

**attrito**

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music for flutes, flugelhorn, alto saxophone, violin/viola, double bass, percussion and electronics

*full score*

**Bernardo Barros**

music for six musicians and live electronics

**duration:**

**first performance:** April 14th, 2018. New York City.

**participantes in the first performance:**

This score reflects the state of editorial work and correction as of **March 30th, 2018**.

Please check for any newer revision or correction of this work on the website.  
More information can be found at <http://bernardobarros.com/files/attrito>

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## General Notes

"Friction" as Dionysian structuring associated with free improvisation; in clash with the all-too-human suffering and despair on the "variazione sul nula" situations.

"Friction" is further a personal study on musical form, with brute operations on "abyssal fractures", rough trades between musical blocks. As Ungaretti himself refers, in a conference from 1966, on his interpretation of Leopardi's Canti as a work on fragmentation: "from that moment on, it was nothing but anguished anxiety, an alarm between two catastrophes."

The text worked out in the piece is Ungaretti's "Attrito" from "L'allegria – Il porto sepolto".

Attrito

Con la mia fame di lupo  
ammaino  
il mio corpo di pecorella

Sono come  
la misera barca  
e come l'oceano libidinoso

## Technical notes

The instruments should be amplified in order to balance with each other and with the electronic sounds.

### flute:

At the beginning of this first section, the flute in C plays with a very low dynamics (pppp-p), but amplified to the equivalent of a typical dynamic range (mp-mf). It consists of short attacks, the consonants must always change gradually. It should impact the timbre of the attacks as much as possible. This common technique tend to have this quality more evident at low dynamics, the amplification must be implemented with this exposure in mind.

The work of the flutist, improviser, and collaborator Alessandra Rombolà inspired me. Her work Nueza from the Urueña album is very close to the sound aimed here. I want to acknowledge Alessandra and Ine Vanoveren for much-needed assistance.

Multiphonics numbers refers to Carin Levine's *The Techniques of Flute Playing*

### saxophone:

Multiphonics numbers refers to Marcus Weiss' *Techniques of Saxophone Playing*

### strings:

from extremely low pressure (1), ord. (3), high pressure (with pitch), and (5) extremely high pressure (no pitch):



attrito

Bernardo Barros

Text: "Attrito" by Giuseppe Ungaretti, from "L'allegria - Il porto sepolto".

1  $\text{♩} = 57$

3/8 1/8 3/8 3/16 3/8 1/8 3/8 1/8

Flute in C closed

flute

pk t inhale inside pk t o o o inhale inside

3/8 3/8 3/8 2 5/16 5/16 5/16 2/8

Viola

Pass the bow on the side of the bridge, next to the first string. NOT on the on top of the bridge! The bow should be parallel to the direction of the strings. The resulting sound should be a very high-pitched and soft sound. Improvise around this sound and dynamic range.

ppp ↔ mp

7:8 9:10 6:5 5:4 6:5 6:5 7:5 alla tromba 6:5 open 8:7 5:3 6:5 inhale inside

7/16 5/16 5/16 3 5/16 5/16 2/8 3/8 3/8

flute

ppz p' closed

Gradually (really slowly), after exploring the initial sonority, position the bow toward the top of the bridge, just above the bridge, without a pitch. At this point also mute the strings with the left hand and prepare for the next action.

Pass the bow on the side of the bridge, next to the first string. NOT on the on top of the bridge! The bow should be parallel to the direction of the strings. The resulting sound should be a very high-pitched and soft sound. Improvise around this sound and dynamic range.

ppp ↔ mp

6:5 6:5 6:7 9:5 8:2 4:3 5:4 5:3 9:5 3:2 10:9 9:7 9:5

4  
8

4

3  
8

3  
8

5

7  
16

$\text{♩} = 64$

□ open

■ closed

Amplification gradually goes down  
Push the tongue against the pallet and then suck the air out of it.

Violin/viola part: *mf*, *mf*, *mf*, *mf*. Includes articulation marks for *open* and *closed* states, and a *k'* mark. Timing diagrams above the staff show durations of 5.6, 9.5, 8.2, 8.2, 9.5, 6.5, 5.6, and 7.6.

Bass part: *ppp*, *ppp*, *ppp*, *msp*, *p*. Includes the instruction: "gradually move bow to msp position on IV string".

Violin/viola part (second measure): "with muted strings and the bow over the bridge, improvise gestures that alternate between the strings".

Violin/viola part (third measure): "alla tromba".

Percussion part (fourth measure): *p*, *p*. Includes marks M38 and M39.

3  
8

4  
8

Sharp cut  
3  
6  
8

2  
8

fl

1 *p* → *pk* → *t*

growl

closed

open

inhale inside

trp

*mf*

with plunger

*mp* *p* *pp*

sax

M48 M57

*mf*

vln/vla

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

bass

*pp* *f* *pp*

perc

elect

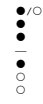
7  
16

5  
16

2  
8 G.P.

