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.

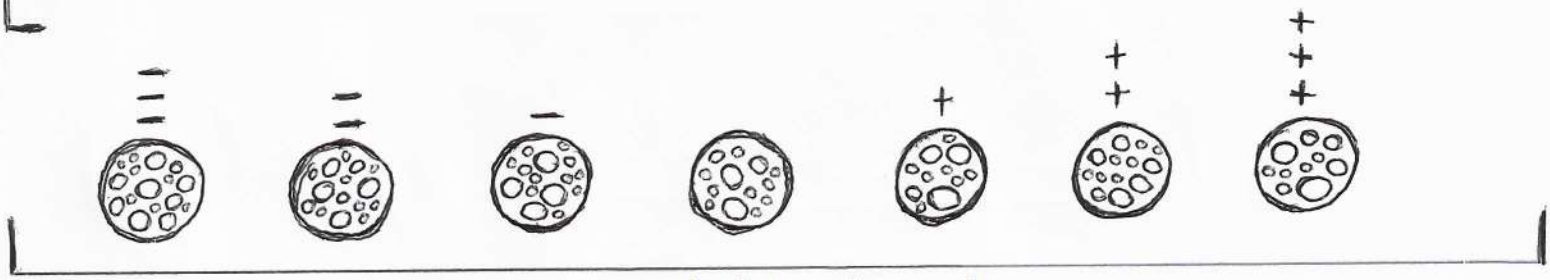
In the process, the dimensions of quanta can range from a minimum of a few milliseconds (1-2 ms)
to an average of 100 milliseconds, alternating states of recognition of pitches and timbres of the sound,
to acoustic ones so short as to make clear identification impossible.
The clouds are constituted of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

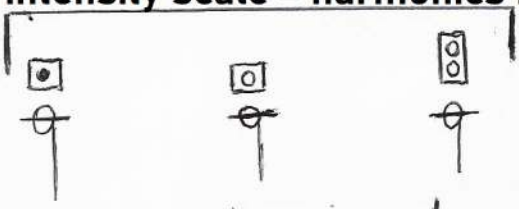
fragmentation of the material - into a mass of corpuscles



corpuscle intensity scale

legenda:

intensity scale - harmonics in the spectrum

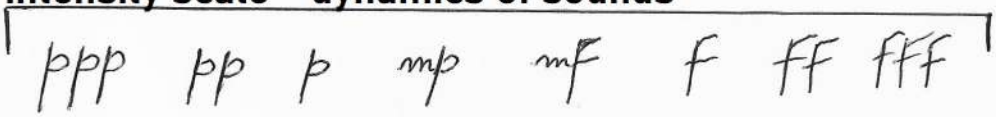


original frequency spectrum of the recording	discrete opening of higher formants in the recording spectrum	high opening of higher formants in the recording spectrum

intensity scale - noise in the spectrum

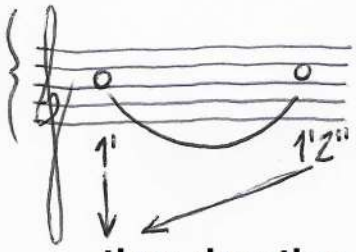
recognizible pitch	quasi-recognizable pitch: high amount of noise	irrecognizable pitch: noises

intensity scale - dynamics of sounds

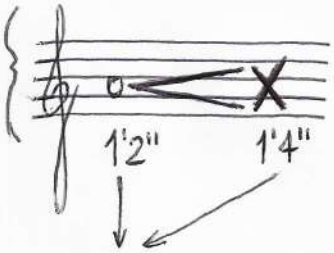


operator (Σ):
it designates that two or more elements collaborate with each other to create a single perceptually coherent acoustic material

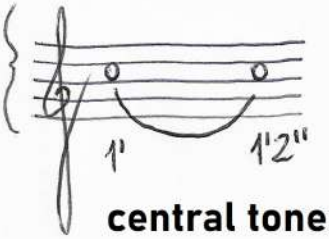
legenda:



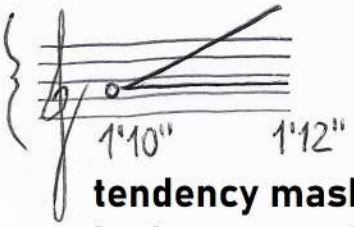
time duration of an event:
start - end



time duration of a process:
start - end

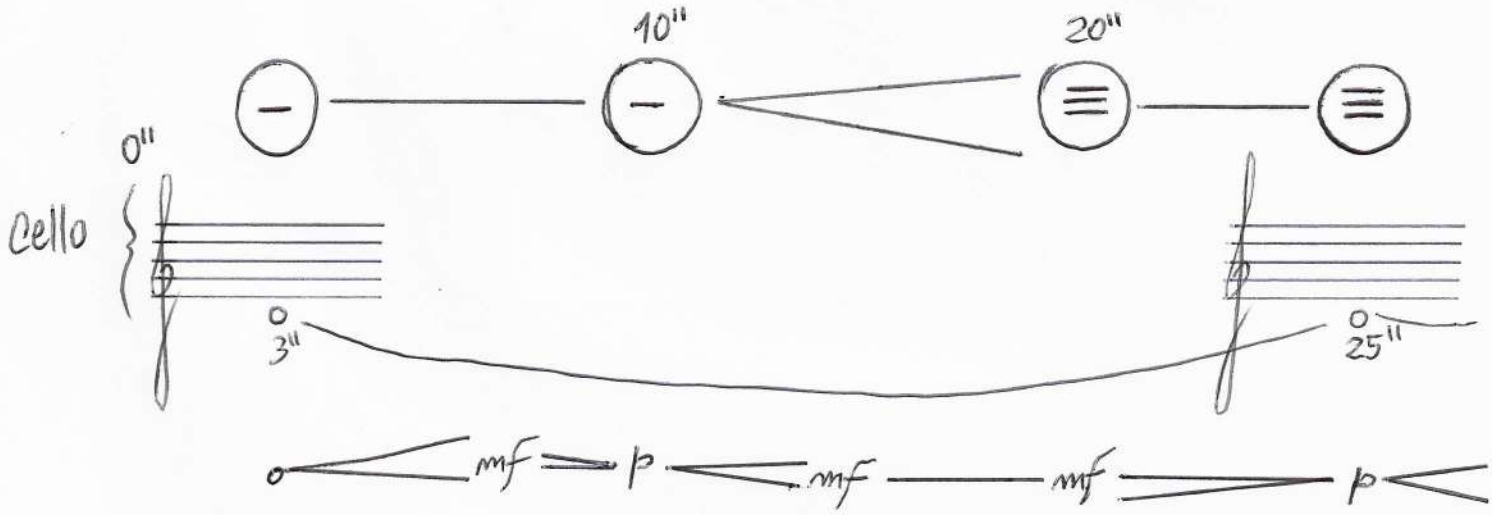


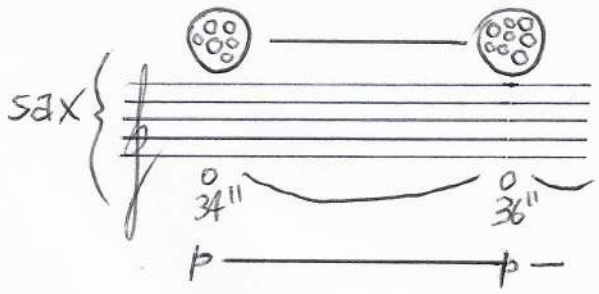
central tone:
gravitational
reference pitch of
sounds

