

APPENDICES

APPENDIX 1 — *Study for Triangles* — Acoustic Triangle Parts

Programme Note

The *Study for Triangles* represents a collective improvisation based entirely on acoustic and sampled triangle timbres. The three acoustic performers each receive three groups of three rhythmic cells that form a basis for improvisation, while the electronic part, consisting entirely of edited triangle samples, is improvised in real-time using the interactive program *M*. The improvised electro-acoustic environment of the piece allows various interactions between the acoustic performers and the computer operator.

Pitch structures in the electronic part are based on the Pythagorean *Holy Tetractys*, complemented visually by the equilateral shape of the acoustic triangles. Complementing the altered triangle sounds in the electronic part are rhythmic structures based on groups of three, four and five, derived from Pythagoras' theorem on the right angle triangle.

Steven Campbell,
Armidale, N.S.W.
August, 1993.

Notes for performers

- 1) The score is in three main sections (labelled A, B, C) that are each subdivided into smaller subsections labelled (1, 2, 3). Each subsection is repeated until a cue is given from the computer operator. Following each cue performers immediately proceed to the next subsection. Silence periods occur between the main sections, the computer operator giving a cue to begin each of the main sections.
- 2) Dynamics are given at the start of each subsection and act as a general guide to the overall dynamic of the subsection. Dynamic changes within each subsection are left to the discretion of the performers.
- 3) Each main section should end with a *diminuendo al niente* cued by the computer operator.
- 4) As a guide, a basic tempo is indicated at the start, however, each performer should establish his/her own individual tempo and may alter it at any time throughout the performance. Synchronisation of parts within the score is unnecessary throughout the piece.
- 5) The piece is designed as an interactive/improvisation soundscape. Performers are required to repeat any material within a given subsection at any time up until a cue is given to move onto the following subsection. Repetitions of material within a subsection should be relative to material presented by the remaining performers and the computer.

Symbols

▲ triangle dampened with hand before striking to give a very staccato attack.

△ open triangle (normal playing).

▲ Quick dampening of triangle following a normal attack.

← → Scrape beater back and forth along one side of the triangle.

Symbols placed between the two arrows indicate the speed of scraping:

~ slow

= medium

≡ fast

⊖ following an attack, swing the triangle around in full circles.

Numbers following the symbol indicate the number of full circles to be swung after each attack.

Conductor hand signals



Start System 1 of section



Start System 2 of section



Start System 3 of section



Diminuendo (al niente) to end of section

Sampled Timbres

Four separate edited triangle samples are employed within the piece:

- 1] Triangle attack only
- 2] Triangle reversed
- 3] Triangle scraped
- 4] Triangle normal

The four timbres are assigned to the four voices of M in three separate Pattern Group configurations:

Pattern a - voice 1 = Timbre 1
voice 2 = Timbre 1
voice 3 = Timbre 2
voice 4 = Timbre 3

Pattern b - as for Pattern a

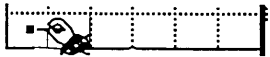
Pattern c - voice 1 = Timbre 1
voice 2 = Timbre 4
voice 3 = Timbre 2
voice 4 = Timbre 3

Rehearsal letters in the acoustic parts correspond to changes of pattern (a.b.c) in M.

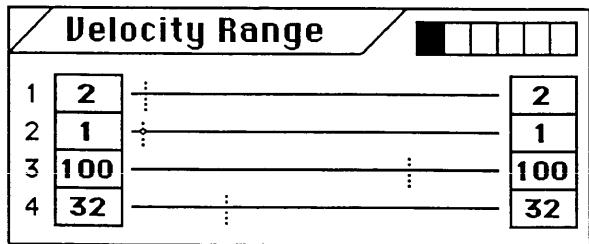
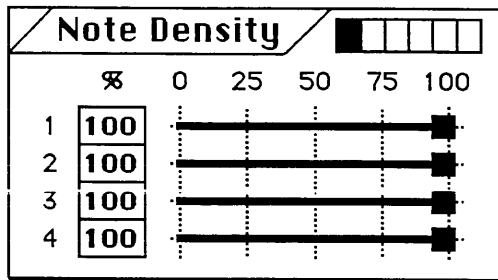
Computer Cue Sheets

Pre-performance:

1/.Select PATTERN A :



2/.Open Note Density and Velocity Range variables :



3/. PLAY DISABLE ALL VOICES

Performance :

1/.START PROGRAM



A1



1/. PLAY ENABLE VOICE 3 (Reverse sample)



2/. PLAY ENABLE VOICE 4 (Scrape sample)

3/. CUE PERFORMERS IN (1)



A2

1/.CUE PERFORMERS 2



A3

1/. CUE PERFORMERS 3

2/. PLAY ENABLE VOICES 1 & 2 (attack sample)

3/. MOUSE ADVANCE VOICE 1

4/. CUE PERFORMERS OUT

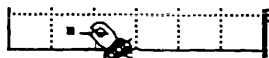


5/. DISABLE VOICE 1

6/. DISABLE VOICE 2

7/. DISABLE VOICE 3

8/. Select PATTERN B :



9/. Select position 2 in Note Density and Velocity Range Variables



B1

(VOICE 4 continues)

1/. CUE PERFORMERS 1



B2

1/. CUE PERFORMERS 2



2/. PLAY ENABLE VOICE 2 (high attack sample)

B3

1/. CUE PERFORMERS 3

2/. PLAY ENABLE VOICES 1 & 3
(low attack, reverse samples)

3/. MOUSE ADVANCE VOICE 1

4/. CUE PERFORMERS OUT

B3 (cont.)



- 5/. DISABLE VOICE 1
- 6/. DISABLE VOICE 3
- 7/. DISABLE VOICE 4
- 8/.Select PATTERN C :



9/. Select position 3 in Note Density and Velocity Range Variables



C1 (VOICE 2 continues - low normal sample)

- 1/. CUE PERFORMERS 1



C2

- 1/. CUE PERFORMERS 2



- 2/. PLAY ENABLE VOICE 1



- 3/. MOUSE ADVANCE VOICE 1



- 4/. PLAY ENABLE VOICE 3

C3

- 1/. CUE PERFORMERS 3



- 2/. PLAY ENABLE VOICE 4 (scrape sample)

C3 (cont.)

3/. CUE PERFORMERS OUT



4/. DISABLE VOICE 4

5/. DISABLE VOICE 2

6/. DISABLE VOICE 1

7/. DISABLE VOICE 3

8/. STOP PROGRAM



Study for Triangles

Steven Campbell
1993

A ♩ = 76-96

1

Triangle 6" *pppp* 3 5:4 3 3 Δ

Triangle 8" *pppp* 3 4:3

Triangle 10" *pppp* 3 3 4:3

2

Triangle 6" *pp mp* Δ

Triangle 8" *pp mp* 5:4 3 Δ 3

Triangle 10" *pp mp* 3 3

3

Triangle 6" *mf* 4:3 Δ 3 Δ 3

Triangle 8" *mf* 4:3 3 Δ 3 Δ

Triangle 10" *mf* 5:4 3 Δ 3

B

1

Three staves of music in 4/4 time, marked *p*. The first two staves contain eighth notes with slurs and hairpins. The third staff contains a long note with a slur and hairpin.

