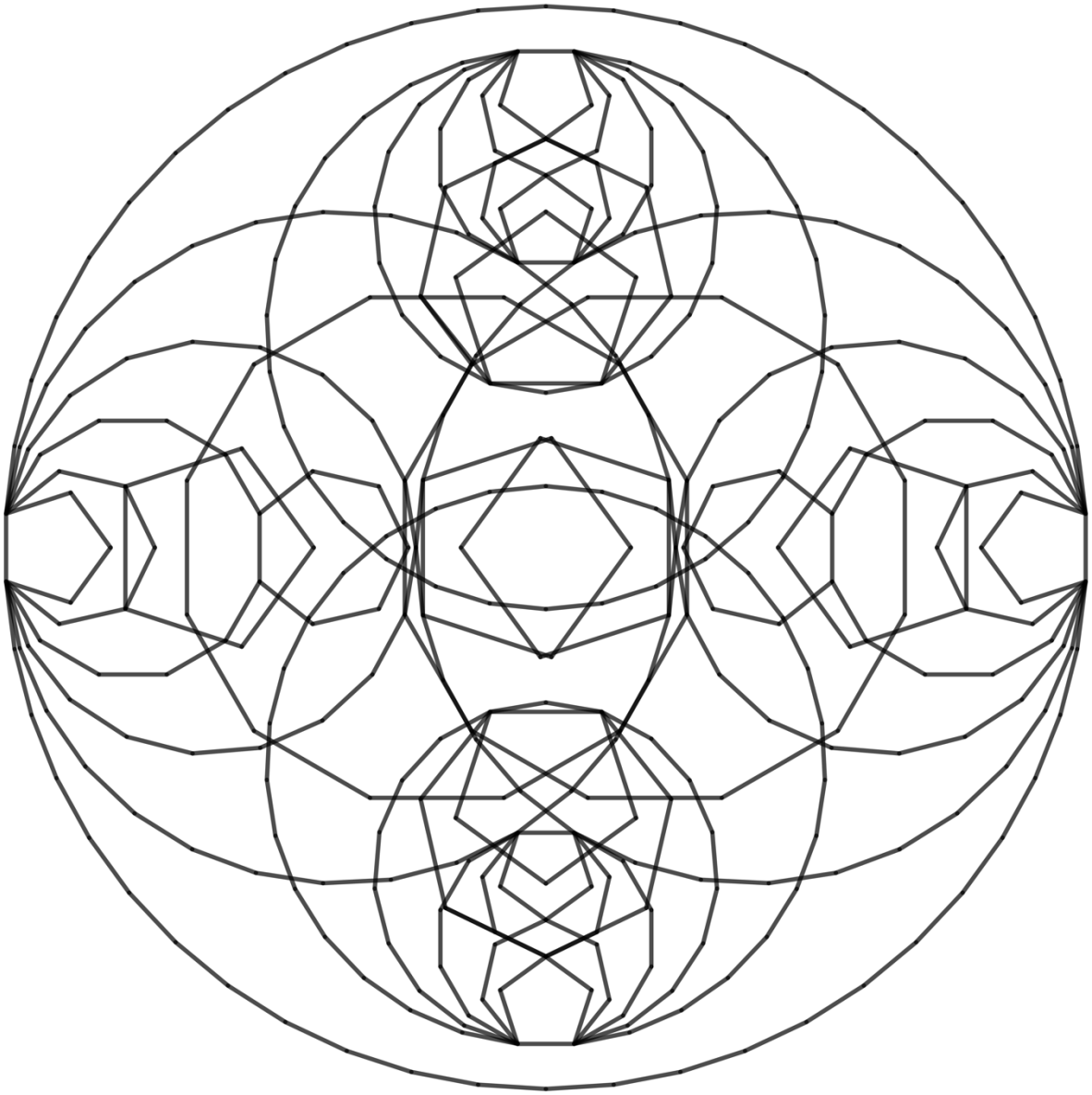
Dreams from an Old Memory
Sonhos de uma Memória Antiga

for Electric Piano and Electronics



Pedro Laranjeira Finisterra

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Dreams from an Old Memory (2020) / **Sonhos de uma Memória Antiga** (2020)
for Electric Piano and Electronics

Composition and Cover Illustration: Pedro Laranjeira Finisterra

Duration: ca. 6'30"

Performance Notes

This is a piece written for a 88-key velocity sensitive electric piano and pre-recorded stereo sound files. The (electric) piano is connected to a laptop running bitKlavier which, when triggered by the performer, will retune the entire key set. Also, the sound files are triggered live through Max/MSP either by the performer or by another performer. The audio is then played through loudspeakers.

Electronic Resources

bitKlavier

The Electric Keyboard will be connected to a computer (preferably a Mac, but Windows is also acceptable) either via USB cable or MIDI cable running the patch 'Dreams from an Old Memory.xml' on bitKlavier (available for free at https://bitklavier.com/get/). The electric piano's own sounds will not be used in this piece, but instead bitKlavier's own piano sounds. The piano is then only used as a MIDI controller. The bitKlavier patch has a set of galleries containing specific pre-programed tuning systems and its own mappings on the keyboard layout. Each gallery corresponds to a specific passage in the piece and therefore they are named with the bar range in the piece to which they correspond (e.g. the first gallery used is named '001-011' since it is used through bar 1 to bar 11). To switch from one gallery to the next during performance, the performer must press the piano's top C (always notated in the score with a "x" notehead such as this: ). Further instructions regarding the bitKlavier patch can be found inside its first gallery.

Max/MSP

To trigger the sound files of this piece, another patch named 'Dreams from an Old Memory.maxpat' will be run on Max/MSP (available for free at https://cycling74.com/downloads). There are two possible paths for the live triggering these sound files:

1. These sound files may be triggered by the pianist during performance by pressing on the piano's bottom A (always notated in the score with a triangle shaped notehead such as this:  . For this path, it is recommended that only one laptop is used to run both bitKlavier and Max/MSP, which will be then connected to a pair of loudspeakers. The cable that is used to send information from the piano to bitKlavier will also serve to connect the piano to Max/MSP. Extra audio materials such as audio stations, amplifiers and other equipment may be used at will to achieve the best audio quality possible.
2. These sound files may be triggered by a second performer. In this case, a second laptop may be used (and the audio files would be triggered by pressing the space bar), but ideally both laptops would be connected to the same stereo loudspeakers.

Other solutions beyond these two may also be found (such as using the second performer to both trigger the electronics and the tuning changes). Further instructions regarding the Max/MSP patch can be found inside its first gallery.

Microtonality and Intonation

As a starting point, this piece musically explores the combination of the scales that can be found when dividing the octave between different Cs (the middle C being 261.6256Hz) in 5 and 7 Equal Divisions of the Octave (EDO) both in the electric piano part, and in the electronics. In the piano part, these scales are performed in their original form and also in their closest approximations (or 'roundings') found in 12, 19, 31 and 50EDO, many times simultaneously. These 'rounded versions' then serve functionally as alternative intonations for the pitch classes of 5 & 7EDO, through variable levels of distortion/resolution. Material in 11EDO is also used in the electronics. The interaction between these scales and their 'rounded' versions is the microtonal approach of this piece.

The notational system is presented in three parallel sets of systems:

- The top one (Piano Keys) corresponds to which keys the performer plays and uses traditional chromatic accidentals. Functionally it serves as equivalent to a tablature.
- The middle system (Piano Pitch) presents the notational approximations of what is actually heard in the piano part.
- The bottom system (Electronics) approximates the electronics when they are being employed.

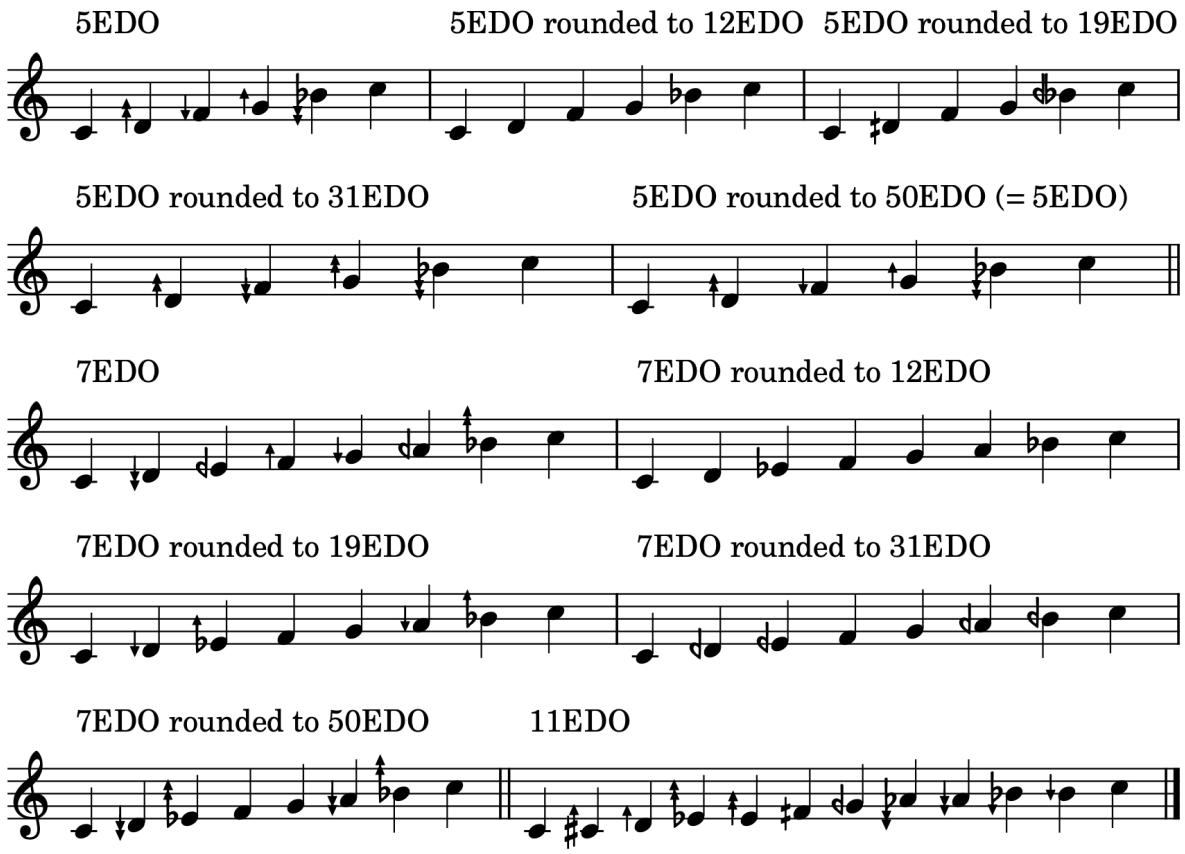
<u>Accidentals</u>

Both 'Piano Pitch' and 'Electronics' are notated with the following accidentals:

- Chromatic: ♭ ♮ ♯
- Quarter tones: 𝄳 𝄲 and Three-Quarter tones: 𝄫 𝄰
- Sixth tones: 𝄭 𝄮
- and Twelfth tones: 𝄬 𝄯

In this piece, this notational system merely approximates the pitches that are actually heard, simulating with 72 notes per octave how the traditional 12-note chromatic notation aggregates the variety of intonation and tuning practices of multiple instruments and performers. Also, sixth and twelfth tone 'arrowed' accidentals may be combined with semitone, quarter and three-quarter tone accidentals to produce more complex accidentals (some possible combinations would be: 𝄭♭ 𝄮♯ 𝄬𝄲 𝄯𝄰). This way, one pitch may be notated with a variety of enharmonic possibilities (similar to traditional chromatic notation). In most occasions, mixtures of 'arrowed' accidentals with quarter and three-quarter tone accidentals are avoided, but sometimes are used to visually highlight the structure of specific chords, to make certain melodic lines clearer to read, or a mixture of both. To complement the use of these microtonal accidentals, throughout this score, written information is given to state which tuning systems and 'roundings' are being used at the time and, whenever it is relevant, how they are being mapped on the piano. Generically, if 5EDO and 7EDO (or 'rounded versions') are simultaneously used, 5EDO will be mapped on the black keys and 7EDO on the white keys. At other times, the structure of certain scales or chords might be used as the basis of a certain mapping, and other notes might be mapped around in the keys that are still available (while trying to retain its melodic shape). The generic idea is that each key, when pressed, will play a pitch relatively close to its original 12EDO pitch, sometimes even an octave or two apart (this way a pitch around F# would never be mapped to a C key, but a low Bb could be mapped to an A key if the next one was a higher Bb, for example). While learning this piece, it is recommended to keep an eye on the 'Piano Pitch' part, as it will help to keep track on what to expect acoustically.