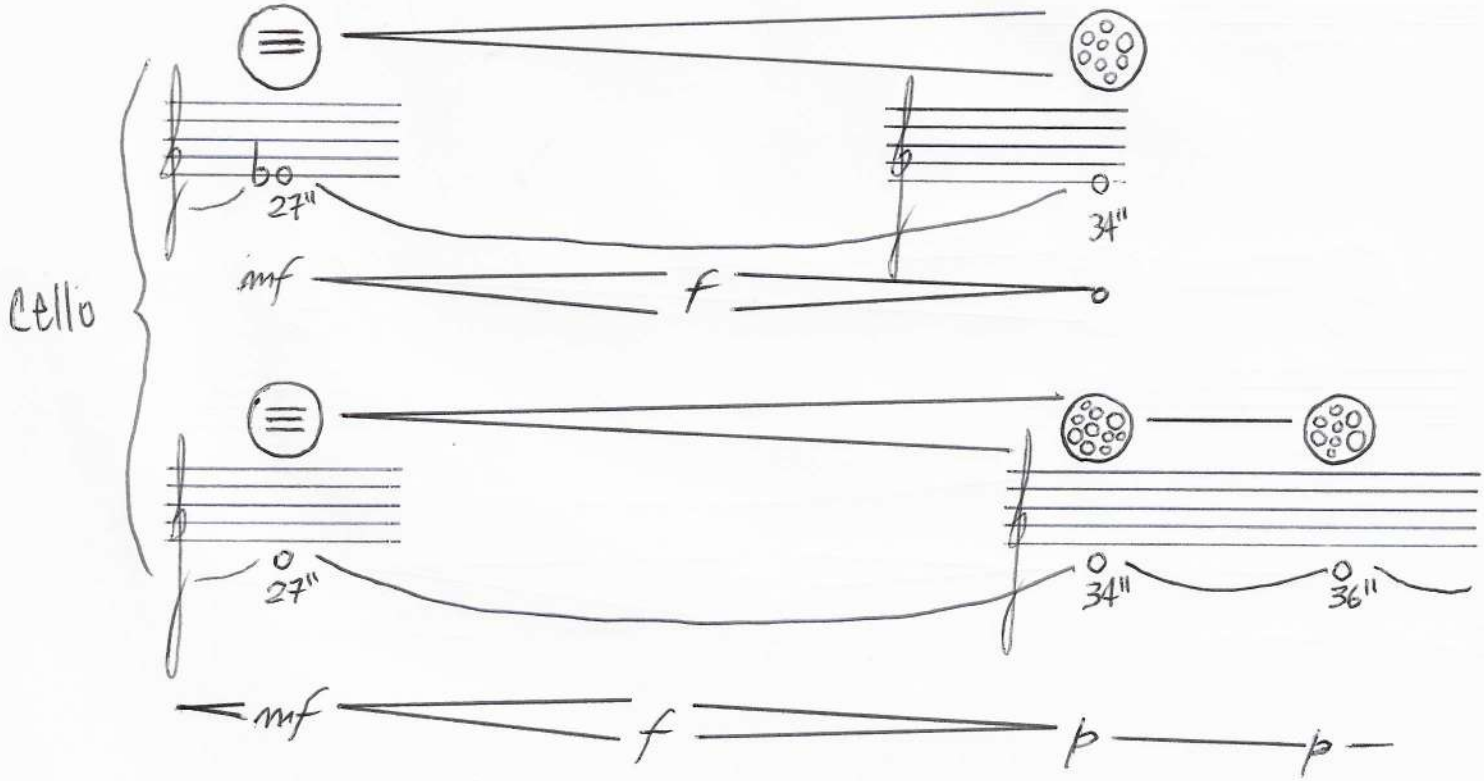


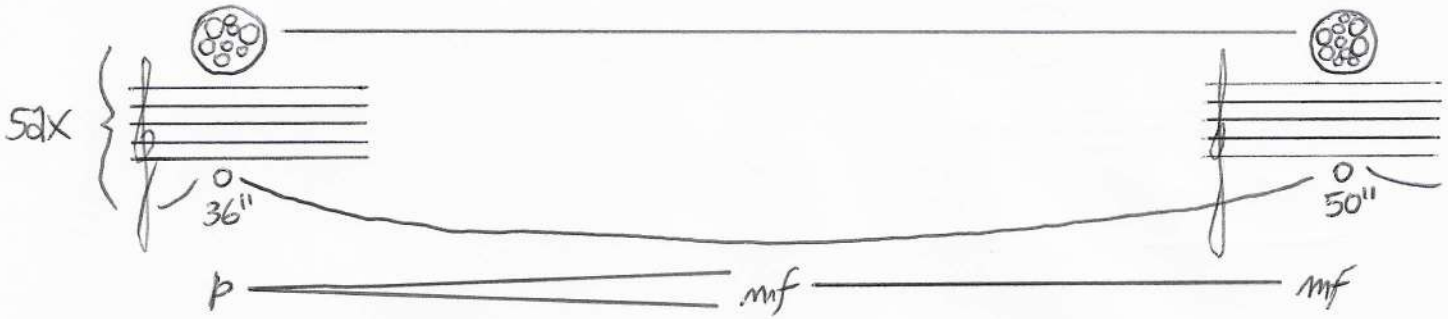
tendency mask:
in the range of
pitches chosen

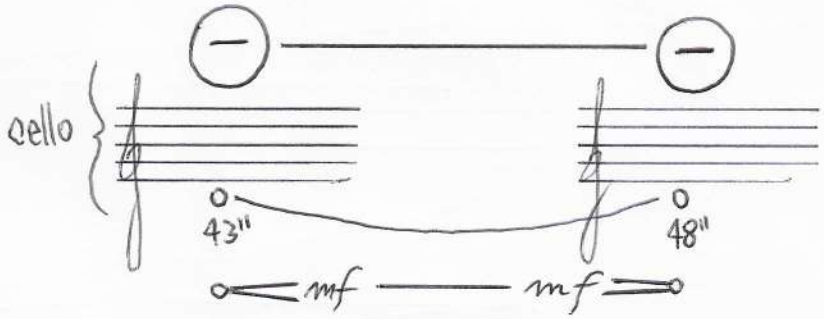
Study 1 / 3 : Metamorphosis


10"
20"
0"
Cello
3"
25"
mf
p
mf
mf
p


sax
34"
36"
p
p


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


Sax
36"
50"
p
mf
mf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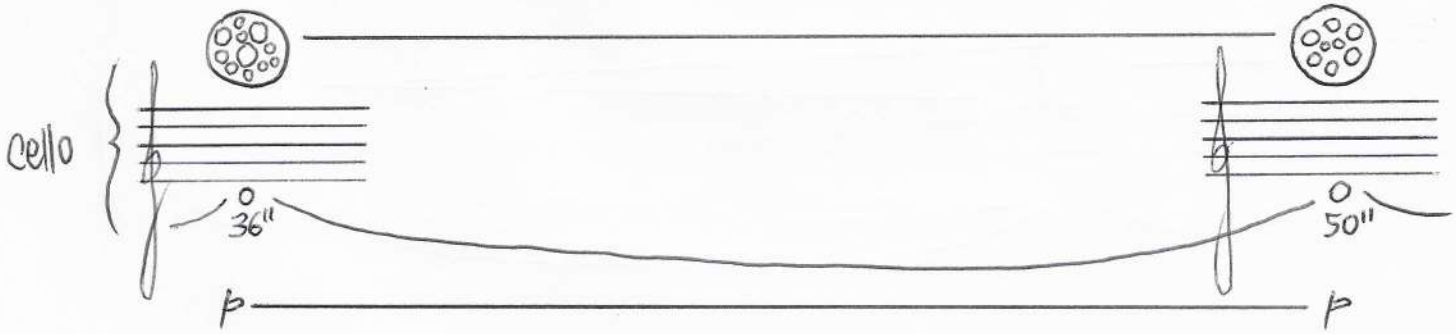
43"
48"
mf
mf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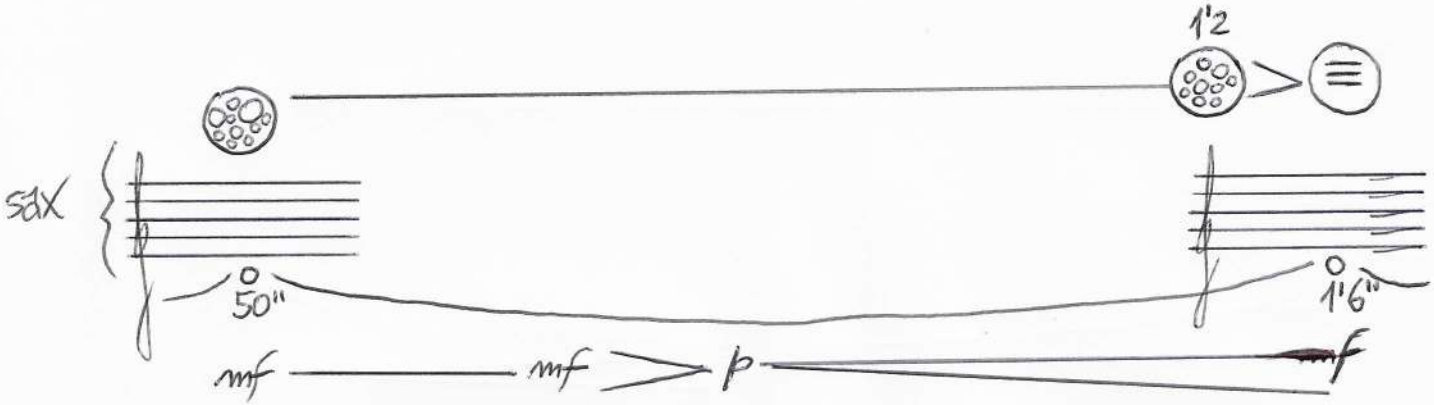
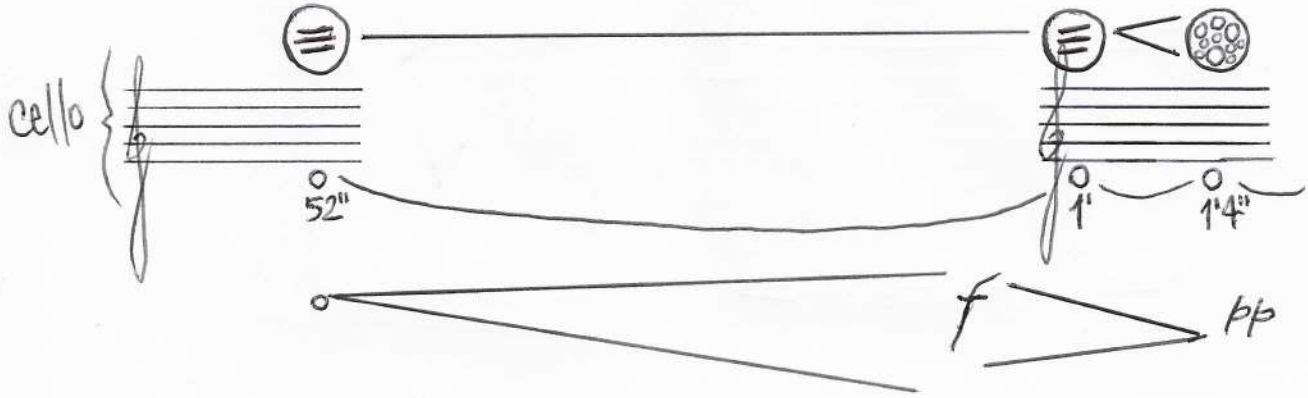
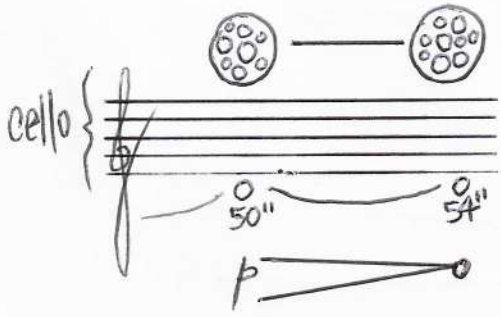
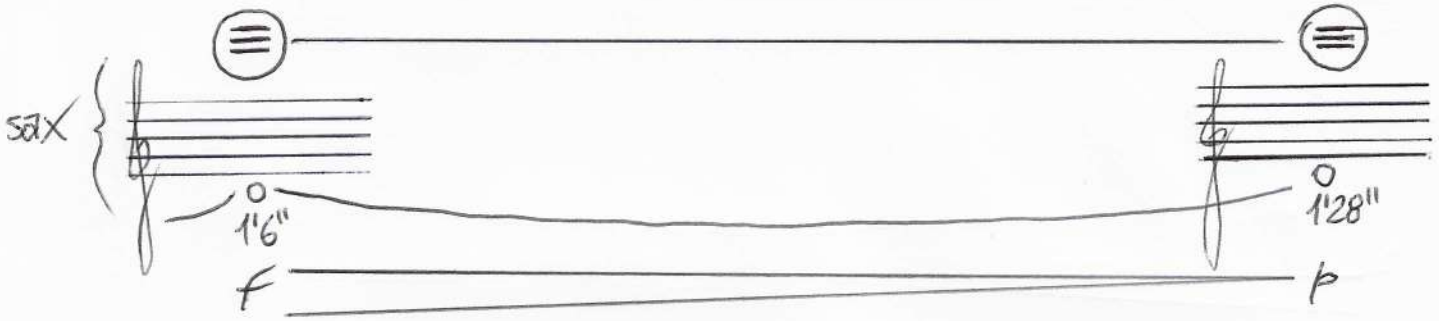
36"
50"
p
p


