

Luca Spanedda
- Three studies on transformations
2020

- an aural score -

Three studies on transformations

Program Notes:

The "Three studies on transformations"

were born from the need to find ways to modify the morphological nature of a sound.

Usually, it is not possible to modify the morphology of a sound by acting directly on the instrument.

For instance, a saxophone's note played can not be transformed into a violin's note.

These small compositions are created to overcome, with the help of the computer, the limit imposed by the traditional acoustic world.

This work divided into three distinct steps represents different modalities of interaction with the pre-recorded material.

These modes of interaction highlight three different concepts of transformations: Metamorphosis, Mutations and Conjunctions.

The idea behind these types of transformations stems from an interest in the visual art of Francis Bacon.

He made studies to solve a problem through painting, not with the idea of reaching a finished work for the public.

I love the idea of putting the viewer in front of a material that is altered by the composer in its nature.

According to his way of thinking I shared this need with the Irish artist.

I composed music intending to find solutions to a question that was asked at the beginning.

For this reason, I decided to name these pieces as "Studio".

Technical Information:

The composition was written entirely of a series of recordings processed through an algorithm programmed in Max Msp, then assembled in Reaper. I worked with a granulation algorithm that has the task of breaking recordings into short acoustic particles and groups of different intensities, allowing control. The starting materials used in the process are recordings of single notes lasting a few seconds and made by different instruments for a total of eight various recordings:

- Cello (2 recordings of 2 held notes)
- Voice (1 record of 1 held note)
- Sax (2 recordings of 2 held notes)
- Organ (1 recording of 1 held note)
- Clarinet (1 recording of 1 held note)
- Synth (1 recording of 1 held note)

The process has these characteristics:

- it is repeated throughout the piece for each recording
 - to break down the materials into acoustic quanta and recompose them.
- Each recording is initially read on a single window of one relatively big grain with variable duration (from one to several seconds) so that the morphology of a sound is recognized and remains unchanged.
- This window gets narrower and narrower over time,
 - progressively decreasing the duration of the single grain.
- As this window narrows, other grains emerge from the same recording and undergo this process until a high-density cloud of acoustic quanta is compiled.

In the process, the dimensions of quanta can range from a minimum of a few milliseconds (1-2 ms) to an average of 100 milliseconds, alternating states of recognition of pitches and timbres of the sound, to acoustic ones so short as to make clear identification impossible.

The clouds are constituted of these particles arranged in synchronous and asynchronous temporal succession.

The entire pitch organization takes place around the central tone, which corresponds to the original pitch of the processed material.

The parameters managed by the granulator independently for each grain using trend masks are grain size, envelope camber, pitch variations, amplitude movements, stereophonic spatial movement and recording reading point. The acoustic quanta that accumulate based on these parameters determine the morphology of the cloud created.

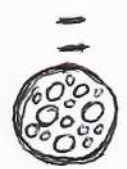
Finally, replicating the process in reverse, we arrive at the starting recording, a new recording or a new timbre material generated by these elaborations.

legenda:

 single material

 multiple layers of the material




 fragmentation of the material - into a mass of corpuscles






corpuscle intensity scale

legenda:

intensity scale - harmonics in the spectrum

		
original frequency spectrum of the recording	discrete opening of higher formants in the recording spectrum	high opening of higher formants in the recording spectrum

intensity scale - noise in the spectrum

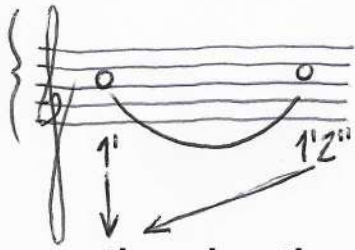
		
recognizable pitch	quasi-recognizable pitch: high amount of noise	irrecognizable pitch: noises

intensity scale - dynamics of sounds

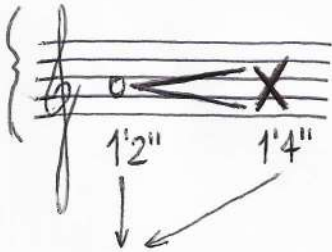
ppp pp p mp mf F FF FFF

(*) operator (Σ):
it designates that two or more elements collaborate with each other to create a single perceptually coherent acoustic material

