Marc Estibeiro

The Sea Turns Sand to Stone

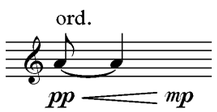
For Flute, Bass Clarinet, Piano and Live Electronics

Approximate Duration: 7’40”

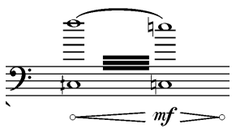
Score at Concert Pitch

Guide to Notation

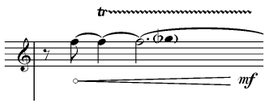
General marks



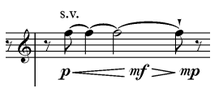
ord. Ordinary articulation (cancels previous articulation)



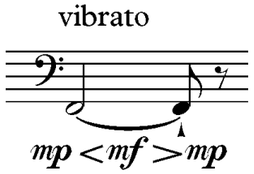
Tremolo, always played as fast as possible



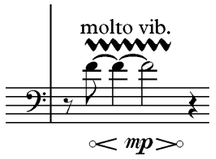
Trill, always to the indicated note



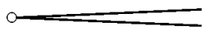
s.v. Senza vibrato – no vibrato



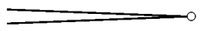
Ordinary vibrato



Very wide vibrato

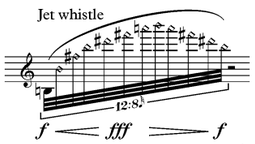


Crescendo dal niente

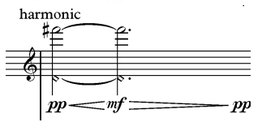


Diminuendo al niente

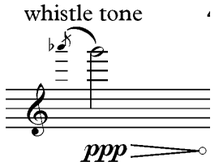
Flute



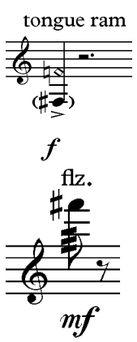
Jet whistle



Harmonic



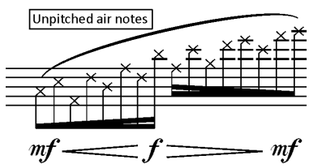
Whistle tone



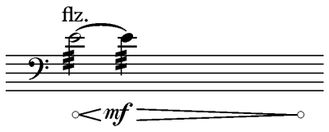
Tongue ram

flz. Flutter-tongue

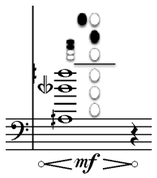
Bass Clarinet in B ♭



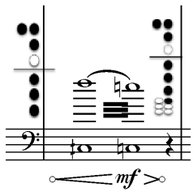
Unpitched air notes



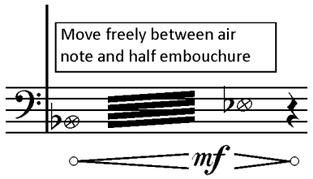
Flutter-tongue



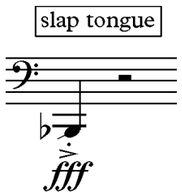
Multiphonic (fingering indicated in example)



Tremolo between two multiphonics

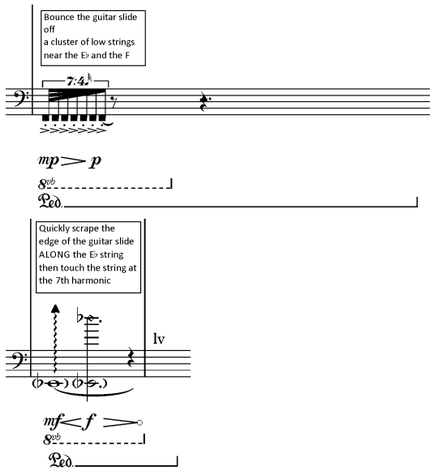


Move freely between air note and half embouchure



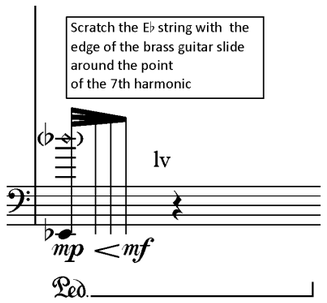
Slap tongue

Piano

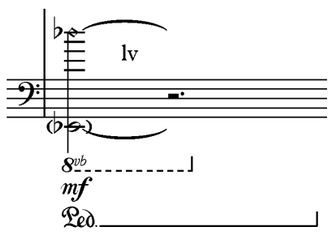


Bounce a brass guitar slide off the strings near the indicated pitch. Pedal as indicated

Scrape the brass guitar slide along the indicated string, then touch the indicated harmonic



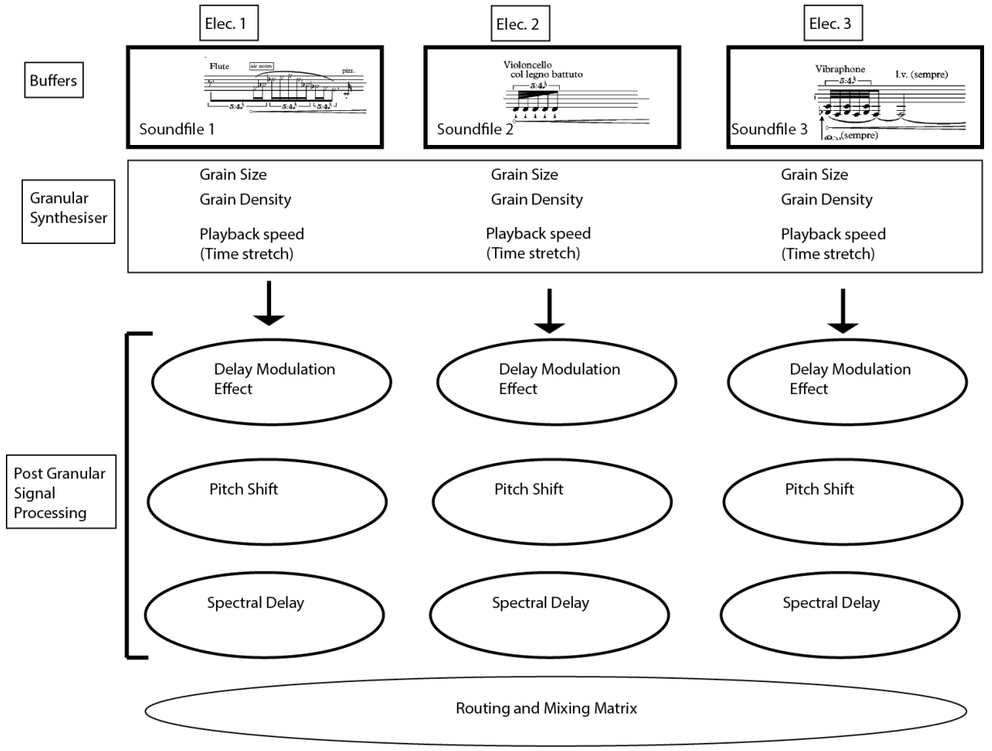
Scratch the indicated string with the edge of the brass guitar slide around the node for the indicated harmonic