1'2
sax
50"
1'6"
mf
mf
p
mf


cello
52"
1'
1'4"
f
pp


cello
50"
54"
p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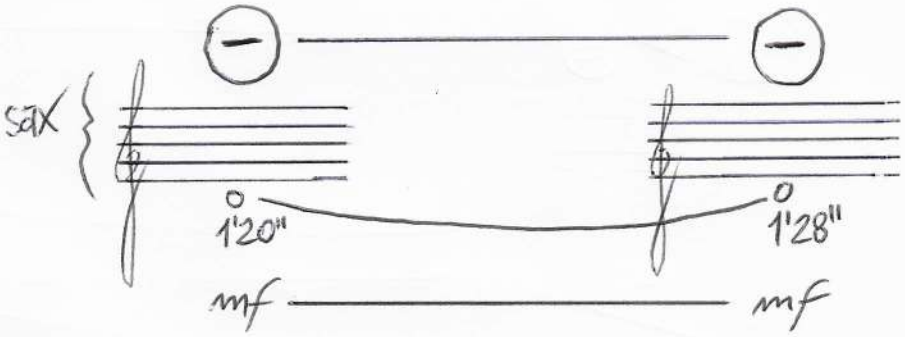
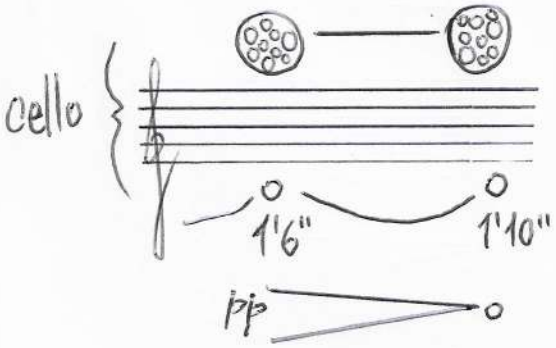
1'6"
1'28"
f
p


sax
1'20"
1'28"
mf
mf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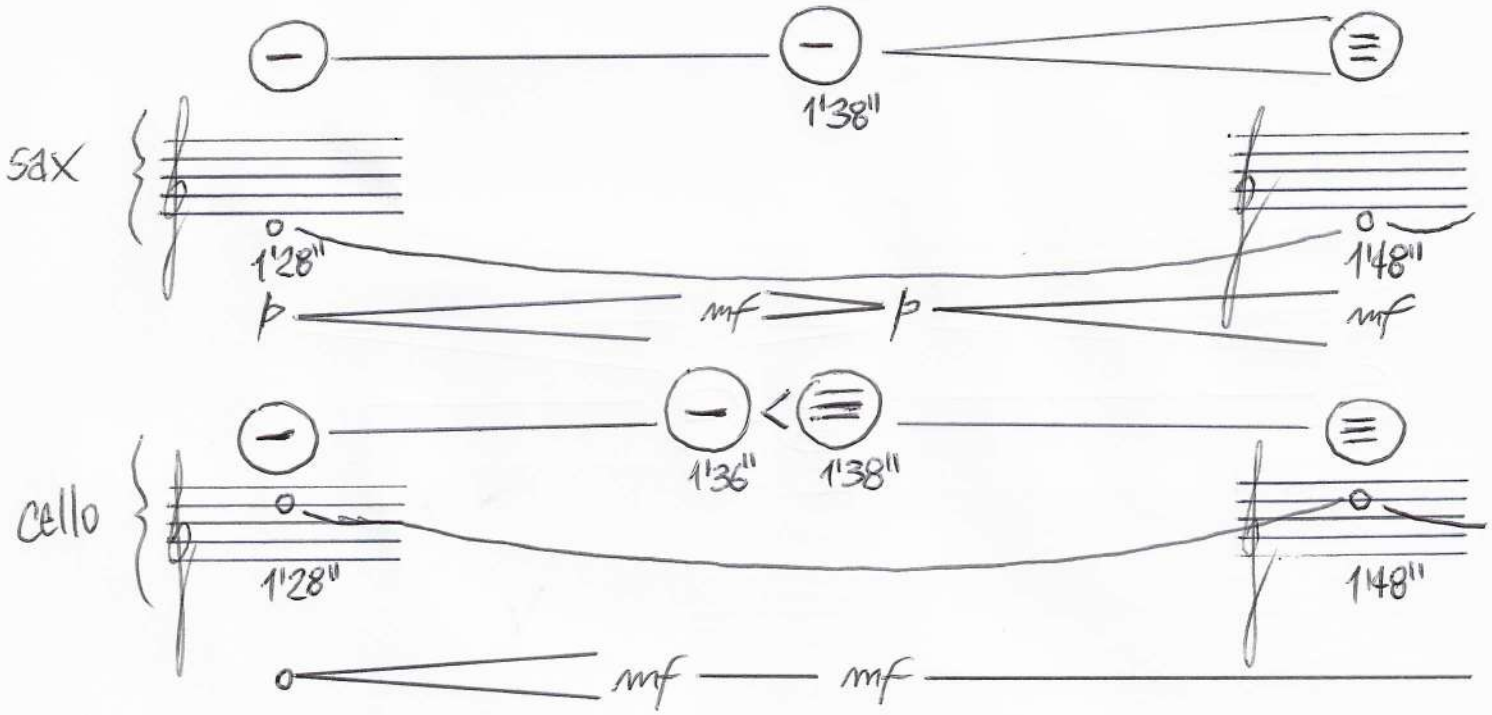
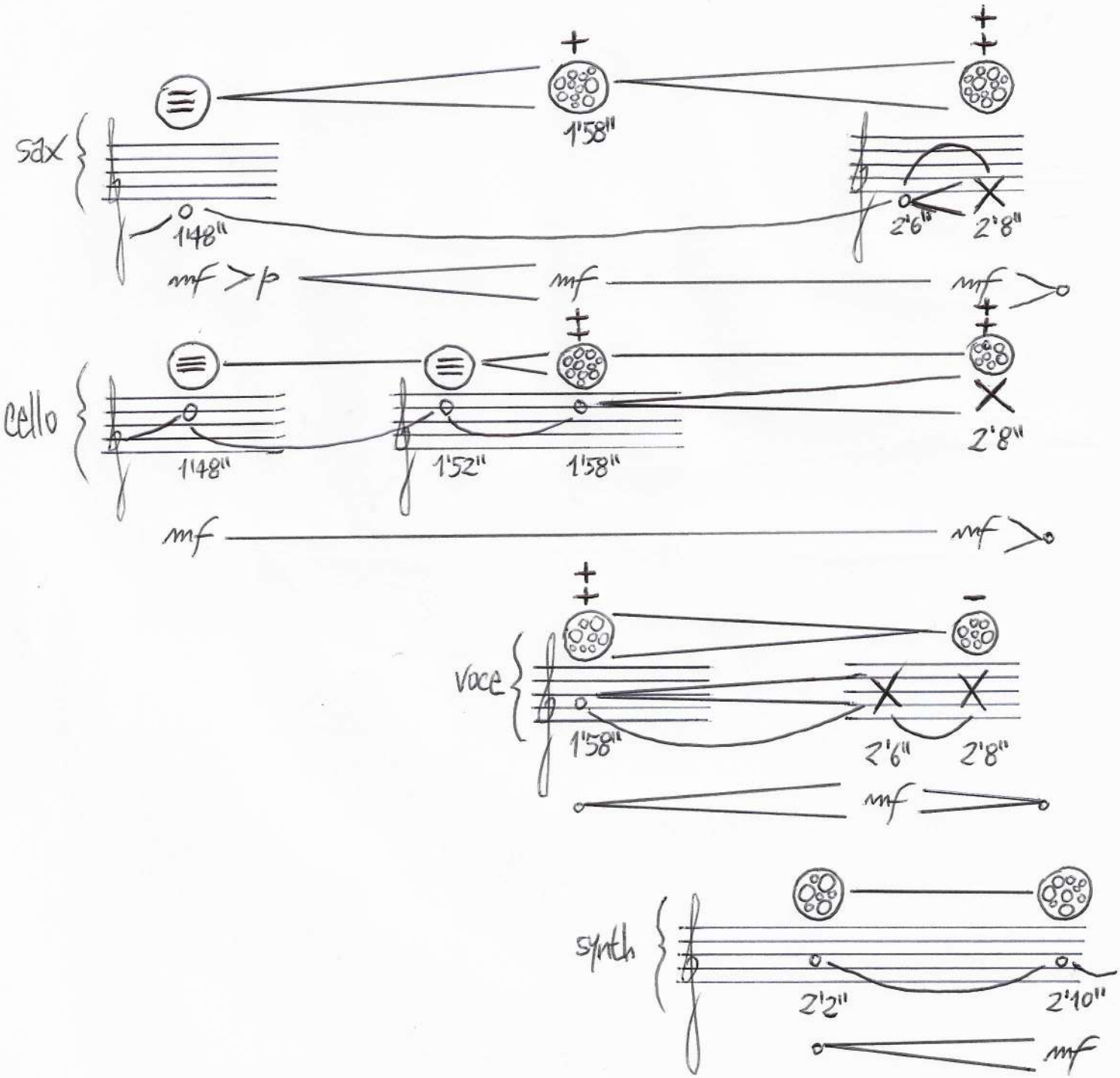
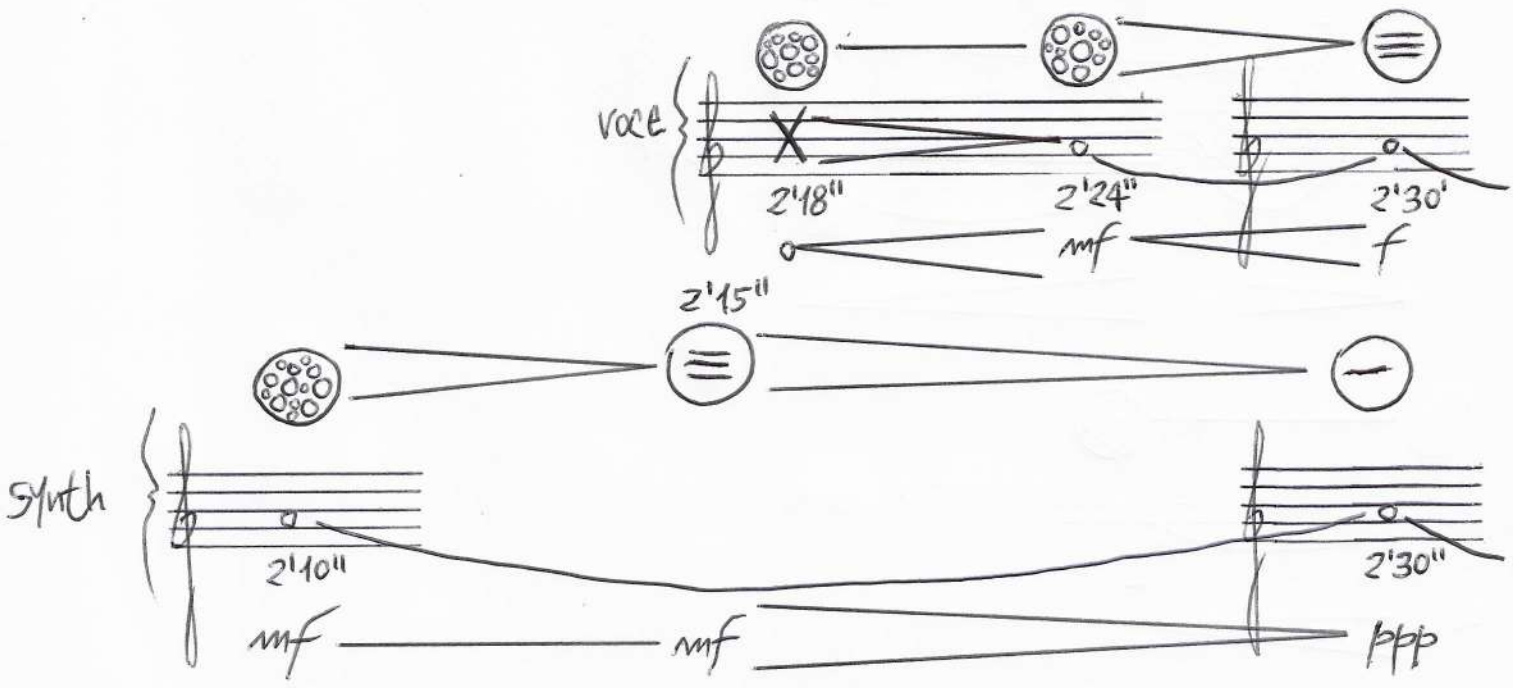
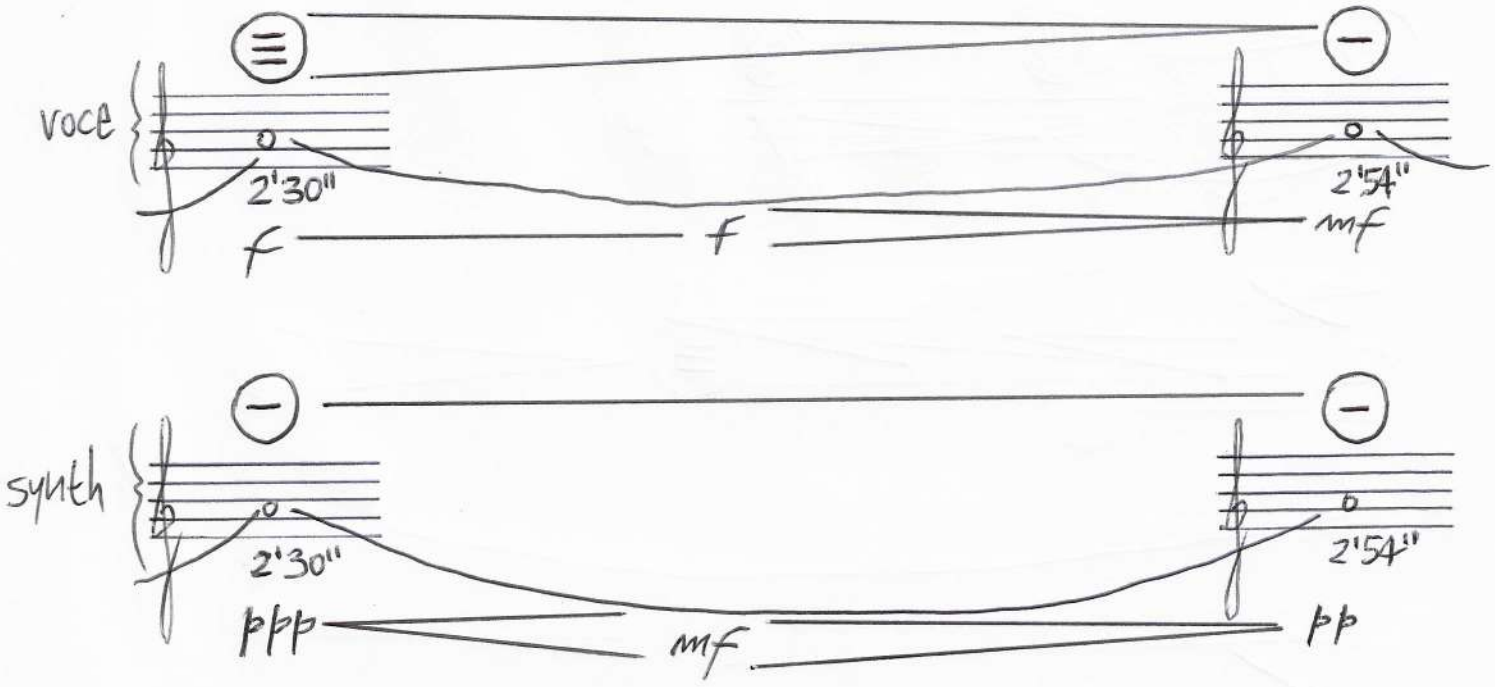
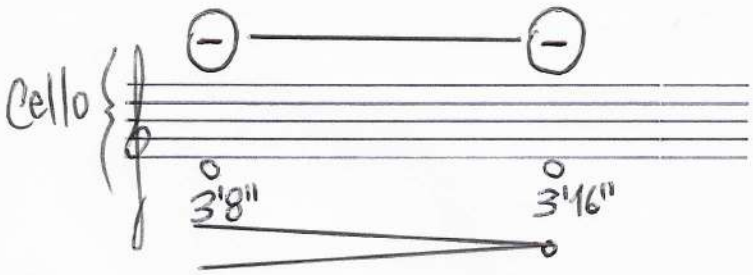
1'6"
1'10"
pp

