

Tom Morrison

Memory and Material
For Latitude 49

Tom Morrison

Memory and Material 2019

A few notes on performance:

microtones:

Two types of microtones are used in this piece.

The first is indicated with a microtonal accidental, seen below, and is 31 cents flat.

For reference, the microtonal deviation from equal temperament is the same as that of the 7th partial of the overtone series.



The second type is indicated with an arrow, also below, and is 14 cents flat.

This deviation is the same as the 5th partial of the overtone series.



Electronics

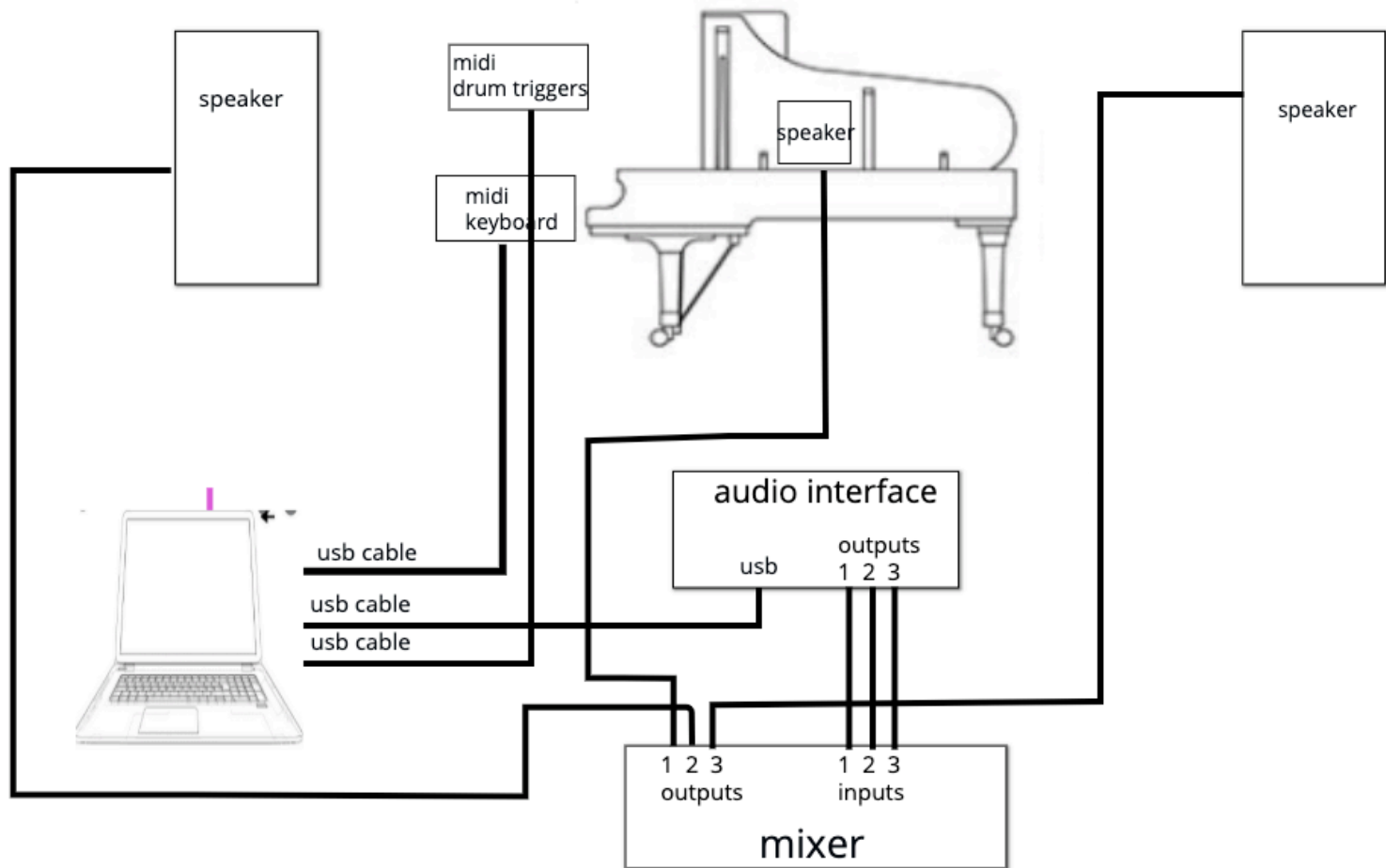
The electronic element of the percussion part is controlled by midi pads that should be hit with mallets or sticks. The pad triggers stereo samples in max/msp which are output to speakers on either side of the stage.