2

265

Three staves of music in 4/4 time, marked *mf*. The first two staves contain eighth notes with slurs and hairpins. The third staff contains a long note with a slur and hairpin.

3

Three staves of music in 4/4 time, marked *mf f*. The first two staves contain eighth notes with slurs and hairpins. The third staff contains a long note with a slur and hairpin. There are also some triplet and 5:4 markings.

C

1

Musical score for section 1, measures 1-3. The score is written for three staves. The first staff begins with a forte (*f*) dynamic and contains notes with fingering numbers 5, 4, and 3. The second staff begins with a forte (*f*) dynamic and contains notes with fingering numbers 3, 4, and 5. The third staff begins with a forte (*f*) dynamic and contains notes with fingering numbers 5, 4, and 3. The music consists of sustained notes with some slurs and ties.

2

266

Musical score for section 2, measures 1-3. The score is written for three staves. The first staff contains notes with slurs and ties, and a fingering number 4. The second staff contains notes with slurs and ties, and a fingering number 4. The third staff contains notes with slurs and ties, and a fingering number 3. The music features slurs and ties across measures.

3

Musical score for section 3, measures 1-3. The score is written for three staves. The first staff begins with a forte (*f*) dynamic and contains notes with slurs and ties, and a fingering number 3. The second staff begins with a forte (*f*) dynamic and contains notes with slurs and ties, and a fingering number 4. The third staff begins with a forte (*f*) dynamic and contains notes with slurs and ties, and a fingering number 3. The music includes slurs, ties, and some complex rhythmic patterns.

APPENDIX 2 — *Descendant Lines* — Full Score

Programme Notes

Descendant Lines is programmatically concerned with episodes in the lives of two migrants, one from Croatia, the other from Argentina — the descendants of the two migrants are the accordionists to whom the work is dedicated. The piece comprises three main sections, the first relating to the disintegration of life in the 'old countries', the second focusing on the migrants' journeys, and the third relating individual and familial growth in the 'new country'. The work overall represents a celebration of friendships developed between those whose forefathers originated in distant continents and diverse cultures.

Pitch and rhythmic materials throughout the work are derived from a Latin-American tango *Yo Te Quiero Mucho* (I Desire You Greatly) and a Croatian folksong *Tri Sam Leta Sa Tom Momice Seta* (Three Summers I've Walked With This Girl). The basic materials are subject to various compositional algorithms that reflect programmatically portrayed events; the first section employs Lorenz and Mandelbrot related chaotic theories, the second employs Brownian motion, the third employs Lindenmayer and Fibonacci growth series.

Steven Campbell
Armidale, N.S.W.
February, 1995

General Notes

1. Accidentals

All pitches without accidentals are natural with the exception of tied notes both within measures and over barlines i.e. the second note in a tied grouping receives no accidental.

Natural signs are given throughout the score in passages where the omission of the natural may result in the mistaken identity of a natural pitch where it succeeds a raised or flattened pitch of the same name.

2. Trills

All trills throughout the work are to the upper semitone.

Symbols*

1. Stops

Accordion stops are given throughout the score and correspond to those given for each accordion on the following page. Right hand stops correspond to the symbol \ominus , left hand stops correspond to the symbol \square .

2. Bellows

Bellows movement in normal playing is left to the discretion of the performer. The following symbols relate to aeolian sounds only (bellows movement without keys/buttons depressed) :

← - opening bellows

→ - closing bellows



\square \blacksquare - [square noteheads] indicate audible unpitched bellows sounds and are notated on the left hand staff.

3. Tremolo (Bellows shake)

Tremolo (bellows shake) passages are indicated with the symbol \leftrightarrow .

Tremolo speeds are indicated with the usual tremolo markings \equiv \equiv indicating approximate subdivisions of the beat.

4. Percussive sounds

χ - [x noteheads] indicate percussive sounds derived from 1) lightly tapping the left hand buttons with the fingers (left hand staff) and 2) firmly striking the right hand keys (right hand staff).

In combination with stop changes, (indicated with \ominus and \square) the x notehead indicates an audible slap on the required stop switch.

5. Counterbasses

Counterbasses throughout the score are indicated with the symbol - placed beneath the notehead.

* Symbols used throughout the score are derived from those given in the Bèrben method for chromatic and piano accordion.(1) Stops symbols are derived from the stop markings on Guerrini and Scandalli models of piano accordion.

(1) Cambieri, E., Fugazza, F. & Mellochi, V., *Metodo Bèrben per Fisarmonica sisteme Pianoforte e cromatico*, Milan: Edizioni Bèrben, 1952.

Instrument Stops

ACCORDION 1 [based on Scandalli 120 Bass]

Stops Right Hand:

Stops Left Hand:

ACCORDION 2 [based on Guerrini 120 Bass]

Stops Right Hand:

Stops Left Hand:



	♩ = 48	<i>very calm, with desire</i>
	♩ = 116	<i>chaotic</i>
	♩ = 72	<i>freely, increasing tension</i>
	♩ = 96	<i>lively, with movement</i>
A	♩ = 108	<i>nervous</i>
B	♩ = 96	<i>more relaxed</i>
	♩ = 54	<i>calm and relaxed</i>
	♩ = 96	<i>increasing tension</i>
C	♩ = 120	<i>lively and energetic</i>
D	♩ = 112	<i>more relaxed</i>
	♩ = c.120	<i>senza misura, freely, with movement</i>
	♩ = 112	<i>more relaxed</i>
	♩ = c.96	<i>senza misura, freely, increasing tension</i>
E	♩ = 112	<i>lively and energetic</i>
	♩ = 84	<i>more relaxed</i>
	♩ = 120	<i>lively, unrestrained</i>



Duration c. 8' 30"

for Stephen Tafra and Alfred Solti

Descendant Lines

Steven Campbell
(1995)

*♩ = 48 very calm, with desire
molto legato*

Accordion 1

ppp sempre

ppp

Accordion 2

molto legato

ppp

ppp

ppp

273

6

ppp

ppp

pp subito

11 *pp* *pp* *pp* *molto tenuto*

11 *ppp* *ppp* *ppp* *molto tenuto*

16 *f* *ff* *mp sempre crescendo* *molto legato più staccato poco a poco*

♩ = 116 chaotic *accel.* *♩ = 72 freely, increasing tension*

16 *f* *ff* *mp sempre* *sempre sim.*

♩ = 72 colla parte *rall.*

22 *staccato* *f sempre dim. più legato poco a poco* *mp molto legato* *p* *pp* *tenuto*

22 *mf* *mp* *p* *pp* *tenuto*

rall. (colla parte)

♩ = 96 lively, with movement

28

Musical score for measures 28-32. The system consists of two staves. The upper staff contains a melodic line with various ornaments including a trill and slurs. The lower staff contains a bass line with chords and single notes. Dynamics include *mf*, *f*, and *mf*. A fermata is present over the final measure.

28

Musical score for measures 28-32. The system consists of two staves. The upper staff contains a melodic line with slurs and ornaments. The lower staff contains a bass line with chords and single notes. Dynamics include *mf*, *f*, and *mf*.

33

Musical score for measures 33-37. The system consists of two staves. The upper staff contains a melodic line with slurs and ornaments. The lower staff contains a bass line with chords and single notes. Dynamics include *mf*, *f*, and *mp*.