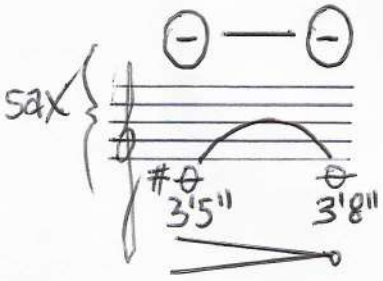

sax
1'38"
1'28"
1'48"
p
mf
p
mf
cello
1'36"
1'38"
1'28"
1'48"
mf
mf

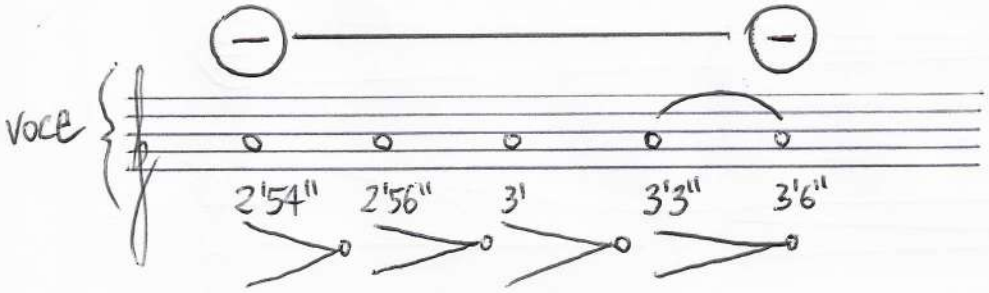

sax
1'58"
1'48"
2'6"
2'8"
mf > p
mf
mf
cello
1'48"
1'52"
1'58"
2'8"
mf
mf
voce
1'58"
2'6"
2'8"
mf
synth
2'2"
2'10"
mf

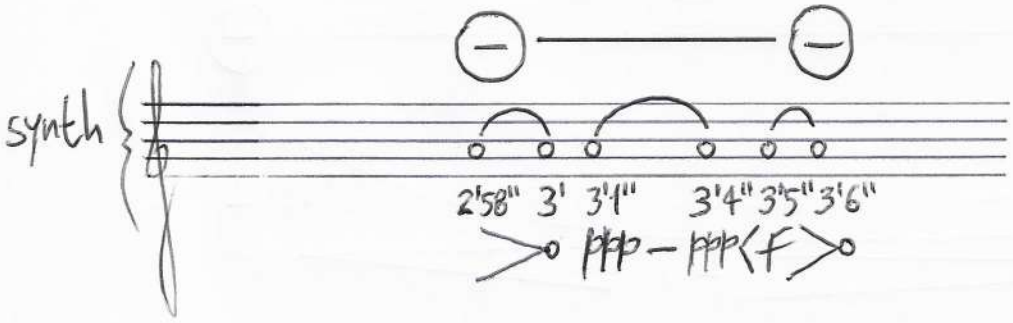

voce
2'18"
2'24"
2'30"
mf
f
2'15"
synth
2'10"
2'30"
mf
mf
ppp


voce
2'30"
2'54"
f
f
mf
synth
2'30"
2'54"
ppp
mf
pp

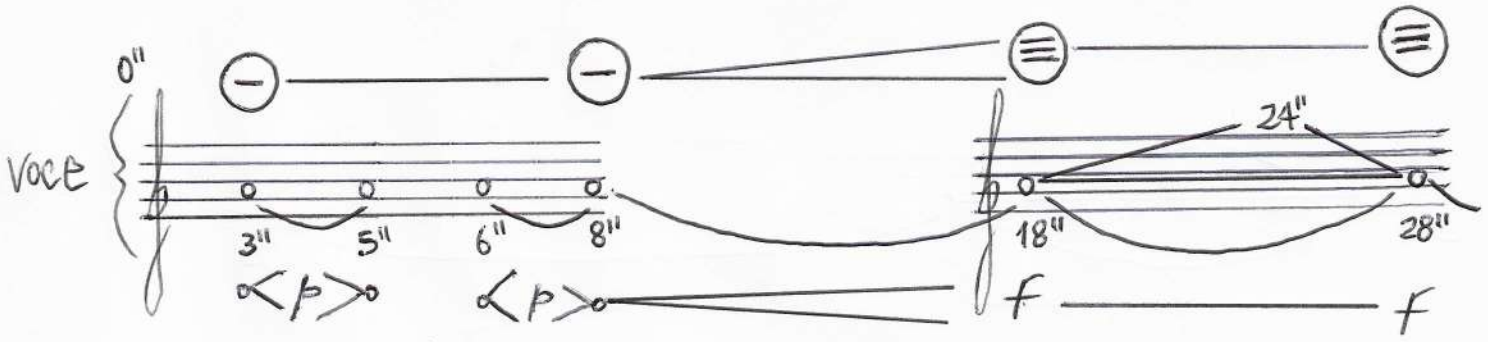

Cello
3'8"
3'16"

