Audance III

Harp and Live Electronics

a Polly Harris

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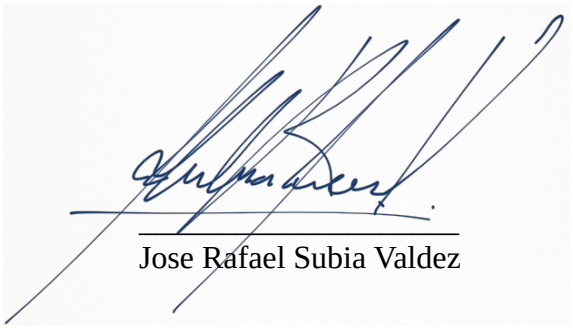
2018

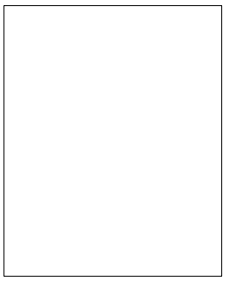
Ph.D. in Music Composition 2020

Submitted in satisfaction of the requirements for the degree of Ph.D.
in The University of Edinburgh

I declare that this thesis has been composed solely by myself and that it has not been submitted, in whole or in part, in any previous application for a degree. Except where states otherwise by reference or acknowledgment, the work presented is entirely my own.



Jose Rafael Subia Valdez



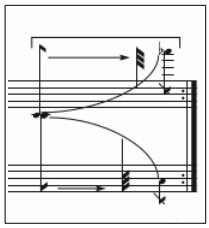
On the SD card

- Pure Data code for Linux
- Pure Data code for macOS
- ReadMe_dependencies_state
- ReadMe_Tech
- Score in PDF
- PhD_preface

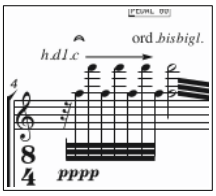
Acknowledgements:

During the Ph.D. I have encountered and interacted with a vast number of individuals that have helped me in different ways. I would like to thank all of them here and mention by name the ones that caused the most impact during this process. Dr. Michael Edwards, Prof. Peter Nelson, Rei Nakamura, Pascal Pons, Dr. Christian Ferlaino, Dr. Marie-Claude Codsi, Dr. Juan Campoverde, Mesias Maiguashca, and all colleagues and professionals that worked with me and inspired conversations and moments of growth. I must mention Gareth, Fernando, Maja, Volia, Elif, Gaby, Karen, Samuel, Sergio, Federico, Tatiana, Louis, John and everybody present during this period of my life. Finally I wish to thank my family for all the support provided during the years.

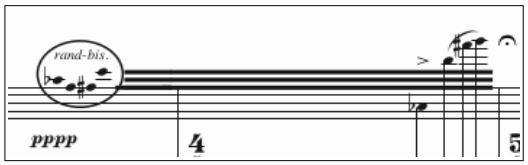
Score Indications:



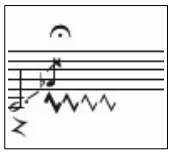
Glissando that accelerates aggressively towards its' end



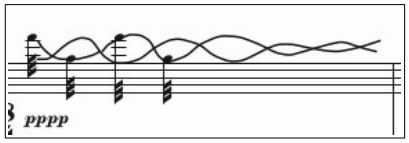
Haut dans les cordes is French and means to play high in the strings.



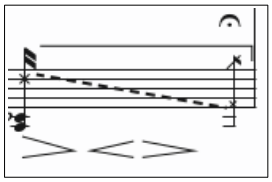
Bisbigliando random order of notes indicated



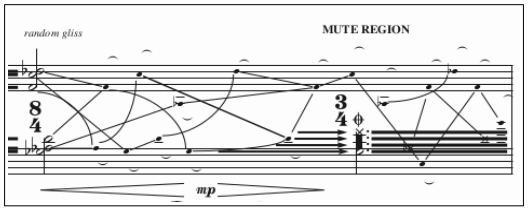
Quick glissando (with buzz) and pedal buzzing



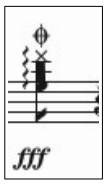
Using both hands to represent the lines as movement and create a subtle glissando



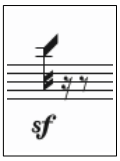
Glissando in the same string with a plectrum (plastic card) the direction of the dashed line indicates were to begging and where to end



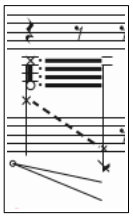
Freely and randomly produce glissandos to create a dense texture. Start to mute the region written but continue the glissandos as before, producing muted sounds as part of the initial texture



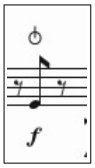
Mute region and "arpeggio" the region



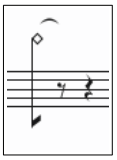
Hit the strings, pitches can be changed if needed but always the highest possible



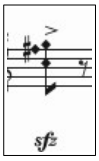
Produce a noise by scraping the palm of the hand on the lower strings



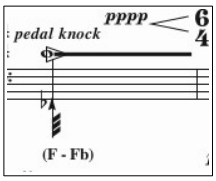
Bartok pizzicato. Snap the finger against the box when plucking the string



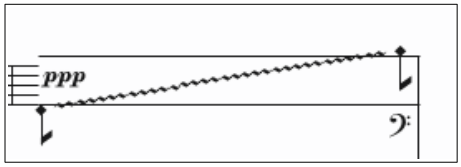
A high, distant harmonic on a low string.



Près des chevilles is French and means to play close to the tuning pins. The strings are played between the bridge pin and the tuning pin.



Release the pedal violently and abruptly to create a loud knock



Glissando Près des chevilles.Between the bridge pin and the tuning pin.

Technical Specifications for Live – Electronic Processing

The live – electronics system is intended to work with a minimal set-up available to the player/s. A minimum amount of microphones and there placement is recommended, but the computer will work with what is given. Practising with the computer is encouraged as it will provide the electronic feedback that intends to affect the music playing itself. The live response in the electronics is always similar but rarely the same which makes the piece work with a degree of unpredictability and room for interaction.

The computer software was developed using the Pure Data programming environment version 0.49 which can be freely downloaded and installed from this link:

https://puredata.info/downloads/pure-data

Available Platforms

The patches provided for this projects are programmed in a Linux environment and tested on Linux and macOS systems. Theoretically, they can be run on Windows machines with some minor modifications and/or object replacements. The reason for this is that there was no access to a Windows system during the development. Furthermore, the changes happening during these past 5 years regarding 32 and 64 bit technology have produced a number of libraries to become incompatible. Many of these have stopped being updated or changed for a significant number of years without compromising their functionality, however with the recent update to 64 bit systems, many have stopped working under Windows 64 systems. This makes a true multiplatform development difficult. If you have the desire to use a Windows 32 or 64 system for the performance, please send an email (provided below) to receive support by the author. Refer also to the “dependencies_state” provided with the patch to know what dependencies are still an issue, and where one can find more information about those libraries and objects in particular.

