Maximilian Marcoll

Compound No.6 :

VOICE ALARM AIR MACHINE

for glissando flute with bellows, microphone box and electronics

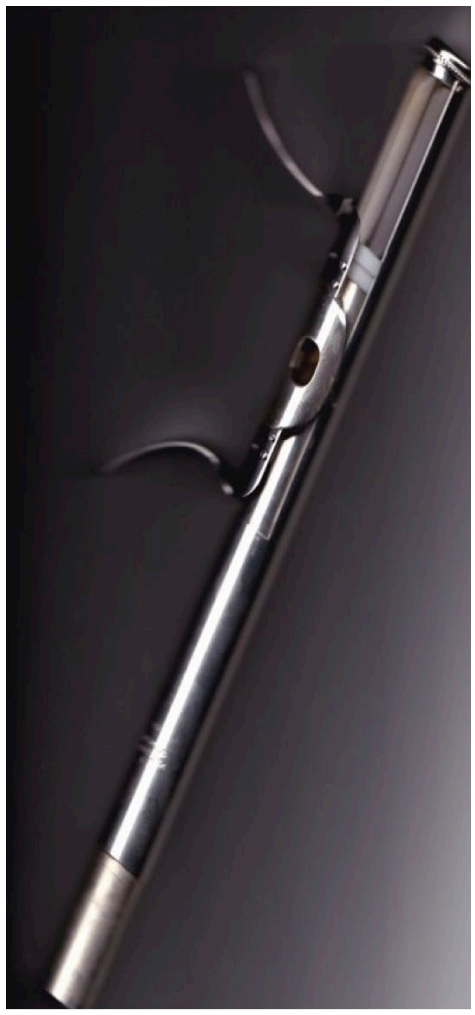
Commissioned by Klangwerkstatt Festival Berlin 2012

first performance on 2nd of November 2012, Kunstquartier Bethanien, Berlin

Erik Drescher, Glissando Flute

Maximilian Marcoll, Sound Projection

duration: approx. 13:30



Glissando Flute

Compound No.6 is written for C Flute with B Foot Joint and Glissando Headjoint. The latter was designed by Robert Dick. For more information on the Glissando Headjoint please visit http://www.glissando.biz/ .

The Flute is to be closed using a piece of cork or something similar. The cork piece should have a small hole of approximately 1mm in diameter to allow for very focussed streams of air to escape.

Bellows

It is recommended to use a standard air mattress foot pump.

Use a very narrow nozzle and place the end of the tube directly in front of a microphone, so that the air blows directly onto the microphone's membrane.

Microphone Box

The Microphone Box is a wooden box with dimensions 280 x 200 x 100 mm

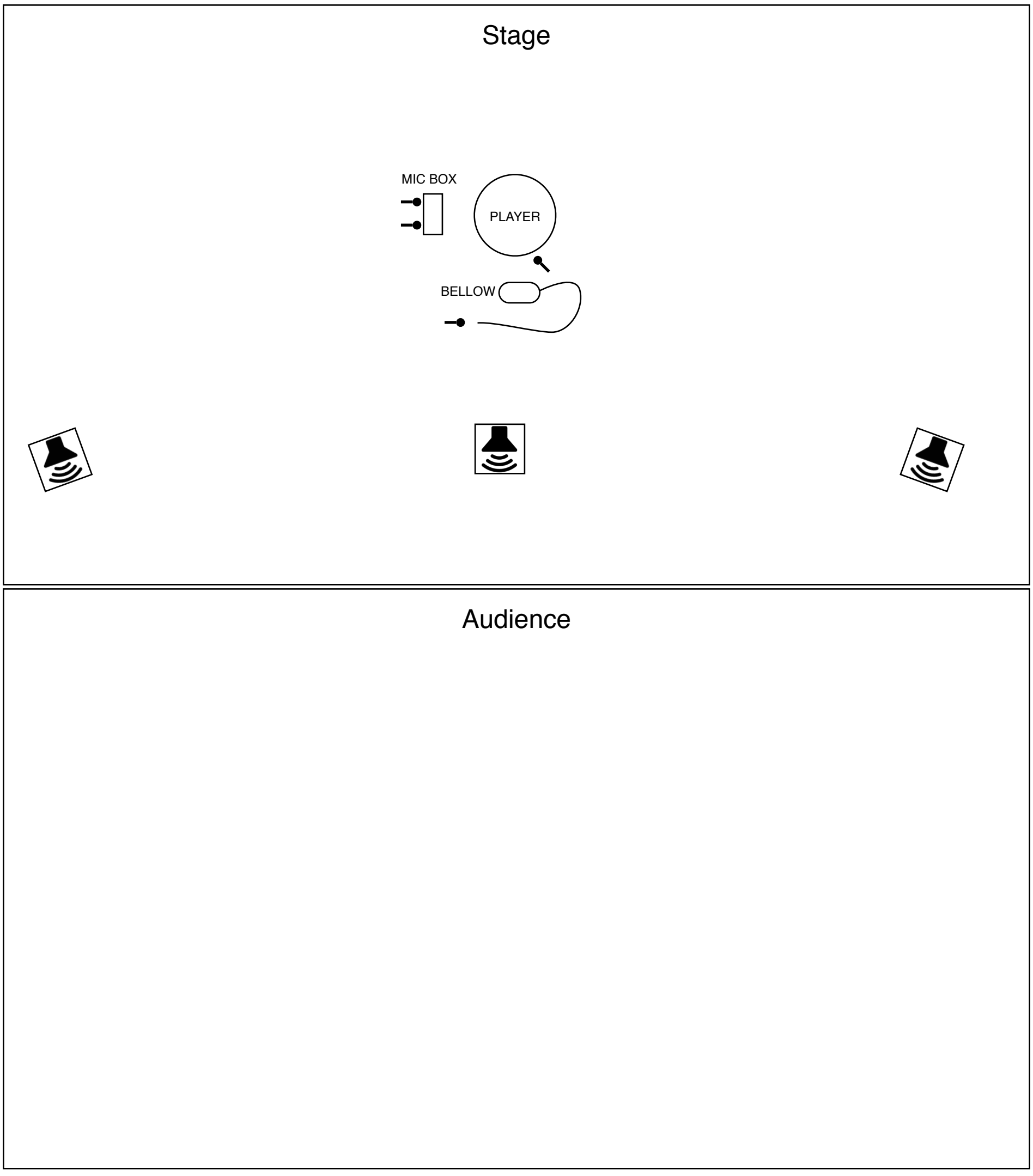
There are two openings in the back of the box. Two microphones should be placed into the openings.

Inside the box there is a filter foam panel to slide the flute along without touching the microphones or the wood surface.

The rest of the rear inner surface is coated with rubber. Dampening cushions are attached to the top, bottom, left and right sides to make sure the flute can be moved securely inside the box.:

The Microphone Box should be mounted onto a microphone stand. There is a 3/8" screw thread in the back of the box which is compatible with standard microphone stands. A similar screw thread is in the bottom of the box. Use two stereo mic attachement bars (in a 90° angle) to attach the microphones to the box. DO NOT use additional microphone stands to place the microphones into the box.

Stage Setup



Staves

Flute

In addition to the "normal" flute staff, there are three other staves for the flute: one staff containing only the keys of the notes and a third staff showing the position of the glissando headjoint. The fourth staff is for the bellows. Notes in this staff indicate that the player is to step on the pump to make it blow onto the microphone positioned in front of the bellows tube.

Electronics

The electronics are notated in several systems devided in three groups: 1. Gates, 2. Playback, 3. Control; The information in the "gate" group shows what kind of sound is being played on the respective tracks. These sounds are only audible however, if the player opened the respectove gate. Please see the comments on the electronics below for details. The second group, "Playback", contains sounds that are independent from the player's actions. The "Control" staff contains information on the state of the gates and general information on how the electronics will react to the signals of the microphones.

Click Track

The Click Track consists of a constant quarter note click (with other durations where appropiate). There are also a number of cues spoken onto the track: Measure numbers are announced on the click track in some measures. The cues are marked in the score with a number framed by an ellipse in the flute staff.

