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NAVIGATION

for the Computer Aided Breathing

**for Pipe Organs, Celesta, Harmonium,
Voice, Loopstation, WineGlass
and Live Electronics**

2008

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NAVIGATION

PART I

PART II

PART III

INTERLUDE

PART IV

PART V

PROGRAM NOTES

Navigation is a 6-part open composition for pipe organs, celesta, harmonium, voice, wine-glass, loopstation and live electronics, written for the *Computer Aided Breathing*¹ trio. It is a site-specific piece, created in and for the Orgelpark and its instruments through the exploration of the various possibilities during workshop sessions. The piece was commissioned by the Orgelpark.

The title is derived from the compositional and improvisatory methods employed in the piece, as well as from the manner in which it was developed. The form is constructed as a multi-layered navigation between specific and predefined points - structural, sonic, spatial, and instrumental; it is pre-composed, while at the same time granting the players the freedom to adjust their course, diverge, and explore the areas within these points through improvisation. The rehearsal process, which lasted several months, can itself be described as the act of navigating within an unknown territory, charting it and creating a map/score as a guideline for the performance. Visually, different spaces for each section are created with lights, to create in parallel a spatial exploration that underlines the compositional concept and magnifies the immersive character of the piece.

¹ Kirstin Gramlich: Organs, Keyboards
Stelios Manousakis: Live Electronics, Programming
Stephanie Pan: Voice, Loopstation

ABOUT THE PIECE

1. General comments on the piece, its improvisatory character and the score

Navigation is an open composition that takes its final form through performance. With each performance many aspects of the piece will change, allowing for particular qualities and micro-moods to emerge freely. At the same time, *Navigation* remains always recognizable as a composition, retaining its formal outline as well as gestural, motivic and theatrical characteristics.

The score is written in such a manner so as to support and sustain both the compositional plan as well as the improvisational character of the piece. Some parts are fairly tightly scripted, for example *Part I*, while others are much more open, for example the *Interlude*; this is reflected in the way these parts are notated. The same is true for sections within parts. Commonly, structurally crucial moments such as openings and transitions are more specific, functioning as milestones that need to be traversed in specific ways, while the in-between parts, ie the paths between such milestones, are described in broader strokes, giving the players more freedom.

Due to this particular nature of *Navigation*, the success of a performance will depend greatly on the ability of the three performers to communicate with each other. It is therefore necessary that the piece be performed by an ensemble that has worked together for an extended period of time, as opposed to soloists coming together only to perform this piece.

2. The visual component: Lights, movement, space configuration and audience position

The visual component of *Navigation* is an important part of the piece, both conceptually as well as in practical artistic terms. The piece follows a theatrical language that is minimal, with lights being used to construct multiple spaces within the Orgelpark that change one or more times with each part, within which the players move and perform.

In the beginning of the piece, only the center of the space is illuminated with the rest being in almost complete darkness – apart from a dim light used where the audience is sitting. As the piece progresses, more and more of the space is being revealed, until by the end of the piece the entire space becomes inundated with light (see light plan).

These spatial constructs and the paths of the players' in them function as yet another layer of poetic abstraction called to express the metaphor of navigation, exploration and conquest of an unknown world.

It is imperative that no podium be used to separate players and audience. Ideally, the audience seats are close to the performers surrounding them with a semicircular pattern (see stage plan). If necessary, more seats can be used in the balcony; in that case, a small area on the left side of the balcony should remain cleared off, as it will be used during the last part of the piece.

3. Transitions

Navigation is meant to be performed as a continuous sonic stream without any pauses between parts - the only exception being between the *Interlude* and *Part IV*. Many parts, sections and subsections are also interconnected, with elements and ideas flowing from one into the other – a kind of structural osmosis.

4. Technical issues

The piece uses four different organs in its different parts: a portable chamber organ, the Molzer, the Sauer and the van Leeuwen organs installed in the Orgelpark. Due to the noise caused by the air pumps of these instruments - and more so because microphones are used to amplify and to record audio for the live electronics processing - all organs are turned off before and after being used during the piece.

5. Instrument-specific guidelines

Some guidelines and comments about the specific instruments used in *Navigation* and how to use them follow.

a. Chamber Organ

In *Part I* all three players are playing different parts on the same chamber organ. Besides the organist, who plays in an almost traditional manner - that is, using the keyboard, albeit positioned on the back side of the organ – the vocalist and electronics performer are actively muting the organ pipes by blocking the

airflow with their hands. In that case, the actual pitch produced by the organ depends on the amount of muting of each pipe.

The vocalist is positioned on the right side of the organ, with the right hand inside the organ, muting the highest frequency 3' and 4' pipes:

- Index finger controls 3' pipe
- Pinky finger controls 4' pipe

To get:

- Root: mute 3' pipe and open 4' pipe
- +3rd: half-mute 3' pipe and open 4' pipe
- +5th: open 3' pipe and fully mute 4' pipe
- Glissandi can be produced by dynamically adjusting the muting amount

between open, half-muted and fully muted

The electronics performer is positioned on the left side of the organ, muting the bass-most pipe with the left hand:

- Root: no muting
- -4th: fully mute pipe
- Glissandi can be produced by partially blocking the airflow, and dynamically adjusting the muting amount

Additionally, all players have some control over the timbral quality of the sound produced by the organ by applying different amounts of pressure on the keys:

- A fully depressed key (hard pressure) will generate a pitch corresponding to the note of the key
- A softly depressed key (soft pressure) will generate a fainter frequency with a lower pitch and more noise components
- Adjusting pressure between softer and harder will generate glissandi
- In the bass notes, a softly depressed key, with the pipe fully muted will generate wind noise, with no discernible pitch

b. Loopstation

This device is a foot pedal that allows the vocalist to record, play, loop and overdub an unlimited amount of layers of her voice; other device formats, for example a software looper controlled via a hardware interface, could be used as well. However it is essential that the device or system has a large memory, allowing for long loops - up to 1' - to be created.

c. Wine Glass

The wine glass is played by continuously rubbing one's finger around its rim: the friction makes the glass vibrate. The glass contains water, the amount of which affects the frequency in which the glass resonates: the more water the lower the frequency. For *Navigation*, the wine glass should be tuned to a D flat.

A wine glass with a good amount of resonance and decay, and with a round sound should be used.

d. Percussion

Navigation uses a part of the Orgelpark infrastructure as an instrument during *Part V*. The metal plate with the name of composer 'DISTLER' on it, located on the railing of the left side of the balcony, is the one with the best resonance and decay for the purposes of the piece. It should be struck either with the fist of the vocalist or with a percussion mallet.

6. About the Electronics**The Compositional Environment**

The live electronics instrument is a modular, real-time compositional environment designed in Max/MSP by the composer. It consists of four audio processing engines and various data generation and data processing algorithmic modules. The live electronics instrument for *Navigation* is essentially an array of separate instruments/processes that can be used on their own (in parallel), in conjunction with each other (in series) or in a complex matrix. For a screenshot of the instrument setup for *Navigation* see Figure 1. A similarly functioning instrument on a different programming platform could be used instead.

Playing this instrument is very involved and as real-time as playing an acoustic instrument; therefore it is notated in a similar manner to the other instruments used in *Navigation*. The electronics are played live using a MIDI controller, with most parameters being controlled directly, and a few controlled via manual manipulation of algorithmic processes.

For a schematic of the processing chain of instrumental inputs and live electronics processes and, see Figure 2.

The Digital Signal Processes

All processes output sound in stereo. A short description of each of them follows:

a. Granular Synthesis

A controlled granular synthesis technique is used as the main audio processing engine. This consists of an array of 12-16 granulators, with different levels of manual and algorithmic control. More granulators can be used if a more powerful computer is running the instrument¹. The details about how this process works are beyond the scope of this introduction; suffice it to say that each of the granulators used in this instrument is a very powerful sampler that can perform a number of detailed audio manipulations in the micro-time level.

A granulator has the following parameters:

1. *Which soundfile to process.* In the case of *Navigation*, this is real-time input from any or all acoustic instruments, as well as from any or all electronic processes.
2. *What kind of waveform to use as a window (micro-envelope) of each granulator.* The type of waveform used as the window plays a fundamental role in what kind of action is perceived to be generating the sound [ex. percussion, keyboard, turntable playing backwards, electronic noise, etc]. In this instrument, a very wide array of waveforms can be defined dynamically by manual or algorithmic means, or by a combination of the two. A type of non-standard sound synthesis created by the composer and based on wavetables is used to create these waveforms.
3. *Volume*
4. *Stereo Panning position*
5. *Phase* (relative to the other granulators); meaning how long after a trigger has been received will the granulator be activated (in the domain of milli- or micro seconds)

¹ The current version of the instrument is programmed in Max/MSP 4.3 (2004 version) and runs on an Apple Macintosh G4 PowerBook, 1,67GHz

6. *Pitch.* There are different tuning systems available. The one used for this piece is a Werkmeister temperament.

7. *Grain length*, i.e. the duration of each grain.

The granulator will read through the soundfile in a loop. The following parameters have to be set:

8. *Start position of the loop*

9. *End position of the loop*

10. *Reading speed of the loop*

11. *Reading shape.* This is a mathematical function where $x=y$ is linear reading; this can be defined dynamically, manually, algorithmically, or by a combination of the two.

A parameter can be altered through a main interface, controlling all granulators together, or by a distribution interface, controlling granulators individually; the main interface value is multiplied by the distribution interface value corresponding to each granulator. A stochastic function can be used on top of that to add different amounts of jitter to the parameter values of each granulator. In this piece, all granulators share the same envelope.

An important aspect of the Granular Synthesis engine as used in *Navigation*, is the different ways in which granulators can be triggered:

1. A periodic internal clock can be used, whose frequency is controllable by the player
2. Grains can be triggered manually by the electronics performer tapping on a dedicated contact microphone
3. The audio generated by the instruments can be analyzed and treated as a clock, transforming loudness peaks into triggers.

For a detailed schematic of the Granular Synthesis engine, see figure 5.

b. Comb Filter Array

This is a delay-feedback based resonator model that can accentuate and parts of the spectrum of an incoming signal and make them last longer via feedback. This module is also used to create complex feedback patterns that interact with the resonances of the performance space. There should be anywhere between 6-18 comb filters active for *Navigation*, depending on how powerful the computer running the system is.