33

Musical score for measures 33-37. The system consists of two staves. The upper staff contains a melodic line with slurs and ornaments. The lower staff contains a bass line with chords and single notes. Dynamics include *f*, *mp*, and *f*.

38

poco tenuto

Musical score for measures 38-42. The system consists of two staves. The upper staff contains a melodic line with slurs and ornaments. The lower staff contains a bass line with chords and single notes. Dynamics include *p*, *ff*, *mp*, *mp*, *p*, and *mf*.

38

poco tenuto

Musical score for measures 38-42. The system consists of two staves. The upper staff contains a melodic line with slurs and ornaments. The lower staff contains a bass line with chords and single notes. Dynamics include *mf*, *mp*, *f*, *mf*, *mp*, *p*, *mf*, and *ff*.

275

44

f *mf* *pp* *f* *mf*

44

ff *pp* *p* *mf* *f* *mf*

49

molto legato *mp* *mf* *f* *ff* *f* *mf*

rall. *tr.* (tr. speed senza rall.) *tr.* molto ten.

49

mp *mf* *f* *fff* *f* *mf*

rall. *tr.* (tr. speed senza rall.) *tr.* molto ten.

54

A = 108 nervous

mf *mf*

54

mf *mf*

59

Musical score for measures 59-63, top system. The upper staff contains a melodic line with triplet markings (3) and slurs. The lower staff contains a bass line with complex rhythmic patterns, including sixteenth-note runs and slurs. Measure numbers 59, 60, 61, 62, and 63 are indicated at the beginning of each measure.

59

Musical score for measures 59-63, bottom system. The upper staff contains a melodic line with a slur and a triplet marking (7). The lower staff contains a bass line with slurs and a dynamic marking of *ff* at the end. Measure numbers 59, 60, 61, 62, and 63 are indicated at the beginning of each measure.

64 B

= 96 more relaxed

Musical score for measures 64-69, top system. The upper staff contains a melodic line with slurs and dynamic markings of *p*. The lower staff contains a bass line with slurs and dynamic markings of *p*. Measure numbers 64, 65, 66, 67, 68, and 69 are indicated at the beginning of each measure.

64

Musical score for measures 64-69, bottom system. The upper staff contains a melodic line with a slur and dynamic markings of *f*, *pp*, and *ppp*. The lower staff contains a bass line with slurs and dynamic markings of *ppp*, *pp*, and *p*. The instruction "molto legato" is written above the upper staff. Measure numbers 64, 65, 66, 67, 68, and 69 are indicated at the beginning of each measure.

70

Musical score for measures 70-74, top system. The upper staff contains a melodic line with slurs and dynamic markings of *mf*, *f*, *mf*, *mp*, and *p*. The lower staff contains a bass line with slurs and dynamic markings of *mf*, *mp*, and *p*. Measure numbers 70, 71, 72, 73, and 74 are indicated at the beginning of each measure.

70

Musical score for measures 70-74, bottom system. The upper staff contains a melodic line with slurs and dynamic markings of *mp*, *mf*, *mp*, and *pp*. The lower staff contains a bass line with slurs and dynamic markings of *mp*, *mf*, *mp*, and *pp*. Measure numbers 70, 71, 72, 73, and 74 are indicated at the beginning of each measure.

277

75 ♩ = 54 *calm and relaxed*
molto legato
mf f mf mf f

75 ppp *sempre*
d mp

80 ppp *sempre*
m

80 mf f ff mf mf mf

♩ = 96 *increasing tension*
85 mf f f mf f

85 mf mf f

278

109 **D** ♩ = 112 *more relaxed*

mf f ff mf

m

109

mf *mf sempre*

m

115

f mf

m

115

tr.

m

Accordion I

♩ = c. 120 *senza misura*
freely, with movement

121 *solo*

f ff f mf f ff

m

l.h. sempre staccato

122 ♩ = 112 more relaxed

fff *f* sempre

122

f **ff** *f*

128

rall.....

128

ff *f* *tr* rall.....

Accordion 2

134 ♩ = c.96 senza misura
freely, increasing tension
solo

mp *f* *mf* *f* *mf* *ff* *fff*

E ♩ = 112 *lively and energetic*

135 *tr* *mp* *f* *ff* *f* *ff*

135 *tr* *mp* *f* *ff* *mf* *f* *ff* *f*

d d

l.h. sempre staccato

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

141 *f* *ff* *f* *ff* *f*

d

♩ = 84 *more relaxed*

147 *f* *ff* *sfz* *ppp* *ppp* *pppp*

molto legato

♩ = 120 *lively, unrestrained*

153 *f* *ff* *f* *ff* *sfz* *ff*

154 *f* *ff* *f* *ff* *sfz* *ff*

159 *f* *ff* *f* *ff* *fff* *fff* *sfz*

160 *f* *ff* *f* *ff* *ff* *fff* *sfz*

Lh. sempre staccato

Armidale, N.S.W., Australia
November, 1994 - February, 1995.

APPENDIX 3 —*Descendant Lines* —*Symbolic Composer Scores*


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;INTRO 2 (mm.16-18)

(initdef)

(setq chords1 ' (cfilo ehknq adgjm)
)
(setq chords2 ' (ehknq adgjm cfilo)
)

(setq symbols (gen-hopalong-symbol xm1 (a d) ym1 (c f) 100 200 300 0.45 11 0))

(setq mel1 xm1)
(setq mel2 ym1)

(def-instrument-symbol
accord1rh mel1
accord1lh chords1
accord2rh mel2
accord2lh chords2
)

(setq rhy4 '(1/16 1/16 1/16 1/16))
(setq rhy18'(1/8-5 1/8-5 1/8-5 1/8-5 1/8-5 1/8-3 1/8-3 1/8-3))
(setq rhy23 '(1/8 1/16 1/16))
(setq rhy27 '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7))

(def-instrument-length
accord1rh (append rhy4 rhy18)
accord1lh rhy27
accord2rh (append rhy18 rhy23)
accord2lh rhy27
)
(create-tonality accord.set2 '(b 4 c 5 d 5 e 5 f 5))
(setq tonals1 (activate-tonality (accord.set2 d 6)))
(setq tonals2 (activate-tonality (chromatic g 4)))

(compile-song "ccl;output:" 1/4 "hopalong"

      ;Measures  |---|---|---|
accord1rh tonals1 "---      "
accord1lh tonals2 "    ----  "
accord2rh tonals1 "---      "
accord2lh tonals2 "    ----  "
)

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;INTRO 2a (mm.19-27)

(initdef)
(defsym a '(e b d))
(defsym b '(f c))
(defsym c '(e a b))
(defsym d '(g b))
(defsym e '(d h f))

(setq chords ' (ehknq)
)

(setq symbols1 (gen-notrans e 4))
(setq symbols2 (gen-hopalong-symbol xmel (a d) ymel (c f) 100 200 300 0.45 11 0))
(setq symbols3 (gen-notrans a 2))

(setq mel1
(symbol-transform
from xmel
to (gen-notrans e 4)
order '(0 1 2 3 4 5 6 7 8 9 10)
changes '(1 2)
repeats '(1))
)