Noteheads

■ □	air sound
V	inhale audibly
⬒	exhale audibly (through the nose unless otherwise stated)
◆ ◇	after closing the flute on the rubber coating on the inner side of the microphone box (see below), keep blowing into the flute, keep air pressure
▲ △	key whistle, slightly open one key to produce an extremely high whistling sound

Symbols

+ ■	A plus sign over a note indicates blowing through the flute, rather than over the mouthpiece, as usual.
↓ ↑ ■ ■	An arrow over an air sound note means high or low sound color.
→|	Move the flute to the rubber coating in the microphone box and close it.
←|	Move the flute away from the rubber coating in the microphone box to open it.
L	An "L" above a note indicates that it has to be played with the flute positioned in the bottom left corner of the microphone box.
R	An "R" above a note indicates that it has to be played with the flute positioned in the bottom right corner of the microphone box.

Accidentals

The scope of all accidentals is limited to their respective (single) notes.
This piece differentiates between 8th tones. The following accidentals are being used:

Additional Annotations

<u>Everything is to be played without the slightest trace of a vibrato!</u>
All notes written under a slur are to be played on one breath. Do not accentuate new notes unless they mark the beginning of a new phrase.
In general, <u>do not use your tongue at all!</u>
There are sections in the piece where breathing is only permitted where explicitly notated (using the inhale notehead).
For other sections: Breaks usually mean that you may breathe.
Always keep the flute in the last explicitly written position in the microphone box until a new position is written.
Notes written as the low b may be considerably lower, depending on the position of the glissando headjoint. Since this note is *always* played as an air sound blown *through* the flute (notated with a + sign), the pitch deviations are not audible.

Electronics

1. What You Need To Have

Equipment

1. A computer running MaxMSP (at least version 5). (If for some reason the fiddle~ object supplied with the patch does not work on your system, you can download it from maxobjects.com.)

2. An audio interface with at least 4 inputs and 4 outputs.

3. Three Loudspeakers

4. Headphones, possibly connected using a Headphone Amplifier.

5. 4 Microphones: One to pick up the flute, one for the bellow and two for the microphone box.

6. It is recommended to use a MIDI controller with faders or knobs to control the patch. The device must have at least 8 individual control elements.

7. With the microphone box there comes another small box, the converter box, that is needed for the connection of the triggers in the microphone box to the computer via USB. In order for the computer to recognize the converter box you have to make sure the FTDI Drivers are installed on your system. (http://www.ftdichip.com/FTDrivers.htm)

Soundfiles

The Patch does not work without the proper audio files. If you want to perform the piece and received the patch without them, please write to mail@maximilianmarcoll.de .

2. What You Need To Know

Compatibility

The patch was developed and tested in Max 5 (v.5.0.8) on an iMac 2.5GHz Intel Core i5, Mac OS 10.6.8. Further testing was done using a MacBook Air, 1.6GHz Intel Core i5, MacOS 10.7.4 with MaxMSP 5.1.9 .

Layers

The electronics part of VOICE ALARM AIR MACHINE consists of six "layers", all of which are represented by one fader in the patch:

Gates

Throughout the duration of the piece there is a three channel playback running in the "Gate-Layer". Each of the three channels is connected to one of the three speakers (Left, Center and Right). The audibility of each of the channels is dependant on the state of one of three respective gates, which are controlled be the flute player. The left and right channels are controlled by the flute player's actions inside the microphone box. If the player blows directly through the flute onto one of the two microphones in the box, the respective gate should open. The third gate (center) is opened by stepping on the bellow, which is supposed to blow directly onto a third microphone (see the Stage Setup for details). To secure the detection of the flute player's actions in the microphone box, there are two triggers in the boxes inner bottom left and right corners that have to be activated in order for the gates to open. The player is supposed to activate them by pushing the flute against the left and right inner cushions of the box. The usage of these buttons is, however, optional and if you have no trouble detecting the signal of the flute player, you can of course play without this "safety net". In that case you do not need to worry about the converter box at all.

Center & Stereo

The next two layers are a simple three channel playback that is divided into a stereo playback (left and right speakers) and a mono playback (center speaker).

Ingo

The "Ingo" Layer is another three channel playback, that exclusively contains recordings of a shouting neighbour of mine, whom, in the lack of knowledge of his real name, I call Ingo.

InvertGate

At one point in the piece, the functionality of the gates is inverted: the gates only open if the flute player does NOT produce significant sound levels in the microphone box. The playback for this part is an independant additional playback, so the patch provides an additional fader for this layer.

Pitcher

There is a fourth microphone needed that ought to pick up the flute outside of the microphone box. The patch analyses the frequency of this signal and uses the pitch data to change the playback speed of another stereo playback in realtime.

3. What You Need To Do

Connections & Signal Routing

Please connect the audio interface as follows:

Inputs

Left microphone box mic	Input 1
Right microphone box mic	Input 2
Bellow mic	Input 3
Flute mic	Input 4

Outputs

Left Speaker	Output 1
Right Speaker	Output 2
Center Speaker	Output 3
Headphones (Click)	Output 4 or 4 & 5 or 5 & 6

Buttons and Settings

DSP settings

By clicking on the DSP settings button in the upper left portion of the patch, you open the standard MaxMSP DSP settings window, where you can choose your audio hardware and other performance relevant settings.

Midi Learn

The patch comes with a MIDI learn function to simplify the setup. To connect your controller: Click on the MIDI Learn button. It should then read "Listening...". Now move the control elements you want to use. As soon as the patch received midi control messages with eight different controller ids, the connections will be made automatically. The mapping of the controller ids to the faders of the patch is independant from the order in which the messages are received. The patch looks for eight different controller ids, sorts them in ascending order and connects them to the respective faders. The 7th of your midi control elements will not be connected in order to secure a unique position of the master fader, which will be connected to your 8th control element.

Parameter Feedback

If you have motor faders and want to receive parameter feedback from the patch, click on the Parameter Feedback Button to turn it on and choose your device from the menu to the right of the button.

Set Faders to Zero

Sets all Faders to 0dB.

Load sounds

Choose the directory in which the soundfiles are stored. After loading the soundfiles succesfully, the button reads "SoundsLoaded" and its color switches to green.

Set Detection Levels

You can set the detection threshold for the gates seperately.

Set detection "Stickyness"

The Stickyness parameters change the thresholds of the gates dynamically. If the gate is open, the signal level has to fall beneath a new threshold that is made up of the given original threshold *minus* the "down stickyness". If the gate is closed, the signal level has to rise above the given original threshold *plus* the "up stickyness". Set both values to 0 for a normal gate behaviour.

Gate Frequency Range

The signal that is measured for the control of the gates is being band limited before it is analysed. Set the low and high limits here.

Pitcher Threshold, Base Pitch and Transposition Factor

The Pitcher layer is activated automatically during the piece. In order for the realtime pitching to work, another gate has to open. You need to find a setting where the Pitcher-Gate opens if the player plays in a range of mp-mf.
The Base Pitch and Transposition Factor settings are set automatically. Do not touch them unless you are perfectly sure you know what you are doing.

Gates Open Separately / Gates Closed / Pitcher Off

These toggles activate/deactivate parts of the patch. They are set to the correct states automatically during the piece. You will, however, need to use two them to test if your setup is working. Use the "Gates Closed" toggle to open the Gates to test if the triggering inside the microphone box is working. Use the "Pitcher Off" toggle to turn on the realtime pitch detection ("Pitcher Layer").

Use Arduino

As mentioned before, there are triggers inside the microphone box.
The usage of the triggers is optional. If you wish to use the triggers, you need the converter box to connect the triggers to the computer via USB. The triggers are connected to the converter box using standard 2-pole 3.5mm connectors. Inside the converter box there is an Arduino board to convert the signals. You have to make sure you have the FTDI Drivers (http://www.ftdichip.com/FTDrivers.htm) installed on your system. Click on the "Use Arduino" toggle to activate the respective parts of the patch. Please note that as long as the patch uses the converter box, the gates for the Gate-Layer of the piece only open if the triggers are activated.

Audio OFF / ON

Turn the Audio Processing Engine on or off.