For some of the piece, the pianist utilizes a midi keyboard that controls a synthesizer that is run in the same max/msp patch last the percussion. The keyboard should be situated in a place where the pianist can play it while also pedaling the acoustic piano (perhaps even on top of the piano) the synthesizer part will activate the strings of the acoustic piano. If a midi controller is impractical or unavailable, email tm18@princeton.edu for a max patch that can trigger the synthesizer chords.

The synthesizer signal is mono, and is output to a speaker that is placed on the soundboard of the piano with the speaker cone facing directly into a sound hole. If this is not possible, place a speaker under the piano facing the bottom of the piano. In both cases, if the speaker is not very big a subwoofer under the piano may be necessary as there are many low-frequencies in the synthesizer part.

If a mixing board is not available then the electronics can be mixed within the max patch and the outputs can be sent straight to the speakers.

Contact me if there are any questions regarding the electronics: +1 5165743510; tm18@princeton.edu



memory and material

Tom Morrison

♩ = 78

Clarinet in Bb

Alto Saxophone

Percussion

SYNTH
*hold piano pedal down until
end of synth section*

pp

♩ = 78

Violin
non vib. (until end)
pp p > pp

Violoncello
non vib. (until end)
pp p > pp

The musical score is written for a chamber ensemble. The top section includes Clarinet in Bb, Alto Saxophone, and Percussion, all of which have rests throughout the piece. Below them is a Synth part with a sustained low note marked 'pp' and a text instruction: 'SYNTH hold piano pedal down until end of synth section'. The bottom section features Violin and Violoncello. Both parts play a melodic line in 3/4 time, marked 'non vib. (until end)'. The dynamics for both parts are 'pp', 'p > pp', and 'p'.

13 **A**

Cl.

Alto Sax.

Vln.

Vc.

p *mp* *pp*

pp *p* *pp*

pp *p* *pp*

pp *p* *pp*

pp *p* *pp*

pp *mp*

19

Cl.

Alto Sax.

Vln.

Vc.

pp *f* *pp*

pp *f* *pp*

pp *f* *pp*

pp *f* *pp*

pp

aprox. c31 flat;
as if it is the 7th partial
of a c# fundamental

B

25

Cl.

Cl. staff: Treble clef. Measure 25: whole rest. Measure 26: quarter rest, eighth note G#4, half note A4 (bowed), quarter note G#4. Measure 27: eighth note G#4, eighth note F#4, quarter rest, quarter rest, quarter rest. Dynamics: *pp* (start of measure 26) to *f* (start of measure 27).

Alto Sax.

Alto Sax. staff: Treble clef. Measure 25: whole rest. Measure 26: whole rest. Measure 27: whole rest.

perc.

perc. staff: Treble clef. Measure 25: eighth note G4, eighth note A4, eighth note B4, eighth note C5, quarter rest. Measure 26: quarter rest, eighth note G4, eighth note A4, eighth note B4, eighth note C5, quarter rest. Measure 27: eighth note G4, eighth note A4, eighth note B4, eighth note C5, eighth note G4, eighth note F#4, eighth note E4, eighth note D4.

Piano right hand staff: Treble clef. Measure 25: whole rest. Measure 26: whole rest. Measure 27: whole rest.

Piano left hand staff: Treble clef. Measure 25: whole rest. Measure 26: whole rest. Measure 27: whole rest.

B

Vln.

Vln. staff: Treble clef. Measure 25: eighth note G#4, eighth note F#4, quarter rest, quarter rest. Measure 26: eighth note G#4, eighth note F#4, half note G#4 (bowed), quarter note G#4. Measure 27: eighth note G#4, eighth note F#4, quarter rest, quarter rest. Dynamics: *f* (start of measure 25) to *pp* (start of measure 26) to *f* (start of measure 27).

Vc.

Vc. staff: Bass clef. Measure 25: eighth note G3, eighth note F#3, quarter rest, quarter rest. Measure 26: eighth note G3, eighth note F#3, half note G3 (bowed), quarter note G3. Measure 27: eighth note G3, eighth note F#3, quarter rest, quarter rest. Dynamics: *f* (start of measure 25) to *pp* (start of measure 26) to *f* (start of measure 27).

