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Citation: Finisterra, P. F. L. (2024). (Un)Equal Tunings: Exploring multiple levels of resolution between equal tunings and intonational practices in composition. (Unpublished Doctoral thesis, Guildhall School of Music and Drama)

This is the accepted version of the paper.

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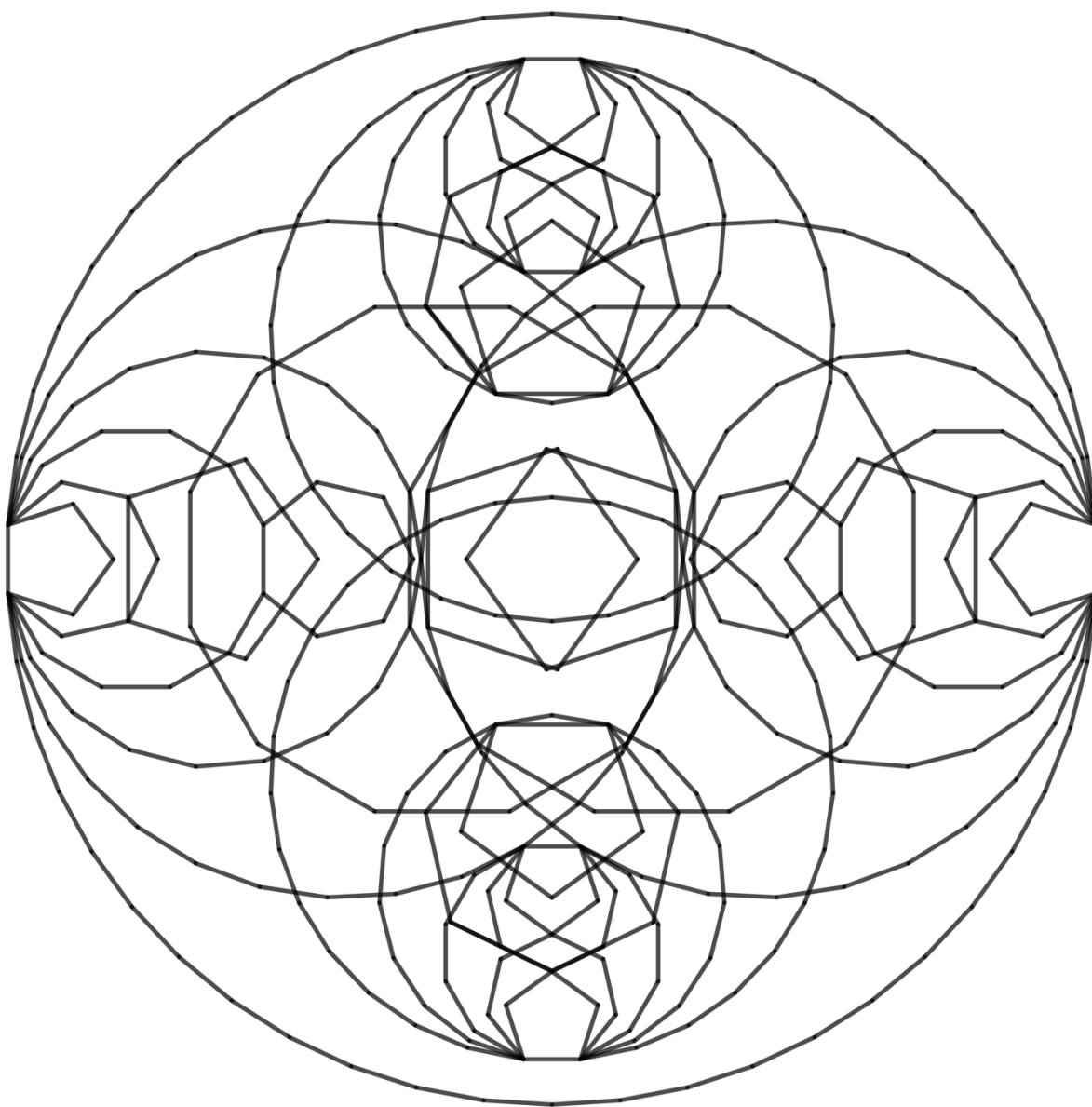
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Dreams from an Old Memory Sonhos de uma Memória Antiga

for Electric Piano and Electronics



Pedro Laranjeira Finisterra
December 2020 / Re-edited: July 2024

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.