Start / Stop / Start with Countdown

As an alternative to starting the piece immediately after hitting the START button, you can choose to start the patch with a countdown of ten seconds to the beginning of the piece. You can stop the countdown at any time by clicking on the button again (that now reads "Stop Countdown").

Click

There is a click track for the flute player. In the lower right portion of the patch, there are its controls. You can set the level and routing of the click track. By default it is routed to output channels 4, 5 and 6. The signals on output channels 4 and 6 are identical. If you want to use the click track in stereo, you can either use channels 4 & 5 or 5 & 6. To test the click and click levels, or for practising, you can also route the click to all other channels by clicking on the toggle reading ch 4 5 6.

Start in Measure

You can start the patch at any measure of the piece. Simply enter the measure number and click on start to commence playback at the given measure.

Tempo

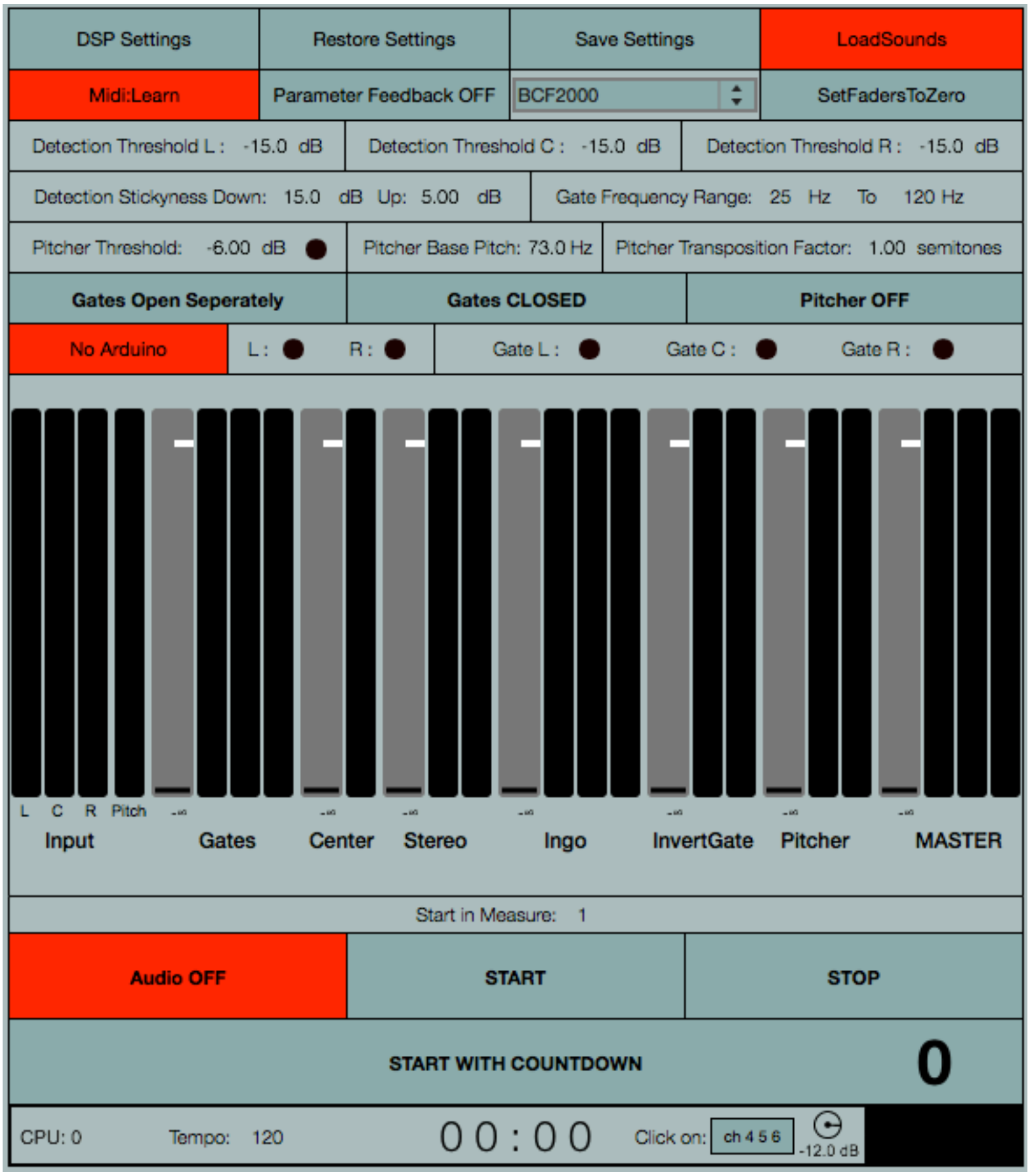
To support the practising process, you can change the tempo of the piece and of all the related audio playbacks. Please note that siginificant deviations from the original tempo will result in significant loss of audio quality. The original tempo is set to be 120 bpm and deviations are to be entered relative to 120 bpm, although there is a part of the piece that is actually written in 137.67 bpm. **The tempo is to be decreased during practising only!**

Save / Reload Settings

To make sure everything is in place, you can save and reload your settings once you found suitable values for the various parameters. Simply click on the "Save Settings" button in the top portion of the patch to store your settings. You can recall them later by clicking on the "Restore Settings" button. All of your parameter settings, the soundfile directory as well as your midi connections will be restored.

Acknowledgements

The patch makes use of the external object "fiddle~", originally developed by Miller Puckette and ported to MSP by Ted Apel and David Zicarelli. The connection to the Arduino board is done using the Arduino2Max patch by Daniel Jolliffe.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Restore Settings
Save Settings
LoadSounds
Midi:Learn
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BCF2000
SetFadersToZero
Detection Threshold L : -15.0 dB
Detection Threshold C : -15.0 dB
Detection Threshold R : -15.0 dB
Detection Stickyness Down: 15.0 dB Up: 5.00 dB
Gate Frequency Range: 25 Hz To 120 Hz
Pitcher Threshold: -6.00 dB
Pitcher Base Pitch: 73.0 Hz
Pitcher Transposition Factor: 1.00 semitones
Gates Open Seperately
Gates CLOSED
Pitcher OFF
No Arduino
L :
R :
Gate L :
Gate C :
Gate R :
L C R Pitch
Input
Gates
Center
Stereo
Ingo
InvertGate
Pitcher
MASTER
Start in Measure: 1
Audio OFF
START
STOP
START WITH COUNTDOWN
0
CPU: 0
Tempo: 120
00:00
Click on:
ch 4 5 6
-12.0 dB

