

Quintuple Escapement (2003)
for Interactive controller and computer

William Kleinsasser

PROGRAM NOTE

About *Quintuple Escapement*, the composer writes: Our musical knowledge is heavily invested in the concept of discrete musical events, which form measurable inter-event relationships (i.e. pitch intervals). Digital musical instrument paradigms now offer a fundamental decoupling of the generation of physical sound from instrument's physical design responding to performance gestures. This raises the question of what musical potential lies in the domain of a single performer engaging instrumental interactions that go beyond control of individual event streams and entering into the realm of inter-event intervals -- the direct playing of many kinds of musical relationships. Beginning in 2003, Daniel Koppelman asked me to work with him on a project exploring these ideas. The first result of this project is an interactive laptop instrument running in Max/MSP. The instrument, named *Erard's Springs & Levers* after the developer of double-escapement piano action, owes philosophical and sonic debts to John Cage's developments of the prepared piano half a century ago. Unlike the prepared piano, this virtual instrument allows for the triggering and continuous control of complex musical events as well as single tones. Composed for this instrument, *Quintuple Escapement* presents five short pieces that explore what might be considered to be idiomatic music for this new instrumental paradigm engaging the intersection between traditional performance and the domains of freedom recently made available. The pieces grow out of two principal ideas: a series movements that are compressed, nearly rarified character pieces, and each movement built up from juxtaposed and inter-related musical statements that are constrained by the notion of 8-second 'sound bites.' For this performance an expanded diffusion version has been developed which takes advantage of the SARC performance space. Thanks to Daniel Koppelman, Les Stuck, Richard Dudas, Timothy Place, Joshua Kit Clayton, Cort Lippe, Erik Oña, Zack Settel, www.zolaweb.com, and Soeren Bovbjerg for help and shared elements for the Max/MSP instrument.

Acknowledgements

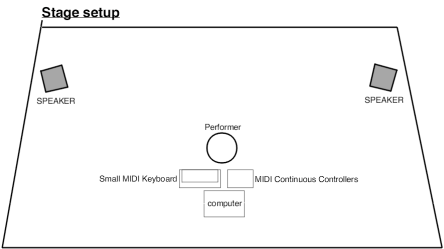
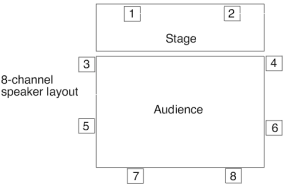
Erard's Springs and Levers is based on a combination of patches designed by the composer and modifications of patches included in the distribution of Max/MSP as help files and tutorials all using standard-issue Max/MSP objects. The sampler and buffer playback approaches are modifications based on Les Stuck's anticlick and anticlick-voice sampling examples in the Max/MSP distribution. The granular synthesis module is a modification of the Max/MSP granular synthesis example by Les Stuck and xoaz. Preset incrementing is done with a subpatch designed by Daniel Koppelman. Control of interface settings without using the preset object was suggested by Les Stuck and is done using modifications of Richard Dudas' sw and swpre objects and methods. In addition to the standard Max/MSP objects, this instrument uses the tap.shift pitch shifting object which is part of the TapTools library by Timothy Place, and the reverb module is based on Richard Dudas' newverb~ external object. The sound sources for the instrument are recordings made by the composer of plucked, struck, and scraped piano strings, short excerpts from solo piano recordings of Kleinsasser's *Available Instruments* for piano and computer, and sampled recordings of piano tones used with permission from www.zolaweb.com and Steinway Model C piano tones by Soeren Bovbjerg, <http://www.hum.aau.dk/~bovbjerg>.

Computer music system requirements

866 G4 (or better) Macintosh computer running Max/MSP software (version 4.3 or later)
MIDI Keyboard, foot pedal, MIDI interface
MIDI Continuous Controller set (minimum 10 separate controllers)
Audio mixer for computer output

STEREO VERSION:
Amplifier for two-channel audio or powered speakers
2 loudspeakers in stereo configuration
(suggested placement diagrammed to right)

SURROUND VERSION:
Amplifiers for eight-channel audio or powered speakers
8 loudspeakers in surround configuration



The performer plays a small MIDI keyboard with right hand and a set of MIDI continuous controllers with Left hand. These controllers are connected to theMIDI input of a Macintosh G4 886 or faster computer running the composer's Max/MSP instrument: Erard's Springs and Levers.
Loudspeakers should be placed on stands approx. 6 feet high and placed so that the performer can clearly hear the performance. Additional speakers can be placed throughout the space if desired.

