

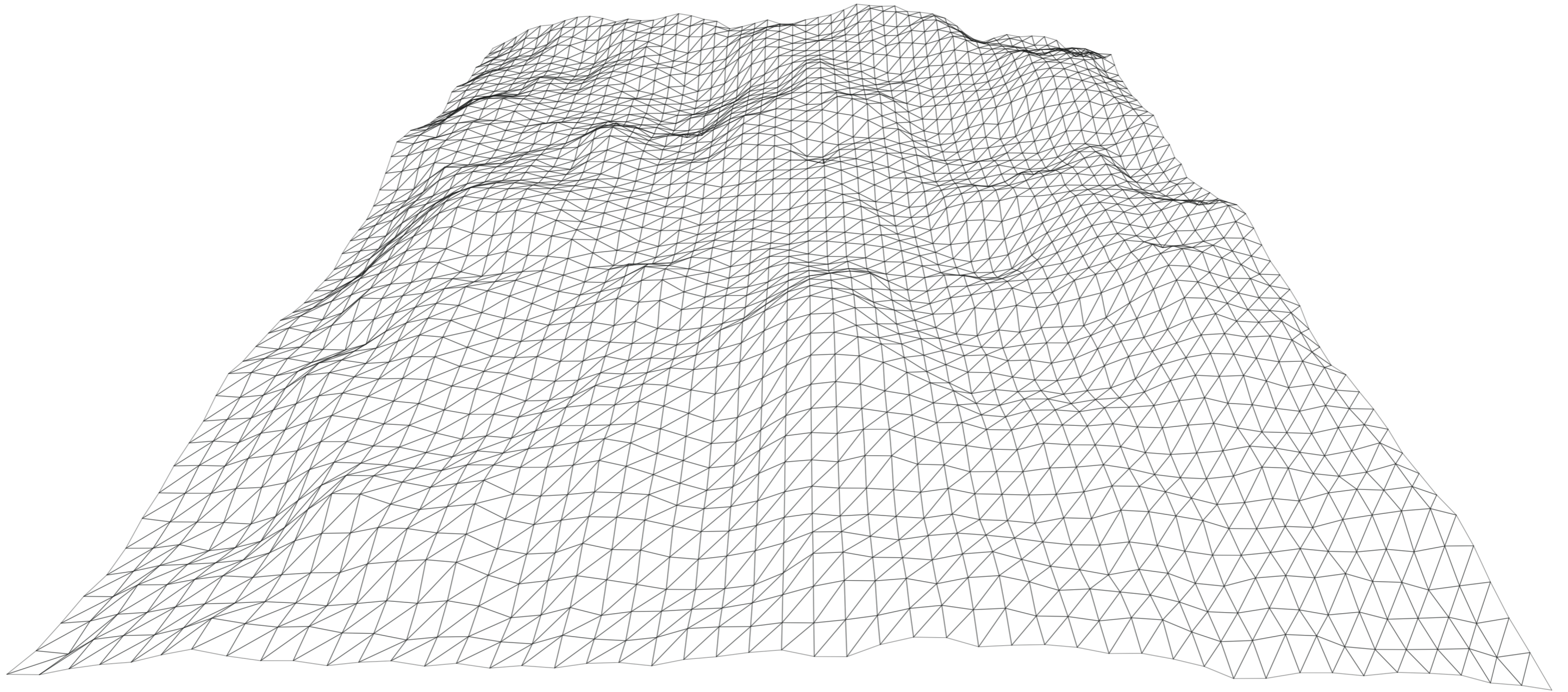
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**APPENDIX VII:  
SUPPLEMENTARY COMPOSITIONS**

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# **VERMILION SANDS (2013)**





# Vermilion Sands

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*for flute, violin, violoncello  
and percussion*

# Vermilion Sands

Duration: 14'30"

(after J.G. Ballard)

## Information

A survey of dystopian landscapes, *Vermilion Sands* operates at the brink of instability brought about through procedural, parametric control.

Very softly. Remaining inconspicuous at all times. No vibrato.

## Instrumentation

Flute

Violin

Violoncello



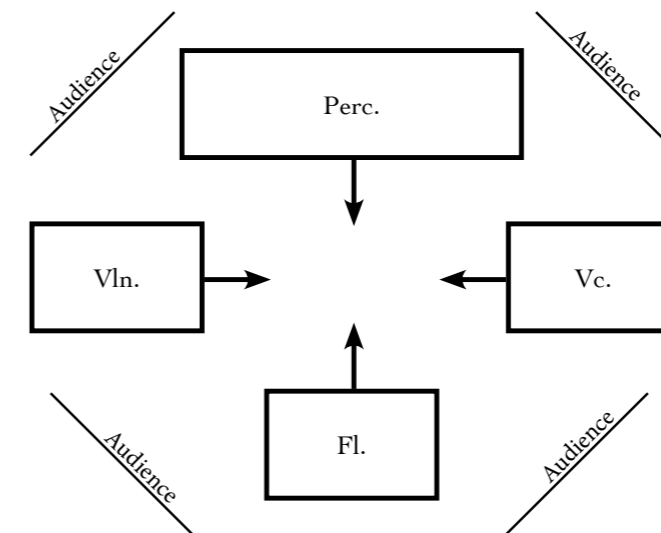
*Strings require heavy mutes*

Percussion:

- Crotale (bowed)
- Vibraphone (no motor)
- Timpani
- Bass Drum (mounted in 360° rotating frame)
- Woodblock (bowed)
- Rice

## Seating Arrangement

The ensemble should be arranged quadrilaterally, facing inwards and able to make eye contact with each other. Where an audience is present, if possible, they should surround the performers in the round.



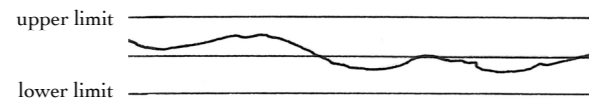
## Notation

### Standard 'metered' parts

In addition to the space-time layout of the score, the piece makes use of standard metered bars. Only the start of a metered bar is necessarily placed accurately within space-time, from this point onwards the bar is subject to the metronome mark of the piece ( $\text{♩} = 40$ ).

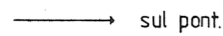
### Parametric change over sustained tones and actions

A number of the sustained sonorities within the piece are subjected to very subtle manipulations over time. Performance variables are examined by making small parametric changes (for instance: the flute's breath pressure, the strings' pitch or bow technique, or the percussion's impulse density). All of these changes make use of a parametric curve in the score, plotting a behaviour that falls between an upper and lower limit (relative to an initial state). For individual details of each type of parametric change, refer to the instrumental *Performance instructions*.



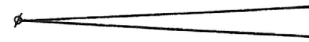
### Crossfade between instruments

As one instrument fades out, the succeeding instrument fades in as if to counterbalance. Both instruments attempt to keep the level balanced as though the sonority is slowly morphing, rather than two distinct sounds.



### Gradual change

A horizontal arrow signals a slow, even shift from one playing state or technique into another.



### Fade out of / into nothing

An 'ø' at the start or end of a crescendo or decrescendo signals a smooth transition *dal* or *al niente*.

## Timing

0'00''

0'14''-0'34''

0'52''

(0'11''-0'16'')

→2'45''

### Page time

Each page represents one and a half minutes, divided by vertical lines at thirty second intervals. Page times are given at the start and end of each page only.

### Play specifically *from, until*

(i.e. sustain the sonority from 0'14'' until 0'34'')

### Play action at specific time-point

### Begin action between designated times, *x* and *y*

The endpoint should be implied (i.e. a single strike, or a metered bar)

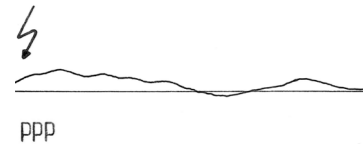
### Continue action until specific point

The tempo of the piece remains consistent throughout at  $\text{♩} = 40$  b.p.m. This gives the note duration of  $\text{♩} = 1.5$  secs. Be aware that metered bars may not necessarily conform to strict time-space layout.

Players should use synchronised stopwatches, or a common clock source, to gauge the entrance and duration of their actions. Please note that actions connected with vertical lines are to be synchronised between players, and some visual cueing may be required (for example: note onsets, or the release of a sustained tone).

## Performance Notes

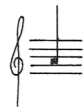
### Flute



#### Breath pressure

Breath pressure is controlled parametrically, relative to the dynamic marking given at the start of each action, and by the context of the action (i.e. breath tones sound louder than whistle tones). Moving down on the vertical axis signifies a reduction of breath pressure (to the point where the performer is no longer exhaling). Where the parametric curve moves upwards, breath pressure increases.

breath tone



#### Breath tones

A subtle but clear 'air' noise, played with the slightest hint of the notated pitch. Approximately 80% 'air' noise, 20% 'pitched' tone.

whistle tone -----

#### Whistle tones

Unstable and very quiet. As breath pressure changes, different partials will come and go. Do not struggle to constrain the tone to the written pitch, simply use it as a point of departure.

#### A note on when (and where) to breath

Specific breathing points are not written into the score. Instead, during longer sustained tones which cannot be completed within a single breath, players should take small breaths where required, attempting to disrupt the tone as little as possible.

### Strings

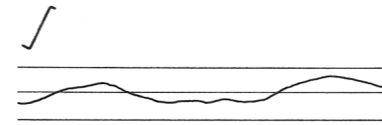
Harmonics are not expected to always sound clearly, they will be unstable and dependant upon other variables which may be manipulated over time. Do not attempt to force a harmonic to sound.



#### Bow Pressure

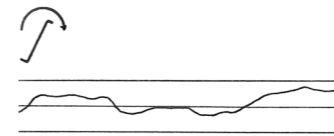
Bow pressure is to be controlled relative to the dynamic marking given at the start of an action. Where the mid-point of the chart's vertical axis is given by the dynamic marking (*ppp*, *pppp*), moving below this point signifies a reduction of bow pressure (to the point where the bow is barely in contact with the instrument). Where the parametric curve moves upwards, bow pressure increases slightly, whilst the bow movement or speed slows relatively.

(Performance notes: Strings, continued)



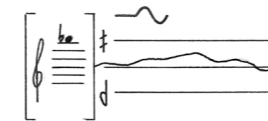
#### Bow Movement

Shows the part of the bow (frog to tip) in contact with the string. Where there is minimal movement it is expected that the bow will stick and slip, causing sound to break up and be unstable. Bow pressure is linked relatively to acceleration and velocity, more movement means an extremely light, fast (*flautando* where possible) bow pressure, while minimal movement should yield more pressure. Where such overpressure is used, be careful to move the bow as little as possible: the intention is that it should barely sound.



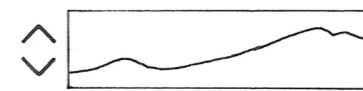
#### Bow Rotation

Directs the bow's angle of incidence with the strings in order to move between strings in given chord. The lower limit of the chart would represent the bow in contact with only the *iv* string, whilst moving towards the upper limit would have the moving rotating towards the *i* string. Due to the generally light bow pressure used in the piece, at most only a double stop will ever be produced.



#### Pitch Deviation (*Glissando*)

The parametric curve plots a detailed glissandi path to follow between the given upper and lower limits (relative to the specified pitch).



#### Bow Location

Usually given as a simple *sul pont.*, *ord.*, or *sul tasto* marking, although occasionally movement is required whilst bowing. This either occurs as a simple, gradual transition (*sul pont.* → *ord.* → *sul tasto*) to be executed as smoothly as possible, or as a parametric change. In the case of the parametric change (using the diamond symbol), the bow moves from *molto sul tasto* (the chart's upper limit) down to *molto sul ponticello* (lower limit), and again this should be executed smoothly.



**Bowing directly on the bridge**, parallel to the string indicated (*i*, *iii*, etc.) causing it to softly resonate.

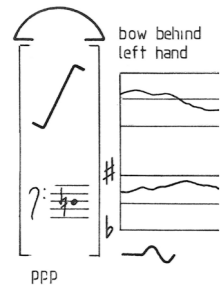


**Bowing on the tailpiece**, using both hair and the smallest amount of the bow wood. Approximately 80% hair, 20% wood.



**Dampen strings**, using the left hand to mute the specified string (where no string number is given, mute all strings), producing no specific pitch.

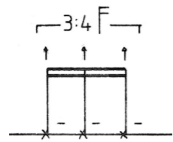
(Performance notes: Strings, continued)



**Bowing behind the left hand**, pitches given are for normal playing position (not the pitch that will be produced). The string length between the nut and left hand which is being bowed will sound most prominently, but the string length from the left hand to the bridge should also be allowed to resonate.

## Violin

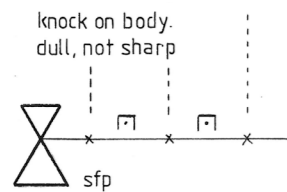
Tuning:



### Left hand pull-off

Whilst bowing behind the left hand, stop the note with the 1st finger. Using the 2nd or 3rd finger, perform a left hand pizzicato. This will cause the length of string on the opposite side of the bow to sound.

## Violoncello

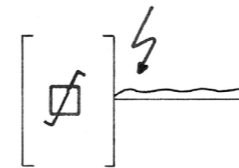


### Knock on the body

Knock on the body of the instrument below the f-holes with the fleshy part of the finger, *sfp*. A dull sound, not sharp. Do not dampen the strings, allow them to ring if possible.

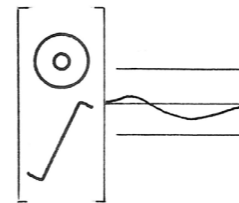
## Percussion

Unless otherwise specified (i.e. 'with fingertips'), the softest mallets are required for all struck parts.



### Bow Pressure

Bow pressure is to be controlled relative to the dynamic marking given at the start of an action. Where the mid-point of the vertical axis is given by the dynamic marking (*ppp*, *pppp*), moving below this point signifies a reduction of bow pressure (to the point where the bow is barely in contact with the object). Where the parametric curve moves upwards the bow pressure increases slightly.

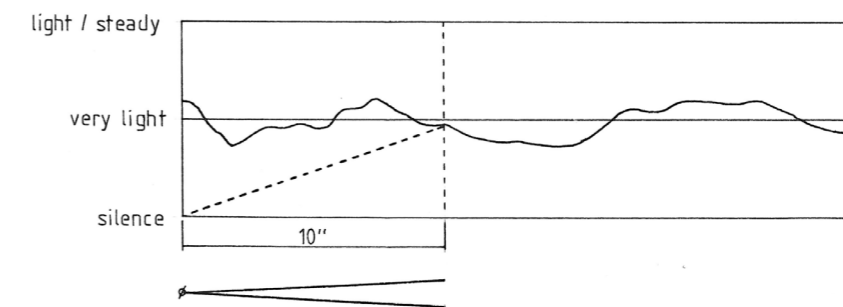


### Bow Movement

Shows the position of the bow (frog to tip) in contact with the crotale. Where there is minimal movement it is expected that the bow will stick and slip, causing sound to be unstable and preventing the crotale from ringing freely. Bow pressure should be gauged relative to the amount of movement and speed.

### 'Granular' Drumming

The drum should be rotated so the skin is parallel to the floor, thus preventing the rice from sliding across the skin once it lands. Using two hands, the performer allows a steady stream of rice to fall onto the skin: controlling the flow carefully. A very light stream should be unstable and inconsistent. Single grains of rice should be clearly distinguished, (approximately 1-3 grains per second). A light stream is such that individual grains can be heard (approximately 3-6 grains per second). In a steady stream, individual grains should be almost indistinguishable, but the flow should not be heavy enough such that the drumming resembles like white noise. To control the volume fades at the beginning and end, the player should alter the height from which the rice falls.



# Vermilion Sands

Thurley, 2013

F = 40

**FLUTE** (0'11"-0'16")  
ppppp

**VIOLIN**  
0'10"-0'38" stopped note stays fixed, harmonic position shifts  
sul pont.  
con sord. pppp  
0'40"-1'08" ppppp  
0'52" nut  
end of fingerboard  
1'08"-1'28" mute all strings with left hand  
ord. ppp  
quickly shift from harmonic to regular finger pressure  
1'28"-2'45" pppp

**CELLO**  
0'14"-0'34" quickly pull off from regular to harmonic finger pressure  
sul pont. 3:4 F  
con sord. pppp  
0'34"-1'54" pppp

**PERC.**  
0'37" timpani pppp  
0'52" bass drum ppp

1'30" 3'00"

1'54" whistle tone 2'33"

2'45" sul tasto molto sul pont.

2'55"-3'08" iii

1'54" sul tasto sul pont.

2'15"-2'50" pp

2'59"-3'08" pp

2'06"-3'08" woodblock (bowed) ppp



3'00" 3'13" 3'23"-3'38" 3'40"-4'18" 4'22"-5'02" 4'30"

→ 3'08" → 3'08" → 3'08"

iii 5:6 F 5:6 F 5:6 F 5:6 F 5:6 F

pppp pppp p ppp pppp ppp

sul pont. sul tasto 3:4 F ord.

senza sord. 4'02" knock on body. dull, not sharp sfp

bass drum (3'30"-3'40") 7:6 Γ 4:3 Γ

6/16 6/16 6/8 6/16

pppp ppp ppp



4'30"

→5'02"

→4'38"

→4'38"

4'35"

(4'42"-4'48")  
ricochet (static bow, no transverse motion)

knock on body.  
dull, not sharp

con sord.

sfp

p

6/8

3:2

pp

ppp

pppp

p

5'26"-5'39"

5'42"-5'49"

6'00"

5'16"-5'49"

5'53"-6'30"

senza sord.

sul pont.

ord.

col legno tratto

pppp

ppp

ppp

ppp

sul tast.