Play the indicated note with the left hand and touch the appropriate node on the string with the right hand to produce a harmonic at the indicated pitch

Guide to the Electronics

The electronic part consists of a three-channel granular synthesiser. A broad overview of the software performance environment is shown below.



The level of the electronic part should be balanced to match the level of the acoustic instruments.

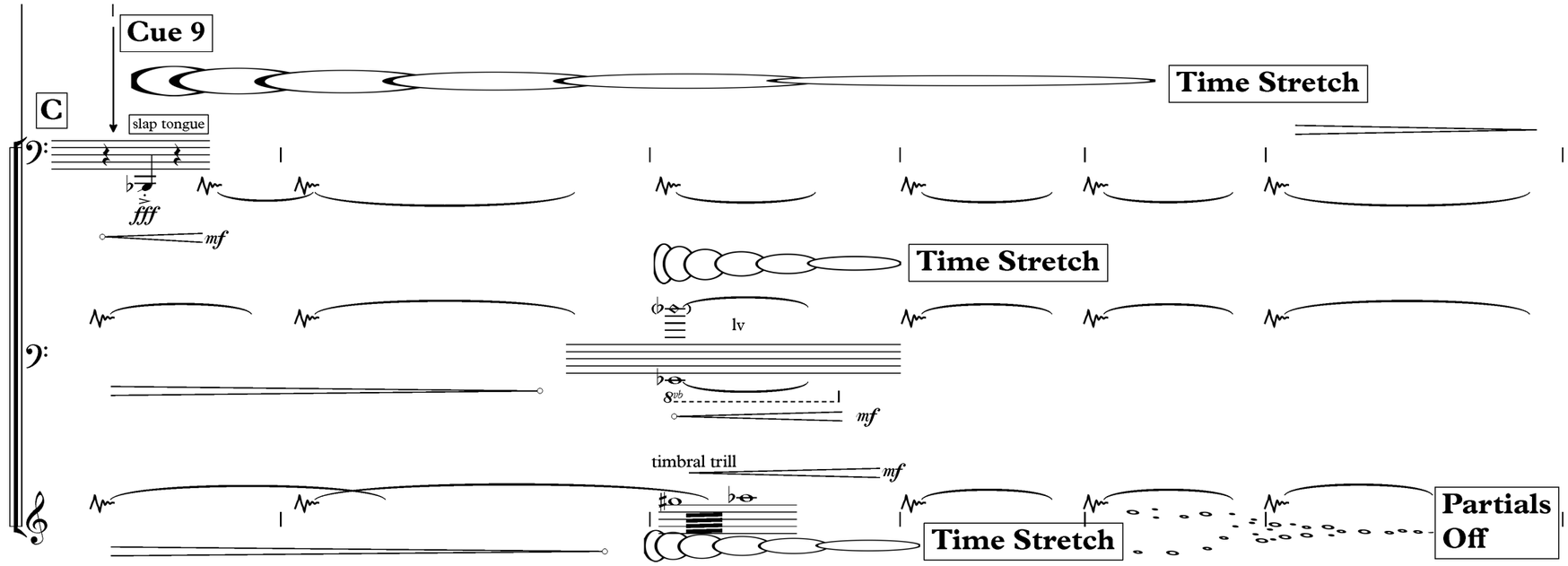
A small mixing desk is necessary in order to make minor adjustments to the levels during the performance.

The acoustic instruments should only be amplified if necessitated by the size of the performance space.

The electronic part requires a computer running Max v. 6 or above (www.cycling74.com), a suitable digital to analogue convertor, a mixing desk and amplification appropriate for the room. The Max patch is available from the composer on request.

Each of the three channels is followed by identical signal processing chains consisting of a delay modulation effect, a pitch shifter and a spectral delay. There is also a process which reorders elements within the soundfile (not shown in schematic). Each channel carries out real-time granulation of a soundfile. The soundfile is a pre-recorded gesture taken from the acoustic part. The first channel processes sounds from the bass clarinet, the second channel processes sounds from the piano, and the third channel processes sounds from the flute. These gestures should be recorded before the performance and edited to eliminate silence and discontinuities at the beginning and end of the recording. The recordings should match, as far as possible, the ambience of the room in which the performance will take place.

An example of the acoustic gestures used in the electronic part is shown below:

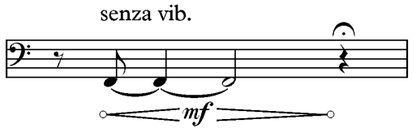


Pre-composed events are triggered manually from the software environment using numbered cues. These are indicated on the score as shown in the example above.

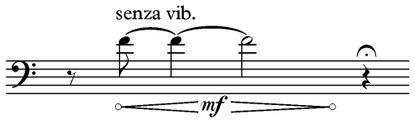
Although the events are pre-composed, all processing takes place in real time and there will be subtle but significant differences between performances. The timings shown on the score are for guidance only.