List of used scales and 'rounded' versions notated in 72 notes per octave



These scales and their rounded versions are written in this page with the simplest combination of accidentals possible, made to emphasize their relationship to the note C. However, throughout the piece, these same pitches are also written with different enharmonic combinations of accidentals and note names to emphasize their relationship to other pitches, usually when the reference note is not a C and is notated with microtonal accidentals.

For example, a D^^ when played above a C may be notated as such, to show that both pitches sound like a 'stretched Major second' by a sixth tone (which is also close to an 8/7 'Septimal Major second). However, when played below a F≠ it could be notated as a D≠v to show that both pitches sound as a 'stretched minor third' by a twelfth tone (which is also close to a 6/5 'Natural minor third').

Refer to Appendix 3 of the doctoral submission for a complete list of different enharmonic ways to notate these same pitches in 72 notes per octave.

Dreams from an Old Memory

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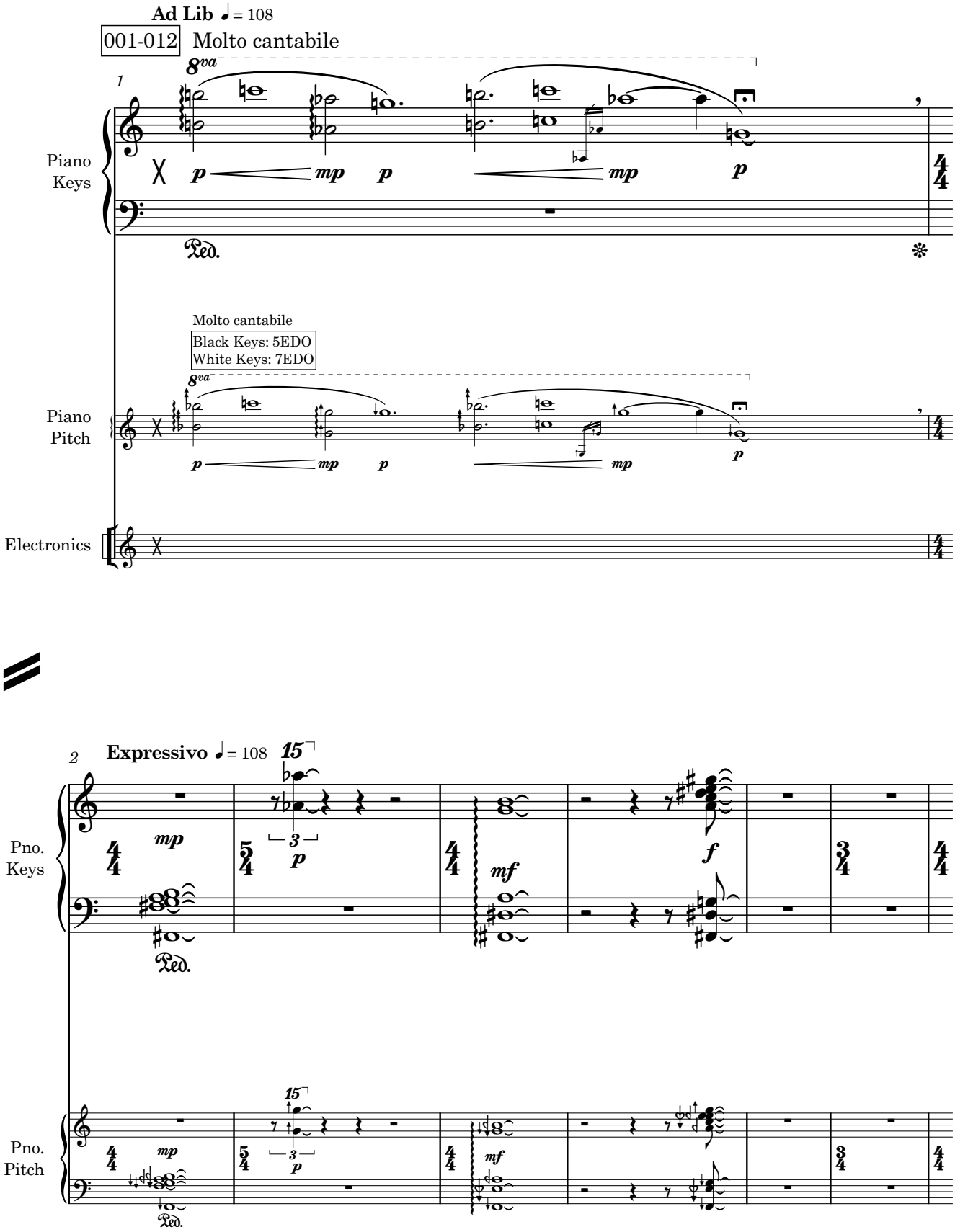