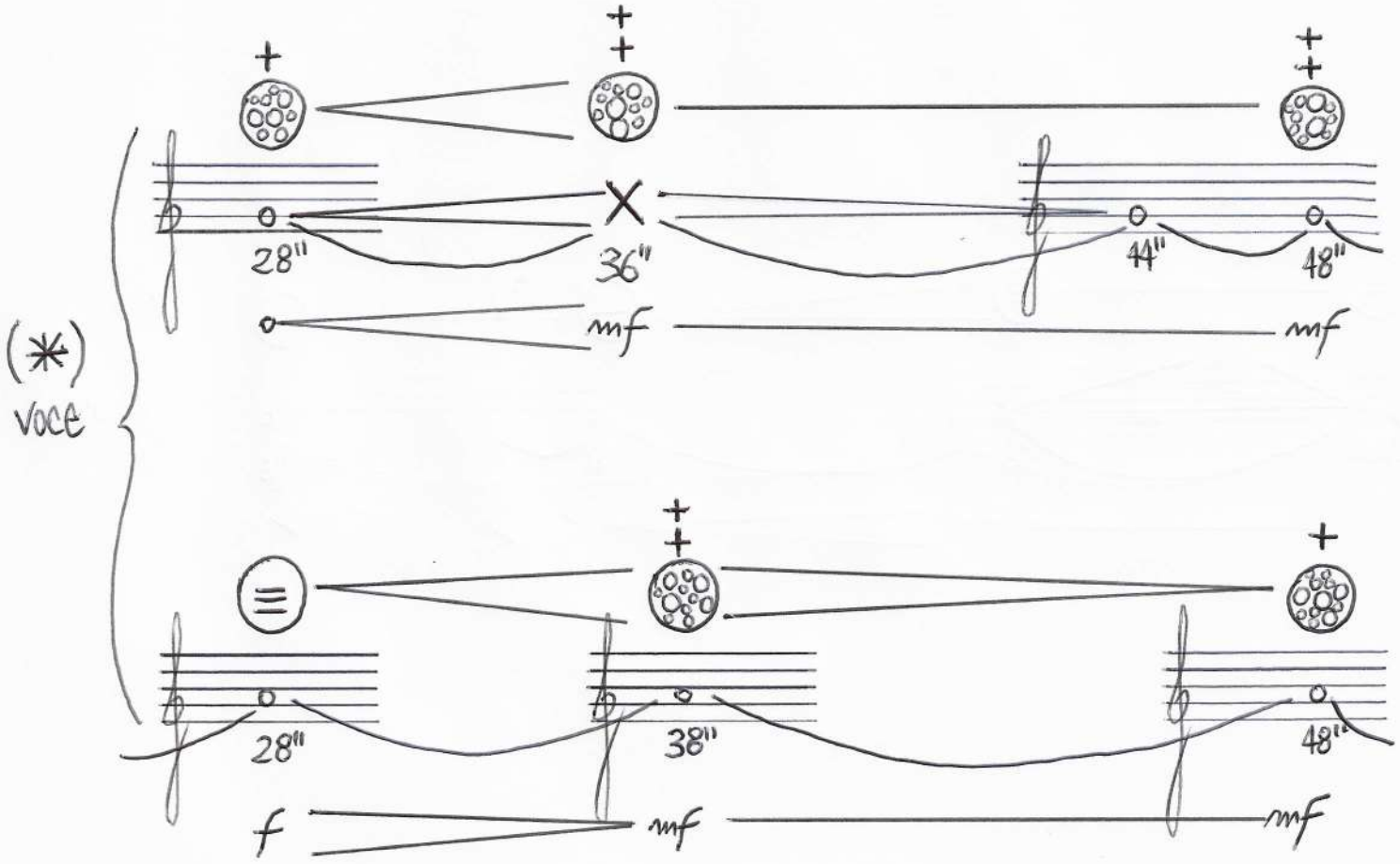

sax
3'5"
3'8"

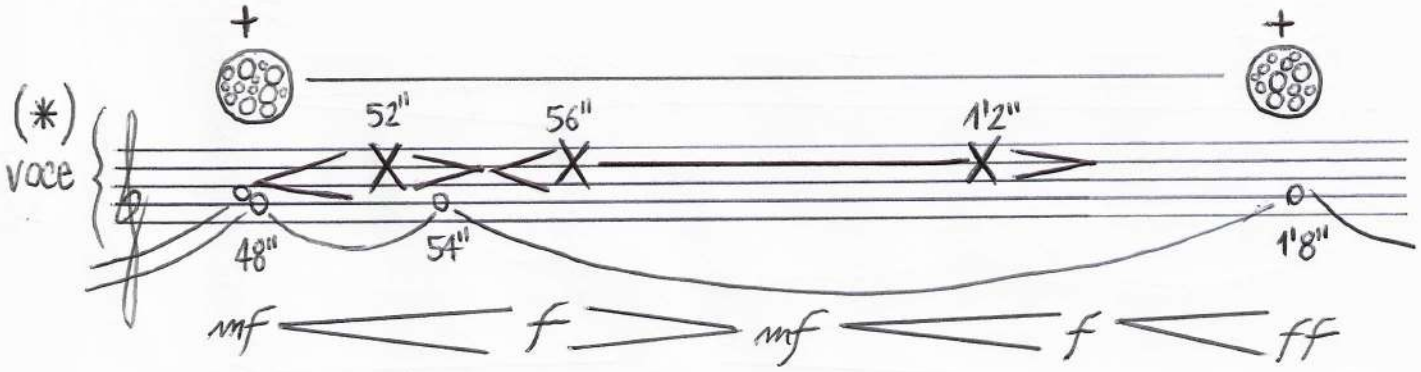

voce
2'54"
2'56"
3'
3'3"
3'6"