Each comb filter has the following parameters:

1. *Resonating frequency*
2. *Amount of feedback, or decay in milliseconds*
3. *Low pass filter cut-off frequency.* An LPF filter is embedded in the processing chain before the signal is fed back to itself. The cut-off frequency can be modulated automatically by the incoming signal after performing amplitude analysis on it, so as to obtain a more compelling and naturally sounding acoustic result.

For a schematic of the Comb Filter array see Figure 4.

c. Ring Modulation

Ring Modulation is the process of combining the spectra of two audio signals by means of multiplication.

The Ring Modulator used here has the following parameters:

1. *Frequency*
2. *Waveform to be used.* In a similar way as for the windows of the granular synthesis, this can be defined dynamically manually, algorithmically, or by a

combination of the two.

3. *A routing matrix* through which one defines which two inputs will be modulating each other.

For a schematic of the Ring Modulator engine used in *Navigation*, see Figure 6.

d. State Variable Filter

A State Variable Filter (SVF) is a digital filter that can process an incoming audio with any combination of four filters at the same time: Low Pass, Band Pass, Notch, High Pass. In this instrument, the SVF is linked to the output of the Granular Synthesis module.

The SVF filter used here has the following parameters:

1. *Filter type(s) to use*
2. *Frequency*
3. *Resonance*

For a schematic of the State Variable Filter as used here, see Figure 7.

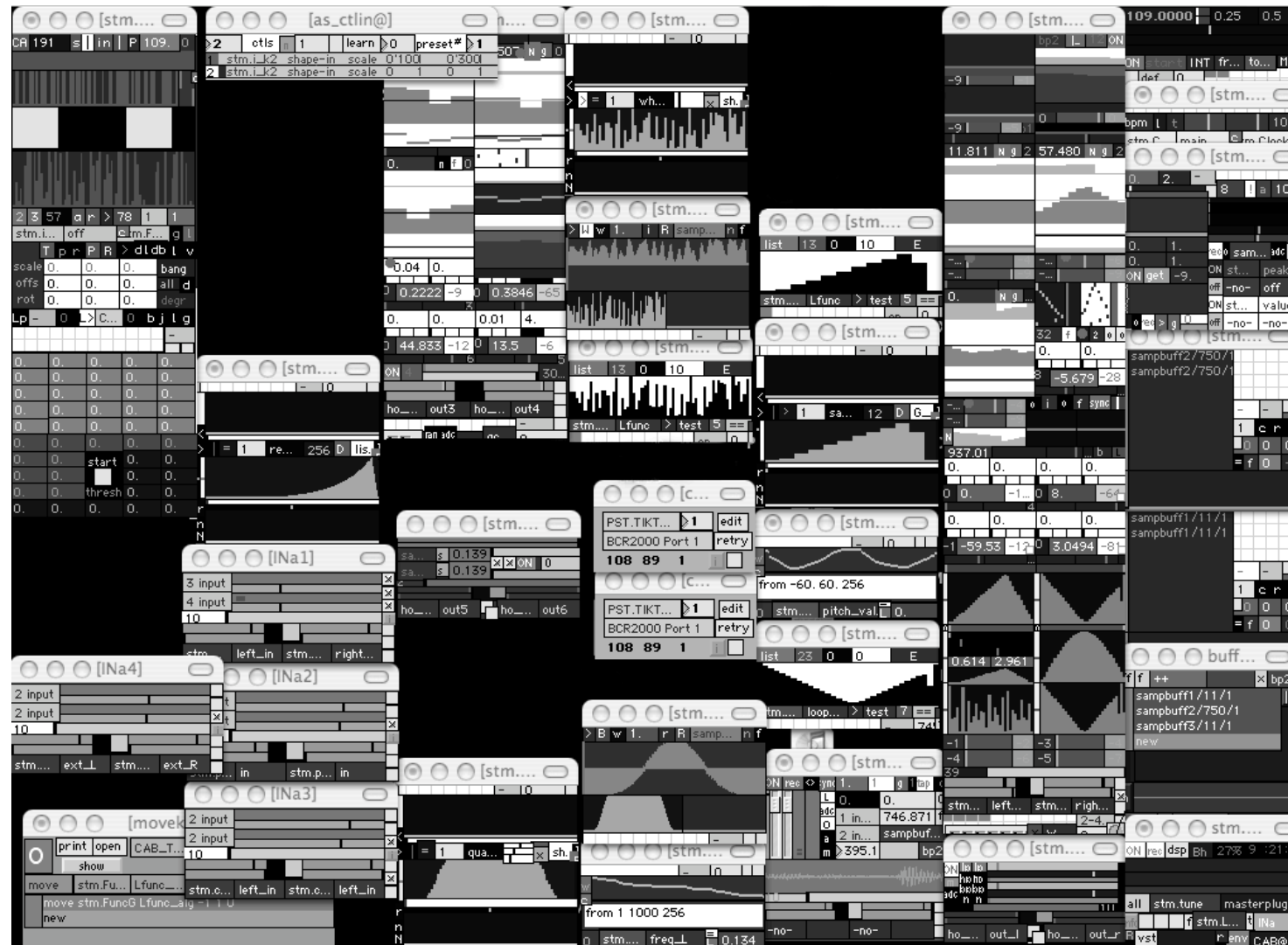


Figure 1: Screenshot of the live electronics instrument setup for Navigation

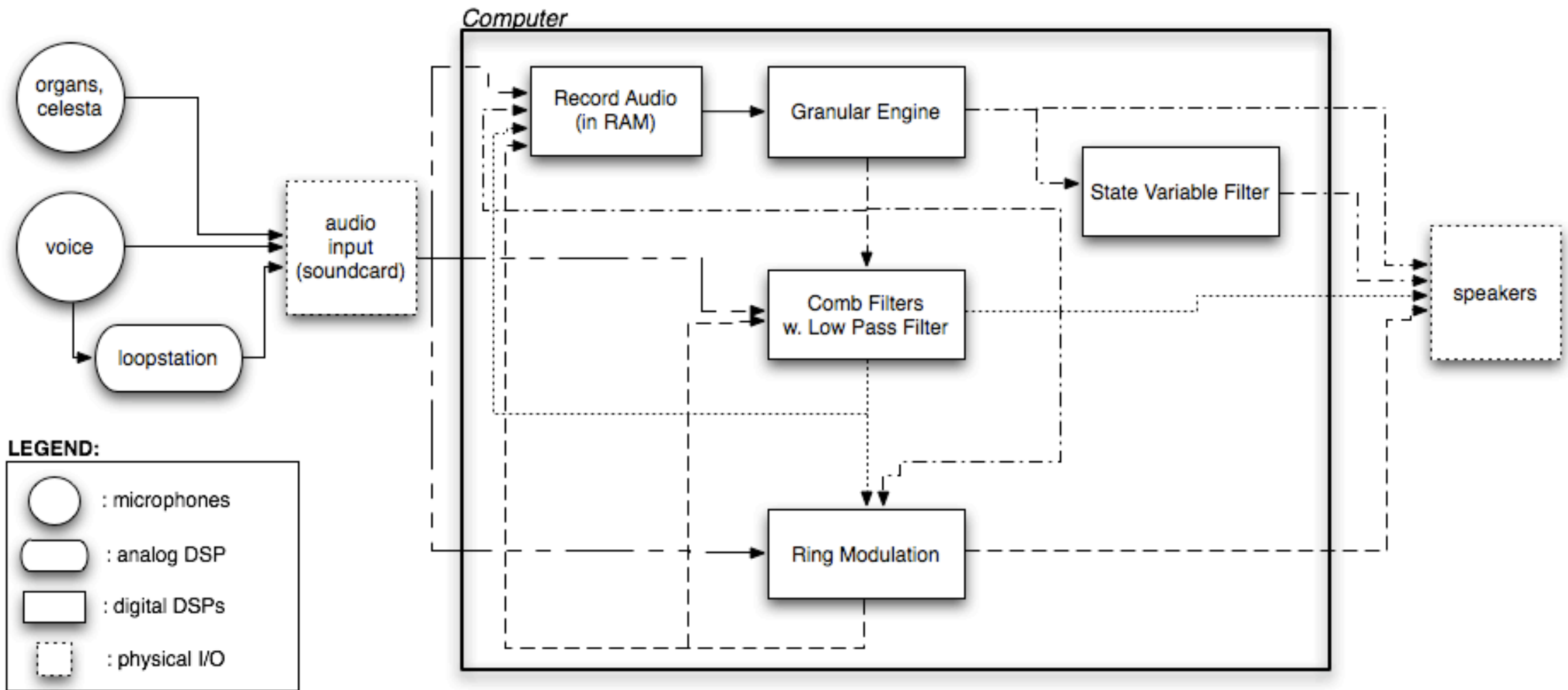


Figure 2: Routing schematics for Navigation: instruments and electronics

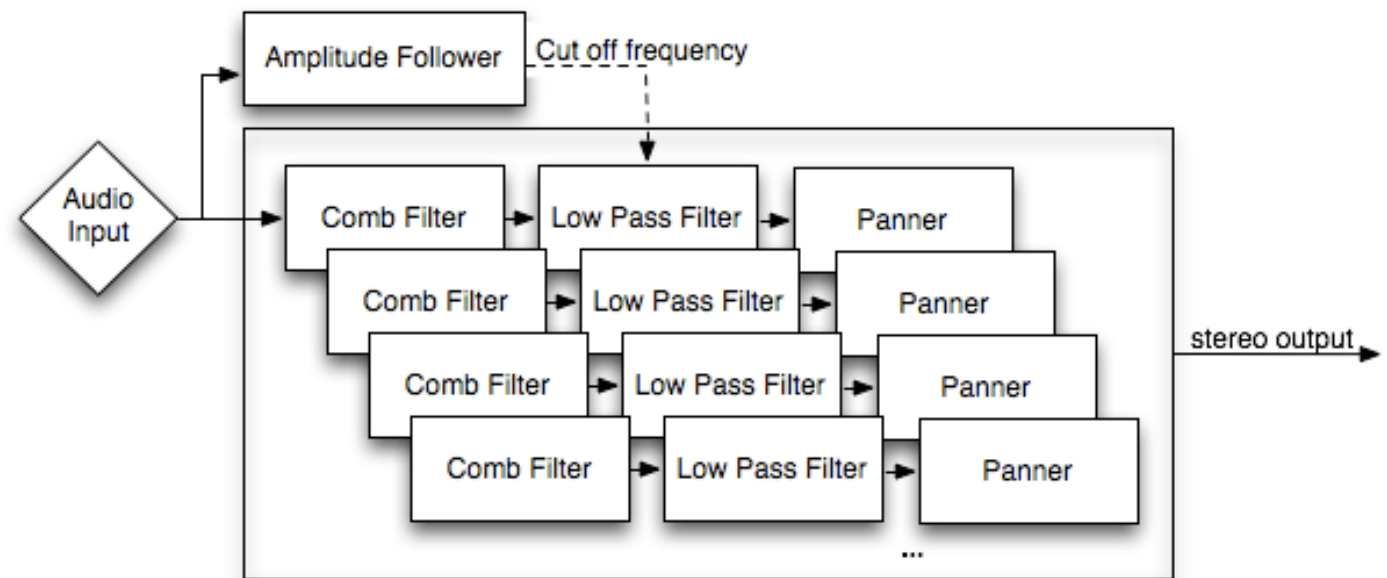
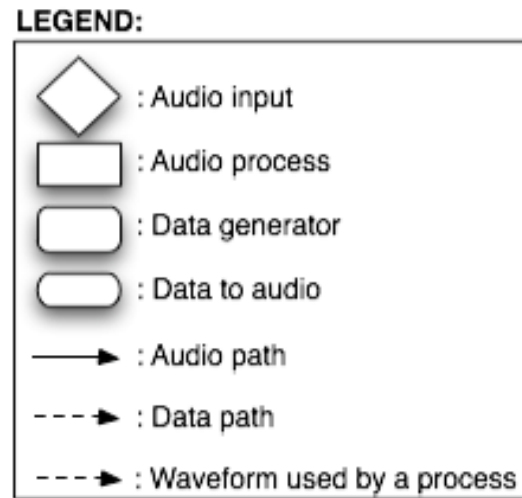