Accidentals

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

- Chromatic: $\flat$ $\sharp$
- Quarter tones: $\flat^{\downarrow}$ $\sharp^{\downarrow}$ and Three-Quarter tones: $\flat^{\downarrow\downarrow}$ $\sharp^{\downarrow\downarrow}$
- Sixth tones: $\downarrow$ $\uparrow$
- and Twelfth tones: $\downarrow\downarrow$ $\uparrow\uparrow$

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: $\flat^{\downarrow\downarrow}$ $\sharp^{\downarrow\downarrow}$ $\flat^{\downarrow\downarrow\downarrow}$ $\sharp^{\downarrow\downarrow\downarrow}$). 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 $\sharp$ would never be mapped to a C key, but a low B $\flat$ could be mapped to an A key if the next one was a higher B $\flat$, 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

5EDO	5EDO rounded to 12EDO	5EDO rounded to 19EDO
		
5EDO rounded to 31EDO	5EDO rounded to 50EDO (= 5EDO)	
		
7EDO	7EDO rounded to 12EDO	
		
7EDO rounded to 19EDO	7EDO rounded to 31EDO	
		
7EDO rounded to 50EDO	11EDO	
		

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 $D^{\wedge\wedge}$ 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 $F\neq$ it could be notated as a $D\neq v$ 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

Pedro Laranjeira Finisterra

Ad Lib ♩ = 108

001-012 Molto cantabile

Piano Keys

1

8^{va}

p *mp* *p* *mp* *p*

4/4

Red. *

Piano Pitch

Molto cantabile

Black Keys: 5EDO
White Keys: 7EDO

8^{va}

p *mp* *p* *mp* *p*

4/4

Electronics

X

4/4



2 Expressivo ♩ = 108 15

Pno. Keys

4/4 *mp* 5/4 *p* 4/4 *mf* 3/4 *f* 4/4

Red.

Pno. Pitch

4/4 *mp* 5/4 *p* 4/4 *mf* 3/4 *f* 4/4

Red.

2

8

Slower arpeggio

Pno. Keys

4/4 *mf*

3/4 *p* *mp* *p*

15 *p*

15^{ma} *p*

Pno. Pitch

4/4 *mf*

3/4 *p* *mp* *p*

15^{ma} *p*

15^{ma} *p*

(Red.)



Pno. Keys

13 *p* *mp* *p*

8^{va} *pp*

15 *pp*

5 *mp*

2/4 4/4

(Red.)

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

B: 5EDO
W: 7EDO

Pno. Pitch

13 *p* *mp* *p*

8^{va} *pp*

15 *pp*

5 *mp*

2/4 4/4

(Red.)



Pno. Keys

18 *mf*

3/4 *mf*

3 *p*

(Red.)

mp

8

Pno. Pitch

18 *mf*

3/4 *mf*

3 *p*

(Red.)

mp

8

024-029

24 *15^{ma}*

Pno. Keys

pp $\triangleleft$ *p*

mp

mf *3* *4* *p*

Pno. Pitch

B: 5EDO
W: 7EDO rounded to 50EDO

pp $\triangleleft$ *p*

mp

mf *3* *p*



030-038

30 *15*

Pno. Keys

p

3 *p* *mf*

8^{va}

Slow arpeggio

mp

(Red.)

Pno. Pitch

B: 5EDO
W: 7EDO rounded to 50EDO

p

3 *p* *mf*

8^{va}

5EDO

Slow arpeggio

mp

8^{va}

039-107

35 **A** Moderato ♩ = 108

Pno. Keys

15

Molto cantabile

p *Red.* *p*

Pno. Pitch

Sound 1

8^{ba} (*Red.*)

7EDO & 7EDO rounded to 12EDO

Molto cantabile

p *Red.* *p* <

Electr.

5EDO

Long chord

42

Pno. Keys

mp *p* *mp* *p*

(*Red.*)

Pno. Pitch

mp *p* *mp* *p*

(*Red.*)

5EDO (on C & G)

Random granular chords

increasing grain density with random octave transpositions

Electr.

mf *p*

4/4 3/4

46

Pno.
Keys

mf *p*

(*Red.*)

Pno.
Pitch

mf *p*

(*Red.*)

Electr.

49

Pno. Keys

Pno. Pitch

Electr.

(Red.)

mp <

p — *mf*

p — *mf*

mp <

3/4 4/4 3/4



53

Pno. Keys

Pno. Pitch

Electr.

mf (Red.)

mp — *p*

pp

p

mf (Red.)

mp — *p*

pp

p <

8va

8va

2/4 4/4



57

Pno. Keys

Pno. Pitch

Electr.

mf (Red.)

mf

p — *mf*

mf (Red.)

mf

p — *mf*

decreasing grain density

3/8 4/4 3/4

61

Pno. Keys

(Led.)

mf

p

Pno. Pitch

(Led.)

mf

p

Electr.

55



66

Pno. Keys

(Led.)

8va

B

p

8ba

Sound 2

Pno. Pitch

(Led.)

8va

p

Electr.

70

Pno. Keys

$\frac{4}{4}$ *f* *mf* $\frac{3}{4}$ $\frac{3}{8} + \frac{2}{8}$

(Led.)