→5'58"

sul pont.

with fingertips

5'32"

5'42"

5'52"

bass drum

timpani

pppp

ppp

ppp

6'00"

(6'12"-6'20")

pppp  $\curvearrowright$  pppp

(7'10"-7'15")

pppp  $\curvearrowright$  ppppp

7'30"

→ 6'30"

6'37"-8'00"

bow behind left hand

pp

6'42"-7'41"

bow behind left hand

senza sord.

pp

7'05"-7'12"

left hand pull-off to pitch

3:4

6'32"-6'46"

bass drum ppp

timpani

6'50"

vibraphone

timpani

pppp

7'30" 7'40"~7'45" (5:4) PPPP

8'00"

8'05"~8'10" (5:6) PPPP

8'43"~9'05" sul pont. PPPP

7'41" 7'45"~8'15" PPP PPP

8'21"~8'35" sul pont. PPPP

8'37"~9'06" PP

7'34"~8'35" crotale (Bb6, bowed) PPP

8'40"~8'45" bass drum 11/8 PPPP

9'00"

let ring

9'00" 9'05"-9'55" ⚡  
 ppp

→ 9'05" 9'09"-9'30"  
 pppp

→ 9'06" 9'33"-10'46" ⚡  
 ppp

pizz.  
 ppp

9'54"-10'11" 10'15"-10'32"  
 ppp

ricochet arco ⚡  
 ppp pppp

10'24"-10'40" 10'30"  
 pp breath tone

bass drum 9'36" 10'22"  
 ppp pp ppp

10'30" 12'00"

→10'40" →10'45" →10'46" →10'32" →10'52'–11'12" 11'24'–11'42" 11'40'–12'00" 11'40'–12'20"

breath tone

PPP

PP

10'54'–11'36"

bow behind left hand

10'37'–11'40"

bow behind left hand

10'32'–11'40"

PPP

11'40'–12'00"

PPP

11'40'–12'20"

bow returns to normal, pitch stabilises

pppp

granular drumming

light / steady

very light

silence

10"

10'52'–11'12"

11'22'–14'12"

crotale (A7, bowed)

let ring

PPP

12'00" 12'29"-12'45" 12'52"-13'05" 13'30"

12'07"-12'58" sul tasto molto sul pont.

con sord. ppp

key click sfp

ord. 13'07" 13'18"-14'15"

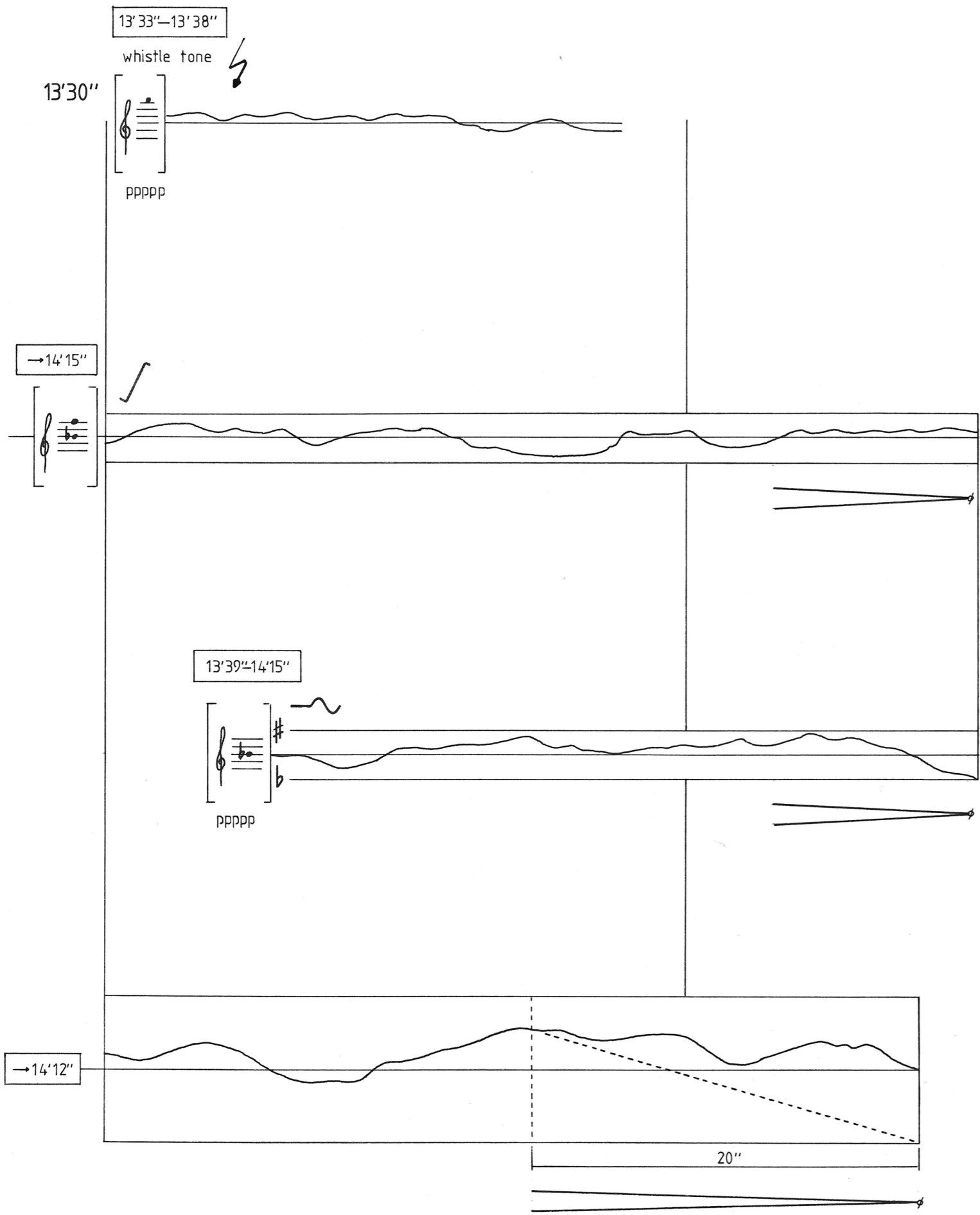
12'20"

12'25" pizz. col legno ricolchet pppp

12'44"-13'28" sul pont. con sord. pppp PPP

8"

14'12"

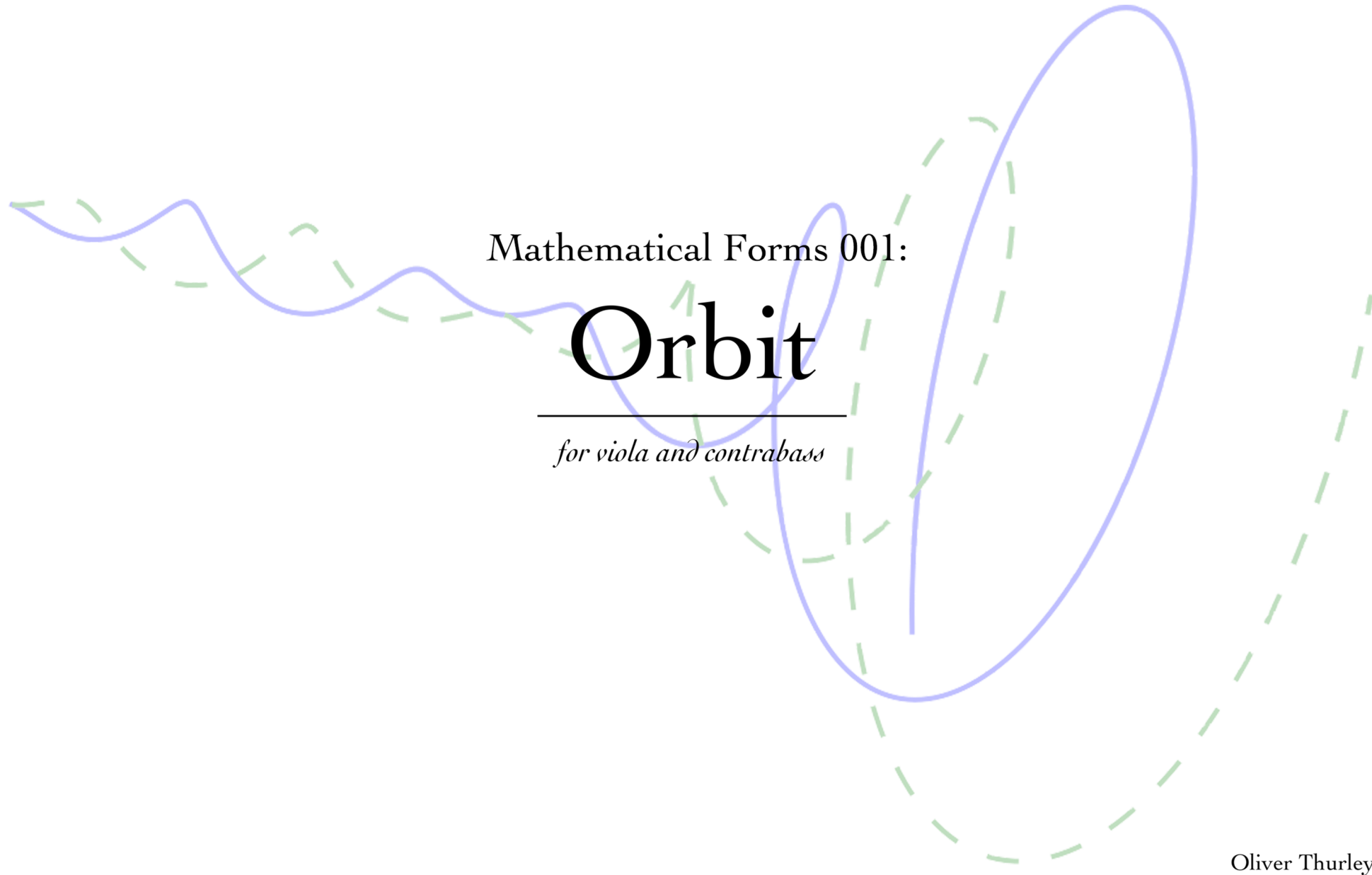


14'30''

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# **MATHEMATICAL FORMS 001: ORBIT (2013)**





Mathematical Forms 001:

# Orbit

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*for viola and contrabass*

Oliver Thurley

# Mathematical Forms 001: Orbit

for viola and contrabass

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approx. 4'

Two instruments move together, intertwined in concentric spirals.

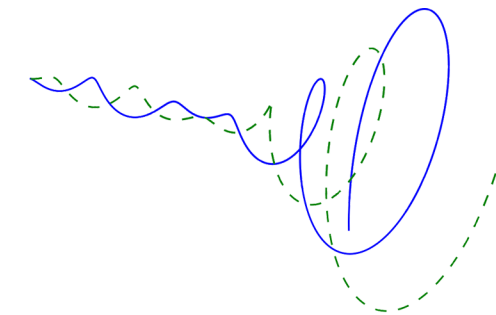
## *Performance Notes*

Slowly. Very softly. No vibrato.

The entire piece should be performed as a single *glissando*. Bow lengths played as slowly as possible, at the brink of instability.


Barlines, note heads and stems are simply for metric guidance, they are not to be articulated.

Contrabass plays entirely on the *IV* string. If possible, the viola also plays entirely on the *IV* string, although the *III* may be required.



### **Bow position**

- |                 |   |
|-----------------|---|
| <i>m.s.t.</i>   | - <i>Molto sul tasto</i> : close to left hand.  |
| <i>s.t.</i>     | - <i>Sul tasto</i>  |
| <i>1/2 s.t.</i> | - Halfway between <i>ord.</i> and <i>sul tasto</i> .  |
| <i>ord.</i>     | - Ordinary bow position.  |
| <i>1/2 s.p.</i> | - Halfway between <i>ord.</i> and <i>sul pont.</i>  |
| <i>s.p.</i>     | - <i>Sul ponticello</i>   |
| <i>m.s.p.</i>   | - <i>Molto sul ponticello</i> : Almost over the bridge: a sharp tone, with crisp harmonic partials. |

The  arrow signals a gradual and even transition between bow positions.

Mathematical Forms 001: Orbit

$\uparrow = 50-60$

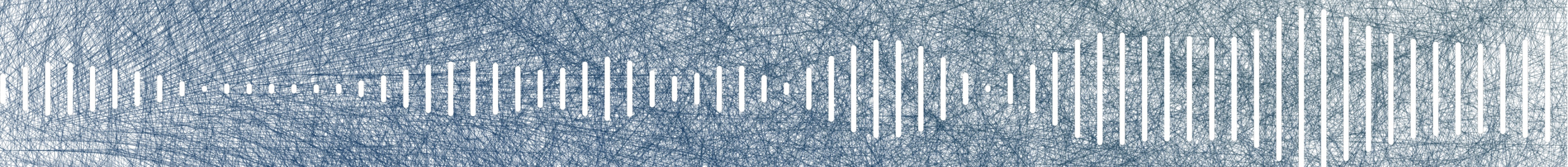
Viola  
Contrabass

*aur*  
Winter,  
2013

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# **FACE OF THE DEEP (2014)**





FACE OF THE DEEP  
VIOLA QUARTET



# FACE OF THE DEEP

written for the Impuls academy, 2015

Oliver Thurley, 2014

## PERFORMANCE NOTES

viola quartet

*extremely quiet. faltering. no vibrato*

ca. ≤ 20'

## GENERAL NOTES

### SPATIAL ARRANGEMENT

If space permits, the quartet should surround the audience at four equally spaced points (possibly towards the corners of the performance space).

### TIMING

Each page/section is divided into four equal bars/sub-sections, each of which should last 15 seconds (1 page per minute). The quartet should perform with stopwatches in order to orient their timings.

If the performance schedule does not permit the full 20-minute/page version, a number of pages may be freely omitted from the score to form an abridged version of the piece. This decision is left to the discretion of the ensemble, however the quartet must of course all play the same pages in the same order.

### WAVEFORM DYNAMICS

The waveforms show the amplitude envelope of the preceding pitch through the control of bow pressure. At the zero-point, no pressure is exerted on the string. The maximum pressure in the piece should be equivalent to approximately *ppp*.

Bowing speed is linked to the pressure dynamics. At an average pressure of roughly *pppp*, bowing speeds should be as slow as possible in order to barely maintain a constant tone. At higher pressure, the bow should barely move. It is expected that slight inconsistencies in bowing will cause the string to stick and slip, with the tone faltering.

*N.B. Operating at such low speeds and dynamics, it is expected that tones will be inconsistent, frequently breaking up or failing to sound clearly. This is entirely intentional and to be embraced.*





(general notes, cont.)

## BOW POSITION

<b>MST</b>	-	<i>molto sul tasto</i> : close to left hand.
<b>ST</b>	-	<i>sul tasto</i>
<b>ord.</b>	-	ordinary bow position.
<b>SP</b>	-	<i>sul ponticello</i>
<b>MSP</b>	-	<i>molto sul ponticello</i> : Almost on the bridge: a sharp tone, with crisp harmonic partials.

## FINGER PRESSURE

The left-hand finger pressure compressing a note may shift, cause the string to sound as either regular tone, noise or harmonic.

	-	0% pressure, harmonic / noise.
	-	50% pressure ( <b>N.B.</b> pitch will be inconsistent)
	-	100% pressure ( <i>ord.</i> ).
	-	open string

Unless indicated otherwise, presume all events are performed *ord.* in terms of bow position and finger pressure.

face of the deep

viola quartet

ord. → MSP

vla. A

vla. B

vla. C

vla. Δ

ST

SP

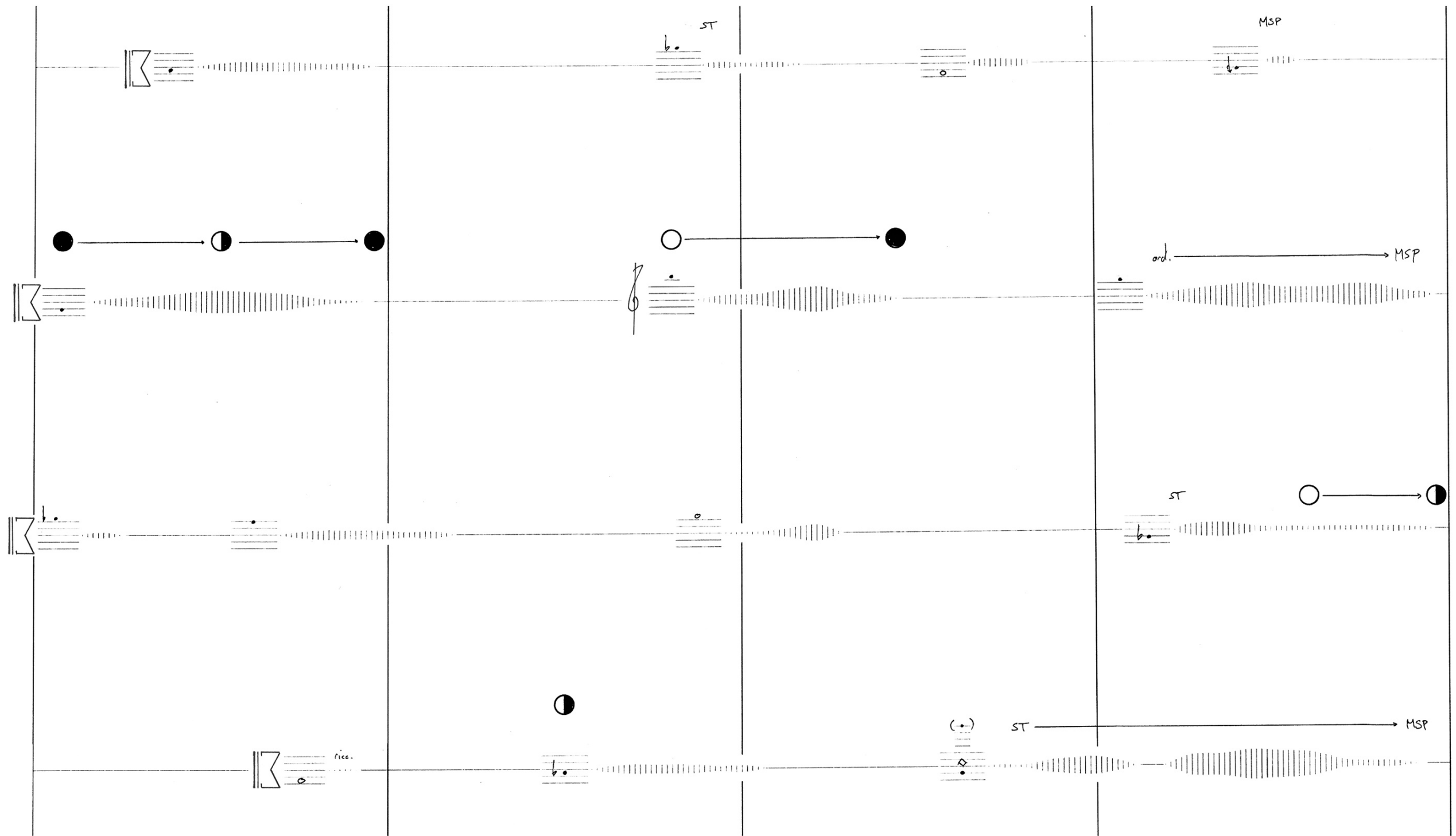
SP

MST

ricochet

r'





This is a handwritten musical score consisting of four staves. The notation includes notes, rests, and dynamic markings. The score is divided into four measures by vertical bar lines.