Figure 3: Legend for the DSP engines diagrams

Figure 4: Diagram of the Comb Filter array

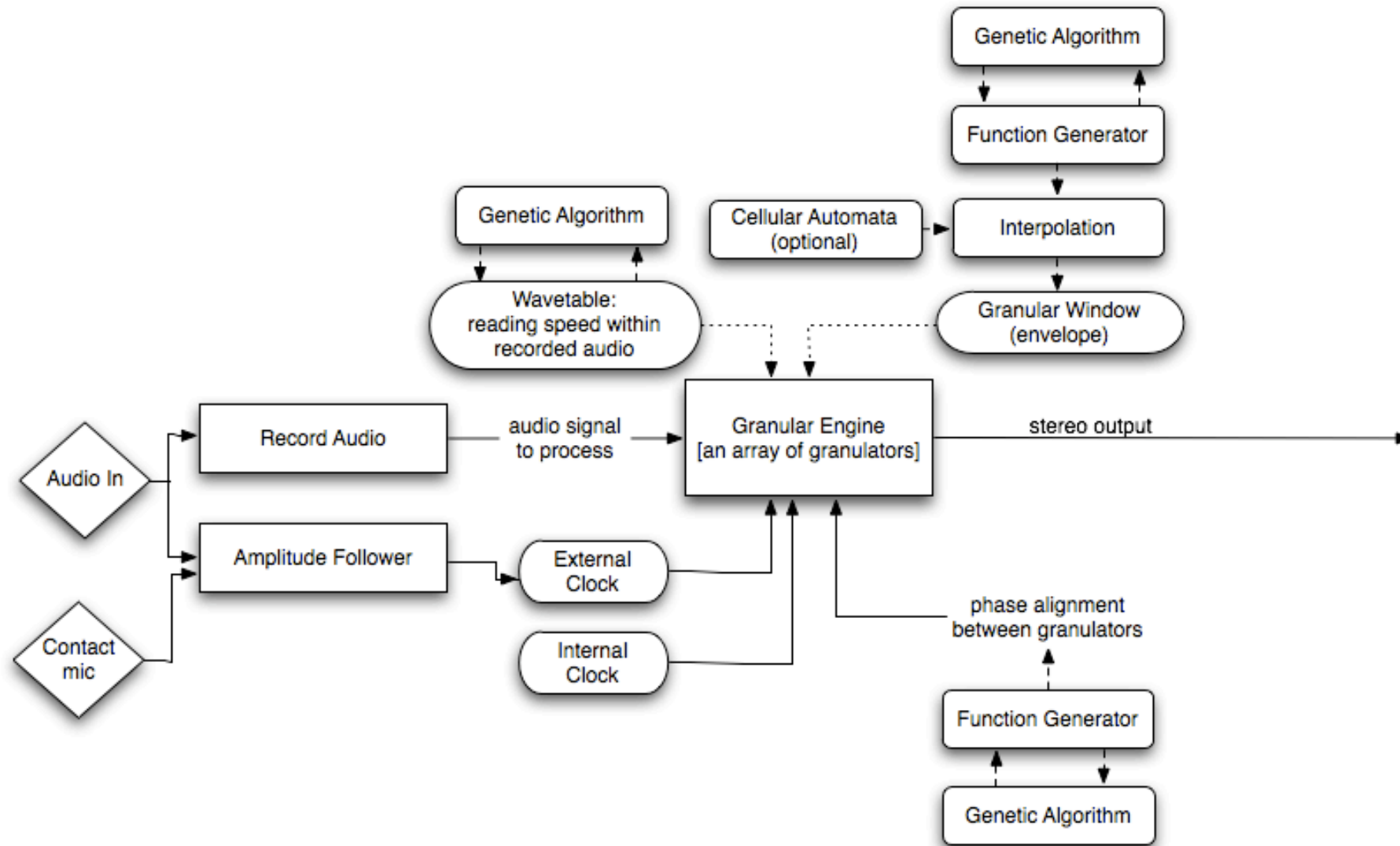


Figure 5: Diagram of the Granular Synthesis engine

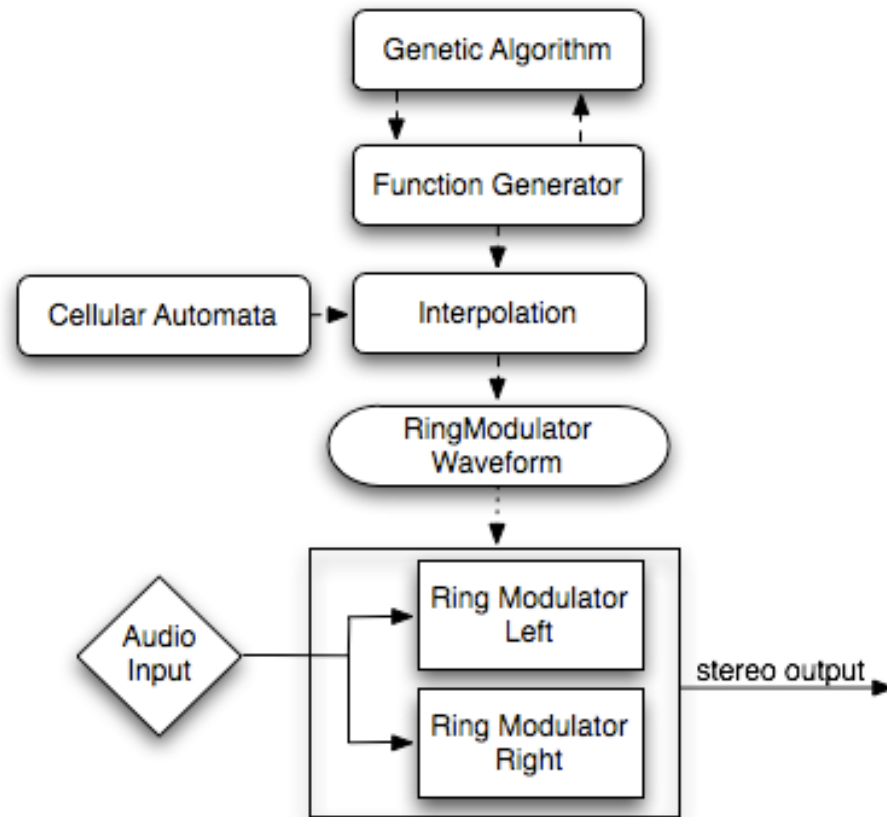


Figure 6: Diagram of the Ring Modulation engine

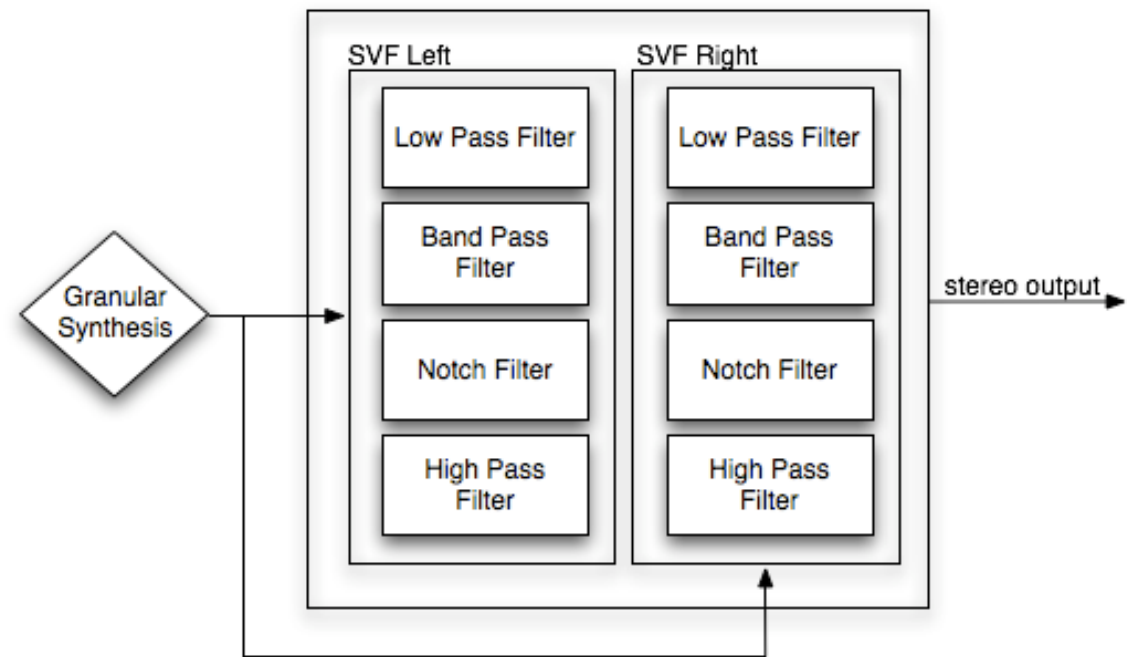
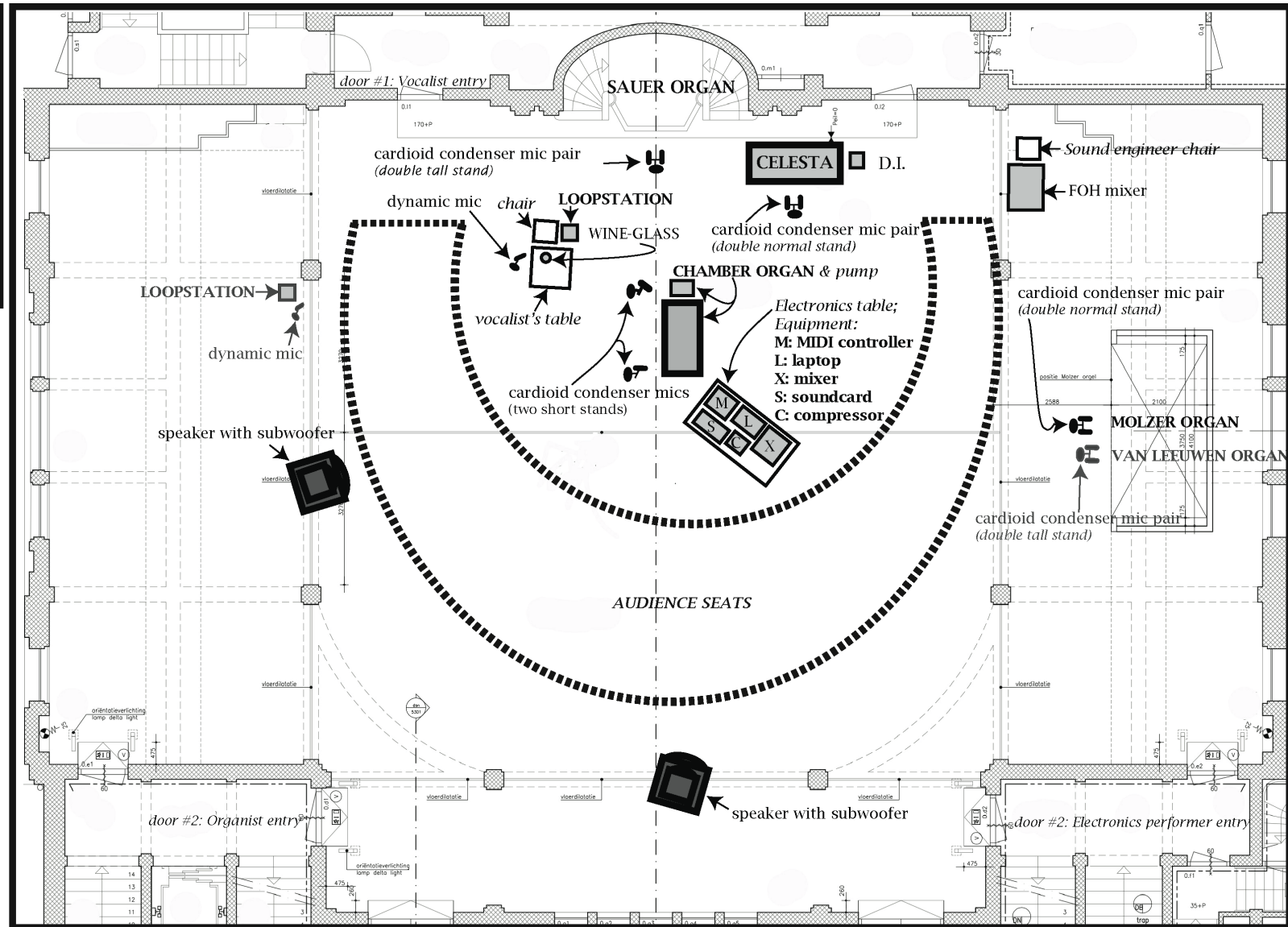


Figure 7: Diagram of the State Variable Filter

Stage Plan 'Navigation'

- Items described in black letters:
located on the ground level
- Items described in grey letters:
located on the balcony
- Area enclosed in dashed line:
designated for audience seats



LIGHTING PLAN AND TIMELINE

The timeline for the light manipulation follows in the next pages. This includes: a) where the lights should be pointing, b) during which specific cues found in the score the light changes should happen, and c) some