The pre-recorded sound-files processed by the three channels of the electronic performance environment are shown below:

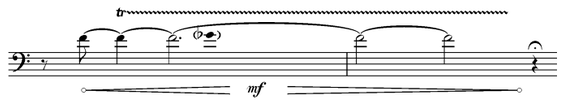
Bass clarinet



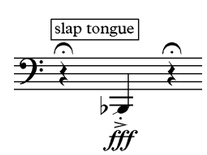
Bass clarinet F2 senza vibrato



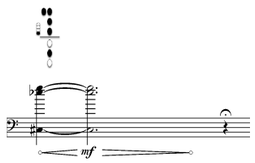
Bass Clarinet F2 senza vibrato



Bass Clarinet trill

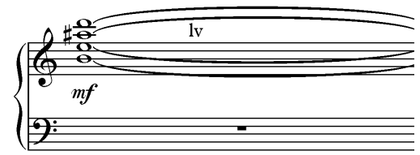


Bass clarinet slap tongue

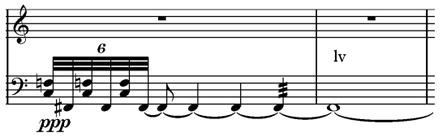


Bass clarinet multiphonic

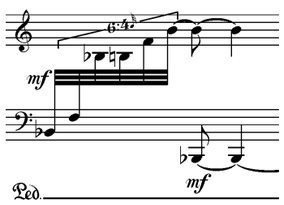
Piano



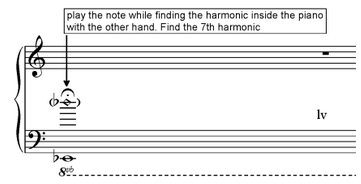
Piano chord



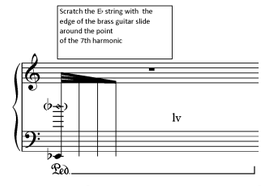
Piano iterative gesture



Piano pushing agitated gesture

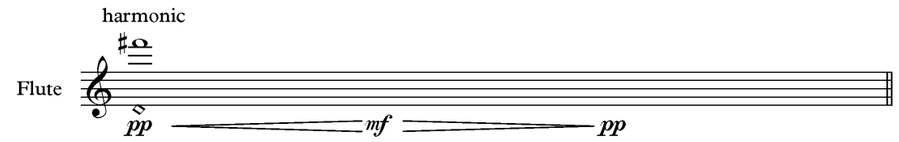


Piano harmonic

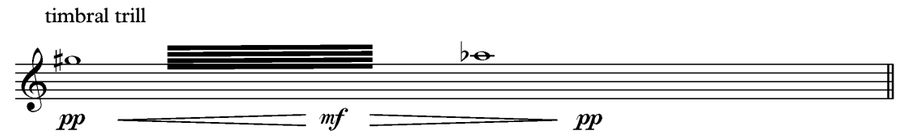


Piano harmonic and scraping gesture

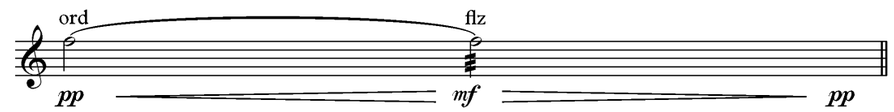
Flute



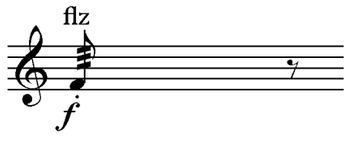
Flute F#6 harmonic



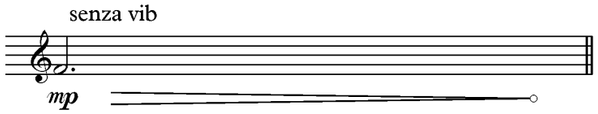
Flute timbral trill



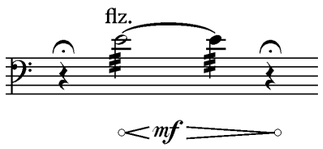
Flute ord. to flz



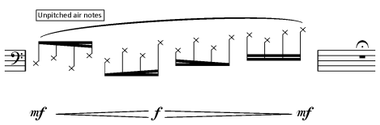
Flute short staccato flutter tongue



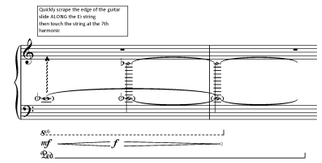
Flute senza vibrato



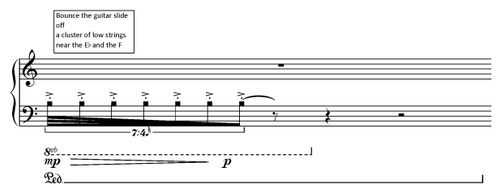
Bass Clarinet high flutter tongue



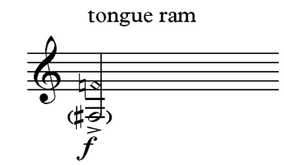
Bass Clarinet unpitched air notes



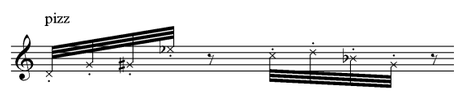
Piano scraping gesture then harmonic



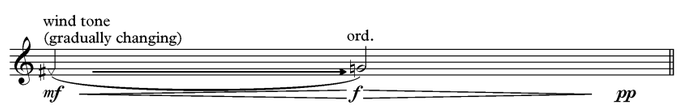
Piano slide bouncing off strings



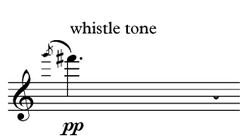
Flute tongue ram



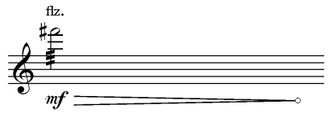
Flute pizzicato



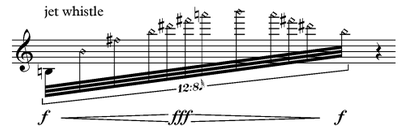
Flute wind tone to ord.