Pno. Pitch

f *mf* $\frac{3}{8} + \frac{2}{8}$

(Led.)

Electr.

$\frac{4}{4}$ *f* $\frac{3}{8} + \frac{2}{8}$

Cloud of random simultaneous short piano recordings of the previous 5EDO chord with multiple frequency filters and multiple random accelerandi and ritardandi

72

Pno. Keys

$\frac{3}{8} + \frac{2}{8}$ *p* $\frac{4}{4}$ *f* *mf* $\frac{3}{8} + \frac{2}{8}$

(Led.)

Pno. Pitch

p *mf* *f* *mf* $\frac{3}{8} + \frac{2}{8}$

(Led.)

Electr.

p *f* $\frac{3}{8} + \frac{2}{8}$

74

Pno. Keys

$\frac{3}{4}$ *p* $\frac{5}{4}$

(Led.)

Pno. Pitch

p $\frac{5}{4}$

(Led.)

Electr.

$\frac{5}{4}$

76

Pno. Keys

$\frac{5}{4}$ *mf* *p* *mf* *p* $\frac{4}{4}$ *mf* *p* $\frac{3}{4}$

(Red.)

Pno. Pitch

mf *p* *mf* *p* *mf* *p*

Electr.

78

Pno. Keys

$\frac{3}{4}$ *mf* *p* *mf* *p* $\frac{2}{4}$

(Red.)

Pno. Pitch

mf *p* *mf* *p* *mf* *p* <

81

Pno. Keys

$\frac{2}{4}$ *mf* *p* $\frac{2}{4}$ *mf* *p* $\frac{2}{8} + \frac{3}{8}$

(Red.)

Pno. Pitch

mf *p* *mf* *p*

84

Pno. Keys

$\frac{2}{8} + \frac{3}{8}$ *mf* $\frac{2}{4}$ *p* $\frac{3}{4}$ *mf* $\frac{2}{4}$

Sound 3

8^{ba}_{ed} (Led.)

Pno. Pitch

mf (Led.) *p* *mf*

Electr.

$\frac{2}{8} + \frac{3}{8}$ $\frac{2}{4}$ *mp* $\frac{3}{4}$ $\frac{2}{4}$

5EDO
Piano chord recording with a high pass filter

5EDO
Long chord



87

Pno. Keys

$\frac{2}{4}$ *p* $\frac{3}{4}$ *mf* $\frac{2}{4}$ *p* $\frac{3}{4}$

(Led.)

Pno. Pitch

p (Led.) *mf* *p*

Electr.

$\frac{2}{4}$ $\frac{3}{4}$ $\frac{2}{4}$ $\frac{3}{4}$

5EDO (on C & G)

Granular chords with random octave transpositions

90

Pno. Keys

$\frac{3}{4}$ *mf* $\frac{9}{16}$ *p* *mf* $\frac{3}{8} + \frac{2}{8}$ $\frac{4}{4}$

(Red.)

Sound 4

8^{va}

Pno. Pitch

mf *p* *mf*

(Red.)

Electr.

$\frac{3}{4}$ $\frac{9}{16}$ $\frac{3}{8} + \frac{2}{8}$ $\frac{4}{4}$

93

Pno. Keys

f *mf* $\frac{3}{4}$ $\frac{3}{8} + \frac{2}{8}$

(Red.)

8^{va}

Pno. Pitch

f *mf* $\frac{3}{4}$ $\frac{3}{8} + \frac{2}{8}$

(Red.)

5EDO

Looped 5EDO piano chord

Electr.

f *mf* $\frac{3}{4}$ $\frac{3}{8} + \frac{2}{8}$

5EDO

Long chord

11EDO

Long chord

mf *mf* *mf*

95

Pno. Keys

$\frac{3}{8} + \frac{2}{8}$ p mf f mf

(Red.)

Pno. Pitch

$\frac{3}{8} + \frac{2}{8}$ p mf f mf

(Red.)

Electr.

$\frac{3}{8} + \frac{2}{8}$ ppp f ppp

$\frac{12}{16}$

97

Pno. Keys

$\frac{7}{16}$ $\frac{4}{4}$

(Red.)

Pno. Pitch

$\frac{15}{16}$ $\frac{7}{16}$ $\frac{4}{4}$

(Red.)

Electr.

$\frac{7}{16}$ $\frac{4}{4}$ f ppp

100

Pno. Keys

(Red.)

Pno. Pitch

(Red.)

Electr.



104

Pno. Keys

(Red.)

Pno. Pitch

(Red.)

Electr.

8va

8ba

Sound 5

5EDO

Piano chord loop with random ritardandi and accelerandi with a high pass filter

107

Pno. Keys

15

8va

108-126

p *pp*

3

mf *mp* *mf*

3/4 2/4 3/4

Sound 6

8ba

(Led.)