7  $\text{♩} = 64$  with assurance

5  
16



5:8

5:4

5:8

jet inhale inside

5:4 9:8 9:8

5:4 fingered microtones (not embouchure) around  $\text{g}\sharp$

fl

voice

tp

sax

vn/vla

bass

perc

*f* *p*

*t p* *ff*

*mp* *pp*

*p* *mf*

*mp* *pp*

*pp*

trill on C<sub>5</sub>

trill on C<sub>5</sub>

*f* *mf* *ff*

*f* *mf*

1

III IV III IV III IV III IV

5  
8

8  
9

7  
16

8 senza tempo

D# D# D#

fl

voice

*f* *mp*

5:4 3:2

tp

12

*p* *mp*

sax

trill on C5 11:12

*p* *f* *p*

vin/vla

IV III

Independently microtonal glissandi for each string. Alternate III and IV according to rhythm.

*p* *f* *p*

bass

*p* *f*

5:4

perc

pppp ↔ pp

fl

voice

*pp* *mf*

6:5 3:2

tp

*pp* *mf*

sax

M99

*pp* *mf*

vin/vla

IV III

*pp* *mf*

7:8 7:4

bass

*f*

7:8 7:8

With small brush and hand, rub softly on a amplified snare drum with a piezo. It should be amplified to a "low-tech" speaker near the player.



↓  
 $\frac{2}{8}$  ♩=57

senza tempo

↓  
 $\frac{3}{16}$  ♩=51

senza tempo

$\frac{3}{8}$  ♩=57

$\frac{4}{8}$

muta piccolo

Piccolo

fl

voice

tp

sax

vin/vla

bass

perc

fl

voice

tp

sax

vin/vla

bass

perc

fl

voice

tp

sax

vin/vla

bass

perc

senza tempo



**9**  $♩ = 81$

**4**  
**8**

**6**  
**8**

fl *fff* *3:2*

tp *with plunger*  
*pppp* *mf* *pp* *mf* *p* *mf* *p* *sfz/pp*

sax *M97*  
*pppp ↔ pp*

vin/vla *pppp ↔ pp*

bass *pppp ↔ pp*  
*5:2* *4:3* *8:2* *5:4*  
*fff* *ff* *mf* *f*

Five metal objects on bass drum skin (cymbal, gong, anvil, tube, etc.)

The musical score is divided into four measures, numbered 1, 4, 5, and 6. The instruments and their parts are as follows:

- fl (Flute):** Measure 1 features a melodic line with a *fff* dynamic and a  $9:2^b$  ratio. Measures 4, 5, and 6 are mostly rests.
- voice:** All measures are rests.
- tp (Trumpet):** Measure 4 contains complex rhythmic patterns with dynamics *mp*, *mf*, *f*, *pp*, *fff*, *mf*, *pp*, *f*, and *mp*. Ratios  $4:3$ ,  $4:3$ ,  $9:2$ ,  $9:2$ ,  $9:2$ , and  $5:4$  are indicated. Measures 5 and 6 have rests.
- sax (Saxophone):** Measure 4 has rests. Measures 5 and 6 feature melodic lines with dynamics *f*, *pp*, *mf*, and *f*. Ratios  $5:4$  and  $9:2$  are present.
- vln/vla (Violin/Viola):** Measure 4 has rests. Measures 5 and 6 feature a melodic line with dynamics *pp*, *mf*, and *p*. It includes performance instructions:  $[pst]$ ,  $[psp]$ , and  $[pst]$  with fingerings IV, III, and IV. Ratios  $9:2$  and  $5:4$  are also shown.
- bass (Bass):** Measure 4 has rests. Measures 5 and 6 feature rhythmic patterns with dynamics *mf* and *mp*. Ratios  $5:4$  and  $4:3$  are indicated.
- perc (Percussion):** Measure 1 features a rhythmic pattern with a *fff* dynamic and a  $5:3^b$  ratio. Measures 4, 5, and 6 are rests.
- elect (Electric):** All measures are rests.

Additional annotations in measure 6 include "123 13", "5:4 overtone gliss + random valves 1 and 3", and "half valve gliss".