general suggestions about the kind of lights that should be used and their brightness. Please note that the graphic representation is an oversimplification meant only to assist the light technician; it does not portray the exact surface areas or shapes to be covered by the lights. Adjustments can be made, provided they follow the general ideas and timeline presented here.

Suggested colored gels to use:

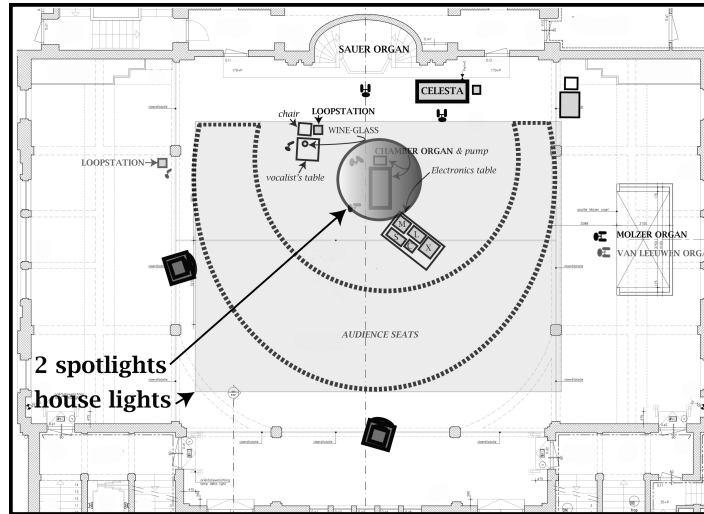
- Celesta: blue
- Sauer: red and dark blue (spotlight is pointed at the organ pipes)
- Van Leeuwen: orange

All other lights should have natural color gels.

Cues & Transitions:

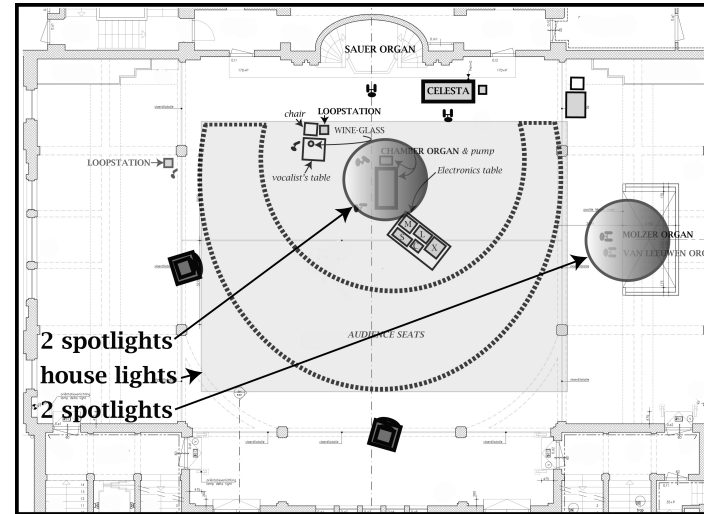
1)

Part 1 [cue 1]:
- Fade-up all marked lights



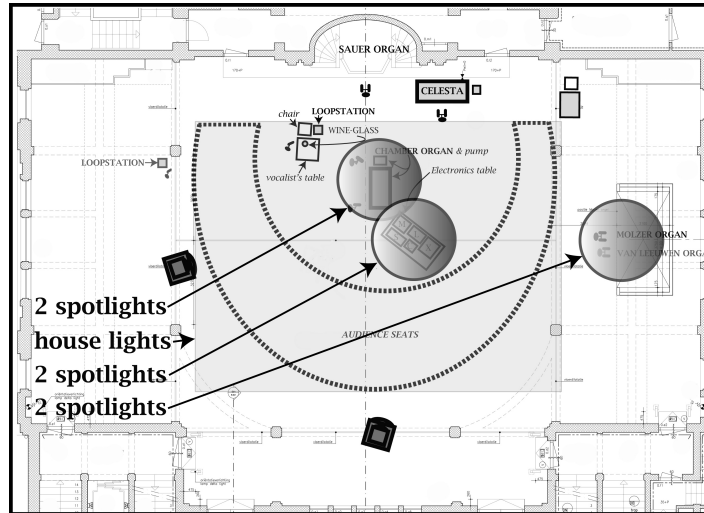
2)

Part I [cue 13]:
- Fade up Molzer organ spotlight to 50%



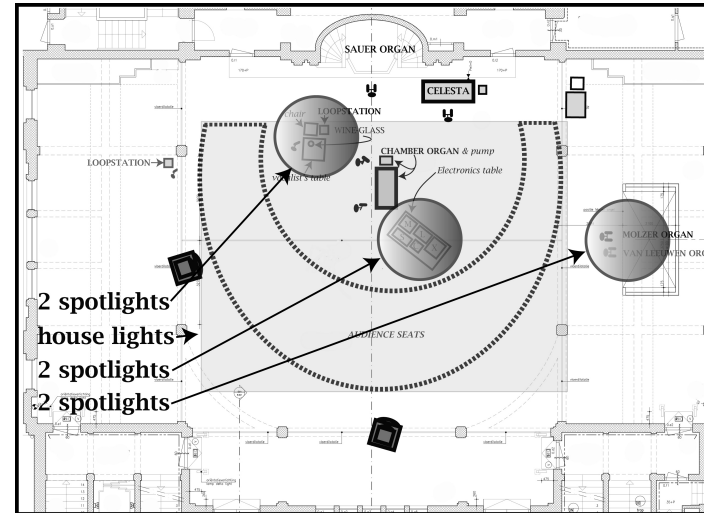
3)