Pno. Pitch

(Led.)

p *pp*

3

8va

mf *mp* *mf*

11EDO Long chord

Electr.

mf

12EDO Low drone

3/4 random tremolo

2/4 3/4

p *mf*

mf *f* *p* *mf*



113

Pno. Keys

8va

mp *p* *pp* *pp*

4/4 3/4

(Led.)

Sound 7

8ba

8va

Pno. Pitch

mp *p* *pp* *pp*

(Led.)

7EDO Whistle

Electr.

mp

4/4 3/4

The musical score for 'The Whistle' by John Cage is presented in three systems. The first system, 'Pno. Keys', shows a piano part with a 5/4 time signature, a key signature of one flat, and a tempo of 'Andante moderato' (♩ = 96). The second system, 'Pno. Pitch', shows a piano part with a 5/4 time signature, a key signature of one flat, and a tempo of 'Andante moderato' (♩ = 96). The third system, 'Electr.', shows an electronic part with a 5/4 time signature, a key signature of one flat, and a tempo of 'Andante moderato' (♩ = 96). The score includes various musical notations such as notes, rests, and dynamic markings (pp, p, mp). It also features a 'Centre' line and a 'Left Speaker' line, indicating the spatial arrangement of the sound. The score is divided into measures, with some measures containing multiple notes and rests. The overall structure is complex and non-linear, characteristic of Cage's experimental music.

Andante moderato ♩ = 96 15

Molto cantabile

128

Pno. Keys

4/4 3/4 2/4 3/4 4/4

(Red.)

Sound 9

5&7EDO rounded to 12EDO

5:6

p mp p

Pno. Pitch

4/4 3/4 2/4 3/4 4/4

(Red.)

Whistle

Left Speaker

8va

Right Speaker

Electr.

4/4 3/4 2/4 3/4 4/4

(Whistle)

Low drone

ppp pp

135

Pno. Keys

4/4 3/4 4/4

(Red.)

8va

5:6

5:6

p mp p

Pno. Pitch

4/4 3/4 4/4

(Red.)

7EDO & 7EDO rounded to 12EDO

5&7EDO rounded to 19EDO

8va

5

5

p mp p

5EDO

Piano chord loop

pp p pp

(8)

Centre

Electr.

4/4 3/4 4/4

11EDO

Long chord

p

Sparce grains derived from the piano part

139

Pno. Keys

4/4 3/4 4/4 7/8 5/4 4/4

15^{ma}

p *mp*

(Red.)

3

4:3

8^{va}

19EDO 12EDO 31EDO

Pno. Pitch

(Red.)

p *mp*

3

4:3

Grain cloud gets progressively more dense

Electr.



144

Pno. Keys

4/4 3/4

15^{ma} 146-170

5:3

pp *p* *mp* *pp*

3

Red.

19EDO 31EDO

5:6

8^{va} Sound 10

Pno. Pitch

(Red.)

p *mp* *pp*

3

5:3

Grains get progressively higher and shorter

Electr.

7EDO Whistle

8^{va}

7EDO Whistle

p

150

Pno. Keys

4/4

p

mp < *mf* *mp* *p* *pp*

(Red.)

8^{ba}

Sound 11

19EDO

31EDO

12EDO

8^{va}

Pno. Pitch

(Red.)

p

mp < *mf* *mp* *p* *pp*

Crescendo of grain density

Electr.

5EDO

Piano chord loop

mp

pp *p* *pp*

8^{va}

(Whistle)

(8)

(Whistle)

7EDO

Whistle

pp

156

Pno. Keys

mp *mp* *p* 5/4 4/4

(Red.)

31EDO

Pno. Pitch

(Red.)

mp *mp* *p*

Electr.

(Whistle)

(8)

(Whistle)

(Whistle)

mp *p*

5/4 4/4

p

160

Pno. Keys

4/4 *p* *pp* *ppp* 3/4 4/4

(Led.)

Pno. Pitch

4/4 *p* (Led.) *pp* *ppp*

8va 8ba 8ba

Electr.

4/4 (Whistle) (Whistle) *pp* 3/4 4/4



165

Pno. Keys

4/4 *p* *pp* 3/4 4/4

(Led.)

Pno. Pitch

4/4 *p* *pp*

(Led.)

Grains start to turn into noise

Electr.

4/4 (Whistle) 3/4 4/4

170 15 171-179

Pno. Keys

4/4 *ppp* *pp* *mp*

8ba (Led.) 8ba

Pno. Pitch

4/4 *ppp* *pp* *mp*

8ba (Led.) 8ba

5&7EDOEDO

Electr.

Noise starts to sound like "vynil noise"

rit.....

178

Pno. Keys

8/8 X *dim. with the electronics, repeat more times if needed* (...)

8ba (Led.) *

Pno. Pitch

8/8 X *dim. with the electronics, repeat more times if needed* (...)

8ba (Led.) *

Electr.