- Staff 1:**
  - Measure 1: Treble clef, note on G4, dynamic marking *SP*. A wedge-shaped dynamic marking is present.
  - Measure 2: Treble clef, note on G4, dynamic marking *SP*. A wedge-shaped dynamic marking is present.
  - Measure 3: Treble clef, notes on G4, A4, B4, dynamic marking *MSP*. A wedge-shaped dynamic marking is present.
  - Measure 4: Treble clef, notes on G4, A4, B4, dynamic marking *MSP*. A wedge-shaped dynamic marking is present.
- Staff 2:**
  - Measure 1: Treble clef, note on G4, dynamic marking *SP*. A wedge-shaped dynamic marking is present.
  - Measure 2: Treble clef, note on G4, dynamic marking *SP*. A wedge-shaped dynamic marking is present.
  - Measure 3: Treble clef, notes on G4, A4, B4, dynamic marking *MSP*. A wedge-shaped dynamic marking is present.
  - Measure 4: Treble clef, notes on G4, A4, B4, dynamic marking *MSP*. A wedge-shaped dynamic marking is present.
- Staff 3:**
  - Measure 1: Treble clef, notes on G4, A4, B4, dynamic marking *ord.*. A wedge-shaped dynamic marking is present.
  - Measure 2: Treble clef, notes on G4, A4, B4, dynamic marking *SP*. A wedge-shaped dynamic marking is present.
  - Measure 3: Treble clef, notes on G4, A4, B4, dynamic marking *MSP*. A wedge-shaped dynamic marking is present.
  - Measure 4: Treble clef, notes on G4, A4, B4, dynamic marking *MSP*. A wedge-shaped dynamic marking is present.
- Staff 4:**
  - Measure 1: Treble clef, notes on G4, A4, B4, dynamic marking *ST*. A wedge-shaped dynamic marking is present.
  - Measure 2: Treble clef, notes on G4, A4, B4, dynamic marking *ST*. A wedge-shaped dynamic marking is present.
  - Measure 3: Treble clef, notes on G4, A4, B4, dynamic marking *ST*. A wedge-shaped dynamic marking is present.
  - Measure 4: Treble clef, notes on G4, A4, B4, dynamic marking *ST*. A wedge-shaped dynamic marking is present.

Additional markings include *ord.* (order) and *gliss.* (glissando) with a downward arrow. There are also several black circles and arrows indicating specific points or directions in the score.

The image shows a handwritten musical score for four staves, likely for a string quartet or similar ensemble. The score is divided into four measures by vertical lines.

- Staff 1 (Top):** Labeled "MST". It begins with a double bar line and a clef. The notation shows a glissando down ("gliss ↓") with a decaying amplitude envelope. Above the staff, there are three circles connected by arrows: a solid black circle, a half-filled circle, and another solid black circle.
- Staff 2:** Labeled "ST". It starts with a clef and a glissando up ("gliss ↑") with an increasing amplitude envelope. Above the staff, there are three circles connected by arrows: a solid black circle, a half-filled circle, and another solid black circle.
- Staff 3:** Labeled "bow behind left hand (nut side)". It begins with a clef and a glissando down ("gliss ↓") with a decaying amplitude envelope. Above the staff, there are three circles connected by arrows: a solid black circle, a half-filled circle, and another solid black circle.
- Staff 4 (Bottom):** It starts with a clef and a glissando down ("gliss ↓") with a decaying amplitude envelope. Above the staff, there are three circles connected by arrows: a solid black circle, a half-filled circle, and another solid black circle.

Additional annotations include "MSP" above the first staff, "I gliss ↓" above the second staff, "I gliss ↓" above the third staff, and "I gliss ↓" above the fourth staff. There are also various musical notations such as notes, rests, and dynamic markings throughout the score.

p4

The image shows a handwritten musical score on four staves, divided into four measures by vertical lines.

- Staff 1 (Top):** Contains a treble clef and a melodic line with a glissando (gliss) indicated by an upward arrow. The line is filled with vertical lines, suggesting a tremolo or rapid oscillation.
- Staff 2:** Features a large bracket on the left side. Above the staff, there is a circled dot and the text "(.) 8va". The staff contains a few notes and a tremolo section.
- Staff 3:** Includes an "ord." (order) annotation with an arrow pointing to the right, and "MSP" (Middle Staff Position) written below the staff. It contains a tremolo section.
- Staff 4 (Bottom):** Starts with a large bracket on the left. Above the staff, there is a circled dot and the text "ric.". Below the staff, there is "MSP" and "ord." with an arrow pointing to the right. The staff contains a tremolo section.

Additional symbols include two black circles with arrows between them in the second measure, and a sequence of three circles (white, black, white) with arrows between them in the third measure.

The score consists of five staves with the following annotations and features:

- Staff 1:** Starts with a double bar line and a clef. Above the staff, there are labels: "ST" with an arrow pointing to "ord.", and "SP" with a double-headed arrow "(↔)".
- Staff 2:** Starts with a double bar line and a clef. Above the staff, there is a label "(b.)". In the middle, there is a label "ST" with a black dot and an arrow pointing to a white dot. On the right, there is a label "MST".
- Staff 3:** Starts with a double bar line and a clef. Above the staff, there is a label "MST" with a black dot. The staff contains a series of vertical lines that taper to the right. In the middle, there are two staves with the labels "I" and "II" and "gliss ↓" and "gliss ↑" respectively.
- Staff 4:** Starts with a double bar line and a clef. Above the staff, there is a label "(↔)". The staff contains a series of vertical lines that taper to the right.
- Staff 5:** Starts with a double bar line and a clef. Above the staff, there is a label "pizz." and an "X". Below the staff, there is a handwritten note "very gentle!".



The image shows a handwritten musical score on four staves, divided into three measures by vertical lines. The notation includes notes, stems, and various performance instructions.

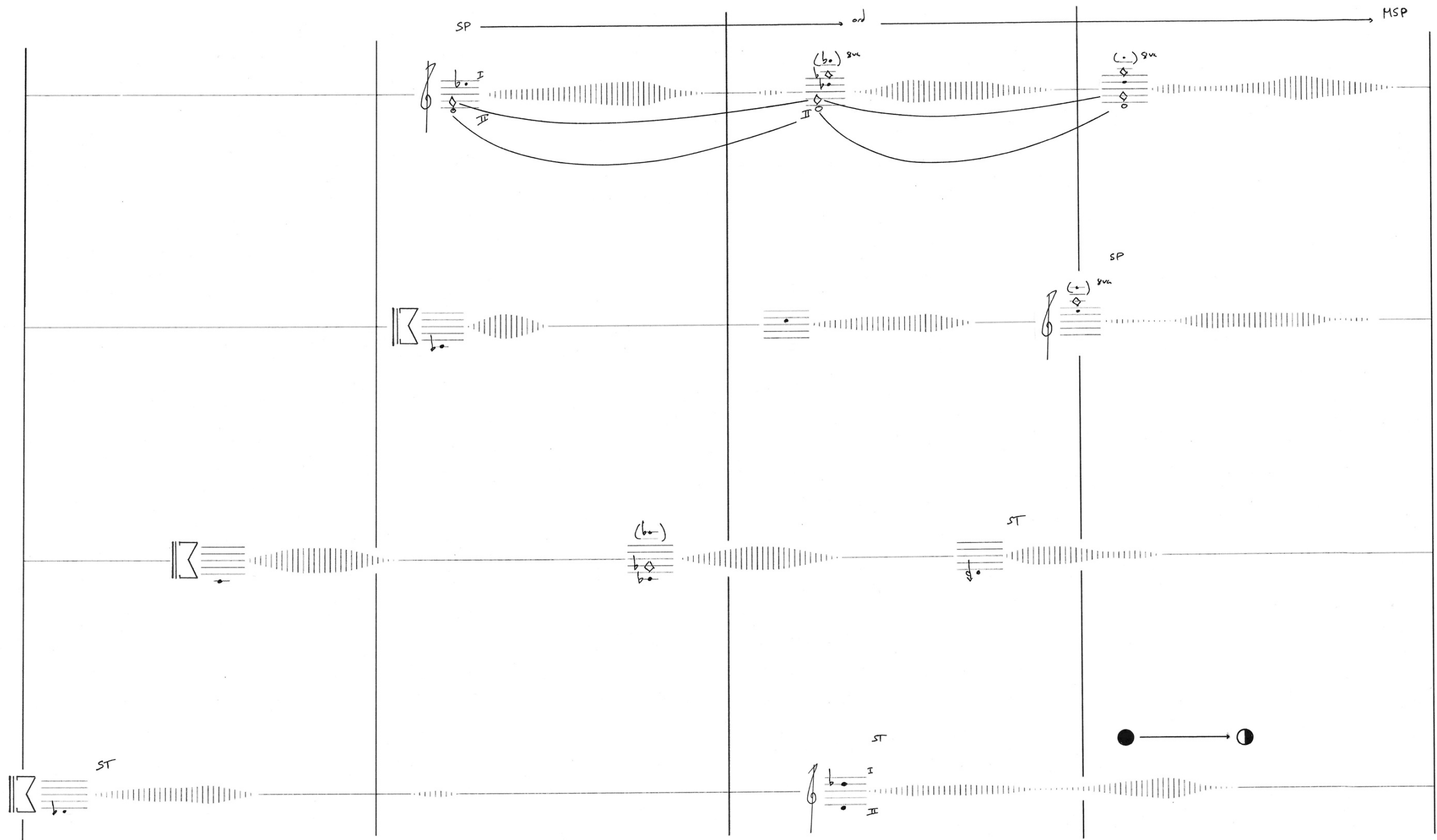
- Staff 1 (Top):** Contains a treble clef, a sharp sign (#), and a note with a stem. Above it is the instruction "ST". A dense series of vertical lines (trills or tremolos) extends across the first two measures.
- Staff 2:** Contains a treble clef, a sharp sign (#), and a note with a stem. Above it is the instruction "SP". A horizontal line with an arrow points to the right, labeled "ord.". Below the staff, a thick horizontal line is labeled "gliss. ↓". A curved line connects the bottom of the first measure to the bottom of the second measure. The word "rice." is written to the right of the staff.
- Staff 3:** Contains a treble clef, a sharp sign (#), and a note with a stem. A series of vertical lines (trills or tremolos) is present in the first measure.
- Staff 4 (Bottom):** Contains a treble clef, a sharp sign (#), and a note with a stem. Above it is the instruction "ST". A series of vertical lines (trills or tremolos) is present in the second measure.

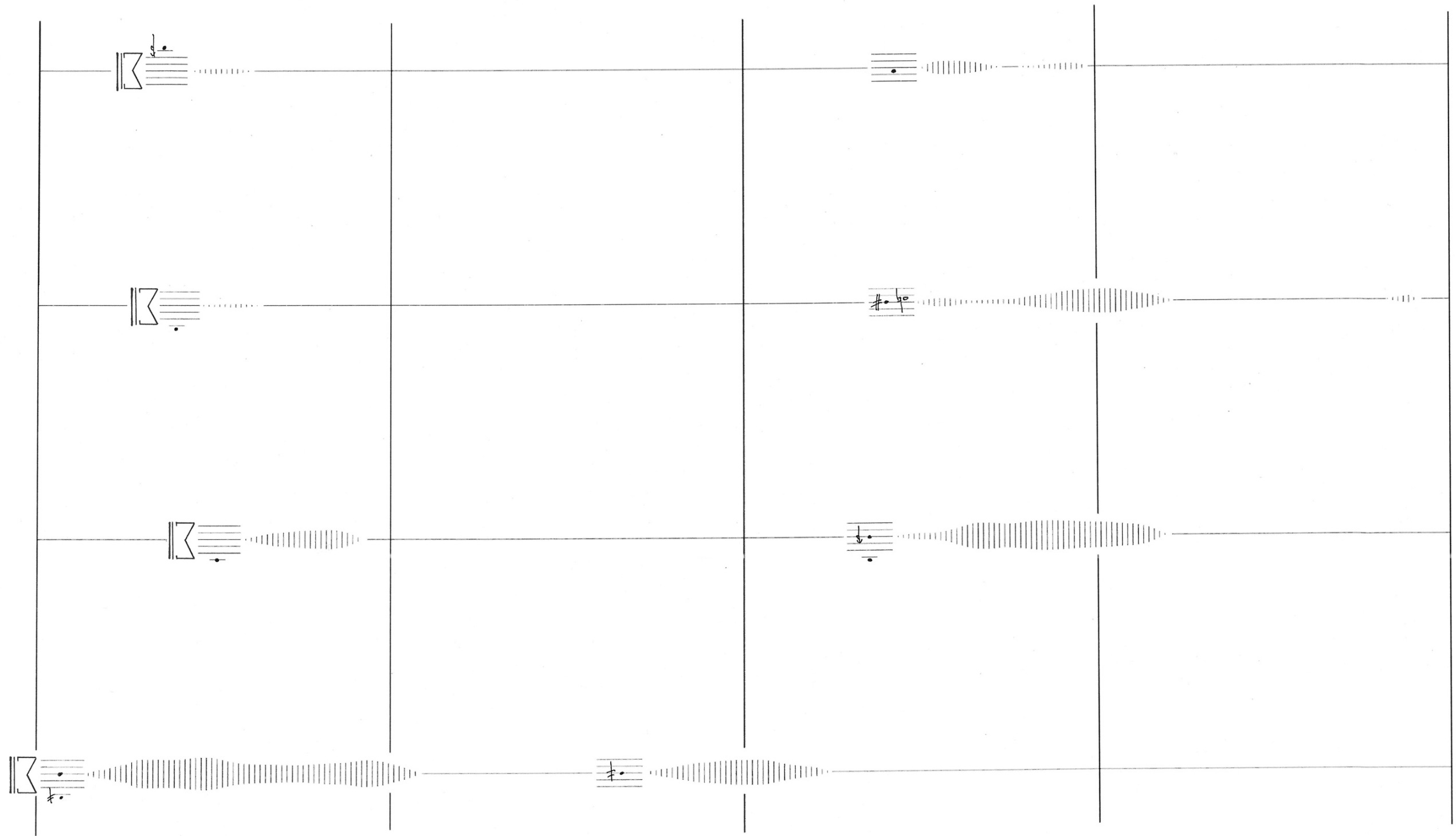
Additional annotations include a circled note in the third measure of the third staff and a circled note with a sharp sign in the second measure of the fourth staff.