013-015

8

Slower arpeggio

Pno.
Keys

Pno.
Pitch

Slower arpeggio

016-023

13

Pno.
Keys

Black Keys: 5EDO
White Keys: 7EDO rounded to 50EDO

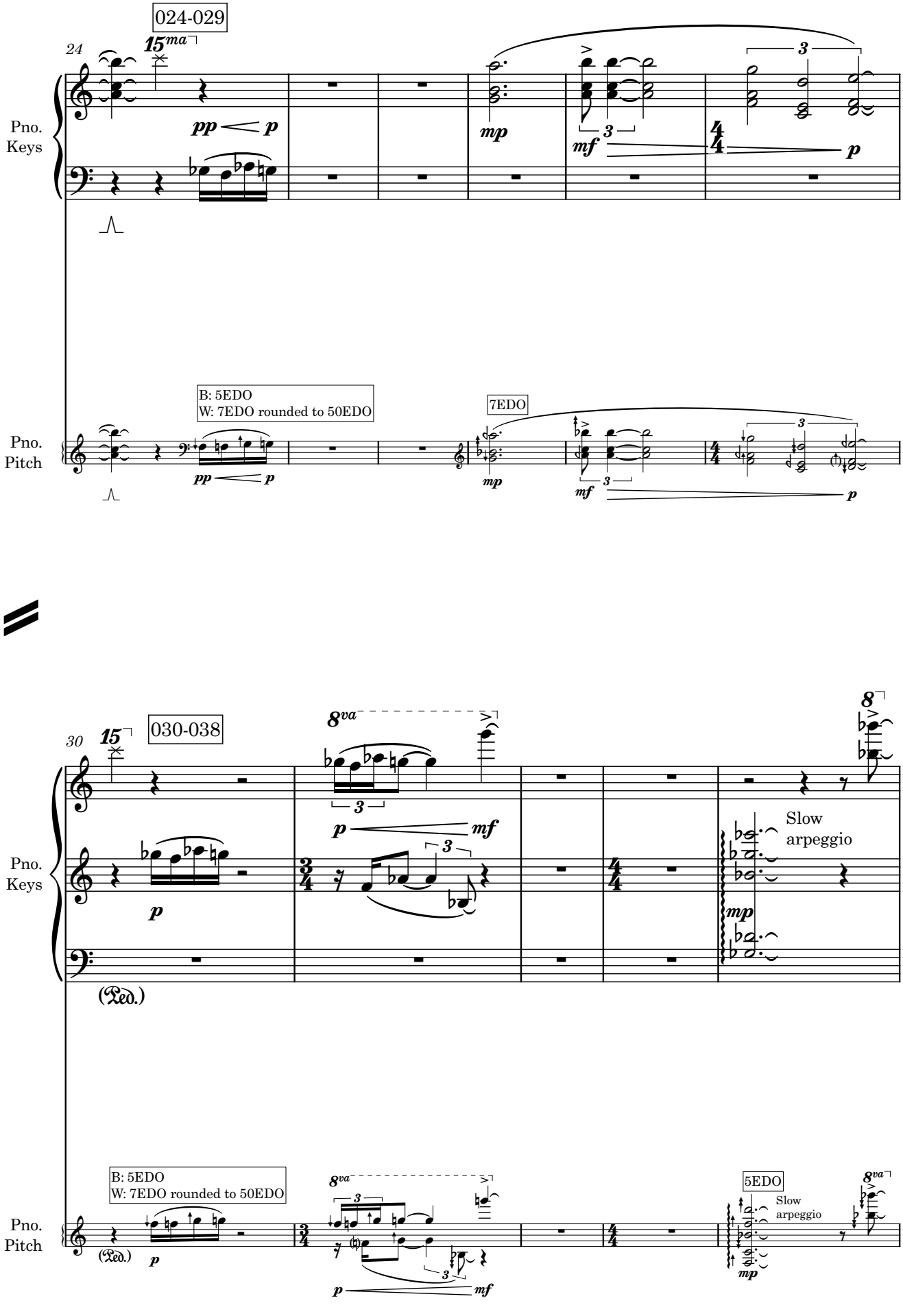
B: 5EDO
W: 7EDO

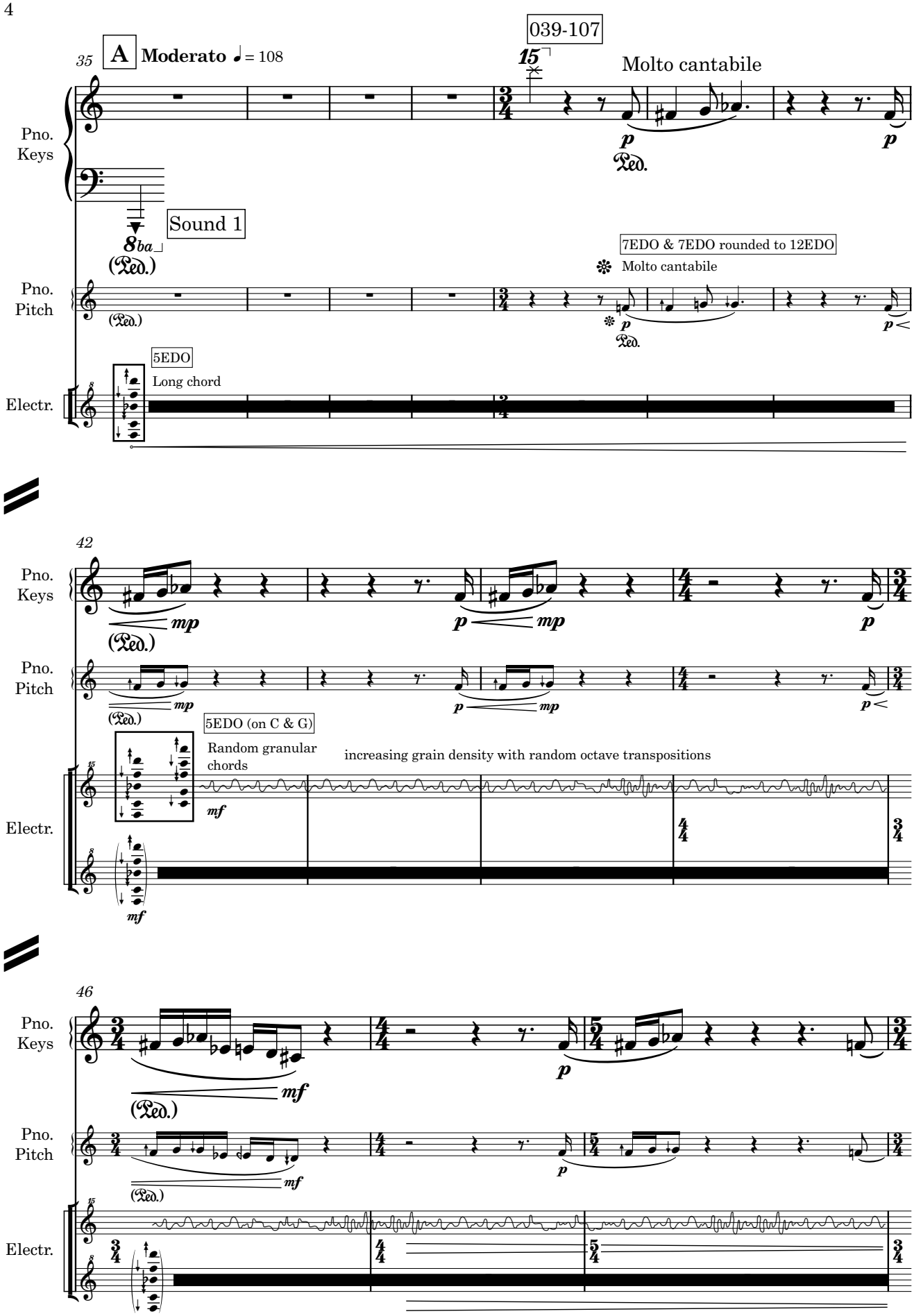
Pno.
Pitch

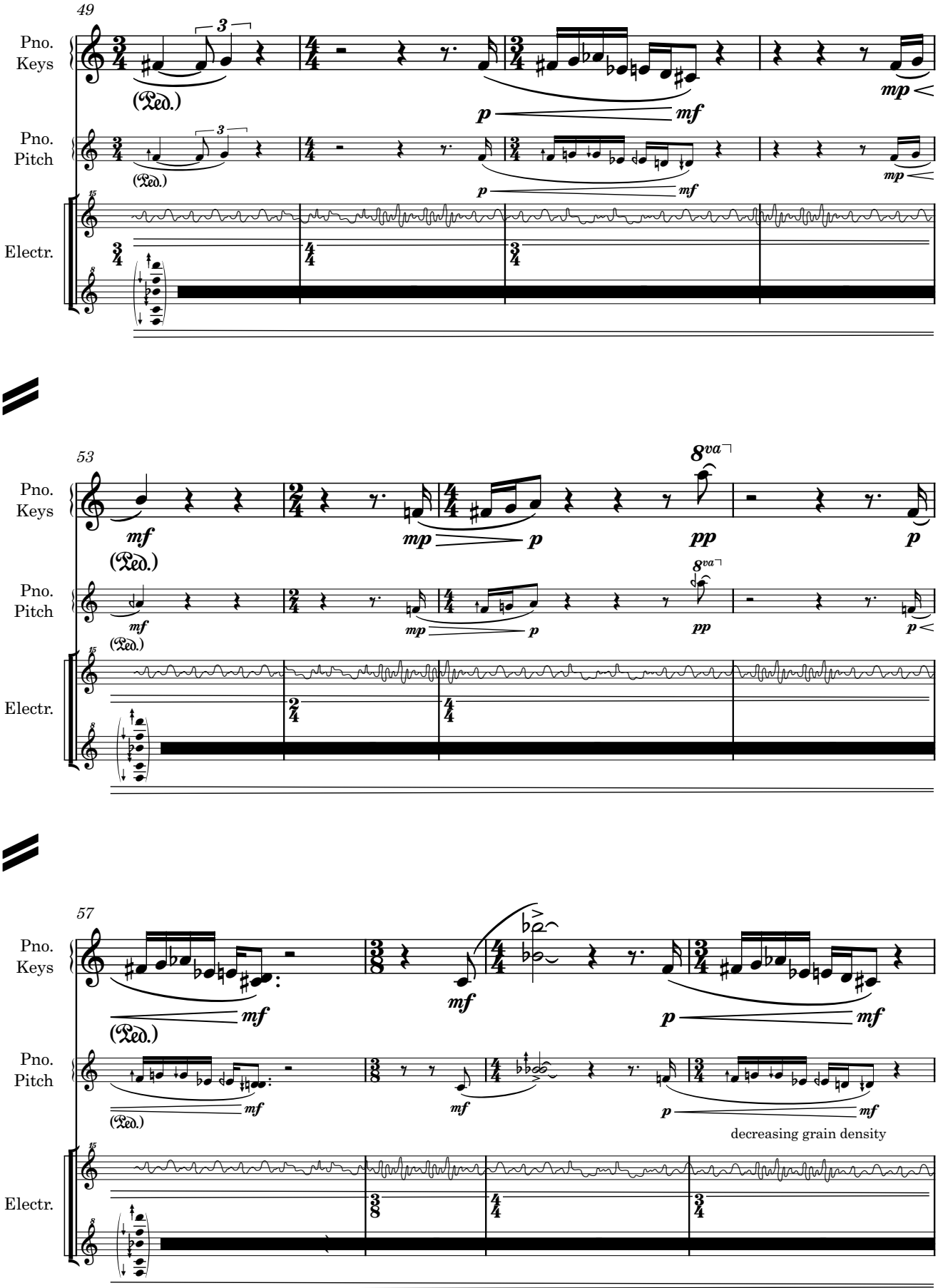
18

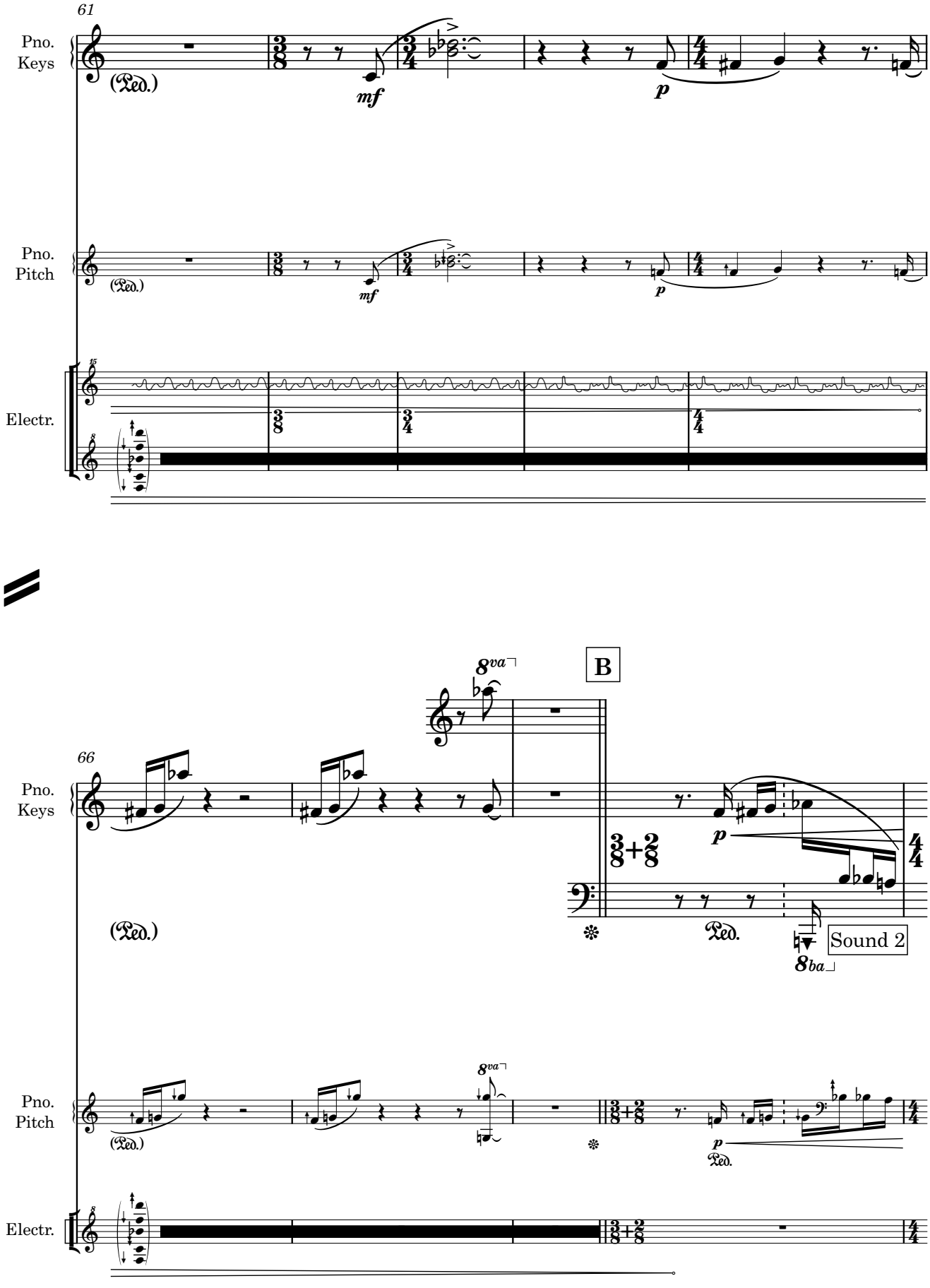
Pno.
Keys

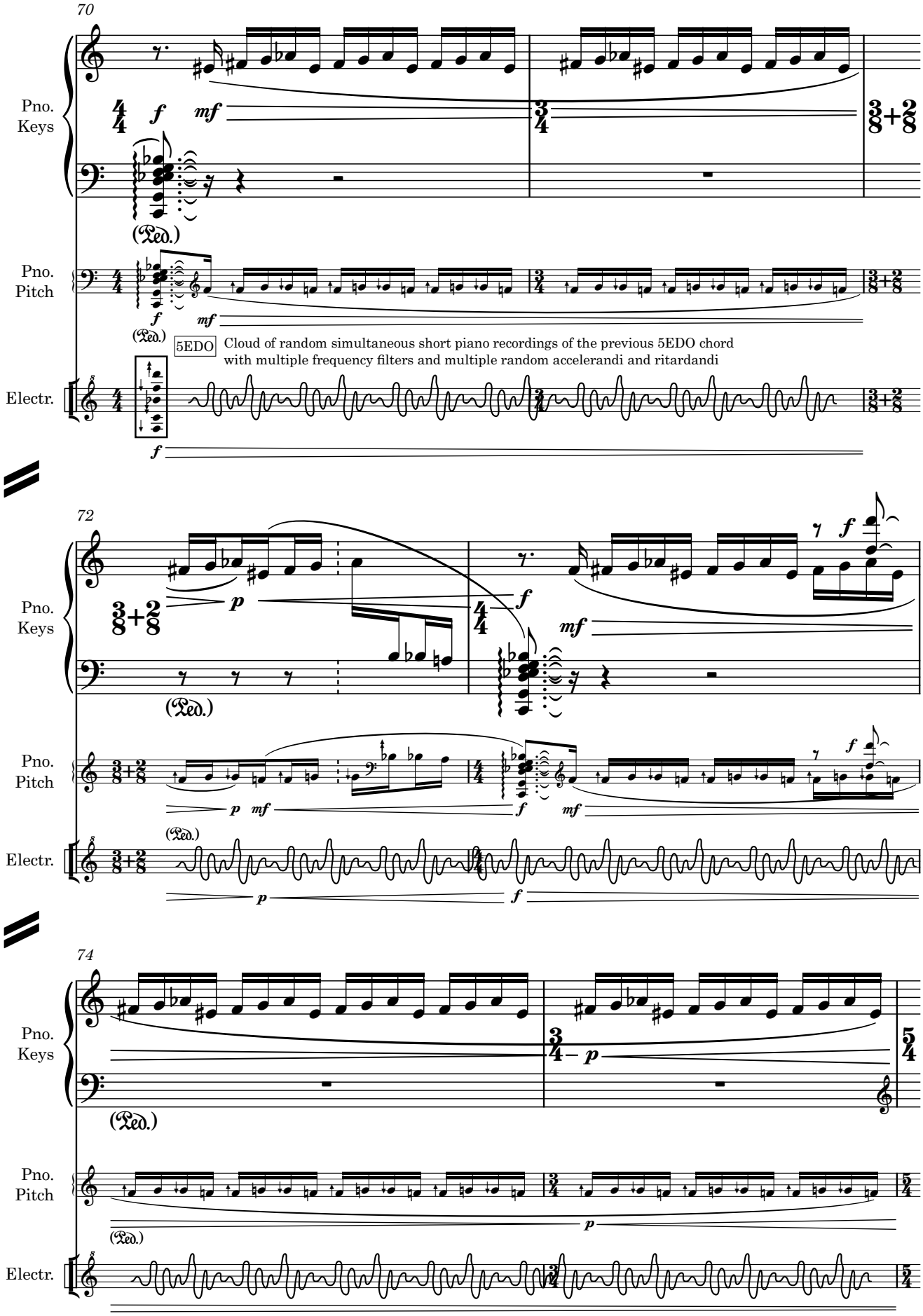
Pno.
Pitch

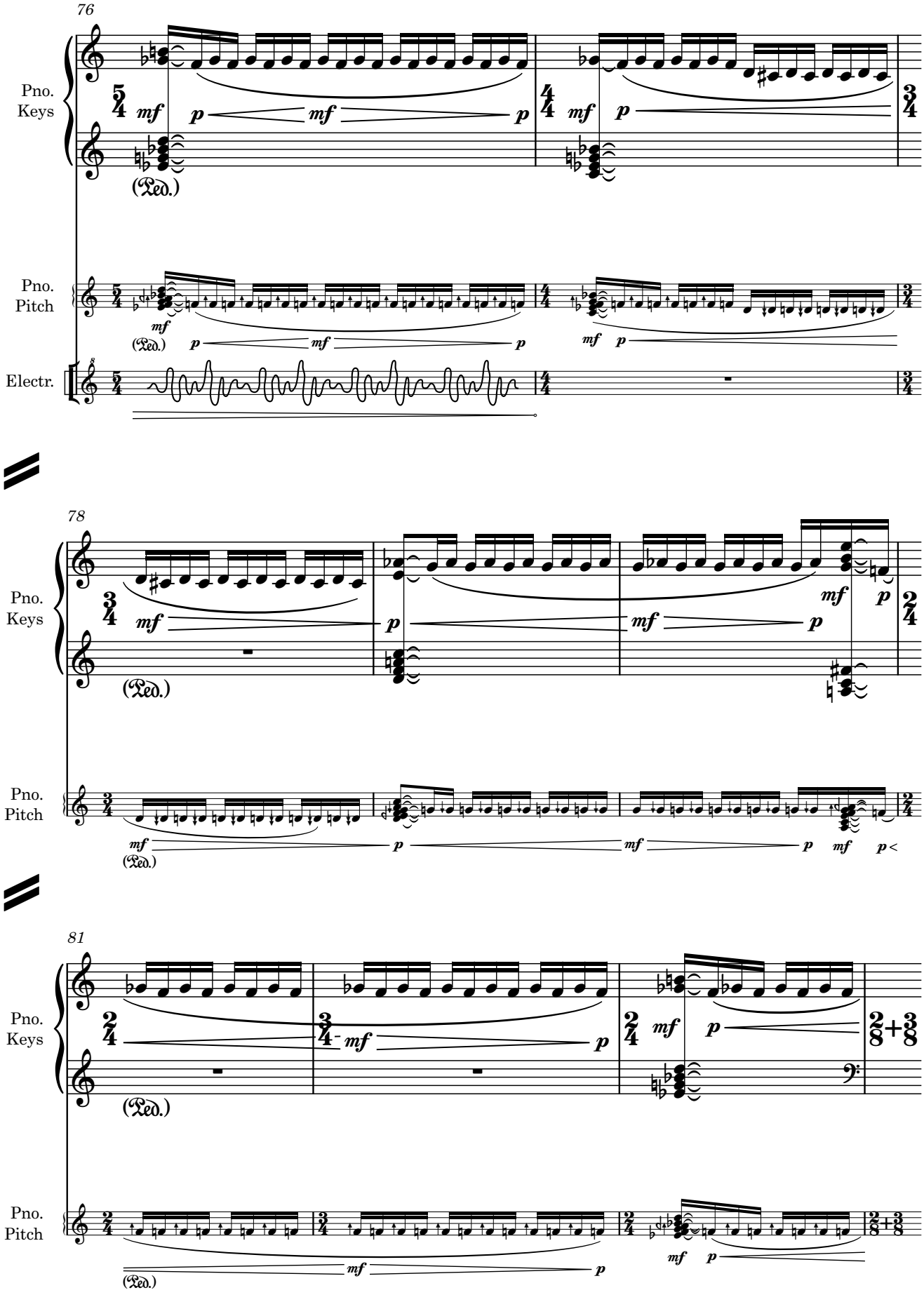

024-029