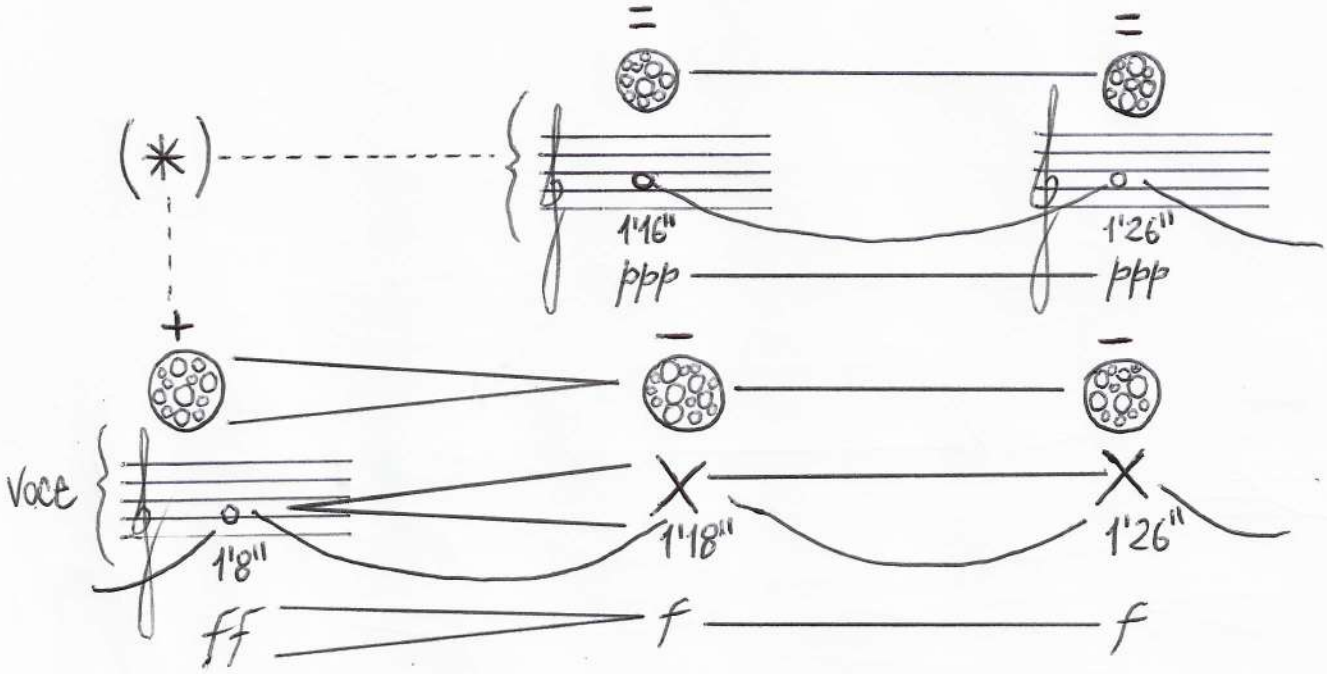

synth
2'58"
3'
3'1"
3'4"
3'5"
3'6"
ppp – ppp<f>

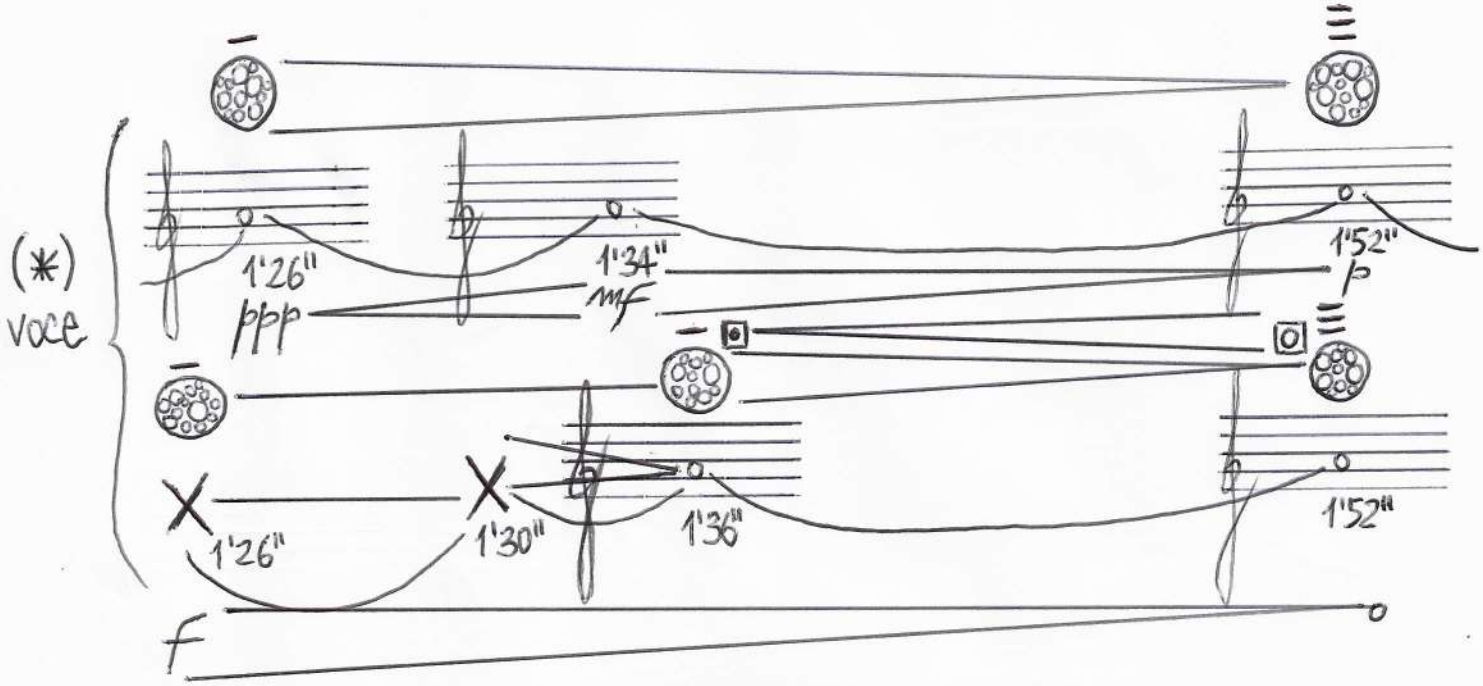
Study 2 / 3 : Mutations

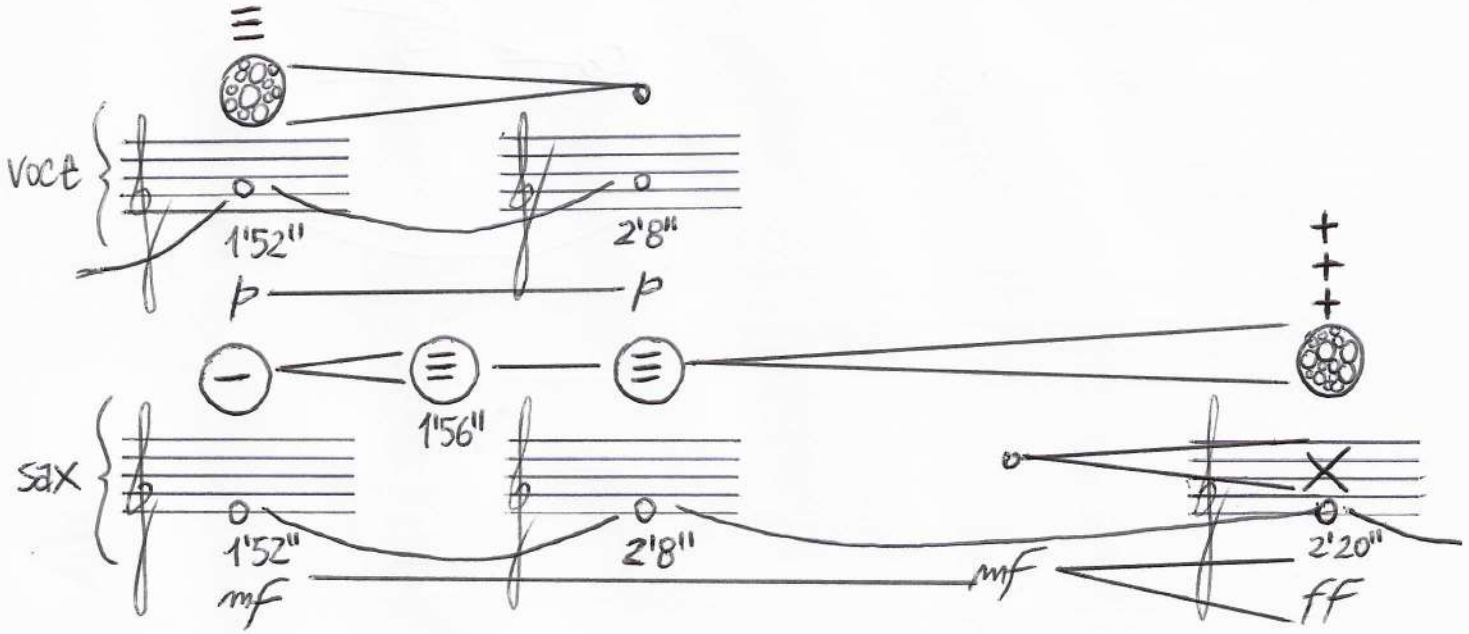

0"
VOCE
3"
5"
6"
8"
18"
24"
28"
p
p
f
f

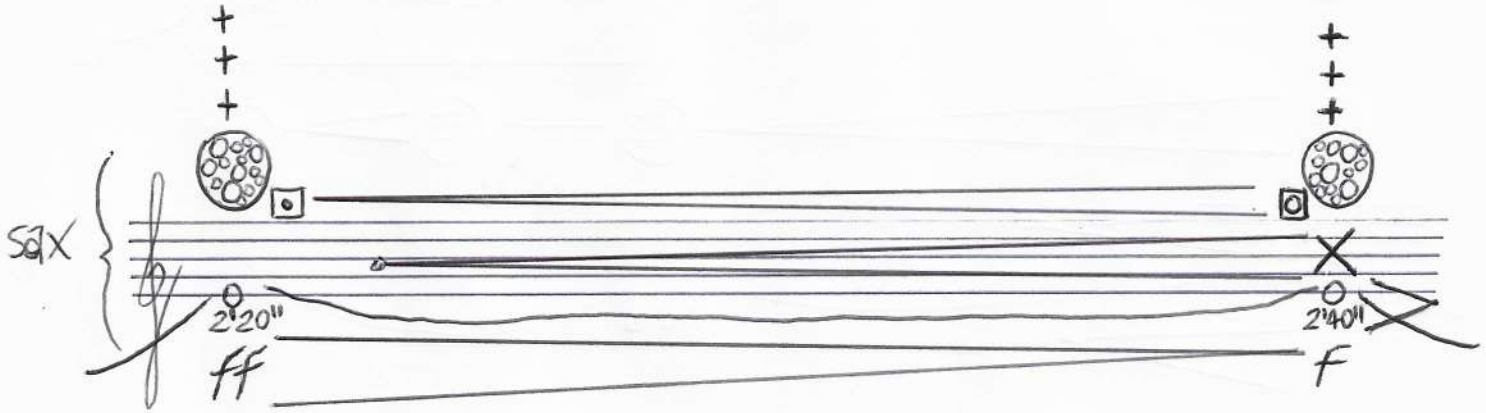

(*)
voce
28"
36"
44"
48"
mf
mf
28"
38"
48"
f
mf
mf

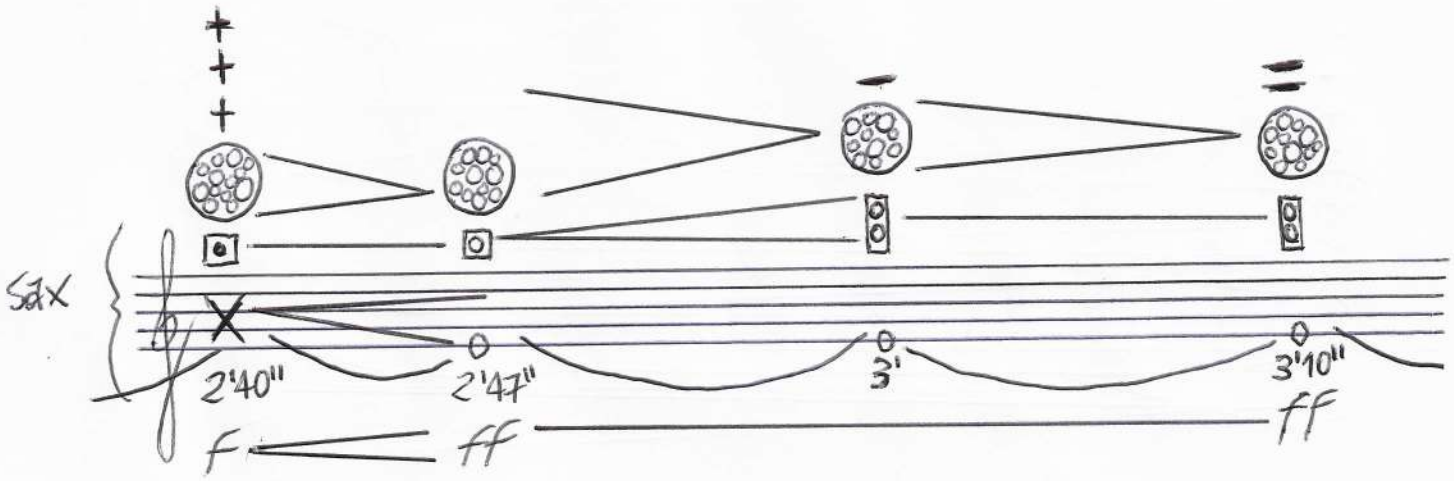

(*)
voce
52"
56"
1'2"
48"
54"
1'8"
mf
f
mf
f
ff

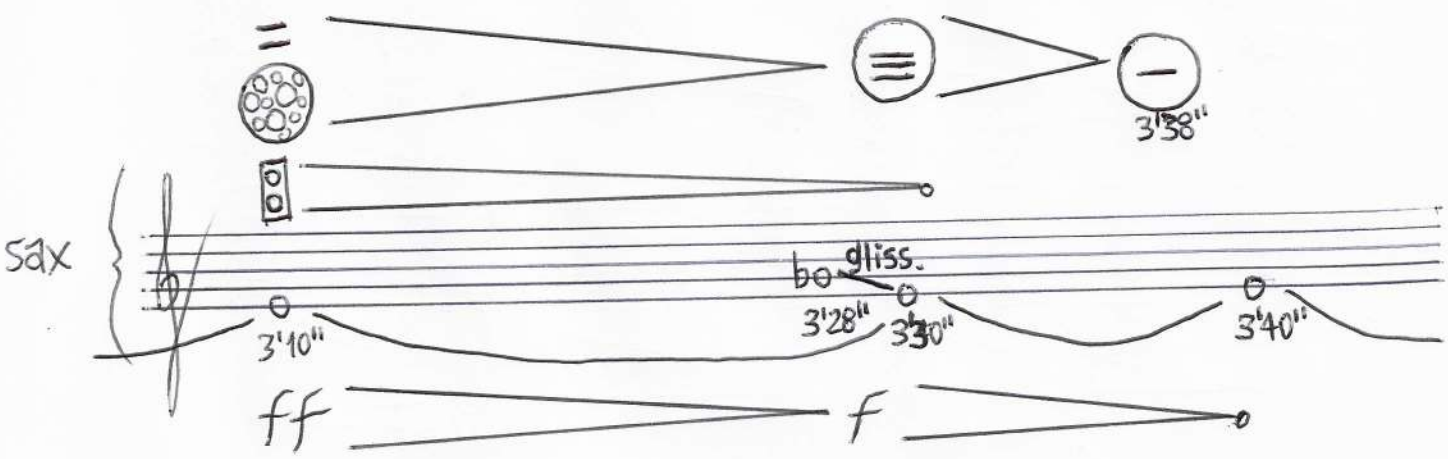

(*)
1'16"
ppp
1'26"
ppp
Voce
1'8"
1'18"
1'26"