A Linux solution

The current state of professional audio on the Linux platforms is very encouraging. With the existence of “class compliance” USB cards, hardware is no longer an issue. Old professional USB cards, as well as the latest professional options which take advantage of “class compliance” work very well on modern Linux platforms. In order to run the patches provided for this project, the user can also create a partition on your hard drive and install a Linux OS, old hard drives are cheap and many times free from old machines that get discarded with them and can be used for this purpose too. The partition or hard drive used does not have to be big, (a 20GB hard drive/partition) is enough to begin with, and enough for the user who only intends to run the files that come with this project. Once the OS is installed, install Pure Data and run the patches provided. (help for this on request via email)

Preparing the Patch

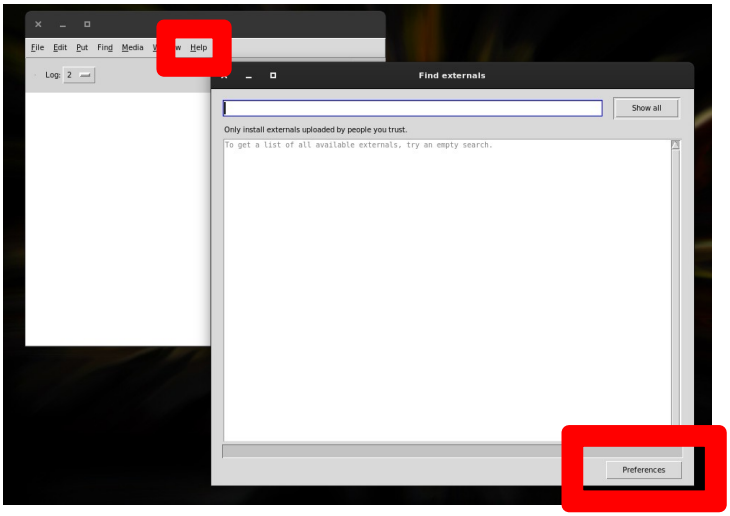
When preparing the patches, it is crucial to copy the files to a directory in your computer. Make sure that the path and directory where the patch is going to sit contain no “white spaces” in their names. (eg. C://user/My Documents/Dianoia) in this case, the patch will stop searching for directories at “My ” as it will ignore anything after the whitespace. To fix this, please use a path in which that directory is named “My_Documents” or “MyDocuments”. This way the objects inside the patch that need to look for information inside directories can access all the files used.

Updating the Patch via “Deken”

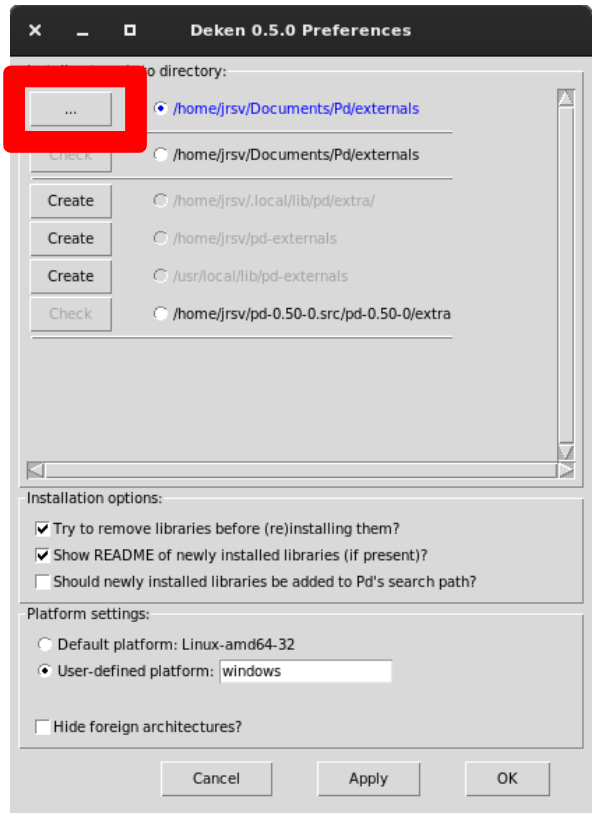
Before updating, please send me an email to check if there is an updated version of the patches used for the piece. Because technology is constantly changing, and the framework used to develop these patches is programmed and used by myself, updates might be available for download on request. The user might want to consult my website and/or git repository

www.jrsv.net

The patch can be updated through the “Deken” Package manager. Make sure to do this only if you know what you are doing, or are in contact with the author. All dependencies used are located inside the “dependencies” folder in the root directory of the patch. 3rd Party libraries are located in their own directories. These are the dependencies that can be updated.



1. After installing Pure Data and copying the patch to a proper directory considering what was explained before, navigate to the “help” menu and click on “Find externals”. Once the window named “Find externals” opens, click on the “Preference” button on the lower right corner.



2. In the preference window, make sure to select the directory where the dependencies for the patch are. Once this is done, you can go back to “Find externals” and search for the libraries used in the patch to update them if needed.