Flute whistle tone



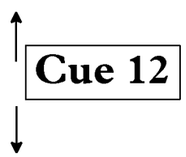
Flute high flutter tongue



Flute jet whistle

Guide to Notation (Electronic Part)

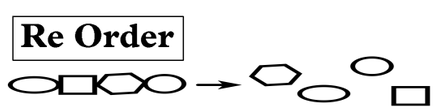
A system of graphic notation has been used to indicate the electronic processes used and their resulting textures. Examples from the system are described below. The soundfiles are usually heavily processed and so any notated pitch references in the electronic part are for reference only. The processes are triggered automatically with the appropriate cue number so the graphics are representational only – they do not serve any performance function. A more detailed schematic appears after the main score.



Trigger cue number

Grain size. Changing from small to large in example

Play back speed – time stretching effect. Playback speed decreasing in example.

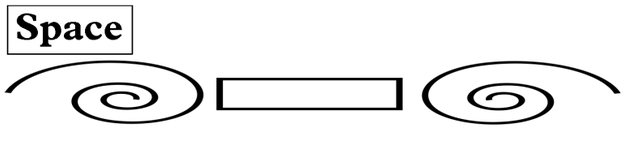


Reorder elements in soundfile

Grain density. Becoming less dense in example

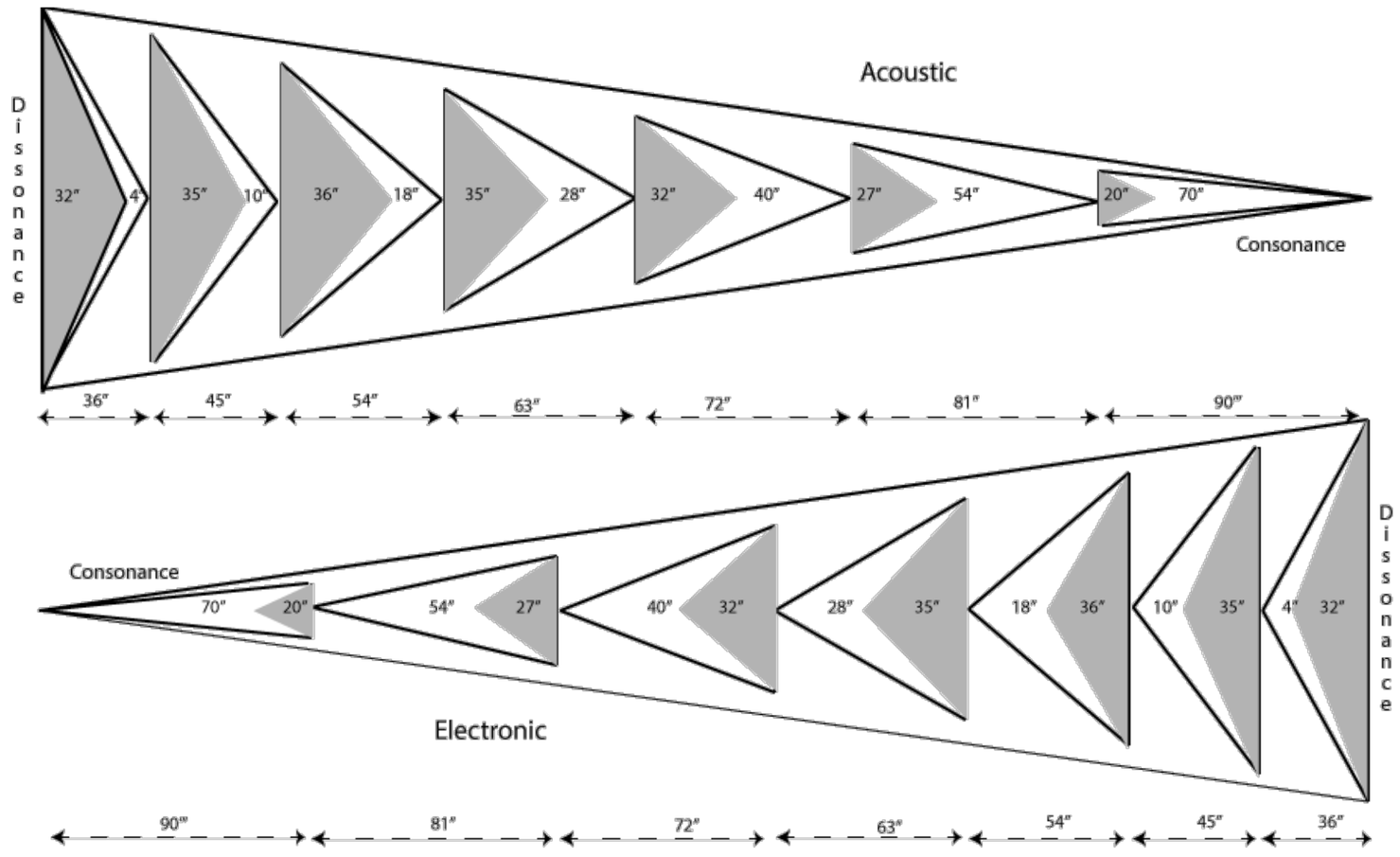
Delay Modulation (comb filtering) effect

Pitch shift. Decreasing in example



Spectral delay effect

The figure below shows a broad schematic that was used during the compositional process to structure the composition. The acoustic part moves from a state of disorder ("dissonance" in the schematic) to a state of order ("consonance"). The electronic part mirrors the acoustic part by moving in the opposite direction. The acoustic part has been written using a hierarchy of gestures that move from "noisy"/disordered towards "pure-sound"/ordered. A similar hierarchy has been used for the source material of the electronic part. It is important to note that the terms "consonance" and "dissonance" have been used here in a very broad sense to refer to a sensory consonance and a sensory dissonance rather than the more traditional use of the terms in the context of tonality. It should also be noted that the timings shown are for guidance only and will vary between performances. They should be considered as approximations rather than absolute values.