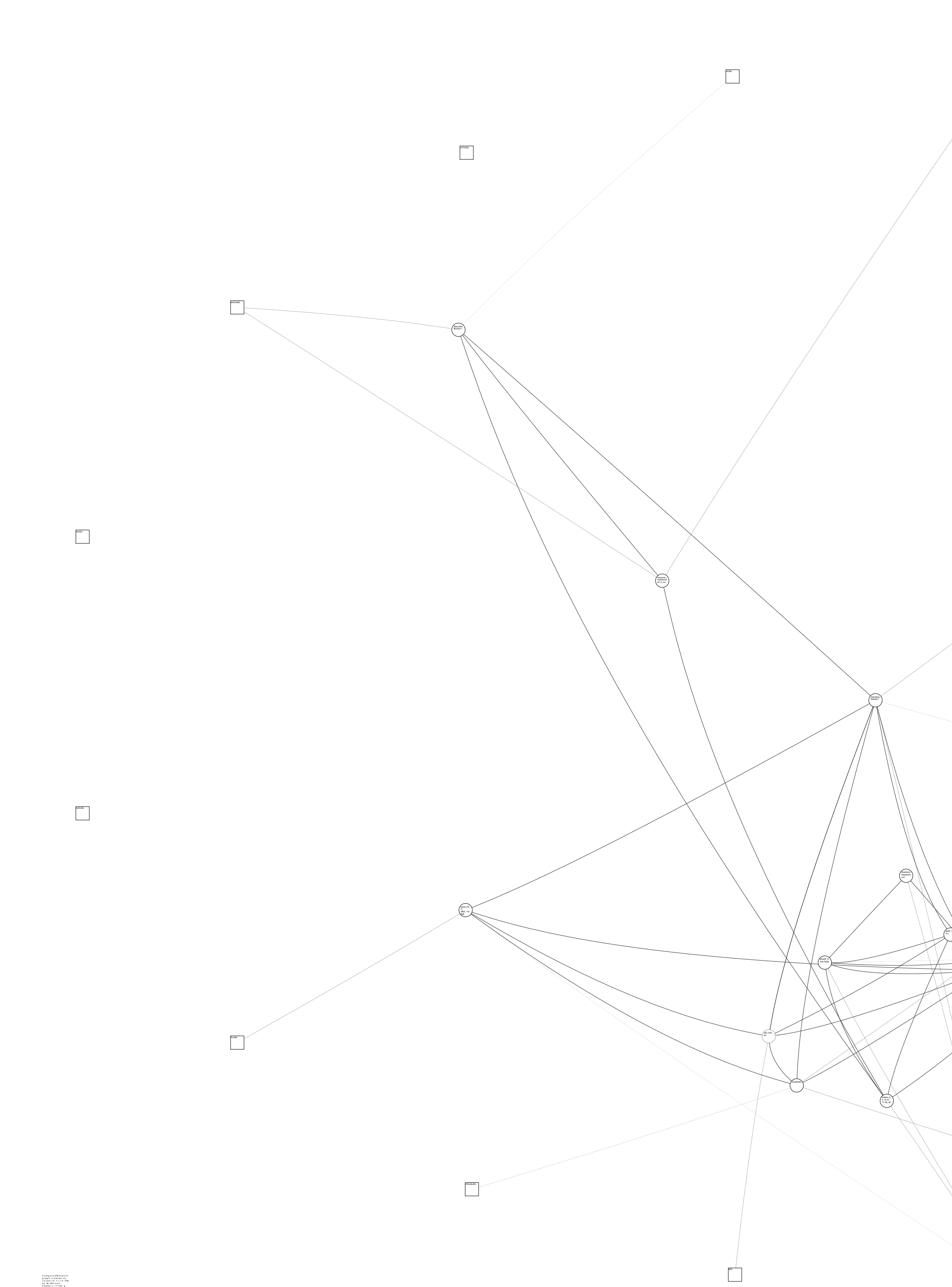
Compounds

The pieces of the Compound series evolve from recordings of my everyday environment. A technique that is vital for my work is transcription - the translation of recorded acoustic flow into musical notation, playable by instrumentalists.

All my acoustic materials are combined into what I call a material network. The network structure depicts connections between materials which result from phenomenological similarities. All objects of the network belong to families, rough classifications of acoustic material, mostly determined by their origin. The role of the network can be described as a material pool, as a tool for administration purposes (editing relations between objects and creating connections between materials), as a generator, and as a base for formal organisation. The network is growing independently from the work on particular pieces. New materials are being added to the network all the time, creating new possibilities of connection and changing the inner order of the network constantly. For more information on the concept of the Compound series please visit www.maximilianmarcoll.de .

The materials used for this piece are:

Indication	Source
KitchenSilence	the kitchen of my appartment in Berlin Neukölln on the first of june 2011
PlaneFraMex	a Boing 747 during a trans continental flight
spliff	me rolling a cigarette in my kitchen, 17th of may 2011
ZUGWIND	wind clipping in a microphone, on a train to berlin, 6.7.2007
SB	breathing sounds, Reuterstrasse 78, Berlin Neukölln, 25.06.2008
donaurev	renovation works in my neighbour's appartment, Berlin Neukölln, June 24th, 2011
bateau	a waiter whistling in a Café in Berlin Kreuzberg, 10th of February 2009
AlarmTestBlud	test alarm in Bludenz, Austria on the 25th of November 2011, 15:08
MexNight	a recording made during the night of the 18th of June 2011 in the center of Mexico City
Strahlentherapie	the waiting room of the department for radiation therapy of the university hospital of Lübeck, 23rd of December 2008
TanHillCarRide	driving in a car downhill in very bad weather conditions, North Yorkshire, 12th of December 2011
ZoomNoise	the background noise of my recording device
Ingo	a shouting neighbour of mine, whom, in the lack of knowledge of his real name, I call Ingo, various recordings made during the summer 2012
n1-6, 7_24#1 - 8_1#99	several processed noise sounds (analog synthesizers, digital processing etc)