ff
f
f

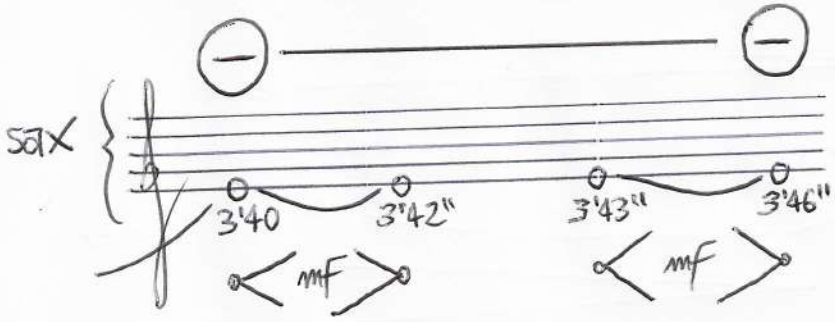

(*)
voce
1'26"
ppp
1'34"
mf
1'52"
p
1'26"
1'30"
1'36"
1'52"
f


Voce
1'52"
2'8"
p
p
1'56"
Sax
1'52"
2'8"
2'20"
mf
mf
ff

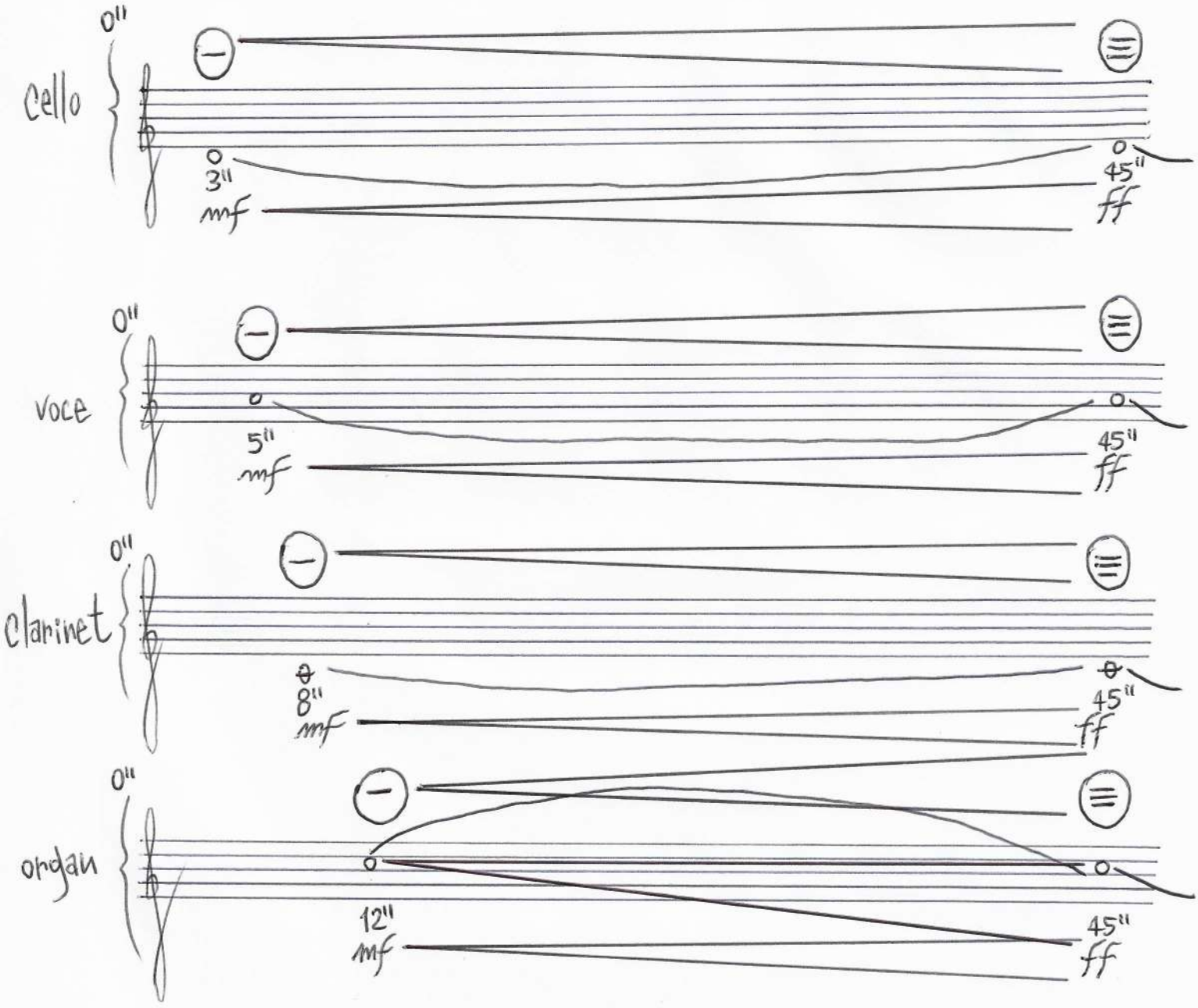

Sax
2'20"
ff
2'40"
f

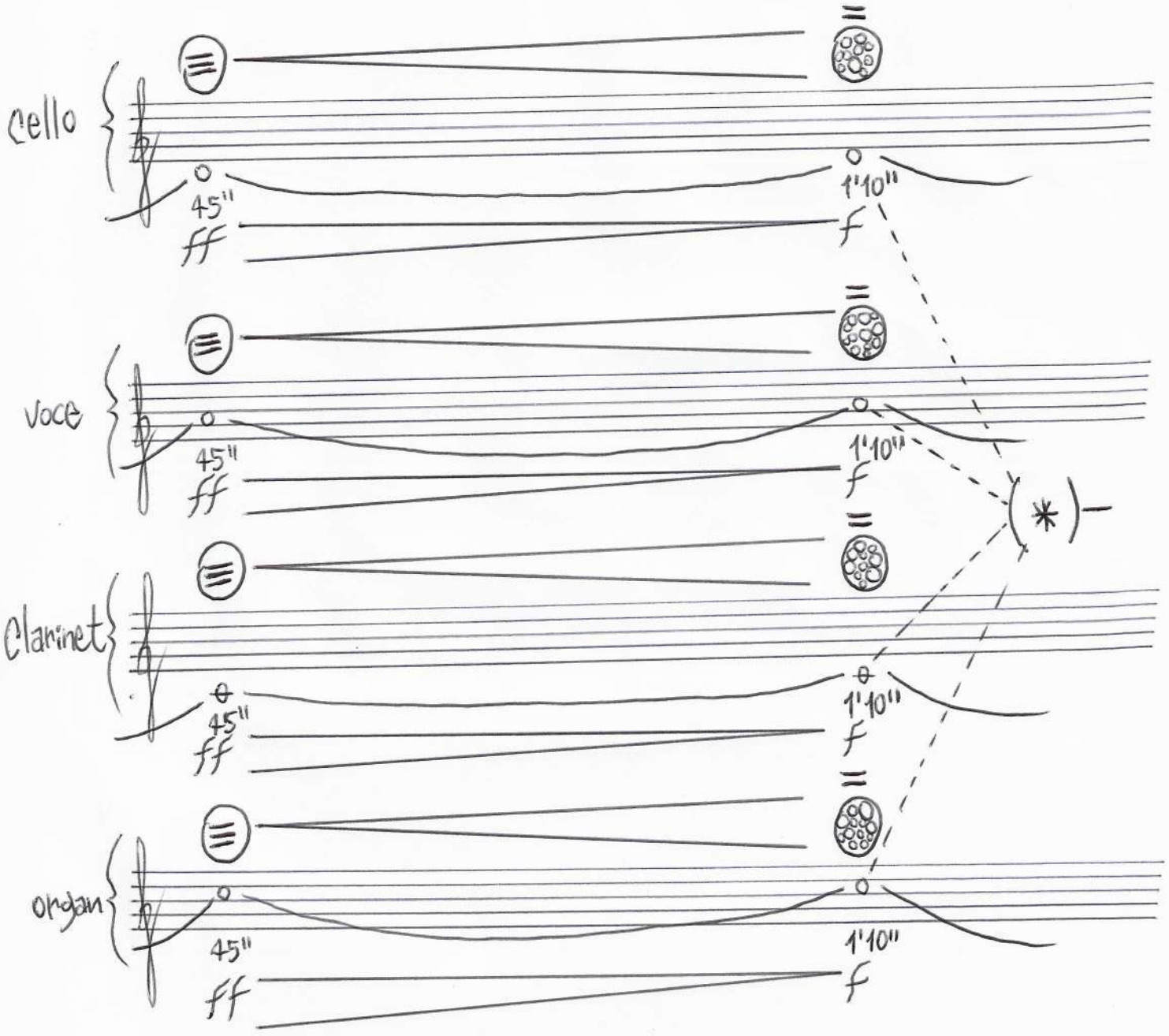

Sax
2'40"
2'47"
3'
3'10"
f
ff
ff

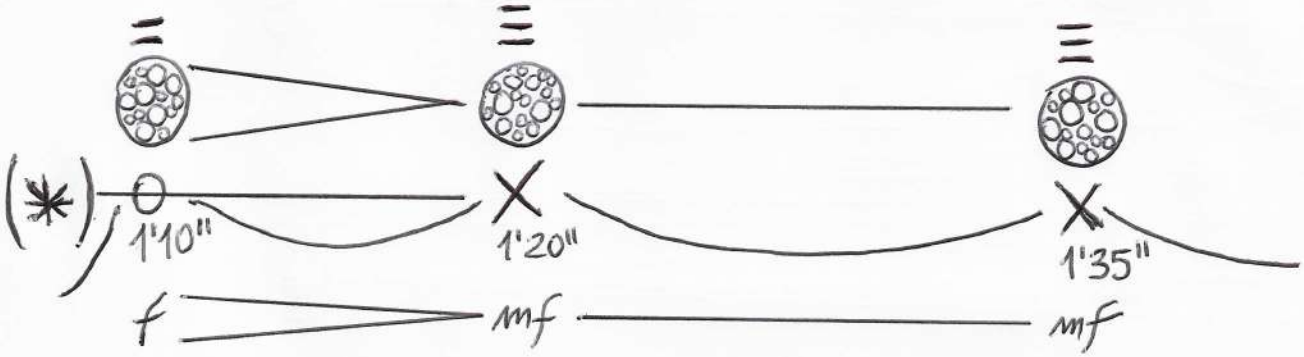

sax
3'38"
bo
gliss.
3'28"
3'30"
3'40"
3'10"
ff
f

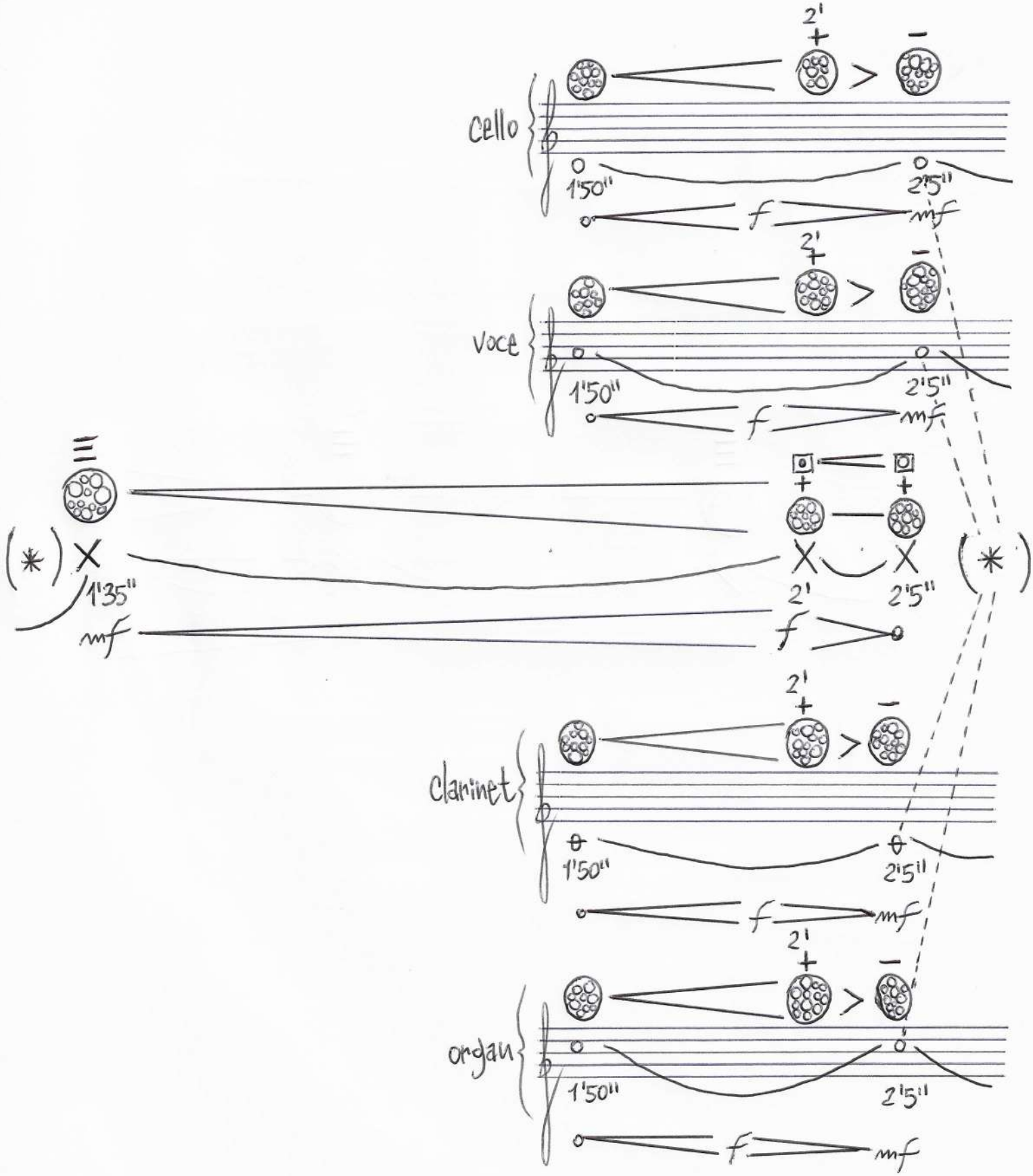

sax
3'40
3'42"
3'43"
3'46"
mf
mf

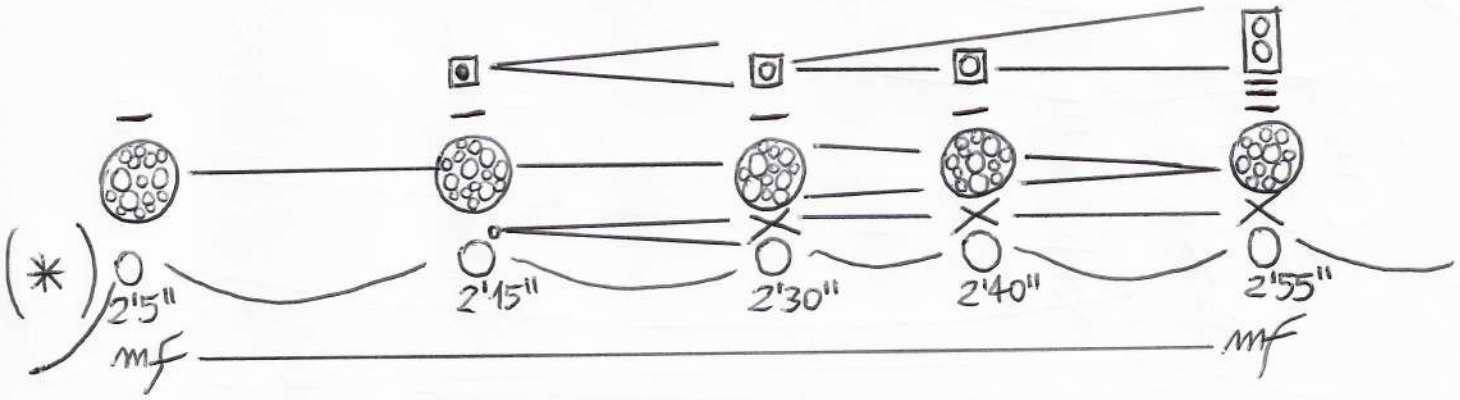
