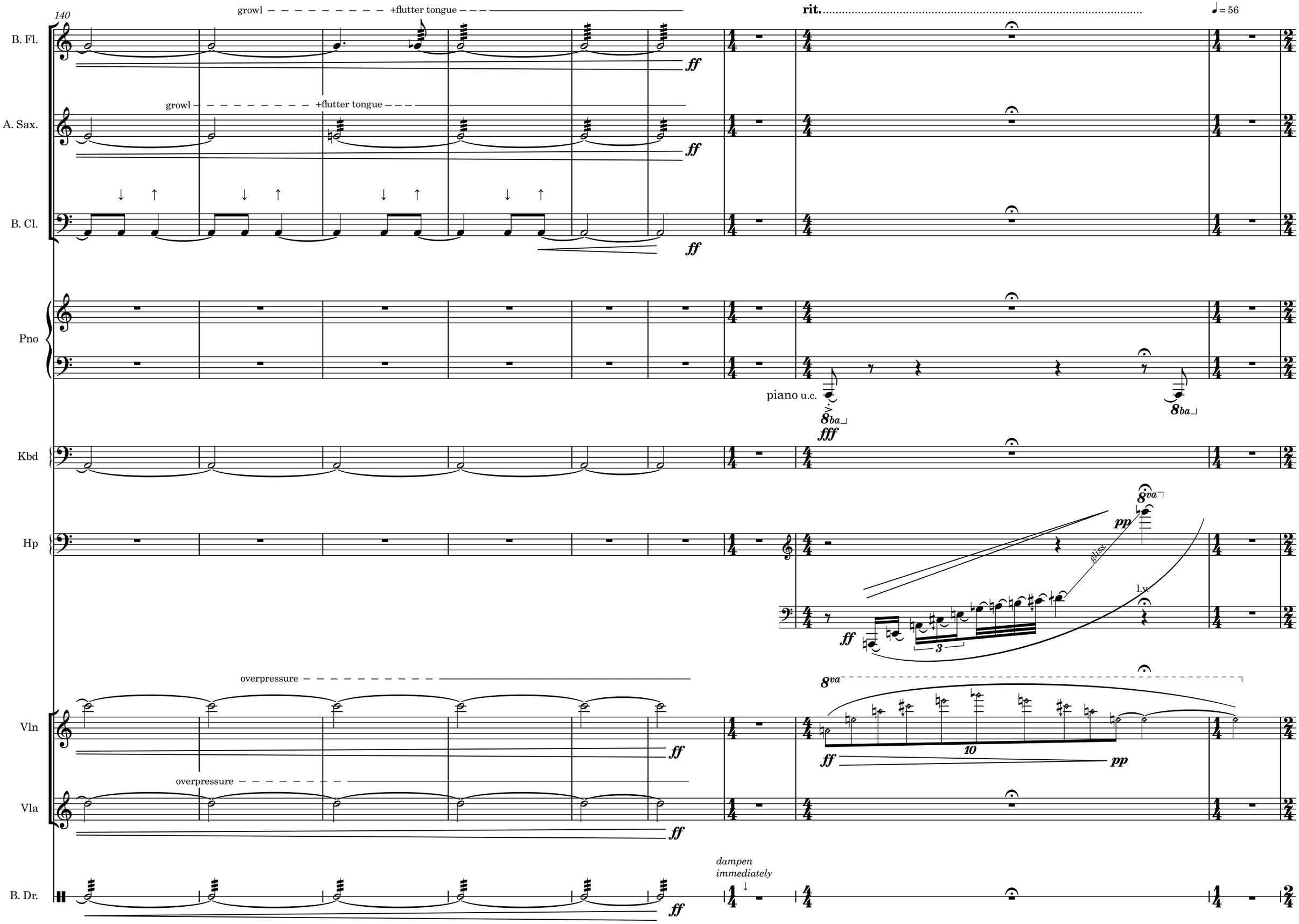
Hp

Vln

Vla

B. Dr.

mp mf f p sub.


140
B. Fl.
A. Sax.
B. Cl.
Pno
Kbd
Hp
Vln
Vla
B. Dr.
growl
+flutter tongue
rit.
♩= 56
ff
piano u.c.
8ba
fff
8va
pp
gliss.
l.v.
3
overpressure
10
dampen immediately

149

J

harp solo

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Voix Céleste

Hp

p.d.l.t. *norm.* *p.d.l.t.* *norm.* *p.d.l.t.*

ff ***f*** ***mf*** ***ff***

C♯ F♯

second time:

E♭ C♭ B♮

D♮ B♭ G♮

D♭ C♯ B♯ G♭

Vln

Vla

B. Dr.

154

Cor de Nuit

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

p.d.l.t.

norm.

p.d.l.t.

norm.

until sound has dissipated . . .

C♮ G♯ B♮ F♮ C♭ F♭ D♯ G♮ F♯ G♭ B♭ A♯ C♭

Vln

Vla

B. Dr.

MOX

1.

2.

K

163

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

B♭ C♯ E♯ F♮

E♮

G♭

Vln

Vla

B. Dr.

169 *Rohrflöte*

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

mf prominente

Hp

E♭G♭

E♮G♮

Vln

Vla

B. Dr.

176

Voix Céleste

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

mf *p* *pp* *p* *mf* *pp* *mf*

A♭ C♭G♯A♮

[7x]

Vln

Vla

B. Dr.

182

L

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

Vln

Vla

B. Dr.

Sost.

Cor de Nuit
Voix Céleste
Plein Jeu
Hautbois
Contrabass
Sw. closed

189 ♩ = 96

M ♩ = 45

B. Fl.

A. Sax.

B. Cl.

Pno

Kbd

Hp

Vln

Vla

B. Dr.

D# -49

-14

+4

pp

ppp

nasale, brillante

p

(Sost.)

8ba

match gong

Sost.

mf

+2

-31

con sordino

[gong]

196

B. Fl.

A. Sax.

B. Cl.

Pno

(Sost.)

Kbd

Hp

Vln

Vla

B. Dr.

♩ = 120

♩ = 45

tongue ram

C#-48

slap tongue

-14

-14

secco

++3

norm.

norm.

bass drum

secco

gong

202

♩ = 120

♩ = 45

B. Fl.

tongue ram

C#-48

mf

p

A. Sax.

slap tongue

+

-14

mf

p

B. Cl.

-14

p

f

p

Pno

secco mf

match gong

8ba

p

(Sost.)

Kbd

Hp

f

p

Vln

pp

mf

+4

-31

Vla

-14

F: +41

B. Dr.

bass drum

secco mf

gong

p

209

B. Fl.

A. Sax.

B. Cl.

Pno

(Sost.)

Kbd

Hp

Vln

Vla

B. Dr.