A handwritten musical score consisting of four staves, divided into three measures by vertical bar lines. The notation is abstract and includes various symbols and markings:

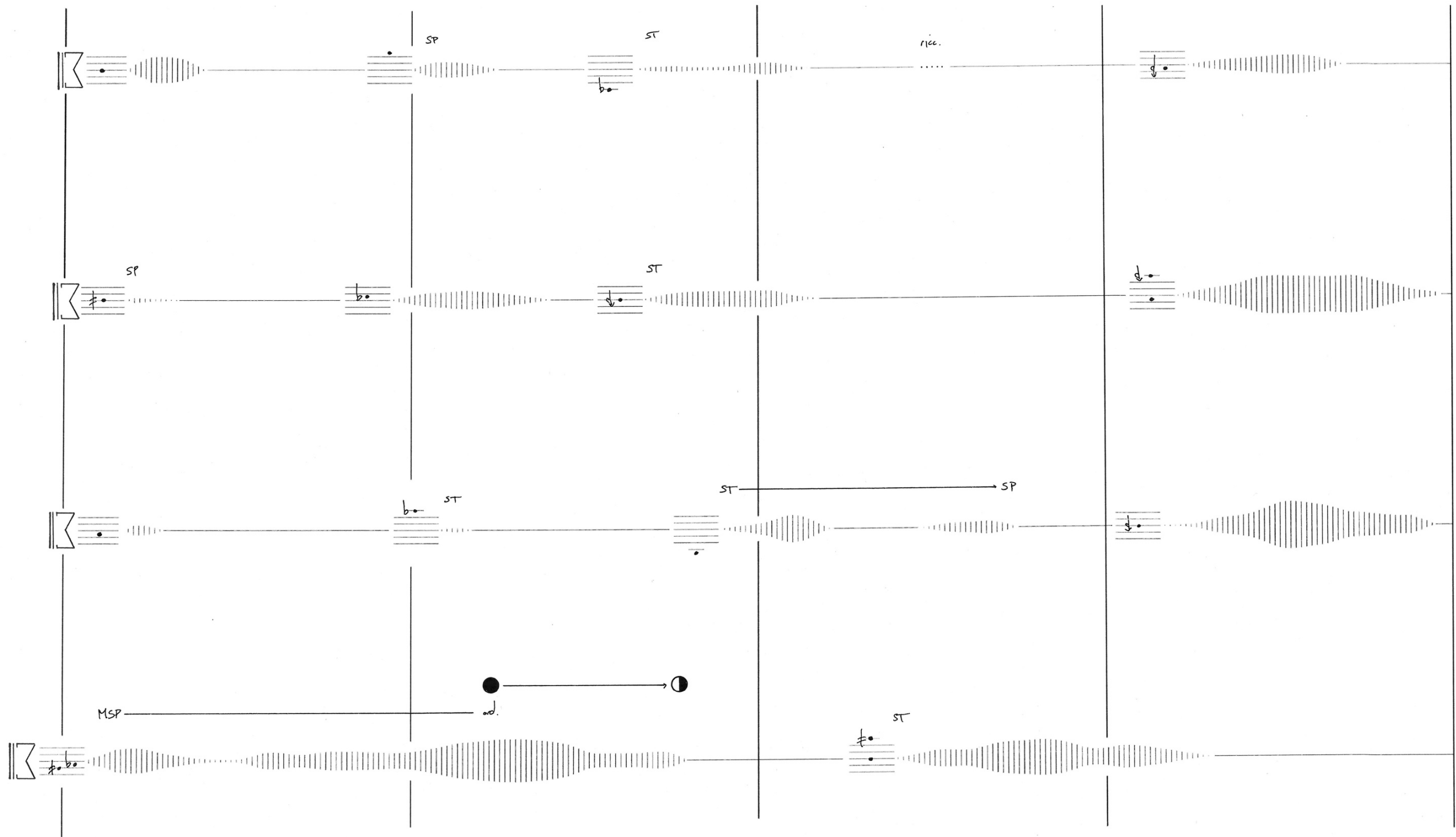
- Staff 1 (top):** Starts with a treble clef and a key signature of two flats (B-flat and E-flat). The first measure contains a series of vertical lines that taper to the right. The second measure contains a bracketed symbol followed by a few notes. The third measure contains a few notes.
- Staff 2:** Contains a large, wide, curved line spanning across the second and third measures. Below this line, there are several horizontal lines with vertical tick marks, resembling a waveform or a series of notes. The word "SP" is written above the curve. The word "gliss" with a downward arrow is written below the horizontal lines. A double bar line is present at the start of the second measure.
- Staff 3:** Starts with a treble clef. The first measure contains a series of vertical lines that taper to the right. The second measure is mostly empty. The third measure contains a bracketed symbol followed by a few notes. A horizontal line with a dot at the end is drawn above the staff, starting from the first measure and ending in the second measure.
- Staff 4 (bottom):** Starts with a bracketed symbol followed by a few notes. The second measure contains a few notes. The third measure contains a few notes.







*pp*



A handwritten musical score consisting of four staves, each with a treble clef. The score is divided into four measures by vertical bar lines. The notation includes notes, rests, and dynamic markings. The first staff begins with a note on the first line (G4) and a fermata. The second staff has a note on the second line (B3) with a flat. The third staff starts with a note on the second line (B3) with a flat and a fermata. The fourth staff begins with a note on the second line (B3) with a flat and a fermata. Dynamic markings include *acc.*, *SP*, *MSP*, and *ST*. There are also some handwritten symbols like a bracket and a circled dot.

A handwritten musical score consisting of four staves. The notation includes notes, rests, and dynamic markings. The first staff has a double bar line at the beginning and a fermata-like symbol. The second staff has a fermata-like symbol and a double bar line. The third staff has a double bar line. The fourth staff has a double bar line and a fermata-like symbol. Annotations include "ord." with arrows, "ST", "SP", and "gliss ↑".

ord. → ST

ST ord.

SP

gliss ↑

This is a handwritten musical score consisting of four staves. The notation includes dynamic markings and performance instructions.

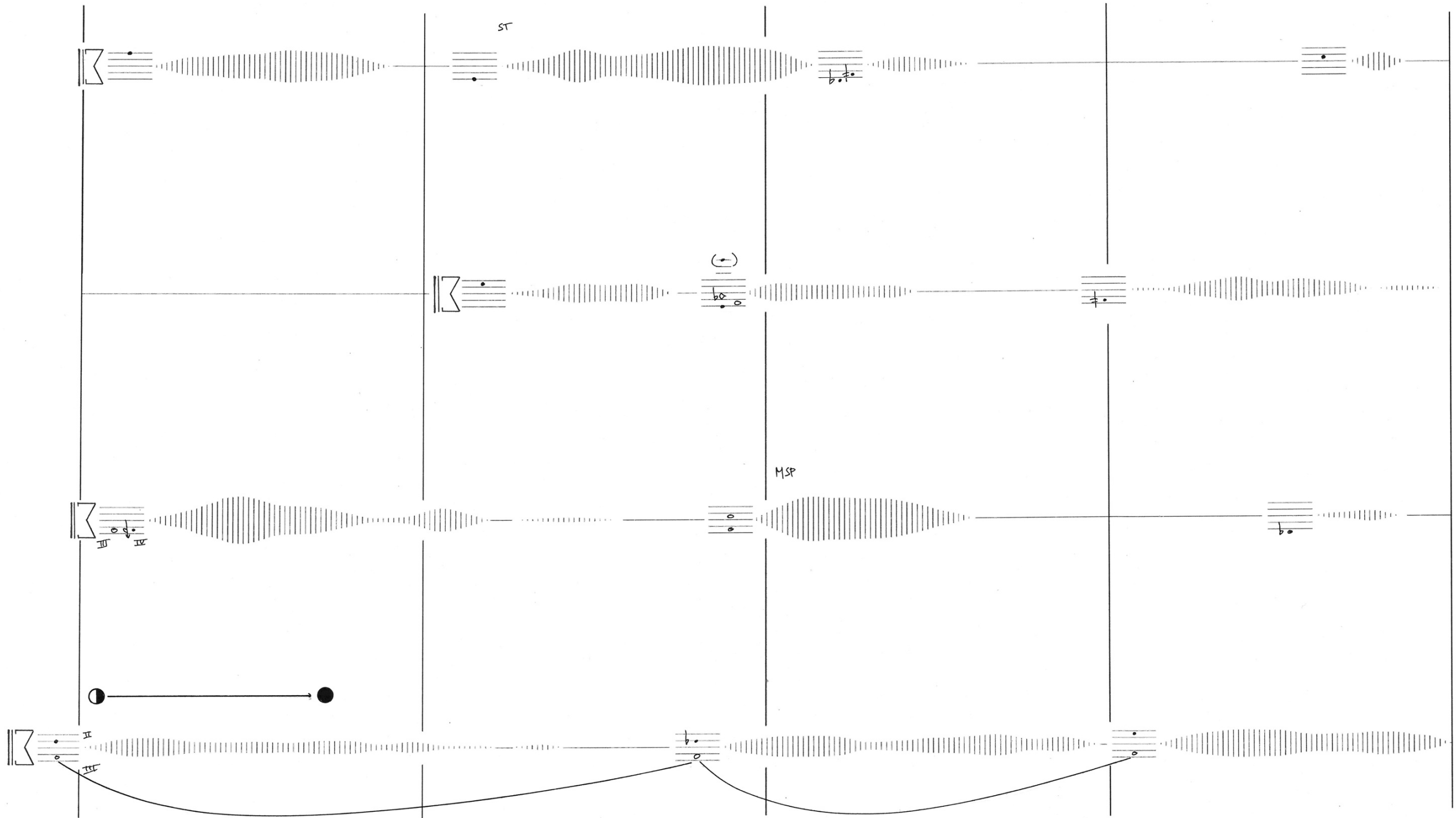
- Staff 1:** Starts with a dynamic marking *SP*. It features a series of vertical lines that form a bell-shaped envelope, followed by a musical staff with a treble clef and a single note. This is followed by another bell-shaped envelope and a musical staff with a treble clef and a single note.
- Staff 2:** Starts with a musical staff with a bass clef and a single note. It is followed by a bell-shaped envelope, a musical staff with a bass clef and a single note, another bell-shaped envelope, and a musical staff with a treble clef and a single note. A dynamic marking *ricc.* is placed above the final musical staff.
- Staff 3:** Starts with a musical staff with a bass clef and a single note. It is followed by a bell-shaped envelope, a musical staff with a bass clef and a single note, and another bell-shaped envelope. A dynamic marking *ST* is placed above the second musical staff. A horizontal line with a downward-pointing arrow labeled *gliss down* spans across the staves. Above this line, there are three black dots connected by horizontal arrows, indicating a sequence of events or a glissando.
- Staff 4:** Starts with a musical staff with a bass clef and a single note, followed by a bell-shaped envelope, a musical staff with a bass clef and a single note, another bell-shaped envelope, and a musical staff with a bass clef and a single note. A dynamic marking *MSP* is placed above the second musical staff. A handwritten note *(\*) 8va* is written above the second musical staff.

A handwritten musical score consisting of four staves. The notation includes notes, rests, and dynamic markings. The first staff begins with a treble clef and a key signature of one flat. The second staff has a treble clef and a key signature of one flat, with a dynamic marking 'ST' above it. The third staff has a treble clef and a key signature of one flat, with a dynamic marking 'SP' above it. The fourth staff begins with a treble clef and a key signature of one flat, and ends with a double bar line and a dynamic marking 'p'.

ST

SP

p





A handwritten musical score consisting of four staves. The notation includes notes, rests, and dynamic markings. The first staff begins with a treble clef and a key signature of one flat, with a slur over the first two measures and the marking "SP" above. The second staff has a treble clef and a key signature of one flat, with a slur over the first measure and the marking "MSP" above. The third staff has a treble clef and a key signature of one flat, with a slur over the first measure and the marking "MST" above. The fourth staff has a treble clef and a key signature of one flat, with a slur over the first measure and the marking "MST" above. There are several dynamic markings: "p" (piano) in the first staff, "pcc." (pianissimo) in the second staff, "MSP" in the second staff, and "MST" in the fourth staff. There are also several black dots and lines, possibly indicating specific notes or measures. The score is divided into measures by vertical lines.

A handwritten musical score consisting of four staves. The notation includes notes, rests, and dynamic markings. The score is divided into measures by vertical bar lines.

- Staff 1 (top):** Starts with a treble clef and a key signature of one flat. It features a series of notes with a tremolo effect. Above the staff, there is a circled dot with an arrow pointing to the right. The word "MST" is written above the staff in the final measure.
- Staff 2:** Starts with a treble clef and a key signature of one flat. It features a long horizontal line with a tremolo effect. The word "gliss ↓" is written below the staff.
- Staff 3:** Starts with a treble clef and a key signature of one flat. It features notes with a tremolo effect. Above the staff, there are circled dots with arrows, and the word "SP" is written above the staff.
- Staff 4 (bottom):** Starts with a treble clef and a key signature of one flat. It features notes with a tremolo effect. The word "MST" is written above the staff.

This is a handwritten musical score consisting of four staves. The notation includes notes, rests, beams, and dynamic markings. The score is divided into four measures by vertical bar lines.

- Staff 1 (top):** Starts with a treble clef and a key signature of one flat (B-flat). The first measure is marked "SP". The second measure is marked "(+) ST". Above the staff, there are two pairs of circles connected by arrows: a solid black circle pointing to an open circle, and an open circle pointing to a solid black circle.
- Staff 2:** Contains a treble clef and a key signature of one flat. A dynamic marking "SP" is placed above the staff, with an arrow pointing to the right, ending in "ST" above the staff.
- Staff 3:** Contains a treble clef and a key signature of one flat. A dynamic marking "(b.)" is placed above the staff. Above the staff, there are two pairs of circles connected by arrows: a half-filled circle (black on the left, white on the right) pointing to a solid black circle, and an open circle pointing to a solid black circle.
- Staff 4 (bottom):** Contains a treble clef and a key signature of one flat. A dynamic marking "(.)" is placed above the staff. A dynamic marking "ord." is placed above the staff, with an arrow pointing to the right, ending in "SP" above the staff.

Oliver Thorley 2014

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**ENVELOP (2014)**

# Envelop

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*for eight voices*

# Envelop

Duration: ca. 26'

For eight vocals: S-S-A-A-T-T-B-B

*Very softly. Hesitant at all times. No vibrato.*

## Pronunciation

Vowels are given below the initial pitch of a tone in the International Phonetic Alphabet (IPA). *Envelop* requires only four basic vowel shapes throughout, and additional sounds of breath noise and singing *bocca chiusa* (with mouth closed). The letters in capital italics below are English approximations of the IPA vowels.

ɑ: - f*A*ther                      i: - s*EA*  
ɔ: - th*OUGH*t                    u: - f*OO*l

Where no vowel is given below a pitch, assume that note should be sung *bocca chiusa*.

**N.B.** Page 1 of the score is performed entirely *bocca chiusa*.

## Mouth aperture

The waveforms show the amplitude envelope of the sustained tone through the control of breath pressure. At the zero-point, no pressure is exerted on the vocal chords. Maximum pressure should be equivalent to approximately *pp*.

**N.B.** Operating at such low dynamics, it is expected that tones will be inconsistent, and occasionally break-up at lower volumes. This is entirely intentional and to be embraced.

In addition to breath dynamic, the vertical axis also parametrically controls the mouth's aperture. At the zero-point, the mouth is closed, gradually opening (into the shape directed by the vowel) as the waveform's vertical value increases. In some combinations this method of control will create unusual and possibly uncomfortable mouth shapes.

## Timing

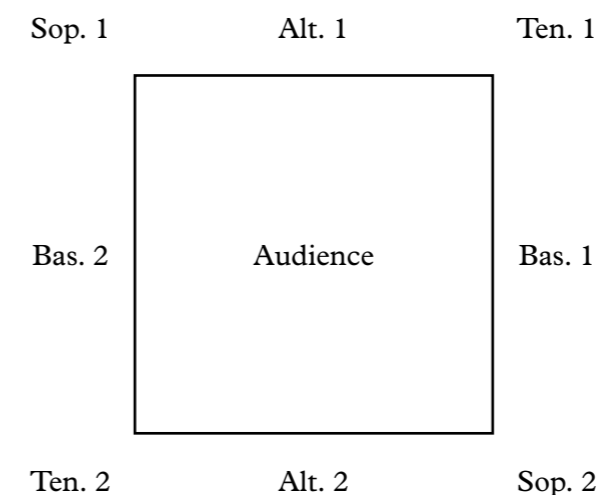
Every page is divided into four equal bars, each of which should last approximately 15 seconds (1 page per minute). There should be a short pause between each page of between 5 to 10 seconds (for this reason, elapsing time marks are not used).

The choir may choose to perform with stopwatches or a conductor, cueing players at either the start of each new page or at each bar.

Timing in the score should be followed as closely as possible, although it is accepted that it will gradually shift out of sync over the course of each bar/page.

## Spatial arrangement

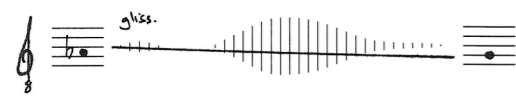
The ensemble may choose one of two options for staging a performance. If space permits, the choir may surround the audience, spacing themselves as evenly as possible in the formation shown below. Alternatively, the choir may be arranged in front of the audience in an arced formation: S-A-T-B-B-T-A-S.



## Notation

### Breathing

Breathing locations are not marked at any point within the score. Performers are encouraged to breathe only where required which — in the case of longer tones — will mean briefly interrupting a tone.



### Glissandi

Glissandi should be performed as slowly and evenly as possible, reaching the target tone at the end of the waveform.

### Vowel transition

A straight arrow from one vowel symbol to another signals a smooth transition from one mouth/vowel shape to another. Occasionally, a vowel will transform into *bocca chiusa*. This is a gradual closing of the mouth, which takes precedence over the mouth movement given by the envelope.



### Breath noise

A horizontal dashed line (with no waveform characteristics) denotes a soft breath sound without a discernible pitch. Pressure should be as even as possible.



### Pitch / noise balance

Where the balance of breath/air noise changes, the following symbols signal the level to which pitch is perceived.



0% pitch, 100% breath noise.



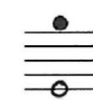
50% pitch, 50% air noise. **N.B.** Pitch will be inconsistent.



100% pitch, 0% breath noise (*ord.*).