24
15ma
Pno.
Keys
pp
p
mp
mf
3
4/4
B: 5EDO
W: 7EDO rounded to 50EDO
7EDO
Pno.
Pitch
030-038
30
15
8va
8
Slow
arpeggio
(Ped.)
5EDO

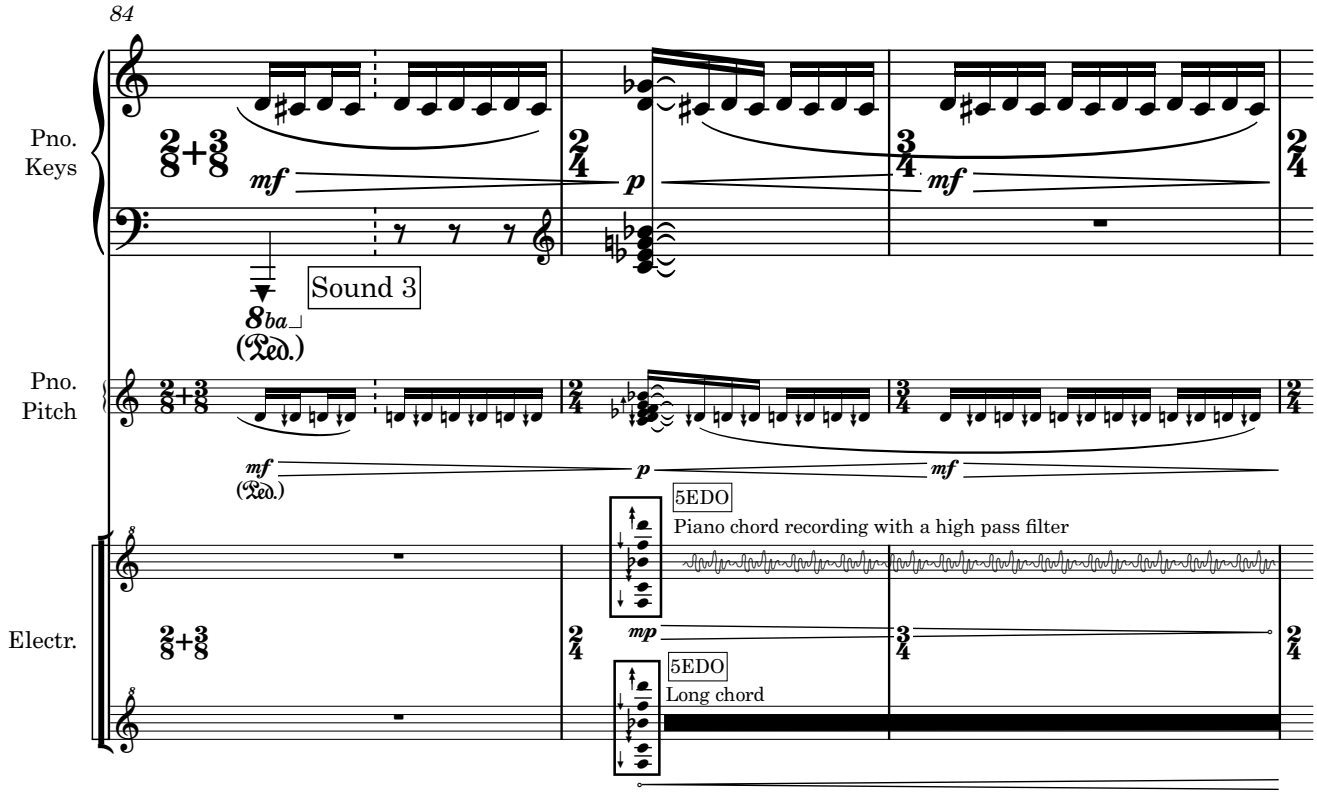

35
A
Moderato ♩ = 108
039-107
15
Molto cantabile
Pno. Keys
Sound 1
8ba
(Ped.)
7EDO & 7EDO rounded to 12EDO
Molto cantabile
Pno. Pitch
5EDO
Long chord
Electr.
42
mp
p
mp
5EDO (on C & G)
Random granular chords
increasing grain density with random octave transpositions
mf
46
mf
p