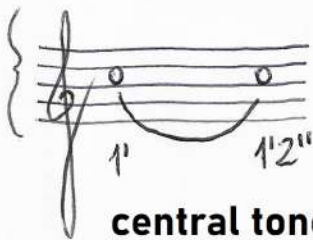
legenda:



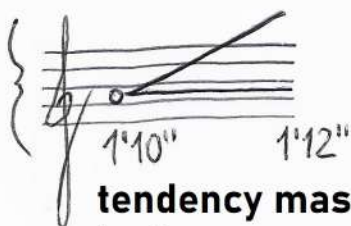
**time duration of an event:
start - end**



**time duration of a process:
start - end**



**central tone:
gravitational
reference pitch of
sounds**



**tendency mask:
in the range of
pitches chosen**

Study 1 / 3 : Metamorphosis

Cello

The image shows handwritten musical notation for a cello part. On the left, the word "Cello" is written next to a brace that encompasses a single staff with five lines. Below the staff, there are two time points marked: "0 3''" and "0 25''". Above the staff, there are four circles representing notes or positions. The first circle at "0''" contains a horizontal line. The second circle at "10''" also contains a horizontal line. The third circle at "20''" contains three horizontal lines. The fourth circle at "25''" also contains three horizontal lines. A horizontal line connects the first and second circles. A horizontal line connects the third and fourth circles. A double-headed wedge-shaped line connects the second and third circles. Below the staff, there is a dynamic marking diagram. It starts with a wedge that tapers from left to right, labeled "mf". This is followed by a horizontal line labeled "p". Then another wedge that tapers from left to right, labeled "mf". This is followed by a horizontal line labeled "mf". Finally, a wedge that tapers from left to right, labeled "p".

sax

34" 36"
p

Cello

mf f p p
27" 34" 34" 36"

Sax

36'' 50''

p *mf* *mf*

cello

43'' 48''

mf *mf*

cello

36'' 50''

p *p*

sax

50''

mf

mf

p

f

1'2

1'6''

cello

52''

f

pp

1'14''

cello

50''

p

54''

sax

1/6"
f

1/28"
p

sax

1/20"
mf

1/28"
mf

cello

1/6"
pp

1/10"

Sax

1'28'' p mf p mf 1'38''

Cello

1'28'' mf mf 1'36'' 1'38'' 1'48''

Detailed description: The image contains two staves of handwritten musical notation. The top staff is for the Saxophone (Sax) and the bottom staff is for the Cello. Both staves use a treble clef. The Saxophone staff has a melodic line with notes at 1'28'' (p), 1'38'' (mf), and 1'48'' (mf). Above the staff, there are three circles containing a horizontal line, with a line connecting them. The Cello staff has a melodic line with notes at 1'28'', 1'36'', 1'38'', and 1'48'', all marked with mf. Above the staff, there are four circles containing a horizontal line, with lines connecting them. The notation is a sketch, with some lines and notes appearing to be drawn over a pre-existing or partially drawn staff.

sax

1'48''
mf > p

1'58''
mf

2'6''
mf > p

2'8''
mf > p

cello

1'48''
mf

1'52''
mf

1'58''
mf

2'8''
mf > p

voce

1'58''
mf

2'6''
mf

2'8''
mf

synth

2'2''
mf

2'10''
mf

The image shows a handwritten musical score for two parts: **voice** and **synth**. The score is written on a five-line staff for each part, with a brace on the left side of each staff. The **voice** part starts at 2:18" with a circled 'X' and a cluster of circles. It has a dynamic marking of *mf* and ends at 2:30" with a circled 'f'. The **synth** part starts at 2:10" with a circled 'mf' and a cluster of circles. It has a dynamic marking of *mf* and ends at 2:30" with a circled 'ppp'. There are various annotations including circles with horizontal lines, circles with a minus sign, and lines connecting different points in time across both staves.