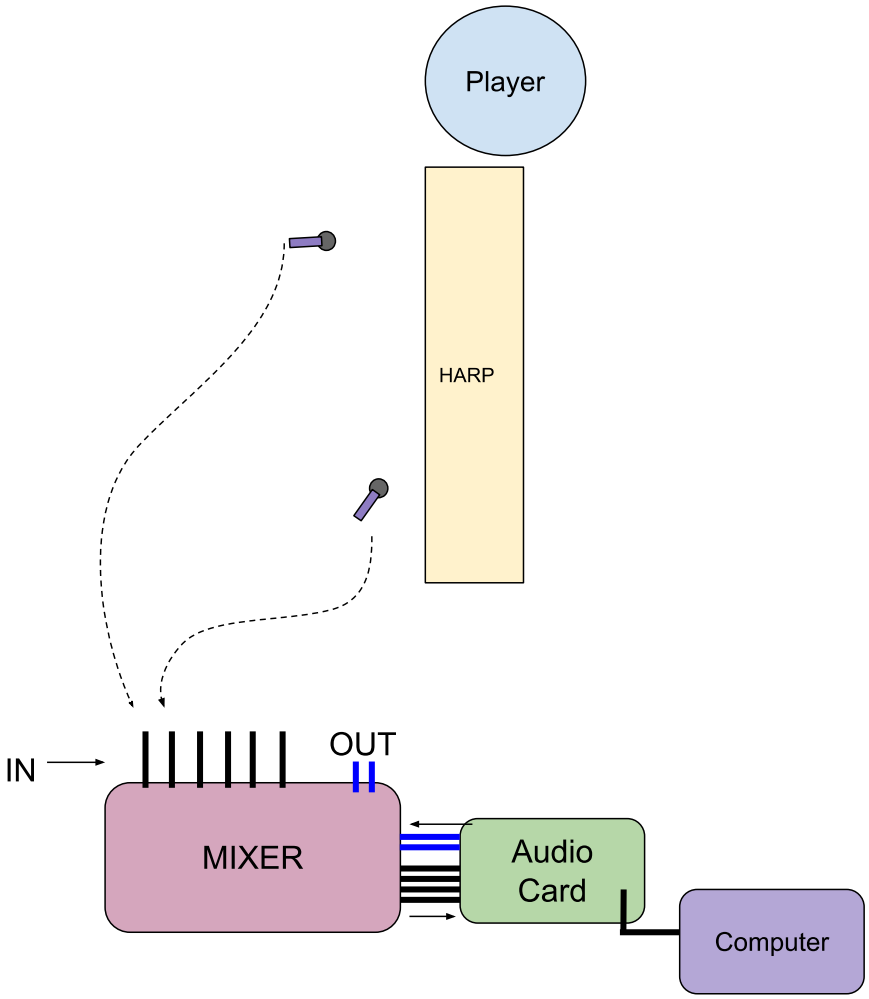
Further Support

For additional support installing a Linux OS, Pure Data and/or running the patches, please send me an email and I will respond as soon as possible.
jsubiavaldez@gmail.com

About the Electronic Part:

The electronic part was composed as a continuous extension of the acoustic world. It intends to expand the concert space into a virtual one, with an ambiance strictly influenced by the instrumental part, where instrumental gestures produce electronic responses inside the virtual space. The balance between the two spaces, the real and the virtual, should on average be symmetrical. The individual in charge of controlling volumes during the performance, should ensure that both of these worlds have the correct acoustic projection. This does not mean that places where one takes over the other do not exist, but rather that both should be audible throughout the piece. Go through the piece a number of times to become familiar with what is going on. If comfortable, project the electronic response to a surround system using delays, or by inverting the stereo image and placing it in the back, and/or exaggerate the electronic responses by adjusting the output volumes.

Technical Set-up:



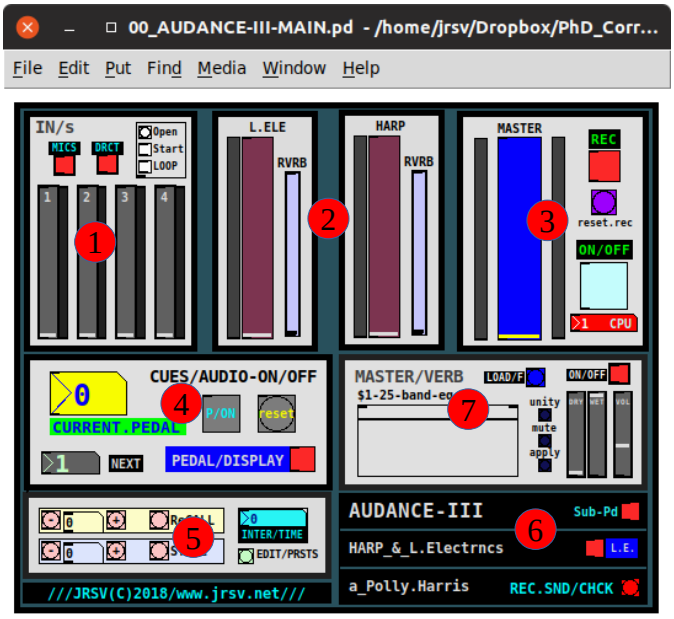
Use at least 2 microphones, if more, create groups and send 1 group per input to the audio card.

Run Pure Data v. 0.49 in an Linux/macOS system with at least 8 gb of RAM and an i3 or similar processor

Use a full range stereo output

Running the Patch

In the folder provided containing the files of the piece, open the pd file named **00_AUDANCE-III-MAIN.pd** this will open the control window as seen in the image.



1. Sound Card inputs:
   turn microphones ON/OFF add the direct signal as part of the electronics, play a wav or aiff audio file to test the system.
2. Main Volumes:
   control the main volume of the electronic processing and the amplification of the instrument/s
3. Master Volume:
   turn audio processing ON/OFF, record a performance and control the master volume.
4. CUE system:
   turn on the MIDI pedal to change “patches” in each cue, when indicated in the score, open a window with a large indicator of the current cue, and reset the system to the beginning of the piece
5. Preset Manager:*
   store and recall presets, edit them in their text file, and control their interpolation time.
6. Live Electronics:*
   open the live processing window, open a visible instance of Pure Data and record up to 3 setting of a sound check
7. Master Reverb:
   If needed, add a reverb to the output

* 5 and 6 should not require any type of manipulation from the player or technician. Only change if absolutely sure what is being done.

To run the system, turn the Audio ON (module 3). This will produce a message of connection in the pd window (ctrl + R). Activate the microphones (module 1) and check that signal is coming into the computer. Turn the MIDI pedal on (module 4) to change “Presest”, using either a midi pedal or the letter “P” of the computer keyboard, and press the “RESET” button to set all values to start the piece. Finally turn the master volume up (module 3).