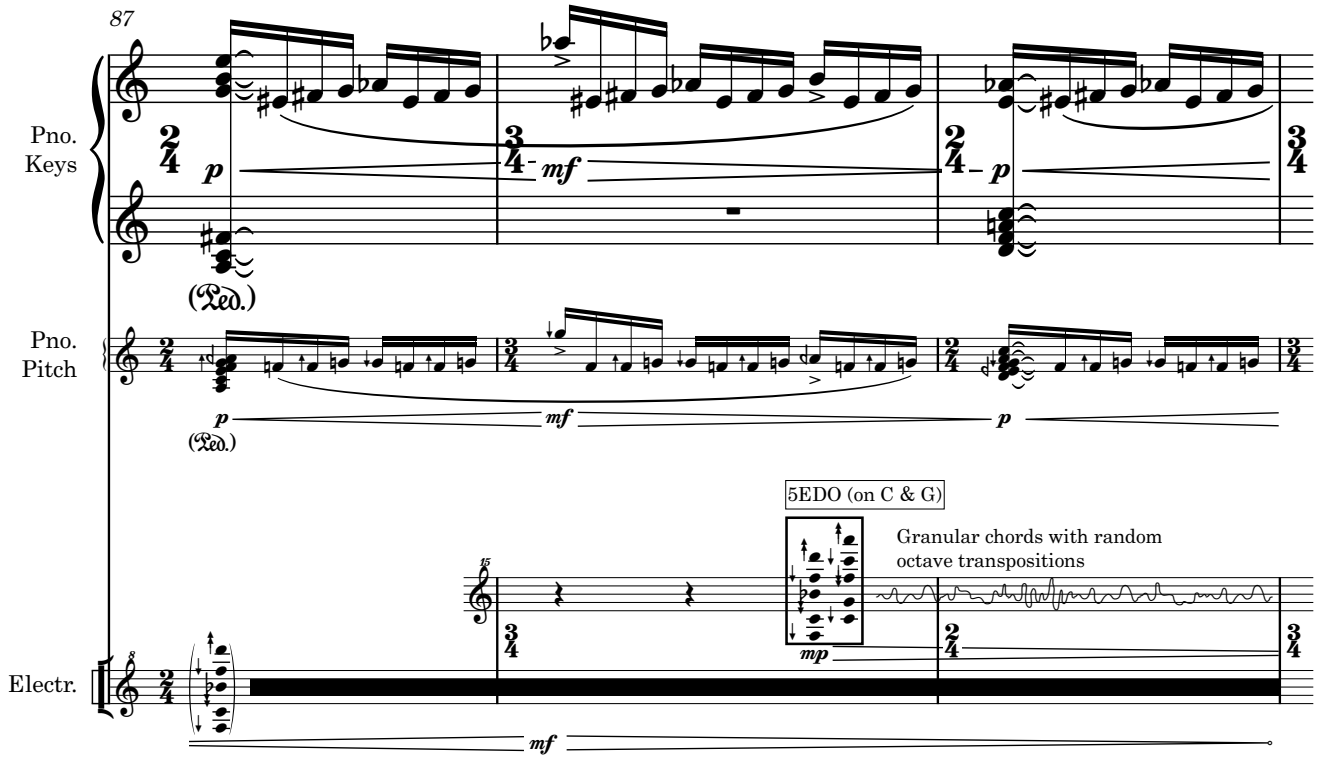

49
Pno. Keys
Pno. Pitch
Electr.
53
57
decreasing grain density

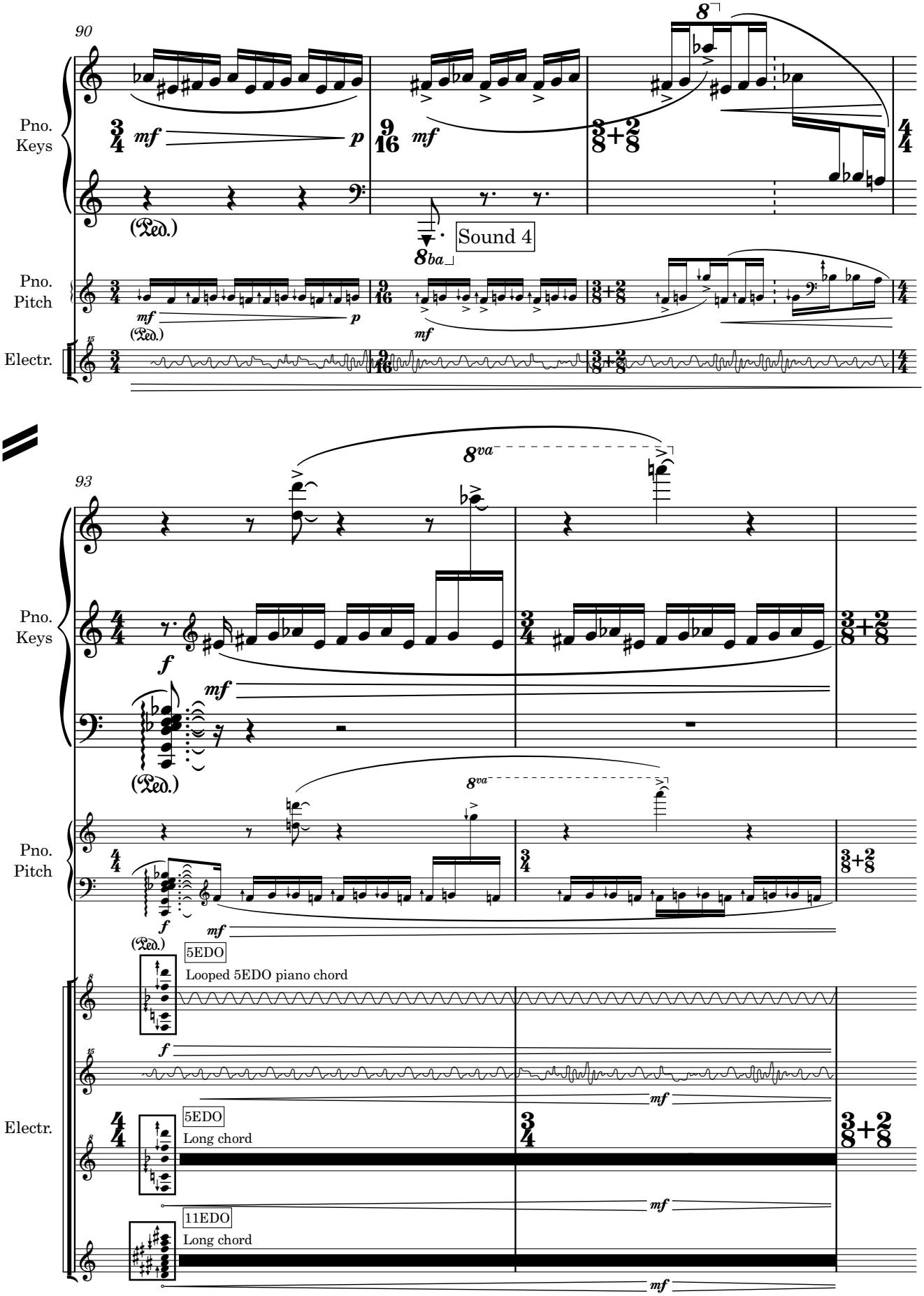

61
Pno.
Keys
(Ped.)
mf
p
Pno.
Pitch
(Ped.)
mf
p
15
Electr.
B
8va
66
Pno.
Keys
(Ped.)
p
Ped.
Sound 2
8ba
Pno.
Pitch
(Ped.)
8va
p
Ped.
Electr.

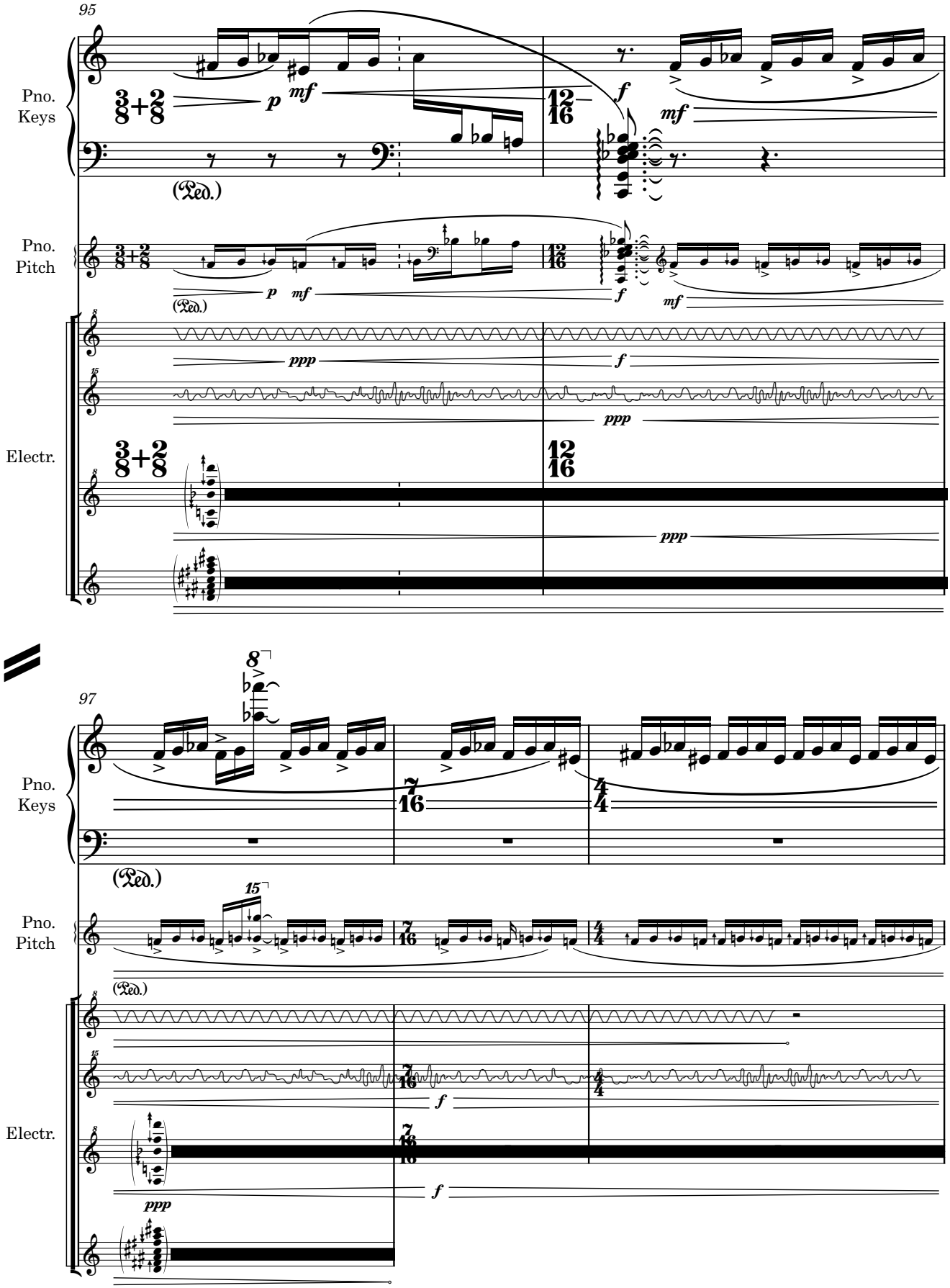

70
Pno. Keys
Pno. Pitch
Electr.
5EDO
Cloud of random simultaneous short piano recordings of the previous 5EDO chord
with multiple frequency filters and multiple random accelerandi and ritardandi
72
74