Instruments

Flute in C

Bass Clarinet in B ♭

Piano (with Brass Guitar Slide)

Live Electronics
(Computer running Max 6 or higher, audio interface, suitable microphones where appropriate, mixing desk and amplification)

The Sea Turns Sand to Stone

0"
♩= 60
Intenso, Espressivo
5"
10"
15"

Flute
flz.
mf
Jet whistle
12:8
f *fff* *f*
mf *f* *mf*
Unpitched air notes
flz.
mf
Unpitched air notes
mf *f* *mf*
flz.
mf

Bass Clarinet in B♭
Unpitched air notes
mf *f* *mf*

Piano
Bounce the guitar slide off
a cluster of low strings
near the E♭ and the F
7:4
mp *p*
8vb
Ped.
sim
7:4
mp *p*
8vb
Ped.

Cue 1
♩= 60
Intenso, Espressivo
mf

Cue 2
Time Stretch
mp
Time Stretch
mf

Electronics
B.C., Piano, Flute

20" 25" 30" 35" 40" 45" 50" 55"

flz. flz. tongue ram flz flz tongue ram flz flz tongue ram flz flz flz

mf f f mf 5:4. f f mf 6 f mf f mf 6 f

flz. flz

mf ppp mf ppp mf mf

Move freely between air note and half embouchure

Quickly scrape the edge of the guitar slide ALONG the E♭ string then touch the string at the 7th harmonic

Scratch the E♭ string with the edge of the brass guitar slide around the point of the 7th harmonic

Quickly scrape the edge of the guitar slide ALONG the E♭ string then touch the string at the 7th harmonic

lv lv sim lv sim

7:4. mp p mf f mp mf mp mf mf f

8vb Ped. 8vb Ped. Ped. Ped. 8vb Ped.

Cue 3

Pitch

Time Stretch **Pitch**

Flute mf

1'00" 1'05" 1'10" 1'15" 1'20" 1'25"

harmonic

3

tr

f *ppp* *pp* *mf* *pp* *pp* *mf* > *pp* *mf*

flz ord.

mf *ppp* *pp* *pp* tr *mf*

lv lv lv

8vb 8vb 8vb

mf *mf* *mf* *mf*

Ped. Ped.

Cue 4

Pitch **Partials** **Space**

p

1'30" **A** 1'35" 1'40" 1'45" 1'50" 1'55"

(tr) *mf* tr *mf* tr *mf* *pp*

tr *mf* flz ord *pp* *mf* *pp*

6 lv (8) *ppp* *ppp* 6 *ppp* lv 6 *ppp*

Ped. Ped.

Cue 5

Density **Time Stretch**

Grain Size *mf*

Grain Size 6

Space *mf*

Time Stretch **Pitch**

2'00" whistle tone 2'05" 2'10" whistle tone 2'15" 2'20" 2'25" harmonic

ppp ppp mp mp mf mp pp mf pp

molto vib. senza vib. flz

< mp > mp > pp mp < mf > mp mp < mf mp mp < mf > mp

tr tr

6:4 6

mp mf mf < f pp

pp mp mf mf

Ped. Ped.

Cue 6

Density Pitch

Pitch

Pitch

Density

Grain Size

mf

2'30" 2'35" 2'40" 2'45" 2'50" 2'55"

tongue ram

flz harmonic flz ord. flz flz flz ord. harmonic flz ord. harmonic **B** ord.

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

tr tr tr

mp < *mf* > *mp* *mp* < *mf* *mp* *mp* < *mf* *mp* *mp* < *mf* > *mp*

8va

6:4

loco

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

6

mp *mf* *mf* *pp*

Ped. Ped. Ped.

Cue 7

Time Stretch

B

tr

mf

Pitch

Grain Size

Pitch

Density

Partials

Pitch

3'00" 3'05" 3'10" 3'15" 3'20" 3'25"

flz ord. flz ord. flz ord. flz ord. flz

mp p pp mp > p pp pp mp > p pp mp mf mp mf > p

pp mp > p pp pp mp > p pp mp fff

slap tongue

8va loco loco

p pp pp mp

8vb

pp

Ped. Ped.

Cue 8

Density

Re Order

mf

Space

Space

mf

ord flz

Grain Size

Density

3'30" 3'35" 3'40" 3'45" 3'50" 3'55"

ord. flz ord. flz ord. flz ord. whistle tone

slap tongue slap tongue

Ped. Ped. Ped.

Space

Time Stretch

Partials

4'00"

C

whistle tone

4'05"

whistle tone

4'10"

whistle tone

4'15"

whistle tone

4'20"

4'25"

whistle tone

9

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

loco

l.v.

loco

8vb

pp

Ped.

Cue 9

C

Time Stretch

slap tongue

fff *mf*

Time Stretch

lv

8vb

mf

timbral trill

mf

Time Stretch

Partials Off

10

4'30" 4'35" 4'40" 4'45" 4'50"

flz

ord.

ppp

mf < f > mf

mp mf

6

Ped.

Cue 10

4'55" 5'00" 5'05" 5'10" 5'15" 5'20"

D

tr flz

ord. flz.

ord. tr flz

Ped.

Cue 11

D

Space

Grain Size

Pitch

Pitch

Cue 12

5'25" 5'30" 5'35" 5'40" 5'45" 5'50"

ord. tr flz pp mp pp

ord. whistle tone flz pp pp ppp

p mp pp

Ped.

Density

Pitch

Pitch

Partials

Pitch

Partials

5'55" 6'00" 6'05" 6'10"

tr tr tr

3 6 6 3 3 5:4

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

flz ord.

mp p mf mp p mf mp p mp pp

mp mp mp

Ped. Ped. Ped.