The score is organized into three measures across seven staves:

- fl (Flute):**
  - Measure 1: Rest.
  - Measure 2: Sustained notes with *ppp* dynamics.
  - Measure 3: Rest.
- tp (Trumpet):**
  - Measure 1: *ppp* dynamics, includes annotation "into split tone 0" and fingerings 12, 2.
  - Measure 2: Rest.
  - Measure 3: *p* to *ppp* dynamics, includes ratios 7:4, 7:4, 9:2.
- sax (Saxophone):** Rest throughout.
- vln/vla (Violin/Viola):**
  - Measure 1: *ff* to *p* dynamics, includes Roman numerals III, IV, III, IV.
  - Measure 2: Rest.
  - Measure 3: *ppp* dynamics, includes annotation "F# corresponds to harmonic node 2/5".
- bass (Double Bass):**
  - Measure 1: *ff* to *ppp* dynamics, includes ratio 5:6.
  - Measure 2: Rest.
  - Measure 3: *ppp* to *f* to *pp* dynamics, includes ratio 4:5 and a dot.
- perc (Percussion):**
  - Measure 1: Rest.
  - Measure 2: *ppp* dynamics, rhythmic pattern.
  - Measure 3: Rest.
- elect (Electric):** Rest throughout.

fl

voice

tp

sax

vln/vla

bass

perc

elect

Con la

*f* *mp* *f* *mp*

*mp* *f*

*p*

*ff* *p* *f* *pp* *f* *p* *mf*

*subito pp* ↔ *mp* *f* *p* *pp*

*psp* *msp*

IV violin string with a violin bridge on a snare drum.  
A transducer is also attached to the snare drum.

3

6

6

fl

voice

tp

sax

vin/vla

bass

perc

elect

9:2

*p* *f*

mi

*f* *p*

1

*mp*

9:2

*fff* *f*

9:2

*fff* *mp* *f*

4:3

9:2

7:6

*pst*

7:6

7:6

5:4

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

*p* *mf*

9:2

7:5

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

*p* *pp*

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

*mf* *pp*

*p* *pp*

4:5

*p* *pp*

11

89

588

588

fl

voice

tp

sax

vin/vla

bass

perc

elect

*ff* *pp* *fff* *f*

me di

flute resonates

lu a mai

*ff* *mp* *ff* *po* *mf* *fff*

*ppp* *f*

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

*p* *pp*

5:6 7:6 5:4 6:5 8:2 8:2 7:6 14:9 6:7 8:2 7:4 8:2 8:2

just fingerings

IV III II I III IV II I III IV

4  
8

3  
8

7  
16

5  
8

5  
8

The score is divided into five measures. The first measure (4/8) contains a piano introduction. The second measure (3/8) features the vocal line with lyrics: "no", "pp", "pppp", "pp", "il", "mp", "mio", "cor", "mp", "p". The piano accompaniment includes dynamic markings "pp" and "pppp". The third measure (7/16) is empty. The fourth measure (5/8) is empty. The fifth measure (5/8) contains the vocal line with lyrics: "po", "di", "per", "co", "re", "la". The piano accompaniment includes dynamic markings "ff" and "ff".

perc **cue 1** transducer attached to the instrument playing audio files, follow cues for each file

perc **cue 2**

elect



1  
16

11  
16

5  
8

3  
8

12

senza tempo  
attaca electronics (solo)

fl

trp

sax

vin/vla

bass

perc

elect

half valve gliss

cue 1 transducer attached to the instrument playing audio files, follow cues for each file

cue 2 transducer attached to the instrument playing audio files, follow cues for each file

cue 3 transducer attached to the instrument playing audio files, follow cues for each file

cue 4 transducer attached to the instrument playing audio files, follow cues for each file

4/8 13 ♩=57

4/8

6/8

The musical score is divided into three measures. The first measure is in 4/8 time, the second in 4/8, and the third in 6/8. The parts are as follows:

- fl (Flute):** Starts with a *fff* dynamic and a 9:8 triplet. The second measure features a 5:4 triplet and a 9:8 triplet. The third measure is mostly silent.
- tp (Trumpet):** Features a 5:4 triplet in the first measure, a 123 triplet in the second, and a 5:4 triplet in the second measure. The third measure has a 18:12 triplet. Dynamics range from *fff* to *f*.
- sax (Saxophone):** Starts with *sfz=mp* and a 9:2 triplet. The third measure includes the instruction "teeth on reed, unstable" with a wavy line indicating instability.
- vln/vla (Violin/Viola):** Features a 9:2 triplet in the first measure with a *fff* dynamic.
- bass (Double Bass):** Starts with a 7:4 triplet in the first measure. The second measure has a 7:4 triplet. Dynamics range from *fff* to *fff*. The third measure includes the instruction "vertical bow, III and IV strings".
- perc (Percussion):** Features a 9:2 triplet in the second measure and a 5:4 triplet in the third measure. Dynamics range from *fff* to *fff*.
- elect (Electric Piano):** Features a 5:4 triplet in the third measure.

4/8

closed

senza tempo

3/16

senza tempo

3/8

9/16

growl

8:2

5:4

9:8

7:4

Drum notation for snare (r) and bass drum (f) in 4/8 time. Includes a growl effect and a 3-measure phrase with a 3:2 ratio.