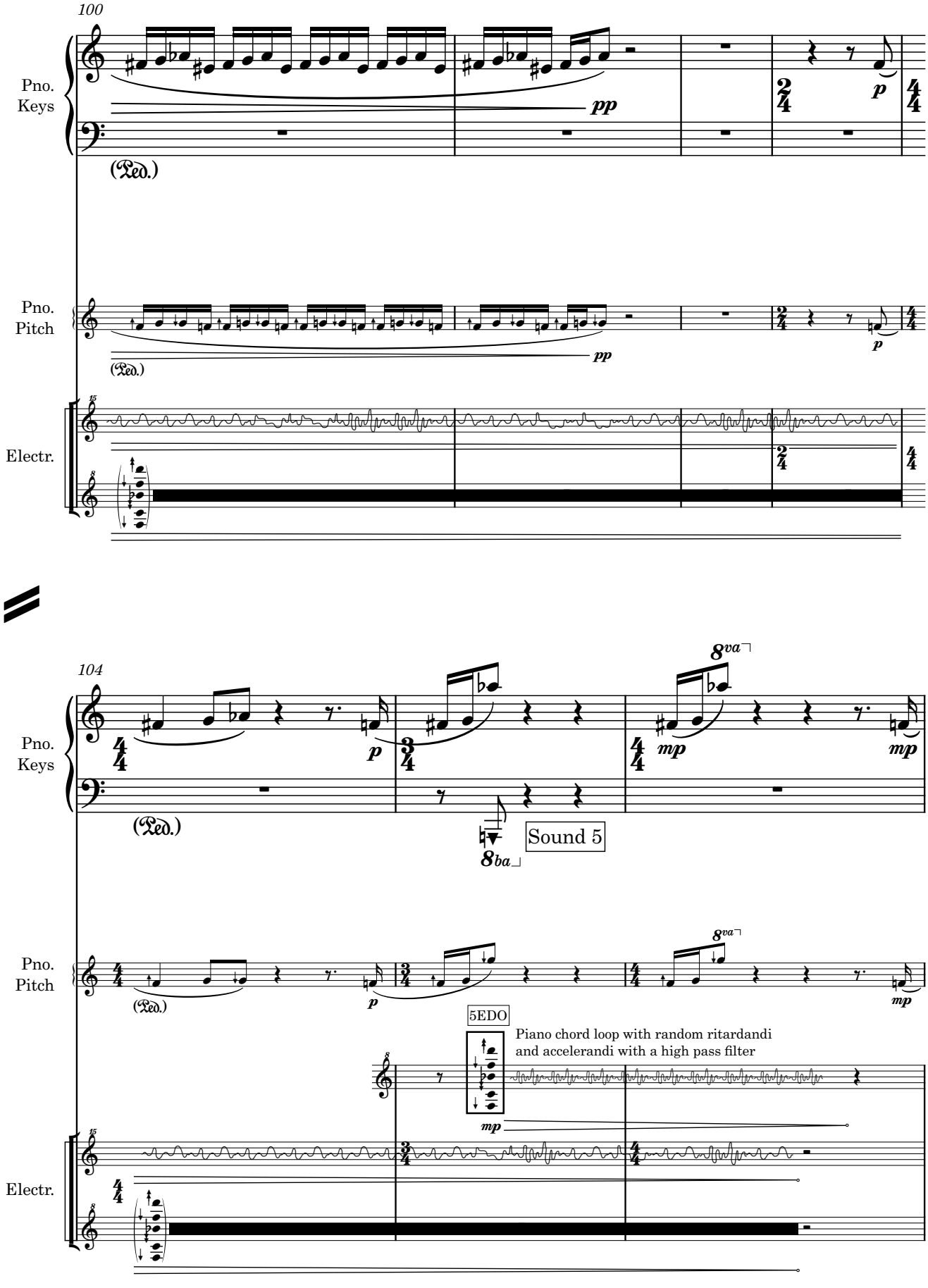

76
Pno.
Keys
Pno.
Pitch
Electr.
78
81

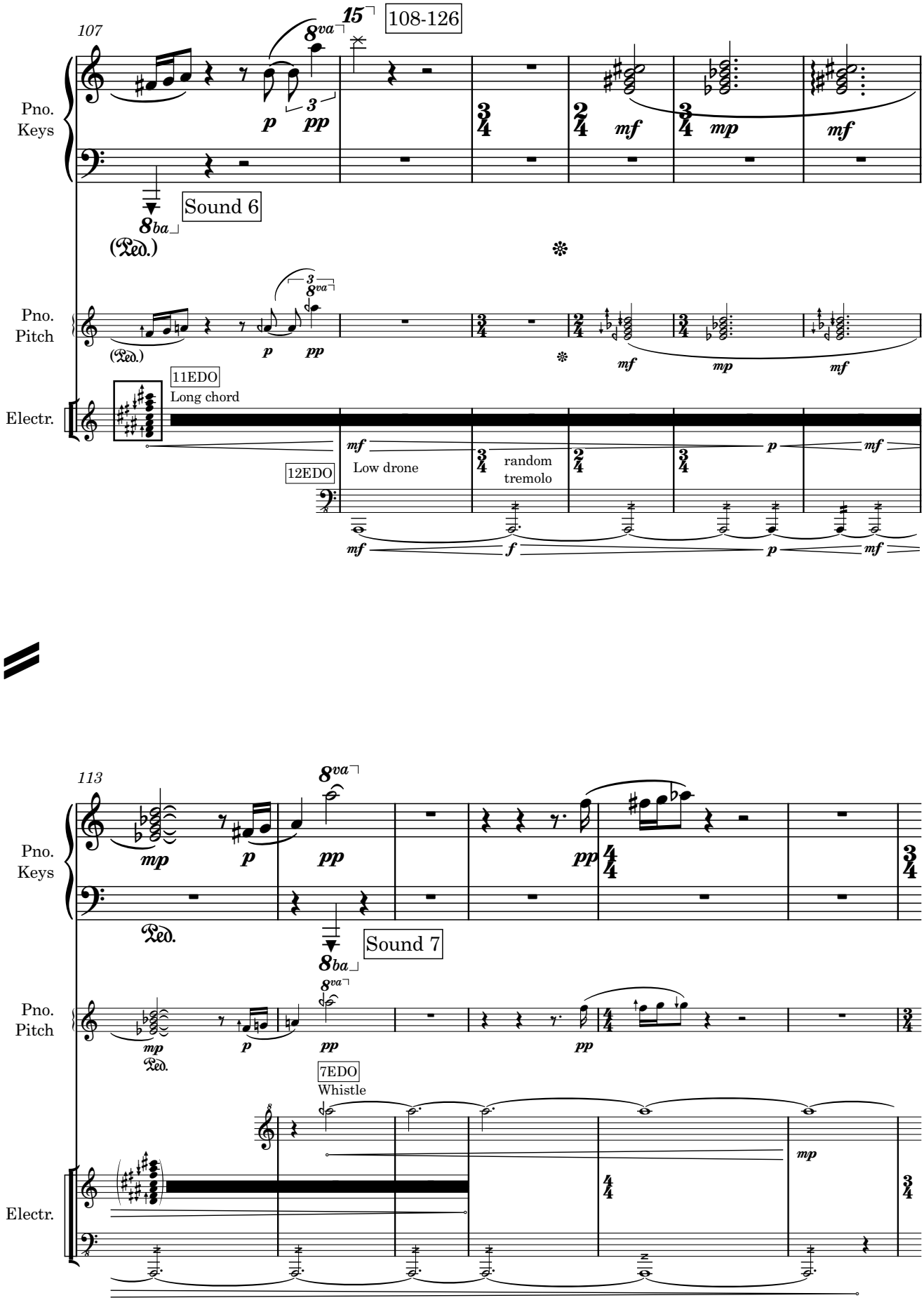

84
Pno.
Keys
Sound 3
8ba
(Ped.)
Pno.
Pitch
(Ped.)
Electr.
5EDO
Piano chord recording with a high pass filter
5EDO
Long chord

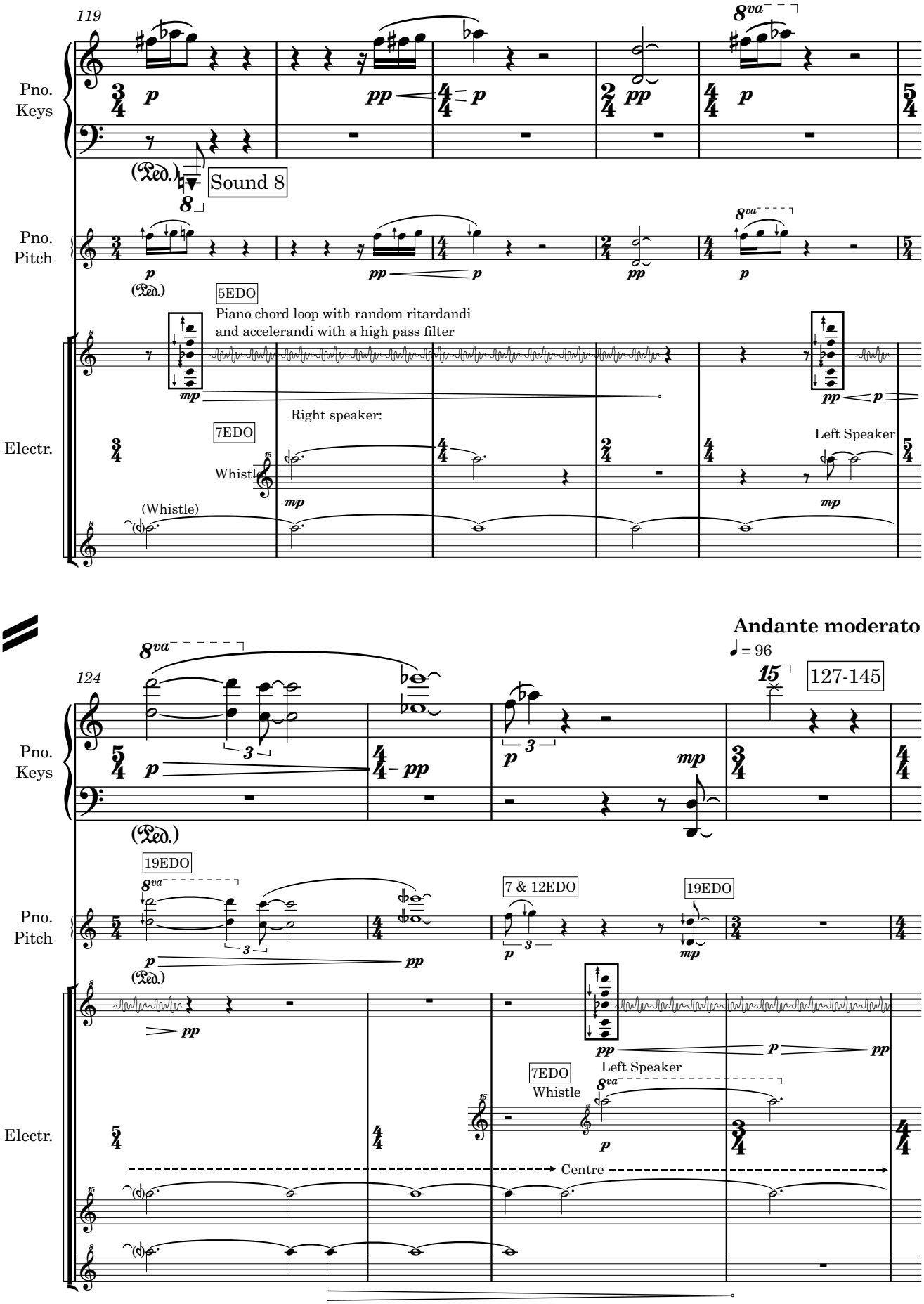

87
Pno.
Keys
(Ped.)
Pno.
Pitch
(Ped.)
5EDO (on C & G)
Granular chords with random
octave transpositions
Electr.

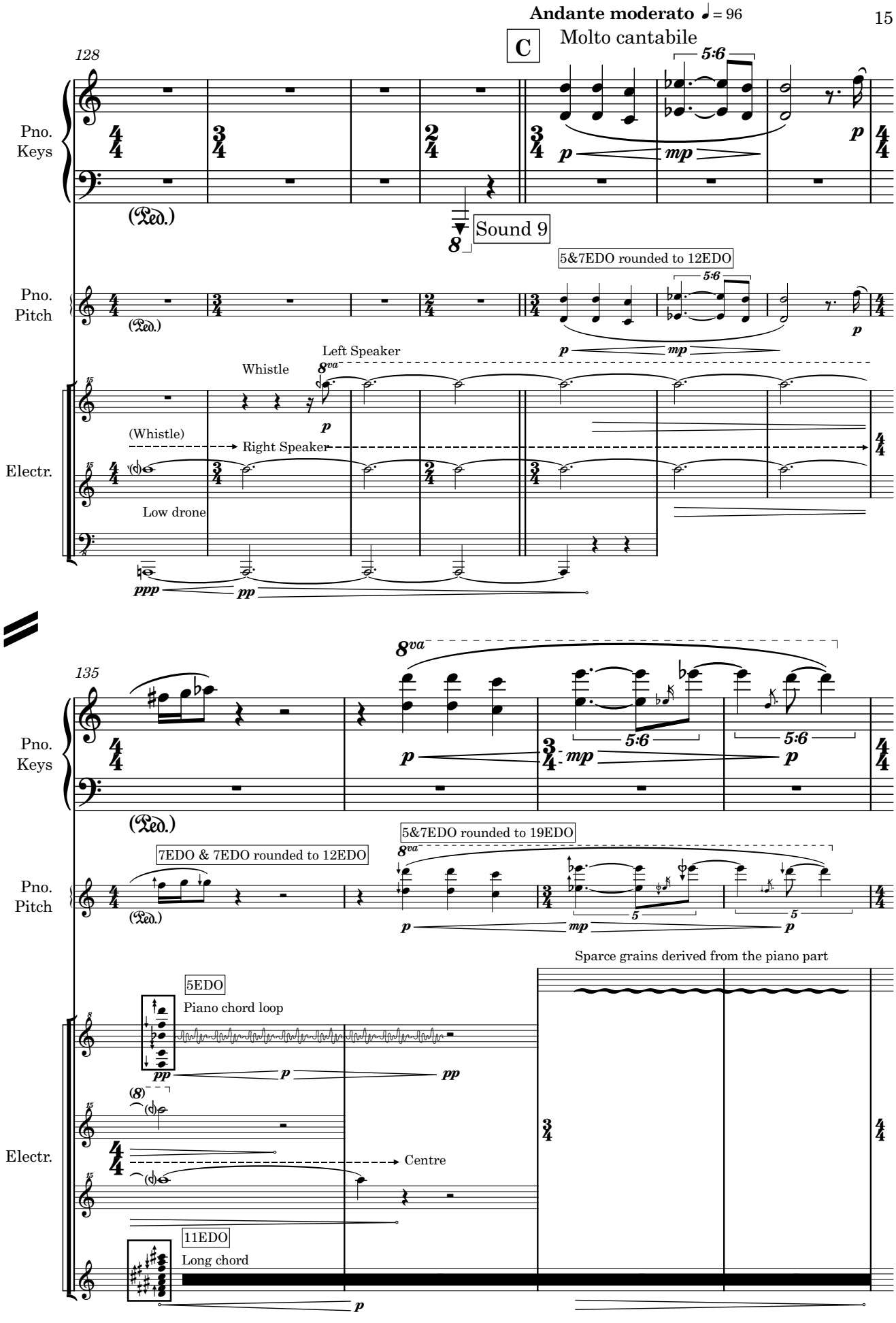

90
Pno.
Keys
Pno.
Pitch
Electr.
Sound 4
93
Pno.
Keys
Pno.
Pitch
5EDO
Looped 5EDO piano chord
Electr.
5EDO
Long chord
11EDO
Long chord