(setq mel2
(symbol-transform
from ymel
to (gen-notrans a 4)
order '(0 1 2 3 4 5 6 7 8 9 10)
changes '(1 2)
repeats '(1))
)

(def-instrument-symbol
accord1rh (append mel1 (gen-notrans a 2))
accord2rh mel2
accord2lh chords
)

(def-instrument-length
accord1rh '( -1/16 1/8. 1/8 1/16 1/16 1/16 1/16 1/8 1/8 1/8 1/8. 1/16 1/8 1/16
1/16
1/8 -1/8 1/16 1/16 1/16 1/16 1/8-5 1/8-5 1/8-5 1/8-5 1/8-5 1/8-3 1/8-3 1/8-3
1/8-7 1/8-7 1/8-7 1/8-7 1/8-7 1/8-7 1/8-7 1/8-7 1/16 1/16 1/16 1/16 1/4-7 1/4-7 1/4-7
1/4-7 1/4-7 1/4-7 1/4-7
-1/16 1/8. 1/8 1/16 1/16 1/16 1/16 1/16 1/8 1/8 1/8 1/8. 1/16 1/8 1/16 1/16
1/8 -1/8 1/16 1/16 1/16 1/16 1/8-5 1/8-5 1/8-5 1/8-5 1/8-5 1/8-3 1/8-3 1/8-3
1/8-7 1/8-7 1/8-7 1/8-7 1/8-7 1/8-7 1/8-7 1/16 1/16 1/16 1/16 1/4-7 1/4-7 1/4-7
1/4-7 1/4-7 1/4-7 1/4-7
-1/16 1/8. 1/8 1/16 1/16 1/16 1/16 1/16 1/8 1/4 1/2)
accord2rh '(1/4)
accord2lh '(1/32)
)

(create-tonality accord.set2 '(b 4 c 5 d 5 e 5 f 5))
(setq tonals1 (activate-tonality (accord.set2 c 6)))
(setq tonals2 (activate-tonality (chromatic g 3)))

(compile-song "ccl;output:" 1/4 "A2a"

;Measures |---|---|---|---|---|---|---|---|---|
accord1rh tonals1 "-----"
accord2rh tonals1 "- - - - - - - - -"
accord2lh tonals2 "-----"
)

```

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;INTRO 3 (mm.28-29)

(defsym a '(b d))
(defsym b '(c d e))
(defsym c '(a g))
(defsym d '(e g))
(defsym e '(c b f))

(setq chords '((-12 a) ade ade (-12 d) dgk (-12 b) bei gjn hko))

(def-instrument-symbol

accord1rh (gen-notrans a 3)
accord1lh chords
accord2rh (gen-notrans a 3)
accord2lh chords
)
(setq rhy1 '(1/8 1/4 1/8 1/16 1/16 1/16 1/16 -1/8-6 1/8-6 1/8-6 1/8-6 1/8-6 1/8-6
            1/2 1/8-3 1/8-3 1/8-3))
(setq rhy2 '(1/2))
(setq rhy3 '(1/16 1/16 1/16 1/16 1/2 1/8-3 1/8-3 1/8-3 1/2))
(setq rhy4 '(1/8 1/4 1/8 1/8 1/8 1/8 1/8 1/2 1/2)) ;chords rhythm

(def-instrument-length
accord1rh rhy3
accord1lh rhy2
accord2rh rhy1
accord2lh rhy4
)

(create-tonality accord.set1 '(a 4 a# 4 c 5 d# 5 e 5))
(setq tonals1 (activate-tonality (accord.set1 a 4)))
(setq tonals2 (activate-tonality (accord.set1 a 5)))
(setq tonals3 (activate-tonality (chromatic a 4)))

(compile-song "ccl;output:" 1/4 "A3a"

; Measures      |---|---|
accord1rh tonals2 "  -----"
accord1lh tonals3 "--  ----"
accord2rh tonals1 "--  --- -"
accord2lh tonals3 "-----"
)

```

```

;INTRO 3a (mm.30--37)

(initdef)
(defsym a '(b d))
(defsym b '(c d e))
(defsym c '(a g))
(defsym d '(e g))
(defsym e '(c b f))

(setq chords1 '((-12 a) ade ade (-12 d) dgk (-12 b) bei gjn hko))
(setq chords2 '(ade dgk gjn bei hko))

(setq mel1
(gen-notrans a 2))
;(a b c d e d e g)

;(gen-lorenz x y z 8 0.01 0.1 0.1 0.1)
;(vector-to-symbol a g '#(0.097433333333333334 0.094962011111111112
0.09258735443442483 0.09031305691033065 0.08814510198325358 0.08609193405244718
0.08416483522462836 0.08237849270955407))

(setq mel2
'(g f e d c b b a))

(setq mel3
(symbol-transform
from mel1
to mel2
order '(0 1 2 3 4 5 6 7)
changes '(1 2 3 4 5 6)
repeats '(1)
))

(def-instrument-symbol
accord1rh mel3
accord1lh chords2
accord2rh mel3
accord2lh chords1
)

(setq r4 '(1/16 1/16 1/16 1/16))
(setq r9 '(1/4 1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3))
(setq r13 '(1/16 1/8 1/16 1/16 1/16 1/16 1/16 -1/4-6 1/4-6 1/4-6 1/4-6 1/4-6 1/4-6))
(setq r8 '(1/4 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7))

;(defsym r4 '(r4 r9))
;(defsym r9 '(r13 r8))
;(defsym r13 '(r4 r13))
;(defsym r8 '(r9 r8))

(def-instrument-length
accord1rh (append r4 r9 r13 r8)
accord1lh '(1/2)
accord2rh (append r4 '(1/4))
accord2lh '(1/8 1/4 1/8 1/8 1/8 1/8 1/8))
)
(create-tonality accord.set1 '(a 4 a# 4 c 5 d# 5 e 5))
(setq tonals1 (activate-tonality (accord.set1 a 4)))
(setq tonals2 (activate-tonality (accord.set1 a 5)))
(setq tonals3 (activate-tonality (chromatic a 4)))

(compile-song "ccl;output:" 1/4 "A}bv.3.01"
; Measures |---|---|---|---|---|---|---|---|
accord1rh tonals2 " -- -- -- -- -- -- --"
accord1lh tonals3 " -- -- -- -- -- -- --"
accord2rh tonals1 " ----- --- -----"
accord2lh tonals3 "-- -- --- --- - - - -"
)