Part II [cue 1]:
- Fast fade up electronics table spotlights to 60% & 60%



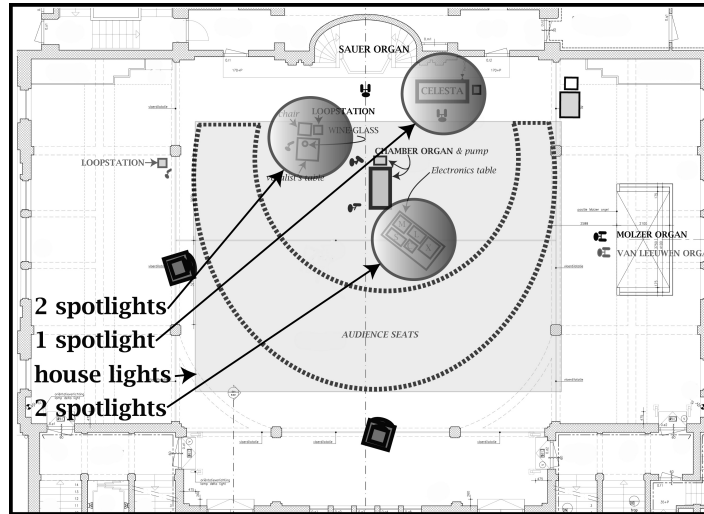
4)

Part II [cue 2]:
- Fade up vocalist's table spotlights to 50% & 50%
- Fade out chamber organ spotlights



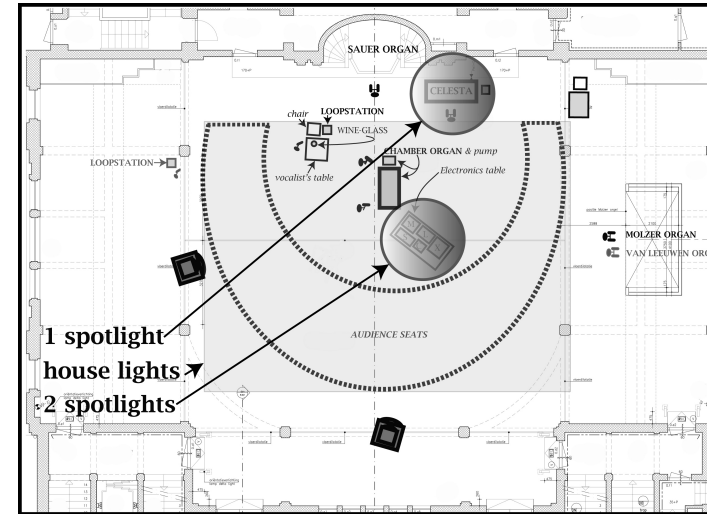
7)

- Part III [cue 18]:
- Fade out Sauer pipes spotlight
 - Fade out Molzer organ spotlight
 - Dim electronics table spotlights to 20% & 50%



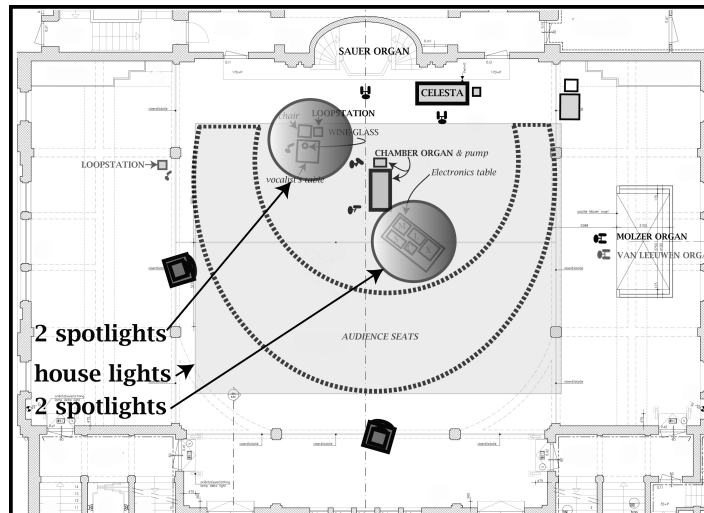
8)

- Part III [cue 19]:
- Fade-up vocalist's table spotlights to 40% & 40%



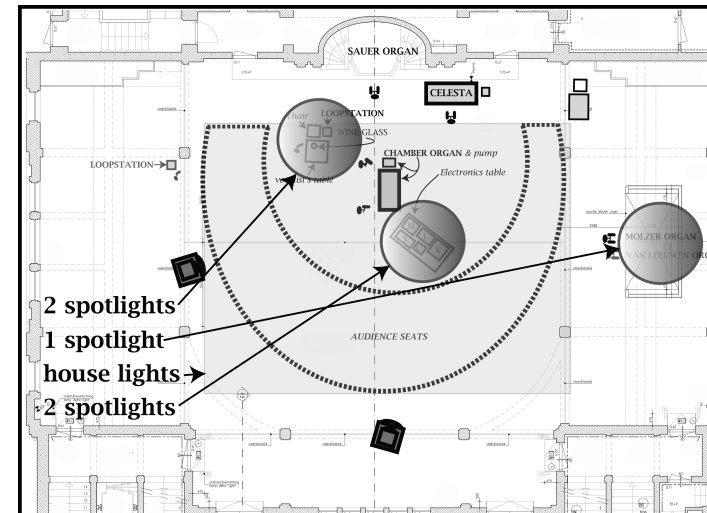
9)

- Part IV [cue 1]:
- Fade-out celesta spotlight
 - Brighten vocalist's table spotlights to 50% & 50%
 - Brighten electronics table spotlights to 40% & 60%



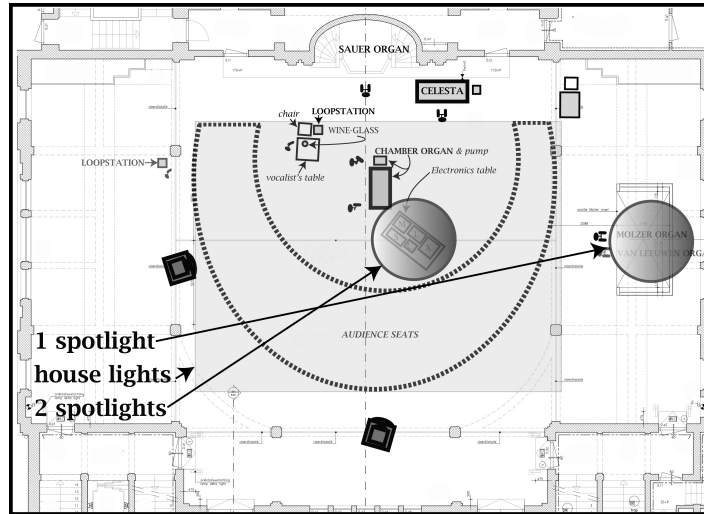
10)

- Part IV [cue 4]:
- Fade-up van Leeuwen spotlight (right-hand balcony) to 45%



11)

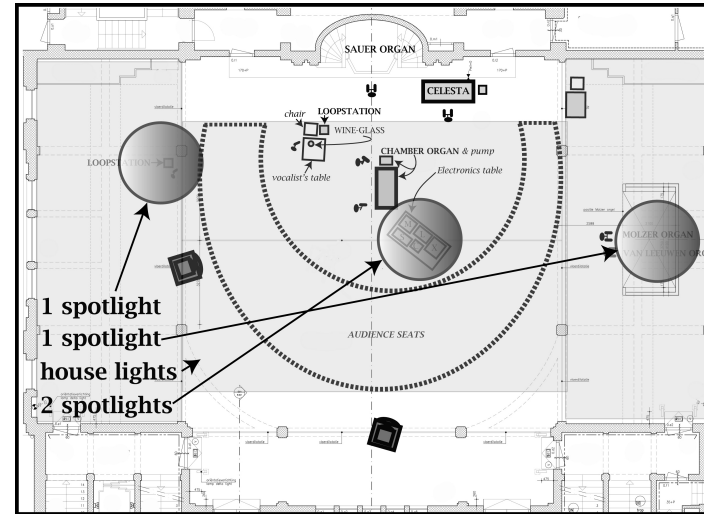
Part IV [cue 11]:
- *Fade-out vocalist's table spotlights*



1 spotlight
house lights
2 spotlights

12)

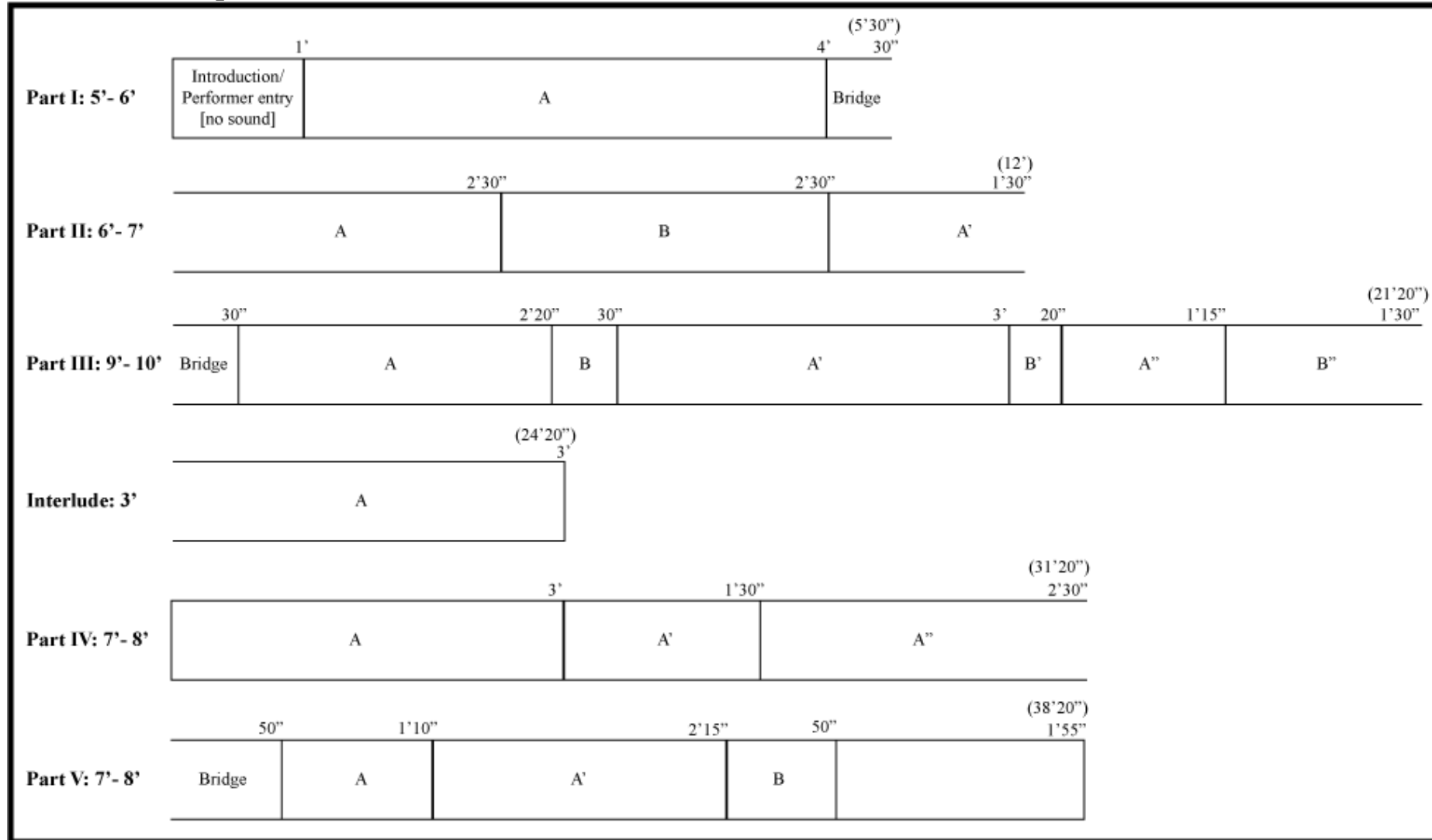
Part V [cue 1]:
- *Fade-up Distler plate spotlight (left-hand balcony) to 100%*
- *Brighten van Leeuwen organ spotlight (right-hand balcony) to 100%*
- *Brighten Electronics table to 50%-80%*