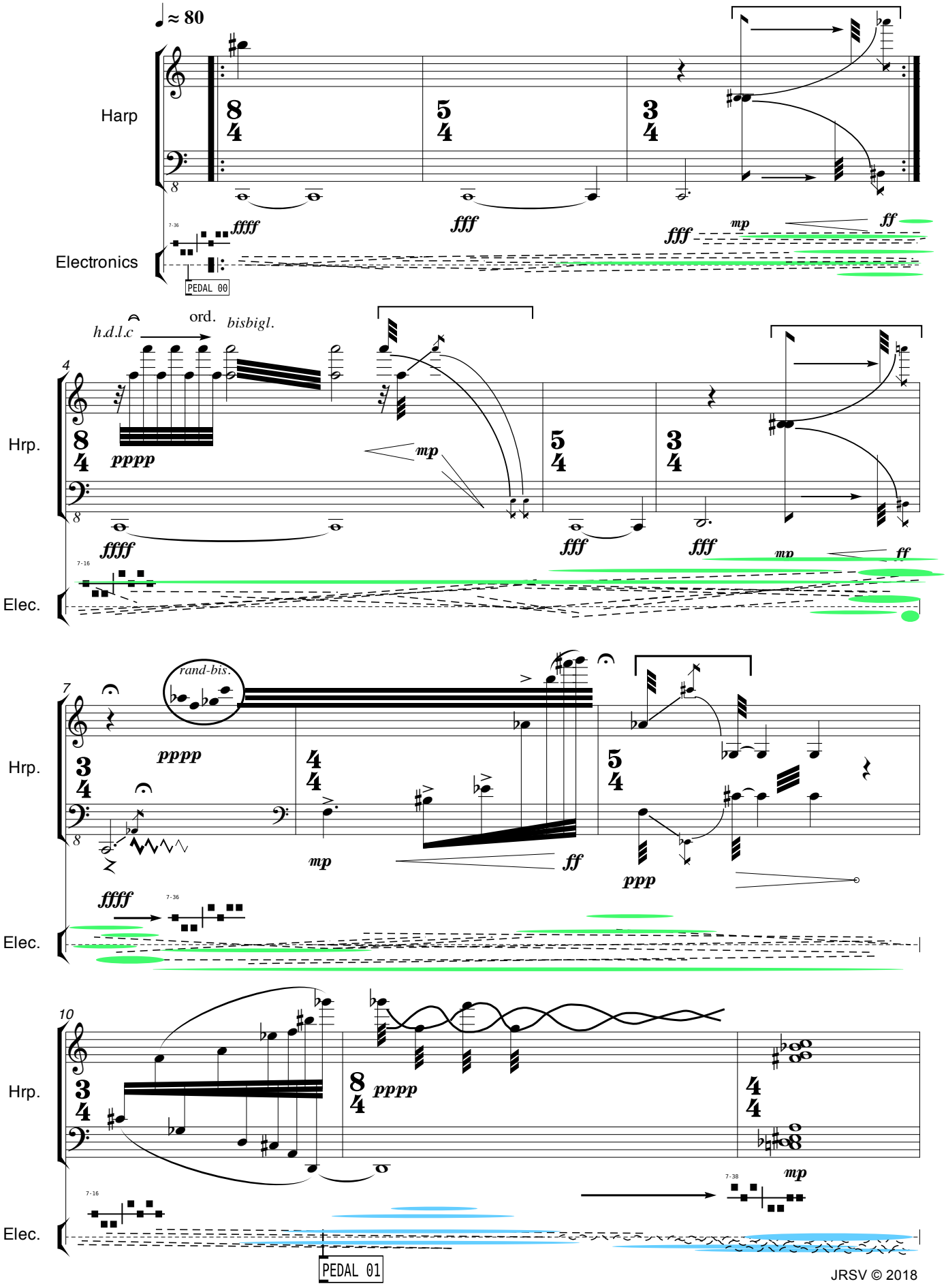
When performing, change presets at every rehearsal letter in the score. The volume of the electronics and the instruments must be balanced. The technician can change their outputs (module 2) during the piece as s/he sees fit. Master Volume (module 3) is recommended to be left untouched while performing.