```

```

;INTRO 4 (mm.38-53)
;(gen-lorenz x y z 8 0.01 0.1 0.1 0.1)
;(vector-tc-symbol a g '#(0.097433333333333334 0.094962011111111112
0.09258735443442483
;0.09031305691033065 0.08814510198325358 0.08609193405244718 0.08416483522462836
;0.08237849270956407))
(setq mel1 '(g f e d c b a b))
(setq chords1 '(ade dgk gjn bei hko))
(setq chords2 '((-12 a) ade (-12 d) dgk (-12 b) bei gjn hko))
(setq mel2 '((+2 g) (+2 f) (+2 e) (+2 d) (+2 c) (+2 b) (+2 a) (+2 b)))
(setq mel3 '((+5 g) (+5 f) (+5 e) (+5 d) (+5 c) (+5 b) (+5 a) (+5 b)))
(create-tonality accord.set1 '(a 4 e# 4 c 5 d# 5 e 5))
(setq tonals1 (activate-tonality (accord.set1 a# 5)(accord.set1 c 6)(accord.set1
d 6)))
(setq tonals2 (activate-tonality (accord.set1 a# 4)(accord.set1 c 5)(accord.set1
d 5)))
(setq tonals3 (activate-tonality (chromatic a# 4) (chromatic c 4) (chromatic d#
4)))
(setq melmain1
(symbol-transform
  from mel1
  to mel2
  order '(0 1 2 3 4)
  changes '(1)
  repeats '(1)
))
(setq melmain2
(symbol-transform
  from mel2
  to mel3
  order '(0 1 2 3 4)
  changes '(1)
  repeats '(1)
))
(def-instrument-symbol
accord1rh (append melmain1 melmain2)
accord1lh chords1
accord2rh (append melmain1 melmain2)
accord2lh chords2
)
(def-neuron sym-to-len
(in 1 'a) '(1/4)
(in 1 'b) '(1/4-3 1/4-3 1/4-3)
(in 1 'c) '(-1/4-6 1/4-6 1/4-6 1/4-6 1/4-6 1/4-6)
(in 1 'd) '(1/16 1/8 1/16 1/16 1/16 1/16 1/16)
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4 1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3)
(in 1 'g) '(1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/4-3 1/4-3 1/4-3)
)
(setq rhy1
(run-neuron 'sym-to-len '(g f e d c b a b)))
(setq rhy2 '(1/2. -1/4 1/2. -1/4 1/2. -1/4 1/2. -1/4 1/2. -1/4 1/2. -1/4))

(def-instrument-length
accord1rh (append rhy2 rhy1)
accord1lh '(1\1)
accord2rh (append rhy1 rhy1 rhy2)
accord2lh '(1/8 1/4 1/8 1/8 1/8 1/8 1/8 1/8 1/8)
)
(compile-song "ccl;output:" 1/4 "A4"
; Measures      |---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
changes tonals1 "          .          .
changes tonals2 "          .          .
changes tonals3 "          .          .
accord1rh tonals1 "      -----
accord1lh tonals3 "-----
accord2rh tonals2 "      -----
accord2lh tonals3 "      -----
)

```

```

;ACCORDION 1 (mn.54-63)

(initdef)

(defsym a '(b d))
(defsym b '(c d e))
(defsym c '(a g))
(defsym d '(e g))
(defsym e '(c b f))

(def-instrument-symbol
accord1 '(a b c d)
)

(def-neuron sym-to-len
(in 1 'a) '(1/2)
(in 1 'b) '(1/4-3 1/4-3 1/4-3)
(in 1 'c) '(-1/4-6 1/4-6 1/4-6 1/4-6 1/4-6 1/4-6)
(in 1 'd) '(1/16 1/8 1/16 1/16 1/16 1/16 1/16)
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3 1/4)
(in 1 'g) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4 1/16 1/16 1/16 1/16
1/4)
)
(setq rhy1 (run-neuron 'sym-to-len (gen-notrans a 3))
)

(def-instrument-length
accord1 rhy1
)

(create-tonality buttons '(b 3 c 4 d 4 e 4 f 4))
(setq tonals (activate-tonality (buttons b 3)))

(compile-song "ccl;output:" 1/4 "bridgelaccord1"

;Measures          |---|---|---|---|---|---|---|---|---|
accord1 tonals    "  -----"
)

```

```

;ACCORDION 2 (mun.54-63)

(initdef)

(defsym a' (e b d))
(defsym b' (f c))
(defsym c' (e a b))
(defsym d '(g b))
(defsym e '(d h f))

(def-instrument-symbol
accord2lh '(a b c d)
)

(def-neuron sym-to-len
(in 1 'a) '(-1/4 1/2.)
(in 1 'b) '(1/8 1/16 1/16)
(in 1 'c) '(1/16 1/16 1/8 1/8 1/4.)
(in 1 'd) '(1/4. 1/8 1/8 1/16 1/16 1/8 -1/8)
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3)
(in 1 'g) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/16 1/16 1/16 1/16)
(in 1 'h) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7))

(setq rhy1 (run-neuron 'sym-to-len (gen-notrans a 2))
) ;(gen-notrans a 2)

(def-instrument-length
accord2lh rhy1
)

(create-tonality buttons '(b 3 c 4 d 4 e 4 f 4))
(setq tonals (activate-tonality (buttons b 3)))

(compile-song "ccl;output:" 1/4 "bridgelaccord2"

;Measures          |---|---|---|---|---|---|---|---|
accord2lh tonals   "  -----"
)

```

```

;B1 (mm.64-74)

(initdef)

(defsym a' (e b d))
(defsym b' (f c))
(defsym c' (e a b))
(defsym d '(g b))
(defsym e '(d h f))

;(setq prel (vector-to-symbol a h (gen-noise-brownian 5 0.3 0.5)))
;--->(c a b b c c d f e f e e g g h g g g h g g g f f d d d d c b b c c)
;(setq pre2 (find-change prel))
;--->(c a b = c = d f e f e = g = h g = = h g = = f = d = = = c b = c =)
;(setq pre3 (filter-preserve pre2 '(a b c d e f g h)))
;--->(c a b c d f e f e g h g h g f d c b c)
(setq chords '(cfilo ehknq adgjm))

(def-instrument-symbol
accord1 '(a b c d)
accord2rh '(c a b c d f e f e g h g h g f d c b c) ; [Brownian output]
accord2lh '(chords)
)

(def-neuron sym-to-len
(in 1 'a) '(-1/4 1/2.)
(in 1 'b) '(1/8 1/16 1/16)
(in 1 'c) '(1/16 1/16 1/8 1/8 1/4.)
(in 1 'd) '(1/4. 1/8 1/8 1/16 1/16 1/8 -1/8)
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3)
(in 1 'g) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/16 1/16 1/16 1/16)
(in 1 'h) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7))

(setq rhy1
(run-neuron 'sym-to-len '(c a b c d f e f e g h g h g f d c b c)) ; [Brownian
output]
)
(setq rhy2
(run-neuron 'sym-to-len (gen-notrans a 2)
))

(setq rhy3 '(1/4))

(def-instrument-length
accord1 rhy1
accord2rh rhy2
accord2lh rhy3
)

(create-tonality accord.set2 '(b 4 c 5 d 5 e 5 f 5))
(create-tonality buttons '(b 3 c 4 d 4 e 4 f 4))
(setq tonals1 (activate-tonality (buttons b 3)))
(setq tonals2 (activate-tonality (accord.set2 b 4)))
(setq tonals3 (activate-tonality (chromatic c 3)))

(compile-song "ccl;output:" 1/4 "SectionB1"

;Measures          |---|---|---|---|---|---|---|---|---|---|---|
accord1 tonals1    "  -----"
accord2rh tonals2  "  -----"
accord2lh tonals3  "  -----"
)