1 spotlight
1 spotlight
house lights
2 spotlights

Part V [cue 13]:
Gradually fade-up side house lights to 50%

Structural Map and Indicative Timeline



SCORE TIMING

In most occasions, time indicators in the score are meant as guidelines to be followed approximately; this is the reason why they are most commonly in a resolution between 5"-10" or more. When times indications are in a higher resolution (i.e. less than 5 seconds) , as for example is the case in many subsections of *Part V*, they should be followed more closely.

Two types of time indicators can be found in the score. On the top of the vertical line that ends each page is an indicative timer for each part. Counting starts from zero with the beginning of each new part. On the bottom of the page and right after each vertical line is another number. This defines the amount of time that the section between the two vertical lines should approximately last. Within each two consecutive lines, a relative proportional notation style is followed. That is, the horizontal distance, in conjunction with the time indication of the particular passage, defines timing and durations. For example, if the space between two lines is 6cm, and the indicative timing is one minute, then each cm corresponds to 10". Note that after each vertical line this measurement is redefined. Therefore, if for example the passage that follows is supposed to last 10" and is written in a space of 5cm, then each cm will correspond to 2". Nevertheless, for boxed notation, the contents of the entire box are treated as a group; as such the above rule does not apply to the individual elements in the box.

SCORE KEY

● : Press key fully

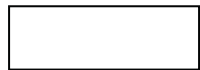
◊ : Press key as soft as possible


○ : Leave pipe open (no muting)


+


∅ : Play a cluster within the defined range


⌈●
●⌋ : Play notes within this range for the duration of the passage

 : Non-musical instructions (theatrics and movement)

 : Contents of the box represent indicative, indeterminate events to last for the duration of the box

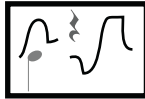
 : Continue as instructed from before, for the duration of the line (usually attached to a bold-framed box)

 : Continue at will as instructed from before, for the duration of the line (usually attached to a bold-framed box)

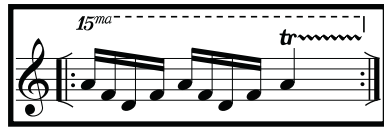
 : Indicative gesture to last for the duration of the box



: Indicative pitch gesture to be played with clusters; lasts for the duration of the box



: Indicative gesture (in black); superimposed (in grey) are references/elements from another instrument to use as cues



: Improvise on a motive for the duration of the box




: Passage to be repeated as is



: Play second note a 6th tone higher in pitch

/s/, /ʃ/, /ʒ/ : Vocal sounds described with phonemes, as defined by the International Phonetics Association (here: different types of 's' sounds)




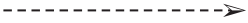
 : Tap with open palms

 : Strike with fist

BM : Bottom manual of the organ; followed by the stops to be used for it

TM : Top manual of the organ; followed by the stops to be used for it

Ped : Pedals of the organ; followed by the stops to be used for it

-  : Harmonium 'below shake' (fast alterations between pressing left and right pedal)
-  : Structural indices within a part; useful only as a reference
-  : Subsection cue number within a part; useful only as a reference
-  : Cue points between two different staves, or musical elements and ideas flowing from one stave / instrument to another

Navigation - Part I

*Chamber Organ, live electronics**

Quiet and slow; pastoral

A

1'45"

VOCALIST

Chamber Organ:

Pipe muting (right hand)

Key depression (left hand)

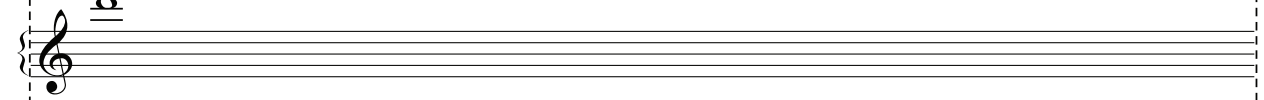
Pitches:

Enter from door #1 (see stage plan); walk slowly to the right side of the chamber organ. Put on earplugs; put on surgical glove on right hand. Sit on the air pump. Put left hand on top-most keyboard key and right hand on the corresponding pipes inside the organ.

Nasard 3'

Gedekt 8'

bird-calls



ORGANIST

Chamber Organ

ELECTRONICS PERFORMER

Chamber Organ

Electronics:
Granular Synthesis

TUTTI

1'

45"

1

2

pppp

*: granular synthesis

2'40"

VOCALIST

Chamber Organ:
Pipe muting (right hand)

Key depression (left hand)

Pitches: {

ORGANIST

Chamber Organ

Chamber Organ:
Pipe muting (left hand)

Key depression (right hand)

Pitches {

Electronics:
Gran. Synth.

TUTTI

Enter from door #2 (see stage plan); walk slowly to the left side of the chamber organ. Put right hand on bottom-most keyboard key and left hand on the corresponding pipe on organ's back side

two-voice polyphony, by manipulating two pipes

open ○
muted +

counterpoint between the two voices

Only let air through

Create a melody moving within a 4th by muting the pipe (G2-C3)

15" 3

10" 4

15" 5

VOCALIST

Chamber Organ:
Pipe muting (right hand)

Key depression (left hand)

Pitches:

Improvise on these pitches in any order and using trills and glisandi

ORGANIST

Chamber Organ

Enter from door #3 (see stage plan); walk slowly to the back side of the chamber organ. Put right hand on bottom-most keyboard key taking over note from the electronics performer without a pause

Key pressure ad lib.

Play long notes to create chord-like structures and clusters

Add low notes to create clusters

ELECTRONICS PERFORMER

Chamber Organ:
Pipe muting (left hand)

Key depression (right hand)

registers

Pitches:

Rhythmic improvisation using the two bottom organ stops (Roerfluit 4', Octaaf 2')

Electronics:
Gran. Synth.

Trigger electronics manually with contact mic. Start sparsely, then gradually denser. Play accelerandi/ritardandi patterns (similar to bass muting from before) with pauses in-between

TUTTI

20" 10" 10" 10" 5" 25"

6 5 6 7 8 9

VOCALIST

- Chamber Organ: Pipe muting (right hand)
- Key depression (left hand)
- Pitches:

ORGANIST

- Chamber Organ

ELECTRONICS PERFORMER

- Chamber Organ: Pipe muting (left hand)
- Key depression (right hand) registers
- Pitches
- Electronics: Gran. Synth.

TUTTI

Performance Instructions:

- Walk slowly to Molzer Organ. Sit and wait for 20"-30; begin Part II before Part I ends
- Move to electronics table
- Nasard 3', Gedekt 8', Roerfluit 4'
- pitch shifting sweeping gestures
- Merge with Part II without pause

Time Markers: 40", 5", 15", 10", 20"