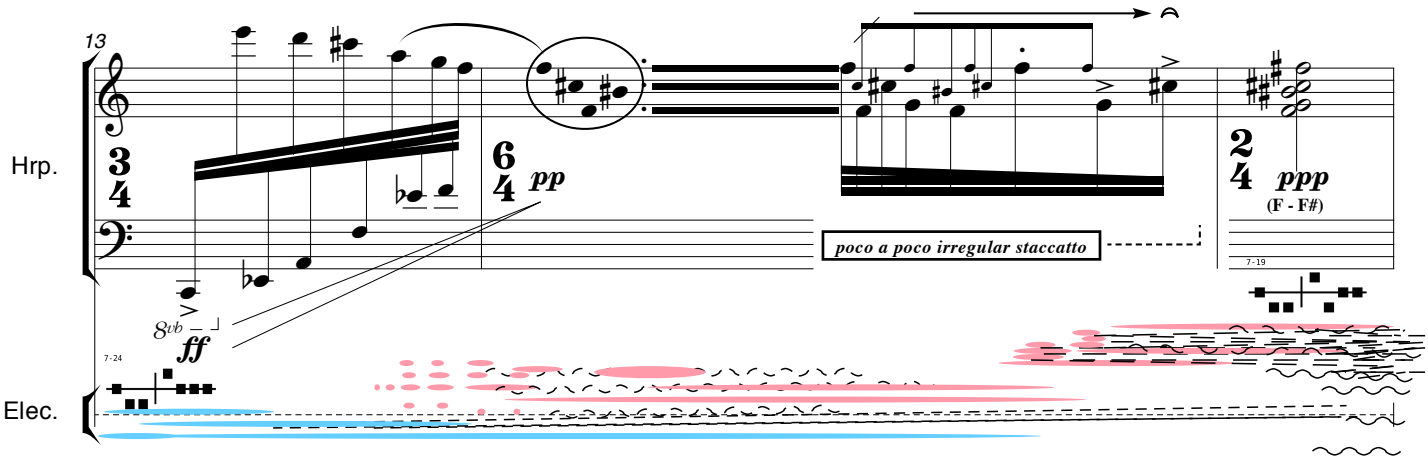
Audance III

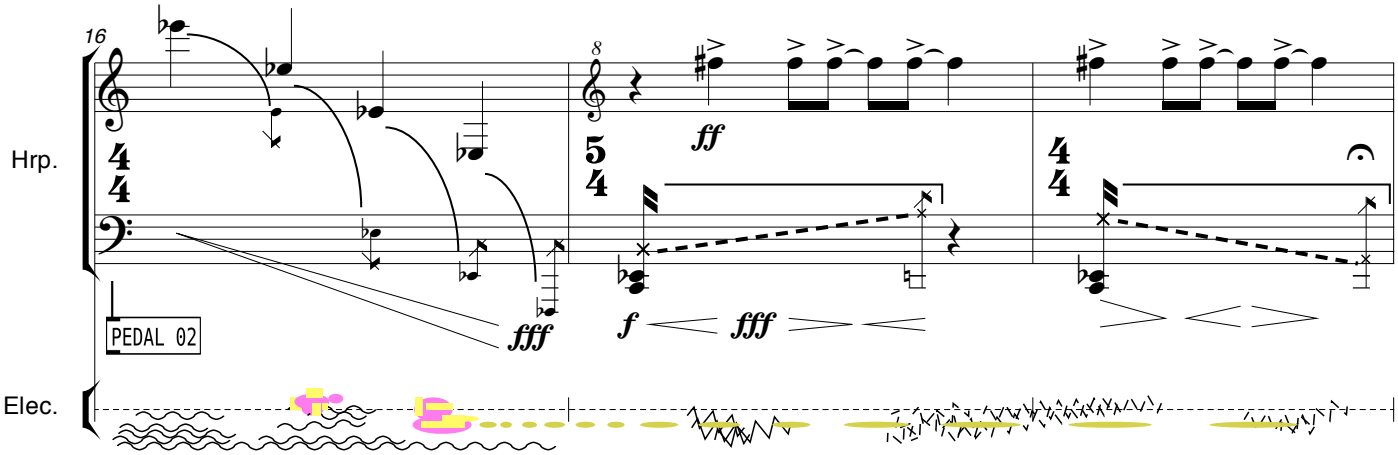
Harp & Live Electronics

José Rafael Subía Valdez

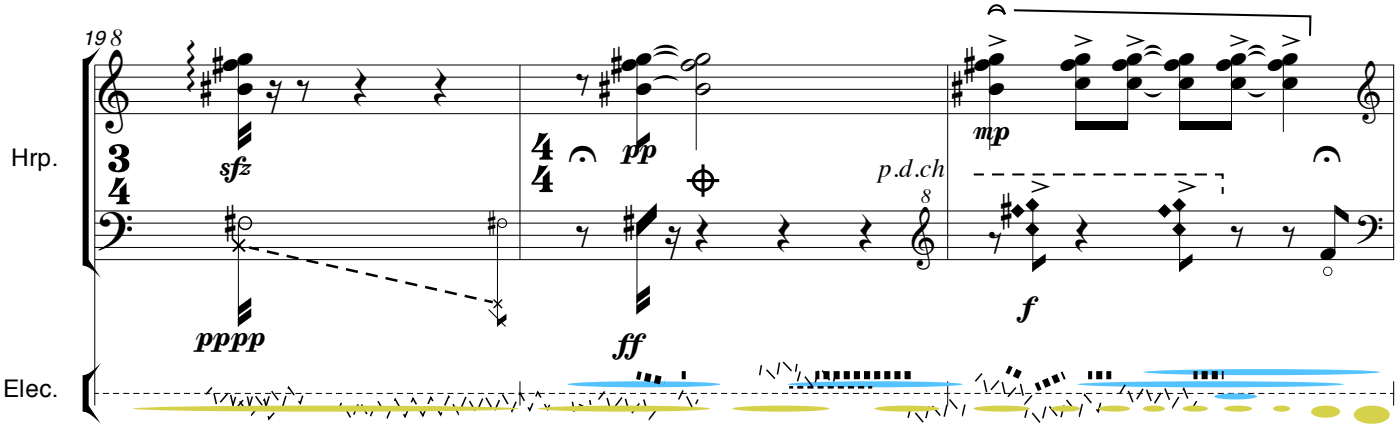
a Polly Harris

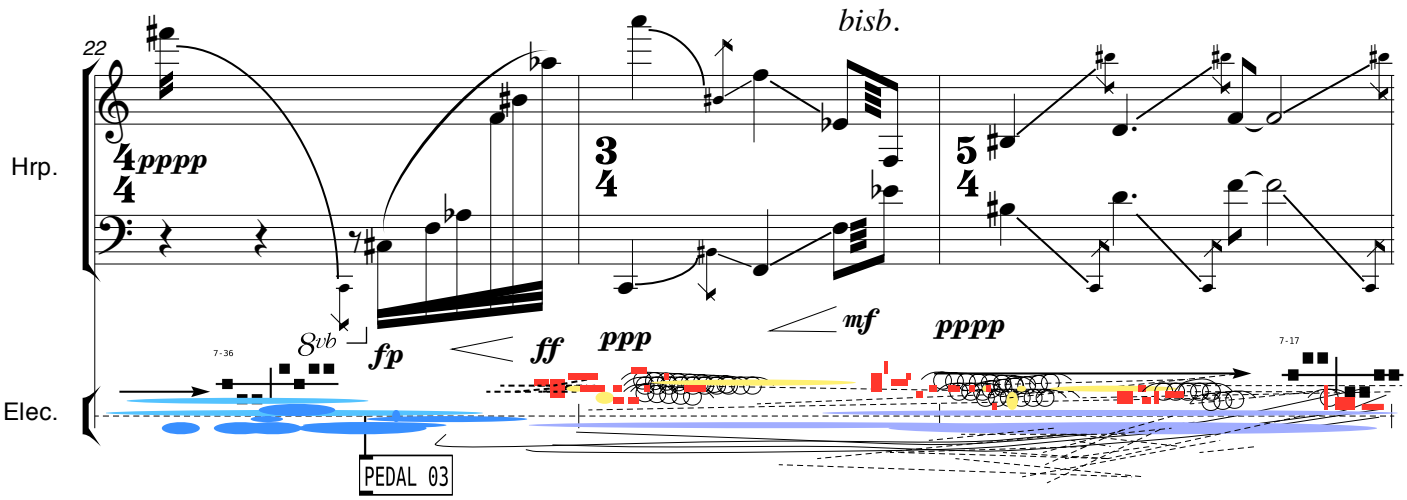


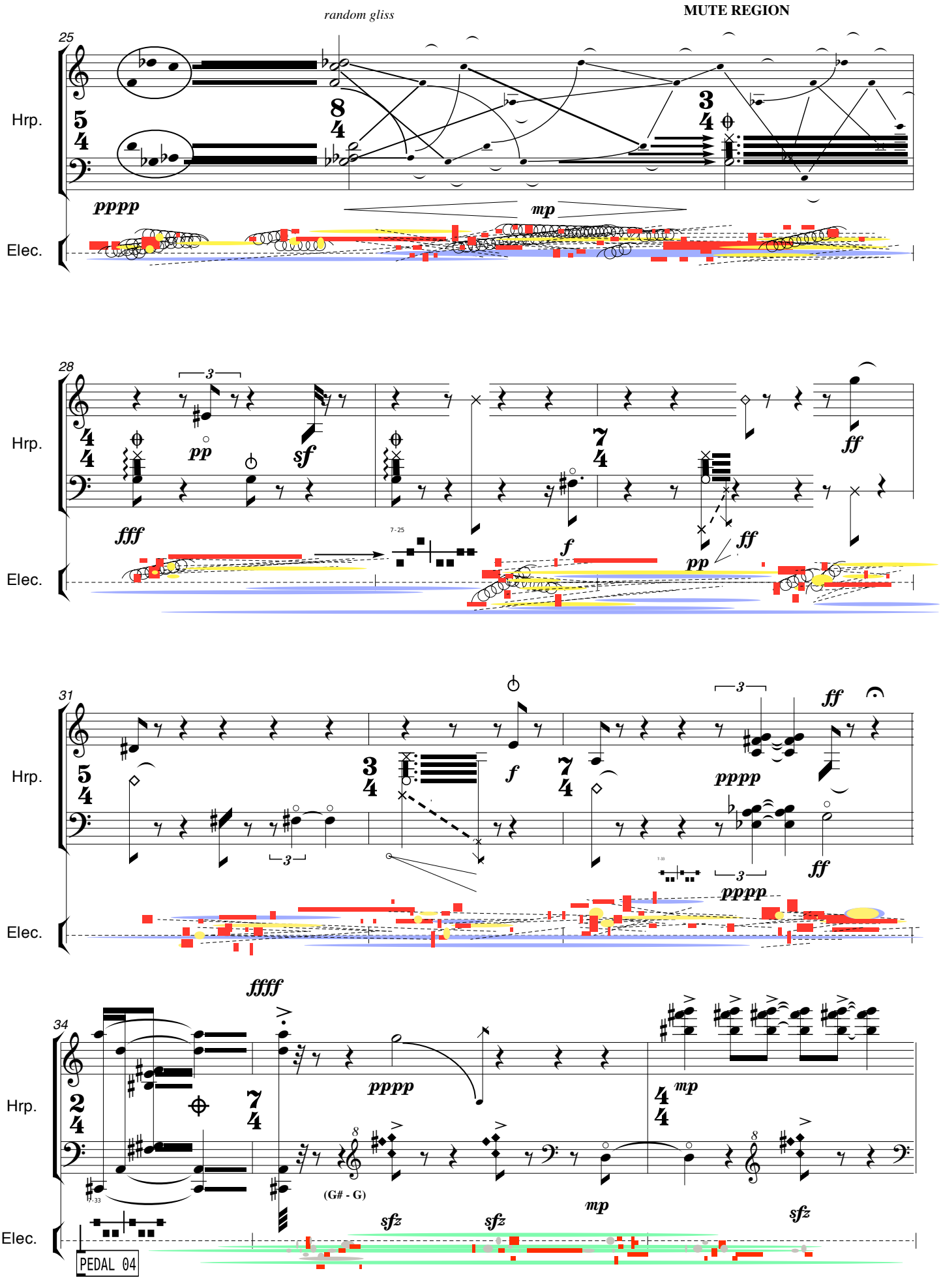


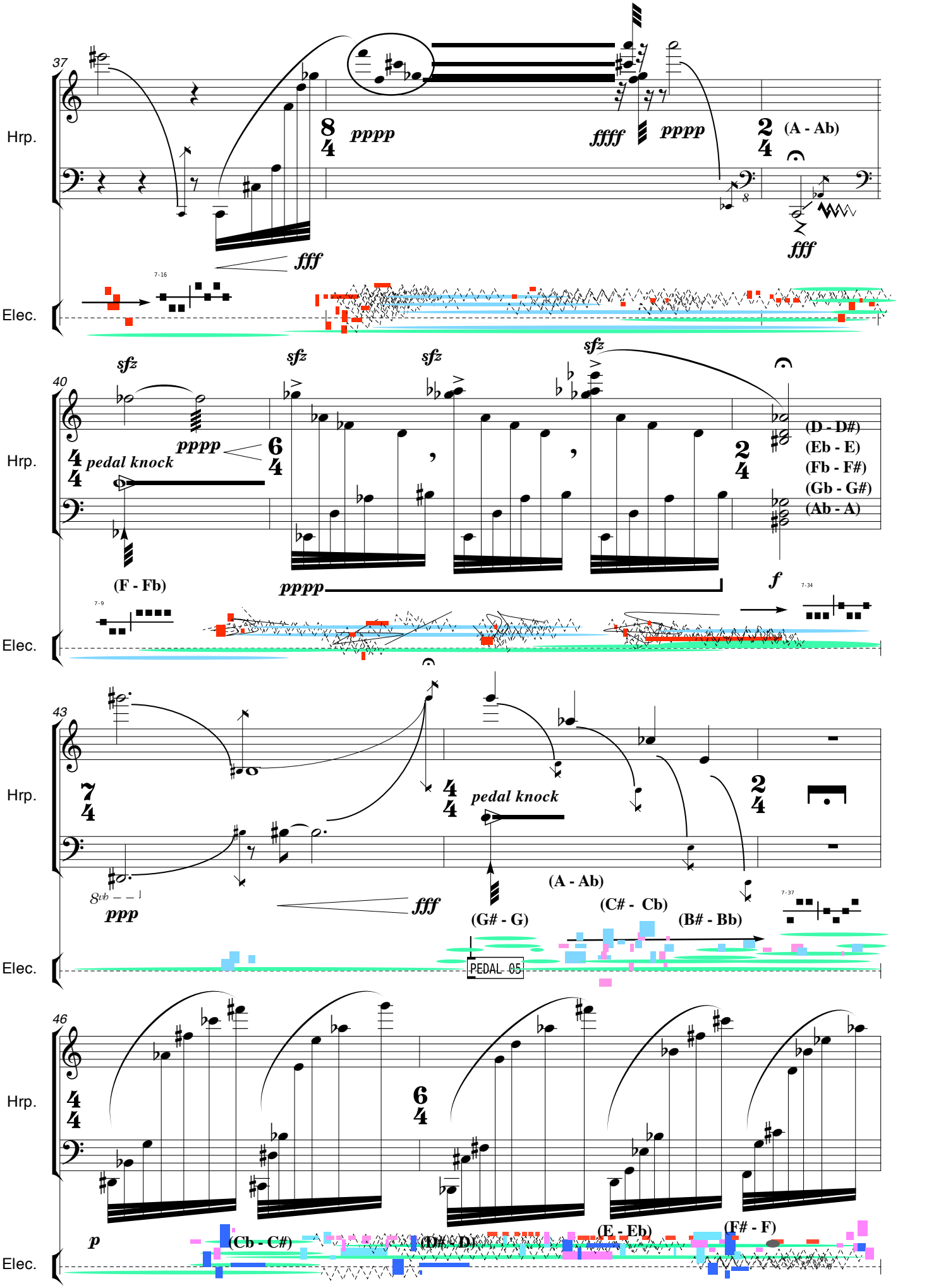


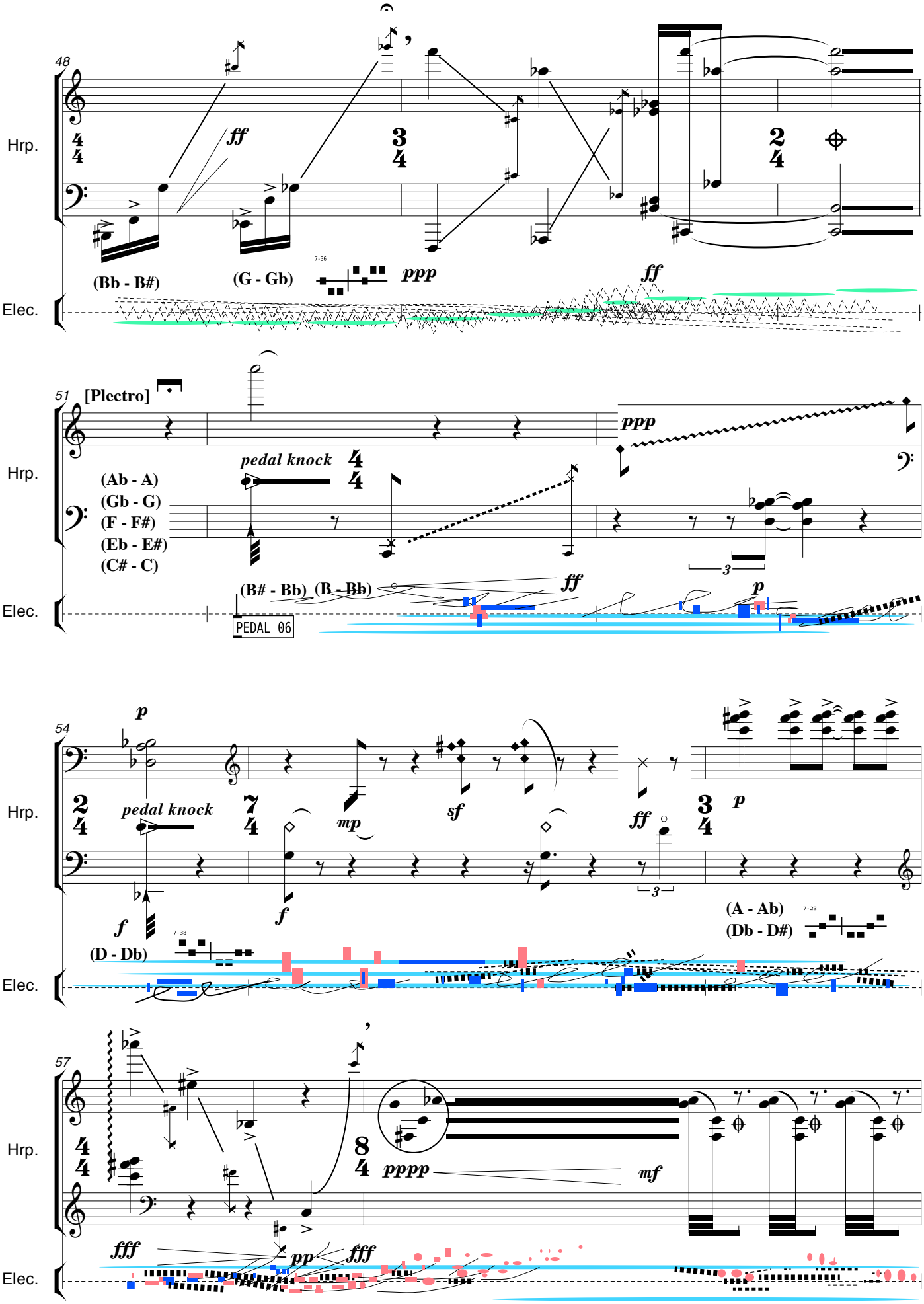
≈ 60 (delicate) do not rush

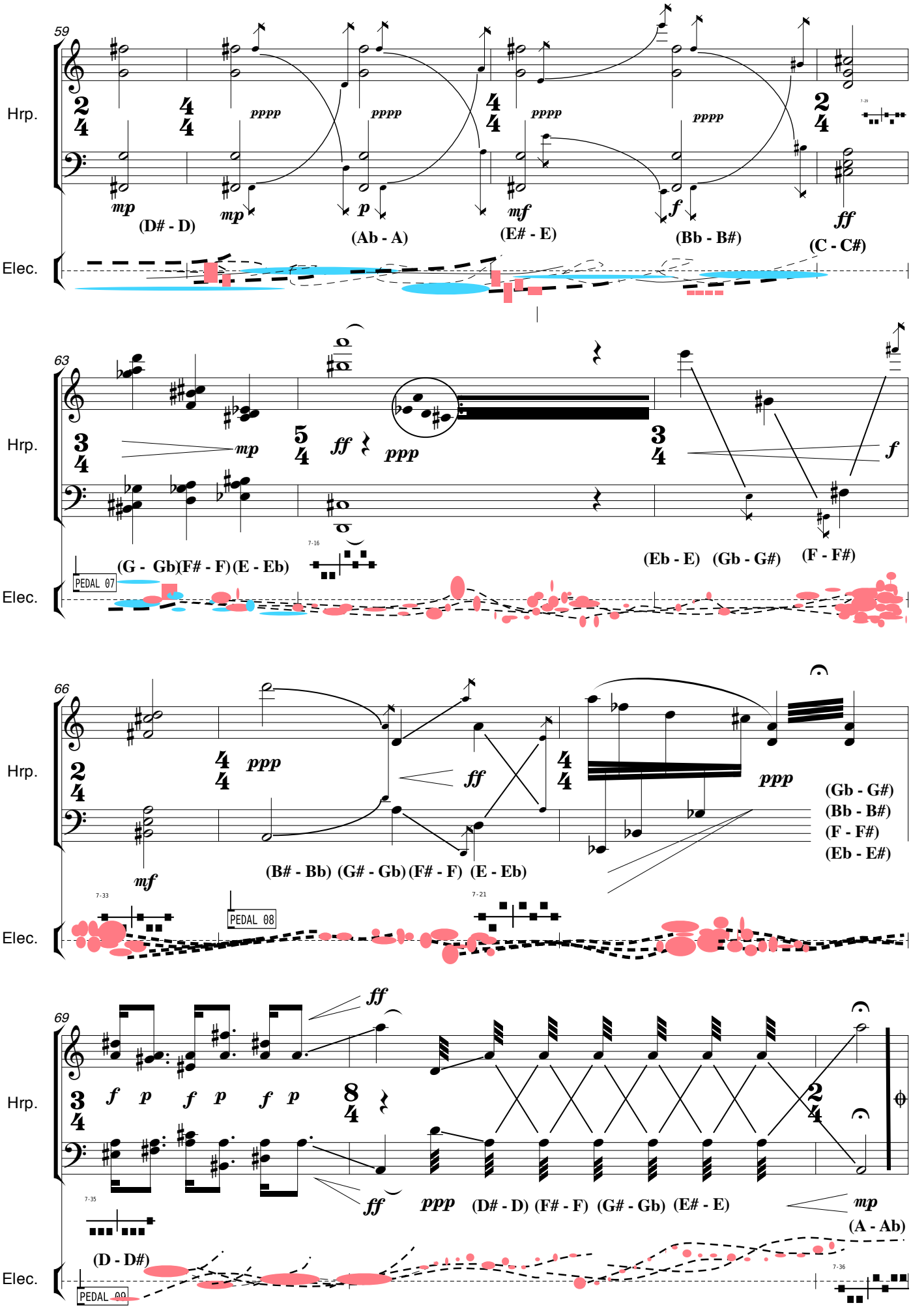