Quintuple Escapement

for MIDI keyboard, continuous controllers and computer
written for Daniel Koppelman

William Kleinsasser
(2003)

Movement 1
Click MAIN ON and MOVEMENT 1 Button

Change presets just before playing

1 Advance Computerpresets with sustain pedal (ctl 64) or spacebar

2

4" 6" 2" 3" 5"

Controllers (Left Hand)

KEYBD: KNOB 7

KEYBD Pitchbend

The pitches played do not always correspond to the resulting sound

Keyboard (Right Hand)

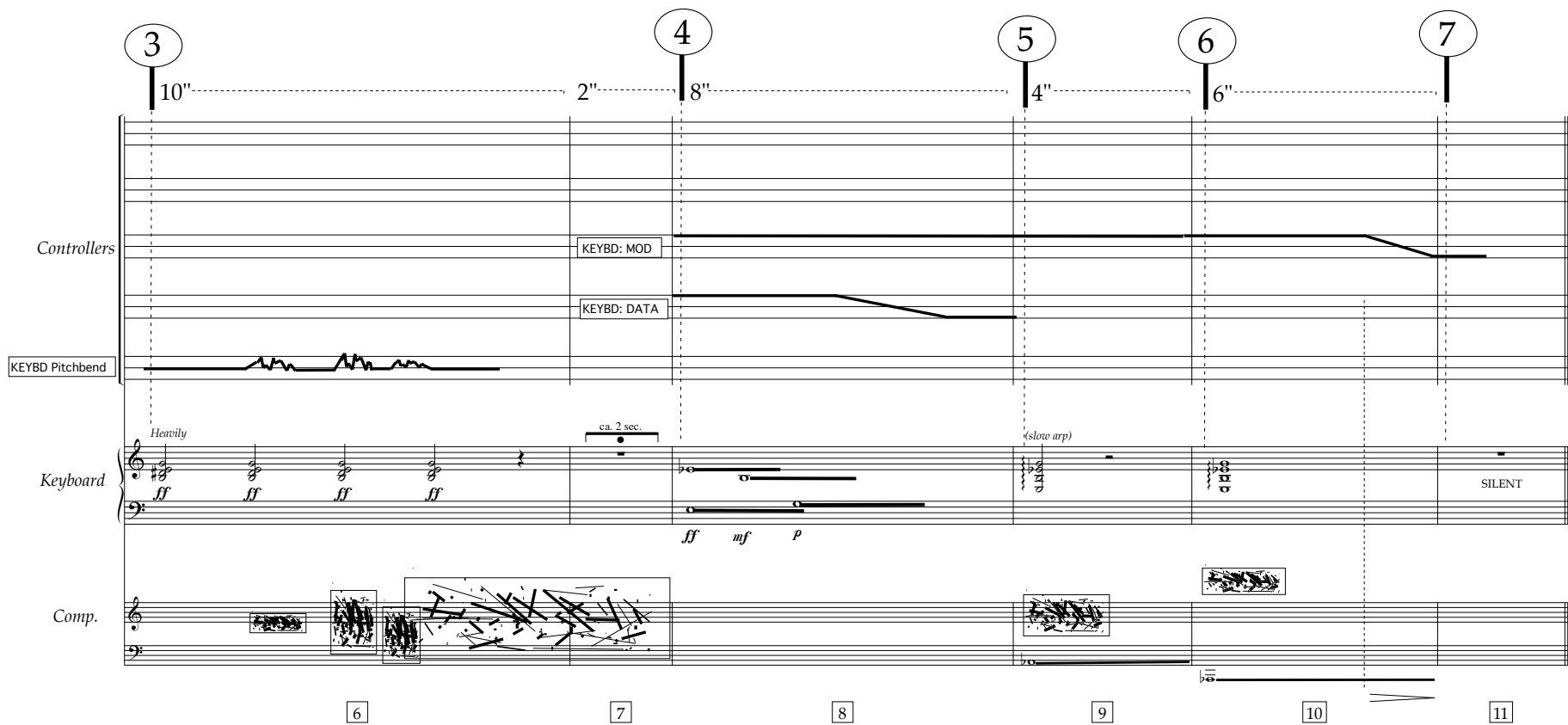
ff ff ff

Computer music graphic representation is extremely approximate!