Measure Numbers: 10, 11, 12, 13, 13

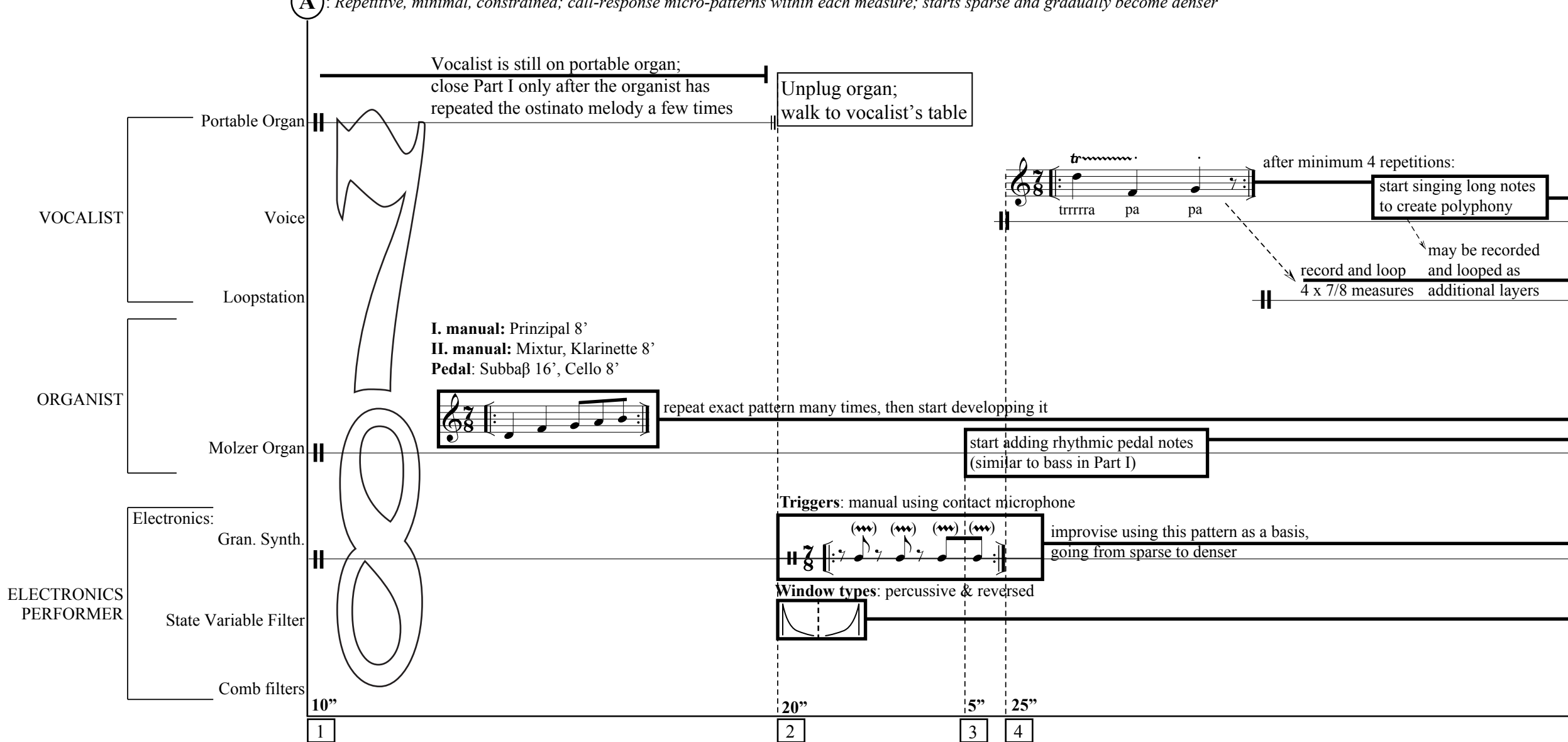
Navigation - Part II

Molzer Organ, voice & loopstation, live electronics*

Rhythmic, minimal and repetitive; play with density

♩ ≈ 66

A: Repetitive, minimal, constrained; call-response micro-patterns within each measure; starts sparse and gradually become denser



*: granular synthesis, state-variable filtering, comb filtering

♩ ≈ 66

(B) : free-er and less rigid temporally than **(A)** ; complex and dense

2'30"

3'

VOC.

Voc. Long glissando notes with glottal tremolo notes become gradually shorter

Loopst. start:fade out

ORG.

Molz. Org. add melodic lines with long notes; then start adding notes on up-beats ascending chords developing the theme (pedal) descending chords

ELECTR.

Gran. Synth. **Triggers:** start adding internal clock to create more continuous rhythms; play with density differences between measures **Window types:** start introducing noisier windows to alter timbral quality of incoming sound

SVF

Pedal: add Kornett 8' **II. manual:** add Geigenprinzival 8' Flöte 8' Salizional 8' **I. manual:** add Gedackt 8' Gemshorn 8' Rohrflöte 4' Octave 8'

Pitch: pitch-shift downwards to create a 'cadence' for the end of **(A)** **Spectrum:** keep it bass heavy with the help of SVF

Triggers: continuous, internal clock & external through audio-in

Low-Pass filter the granular synthesis: attenuate high frequencies to make sound deep and muddy **Cut Off Frequency:**

TUTTI

increase tension! increase density!

15" 1' 15" 30" 5 6 7 8

loudness

alternate between 's' of different thicknesses, emulating doppler effect with amplitude, pitch and spectrum changes; use both continuous sounds and short impulses

VOC.

Voc. (after minimum 4 repetitions)
 sing long glissando notes long steady notes

VOC.

Loopst. record and loop
 4 x 4/4 measures fade out

ORG.

Molz. Org. simplify previous and gradually make it sparser
 and with less polyphony

ELECTR.

Gran. Synth. Pitch: Triggers: internal clock

SVF Pitch: Cut Off Freq.:

noisier, through the use of noisy windows

Produce long, static tones through feedback

TUTTI

tutti: density & tension

tutti: density & tension

tutti: density & tension

20" 25" 30" 45" 5'

9 10 11 12

Return gradually to registers of (A) removing:
I. manual: Gedackt 8',
 Gemshorn 8', Rohrflöte 4', Octave 8'
II. manual: Geigenprinzipal 8'
 Flöte 8', Salizional 8'
Pedal: Kornett 8'

♩ ≈ 66

A': Reprise, in a compound meter

6'30"

Walk to harmonium while still singing

VOC.

Voc. ||

ORG.

Molz. Org. ||

I. manual: Prinzipal 8'
II. manual: Mixtur, Klarinette 8'
Pedal: Subbaß 16', Cello 8'

Pattern may be broken/shortened/developed at will towards end

Add pedal notes

ELECTR.

Gran. Synth. ||

continue aggressive pitch shifting

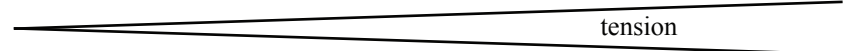
Cut Off Freq.: prominent filter sweeps



SVF ||

Comb Filt. ||

TUTTI



tension

1'30"

No pause before next part!

13

Navigation - Part III

Sauer Organ, Mustel Harmonium and Celesta, voice, live electronics*

Dense, rich, powerful and expansive; consists of three waves; the content is free, but it has to follow the notated gestures

Very slow **Bridge/Intro** *Slow* **A** *2'40"*

Air-pump pedal action: 'bellows shake'
left ← right →
8^{nb}

VOCALIST

Harmonium
Celesta
Voice

choose/alternate between (upwards gestures):
unvoiced 's' : /s/ /s/ /s/ | increase gesture bandwidth
voiced { singing { no vibrato | decrease gesture length
 { screaming { glottal tremolo

ORGANIST

Turn off Molzer organ;
walk to Sauer organ and turn it on

Sauer Organ
Celesta

Electronics:
Granular Synthesis: calm and soft but present, merge with instruments
State Variable Filter
Comb filters
Ring Modulation

ELECTRONICS PERFORMER

TUTTI

Everything from the previous part lingers for about 10"
start building tension almost imperceptibly
a bit more tension
yet more tension!

Swells: closed
BM: all 8' stops, all 4' stops, no reeds
HM: all 8' stops, no reeds
Ped: all 16' stops, Bassflöte 8', Cello 8', no reeds

Couples: II-Ped, II-I
BM: add Flautino 2', Harmonia atheria, Lieblich Gedackt 16', Oboe 8', Clarinette 8'
Ped: add Octavbass 8'

Pitch: 3"-8"
2-4 upward moving cluster gestures

Triggers: internal clock (ping-pong rhythm variation)

Cut Off Freq.: Upward filter sweeps

10" 30" 1' 30" 30"

1 2 3 4 5

*: granular synthesis, state-variable filtering, comb filtering, ring modulation

Medium speed *Faster*

VOCALIST

Celesta

Voice

ⓑ *Break tension*

No amplification of unprocessed Celesta;
sound only through ringmodulation

Play a sparse melody with loose timing

Ⓐ *Faster*

One double wave, going from 'p' to 70%-80%
and then from 'mf' to maximum dynamics;
each wave consists of several gestures
of upwards&downwards pitch-sweeps that get progressively
faster, tenser and louder

4' 15"

ORGANIST

Sauer Organ

Pitch:

≈ 1" 3-5 upward moving cluster gestures,
mostly before end of subsection

add Pedal bass!

Swell: closed
Play only on **BM**

No dry signal, only ringmodulated..
External clock: amplitude track Celesta
to produce most triggers in sync;
stay in background; leave more space for the Celesta

calm and melodic/harmonic

HM: add Bourdon 16', Octave 4', Rohrflöte 4'
Couples: I-II

ELECTRONICS PERFORMER

Electronics:
Gran. Synth.

State Variable Filter

Ring Modulation

add bass!

add bass!

Use noisy wavetables to achieve a gritty sound

Process Celesta and Gran.Synth.

TUTTI

ff
more tension and power!
(reach ≈60-70% of max. dynamics)

pp

leave a short decaying 'tail' when going from Ⓐ to ⓑ

start building tension almost imperceptibly

20" 6

30" 7

45" 8

Medium speed

Faster (second wave)
A²

B¹
6'30" 6'50"

VOCALIST

Celesta

follow tutti tension indications, cue from organ

ORGANIST

Sauer Organ

Swell: open **HW:** add Rauschquinte, Cornett-Mixtur, Trompete 8'
Pedal: add Posaune 16'

5"-10" 1"-4" **Pitch:** 3-5 up/down cluster gestures
add Pedal bass

≈1" 5-7 gestures calm & melodic

≈20" ≈1" 8-10 gestures

Couples: add I-Ped, Subkoppel, Superkoppel, Superpedal

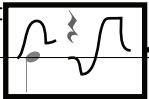
ELECTRONICS PERFORMER

Electronics:
Gran. Synth.

no dry signal, only ringmodulated..
External clock: amplitude track Celesta to produce most triggers in sync;
leave a soft trail after Celesta notes in background

ELECTRONICS PERFORMER

State Variable Filter

a fast glissando for each note and pause of the Celesta
ex: 

TUTTI

Ring Modulation

a bit more tension

more tension and power! 80-85% *ffff*

max tension and power! 100% *ffff*

mf

45"
9

15"
10

25"
11

20"
12

30"
13

20"
14

Medium speed

A One wave, going from 'p' to 80-85% dynamics; each wave consists of several gestures of downwards pitch-sweeps that get progressively faster, tenser and louder

VOCALIST

- Celesta
- Voice

ORGANIST

- Sauer Organ
- Celesta (perc.)

ELECTRONICS PERFORMER

- Electronics: Gran. Synth.
- State Variable Filter
- Comb Filters
- Ring Modulation

TUTTI

Performance Instructions:

- Swell:** closed
- Pitch:** 3-4 downwards cluster gestures
- HW:** remove Rauschrquinte, Cornett-Mixtur, Trompete 8'
- couples:** remove Superkoppel, Subkoppel
- Gradually add all stops on (full organ)
- calm/melodic
- 5''- 10''
- 1''- 4''
- 2-3 downwards cluster gestures
- 8-12 downwards cluster gestures
- heavier
- Turn off Sauer. Walk to Celesta; take place on left side and prepare for percussive part
- Play a few sparse notes, then: (similar to end of part I)
- Walk to vocalist's table
- No dry signal, only through Comb Tap Celesta body with hands.
- Triggers: continuous with internal clock. Create a bubbly metallic soundscape
- create long string-like notes by processing Celesta-body Percussion; use a lot of feedback
- a fast glissando for each accented note of the Celesta
- merge previous section with this
- merge with next part

Timeline: 25'', 30'', 45'', 15, 16, 17, 18, 19, 9'30''

Dynamic Markings: *fff* 80-85%, *p*

Navigation - Interlude

*Celesta, voice, loopstation, live electronics**

Improvise for a duration of about 3' following the rules and suggestions below:

*A watery and metallic, ethereal soundscape.
One section, consisting of many slow crescendo/decrescendo, accelerando/ritardando waves or phrases
Play slowly, softly and sweetly, listening carefully to each other and responding*

VOCALIST:

Voice, Loopstation

1. Hum or sing softly a 2-3 note motive that fits within a tetrachord
2. Record and loop a few repetitions to create an ostinato layer
3. Add more layers, looping them or not at will.
4. Techniques and sound typologies to choose from.