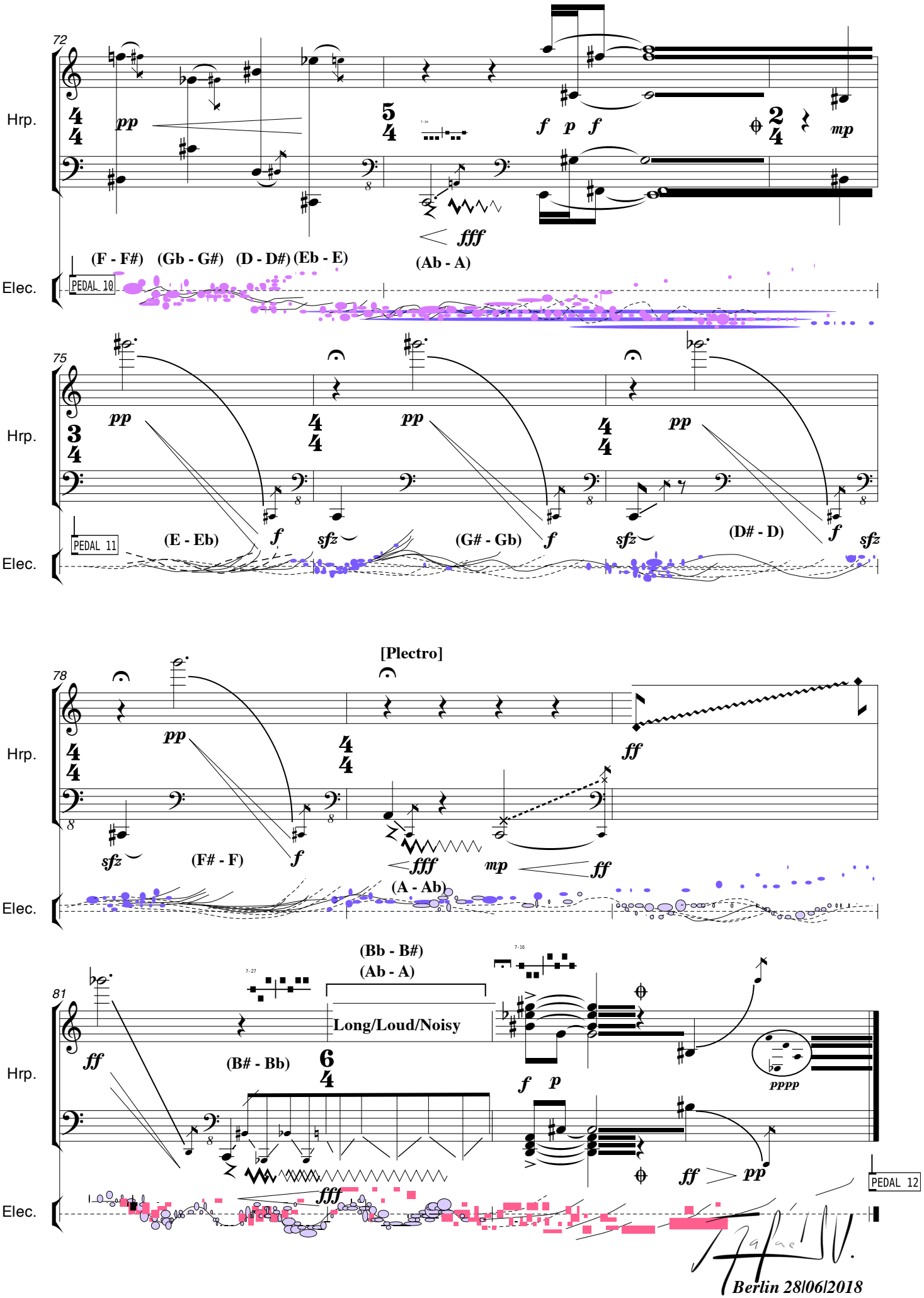



random gliss
MUTE REGION
25
Hrp.
Elec.
pppp
mp
28
pp
sf
fff
ff
f
pp
31
pppp
(G# - G)
sfz
PEDAL 04
34
ffff


37
Hrp.
pppp
fffff
pppp
(A - Ab)
fff
fff
Elec.
40
sfz
sfz
sfz
sfz
Hrp.
pedal knock
pppp
(D - D#)
(Eb - E)
(Fb - F#)
(Gb - G#)
(Ab - A)
(F - Fb)
pppp
f
Elec.
43
Hrp.
pedal knock
(A - Ab)
ppp
fff
(G# - G)
(C# - Cb)
(B# - Bb)
Elec.
PEDAL 05
46
Hrp.
p
(Cb - C#)
(D# - D)
(E - Eb)
(F# - F)
Elec.


48
Hrp.
ff
(Bb - B#)