## Reference pitches

Due to pitches not being shown for the duration of a sounding note, the ensemble may find it hard to orientate pitches with one another. To alleviate this to some extent, reference pitches are given. Currently sounding, stable pitches are displayed, from which a performer might take their tuning.



Closed (fully shaded) note-heads display the pitch to be sounded.



Open (unshaded) note-heads display the reference pitch.

**N.B.** Not all notes feature a reference pitch. It is expected that in some cases these pitches will fall fractionally out of tune. These notes then form the basis of pitch reference point for subsequent notes, with the tuning slowly becoming more fragmented over the course of a performance.

My thanks to Jeffrey Gavett for his invaluable insight during the development of this piece.

Handwritten musical score for a vocal ensemble, featuring seven parts: SOPRANO 1, SOPRANO 2, ALTO 1, ALTO 2, TENOR 1, TENOR 2, and BASS 1. BASS 2 is also listed but has no notation. The score is divided into four measures by vertical bar lines. Each part is written on a five-line staff with a treble clef (except for BASS 2, which uses a bass clef). The notation includes notes, rests, and dynamic markings such as *mf* and *ff*. The notes are often beamed together in groups, and some parts feature complex rhythmic patterns or tremolos. The first measure shows the vocalists entering with various notes and dynamics. The second measure features a large, dense tremolo in the ALTO 1 part. The third and fourth measures continue the vocal lines with various note values and dynamics. The score is written in a clear, hand-drawn style.



s.1 *ix* *gliss.* *ax*  
 s.2 *ax*  
 a.1 *ax* *ix*  
 a.2  
 t.1  
 t.2 *gliss.*  
 b.1 *ax*  
 b.2 *ax*  
 v.1  
 v.2

This page contains a handwritten musical score with spectrograms and annotations. The score is organized into two main systems, each with two staves. The left system includes parts labeled s.1, s.2, a.1, a.2, t.1, t.2, b.1, and b.2. The right system includes parts labeled s.1, ix, glis., a.1, a.2, and ix.

The notation includes musical staves with notes, stems, and beams. Spectrograms are represented by vertical lines of varying density and amplitude, indicating frequency content over time. Annotations include dynamic markings such as *ax*, *ix*, *glis.*, and *ax*. A horizontal arrow labeled *ax* is present in the right system, pointing to the right.

The score is divided into two main sections by vertical lines. The left section contains parts s.1, s.2, a.1, a.2, t.1, t.2, b.1, and b.2. The right section contains parts s.1, ix, glis., a.1, a.2, and ix.

s.1  
 s.2  
 a.1  
 a.2  
 .1  
 t.2  
 b.2  
 b.2

Musical notation includes clefs (treble and bass), notes, and dynamic markings such as *u%* and *bocca chiusa*. Waveforms are drawn below the notes to represent sound amplitude over time.

s.1  
 s.2  
 a.1  
 a.2  
 t.1  
 t.2  
 b.1  
 b.2

Musical score for a string quartet with eight staves. The notation includes clefs (treble and bass), key signatures (one flat), and dynamics (e.g., *ar*, *ar*, *ar*, *ar*, *ar*, *ar*, *ar*, *ar*). Waveforms are drawn below the musical notation, showing the amplitude of the sound over time. A handwritten note "bocca chiusa" with an arrow points to a section of the bass line.



This page contains a handwritten musical score for six staves, labeled s.1, s.2, a.1, a.2, t.1, t.2, b.1, and b.2. Each staff includes a musical notation system with notes and stems, and a corresponding spectrogram below it. The spectrograms are represented by vertical lines of varying density and height, indicating frequency content over time.

Key features of the score include:

- Staff s.1:** Musical notation in treble clef with notes on the first and second lines. Spectrogram shows a steady increase in frequency over time.
- Staff s.2:** Musical notation in treble clef with notes on the first and second lines. Spectrogram shows a complex, oscillating frequency pattern. A horizontal arrow labeled "u:" spans the duration of the spectrogram.
- Staff a.1:** Musical notation in treble clef with a key signature of two flats. Spectrogram shows a steady increase in frequency.
- Staff a.2:** Musical notation in treble clef with a key signature of two flats. Spectrogram shows a steady increase in frequency. An arrow labeled "u:" points to the spectrogram.
- Staff t.1:** Musical notation in treble clef with a key signature of one sharp. Spectrogram shows a steady increase in frequency. An arrow labeled "u:" points to the spectrogram.
- Staff t.2:** Musical notation in treble clef with a key signature of one sharp. Spectrogram shows a steady increase in frequency.
- Staff b.1:** Musical notation in bass clef with a key signature of one sharp. Spectrogram shows a steady increase in frequency. An arrow labeled "u:" points to the spectrogram.
- Staff b.2:** Musical notation in bass clef with a key signature of one sharp. Spectrogram shows a steady increase in frequency. An arrow labeled "u:" points to the spectrogram.

Additional annotations include:

- A vertical line separating the first two staves from the remaining four.
- A vertical line separating the first four staves from the last two.
- A vertical line separating the first two staves from the last two.
- The instruction "bocca chiusa" (written twice) with arrows pointing to specific points in the spectrograms of staves a.2 and t.1.
- A triangle symbol above the spectrogram of staff s.1.

Handwritten musical score on the left page, featuring a vertical staff with labels s.1, s.2, a.1, a.2, t.1, t.2, b.1, and b.2. The notation includes musical staves with notes and dynamic markings such as *u<sub>z</sub>* and *o<sub>z</sub>*. A large, dense, horizontal scribble is present in the middle section, spanning across the staves.

Handwritten musical score on the right page, featuring a vertical staff with labels s.1, s.2, a.1, a.2, t.1, and t.2. The notation includes musical staves with notes and dynamic markings such as *u<sub>z</sub>*, *o<sub>z</sub>*, and *bacc chiusa*. A large, dense, horizontal scribble is present in the middle section, spanning across the staves.

This page contains a handwritten musical score for a string quartet and woodwinds. The score is organized into two systems, each with two staves. The staves are labeled as follows:

- System 1:**
  - s.1:** Violin I, treble clef, key signature of one flat (Bb). Starts with a whole note chord (Bb, D, F, Ab) and a dynamic marking of *az*. The amplitude envelope shows a gradual increase to a peak and then a gradual decrease.
  - s.2:** Violin II, treble clef, key signature of one flat (Bb). Starts with a whole note chord (Bb, D, F, Ab) and a dynamic marking of *ix*. The amplitude envelope shows a gradual increase to a peak and then a gradual decrease.
- System 2:**
  - a.1:** Viola, alto clef. Starts with a whole note chord (Bb, D, F, Ab) and a dynamic marking of *az*. The amplitude envelope shows a gradual increase to a peak and then a gradual decrease.
  - a.2:** Cello, bass clef. Starts with a whole note chord (Bb, D, F, Ab) and a dynamic marking of *az*. The amplitude envelope shows a gradual increase to a peak and then a gradual decrease.
  - t.1:** Flute, treble clef. Starts with a whole note chord (Bb, D, F, Ab) and a dynamic marking of *ix*. The amplitude envelope shows a gradual increase to a peak and then a gradual decrease.
  - t.2:** Clarinet, bass clef. Starts with a whole note chord (Bb, D, F, Ab) and a dynamic marking of *az*. The amplitude envelope shows a gradual increase to a peak and then a gradual decrease.
  - b.1:** Bassoon, bass clef. Starts with a whole note chord (Bb, D, F, Ab) and a dynamic marking of *az*. The amplitude envelope shows a gradual increase to a peak and then a gradual decrease.
  - b.2:** Contrabassoon, bass clef. Starts with a whole note chord (Bb, D, F, Ab) and a dynamic marking of *az*. The amplitude envelope shows a gradual increase to a peak and then a gradual decrease.

The score includes musical notation with notes, rests, and dynamic markings. The amplitude envelopes are represented by vertical lines of varying lengths, indicating the relative volume of each instrument over time.

This is a handwritten musical score for a string quartet, consisting of six staves. The staves are labeled on the left as follows:
 

- s.1 (Violin I)
- s.2 (Violin II)
- a.2 (Viola)
- a.2 (Violoncello)
- t.1 (Tromba)
- t.2 (Tromba)
- b.1 (Bassoon)
- b.2 (Bassoon)

 The score is divided into three measures by vertical bar lines.
 

- Measure 1:**
  - s.1: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a series of vertical lines representing a tremolo.
  - s.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo that is marked *bocca chiusa* (bc) in the middle.
  - a.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - a.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
  - t.1: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - t.2: Empty.
  - b.1: Starts with a bass clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - b.2: Starts with a bass clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
- Measure 2:**
  - s.1: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
  - s.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
  - a.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
  - a.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - t.1: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - t.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - b.1: Starts with a bass clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - b.2: Starts with a bass clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
- Measure 3:**
  - s.1: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
  - s.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
  - a.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ix*. It contains a tremolo.
  - a.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - t.1: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - t.2: Starts with a treble clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - b.1: Starts with a bass clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.
  - b.2: Starts with a bass clef, a key signature of one sharp (F#), and a dynamic marking of *ax*. It contains a tremolo.

The image shows a handwritten musical score on a page with three systems of measures, separated by vertical bar lines. The staves are labeled as follows:

- System 1:**
  - s.1: Treble clef, notes on the first line, followed by a series of vertical lines.
  - s.2: Treble clef, notes on the first line, followed by a series of vertical lines.
  - a.1: Treble clef, notes on the first line, followed by a series of vertical lines.
  - a.2: Treble clef, notes on the first line, followed by a series of vertical lines.
  - t.1: Treble clef, notes on the first line, followed by a series of vertical lines.
  - t.2: Treble clef, notes on the first line, followed by a series of vertical lines.
  - b.1: Bass clef, notes on the first line, followed by a series of vertical lines.
  - b.2: Bass clef, notes on the first line, followed by a series of vertical lines.
- System 2:**
  - Staff 1: Treble clef, notes on the first line, followed by a series of vertical lines.
  - Staff 2: Treble clef, notes on the first line, followed by a series of vertical lines.
  - Staff 3: Treble clef, notes on the first line, followed by a series of vertical lines.
  - Staff 4: Treble clef, notes on the first line, followed by a series of vertical lines.
- System 3:**
  - Staff 1: Treble clef, notes on the first line, followed by a series of vertical lines.
  - Staff 2: Treble clef, notes on the first line, followed by a series of vertical lines.
  - Staff 3: Treble clef, notes on the first line, followed by a series of vertical lines.
  - Staff 4: Treble clef, notes on the first line, followed by a series of vertical lines.

The notation includes various notes, stems, and dynamic markings such as *p* and *f*. The vertical lines between systems suggest a multi-measure rest or a specific rhythmic structure.



Handwritten musical score with eight staves (s.1, s.2, a.1, a.2, t.1, t.2, b.1, b.2) and four vertical bar lines. The notation includes notes, rests, and dense vertical lines representing sound waves or envelopes. The score is divided into four measures by vertical bar lines.

- Staff s.1:** Treble clef, key signature of one sharp (F#). Shows a series of vertical lines that fade out.
- Staff s.2:** Treble clef, key signature of one sharp (F#). Shows a series of vertical lines that fade out.
- Staff a.1:** Treble clef, key signature of one flat (Bb). Labeled "ax". Shows a series of vertical lines that fade out.
- Staff a.2:** Treble clef, key signature of one flat (Bb). Labeled "ax". Shows a series of vertical lines that fade out.
- Staff t.1:** Treble clef, key signature of one flat (Bb). Shows a series of vertical lines that fade out.
- Staff t.2:** Treble clef, key signature of one flat (Bb). Shows a series of vertical lines that fade out.
- Staff b.1:** Bass clef, key signature of one sharp (F#). Labeled "ax". Shows a series of vertical lines that fade out.
- Staff b.2:** Bass clef, key signature of one sharp (F#). Shows a series of vertical lines that fade out.

Additional notation includes notes with stems and beams, and dense vertical lines representing envelopes. A double bar line is present in the second measure. A horizontal arrow labeled "iz" points to the right in the t.2 staff. A small triangle symbol is present above the a.1 staff in the fourth measure.

s.1

s.2

a.1

a.2

t.1

t.2

b.1

b.2

The image shows a handwritten musical score on ten staves, labeled s.1, s.2, a.1, a.2, t.1, t.2, b.1, and b.2. The notation is a mix of standard musical symbols and abstract rhythmic patterns.

- s.1:** A single note on a treble clef staff with a dotted line extending to the right.
- s.2:** A treble clef staff with a note, a horizontal line below it labeled 'ax', and a series of vertical lines of varying lengths.
- a.1:** A treble clef staff with a note and a series of vertical lines. A horizontal line with a downward-pointing triangle is above it.
- a.2:** A treble clef staff with a note and a series of vertical lines.
- t.1:** A treble clef staff with a note and a series of vertical lines.
- t.2:** A treble clef staff with a note and a series of vertical lines.
- b.1:** A bass clef staff with a note and a series of vertical lines.
- b.2:** A bass clef staff with a note and a series of vertical lines.

Additional features include:

- A horizontal line with a downward-pointing triangle above it, spanning across the middle of the score.
- Notes on various staves with labels like 'ax', 'iz', and 'uz'.
- Vertical lines separating the staves into sections.

This page contains a handwritten musical score with eight staves, each with a label on the left: s.1, s.2, a.1, a.2, t.1, t.2, b.1, and b.2. The score is divided into three sections by vertical lines.

- Staff s.1:** Features a treble clef and a single note on the first line. A waveform is shown to the right, labeled with *ka* above and *ax* below.
- Staff s.2:** Features a treble clef and a chord of three notes. A waveform is shown to the right, labeled with *ix* below.
- Staff a.1:** Features a treble clef and a chord of three notes. A long waveform is shown below it, labeled with *ax* at the start and *ix* at the end.
- Staff a.2:** Features a treble clef and a chord of three notes. A waveform is shown to the right.
- Staff t.1:** Features a treble clef and a chord of three notes. A waveform is shown to the right, labeled with *ax* below.
- Staff t.2:** Features a treble clef and a chord of three notes. A waveform is shown to the right, labeled with *ax* below.
- Staff b.1:** Features a bass clef and a chord of three notes. A waveform is shown to the right, labeled with *ix* below.
- Staff b.2:** Features a bass clef and a chord of three notes. A waveform is shown to the right, labeled with *ax* at the start and *ix* at the end.

The score includes various musical notations such as clefs, notes, and chords. Waveforms are drawn with vertical lines of varying heights to represent amplitude over time. There are also arrows and triangles indicating relationships between different parts of the score.

This page contains a handwritten musical score with eight parts, each with a corresponding spectrogram. The parts are labeled on the left as s.1, s.2, a.1, a.2, t.1, t.2, b.1, and b.2. The score is divided into two systems by a vertical line.

- s.1:** Treble clef, key signature of one flat, time signature of 4/4. The spectrogram shows a single sustained note.
- s.2:** Treble clef, key signature of one flat, time signature of 4/4. The spectrogram shows a complex, multi-note structure with several peaks.
- a.1:** Treble clef, key signature of one flat, time signature of 4/4. The spectrogram shows a single sustained note.
- a.2:** Treble clef, key signature of one flat, time signature of 4/4. The spectrogram shows a complex, multi-note structure.
- t.1:** Treble clef, key signature of one flat, time signature of 4/4. The spectrogram shows a complex, multi-note structure.
- t.2:** Treble clef, key signature of one flat, time signature of 4/4. The spectrogram shows a single sustained note.
- b.1:** Bass clef, key signature of one flat, time signature of 4/4. The spectrogram shows a single sustained note.
- b.2:** Bass clef, key signature of one flat, time signature of 4/4. The spectrogram shows a single sustained note.

Annotations include:

- Vertical lines separating the two systems.
- Horizontal dotted lines connecting notes across systems.
- Arrows pointing from notes in one system to notes in another.
- Triangular markers (pointing up and down) placed above or below notes.
- The word "gliss." written above a note in part b.1.



s.1  
 s.2  $oz$   
 a.1  $oz$   
 a.2  $oz$   
 t.1  $oz$   
 t.2  $b$   
 b.1  
 b.2

Musical score for a string quartet, divided into two systems. The first system includes staves s.1, s.2, a.1, a.2, t.1, and t.2. The second system includes staves s.1, s.2, a.1, a.2, t.1, and b.1. The bassoon part (b.2) is only present in the second system.

Performance instructions include dynamic markings ( $oz$ ,  $b$ ) and a sequence of three downward-pointing triangles connected by a horizontal line with arrows, indicating a specific performance technique or articulation.

This page contains a handwritten musical score for 12 staves, arranged in two columns. The staves are labeled on the left as follows:

- s.1** (Staff 1): Treble clef, key signature of one sharp (F#). Contains a musical staff with a note and a large amplitude envelope.
- s.2** (Staff 2): Treble clef, key signature of one sharp (F#). Contains a musical staff with a note and a large amplitude envelope.
- a.1** (Staff 3): Treble clef, key signature of one sharp (F#). Contains a musical staff with a note and a large amplitude envelope.
- a.2** (Staff 4): Treble clef, key signature of one sharp (F#). Contains a musical staff with a note and a large amplitude envelope.
- t.1** (Staff 5): Treble clef, key signature of one sharp (F#). Contains a musical staff with a note and a large amplitude envelope.
- t.2** (Staff 6): Treble clef, key signature of one sharp (F#). Contains a musical staff with a note and a large amplitude envelope.
- b.1** (Staff 7): Bass clef, key signature of one sharp (F#). Contains a musical staff with a note and a large amplitude envelope.
- b.2** (Staff 8): Bass clef, key signature of one sharp (F#). Contains a musical staff with a note and a large amplitude envelope.