8vb ppp

Ped.

Cue 13

flz.

mf

6'15" 6'20" 6'25" 6'30" 6'35" 6'40"

ord. s.v. vibrato | s.v. vibrato | flz s.v. ord. vibrato | vibrato s.v. | vibrato s.v. | vibrato s.v.

p < mf > mp | p < mf > mp | p < mf > mp | p < mf > mp | mp > pp | mp > pp

vibrato | vibrato | vibrato | s.v. | s.v. | s.v.

mp < mf > mp | mp < mf > mp | mp < mf > mp | mp < mf > mp | p > pp | p > pp

mp | p | p | pp | pp | pp

Ped. Ped. Ped. Ped.

Cue 14

Cue 15

mf

Density **Pitch**

Partials

Space

8vb Ped. mf

flz.

Density **Pitch**

Partials

Space

mf

6'45" 6'50" 6'55" 7'00" 7'05" 7'10"

s.v. vibrato whistle tone flz ord. 15

p mf mp ppp pp

8vb

Ped.

jet whistle

7:4.

12:8.

Partials

Pitch

7'15" 7'20" 7'25" 7'30" 7'35"

16

lv

Ped. sempre

Cue 16

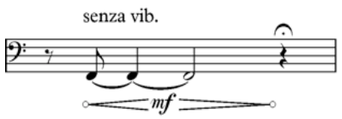
Detailed Schematic for Electronic Part

The following pages show a more detailed overview of the electronic events triggered by the cues in the score. The schematic is for information only – all the events unfold autonomously when the appropriate cue number is selected.

The table below shows a list of the abbreviations for the electronic processes used, together with an explanation where appropriate:

Fd	Fade level (dB)
Pbs	Play back speed (1 = normal speed)
Gs	Grain Size (milliseconds)
Gd	Grain Density (milliseconds)
Pitch	Transposition (Hz)
Partials	Add partials to source
Spectral Delay	Add spectral delay to source
Reorder Elements	Reorder elements in sound file

Channel One
(Bass Clarinet)



0” 10” 20” 30” 40” 50” 1’0” 1 10” 1 20” 1 30”

Cue 1 Cue 2 Cue 3 Cue 4

pbs 1
gs 100
gd100

fd -15

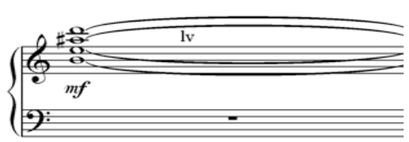
pbs 0.1

fd -25

fd -90

gs 30
gd 1000

Channel Two
(Piano)



pbs 1
gs 100
gd100

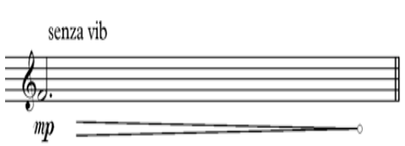
pbs -2

pitch -200

fd -15

fd -90

Channel Three
(Flute)



pbs 1
gs 100
gd100

pbs 0.1

pitch -400

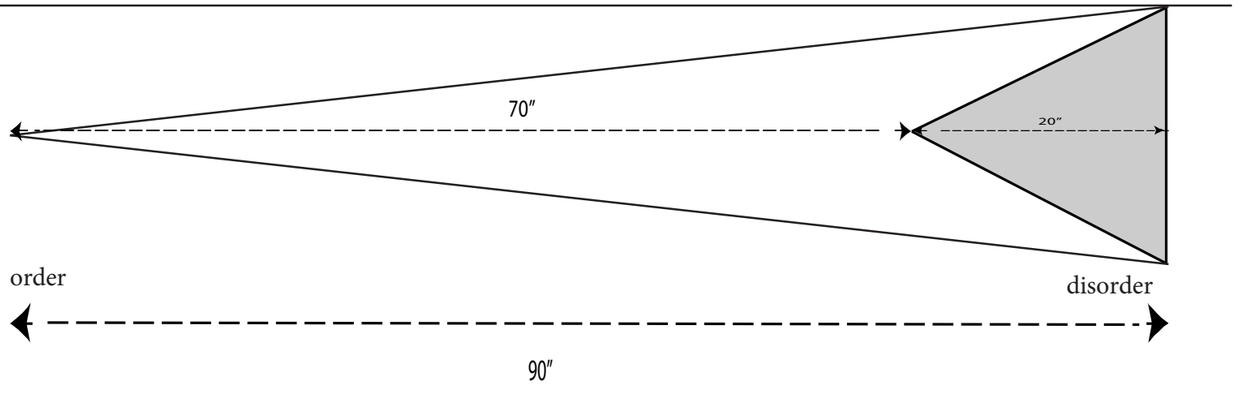
fd -15

pitch -500
spectral delay 0.4

fd -30

partials

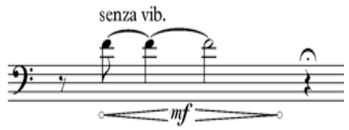
Electronic
s Frame 1



1 30” 1 40” 1 50” 2’ 0” 2 10” 2 20” 2 30” 2 40” 2 50”

Cue 5 Cue 6

Channel One
(Bass Clarinet)

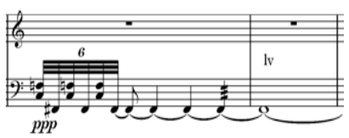


gs 30
gd 1000

pbs 0.1
fd -15
gd 4000

fd -90
pitch -600

Channel Two
(Piano)