28

Cl.

Alto Sax.

perc.

piano

Vln.

Vc.

pp

f

pp

f

pp

f

pp

port.

to piano

cutoff whenever to allow
time to get to piano

aprox. c31 flat;
as if it is the 7th partial

35 **C**

Cl.

Alto Sax.

perc.

Pno.

Vln.

Vc.

The musical score for measures 35-38, marked with rehearsal symbol **C**, features the following details:

- Measures 35-36 (5/8 time):** Clarinet and Alto Saxophone play a melodic line with dynamics f , pp , and f . Percussion has a rhythmic pattern. Piano accompaniment consists of sustained chords. Violin and Viola play a melodic line with dynamics f , pp , and f .
- Measure 37 (4/8 time):** Clarinet and Alto Saxophone continue with dynamics pp and f . Percussion is silent. Piano accompaniment has a sustained chord. Violin and Viola continue with dynamics pp and f .
- Measure 38 (3/4 time):** Clarinet and Alto Saxophone end with dynamics pp and f . Percussion has a rhythmic pattern. Piano accompaniment has a sustained chord. Violin and Viola end with dynamics pp and f .

43

Cl.

Alto Sax.

perc.

Pno.

Vln.

Vc.

D

The musical score is arranged in six staves. The Clarinet (Cl.) and Alto Saxophone (Alto Sax.) parts feature melodic lines with dynamic markings of *f* and *pp*. The Percussion (perc.) part consists of a continuous eighth-note pattern. The Piano (Pno.) part includes chords and single notes with dynamics *ff*, *mp*, *f*, and *p*. The Violin (Vln.) and Viola (Vc.) parts have melodic lines with dynamics *f* and *pp*. A key signature change to D major is indicated by a box labeled **D** above the staff at measure 45.

47

Cl.

Alto Sax.

perc.

Pno.

Vln.

Vc.

This musical score page contains measures 47 through 50. The instruments are Clarinet (Cl.), Alto Saxophone (Alto Sax.), Percussion (perc.), Piano (Pno.), Violin (Vln.), and Viola (Vc.). The key signature is one sharp (F#), and the time signature is 2/4. The score is divided into two systems. The first system contains measures 47 and 48, and the second system contains measures 49 and 50. The Clarinet and Alto Saxophone parts feature a rhythmic pattern of eighth notes and quarter notes, with dynamic markings of *f*, *pp*, and *f*. The Percussion part consists of a continuous eighth-note pattern. The Piano part features a series of chords and a triplet in measure 49, with dynamic markings of *f*, *mf*, and *p*. The Violin and Viola parts mirror the Clarinet and Alto Saxophone parts, with dynamic markings of *f*, *pp*, and *f*.

51

Cl.

Alto Sax.

perc.

Pno.

Vln.

Vc.

The musical score is written for six instruments: Clarinet (Cl.), Alto Saxophone (Alto Sax.), Percussion (perc.), Piano (Pno.), Violin (Vln.), and Viola (Vc.). The music is in 2/4 time and consists of four measures. Measures 51 and 52 are in the key of D major, while measures 53 and 54 are in the key of D minor. The Clarinet and Alto Saxophone parts feature melodic lines with dynamic markings of *f*, *pp*, and *ff*. The Percussion part provides a rhythmic accompaniment with eighth-note patterns. The Piano part includes chords and triplets, with dynamic markings of *mp* and *f*. The Violin and Viola parts also feature melodic lines with dynamic markings of *f* and *pp*. The score is marked with measure numbers 51, 52, 53, and 54 at the beginning of each measure.

55

Cl.

Alto Sax.

perc.

Pno.

Vln.