(G - Gb)
7-36
ppp
ff
Elec.
51
[Plectro]
ppp
pedal knock
(Ab - A)
(Gb - G)
(F - F#)
(Eb - E#)
(C# - C)
(B# - Bb)
(B - Bb)
ff
p
PEDAL 06
54
p
pedal knock
mp
sf
ff
p
f
f
(D - Db)
7-38
(A - Ab)
(Db - D#)
7-23
57
pppp
mf
fff
pp
fff


59
Hrp.
pppp
mp
(D# - D)
p
(Ab - A)
mf
(E# - E)
f
(Bb - B#)
ff
(C - C#)
Elec.
63
Hrp.
mp
ff
ppp
f
(G - Gb)(F# - F)(E - Eb)
(Eb - E) (Gb - G#)
(F - F#)
PEDAL 07
Elec.
66
Hrp.
ppp
ff
mf
(B# - Bb) (G# - Gb) (F# - F) (E - Eb)
(Gb - G#)
(Bb - B#)
(F - F#)
(Eb - E#)
PEDAL 08
Elec.
69
Hrp.
f p f p f p
ff
ppp
(D# - D) (F# - F) (G# - Gb) (E# - E)
mp
(A - Ab)
(D - D#)
PEDAL 09
Elec.


72
Hrp.
pp
f p f
mp
fff
(F - F#) (Gb - G#) (D - D#) (Eb - E)
(Ab - A)
Elec.
PEDAL 10
75
Hrp.
pp
(E - Eb)
f
sfz
(G# - Gb)
(D# - D)
PEDAL 11
Elec.
[Plectro]
78
Hrp.
pp
ff
sfz
(F# - F)
fff
mp
(A - Ab)
Elec.
(Bb - B#)
(Ab - A)
81
Hrp.
ff
(B# - Bb)
Long/Loud/Noisy
f p
pppp
fff
PEDAL 12
Elec.
Berlin 28|06|2018