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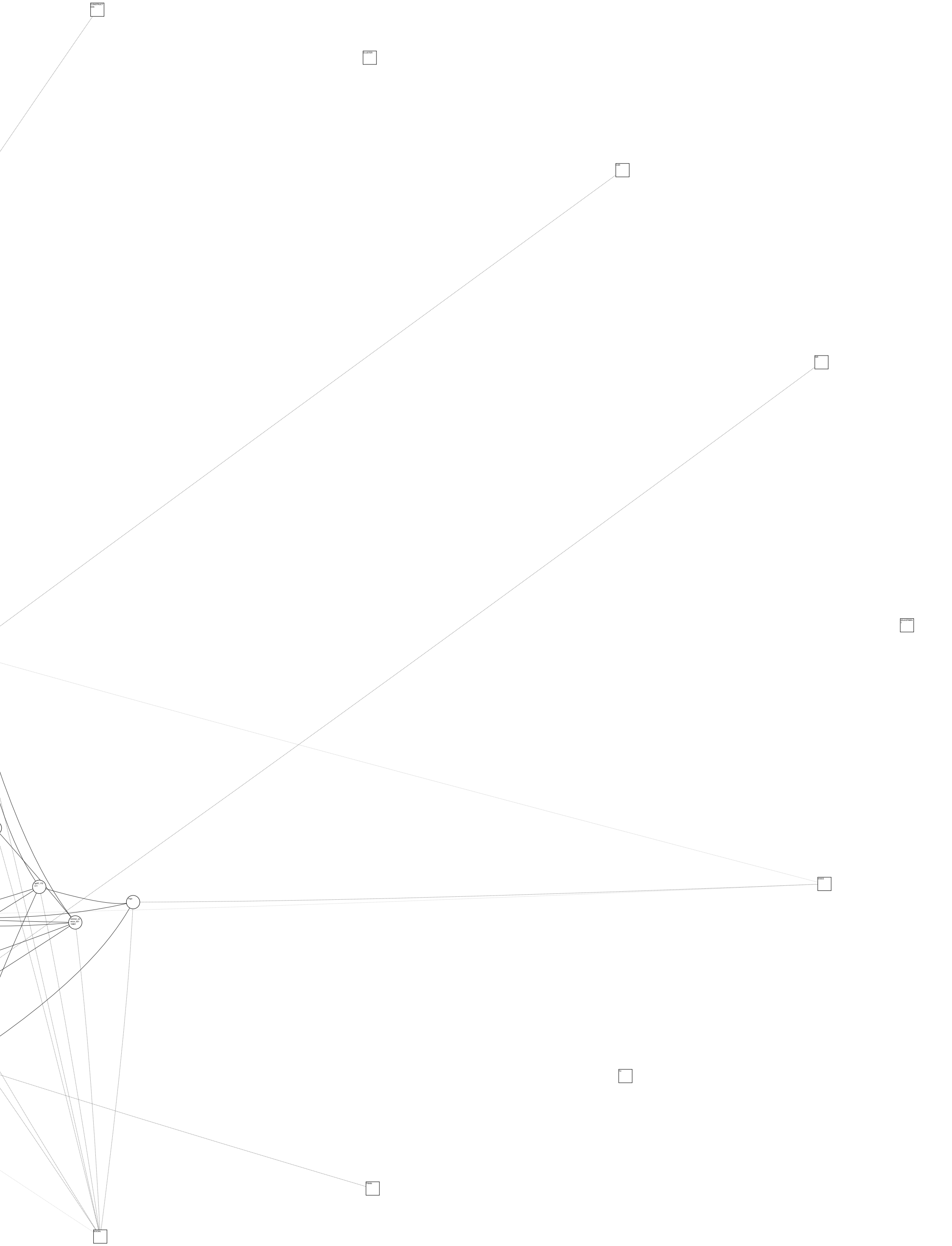
31 derivatives
10 cmpnd drvtvs
1 cmpnd reactions
12 identities
22 tags
882 files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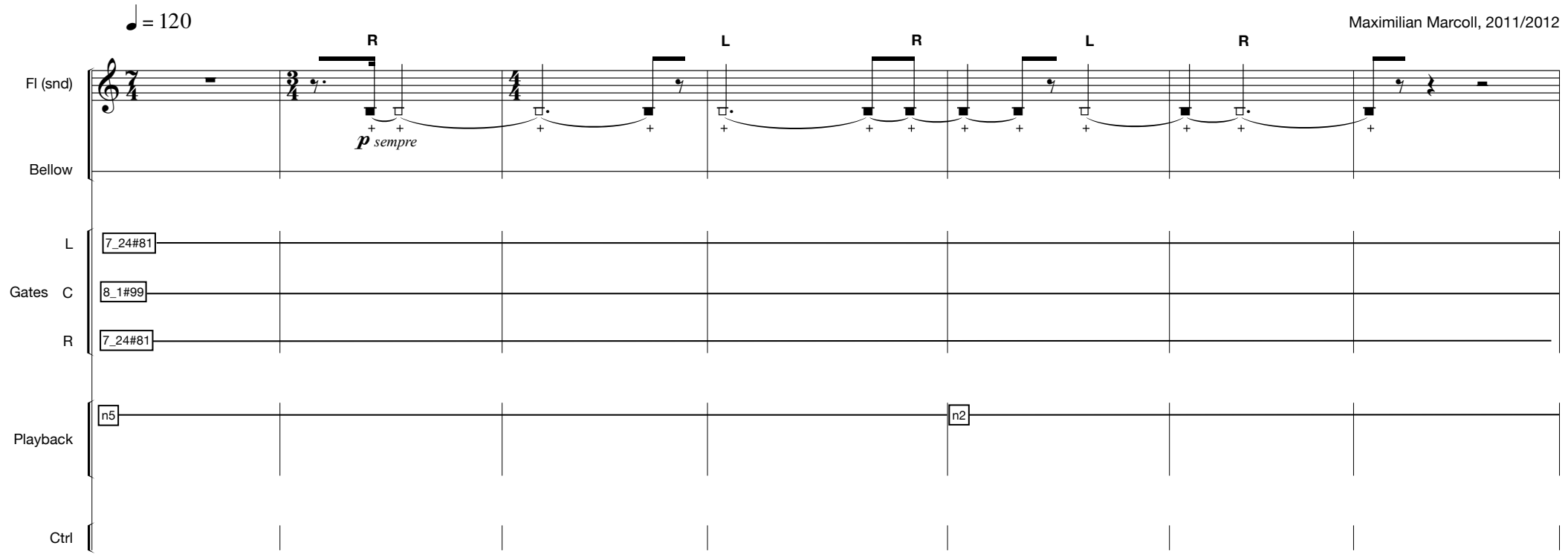
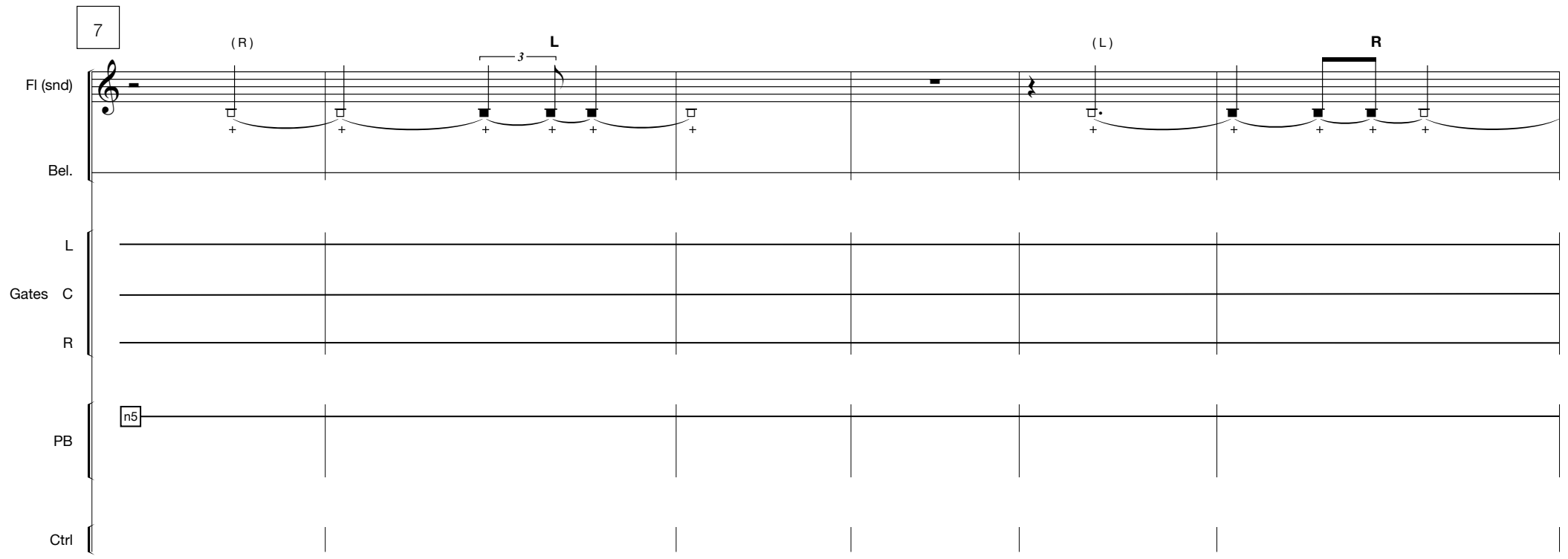
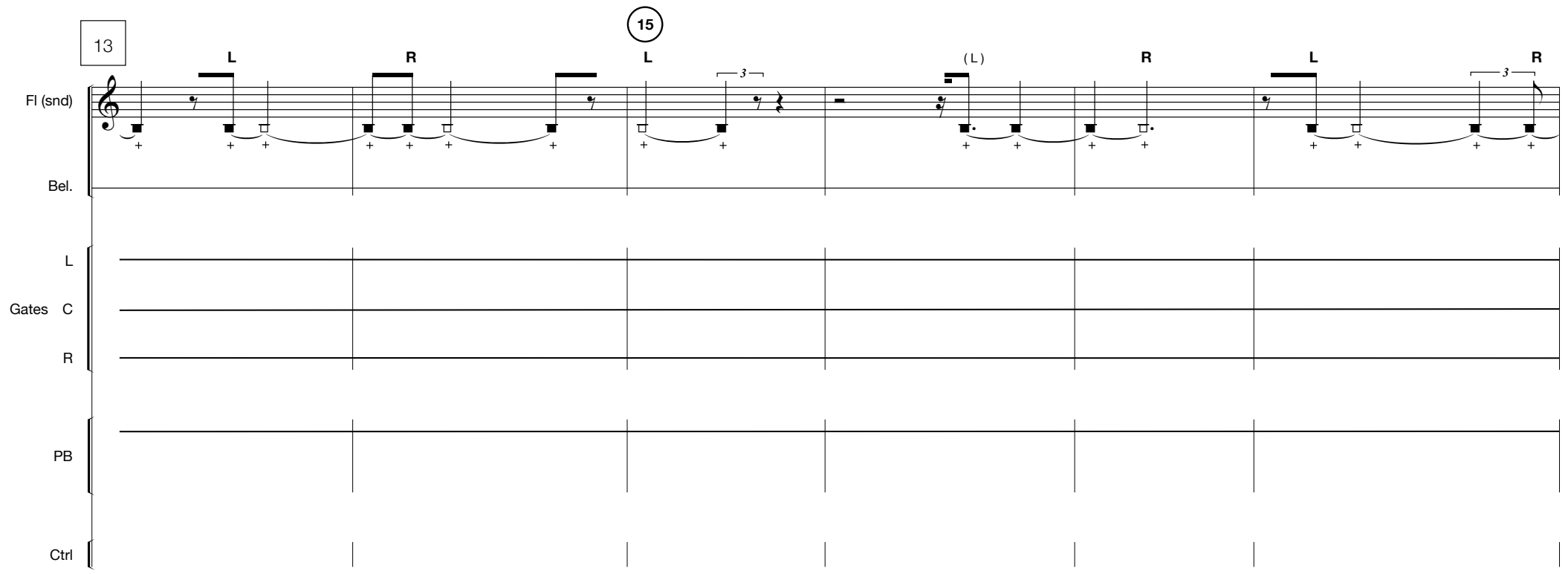
Main