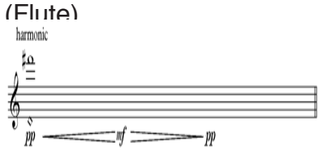
gd 2000

spectral delay 0.3
pbs -0.4
fd -15

fd -90
pitch -800

gs 250
pitch 200

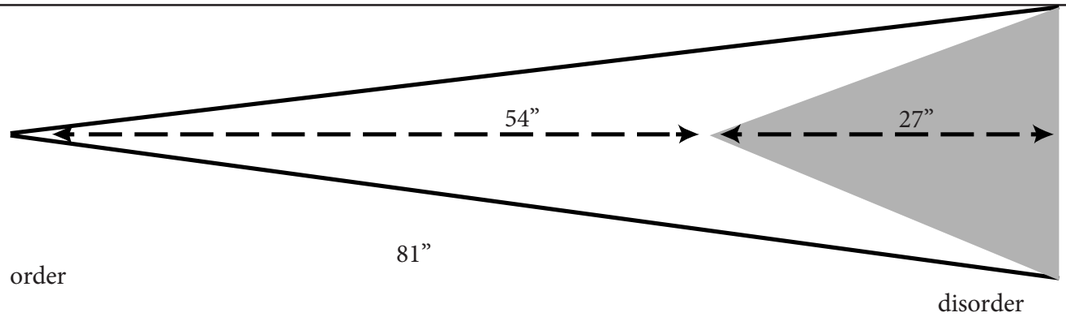
Channel Three
(Flute)



gd 3000
pitch 100
fd -90
gs 600

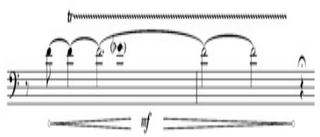
gd 1000
fd -15
partials
pitch -800

Electronic
s Frame 2



2 50” 3’ 0” 3 10” 3 20” 3 30” 3 40” 3 50” 4’ 0”

Channel One
(Bass Clarinet)



Cue 7

pbs -0.1

gs1 1500

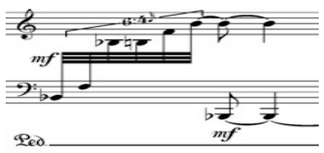
Cue 8

gd1 2000

fd -15

fd -90

Channel Two
(Piano)



reorder elements

pitch 100

gs 1000

gd 5000

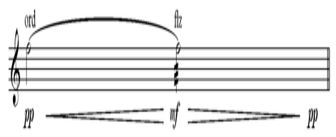
spectral delay 0.2

fd -15

pbs 0.5

spectral delay 0.4

Channel Three
(Flute)



gs 100

gd 5000

fd -90

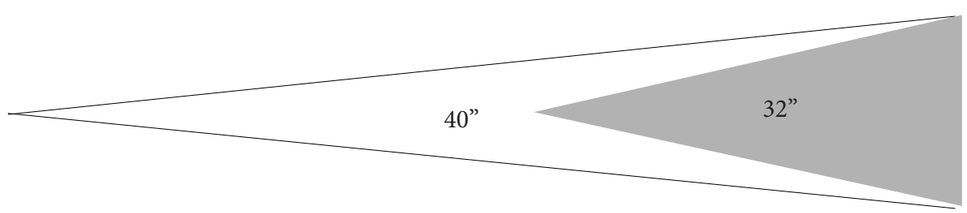
fd -15

pitch 0

spectral delay 0.2

partials

Electronic
s Frame 3

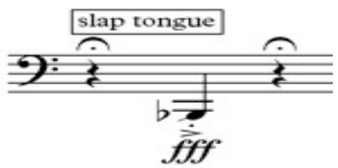


order

72”

disorder

Channel One
(Bass Clarinet)



4’ 0” 4 10” 4 20” 4 30” 4 40” 4 50” 5’ 0”

Cue 9 Cue 10

pbs -0.4

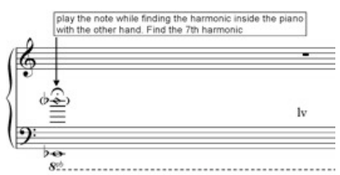
gs 100
gd 100
pitch 0

fd -15

fd -90

reorder elements
off

Channel Two
(Piano)



gs 100
gd 100

partials
off
pbs 0.2

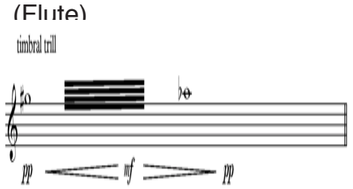
fd -20

fd -90

pitch 0

pitch -400

Channel Three
(Flute)



gs 100
gd 100

pbs 0.1

partials
off

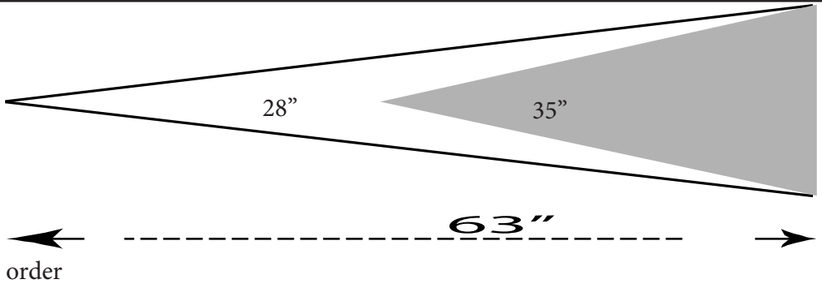
fd -20

fd -90

pitch 0

pitch 400

Electronic
s Frame 4

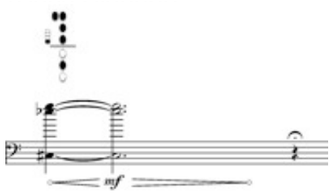


order

disorder

5’ 0” 5 10” 5 20” 5 30” 5 40” 5 50” 6’ 0”

Channel One
(Bass Clarinet)



Cue 11

gs 200

Cue 12

pitch -800

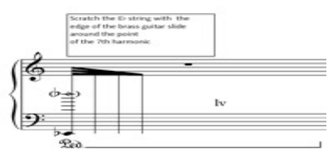
fd -15

gd 4000

fd -90

spectral delay 0.4

Channel Two
(Piano)