voice

2'18" *mf* 2'24" *mf* 2'30" *f*

synth

2'10" *mf* 2'15" 2'30" *ppp*

voce

2'30'' 2'54''
f f mf

synth

2'30'' 2'54''
ppp mf pp

Cello

sax

voce

synth

Study 2 / 3 : Mutations

VOCE

The image shows a handwritten musical score for voice. It consists of two staves. The upper staff is a vocal line with a treble clef and a common time signature. It features four notes: a whole note at 0", a half note at 3", a half note at 5", and a whole note at 6". A slur covers the notes from 3" to 8". Above the staff, there are four circles containing horizontal lines: a single line in the first circle, a single line in the second circle, a double line in the third circle, and a triple line in the fourth circle. The lower staff is a piano accompaniment with a bass clef and a common time signature. It has four notes: a whole note at 3", a half note at 5", a whole note at 6", and a whole note at 8". A slur covers the notes from 3" to 8". Below the staff, there are dynamic markings: $\langle p \rangle$ under the first note, $\langle p \rangle$ under the second note, f under the third note, and f under the fourth note. Time measurements in seconds are written below the notes: 0", 3", 5", 6", 8", 18", 24", and 28".

(*)
voce

The image shows two systems of handwritten musical notation, likely for a voice part. A bracket on the left groups both systems under the label "(*) voce".

System 1:

- Staff 1: Three notes, each with a circle containing several smaller circles and a cross above it. The notes are connected by a long horizontal line.
- Staff 2: Four notes. The first is at 28'', the second is marked with a large 'X' and is at 36'', the third is at 44'', and the fourth is at 48''. The notes are connected by a long horizontal line.
- Staff 3: Dynamic markings. 'mf' is written below the first and third notes.

System 2:

- Staff 1: Three notes. The first has a circle with three horizontal lines inside. The second and third have circles with several smaller circles and a cross above them. The notes are connected by a long horizontal line.
- Staff 2: Three notes at 28'', 38'', and 48''. The notes are connected by a long horizontal line.
- Staff 3: Dynamic markings. 'f' is written below the first note, and 'mf' is written below the second and third notes.

(*) voce

48'' 52'' 54'' 56'' 1'2'' 1'8''

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

The image shows a handwritten musical score for voice and piano. It consists of two staves. The top staff is for the piano, and the bottom staff is for the voice. The piano part features a melodic line with a slur over it, marked with *ppp* at two points, and time stamps *1'16"* and *1'26"*. Above the piano staff, there are two circles containing smaller circles, with horizontal lines connecting them. The voice part starts with a circled asterisk *(*)* and a plus sign *+* above a circle containing smaller circles. The vocal line has a slur and is marked with *ff*, *f*, and *f* at different points, with time stamps *1'8"*, *1'18"*, and *1'26"*. There are 'X' marks above the notes at *1'18"* and *1'26"*. Similar to the piano part, there are two circles containing smaller circles with horizontal lines connecting them above the voice staff.

(*)
voce

The image shows a handwritten musical score for voice and piano. On the left, a bracket groups the parts under the label "(*) voce". The score consists of several staves. The top staff is a vocal line with notes and slurs, marked with dynamics *ppp*, *mf*, and *p*. Time stamps $1'26''$, $1'34''$, and $1'52''$ are written below the notes. The piano accompaniment includes chords and notes, with some marked with an 'X'. A bottom staff contains a dynamic marking *f*. The score is annotated with various symbols, including circles containing dots and squares, and lines connecting different parts of the music.

The image shows a handwritten musical score for two parts: Voice (Voc) and Saxophone (Sax). The score is written on two staves, each with a treble clef and a common time signature (C). The music is connected by a long horizontal line, indicating a continuous melodic line.

Voice (Voc) Part:

- At the top, there is a circled symbol containing three horizontal lines (≡) and a circle with a textured pattern.
- The first note is at 1'52" with a dynamic marking of *p*.
- The second note is at 2'8" with a dynamic marking of *p*.
- There are three '+' symbols above the staff at the end of the piece.