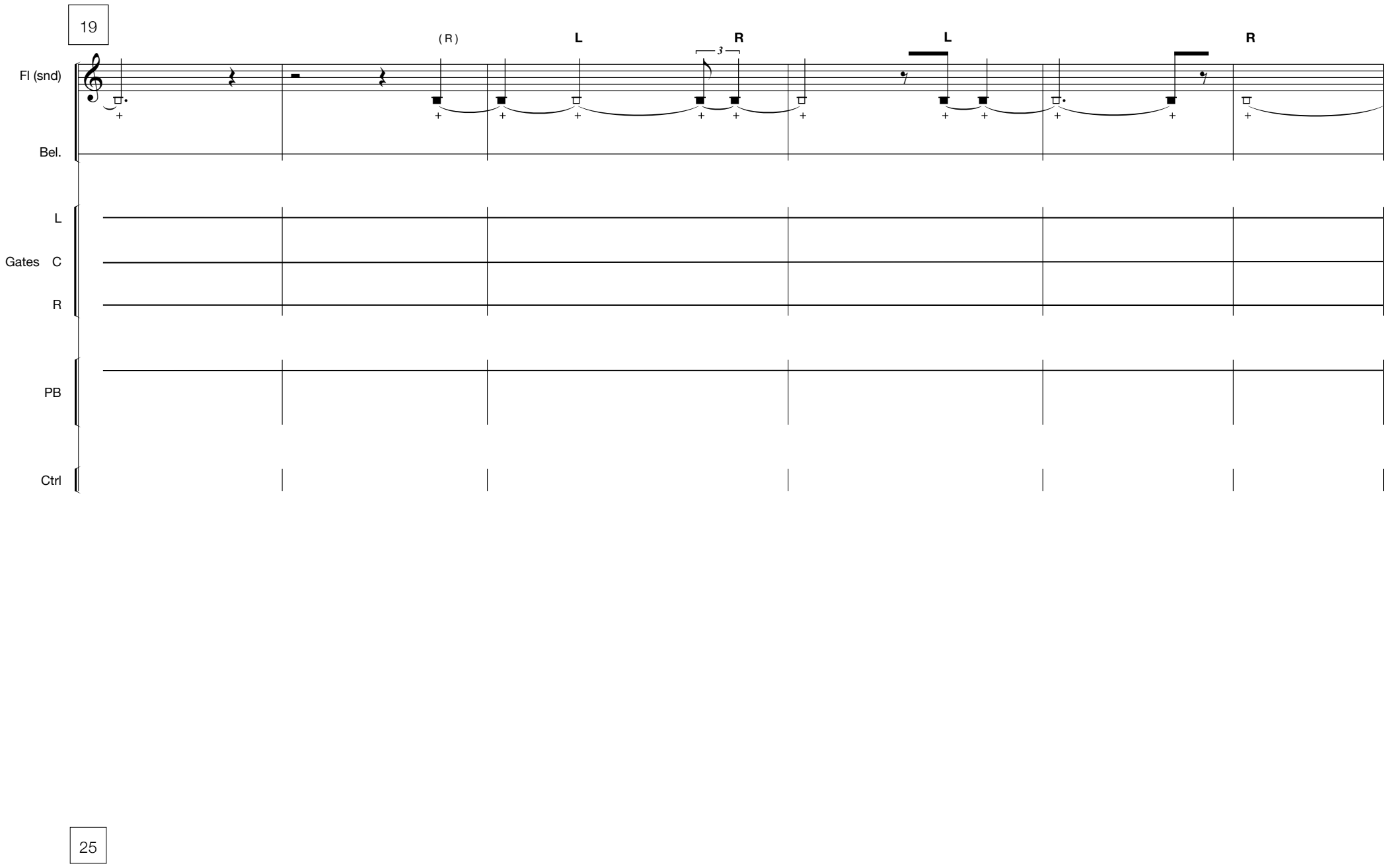
Compound No.6: *VOICE ALARM AIR MACHINE*