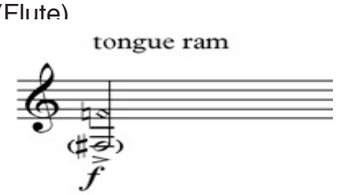
pitch -200

fd -90

fd -15

partials

Channel Three
(Flute)



pitch 200

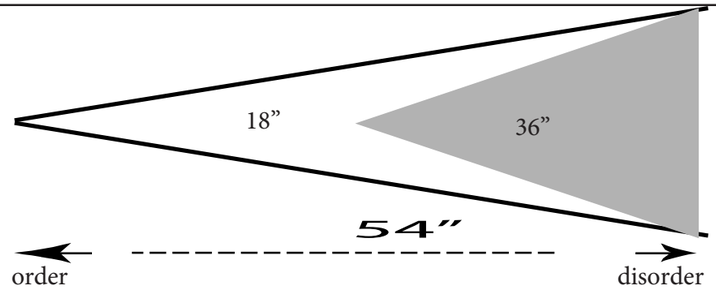
fd -90

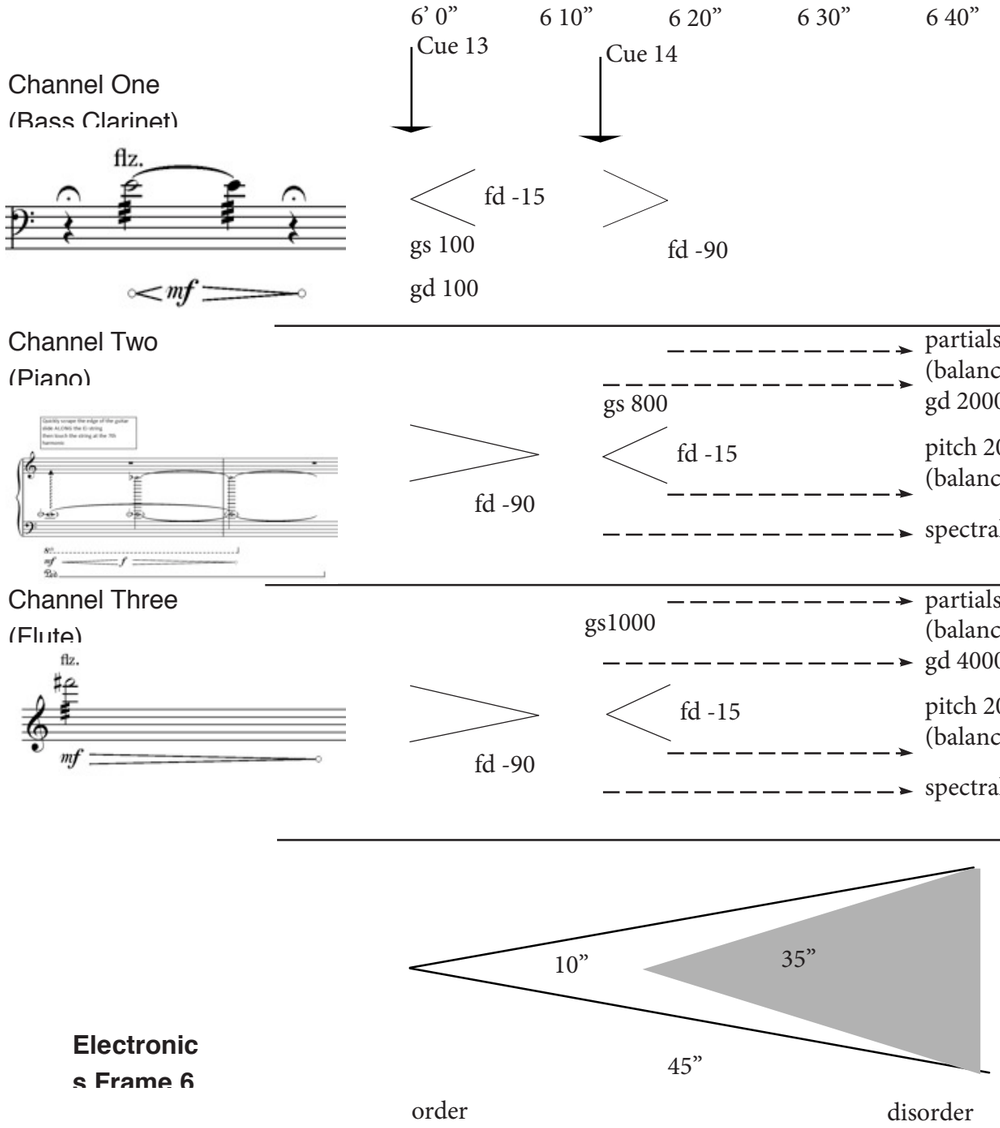
fd -15

pbs -0.1

partials

Electronic
s Frame 5





Electronic
s Frame 6

6 40”
Cue 15

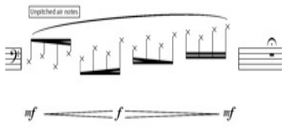
6 50”

7’ 0”

7 10”
Cue 16

(7’ 30”)

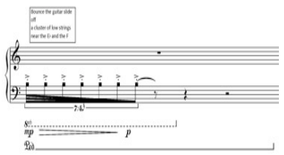
Channel One
(Bass Clarinet)



fd -15

fd -90

Channel Two
(Piano)

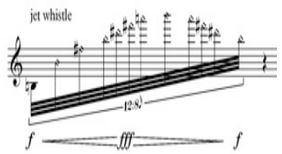


gs 100
gd 100

fd -15

fd -90

Channel Three
(Flute)



gs 100
gd 100

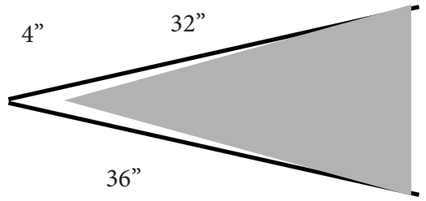
partials
(balance 0.4)

fd -15

fd -90

pitch -1000
(balance 0.75)

Electronic
s Frame 7



order

disorder