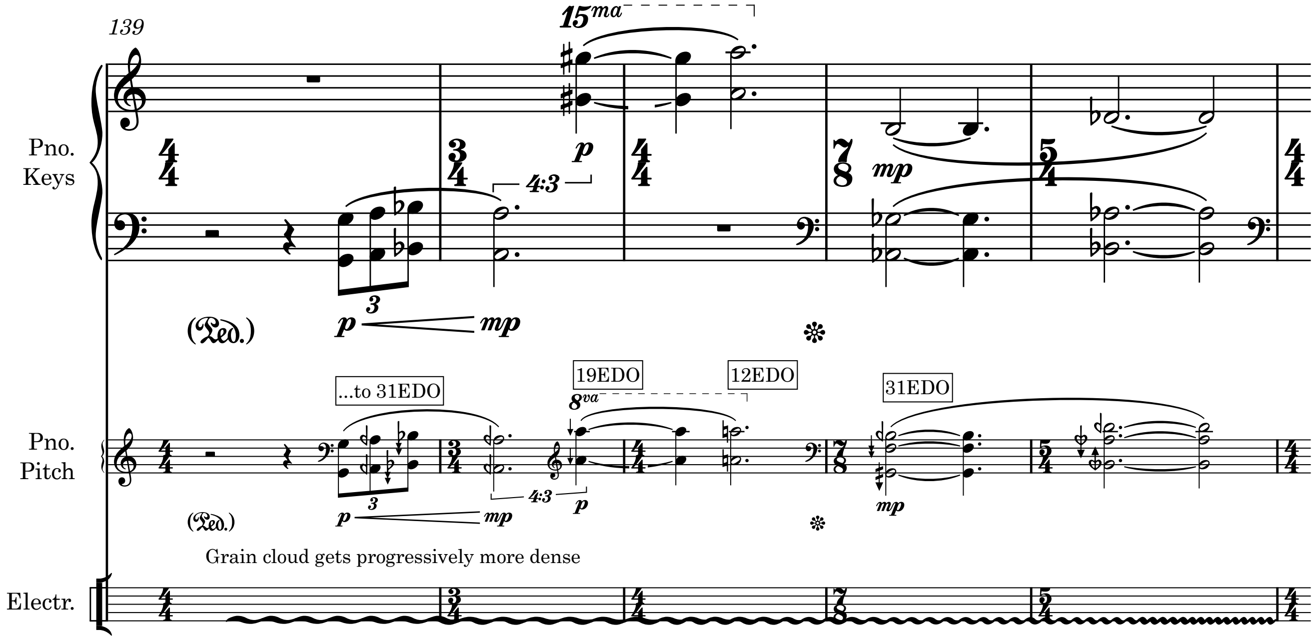

95
Pno.
Keys
Pno.
Pitch
Electr.
97
Pno.
Keys
Pno.
Pitch
Electr.

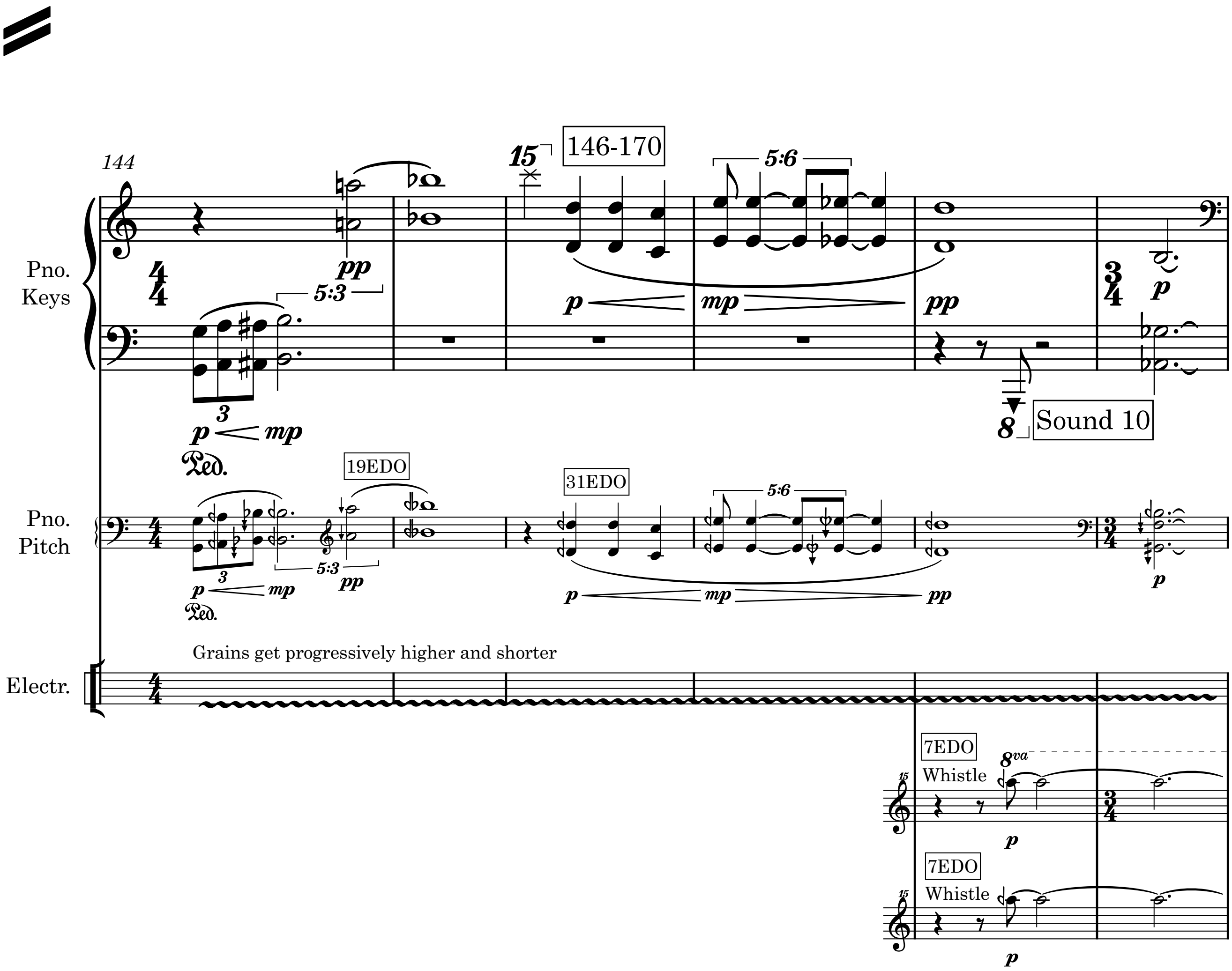

100
Pno.
Keys
pp
(Ped.)
p
Pno.
Pitch
pp
(Ped.)
p
Electr.
104
Pno.
Keys
p
mp
8va
mp
(Ped.)
8ba
Sound 5
Pno.
Pitch
p
8va
mp
(Ped.)
5EDO
Piano chord loop with random ritardandi
and accelerandi with a high pass filter
mp
Electr.

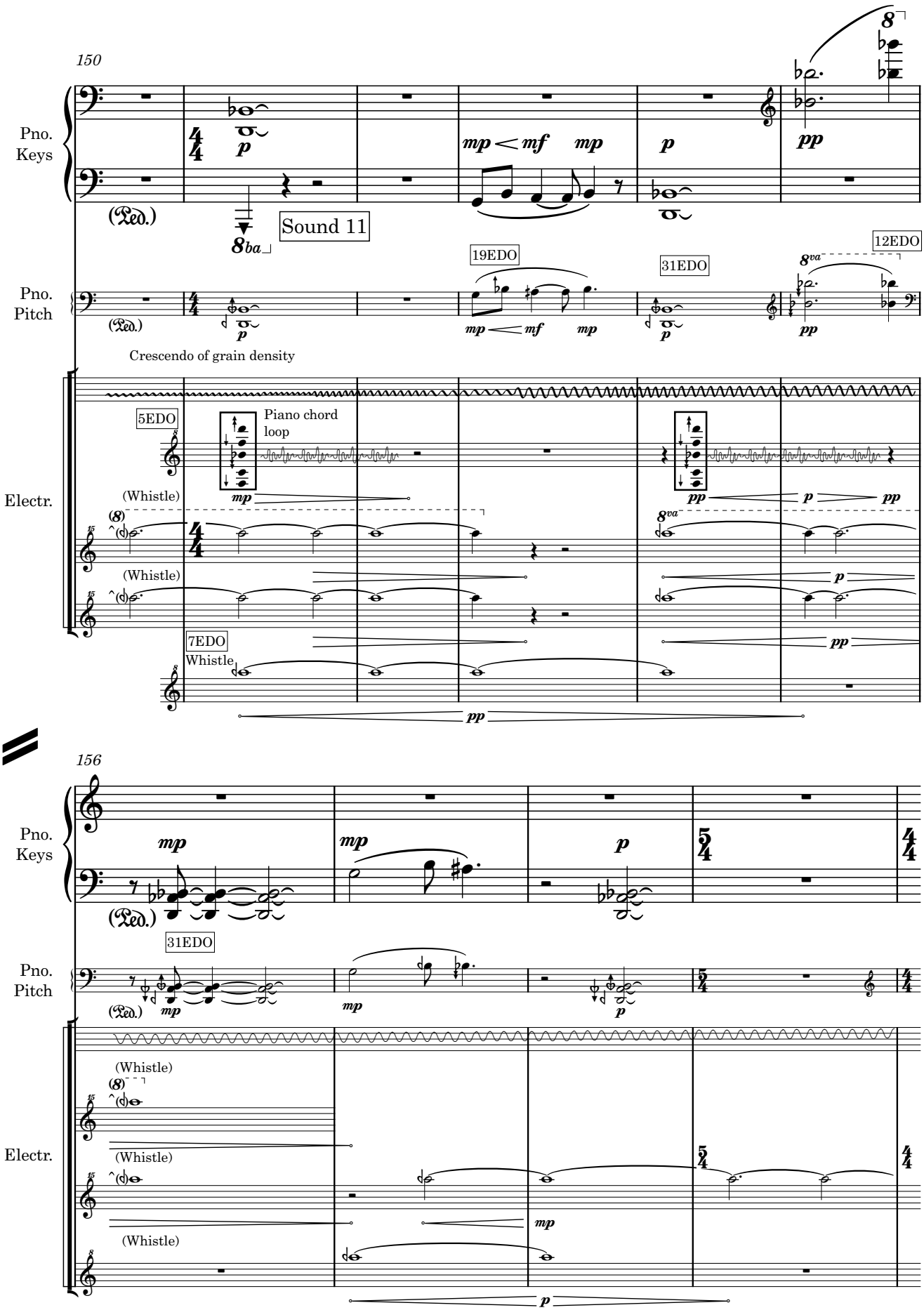

107
15
108-126
Pno.
Keys
Sound 6
(Ped.)
Pno.
Pitch
11EDO
Long chord
Electr.
12EDO
Low drone
random
tremolo
113
Sound 7
7EDO
Whistle

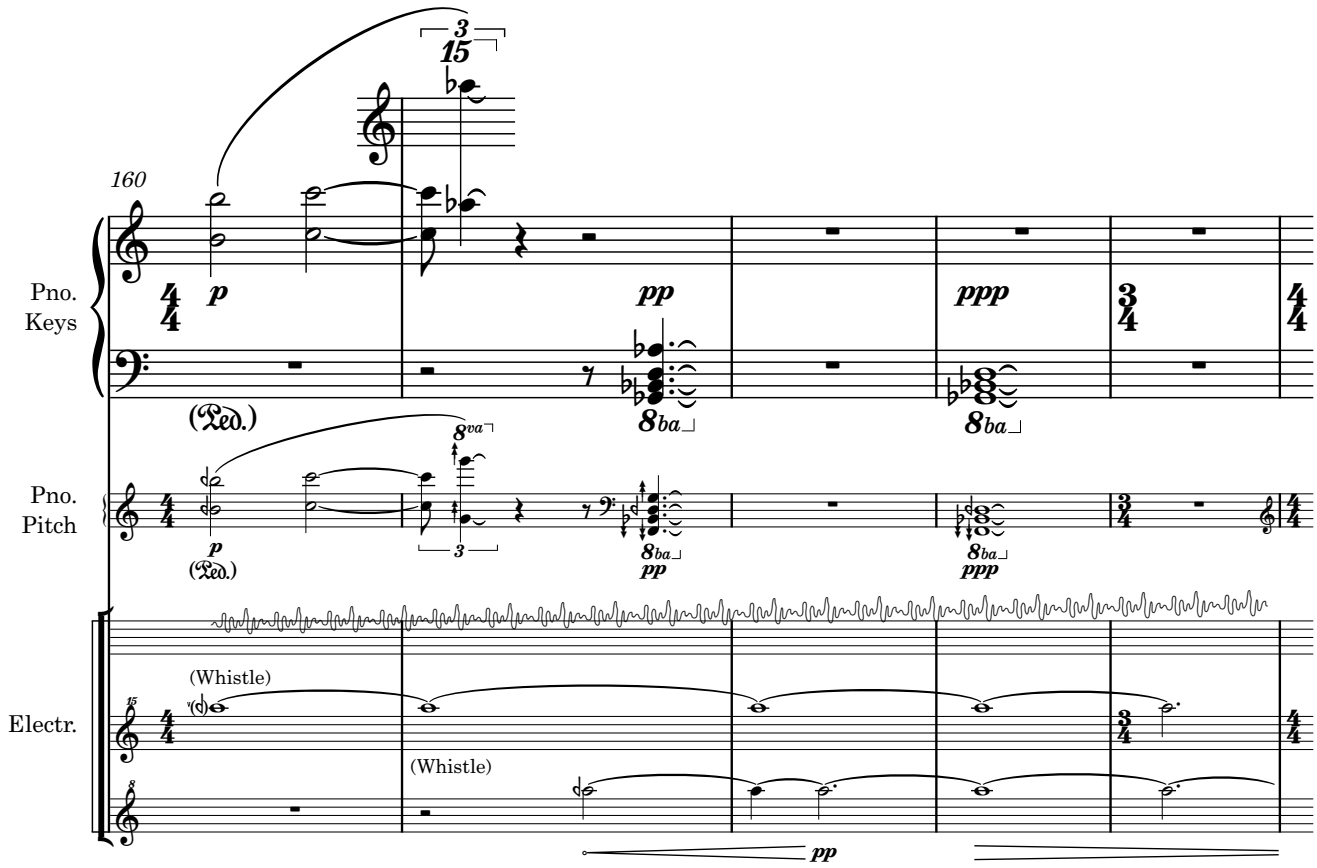

119
Pno. Keys
Sound 8
Pno. Pitch
5EDO
Piano chord loop with random ritardandi and accelerandi with a high pass filter
Electr.
7EDO
Whistle
Right speaker:
Left Speaker
(Whistle)
Andante moderato
♩ = 96
124
127-145
19EDO
7 & 12EDO
Centre