Empty voice staff.

Empty tuba (tp) staff.

Empty saxophone (sax) staff.

Violin/viola (vln/vla) staff with a 9-measure phrase, dynamics from p to f, and a 9:8 ratio.

Empty bass (bass) staff.

Empty electric guitar (elect) staff.

Empty percussion (perc) staff.

Empty electric guitar (elect) staff.

Drum notation in 3/8 and 9/16 time, including a snare (r) and bass drum (f) with a 5-measure phrase and a 9-measure phrase.

Tuba (tp) staff with a 5-measure phrase, dynamics from mp to pp, and a 'with plunger' instruction.

Saxophone (sax) staff with a 5-measure phrase, dynamics from pp to mp.

Violin/viola (vln/vla) staff with a 5-measure phrase, dynamics from pp to f, and a 9-measure phrase.

Bass (bass) staff with a 5-measure phrase, dynamics from pp to f, and a 9-measure phrase.

Percussion (perc) staff with a 10-measure phrase, dynamics from ff, and two 5:4 ratios.

Electric guitar (elect) staff with a dense block of notes across the entire page.

fl

voice

trp

sax

vln/vla

bass

perc

elect

so - no - co - me - la - bar

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

*p* *mp* *smfz* *pp*

*ffz/imp* *fff*

*ffz/imp* *f*

trill on C5

*pp*

The musical score is divided into three measures. The first measure contains rhythmic notation for saxophone, violin/viola, bass, and percussion. The second measure contains melodic lines for saxophone, violin/viola, and bass, along with rhythmic notation for percussion. The third measure contains melodic lines for saxophone, violin/viola, and bass, along with rhythmic notation for percussion. The electric guitar part consists of a continuous rhythmic pattern of eighth notes.

**Saxophone:** *mf* teeth on reed relative pitches. *ppp*

**Violin/Viola:** *f* *p*

**Bass:** *f* *mp*

**Percussion:** *ff* *f* *pp*

**Electric Guitar:** *ff* *f* *pp*

fl

voice

tp

sax

vn/vla

bass

perc

elect

9:2 9:2 5:8 6:4 8:2 5:4 9:2

4:5 half valve gliss

pp

mf

M75

pp

stop playing before next bar just enough time to remove mouth piece

tongue ram without mouthpiece

7:4

trill on C5

7:4

alla tromba

7:4

alla tromba highest pitch

movement between half-harmonic and harmonic finger pressure

pSP

pp

mst unstable and rough

pp ↔ mp ~~~~~ etc

psp bow stop at string

clbjetè

8:2

IV

f mf

pst

II III

II III

7:4

II III

f

fl *f* *mf* *ff* *fingering microtones (not embouchure) around g<sub>4</sub>*

voice ba - r - ca\_ e co - me l'o - ce V.a no

tp *f* *mf* *p*

sax M94 *n* *p*

vln/vla *f* *p*

bass *p* *f* *mp* *ff*

perc

elect

fl

voice

li bi di no so

tp

sax

ppp

mp

p

mp

pp

p

ppp

mp

7:4

vn/vla

bass

loosen the III and IV as much as hitting between the strings and the fingerboard start to occur

perc

elect



The musical score is organized into three systems, each with a different time signature: 5/16, 2/8, and 4/8. The instruments and parts are as follows:

- fl (Flute):** Features melodic lines with dynamic markings such as *fff*, *f*, *ff*, *sfz/ mp*, *mf*, *ff*, *p*, *f*, *ff*, *mp*, and *f*. It includes articulation marks like circles and dots with arrows, and a *9:2* ratio marking.
- voice:** A vocal line with a treble clef, currently blank.
- tp (Trumpet):** Includes a *halfvalve gliss* instruction and a *M62* marking. Dynamics range from *p* to *pp*. A *4:5* ratio marking is present.
- sax (Saxophone):** Features sustained notes with dynamics *sfz/pp*, *mp*, *p*, *pp*, *p*, *f*, *mf*, and *f*.
- vln/vla (Violin/Viola):** Shows complex rhythmic patterns with dynamics *fff*, *mp*, *mp*, *fff*, *mp*, and *p*. It includes a *0:5* ratio marking.
- bass:** A bass line with a bass clef, currently blank.
- perc (Percussion):** A percussion line with a double bar line, currently blank.
- elect (Electric):** A line for electric instruments with a double bar line and a dense block of vertical lines at the end of the page.

senza tempo

**G.P.**  
ca. 45 seconds

senza tempo  
ca. 2 minutes

fl

voice

tp

sax

vn/vla

bass

perc

elect

growl

3.2

j r

2 4.5 12 0

alla tromba

6.5