The score is divided into three measures by vertical bar lines. Each staff shows musical notation (notes, clefs, and key signatures) and a corresponding amplitude envelope represented by vertical lines of varying heights. Some staves have additional markings, such as "uz" below the staff or a triangle above the staff.

s.1 *oz*  
 s.2 *oz*  
 a.1  
 a.2 *oz*  
 t.1 *oz* *gliss.* *boeck* *chiusa* *oz*  
 t.2 *oz*  
 b.1 *oz*  
 b.2 *oz*

This page contains a handwritten musical score for a string quartet and woodwinds, with corresponding spectrograms. The score is organized into two systems, each with two staves.

**System 1 (Left):**

- s.1:** Violin I staff, no notes.
- s.2:** Violin II staff, starting with a glissando (gliss.) and a fermata.
- a.1:** Flute I staff, notes on G4 and A4.
- a.2:** Flute II staff, notes on G4 and A4.
- t.1:** Clarinet I staff, notes on B3 and A3.
- t.2:** Clarinet II staff, notes on B3 and A3.
- b.1:** Bassoon I staff, notes on G2 and F2.
- b.2:** Bassoon II staff, notes on G2 and F2.

**System 2 (Right):**

- s.1:** Violin I staff, notes on G4 and A4.
- s.2:** Violin II staff, notes on G4 and A4.
- a.1:** Flute I staff, notes on G4 and A4.
- a.2:** Flute II staff, notes on G4 and A4.
- t.1:** Clarinet I staff, notes on B3 and A3.
- t.2:** Clarinet II staff, notes on B3 and A3.
- b.1:** Bassoon I staff, notes on G2 and F2.
- b.2:** Bassoon II staff, notes on G2 and F2.

The spectrograms are arranged in two columns. The left column shows the frequency spectra for the first system, and the right column shows the spectra for the second system. The spectrograms illustrate the timbre and pitch changes of the instruments over time.

The image shows a handwritten musical score with ten staves, labeled s.1, s.2, a.1, a.2, t.1, t.2, b.1, and b.2. The notation is a mix of traditional musical symbols and waveforms.

- s.1**: A staff with a treble clef and a sharp sign (F#) on the first line. It contains a series of vertical lines that form a waveform, with a downward-pointing triangle above it.
- s.2**: A staff with a treble clef and a flat sign (Bb) on the second line. It contains a series of vertical lines forming a waveform.
- a.1**: A staff with a treble clef and a sharp sign (F#) on the first line. It contains a series of vertical lines forming a waveform, with a downward-pointing triangle above it. A horizontal line with arrows at both ends is drawn across the staves s.1, a.1, and a.2.
- a.2**: A staff with a treble clef and a sharp sign (F#) on the first line. It contains a series of vertical lines forming a waveform.
- t.1**: A staff with a treble clef and a sharp sign (F#) on the first line. It contains a series of vertical lines forming a waveform, with a downward-pointing triangle above it. A horizontal line with arrows at both ends is drawn across the staves t.1 and t.2.
- t.2**: A staff with a treble clef and a sharp sign (F#) on the first line. It contains a series of vertical lines forming a waveform.
- b.1**: A staff with a bass clef and a flat sign (Bb) on the second line. It contains a series of vertical lines forming a waveform.
- b.2**: A staff with a bass clef and a flat sign (Bb) on the second line. It contains a series of vertical lines forming a waveform.

Vertical lines separate the staves into three main sections. The notation includes various clefs (treble and bass), key signatures (sharps and flats), and dynamic markings (p, f). The waveforms consist of vertical lines of varying heights and densities, representing amplitude over time.



s.1  
 s.2  
 a.1  
 a.2  
 t.1  
 t.2  
 b.1  
 b.2

Musical score with 12 staves and three systems. The notation includes notes, rests, and dynamic markings such as *p* and *f*. Performance instructions like *sx* and *u2* are present. The score features various rhythmic patterns and dynamic changes, with some staves containing triangles and arrows indicating specific performance techniques.

This is a handwritten musical score for a string quartet, featuring spectrograms and various annotations. The score is organized into two systems, s.1 and s.2, and further divided into parts a.1, a.2, t.1, t.2, b.1, and b.2.

**System s.1:**

- a.1:** Violin I part with spectrograms and notes. Annotations include  $i\tilde{x}$  and  $i\tilde{x}$ .
- a.2:** Violin II part with spectrograms and notes. Annotations include  $i\tilde{x}$  and  $i\tilde{x}$ .
- t.1:** Viola part with spectrograms and notes. Annotations include  $i\tilde{x}$  and  $a\tilde{x}$ .
- t.2:** Cello part with spectrograms and notes. Annotations include  $i\tilde{x}$ .
- b.1:** Double Bass part with spectrograms and notes. Annotations include  $i\tilde{x}$ ,  $a\tilde{x}$ , and  $i\tilde{x}$ .
- b.2:** Double Bass part with spectrograms and notes. Annotations include  $i\tilde{x}$ ,  $a\tilde{x}$ , and  $i\tilde{x}$ .

**System s.2:**

- a.1:** Violin I part with spectrograms and notes. Annotations include  $i\tilde{x}$  and  $i\tilde{x}$ .
- a.2:** Violin II part with spectrograms and notes. Annotations include  $i\tilde{x}$  and  $i\tilde{x}$ .
- t.1:** Viola part with spectrograms and notes. Annotations include  $i\tilde{x}$  and  $a\tilde{x}$ .
- t.2:** Cello part with spectrograms and notes. Annotations include  $i\tilde{x}$ .
- b.1:** Double Bass part with spectrograms and notes. Annotations include  $i\tilde{x}$ ,  $a\tilde{x}$ , and  $i\tilde{x}$ .
- b.2:** Double Bass part with spectrograms and notes. Annotations include  $i\tilde{x}$ ,  $a\tilde{x}$ , and  $i\tilde{x}$ .

The score includes various musical notations such as notes, rests, and dynamic markings. Spectrograms are used to visualize the frequency content of the sounds. Annotations like  $i\tilde{x}$  and  $a\tilde{x}$  likely refer to specific frequencies or intervals. The word "gliss." is used in the double bass part.

s.1  
 s.2  
 a.1  
 a.2  
 t.1  
 t.2  
 b.1  
 b.2

ix  
 ux  
 ox  
 ax  
 gliss.  
 bocca chiusa  
 ix  
 ux  
 ox  
 ix  
 ux

Musical score with 12 staves. The notation includes notes, rests, and dynamic markings. Vertical lines separate the staves into measures. Performance instructions include *gliss.* and *bocca chiusa*.

s.1 *az* *az* *uz* *uz*  
 s.2 *uz* *bacca chiusa* *uz*  
 a.1 *uz* *uz*  
 a.2 *uz* *uz* *uz* *uz*  
 t.1 *uz* *uz* *uz*  
 t.2 *uz* *uz*  
 b.1 *uz* *uz* *uz*  
 b.2 *uz* *uz* *uz*

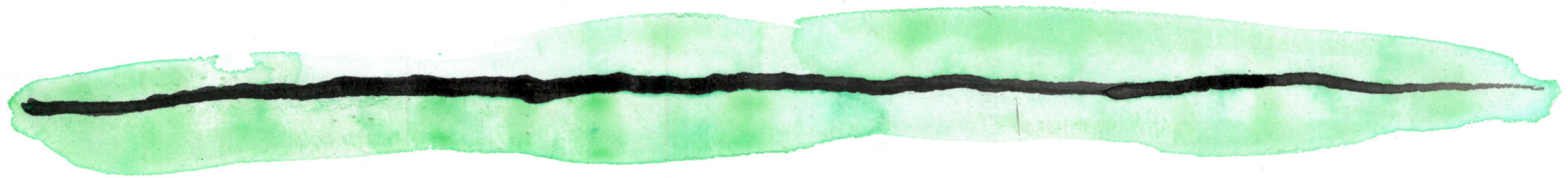
The score is divided into two systems by a vertical line. The first system contains staves s.1, s.2, a.1, a.2, t.1, and t.2. The second system contains staves b.1, b.2, and a.1. Dynamic markings include *az*, *uz*, and *bacca chiusa*. Performance instructions include arrows indicating crescendos and decrescendos, and triangles indicating accents or breath marks.

s.1  $\text{ax}$   
 s.2  $\text{boca chiusa}$   
 a.1  $\text{ax}$   
 a.2  
 t.1  $\text{ix}$   
 t.2  $\text{ax}$   
 b.1  $\text{ix}$   
 b.2  $\text{ax}$

---

**NOW DID ONE NOW DID ONE NOW DID ONE**  
**(2014)**





# now did one now did one now did one

written for the Impuls academy, 2015

Oliver Thurley, 2014

## performance notes

for 'paperclip' contrabass clarinet (low C).

veiled, extremely quiet, faltering.

ca. 9'

## clarinet notation



**tongue ram** - against reed. dark, resonates quietly.



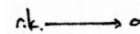
**flutter-tongue** - with a slight acceleration and deceleration.



**teeth on reed** - place teeth on reed and (gently) bite to cause the pitch to break and 'squeak'. (If notated as a grace above a note, only the very beginning of the note should be articulated with teeth on reed. As soon as the note 'breaks' and becomes unstable, the performer should quickly return to a normal playing position/pitch.)



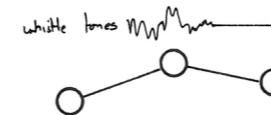
**breath tone** - where a pitch is given, the faintest trace of that pitch (even as a tonal coloration) should be heard through the air noise. (If notated as a grace above a note, only the very beginning of the note should be articulated as a breath tone before quickly articulating the note. Ideally, this will sound as air noise morphing into a pitched tone.)



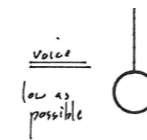
**register key** - starting with the key ('r.k.') closed, slowly open ('o') or close ('c') the register key until the tone becomes unstable and breaks.



**50%** - a breath tone which is roughly 50:50 discernible pitch and air noise.



**harmonic whistle tones** - quiet whistle tones, moving freely through the available harmonics. Whispering.



**voice** - acts as a disruptor to the saxophone's tone. Pitches are relative: as high or low as the performer can reach while playing.



**multiphonic** - containing the specified pitch. Most preferable multiphonics are those which contain the smallest interval from the stipulated pitch, (i.e. Minor second > major second > minor third).

*Composer's draft note: ideally I would like to have worked with specific multiphonics, which could at least act as a guide to individual performers. However I have been unable to locate a working chart of contrabass clarinet multiphonics, I am regrettably unable to provide precise working options at this time.*

## *general notes*

### *rhythmic notation*

Rhythmic layers are distributed throughout the piece at various strata. Where possible, these have been distributed vertically to indicate scope of discrete layers.

Tuplets may be nested within other tuplets. In these cases, the brackets are tied together with a curved line. If tuplets are not tied, they are assumed to be independent of one another, but acting concurrently.

Given the monophonic nature of the instrument, passages which appear as a polyphonic layering of voices should be read as a linear reading of these strata. The performer should read palimpsestically through the layers and any conflicting or interrupting nature.

### *sigma sections*

Sections marked with the sigma symbol ( $\Sigma$ ) signal a temporal 'hang' within the piece and should be thought of as existing outside the normal time of the performance. The duration of these sections is approximately 30"-40".

Each section is to be performed in a single, long breath (no circular breathing), which will in turn be affected by the energy required for each action. The duration of each note will therefore be specific to the individual performer. When the performer (inevitably) runs out of breath, wait for the end of the section rather than attempting to re-articulate the tone.

### *remarks on quietness*

The volume for this piece is extremely low. It is intended that many of the notes will not sound as written. Indeed, many pitched tones will fail to sound clearly. Notes should always be attempted as notated, taking into account the dynamic. Do not attempt to force any tone.



now did one now did one now did one

Colorless Clarinet

[ = 40

gaily blowing air at mouthpiece  
from a short distance.  
soft whispering.



harmonic whisper tones  $\text{MmMm}$   
 freely emerging.

white line  $\text{MmMm}$



Handwritten musical notation on a single staff. The notation includes notes, rests, and dynamic markings. A bracket above the staff is labeled "rk" and "9:10". A circled "c" is at the end of the staff. Dynamic markings include *pppp*, *f*, and *pppp*.

Handwritten musical notation on a single staff. The notation includes notes, rests, and dynamic markings. A bracket above the staff is labeled "rk" and "11:10". A circled "c" is at the end of the staff. Dynamic markings include *pppp*, *f*, and *pppp*. The text "After study emerges" is written above the staff.

Handwritten musical notation on a single staff. The notation includes notes, rests, and dynamic markings. A bracket above the staff is labeled "rk" and "11:10". A circled "c" is at the end of the staff. Dynamic markings include *pppp*, *f*, and *pppp*. The text "After study emerges" is written above the staff.



rk.  $\rightarrow$   $\circ$   $\rightarrow$  c

(11:10)

rk.  $\rightarrow$   $\circ$

rk.  $\rightarrow$   $\circ$   $\rightarrow$  c

voice

32

rk.  $\rightarrow$   $\circ$

8:7

3:4

3:2

4/8

6/8

5:4

pppp

pppp

pppp

pppp



$\delta$   $M$  (multiphonic centering) (prominent note)  
 voice hum to match most prominent note of multiphonic  
 gliss d

nk.  $5:4$   $10:13$   $3:2$   $13:10$

(13:10)  $6:5$  nk.  $3:2$   $5:7$



Handwritten musical notation for a string section. It features a treble clef with a large bracket on the left. The staff contains a series of notes with a blue wash underneath. A circled 'c' is at the end of the staff. Below the staff, there are markings for dynamics: "pppp" followed by "voice low as possible" with a circle, and another "pppp".

Handwritten musical notation for a string section, measures 40-42. It shows a treble clef with notes and rests. Ratios 3:2, 5:4, and 4:3 are indicated above the notes. Dynamics include "pppp", "f", and "pppp". A circled "c" is at the end of the staff.

Handwritten musical notation for a string section, measures 43-45. It shows a treble clef with notes and rests. Ratios 3:4, 4:3, and 5:6 are indicated above the notes. Dynamics include "pppp", "f", and "pppp". A circled "c" is at the end of the staff.

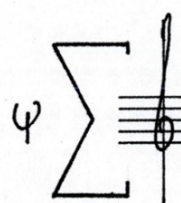
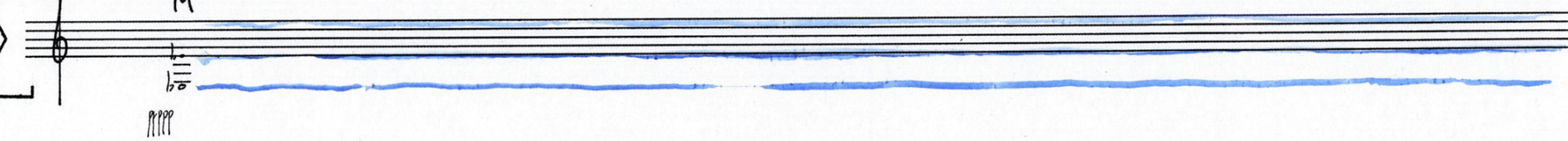


Handwritten musical notation on a single staff. It begins with a large bracket on the left containing the letter 'x'. A treble clef is positioned at the start of the staff. A blue horizontal wash is drawn across the staff. Below the staff, there are several vertical lines representing notes, with a '50%' label and a downward-pointing arrow above them. At the far right, there is a boxed-in section of notes with the handwritten text "in the absolute dying moments of breath." written above it.


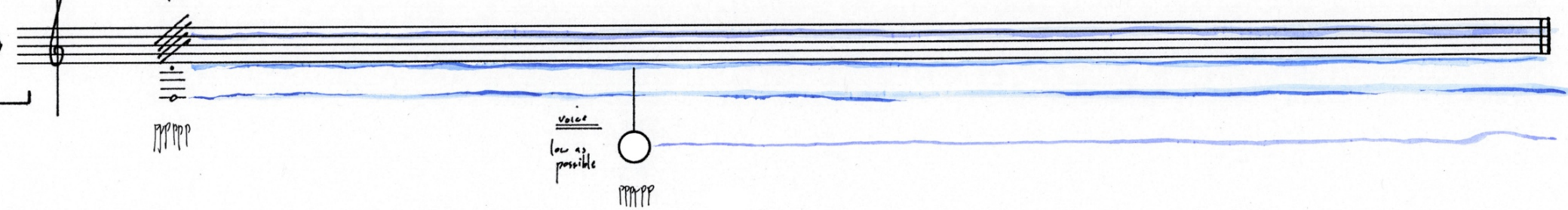
Handwritten musical notation on a single staff, starting with the number '47' at the beginning. The staff contains various rhythmic markings, including time signatures  $\frac{1}{8}$ ,  $\frac{3}{8}$ , and  $\frac{5}{8}$ . Above the staff, there are several horizontal lines with brackets indicating intervals, labeled with ratios:  $4:6$ ,  $3:4$ , and  $4:5$ . There are also some symbols resembling lightning bolts or 'f' marks. Below the staff, there are vertical lines representing notes and stems, with some notes marked with a flat symbol ( $b$ ) and a circled flat ( $(b)$ ). At the bottom, there are horizontal lines with brackets and vertical tick marks, possibly representing a timeline or specific intervals.