Vc.

to synth

The musical score is written for six instruments: Clarinet (Cl.), Alto Saxophone (Alto Sax.), Percussion (perc.), Piano (Pno.), Violin (Vln.), and Viola (Vc.). The score spans measures 55 to 59. The key signature is one sharp (F#), and the time signature changes from 4/4 to 3/4 at measure 56. The Clarinet part features a melodic line with dynamics *ff*, *pp*, *f*, *pp*, *f*, *pp*, and *f*. The Alto Saxophone part features a melodic line with dynamics *f*, *pp*, *f*, *pp*, *f*, *pp*, *f*, and *p*. The Percussion part features a rhythmic pattern of eighth notes in measures 55 and 56, followed by rests in measures 57, 58, and 59. The Piano part features a melodic line with dynamics *f*, *mp*, and *f*, and a bass line with dynamics *f*, *pp*, *f*, *pp*, *f*, *pp*, and *f*. The Violin part features a melodic line with dynamics *f*, *pp*, *f*, *pp*, *f*, *pp*, *f*, and *p*. The Viola part features a melodic line with dynamics *f*, *pp*, *f*, *pp*, *f*, *pp*, *f*, and *p*. The score includes various musical notations such as slurs, ties, and dynamic markings.

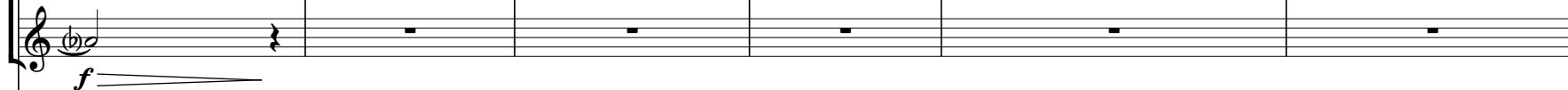
E

60

Cl.



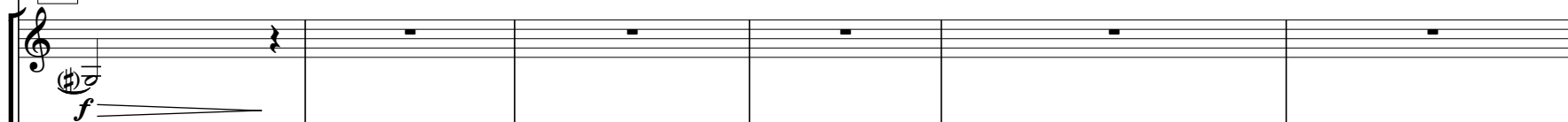
Alto Sax.



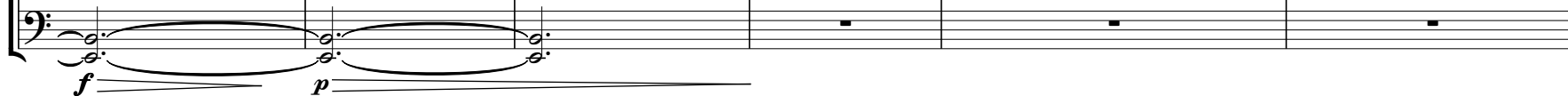
perc.

**SYNTH***mp**pedal piano each chord change***E**

Vln.



Vc.



66

Cl.

Alto Sax.

perc.

Vln.

Vc.

The musical score for measures 66-70 is as follows:

- Clarinet (Cl.):** Measures 66-70. Melodic line with dynamics *mp*, *pp*, *mp*, *pp*, and *mp*.
- Alto Saxophone (Alto Sax.):** Measures 66-70. Rests in measures 66-68, followed by a melodic phrase in measures 69-70 with dynamics *pp* and *mp*.
- Percussion (perc.):** Measures 66-70. Continuous rhythmic pattern.
- Violin (Vln.):** Measures 66-70. Long notes with slurs.
- Viola (Vc.):** Measures 66-70. Long notes with slurs.

71

Cl.

Alto Sax.

perc.

piano

Vln.

Vc.

F

F

pp *mp* *pp* *mp* *pp*

pp *mp* *pp* *mp* *pp*

pp *p* *p* *mp*

pp *p* *p* *mp*

76

Cl.

Alto Sax.

perc.

Vln.

Vc.

The musical score for measures 76-79 is written for five staves. The Clarinet (Cl.) and Alto Saxophone (Alto Sax.) parts are in treble clef with a key signature of one sharp (F#). The Percussion (perc.) part is in treble clef. The Violin (Vln.) and Viola (Vc.) parts are in bass clef with a key signature of one sharp (F#). The Clarinet and Alto Saxophone parts feature a melodic line with slurs and dynamic markings: *mp* (mezzo-piano) and *pp* (pianissimo). The Percussion part features a rhythmic pattern of eighth and sixteenth notes. The Violin and Viola parts feature a melodic line with slurs and dynamic markings: *p* (piano), *mp* (mezzo-piano), and *pp* (pianissimo).