Saxophone (Sax) Part:

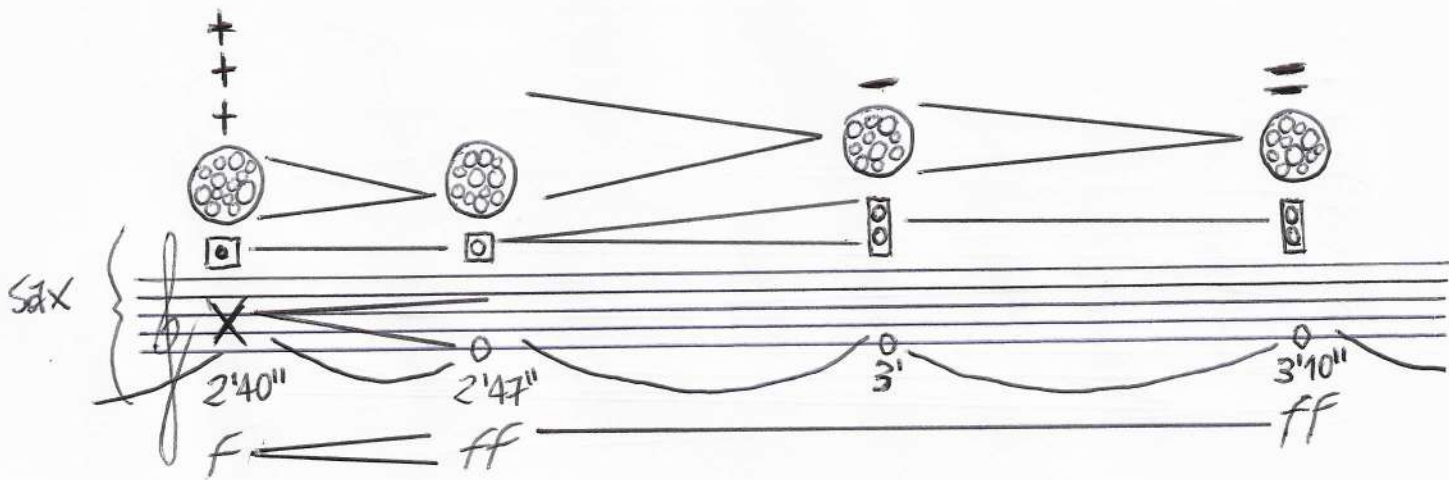
- The first note is at 1'52" with a dynamic marking of *mf*.
- The second note is at 1'56" with a circled symbol containing three horizontal lines (≡).
- The third note is at 2'8" with a dynamic marking of *mf*.
- The fourth note is at 2'20" with a dynamic marking of *ff*.
- There is a circled symbol containing three horizontal lines (≡) and a circle with a textured pattern above the staff at the end of the piece.
- A circled 'X' is drawn over the final note.

Handwritten annotations include circles with horizontal lines (≡) and circles with textured patterns, which likely represent specific timbres or articulations. The dynamic markings *p*, *mf*, and *ff* indicate the volume levels throughout the piece.

Sax

Handwritten musical notation for saxophone. The notation consists of a five-line staff with a treble clef. The word "Sax" is written to the left of the staff. The notation includes several performance instructions and symbols:

- At the beginning of the staff, there are three plus signs (+) stacked vertically above a circle containing several smaller circles. A small square box is drawn to the right of this circle.
- Below the staff, the dynamic marking "ff" (fortissimo) is written.
- A wavy line is drawn across the staff, starting from the second line and ending at the second space.
- At the end of the staff, there are three plus signs (+) stacked vertically above another circle containing several smaller circles. A small square box is drawn to the right of this circle.
- Below the staff, the dynamic marking "F" (forte) is written.
- There are two 'X' marks on the staff: one on the second space and one on the second line.
- Below the staff, the marking "2'20''" is written near the beginning, and "2'40''" is written near the end.