Handwritten musical notation on a single staff, starting with the number '52' at the beginning. The staff contains various rhythmic markings, including time signatures  $\frac{7}{8}$  and  $\frac{6}{8}$ . Above the staff, there are horizontal lines with brackets indicating intervals, labeled with ratios:  $7:9$  and  $3:2$ . There is a symbol resembling a lightning bolt or 'f' mark above the staff. Below the staff, there are vertical lines representing notes and stems, with some notes marked with a flat symbol ( $b$ ) and a circled flat ( $(b)$ ). At the bottom, there are horizontal lines with brackets and vertical tick marks, similar to the previous section.



$\Psi$  
 spectral multiphonic  
 M  

 pppp



$\omega$  
 spectral multiphonic  
 M  

 pppp  
 voice  
 low as possible  
 pppp

---

**WITH THE VERY SAME TWIST TO THEIR FACES  
(UNDER ERASURE)  
(2014)**

with the very same twist to their faces  
(under erasure)

Extremely quiet.  
Always unstable.

5  
8  
[ = 40-50

Oliver Thurley, 2014

Baritone  
Saxophone

35  
Accordian

single breath. no circle breathing!  
when this ends (out of breath) no  
rest.

single bellows motion.  
tone unstable. if out of  
air, do not reverse bellows,  
just wait.

both strings straight ahead,

Oliver Thurley  
2014

p.p.p.f

(5  
4)

(5  
8)



Handwritten musical score for the first system, featuring multiple staves with complex rhythmic notation and dynamic markings. The score includes various time signatures and dynamic levels such as  $ppp$ ,  $pp$ , and  $pppp$ . Key annotations include  $F = 40-50$ ,  $5/8$ ,  $3:2$ ,  $5:6$ ,  $3:2$ ,  $5:4$ ,  $7:5$ ,  $11:10$ ,  $4:3$ ,  $9:10$ , and  $6:7$ . The notation is dense with notes, rests, and slurs, indicating a highly complex rhythmic structure.

Handwritten musical score for the second system, continuing the complex rhythmic notation. It includes dynamic markings like  $pppp$ ,  $ppp$ , and  $pp$ . Annotations include  $F = 40$ ,  $5/8$ ,  $7:5$ ,  $5:4$ ,  $4:5$ ,  $3:4$ ,  $7:5$ ,  $6:7$ ,  $5:4$ ,  $4:3$ ,  $6:7$ ,  $5:4$ ,  $4:3$ , and  $5/8$ . The score is characterized by intricate rhythmic patterns and frequent changes in dynamics and time signatures.

(5/8)



F = 40-50

Handwritten musical score for the first system. It consists of five staves. The top staff has a treble clef and a key signature of one flat (Bb). The score is heavily annotated with rhythmic ratios such as 3:4, 4:3, 9:10, 3:4, 6:7, 7:5, 7:5, 6:7, and 3:2. Dynamic markings include pppp, mpp, and mp. There are also performance instructions like 'Shift' and 'B'. A circled '5' is written at the end of the system.

F = 40

Handwritten musical score for the second system, continuing from the first. It features five staves with similar notation and annotations. Rhythmic ratios include 7:5, 5:6, 6:5, 7:8, 6:7, 5:4, 9:7, 4:5, 6:5, 5:4, 4:5, and 7:6. Dynamic markings include ppppp and mpp. A circled '5' is present in the middle of the system, and a circled '8' is at the end. The text 'single below motion' is written at the bottom left of the system.

$F = \sqrt[4]{40} = \frac{40^{1/4}}{4}$   $\frac{5}{8}$   
Circular breathing if possible.

3:2  
6 1/2 mm  
Voice  
Cl  
Bsn  
Db  
7.5  
9:10  
10:14  
5:4  
9:10  
4:3  
Single better notes  
8vb

$F = 40$   $\frac{5}{4}$

7:5  
5:4  
7:5  
3:4  
Vibrato/bla  
Sing tip of reed.  
hit possible moment of breath  
key clicks audible  
9 1/2  
22  
10:14  
6:8  
9:10  
7:5  
5:4  
4:3  
10:14  
Breathe bellows  
Bellows move just enough to sound. Tone unstable.  
Very slow

Handwritten musical score for a string ensemble, measures 15-23. The score is written on multiple staves with various musical notations including notes, rests, and dynamic markings such as *ppp*, *pp*, and *f*. Time signatures and ratios like 7:5, 6:5, and 4:3 are indicated. There are also handwritten annotations like "(2)", "(5)", and "sing".

Handwritten musical score for a string ensemble, measures 17-25. The score includes musical notation, dynamic markings like *pppp*, and performance instructions such as "sing" and "single-blow rest". A tempo marking  $F = 40$  is present. There are also handwritten notes like "truba fill" and "single breather". At the end of the score, there are circled numbers (5) and (8).

F = 40-50

5  
8  
8

27

Handwritten musical score for the first system, featuring multiple staves with musical notation, dynamics, and structural markings. The score includes various notes, rests, and dynamic markings such as *pppp*, *pp*, *mp*, and *f*. Structural markings include *5 Shift*, *Shift*, and *6:7*. Time signatures and ratios like  $3:4$ ,  $4:3$ ,  $9:10$ ,  $6:5$ ,  $7:5$ ,  $7:5$ , and  $3:2$  are present. A circled  $(\frac{5}{4})$  is visible on the right side of the system.

F = 40

5  
4

10

20

Handwritten musical score for the second system, continuing the musical notation and structural markings from the first system. It includes various notes, rests, and dynamic markings such as *pppp*, *pp*, *mp*, and *f*. Structural markings include *5 Shift*, *Shift*, and *6:5*. Time signatures and ratios like  $5:4$ ,  $9:7$ ,  $7:5$ ,  $7:5$ ,  $6:4$ ,  $5:4$ , and  $4:5$  are present. A circled  $(\frac{5}{4})$  is visible on the right side of the system.



F = 40

Circular breathing if possible.

Handwritten musical score for the first system. It consists of several staves with notes, rests, and dynamic markings. Key annotations include "Circular breathing if possible." at the top left, "sing as high as possible" in the middle, and "gliss." in several places. Time signatures and ratios like 6:5, 7:5, 7:5, 4:5, and 9:10 are visible. The system ends with a circled number 5 and a circled 8.

F = 40

Handwritten musical score for the second system. It continues with multiple staves and includes performance instructions like "sing as high as possible" and "single breather".

Handwritten musical score for the second system. It continues with multiple staves and includes performance instructions like "sing as high as possible" and "single breather". There are also notes about "Whistle/blow into tip of reed" and "but possible / key clicks audible". Time signatures and ratios like 7:5, 10:9, 9:7, and 6:5 are present. The system ends with circled numbers 5 and 8.

Bellows move just enough to sound. Tone unstable.

Very slow

p.p.p.p.  
p.p.p.p.

Extremely quiet.  
Always unstable

with the very one hand to their faces

Oliver Thorby, 2014

Handwritten musical score for the first system, measures 23-27. The score is written for Baritone and Saxophone. It includes various musical notations such as notes, rests, and dynamic markings like *ppp*. Above the staves, there are several bracketed annotations with ratios:  $= 40-50$ ,  $7:5$ ,  $3:4$ , and  $6:5$ . A circled number  $(2)$  is present near the beginning of the first staff. The bottom staff has the word "occasion" written below it.

(5  
4)

Handwritten musical score for the second system, measures 25-29. The score continues with musical notation and dynamic markings. Annotations include "single breath: no circular breathing" and "single bellows motion: time unstable. if out of air, do not reverse bellows, just rest." Above the staves, there are more bracketed annotations with ratios:  $4:5$ ,  $5:4$ ,  $7:8$ ,  $7:6$ ,  $5:4$ , and  $6:5$ . A circled number  $(5)$  is present near the end of the second staff. The bottom staff has the word "sub" written below it.

(5  
8)

[ = 40-50

5  
8

Handwritten musical score for strings, featuring multiple staves with notes, rests, and dynamic markings like *pppp* and *mp*. The score includes various annotations such as "Hold still", "both string straight ahead", and "7:CA". Dimensions and ratios like 3:4, 4:5, 7:5, 9:10, and 6:7 are written throughout the piece.

Hold still

both string straight ahead,

Oliver Thelie  
2014



Extremely quiet.  
Always unstable.

with the very same kind of their faces

Olivier Thury, 2014

Handwritten musical score for a chamber ensemble, featuring multiple staves with complex rhythmic markings and dynamic instructions.

**Staff 1 (Top):** Includes markings such as  $6:7$ ,  $5:6$ ,  $3:2$ ,  $3:4$ ,  $4:3$ ,  $5:8$ , and  $(5/8)$ . Dynamic markings include *pppp*, *ppp*, *mp*, *f*, and *pppp*. Performance notes include "Bartine" and "Sappho".

**Staff 2:** Features markings like  $7:5$ ,  $4:5$ ,  $4:5$ ,  $4:5$ ,  $6:7$ , and  $(5/4)$ . Dynamic markings include *pppp*, *f*, *ppp*, *mp*, and *f*. A note "Hang!" is present.

**Staff 3 (Accordions):** Markings include  $5/8$ ,  $5:4$ ,  $9:7$ ,  $5:4$ , and  $5:4$ . Dynamic markings include *pppp*, *f*, *ppp*, *mp*, and *f*.

**Staff 4:** Includes markings like  $4:5$ ,  $4:5$ ,  $9:7$ ,  $5:4$ , and  $30:23$ . Dynamic markings include *ppp*, *f*, *ppp*, *mp*, and *pppp*.

**Staff 5:** Features markings like  $6:7$ ,  $5:4$ ,  $4:3$ ,  $6:5$ ,  $4:3$ , and  $(5/8)$ . Dynamic markings include *pppp*, *f*, *ppp*, *mp*, and *pppp*. A note "Air" is present.

**Staff 6 (Bottom):** Includes markings like  $5/4$ ,  $5/8$ ,  $5:6$ ,  $6:5$ , and  $5:4$ . Dynamic markings include *pppp*, *f*, *ppp*, *mp*, and *pppp*.

**Annotations:**

- Staff 4: "single bells. no circle breathing! with 4:2 (not of breath), rest 8"
- Staff 5: "single bell notation. time unstable. if not of air, do not remove bellows, just rest. hand"

F = 40

5/4

Circular breathing if possible.

6:7

Shift

6:7

21

35

(5/8)

Hold still

F = 40

5/4 = 40-50

10

both string straight ahead,

Olive Thorne 2014

(5/8)

4'

[slowly release as key, sound breaks through]

'Breath' bellows

single belly bellows move just enough to sound. Tone unstable.

Very slow

p.H  
p.V

---

**A TECHNICAL DIAGRAM FOR THE ABSTRACTION  
OF OCKEGHEM'S *MISSA PRO DEFUNCTIS: KYRIE*,  
SIDE ELEVATION  
(2015)**

A TECHNICAL DIAGRAM FOR THE ABSTRACTION OF  
OCKEGHEM'S MISSA PRO DEFUNCTIS : KYRIE —  
SIDE ELEVATION

FOR KLAUS & BARBARA  
ON ILKLEY MOOR

HARMONIUM & VIOLA D'AMORE  
OLIVER THURLEY, WINTER 2015

**a technical diagram for the abstraction of Ockeghem's missa pro defunctis: kyrie, side elevation**

for klaus and barbara

harmonium and viola d'amore

---

performance notes

always quiet. always slowly. on the moors.

moving slowly through the diagram, link musical events by following the pathway. all timings are free. it is not necessary to play *all* of the material in a single performance and events may be repeated. the piece lasts a minimum of 5 minutes, ending with an agreed signal.

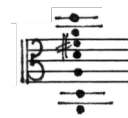
harmonium:

in systems of two or more staves, not all staves have to be played. in these systems, notes do not have to be perfectly aligned, allow layers to move freely. slowly blending and swelling.

systems may overlap at the players discretion.

viola d'amore:

assumed tuning:



single-note events should swell dynamically, moving out of or into silence.

systems may overlap at the players discretion.

HARMONIUM for Klaus

slow gliss

pppp

Handwritten musical notation in treble clef showing a chord.

Handwritten musical notation in bass clef with various notes and accidentals.

Handwritten musical notation in treble clef showing a melodic line.

Handwritten musical notation in treble clef showing a chord.

Handwritten musical notation in treble clef showing a melodic line.

Handwritten musical notation consisting of multiple staves, including treble and bass clefs, with dynamics like ppp.

Handwritten musical notation in treble clef showing a chord.

Handwritten musical notation in treble clef showing a melodic line.

unstable, shaking...

Handwritten musical notation in treble clef showing a chord.

Handwritten musical notation in bass clef showing a chord.

Handwritten musical notation in treble clef showing a melodic line.

Handwritten musical notation in treble clef showing a chord.

Handwritten musical notation in treble clef showing a chord.

Handwritten musical notation in treble clef showing a melodic line.

Handwritten musical notation consisting of multiple staves, including treble and bass clefs.

Handwritten musical notation in treble clef showing a melodic line.

Handwritten musical notation in treble clef showing a chord.

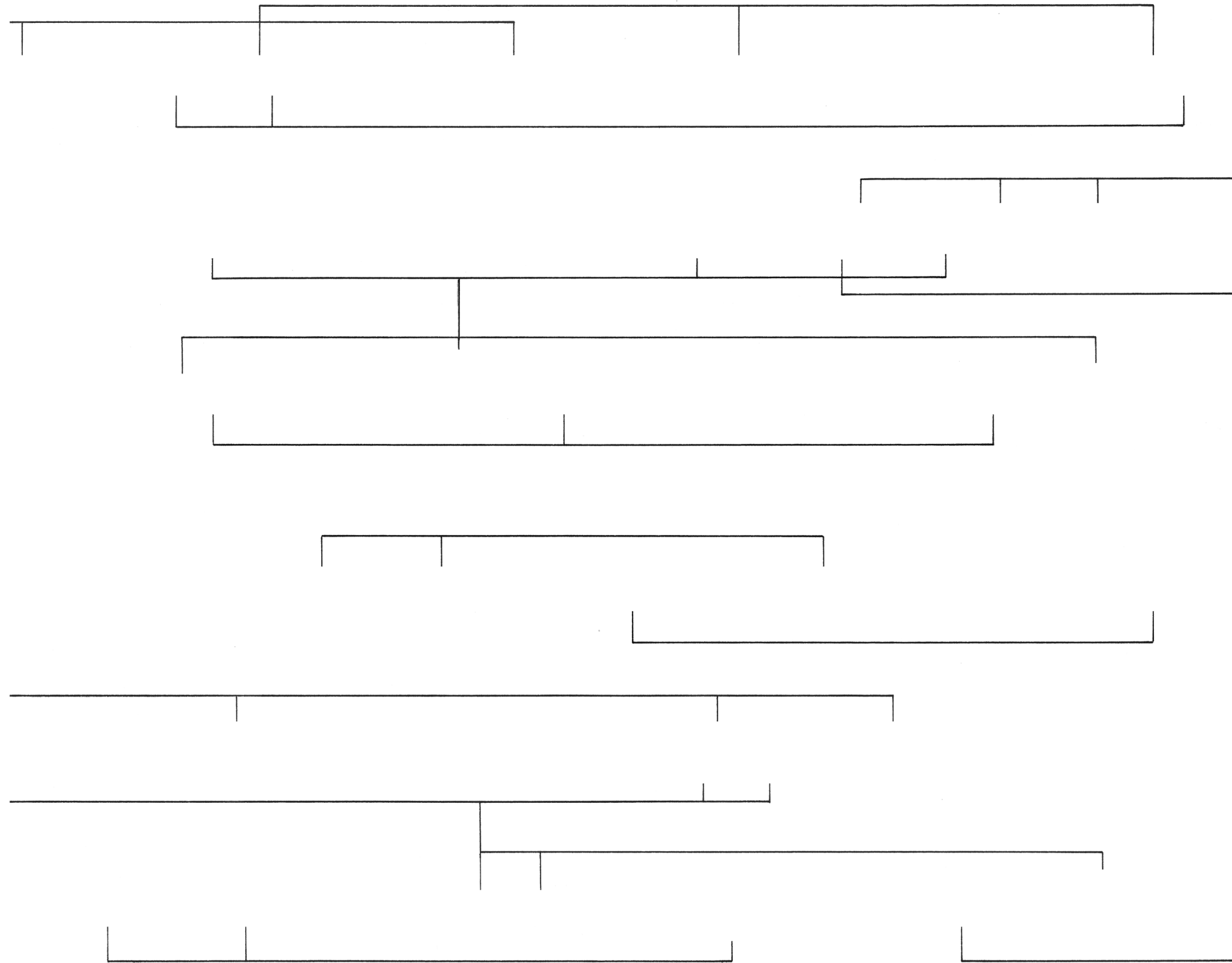
VIOLA D'AMORE for Barbara

This is a handwritten musical score for Viola D'Amore, titled "VIOLA D'AMORE for Barbara". The score is written on multiple staves, alternating between bass and treble clefs. The notation includes various note values, rests, and performance markings such as slurs, accents, and dynamic markings. The score is organized into several measures, with some measures containing multiple notes and rests. The handwriting is clear and legible, and the score is presented in a clean, organized layout.