(All sounds should be soft):

- humming
- soft song
- high pitched glottal vibrato
- unvoiced: changing the spectral content of voiceless fricative consonants:

/s/, /ʃ/, /ʒ/, /ç/, /f/, /x/, /ç/, /ŋ/, /χ/

- unvoiced inhale/exhale
- unvoice dentolabial inhale (continuous 'kissing' sound)

ORGANIST:

Celesta

1. Play phrases in accelerando-ritardando waves with pauses in-between

ELECTRONICS PERFORMER:

Granular Synthesis;

1. Echo what Celesta, Voice and Comb filters do in a contrapuntal, soft and sweet manner
2. Triggers:
 - During first and last 1/4 of the movement use mostly manual triggering with contact mic, while turning on/off the internal clock to add more periodic accelerandi/ritardandi waves
 - During the middle half of the movement use primarily internal clock, to create accelerandi/ritardandi waves
3. Timbre control (granular windows):
 - Do not use noisy windows, but only smooth and percussive ones

State Variable Filtering;

1. Use SVF optionally to filter the Granular Synthesis output, but only during the 2nd half of the movement

Comb Filtering

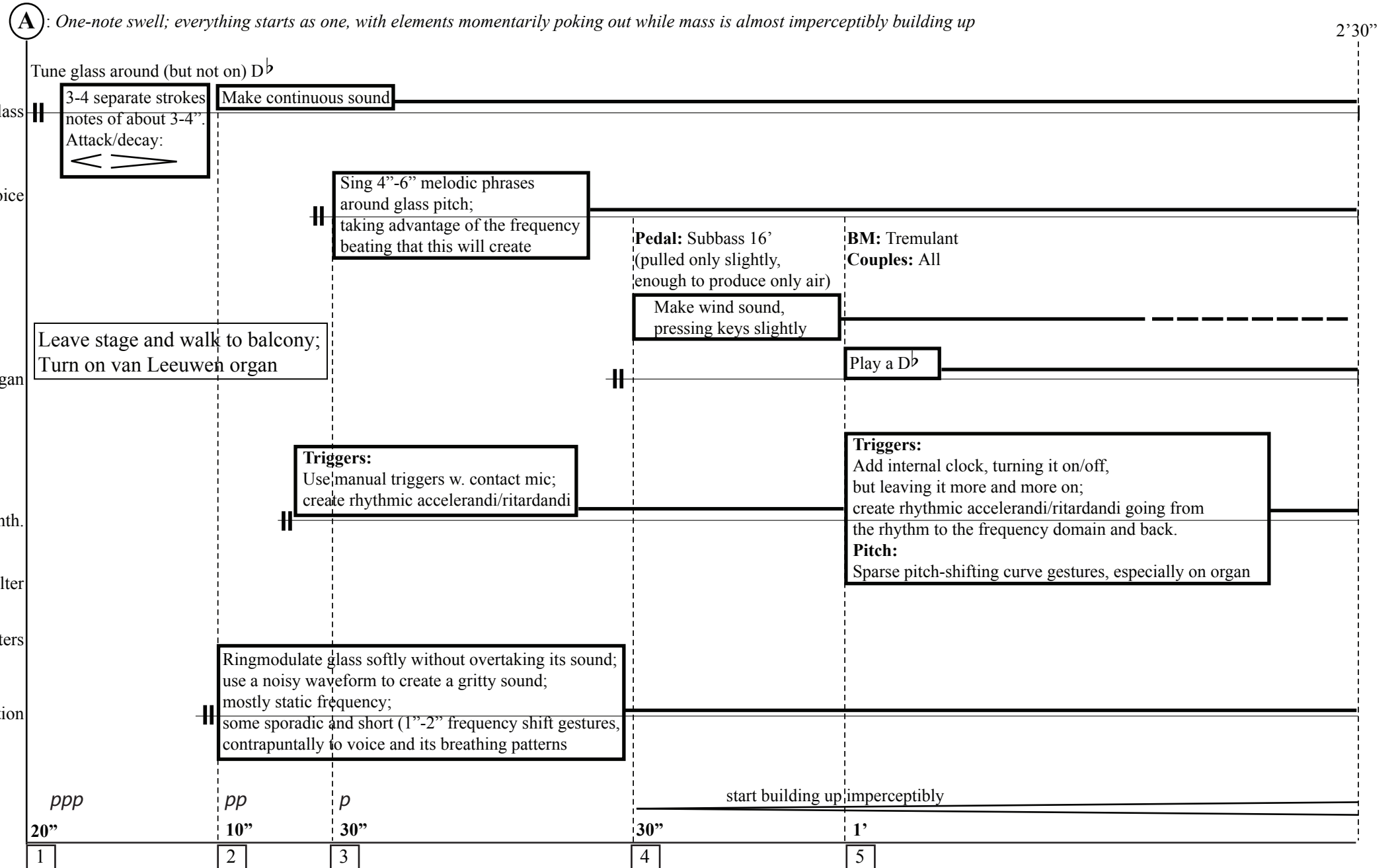
1. Use to accentuate spectral areas of the Celesta and the Voice
2. Produce long tones with slow attack and slow decay
3. Send output to Granular Synthesis for processing

*: granular synthesis, comb filtering, (state variable filtering)

Navigation - Part IV

*van Leeuwen Organ, voice & wineglass, live electronics**

A continuous build-up from one soft note to a dense sound mass;



*: granular synthesis, state-variable filtering, comb filtering, ring modulation

(A') : bigger, denser

Wine Glass

VOCALIST

Voice

High pitched squeals

Sing with vibrato, at points with overdriving voice glissandoing mostly upwards within a semitone or a tone around D \flat

ORGANIST

van Leeuwen Organ

Start adding neighbouring octaves and more registers, starting with Fluit 4'; always on D \flat

Add more high and low octaves; more registers

Couples: BM-TM

Yet bigger sound, always on D \flat

ELECTRONICS PERFORMER

Electronics:

Gran. Synth.

Triggers: continuous with internal clock, same behavior as before

More aggressive pitch shifting to mark ends of some phrases (though use sporadically still)

Pitch shift! on D \flat

State Variable Filter

Cut Off Freq: filter Gran. Synth w. soft upward/downward sweeps. Low resonance

boost bass!

Comb filters

feedback to self through RM

boost bass!

Ring Modulation

TUTTI

build up a bit more

build up yet more

mf

build up more forcefully

f

crescendo!

30" 30" 1' 30"

6 7 8 9

A'' : introduce more pitches and chords, developing previous content; use harmonic content to retain the tension until end of movement

VOCALIST

- Wine Glass
- Voice: Develop material from A' using the harmonic content provided by the organ; Leave stage and walk to balcony, while still singing (bring Loopstation material with, if only one is available)

ORGANIST

- van Leeuwen Organ: Change chord! Progress harmonically using big and heavy chords until end of part IV

ELECTRONICS PERFORMER

Electronics: very active and complex; all processes interconnected, feeding back to each other and themselves

- Gran. Synth.: Aggressive and broadband pitch-shifting with sweep gestures, sudden register jumps and a lot of high frequency content; glissandi/accelerandi/ritardandi, going from rhythm to frequency, w. breaks of periodic rhythms. Use mostly percussive and reverse windows; Mostly reverse windows, as a cadence cue
- State Variable Filter: Several frequency sweeps, with sudden register jumps, contrapuntally to Gran. Synth. and RM gestures
- Comb filters: Provide a stabler, yet noisy, backbone with focused frequencies peeking out, especially on bass
- Ring Modulation: Process Granular Synthesis. Several frequency sweeps, with sudden register jumps, contrapuntally to Gran. Synth. and SVF gestures; glissandi/accelerandi/ritardandi, going from rhythm to frequency, w. breaks of periodic rhythms

TUTTI

- Suddenly stop with first event of Part V

Time markers: 30'' (10), 1' (11), 1' (12), 8'

Navigation - Part V

van Leeuwen Organ, voice & loopstation, percussion, live electronics*

Big and expansive; almost classical form with exposition and development, ending in a long plagal-style cadence

Link : Parts IV & V are essentially one long section;
sudden interruption with this subsection to progress to a different sonic space

♩ ≈ 120

A : 'exposition' 1'

Percussion **DISTLER** (use 'Distler' plate on left side of balcony as percussion, strike with fist)

VOCALIST
Voice
Loopstation

ORGANIST
van Leeuwen Organ

ELECTRONICS PERFORMER
Electronics:
Gran. Synth.
State Variable Filter
Comb filters
Ring Modulation

TUTTI

let ring and bring mic closer to amplify plate resonancies

Process percussion:
Strengthen percussion decay with feedback on first hit.
Extra bass!

Pause

OR:

Strengthen percussion decay with feedback.
Extra bass!
Create 3-5 note melodic motives within each hit;
follow this pattern (rhythm & dynamics):

BM: Spitsgedekt 8', Speelfluit 4', Praestant 2', Nasard 1 1/3', Cymbel III, Schalmey
TM: Roerfluit 8', Praestant 8', Octaaf 4'
Ped: Subbas 16', Praestant 8', Roerfluit 8', Octaaf 4', Dulciaan 16'

4 repetitions

Process organ & comb filters.
Internal Clock & Amp. follow instruments

Fade in

7" 21" 22" 9"

1 2 3 4

*: granular synthesis, state-variable filtering, comb filtering, ring modulation

VOCALIST

- Percussion: 7" on 1st repetition
- Voice: harmonize/add more layers
- Loopstation: record and loop 4 x 2x4/4 measures; record and loop at will as additional layers

ORGANIST

- van Leeuwen Organ: 2 repetitions; Pedal: Add two notes every few repetitions. Ex: (bass line example)
- Gran. Synth.: Process all audio

ELECTRONICS PERFORMER

- State Variable Filter
- Comb filters
- Ring Modulation

TUTTI

- tension

Timeline: 8" (5), 16" (6), 20" (7), 16" (8)