Handwritten musical notation for saxophone. The notation includes a staff with a treble clef and a key signature of one flat. The word "sax" is written to the left of the staff. Above the staff, there are several symbols: a double bar line, a circle containing five small circles, a circle containing three horizontal lines, and a circle containing a horizontal line. Below the staff, there are time markers: 3'10", 3'28", 3'30", and 3'40". The word "gliss." is written above the staff, and "bo" is written below it. The dynamic markings "ff" and "f" are written below the staff. The notation is connected by lines and curves, suggesting a sequence of notes or effects over time.

Sax

3:40 3:42'' 3:43'' 3:46''

mf mf

Study 3 / 3 : Conjunctions

Cello

0"
3"
mf
45"
ff

Voce

0"
5"
mf
45"
ff

Clarinet

0"
8"
mf
45"
ff

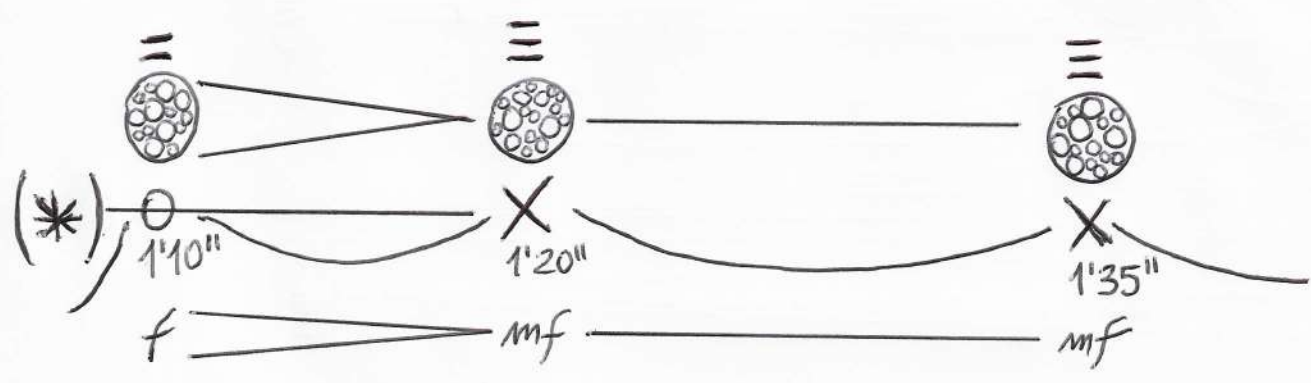
Ondain

0"
12"
mf
45"
ff

The image shows a handwritten musical score for four instruments: Cello, Voce, Clarinet, and Organo. Each instrument is represented by two staves. The notation includes dynamic markings and time markings.

- Cello:** The upper staff has a circled triple bar line. The lower staff starts with a circled 'o', a '45'' time marking, and a 'ff' dynamic marking. It ends with a circled 'o', a '1'10'' time marking, and an 'f' dynamic marking.
- Voce:** The upper staff has a circled triple bar line. The lower staff starts with a circled 'o', a '45'' time marking, and a 'ff' dynamic marking. It ends with a circled 'o', a '1'10'' time marking, and an 'f' dynamic marking.
- Clarinet:** The upper staff has a circled triple bar line. The lower staff starts with a circled 'o', a '45'' time marking, and a 'ff' dynamic marking. It ends with a circled 'o', a '1'10'' time marking, and an 'f' dynamic marking.
- Organo:** The upper staff has a circled triple bar line. The lower staff starts with a circled 'o', a '45'' time marking, and a 'ff' dynamic marking. It ends with a circled 'o', a '1'10'' time marking, and an 'f' dynamic marking.

There are circled symbols at the end of the upper staves for each instrument, containing either a triple bar line or a cluster of circles. Dashed lines connect the circled 'o' symbols in the lower staves to these symbols. A circled asterisk symbol (*) is located to the right of the Voce and Clarinet staves.



Cello

Voce

clarinet

organ