81

Cl.

Alto Sax.

perc.

Vln.

Vc.

The musical score for measures 81-84 is as follows:

- Clarinet (Cl.):** Measures 81-82: D4 (half note), E4 (half note), F#4 (half note), G4 (half note), A4 (half note). Measures 83-84: B4 (half note), C5 (half note), D5 (half note), E5 (half note), F#5 (half note). Dynamics: *pp* (measures 81-82), *mp* (measures 83-84).
- Alto Saxophone (Alto Sax.):** Measures 81-82: B3 (half note), C4 (half note), D4 (half note), E4 (half note), F#4 (half note). Measures 83-84: G4 (half note), A4 (half note), B4 (half note), C5 (half note), D5 (half note). Dynamics: *pp* (measures 81-82), *mp* (measures 83-84).
- Percussion (perc.):** Continuous eighth-note pattern throughout all measures.
- Violin (Vln.):** Measures 81-82: D4 (half note), E4 (half note), F#4 (half note), G4 (half note), A4 (half note). Measures 83-84: B4 (half note), C5 (half note), D5 (half note), E5 (half note), F#5 (half note). Dynamics: *mf* (measures 81-82), *p* (measures 83-84).
- Viola (Vc.):** Measures 81-82: D4 (half note), E4 (half note), F#4 (half note), G4 (half note), A4 (half note). Measures 83-84: B4 (half note), C5 (half note), D5 (half note), E5 (half note), F#5 (half note). Dynamics: *mf* (measures 81-82), *p* (measures 83-84).

85

Cl.

Alto Sax.

perc.

Vln.

Vc.

The musical score for measures 85-88 is arranged in five systems. The first system contains the Clarinet (Cl.) and Alto Saxophone (Alto Sax.) staves. The second system contains the Percussion (perc.) staff. The third system contains the Violin (Vln.) and Viola (Vc.) staves. The fourth system contains the Violin (Vln.) staff. The fifth system contains the Viola (Vc.) staff. The Clarinet and Alto Saxophone parts feature melodic lines with dynamic markings of *pp* and *mp*. The Percussion part features a rhythmic pattern of eighth notes. The Violin and Viola parts feature sustained notes with dynamic markings of *mf* and *p*.

pp

mp

pp

pp

mp

mf

p

mf

pp

mf

p

mf

p

89

Cl.

Musical staff for Clarinet (Cl.) in G major. It features a half note G4 (p), a half note A4 (ppp), and a quarter note B4 (pp) tied to the next measure. A slur connects the first two notes.

Alto Sax.

Musical staff for Alto Saxophone, mostly containing rests. It has a quarter note Bb4 (pp) in the final measure.

perc.

Musical staff for Percussion, containing rests throughout the measures.

Musical staves for Piano, showing a sustained chord of G4 and A4 in the right hand and G3 and A3 in the left hand, with a slur across the first two measures.

Vln.

Musical staff for Violin in G major. It contains a melodic line with slurs and portamento markings (port.). Dynamics include mf, p, and mp.

Vc.

Musical staff for Violoncello in G major. It contains a sustained chord of G3 and A3. Dynamics include mf, pp, and mp.

G

21

93

Cl.

Cl. staff: Treble clef, key signature of one sharp (F#). The staff contains a melodic line with a slur over the first three measures (measures 93-95) and a slur over the last three measures (measures 97-99). Dynamics: *mp* (measures 93-95), *pp* (measures 96-97), *mf* (measures 98-99), *p* (measures 100-101).

Alto Sax.

Alto Sax. staff: Treble clef, key signature of one sharp (F#). The staff contains a melodic line with a slur over the first three measures (measures 93-95) and a slur over the last three measures (measures 97-99). Dynamics: *mp* (measures 93-95), *pp* (measures 96-97), *mp* (measures 98-99), *pp* (measures 100-101), *mf* (measures 102-103).

perc.

perc. staff: Treble clef, key signature of one sharp (F#). The staff contains a continuous rhythmic pattern of eighth notes.

Violoncello (Cello) staff: Bass clef, key signature of one sharp (F#). The staff contains a melodic line with a slur over the first three measures (measures 93-95) and a slur over the last three measures (measures 97-99). Dynamics: *pp* (measures 93-95), *pp* (measures 96-97), *mf* (measures 98-99), *p* (measures 100-101).