```



```

;B2 (mm.75-84)
(initdef)
(setq chords1 '(abd b cde cag d eg e dh f)) ; Symbol association 1 chord series
(setq chords2 '(adhm bein dgkp gjns hkot)) ; Minor chord series
(setq chords3 '(a ebd bfc c eab d go e dhf)) ; Symbol association 2 chord series
(setq chords4 '(dgj fil knq)) ; Diminished chord series

(def-instrument-symbol
accord1rh chords1
accord1lh chords2
accord2rh chords3
accord2lh chords4
)

(def-neuron sym-to-len1
(in 1 'a) '(1/8)
(in 1 'b) '(1/4.)
(in 1 'c) '(1/2.)
(in 1 'd) '(7/8)
)
(def-neuron sym-to-len2
(in 1 'a) '(1/4)
(in 1 'b) '(1/4.)
(in 1 'c) '(5/8)
(in 1 'd) '(1/2.)
)
(setq rhy1
(run-neuron 'sym-to-len1 (vector-to-symbol a d (gen-noise-brownian 3 0.3 0.5)))
)
(setq rhy2
(run-neuron 'sym-to-len2 (vector-to-symbol a d (gen-noise-brownian 3 0.3 0.5)))
)
(setq rhy3 '(1/2))

(def-instrument-length
accord1rh rhy1
accord1lh rhy3
accord2rh rhy2
accord2lh rhy3
)

(create-tonality accord.set1 '(a 4 a# 4 c 5 d# 5 e 5))
(create-tonality accord.set2 '(c 5 c# 5 d# 5 f 5 f# 5))
(setq tonals1 (activate-tonality (accord.set1 a 4)))
(setq tonals2 (activate-tonality (chromatic a 3)))
(setq tonals3 (activate-tonality (accord.set2 c 5)))

(compile-song "ccl;output:" 1/4 "B2midi"

;Measures          |---|---|---|---|---|---|---|---|---|---|
accord1rh tonals1 "  -----  --  -----  ----"
accord1lh tonals2 "  --  -----  --  -----  --  -----  "
accord2rh tonals3 "  --  -----  -----  -----  -----  "
accord2lh tonals2 "-----  --  -----  --  -----  --  -----  "
)

```

```

;B3 (mm.85-94)

(initdef)
(defsym a '(b d))
(defsym b '(c d e))
(defsym c '(a g))
(defsym d '(e g))
(defsym e '(c b f))

(setq chords1 '(abd b cde cag d eg e dh f)) ; Symbol association 1 chord series
(setq chords2 '(adhm bein dgkp gjns hkot)) ; Minor chord series
(setq chords3 '((-12 a) ade ade (-12 d) dgk (-12 b) bei gjn hko)) ;from A3a

(def-instrument-symbol
accord1rh '(c a b c d f e f g h g h g f d c b c) ;[Brownian Output]
accord1lh chords2
accord2rh chords1
accord2lh chords3
)

(def-neuron sym-to-len1
(in 1 'a) '(1/2)
(in 1 'b) '(1/4-3 1/4-3 1/4-3)
(in 1 'c) '(-1/4-6 1/4-6 1/4-6 1/4-5 1/4-6 1/4-6)
(in 1 'd) '(1/16 1/8 1/16 1/16 1/16 1/16 1/16)
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3 1/4)
(in 1 'g) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4 1/16 1/16 1/16 1/16
1/4)
)
(def-neuron sym-to-len2
(in 1 'a) '(1/8)
(in 1 'b) '(1/4.)
(in 1 'c) '(1/2.)
(in 1 'd) '(7/8)
)
(setq rhy1 (run-neuron 'sym-to-len1 (gen-notrans a 2)))
(setq rhy2 '(1/4))
(setq rhy3 (run-neuron 'sym-to-len2 (vector-to-symbol a d (gen-noise-brownian 3
0.3 0.5))))
(def-instrument-length
accord1rh rhy1
accord1lh rhy2
accord2rh rhy3
accord2lh rhy2
)
(create-tonality accord.set1 '(a 4 a# 4 c 5 d# 5 e 5))
(setq tonals1 (activate-tonality (accord.set1 c 4)))
(setq tonals2 (activate-tonality (chromatic c 3)))
(compile-song "ccl;output:" 1/4 "B3nidi"

;MEASURES      |---|---|---|---|---|---|---|---|---|---|
accord1rh tonals1 "----  ---  --  ---  ---  ---  ---  ---  ---  ---  ---"
accord1lh tonals2 "-  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -"
accord2rh tonals1 "-----"
accord2lh tonals2 "  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -  -"
)

```

```

;C (mm.95-108)

(initdef)
(defsym a '(b d))
(defsym b '(c d e))
(defsym c '(a g))
(defsym d '(e g))
(defsym e '(c b f))

(setq chords1 '(a dgkp)) ;A, Cm
(setq chords2 '(a ebd bfc c eab d go e dhf)) ;Symbol association 2 chord series

(def-instrument-symbol
accord1rh (gen-notrans a 2)
accord1lh chords1
accord2rh chords2
accord2lh '(a b c d e)
)

(def-neuron sym-to-len1
(in 1 'a) '(1/16)
(in 1 'b) '(1/16 -2/16)
(in 1 'c) '(1/16 -5/16)
(in 1 'd) '(1/16 -6/16)
(in 1 'e) '(1/16 -3/16)
(in 1 'f) '(1/16 -8/16)
(in 1 'g) '(1/16 -12/16)
(in 1 'h) '(1/16 -7/16)
)

(def-neuron sym-to-len2
(in 1 'a) '(1/4)
(in 1 'b) '(1/4.)
(in 1 'c) '(5/8)
(in 1 'd) '(1/2.)
(in 1 'e) '(1/2)
(in 1 'f) '(1\1)
(in 1 'g) '(11/8)
)

(def-neuron sym-to-len3
(in 1 'a) '(-1/4 1/2.)
(in 1 'b) '(1/8 1/16 1/16)
(in 1 'c) '(1/16 1/16 1/8 1/8 1/4.)
(in 1 'd) '(1/4. 1/8 1/8 1/16 1/16 1/8 -1/8 )
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3)
(in 1 'g) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/16 1/16 1/16 1/16)
(in 1 'h) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7)
)

(setq rhy1 (run-neuron 'sym-to-len1 (gen-notrans a 3)))
(setq rhy2 (run-neuron 'sym-to-len2 '(a b f c d g b))) ; from accord.2
assoc.struc.([gen-notrans a 2]
(setq rhy3 (run-neuron 'sym-to-len3 (gen-notrans a 2)))

(def-instrument-length
accord1rh rhy1
accord1lh rhy1
accord2rh rhy2
accord2lh rhy3
)

(def-instrument-channel
accord1rh 1
accord1lh 1
accord2rh 1
accord2lh 1
)