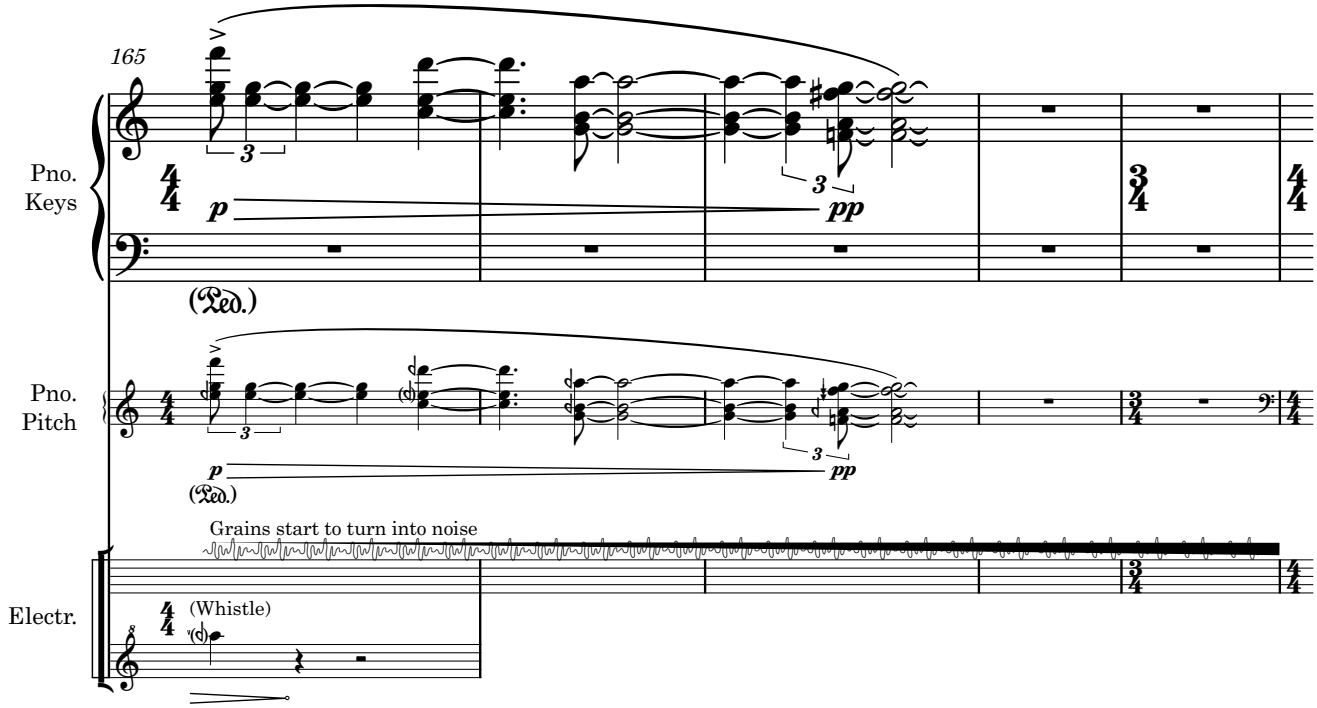

Andante moderato ♩ = 96
C
Molto cantabile
128
Pno. Keys
(Ped.)
Sound 9
Pno. Pitch
5&7EDO rounded to 12EDO
Left Speaker
Whistle
(Whistle)
Right Speaker
Electr.
Low drone
135
7EDO & 7EDO rounded to 12EDO
5&7EDO rounded to 19EDO
Sparce grains derived from the piano part
5EDO
Piano chord loop
Centre
11EDO
Long chord

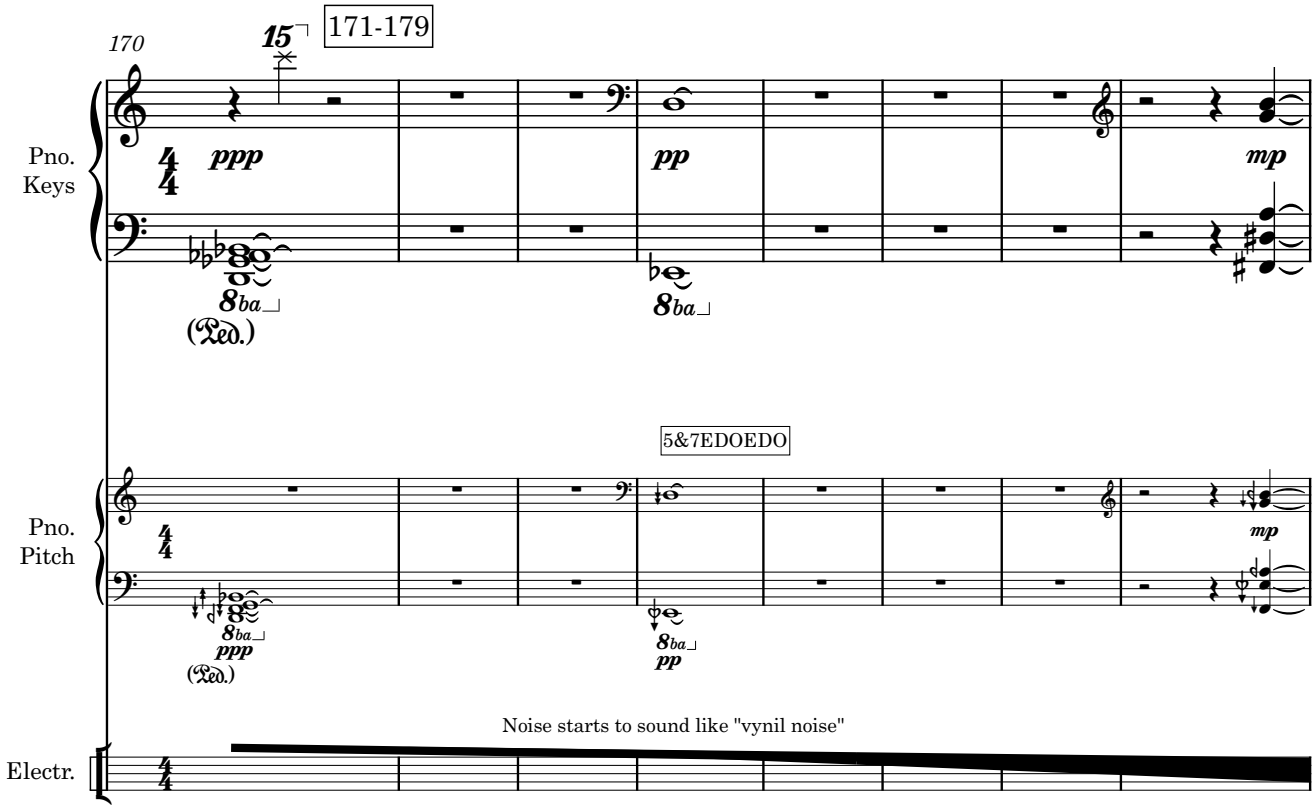

139
Pno.
Keys
15ma
4:3
(Ped.)
...to 31EDO
19EDO
12EDO
31EDO
8va
Pno.
Pitch
Grain cloud gets progressively more dense
Electr.

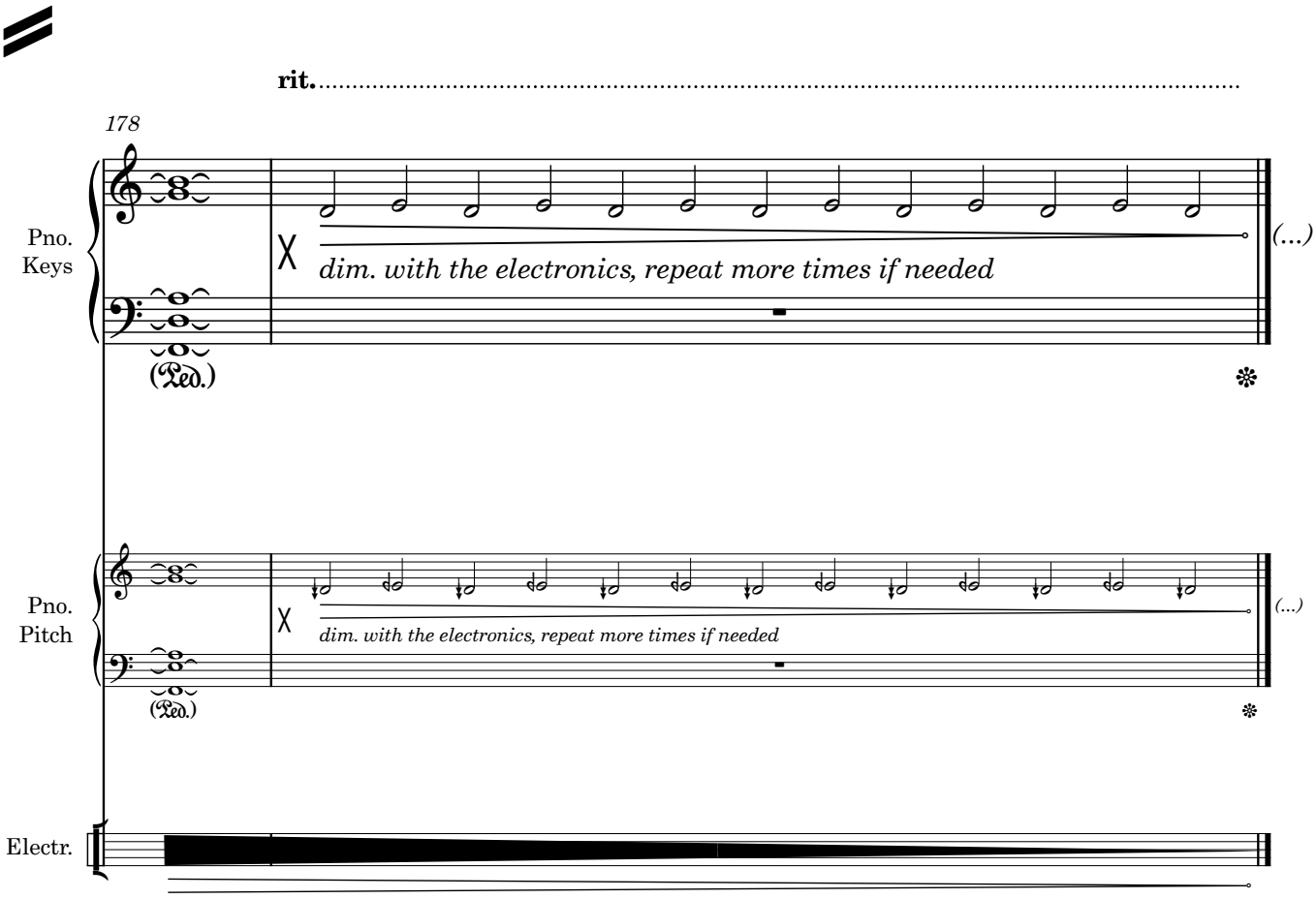

144
Pno.
Keys
146-170
5:6
5:3
Sound 10
19EDO
31EDO
Pno.
Pitch
Grains get progressively higher and shorter
Electr.
7EDO
Whistle
8va
7EDO
Whistle


150
Pno. Keys
Pno. Pitch
Electr.
Sound 11
19EDO
31EDO
12EDO
Crescendo of grain density
5EDO
Piano chord loop
(Whistle)
7EDO
Whistle
156
31EDO


160
Pno.
Keys
Pno.
Pitch
Electr.
(Whistle)
(Whistle)
(Ped.)
8ba
8va


165
Pno.
Keys
Pno.
Pitch
Electr.
(Whistle)
(Ped.)
Grains start to turn into noise


170
15
171-179
Pno.
Keys
ppp
pp
mp
8ba
(Ped.)
5&7EDOEDO
Pno.
Pitch
mp
ppp
Noise starts to sound like "vynil noise"
Electr.


rit.
178
Pno.
Keys
dim. with the electronics, repeat more times if needed
(...)
(Ped.)
Pno.
Pitch
dim. with the electronics, repeat more times if needed
(...)
Electr.