Violoncello (Cello) staff: Bass clef, key signature of one sharp (F#). The staff contains a melodic line with a slur over the first three measures (measures 93-95) and a slur over the last three measures (measures 97-99). Dynamics: *pp* (measures 93-95), *pp* (measures 96-97), *mf* (measures 98-99), *p* (measures 100-101).

G

Vln.

Vln. staff: Treble clef, key signature of one sharp (F#). The staff contains a melodic line with a slur over the first three measures (measures 93-95) and a slur over the last three measures (measures 97-99). Dynamics: *p* (measures 93-95), *mf* (measures 96-97), *p* (measures 98-99), *f* (measures 100-101), *ppp* (measures 102-103).

Vc.

Vc. staff: Bass clef, key signature of one sharp (F#). The staff contains a melodic line with a slur over the first three measures (measures 93-95) and a slur over the last three measures (measures 97-99). Dynamics: *p* (measures 93-95), *mf* (measures 96-97), *p* (measures 98-99), *mf* (measures 100-101), *p* (measures 102-103).

98

Cl.

f *p* *f* *mp* *mp* *pp*

Alto Sax.

pp *f* *mp* *mp* *pp*

aprox. e31 flat;
same as strings

perc.

Vln.

f *mp* *mf* *p* *mf*

Vc.

mf *p* *mf* *p* *mf*

port.

The musical score for measures 98-102 is written for five instruments: Clarinet (Cl.), Alto Saxophone (Alto Sax.), Percussion (perc.), Violin (Vln.), and Violoncello (Vc.). The Clarinet and Alto Saxophone parts are in treble clef, while the Violoncello part is in bass clef. The Percussion part is in treble clef. The Violin part is in treble clef. The Clarinet part starts with a forte (f) dynamic, followed by a piano (p) dynamic, then a crescendo to mezzo-forte (mp), and finally a decrescendo to pianissimo (pp). The Alto Saxophone part starts with a pianissimo (pp) dynamic, followed by a crescendo to forte (f), then a decrescendo to mezzo-forte (mp), and finally a decrescendo to pianissimo (pp). The Percussion part has a continuous rhythmic pattern. The Violin part starts with a forte (f) dynamic, followed by a decrescendo to mezzo-piano (mp), then a crescendo to mezzo-forte (mf), and finally a decrescendo to piano (p). The Violoncello part starts with a mezzo-forte (mf) dynamic, followed by a decrescendo to piano (p), then a crescendo to mezzo-forte (mf), and finally a decrescendo to piano (p). The Violoncello part also includes a 'port.' (portamento) marking. A text annotation 'aprox. e31 flat; same as strings' is present above the Alto Saxophone staff.

103

Cl.

Alto Sax.

perc.

Vln.

Vc.

mf

p

f

mp

pp

port.

aprox. c31 flat;
same as strings

The musical score for measures 103-106 is written for five staves. The Clarinet (Cl.) staff is in treble clef with a key signature of one sharp (F#). It features a melodic line with dynamics *mf*, *p*, and *f*. The Alto Saxophone (Alto Sax.) staff is also in treble clef with a key signature of one sharp. It plays a melodic line with dynamics *mp* and *pp*. The Percussion (perc.) staff is in treble clef and features a continuous rhythmic pattern of eighth notes. The Violin (Vln.) and Viola (Vc.) staves are in bass clef with a key signature of one sharp. The Violin part has dynamics *p* and *mf*, with a *port.* marking. The Viola part has dynamics *p* and *mf*. A note in the Alto Saxophone part is marked 'aprox. c31 flat; same as strings'.

107

Cl.

Alto Sax.

perc.

Vln.

Vc.

H

p

port.

f

p

mp

pppp

p

mf

p

port.

port.

p

mf

p

aprox. e14 lower
as if it is 5th partial
of "e" root

H

110

Cl.

Alto Sax.

perc.

Vln.

Vc.

f

mf

port.

p

mf

p

port.

mp

p

mf

aprox. e14 lower
as if it is 5th partial
of "e" root

113

Cl.

Alto Sax.

perc.

Vln.

Vc.

p *mf* *p* *mp* *p* *mf*

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

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

120

Cl.

Alto Sax.

perc.

Vc.

Vln.

p *mp* *pp* *p* *ppp* *pp*

p *ppp* *pp* *ppp* *pp*