```



```

;D1 (mm.109-120)

(initdef)

(defsym a '(b d))
(defsym b '(c d e))
(defsym c '(a g))
(defsym d '(e g))
(defsym e '(c b f))

(setq chords1 '(a dgkp)) ;C, Ebm [on chromatic c 3 tonality]
(setq chords2 '((-12 a) ade ade (-12 d) dgk (-12 b) bei gjn hko))

(setq mat1
(symbol-mix '(abd b cde cag d eg e cb f) (gen-notrans a 3)) ; symbol assoc.1
series
)
(setq mat2
(symbol-retrograde '(abd b cde cag dg egd e cbg fe c b f d e c b f g))
)
(def-instrument-symbol
accord1rh mat1
accord1lh chords1
accord2rh mat2
accord2lh chords2
)
(def-neuron sym-to-len1
(in 1 'a) '(1/16)
(in 1 'b) '(1/16 -2/16)
(in 1 'c) '(1/16 -5/16)
(in 1 'd) '(1/16 -6/16)
(in 1 'e) '(1/16 -3/16)
(in 1 'f) '(1/16 -8/16)
(in 1 'g) '(1/16 -12/16)
(in 1 'h) '(1/16 -7/16)
)
(setq rhy1 (run-neuron 'sym-to-len1 (gen-notrans a 2))) ;for 1lh
(setq rhy4 (symbol-retrograde (run-neuron 'sym-to-len1 (gen-notrans a 2))))
(def-neuron sym-to-len2
(in 1 'a) '(1/4)
(in 1 'b) '(1/4.)
(in 1 'c) '(5/8)
(in 1 'd) '(1/2.)
(in 1 'e) '(1/2)
(in 1 'f) '(1\1)
(in 1 'g) '(11/8)
)
(setq rhy2 (run-neuron 'sym-to-len2 (gen-notrans a 2))) ;for 1rh/2lh
(setq rhy3 (symbol-retrograde (run-neuron 'sym-to-len2 (gen-notrans a 2))))

(def-instrument-length
accord1rh rhy2
accord1lh rhy1
accord2rh rhy4
accord2lh rhy3
)
(create-tonality accord.set1 '(a 4 a# 4 c 5 d# 5 e 5))
(setq tonals1 (activate-tonality (accord.set1 f 5)))
(setq tonals2 (activate-tonality (chromatic c 3)))

(compile-song "ccl;output:" 1/4 "d1midi"

;MEASURES          |---|---|---|---|---|---|---|---|---|---|---|
accord1rh tonals1 "-----"
accord1lh tonals2 "-----"
accord2rh tonals1 "-----"
accord2lh tonals2 "-----"
)

```

```

;D2 (mm.121)
(initdef)

(defsym a '(b d))
(defsym b '(c d e))
(defsym c '(a g))
(defsym d '(e g))
(defsym e '(c b f))

(setq mat1 (gen-fibonacci 2 (gen-notrans a 4) (gen-notrans a 3)))
(setq chords (gen-fibonacci 6 '(a djkp) '(j adhm)));[on chromatic c 3 tonality]

(def-instrument-symbol
accordlrh mat1
accordllh chords
)

(def-neuron sym-to-len1
(in 1 'a) '(1/2)
(in 1 'b) '(1/4-3 1/4-3 1/4-3)
(in 1 'c) '(-1/4-6 1/4-6 1/4-6 1/4-5 1/4-6 1/4-6)
(in 1 'd) '(1/16 1/8 1/16 1/16 1/16 1/16 1/16)
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3 1/4)
(in 1 'g) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4 1/16 1/16 1/16 1/16
1/4)
)

(def-neuron sym-to-len2
(in 1 'a) '(1/16)
(in 1 'b) '(1/16 -2/16)
(in 1 'c) '(1/16 -5/16)
(in 1 'd) '(1/16 -6/16)
(in 1 'e) '(1/16 -3/16)
(in 1 'f) '(1/16 -8/16)
(in 1 'g) '(1/16 -12/16)
)

(setq rhy1 (run-neuron 'sym-to-len1 (gen-notrans a 3)))
(setq rhy2 (run-neuron 'sym-to-len2 (gen-notrans a 2)))

(def-instrument-length
accordlrh rhy1
accordllh rhy2
)

(create-tonality accord.set1 '(a 4 a# 4 c 5 d# 5 e 5))
(setq tonals1 (activate-tonality (accord.set1 a 5)))
(setq tonals2 (activate-tonality (chromatic c 3)))

(compile-song "ccl;output:" 1/4 "d2nidi"

;MEASURES      |---|---|---|---|---|---|---|---|---|
accordlrh tonals1 "-----  ---  --  -----  -----  --"
accordllh tonals2 "--  ---  ---  ---  -  -----  -----  "
)

```

```

;D3 (num.122-133)

(initdef)
(defsym a '(e b d))
(defsym b '(f c))
(defsym c '(e a b))
(defsym d '(g b))
(defsym e '(d h f))

(setq chords1 '(a mpsvy)) ; C, Cdim7 [on chromatic c 3 tonality]
(setq chords2 '(cfilo ehknq adgjm))
(setq mat1
(symbol-mix '(a ebd bfc c eab d gb e dhf) (gen-notrans a 3)))
;---->(a ebd bfc d cg eab dh gbf eb dhf c e a b d g b f c)

(setq mat2 (symbol-retrograde '(a ebd bfc d cg eab dh gbf eb dhf c e a b d g b f
c)))

(def-instrument-symbol
accord1rh mat2
accord1lh chords2
accord2rh mat1
accord2lh chords1
)
(def-neuron sym-to-len1
(in 1 'a) '(1/16)
(in 1 'b) '(1/16 -2/16)
(in 1 'c) '(1/16 -4/16)
(in 1 'd) '(1/16 -5/16)
(in 1 'e) '(1/16 -3/16)
(in 1 'f) '(1/16 -7/16)
(in 1 'g) '(1/16 -10/16)
(in 1 'h) '(1/16 -6/16)
)
(def-neuron sym-to-len2
(in 1 'a) '(1/8)
(in 1 'b) '(3/8)
(in 1 'c) '(6/8)
(in 1 'd) '(7/8)
(in 1 'e) '(4/8)
(in 1 'f) '(9/8)
(in 1 'g) '(13/8)
(in 1 'h) '(1\1)
)
(setq rhy1 (run-neuron 'sym-to-len1 (gen-notrans a 2)))
(setq rhy2 (symbol-retrograde (run-neuron 'sym-to-len1 (gen-notrans a 2))))
(setq rhy3 (run-neuron 'sym-to-len2 (gen-notrans a 2)))
(setq rhy4 (symbol-retrograde (run-neuron 'sym-to-len2 (gen-notrans a 2))))

(def-instrument-length
accord1rh rhy4
accord1lh rhy2
accord2rh rhy3
accord2lh rhy1
)
(create-tonality accord.set2 '(b 4 c 5 d 5 e 5 f 5))
(setq tonals1 (activate-tonality (accord.set2 f# 4)))
(setq tonals2 (activate-tonality (chromatic c 3)))
(setq tonals3 (activate-tonality (chromatic a 3)))

(compile-song "ccl;output:" 1/4 "d3midi"

;MEASURES          |---|---|---|---|---|---|---|---|---|---|---|---|
accord1rh tonals1  "  -----"
accord1lh tonals2  "  -----"
accord2rh tonals1  "  -----"
accord2lh tonals3  "  -----"
)