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**FALLING AS RAIN AND THEN RISING (2016)**



*falling as rain and then rising*

---

for clarinet, violin, cello

oliver thurley, 2016

---

fragile, elsewhere and extremely quiet

played as written: with overwhelming anxiety and self-doubt

---

**general remarks**

*falling as rain and then rising* should be performed extremely quietly, almost to the point of inaudibility.

rhythmic notation has been deliberately obscured throughout the score, prompting performers to approach the multiple knotted layers as complex surfaces, overlapping and interrupting themselves. all instrumental parts should be approached as if they are polyphonic.

parts I, II, and III may be played all together (sequentially, or in any other order), or independently. where a single section is played by itself the time guides (20"-30" per bar) no longer apply. instead, each system should last for a long time. after part I, no durational information is given. all notes should be sustained for as long as is practically possible. the start and end of notes should never be accented or draw attention to themselves.

I am grateful to Martin Iddon whose work has served as a notational model for part III.

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*note:* all rhythmic notation is drawn to scale in 'time-space' form. performers wishing to make their own mensural markings (i.e. time-space/rational beats), please note that each staff system begins with a 15mm margin and is 300mm long (on an A3 score).

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general notation



state **transition**



notes in parenthesis are played with less energy. **out of focus**, like an echo



**duration** (part I only)



dotted line: performers should **synchronise** events or observe other mensural relationships

note that glissandi are often **interrupted** by other layers

each system/bar should last between 20–30 seconds. faster or slower is also permitted

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## clarinet

no breathing or duration markings are given. notes are sustained evenly and with no vibrato. breathe wherever is convenient

◇ ◇ •      **air** noise < air/tone < **tone**

---

## strings

all notes are played without vibrato

sustained notes should be bowed as slow as possible. where possible overlap notes using open strings (empty noteheads) and double-stopping

artificial harmonics using a semi-tone interval should be thought of as **hollow harmonics**. a clear sounding pitch is not as important as the tone's hollow, shadowy timbre

MII [4 + 11 + 7 + 3]      **multiphonic**, producing approximate grouping of overtones shown

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## amplification

the volume of the entire piece is extremely quiet. it is expected that some of the material will not sound as written and that tones will often falter, fail to sound, or fracture completely. the entire piece is fragile and remains porous to the agency of the performers.

due to the quiet nature of the piece, some performances may require a degree of amplification depending on the performance space. if amplification is absolutely necessary, it should be as slight and transparent as possible. the amplified signal should not dominate the space at any time. it should remain quiet, and still allow for the sound to retreat towards inaudibility at points.

version 1.0  
may 2016

this work was commissioned by tzlil meudcan festival  
and written for the meitar ensemble

always extremely quiet

with overwhelming anxiety

falling as rain and then rising

pt. I

for Meister Ensemble

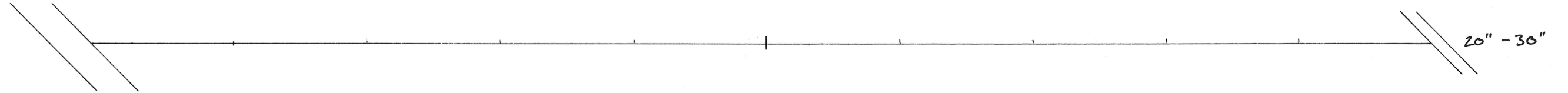
clarinet in B $\flat$

violin

cello

Musical notation for the first system. The clarinet in B $\flat$  staff is empty. The violin staff has a treble clef, a key signature of one flat, and a diamond-shaped dynamic marking. Below the staff are several vertical lines representing a tremolo. The cello staff has a bass clef, a key signature of one flat, and a diamond-shaped dynamic marking. Below the staff are several vertical lines representing a tremolo.

Musical notation for the second system. The clarinet in B $\flat$  staff has a treble clef, a key signature of one flat, and a diamond-shaped dynamic marking. Below the staff are several vertical lines representing a tremolo. The violin staff has a treble clef, a key signature of one flat, and a diamond-shaped dynamic marking. The cello staff has a bass clef, a key signature of one flat, and a diamond-shaped dynamic marking.



Musical notation for the third system. The clarinet (cl.) staff has a treble clef, a key signature of one flat, and a diamond-shaped dynamic marking. Above the staff is the number "2" and the text "into air". Below the staff is a vertical dashed line. The violin (vi.) staff has a treble clef, a key signature of one flat, and a diamond-shaped dynamic marking. The cello (vcl.) staff has a bass clef, a key signature of one flat, and a diamond-shaped dynamic marking.

7

Handwritten musical score for the first system, featuring three staves: clarinet (cl.), violin (vln.), and viola (vcl.).

- cl.:** Treble clef, key signature of one flat. Measure 3 contains a triplet of eighth notes. A diamond-shaped fingering symbol is present. A vertical dashed line is at the end of the staff.
- vln.:** Treble clef, key signature of one flat. A vertical dashed line is at the end of the staff.
- vcl.:** Bass clef, key signature of one flat. A vertical dashed line is at the end of the staff.

Handwritten notes below the staves include rhythmic patterns of vertical lines. Above the cl. staff, there is a vertical sequence of notes with diamond-shaped fingering symbols.

Handwritten musical score for the second system, featuring three staves: clarinet (cl.), violin (vln.), and viola (vcl.).

- cl.:** Treble clef, key signature of one flat. Measure 4 contains a triplet of eighth notes. A diamond-shaped fingering symbol is present. A vertical dashed line is at the end of the staff. The text "into air" is written above the staff with an arrow pointing to the right. Further right, the text "isolate top note" is written above the staff with an arrow pointing to a specific note.
- vln.:** Treble clef, key signature of one flat. Circled numbers 10, 11, and 12 are written above the staff. A vertical dashed line is at the end of the staff.
- vcl.:** Bass clef, key signature of one flat. Circled numbers 10, 11, and 12 are written below the staff. A vertical dashed line is at the end of the staff.

Handwritten notes below the staves include rhythmic patterns of vertical lines. Above the cl. staff, there is a vertical sequence of notes with diamond-shaped fingering symbols.

pt II

clinet in B<sup>b</sup> 5

violin

cello

d.

vn.

vcl.

hold for a long time  
C# harmonic takes preference  
o = open string



pt III

7  
clarinet in B<sup>b</sup>

violin

cello

20" - 36"

8  
d.

vn.

vcl.

9

cl.

vl.

vc.

Handwritten musical score for measures 9-10. The clarinet part (cl.) begins with a quarter note G4. The violin (vl.) and viola (vc.) parts both have half notes G4. The score includes various accidentals and dynamics markings.

10

cl.

vl.

vc.

Handwritten musical score for measures 10-11. The clarinet part (cl.) begins with a quarter note G4. The violin (vl.) and viola (vc.) parts both have half notes G4. The score includes various accidentals and dynamics markings.

Handwritten musical score for measures 11-12. The score is written for three staves: **cl.** (clarinet), **vl.** (violin), and **vc.** (viola). The music is in treble clef with a key signature of one sharp (F#). Measure 11 begins with a double bar line and a quote mark ("). The notation includes various note values, rests, and accidentals (sharps and naturals). Vertical dashed lines indicate the alignment of notes across the staves.

Handwritten musical score for measures 13-14. The score is written for three staves: **cl.** (clarinet), **vl.** (violin), and **vc.** (viola). The music is in treble clef with a key signature of one sharp (F#). Measure 13 begins with a double bar line and the number 12. The notation includes various note values, rests, and accidentals (sharps, naturals, and flats). Vertical dashed lines indicate the alignment of notes across the staves.

13

cl.

vn.

vd.

This block contains the musical notation for measures 13 and 14 for three instruments: Clarinet (cl.), Violin (vn.), and Viola (vd.). The notation is written on three staves. Measure 13 begins with a treble clef and a key signature of one sharp (F#). The Clarinet part starts with a whole note F#4, followed by a half note G#4, and then a whole note A4. The Violin part starts with a whole rest, followed by a half note G#4, and then a whole note A4. The Viola part starts with a whole rest, followed by a half note G#4, and then a whole note A4. Measure 14 continues with the Clarinet playing a half note G#4 and a half note A4, followed by a whole note B4. The Violin part continues with a half note G#4 and a half note A4, followed by a whole note B4. The Viola part continues with a half note G#4 and a half note A4, followed by a whole note B4. A dashed line indicates the continuation of the Clarinet part from measure 13 to measure 14.

14

cl.

vn.

vd.

This block contains the musical notation for measures 14 and 15 for three instruments: Clarinet (cl.), Violin (vn.), and Viola (vd.). The notation is written on three staves. Measure 14 begins with a treble clef and a key signature of one sharp (F#). The Clarinet part starts with a whole note F#4, followed by a half note G#4, and then a whole note A4. The Violin part starts with a whole rest, followed by a half note G#4, and then a whole note A4. The Viola part starts with a whole rest, followed by a half note G#4, and then a whole note A4. Measure 15 continues with the Clarinet playing a half note G#4 and a half note A4, followed by a whole note B4. The Violin part continues with a half note G#4 and a half note A4, followed by a whole note B4. The Viola part continues with a half note G#4 and a half note A4, followed by a whole note B4. A dashed line indicates the continuation of the Clarinet part from measure 14 to measure 15.

15

d.

vln.

vcl.

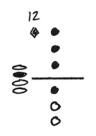
16

d.

vln.

vcl.





17

cl.

vn.

vl.

18

cl.

vn.

vl.

19

d.

vn.

vd.

20

d.

vn.

vd.

o. Hurley, 2016

---

**SO MUCH VAPOUR ALOFT (2015)**

# so much vapour aloft

sketches for Ellen Fallowfield, 2015

Oliver Thurley, 2015

## performance notes

for solo 'cello

{C-G-D-A}

fragile. extremely quiet. faltering, always unstable.

ca. 4'

## notation

◇ - harmonic finger position

Ⓜ  
◇ - multiphonic (approximate position)

①②③④ - string number (I-IV)

—————> - slow, even transition from one state to another

< | > - soft re-articulation of tied note, echoing

( )  
| - note in parenthesis is played with less energy

**N.B.** in the case of harmonic/multiphonic effects, the resulting pitch is given above in brackets [ ]

Tuplets may be nested within other tuplets. In these cases, the brackets are tied together with a curved line. If tuplets are not tied, they are assumed to be independent of one another, but acting concurrently.

— 7:5 ———— )  
| 5:4 ———— )

## pizzicato



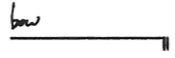
pizz. ———— - regular pizzicato

↑ - pizz. with left hand (usually an open string)

⊗ - harmonic pizz. (with left hand) - using thumb or index finger to touch harmonic node; pizz. with spare finger




(notation, continued)

### *bow position*

<b>MST</b>	-	molto sul tasto: close to left hand		-	bow on harmonic node. lighter flautando for a shadowy, filtered harmonic tone, or slow/overpressure to bring out sub-harmonic
<b>ST</b>	-	sul tasto			
<b>ord.</b>	-	ordinary bow position		-	bow on tailpiece. strings and body resonate. overpressure (particularly at the thinner section) brings out 'squeak'
<b>SP</b>	-	sul ponticello			
<b>MSP</b>	-	molto sul ponticello: almost on the bridge: a sharp tone, with crisp harmonic partials		-	bracket indicates a single bow length. used to slow motion movement significantly, the tone will falter as the bow sticks and slips.

### *finger pressure*

The left-hand finger pressure compressing a note may shift, cause the string to sound as either regular tone, harmonic or otherwise destabilised.

-  - harmonic pressure
-  - 50% pressure (between harmonic and normal, sounding unstable)
-  - 100% pressure (normal)

Unless indicated otherwise, presume all events are performed ord. in terms of bow position and finger pressure.

## *general notes*

### *multiphonics*

Multiphonics are notated as a harmonic position with an 'M' (and string number I-IV). The theoretical sounding pitches are given in a bracketed staff above the main staff. String multiphonics are achieved through clusters of close harmonic nodes, and by playing a harmonic slightly sharp of the highest partial position. Above the sounding pitches, the sounding partials are given (i.e. M IV[4th+13th+9th+15th+5th]), although they may not all sound.

### *remarks on quietness*

The volume for this piece is extremely low. It is intended that many of the notes (particularly the multiphonics) will not sound as written. Indeed, many pitched tones will falter, fail to sound, or fracture completely. The entire piece is fragile and remains porous to the agency of the performer.

*first draft*  
*version: 0.1 [January, 2015]*

Oliver Thurley  
2015



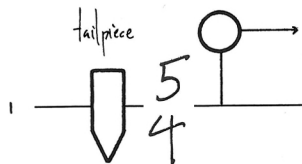
M ≈ 40

fragile, filtering

so much vapour effect — sketches for Ellen Fallowfield

January '15

strings unmuted, allow to resonate  
overpressure brings 'squeak'!



bow

IV [5, 11, 6]  
III [4, 13, 9, 5]



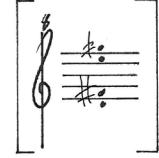
Handwritten musical score for a string instrument, measures 4-5. The score includes a treble clef staff with notes and a bass clef staff with pizzicato markings. Above the staff, there are two chord diagrams: I [4, 11, 7, 10, 3] and III [4, 11, 7, 10, 3]. The score is marked with dynamics like *pppp* and *ppppp*, and includes performance instructions such as "no ch. detide" and "ST". A bracket below the staff indicates a duration of 9:10, with a sub-bracket for 3:4.

Handwritten musical score for a string instrument, measures 5-6. The score includes a treble clef staff with notes and a bass clef staff with pizzicato markings. A box labeled "bow behind left hand" is positioned above the staff. A large rectangular area contains a wavy line representing a bowing or vibrato effect. Above this area, there are two circles with arrows pointing to them. The score is marked with dynamics like *ppppp*.

Handwritten musical score for a string instrument, measures 6-7. The score includes a treble clef staff with notes and a bass clef staff with pizzicato markings. Above the staff, there are two chord diagrams: II [5, 9, 13, 4] and IV II [5, 9, 13, 4]. The score is marked with dynamics like *pppp* and *ppppp*, and includes performance instructions such as "gliss up and out of multiphonics". A bracket below the staff indicates a duration of 11:9.

III [5, 11, 6]

II [4, 13, 9, 5]



7

*bow*

8

(3:5)

MST

ord.

*bow barely moves across strings. mostly l.h. standing*

4:3

pizz

9

*bow behind l.h.*

4:3

III [5, 8, 11, 5]

II [4,13,9,5]

III [5,11,6]

IV [4,11,7,3]

PIZZ----- arco ->

III [5, 11, 6]

harder, sub-harmonics emerge

13

I [3, 8, 13, 5]

14

5:4

rich M

II [4, 13, 9, 5]

I [3, 10, 7, 4]

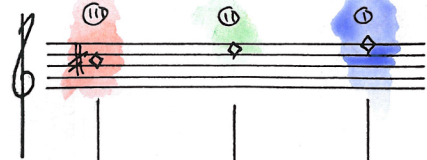
15

5:4

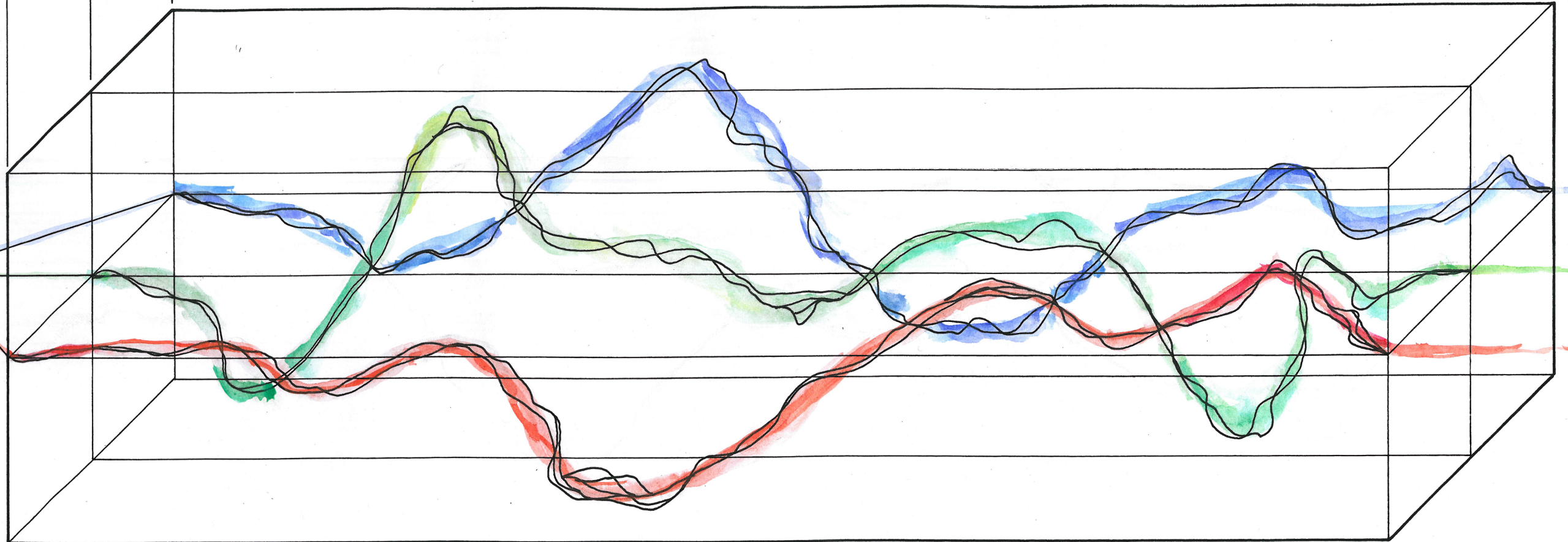
5:3



UPPER LIMIT



bow behind  
left hand



LOWER LIMIT



END.  
Thurley  
Leeds,  
January 2015