Study 3 / 3 : Conjunctions

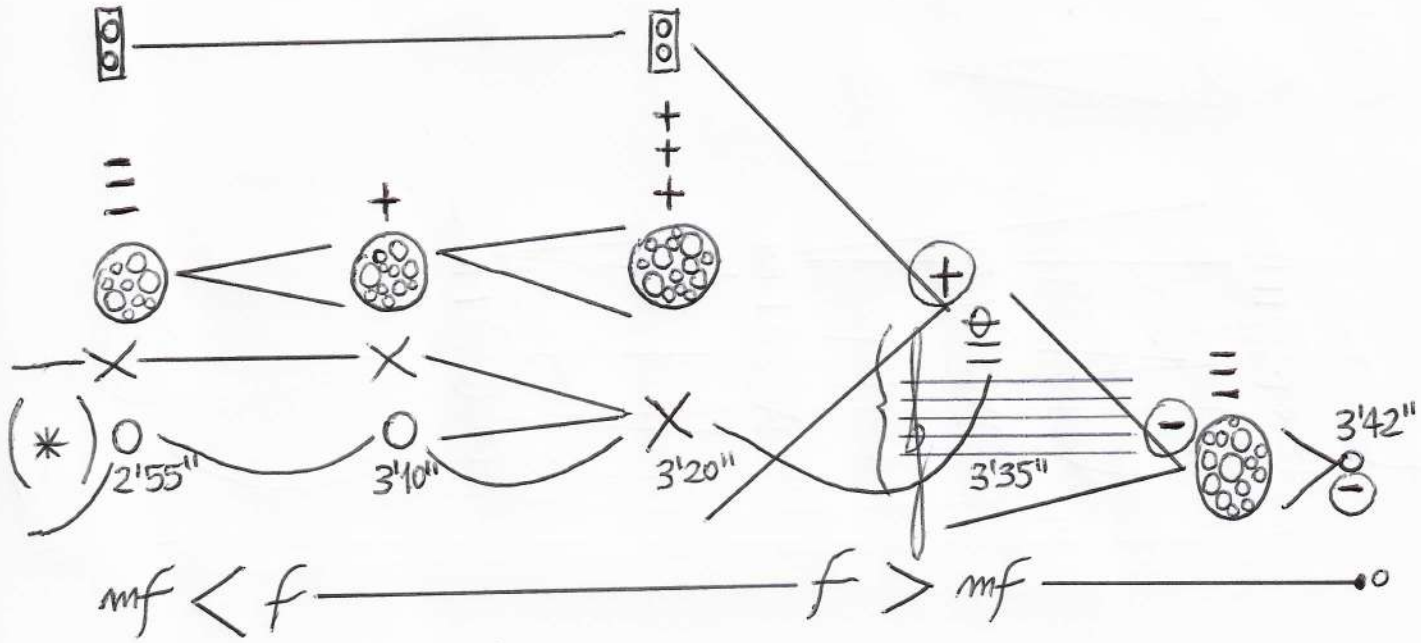

Cello
0"
3"
mf
45"
ff
voce
0"
5"
mf
45"
ff
Clarinet
0"
8"
mf
45"
ff
ondan
0"
12"
mf
45"
ff


cello
45"
ff
1'10"
f
voce
45"
ff
1'10"
f
(*)
clarinet
45"
ff
1'10"
f
organ
45"
ff
1'10"
f


(*)
1'10"
1'20"
1'35"
f
mf
mf


2'
cello
1'50"
2'5"
f
mf
2'
voce
1'50"
2'5"
f
mf
(*)
1'35"
mf
2'
2'5"
f
(*)
2'
clarinet
1'50"
2'5"
f
mf
2'
organ
1'50"
2'5"
f
mf


(*)
2'5"
2'15"
2'30"
2'40"
2'55"
mf
mf


2'55"
3'10"
3'20"
3'35"
3'42"
mf < f
f > mf