```

```

;D4 (mm.134)

(initdef)
(defsym a '(e b d))
(defsym b '(f c))
(defsym c '(e a b))
(defsym d '(g b))
(defsym e '(d h f))

(setq mat1 (gen-rewrite a 6)
      mat2 (gen-rewrite a 4)
      mat3 (gen-rewrite a 2)
      mat4 '(a b c d e)
)
(def-instrument-symbol
accord2rh (append mat1 mat2 mat3)
accord2lh mat4
)
(def-neuron sym-to-len1
(in 1 'a) '(-1/4 1/2.)
(in 1 'b) '(1/8 1/16 1/16)
(in 1 'c) '(1/16 1/16 1/8 1/8 1/4.)
(in 1 'd) '(1/4. 1/8 1/8 1/16 1/16 1/16 1/8 -1/8 )
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3)
(in 1 'g) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/16 1/16 1/16 1/16)
(in 1 'h) '(1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7 1/4-7)
)

(setq rhy1 (run-neuron 'sym-to-len1 (gen-rewrite a 6)))

(def-instrument-length
accord2rh rhy1
accord2lh rhy1
)

(create-tonality accord.set2 '(b 4 c 5 d 5 e 5 f 5))
(setq tonals1 (activate-tonality (accord.set2 b 4)))
(setq tonals2 (activate-tonality (accord.set2 c 4)))

(compile-song "ccl;output:" 1/4 "d4:nidi"

;MEASURES          |---|---|---|---|---|---|---|---|
accord2rh tonals2 "----  -- -  ------  ---  ----"
accord2lh tonals1 "  ----  -  --  ------  --  -"
)

```



```

;E1 (mm.135-148)

(initdef 'symbols1)
(defsym a '(b d):tree 'symbols1)
(defsym b '(c d e):tree 'symbols1)
(defsym c '(a g):tree 'symbols1)
(defsym d '(e g):tree 'symbols1)
(defsym e '(c b f):tree 'symbols1)

(initdef 'symbols2)
(defsym a '(e b d):tree 'symbols2)
(defsym b '(f c):tree 'symbols2)
(defsym c '(e a b):tree 'symbols2)
(defsym d '(g b):tree 'symbols2)
(defsym e '(d h f):tree 'symbols2)

(setq mat1      (gen-fibonacci 2 (gen-notrans a 3 'symbols1) (gen-notrans a 2
'symbols1))
      mat2      (gen-rewrite a 6 'symbols2)
      mat3      '(g f e d c b a)
      mat4      '(h g f e d c b a)
      chords1   '((-12 a) adg adg (-12 d) dgk (-12 b) bei gjn hko)
      chords2   '(cfilo ehknq adgjm)
)

(def-instrument-symbol
accord1rh (append mat3 mat1 mat3)
accord1lh chords1
accord2rh (append mat4 mat2 mat4)
accord2lh chords2
)
(def-neuron sym-to-len1
(in 1 'a) '(1/2)
(in 1 'b) '(1/4-3 1/4-3 1/4-3)
(in 1 'c) '(-1/4-6 1/4-6 1/4-6 1/4-6 1/4-6 1/4-6)
(in 1 'd) '(1/16 1/8 1/16 1/16 1/16 1/16 1/16)
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3 1/4)
(in 1 'g) '(1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/4 1/16 1/16 1/16 1/16
1/4)
)
(def-neuron sym-to-len2
(in 1 'a) '(-1/4 1/2.)
(in 1 'b) '(1/8 1/16 1/16)
(in 1 'c) '(1/16 1/16 1/8 1/8 1/4.)
(in 1 'd) '(1/4. 1/8 1/8 1/16 1/16 1/8 -1/8 )
(in 1 'e) '(1/16 1/16 1/16 1/16)
(in 1 'f) '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/4-3 1/4-3 1/4-3)
(in 1 'g) '(1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/16 1/16 1/16 1/16)
(in 1 'h) '(1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7)
)
(def-neuron sym-to-len3
(in 1 'a) '(1/16)
(in 1 'b) '(1/16 -2/16)
(in 1 'c) '(1/16 -4/16)
(in 1 'd) '(1/16 -5/16)
(in 1 'e) '(1/16 -3/16)
(in 1 'f) '(1/16 -7/16)
(in 1 'g) '(1/16 -10/16)
(in 1 'h) '(1/16 -6/16)
)
(setq rhy1(run-neuron 'sym-to-len1
(gen-fibonacci 2 (gen-notrans a 2 'symbols1) (gen-notrans a 1 'symbols1)))
rhy2 '(1/8 1/4 1/8 1/8 1/8 1/8 1/3 1/2 1/2)
rhy3 (run-neuron 'sym-to-len2 (gen-rewrite a 5 'symbols2))
rhy4 (run-neuron 'sym-to-len3 (gen-notrans a 2 'symbols2))
rhy1a '(1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/4 1/16 1/16 1/16 1/16 1/4)
rhy3a '(1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7 1/2-7)
)

```



```

;Ela (num.149-153)

(initdef 'symbols1)
(defsym a '(b d):tree 'symbols1)
(defsym b '(c d e):tree 'symbols1)
(defsym c '(a g):tree 'symbols1)
(defsym d '(e g):tree 'symbols1)
(defsym e '(c b f):tree 'symbols1)

(initdef 'symbols2)
(defsym a '(e b d):tree 'symbols2)
(defsym b '(f c):tree 'symbols2)
(defsym c '(e a b):tree 'symbols2)
(defsym d '(g b):tree 'symbols2)
(defsym e '(d h f):tree 'symbols2)

(def-instrument-symbol
accord1rh (gen-notrans a 3 'symbols1)
accord2rh (gen-notrans a 3 'symbols2)
)

(setq rhy1 '(1/2 1/4-3 1/4-3 1/4-3 -1/2-6 1/2-6 1/2-6 1/2-6 1/2-6 1/2-6
1/8 1/4 1/8 1/4 1/4 1/4 1/4)

rhy2 '(1/2. 1/4 1/8 1/8 1/8 1/8 1/4 1/4 1/2. 1/4. 1/8 1/8 1/16 1/16 1/8
-1/8)
)

(def-instrument-length
accord1rh rhy1
accord2rh rhy2
)

(create-tonality accord.set1 '(a 4 a# 4 c 5 d# 5 e 5))
(create-tonality accord.set2 '(b 4 c 5 d 5 e 5 f 5))

(setq tonals1 (activate-tonality (accord.set1 a# 6) (accord.set1 d# 6))
tonals2 (activate-tonality (accord.set2 e 6)
)

(compile-song "ccl;output:" 1/4 "Elamidi"

;MEASURES          |---|---|---|---|---|
changes tonals1    "      .      "
accord1rh changes  "  ---  -"
accord2rh tonals2  "  -"
)

```



```

;E2 (mm.165)

(def-instrument-symbol
accord1rh '(a b c d e af)
accord1lh '(ace)
accord2rh '(a b c d e af)
accord2lh '(bdf)
)

(setq rhy1 '(1/4-5 1/4-5 1/4-5 1/4-5 1/4-5 1/16 -1/8.)
      rhy2 '(1/16 -3/16)
)

(def-instrument-length
accord1rh rhy1
accord1lh rhy2
accord2rh rhy1
accord2lh rhy2
)

(create-tonality accord.set1 '(a 4 a# 4 c 5 d# 5 e 5))
(create-tonality accord.set2 '(b 4 c 5 d 5 e 5 f 5))

(setq tonals1 (activate-tonality (accord.set1 a 5))
      tonals2 (activate-tonality (accord.set2 b 5))
)

(compile-song "ccl;output:" 1/4 "E2amidi"

;MEASURES          |---|
accord1rh tonals1  "  --"
accord1lh tonals1  "  -"
accord2rh tonals2  "  --"
accord2lh tonals2  "  -"
)

```