Maximilian Marcoll, 2011/2012





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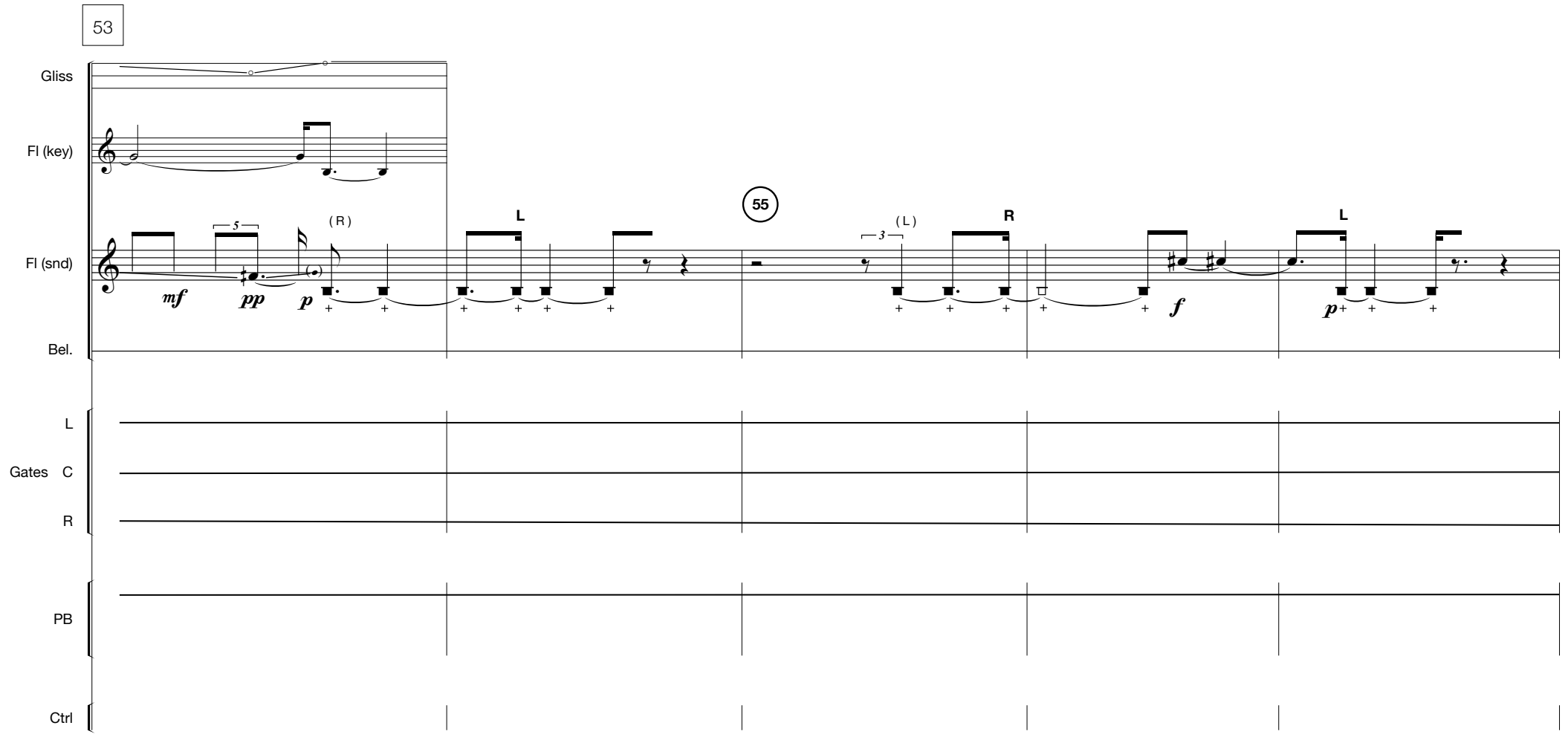
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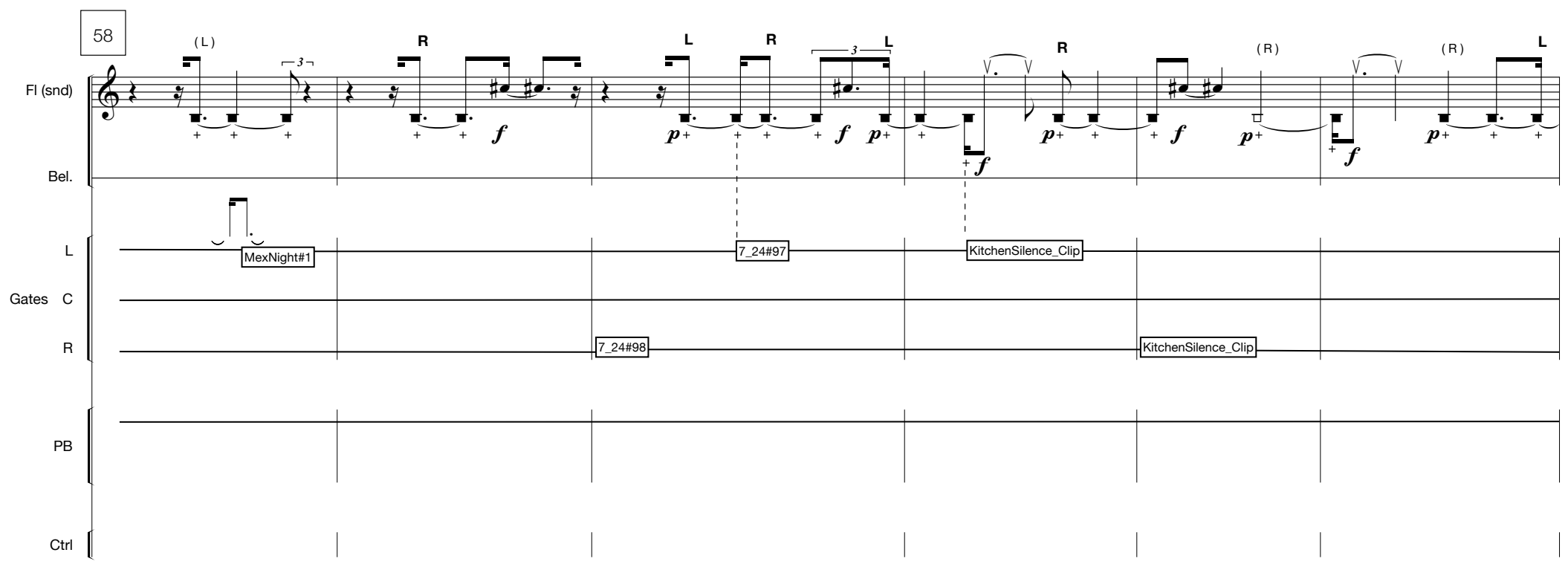
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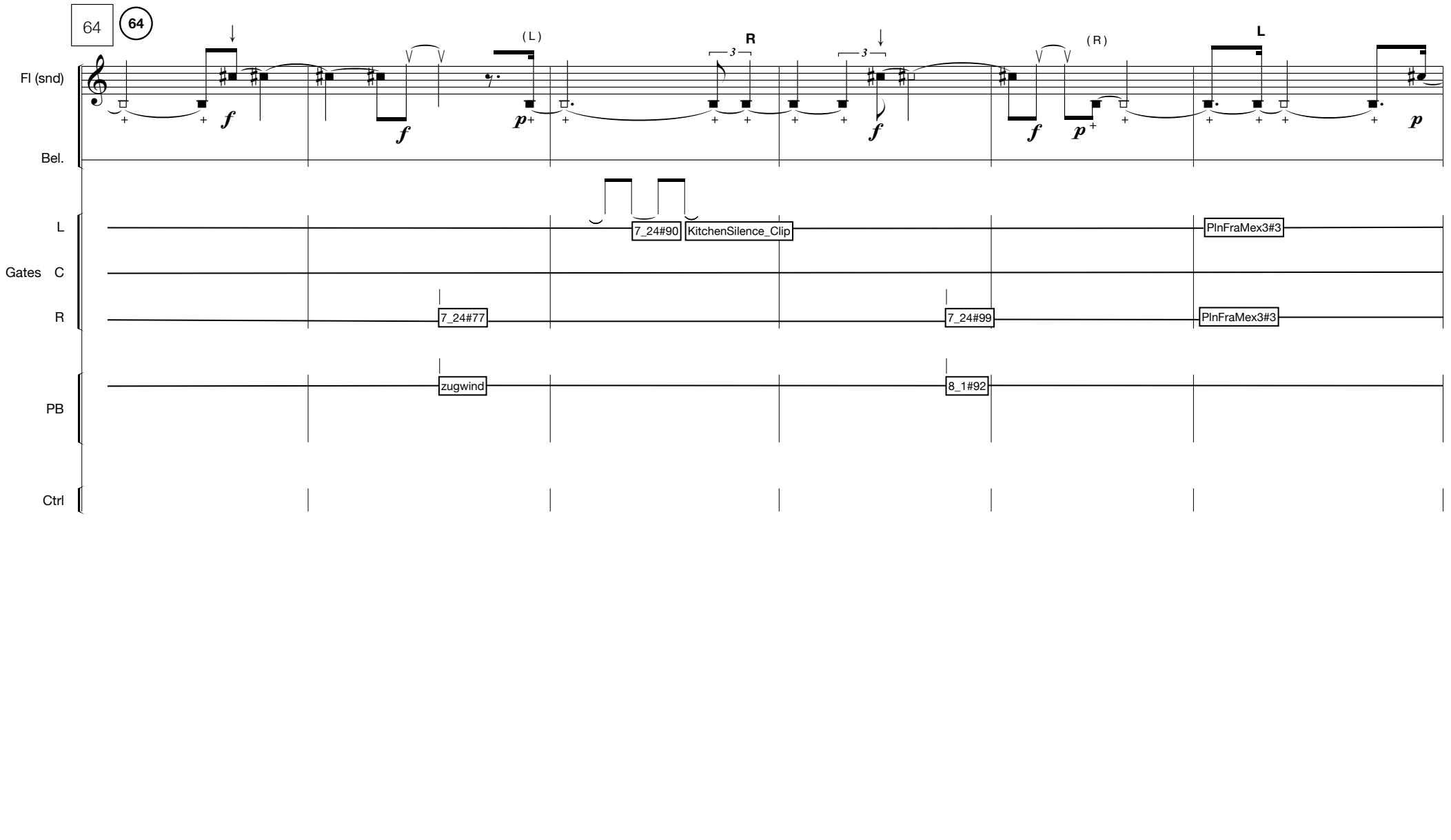
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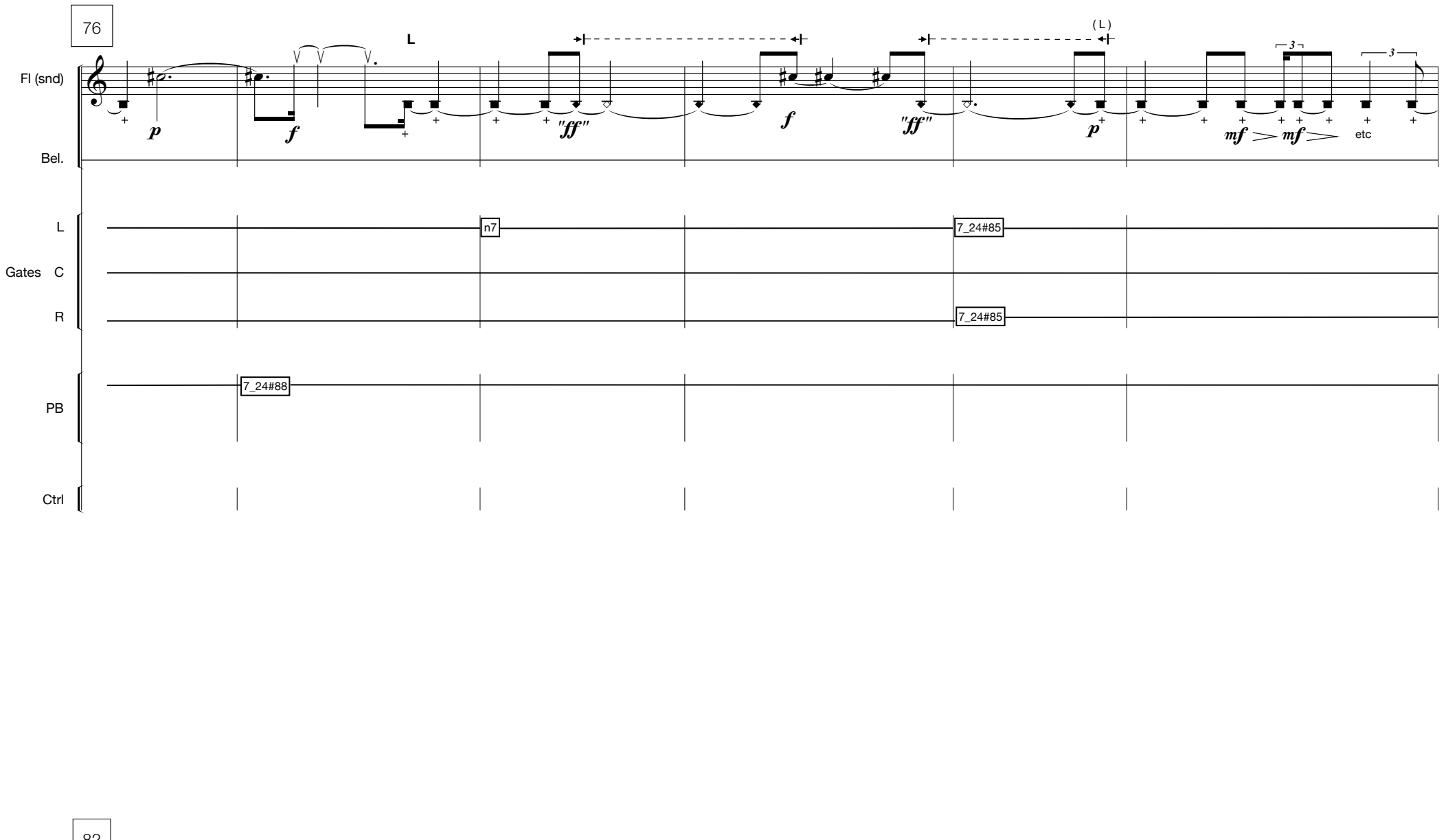
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Gates Close