Brittle, bright motivic arpeggiations

Causes disturbance in arpeggiation pattern

1 2 3 4 5



Movement 2

8 9 10 11 12

5" 8" 0.5" 2" 2" 8" Wait until figures end 2"

Controllers (Left Hand)

KEYBD: MOD

KEYBOARD KNOB 6

KEYBD Pitchbend

As arp. ends

Keyboard (Right Hand)

Hold until events end

ff *ff* *ff* *f*

Ad Libitum
legato

Release in this order

SILENT

1 2 3 4 5 6 7 8

Movement 3

17

18

19

20

21

8"

9"

Controllers
(Left Hand)

KEYBD: MOD

100

127

Keyboard
(Right Hand)

7
4

Match tempo of sixteenths from computer

Deliberately

8
4

Keep tempo

End clear tempo

Ad Libitum

9
4

Clear faster tempo

Match tempo of sixteenths from computer

Ad Libitum

Sudden distant, quiet

ppp



Rhythms begin to vary and uncouple

5



1

2

3

4

5

1" 22 23 8" 24 3"

Controllers

KEYBD: MOD

PITCH BEND

10/4 Match tempo in figures of audio file

In tempo with ticking from computer

4/4 Ticking continues

10/4 Match tempo in figures of audio file

Keyboard

SILENT

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

6 7 8 9 10 11

The musical score is divided into measures 6 through 11. The Controllers section includes a KEYBD: MOD track and a PITCH BEND track. The Keyboard section includes a SILENT track and a main melodic line. The score is marked with tempo changes and dynamics.

Measure 6: Keyboard starts with a melodic line in 10/4 time, marked *mf*. The PITCH BEND track shows a series of bends. The KEYBD: MOD track is active.

Measure 7: Keyboard continues the melodic line, marked *ff*. The PITCH BEND track shows a series of bends. The KEYBD: MOD track is active.

Measure 8: Keyboard continues the melodic line, marked *f*. The PITCH BEND track shows a series of bends. The KEYBD: MOD track is active.

Measure 9: Keyboard continues the melodic line, marked *mf*. The PITCH BEND track shows a series of bends. The KEYBD: MOD track is active.

Measure 10: Keyboard continues the melodic line, marked *mf*. The PITCH BEND track shows a series of bends. The KEYBD: MOD track is active.

Measure 11: Keyboard continues the melodic line, marked *ff*. The PITCH BEND track shows a series of bends. The KEYBD: MOD track is active.

25 26

6" 5" 4" 3" 3" 6"

Controllers

KEYBD: DATA 10

KEYBD: MOD 100

Slowly, Ad Libitum Deliberately

Keyboard

mp

Ticking continues

Release stops the ticking

SILENT

mf (loud enough to start ticking from computer)

12 13 14 15 16 17 18

Movement 4

27

28

29

30

31

32

4" 8" 0.5" 4" 6"

Controllers
(Left Hand)

Keyboard
(Right Hand)

Ticking at slower tempo

$\bullet = 62$

$\bullet = 62$

Faster and yet more complex
cross-rhythmic patterns

$\bullet = 46$

Extremely Heavily

sim.

ff

f

ff

f

fff



Generates more complex
cross-rhythmic
patterns in computer

Generates more complex
cross-rhythmic
patterns in computer

1

2

3

4

5

6

7

8

33 34 35 36 37

4" 8" 4" 8" 9" 7" 9"

Controllers

KEYBD: MOD

Slowly

KEYBD: MOD

KEYBD: DATA

KEYBD Knob 3

Keyboard

Sudden distant, quiet

Play free, rolling arpeggios using these pitches

Ticking at slower tempo

pp

pp

mp (loud enough to start ticking from computer)

9 10 11 12 13 14 15 16

Movement 5

38

39

25"

10"

20"

Controllers
(Left Hand)

KEYBD: MOD

Move to chiming bell tones
ca. 100

Fade gradually away

Keyboard
(Right Hand)

This preset uses the keyboard to transpose the figures upward and downward:
Mid. C = no transposition, above Mid. C = transposes upward by relative interval
and below Mid. C = transposes downward.
Play slow, free, rolling arpeggios using these pitches

Use these pitches above Mid. C to raise the tones of the texture into extreme upper register.

Long

SILENT

pp

Freely improvised quiet texture of pinao bell tones through granular process

1

2

3

4