Gates Open

RealTimePitching

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Gates Close

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Ingo

Gates Open

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Gates C
R
PB
Ctrl

7_24#84
7_24#81
7_24#80
transitions
n4
7_24#88
Ingo

gliss with lips

132

34

spliff
KitchenSilence_Clip
8_1#99

136

Gliss
Fl (key)
Fl (snd)
Bel.
L
Gates C
R
PB
Ctrl

KitchenSilence_Clip
spliff
8_1#98
7_24#88
8_1#92
8_1#90

142

PlnFraMex3#3
7_24#81
7_24#91
7_24#88
n5
Ingo

147

Gliss
Fl (key)
Fl (snd)
Bel.
L
Gates C
R
PB
Ctrl

48

MexNight#2
7_24#81
7_24#88
PlnFraMex3#3

151

ZoomNoise
Strahlentherapie
7_24#88
Ingo

155

Gliss

Fl (key)

55

R

Fl (snd)

Bel.

L

donaurev_bodenschleif_3cut

Gates C

R

donaurev_bodenschleif_3cut

PB

Ingo

Ctrl

160

Gliss

Fl (key)

63

Fl (snd)

Bel.

L

7_24#97

7_24#84

Gates C

R

7_24#91

7_24#84

PB

PlnFraMex3#2

Ctrl

164

Gliss
Fl (key)
Fl (snd)
Bel.
L
Gates C
R
PB
Ctrl

mf pp mp mf
mf p p
p f p
R
L
f
mf p

Ingo

169

Gliss
Fl (key)
Fl (snd)
Bel.
L
Gates C
R
PB
Ctrl

70
inhale ad. lib.
sempre legato
f
p
mp

7_24#84
donaurev_bodenschleif_3cut
RealTimePitching

175

Gliss

Fl (key)

Fl (snd)

78

mf pp mp mf p mf pp

Bel.

L

Gates C

R

PB

Ctrl

180

Gliss

Fl (key)

Fl (snd)

p pp p

Bel.

L

Gates C

R

PB

Ingo

Ctrl

185

Gliss

Fl (key)

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

86

3

pp

p

pp p

pp

190

Gliss

Fl (key)

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

94

3

(pp)

195

Gliss

Fl (key)

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

8_1#91

7_24#99

7_24#81

8_1#90

7_24#88

OFF

200

2

L

R

(R)

(L)

MexNight#2

n5

donaurev_bodenschleif_3cut (cont.)

PlnFraMex3#3

RealTimePitching

206

Gliss
Fl (key)
Fl (snd)
Bel.
L
Gates C
R
PB
Ctrl

gliss with lips
10
(R)
L
R
MexNight#1
7_24#98
7_24#88
donaurev_bodenschleif_3cut (cont.)
RealTimePitching

212

Gliss
Fl (key)
Fl (snd)
Bel.
L
Gates C
R
PB
Ctrl

(R)
L
R
KitchenSilence_Clip
KitchenSilence_Clip
7_24#77
7_24#88
PlnFraMex3#2
OFF

218

19

Fl (snd)

Bel.

"ff"

R

3

p

3

f

"ff"

L

Gates C

R

7_24#84

7_24#84

PB

KitchenSilence_20110601

Ingo

Ctrl

InverseGate

224

31

(R)

p

f

L

p

"ff"

exhale through nose

f

"ff"

232

R

L

p

f

"ff"

R

p

f

door:

Ingo

240

41

Fl (snd)

Bel.

"ff"

R

p+

+

f

"ff"

f

(+)

"ff"

L

Gates C

R

PB

Ingo

Ctrl

249

Key Whistle

51

Fl (snd)

Bel.

L

3

"ff"

L

p

+

+

+

R

f

"ff"

L

Gates C

R

PB

Ingo

Ctrl

257

61

Fl (snd)

Bel.

(R)

p+

+

f

"ff"

L

Gates C

R

PB

Ingo

Ingo

Ctrl

265

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

271

71

exhale through nose

278

Gliss

Fl (key)

Fl (snd)

Bel.

80

1 2 3 4 5

L

Gates C

R

MexNight#2

MexNight#2

7_24#77

PB

AlarmTestBludenz

Ctrl

Gates Close

286

Gliss

Fl (key)

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

1 2 3 4

92

sempre legato

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

293

Gliss

Fl (key)

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

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

299

Gliss

Fl (key)

Fl (snd)

300

1 2 3 4

Bel.

L

Gates C

R

PB

Ctrl

305

Gliss

Fl (key)

Fl (snd)

1 2 3 4 5 6

mp > *pp* *p* *mf* *pp*

Bel.

L

Gates C

R

PB

Ctrl

15

315

♩ = 137.67

Fl (snd)

Bel.

mf

tr

tr

3

3

1

2

L

Gates C

R

Bateau

PB

Ctrl

322

play keys as notated, with glissando positions superimposed, resulting in pitches *similar* to those notated (until measure 349)

Gliss

Fl (key)

mf

3

4

mf

1

2

3

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

329

Gliss

Fl (key)

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

336

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

346

Gliss

Fl (key)

Fl (snd)

Bel.

L

Gates C

R

PB

Ctrl

9 10 1 2 3 4

mf

355 ♩ = 120

61

f p p f p L R L f

play 8 times

R as long as possible

ff sf

If the tape stops before the player is finished playing the repetitions, stop immediatly, hold tension and finish.

NoiseFrickel

NoiseFrickel

NoiseFrickel

Ingo

Gates Open

LinkedGates