

**The dramaturgy of music :  
its impact on my  
composition**

Javier Alejandro Garavaglia

Awarded by

London metropolitan University

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**PAGE NUMBERING AS  
ORIGINAL**

# Color Code

(1998)

for  
2 video projectors on 2 canvas,  
4-track-tape, viola and live-electronics (MAX/MSP)

## Music Score

(4-track-tape/Viola/live-electronics)

Music © Javier Alejandro Garavaglia (1998)

Music Score edited by Javier Alejandro Garavaglia (1998)

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# Color Code

(1998)

for

2 video projectors on 2 canvas,  
4-track-tape, viola and live-electronics (MAX/MSP)

1st. performance: 26.11.98 - Detter Halle - Kleiner Saal - Bielefeld - Germany

Artistic conception:

Gottfried Jäger, Karl Holzhauser (Fachhochschule Bielefeld-Germany)

Music (tape and viola) and MAX/MSP programming:

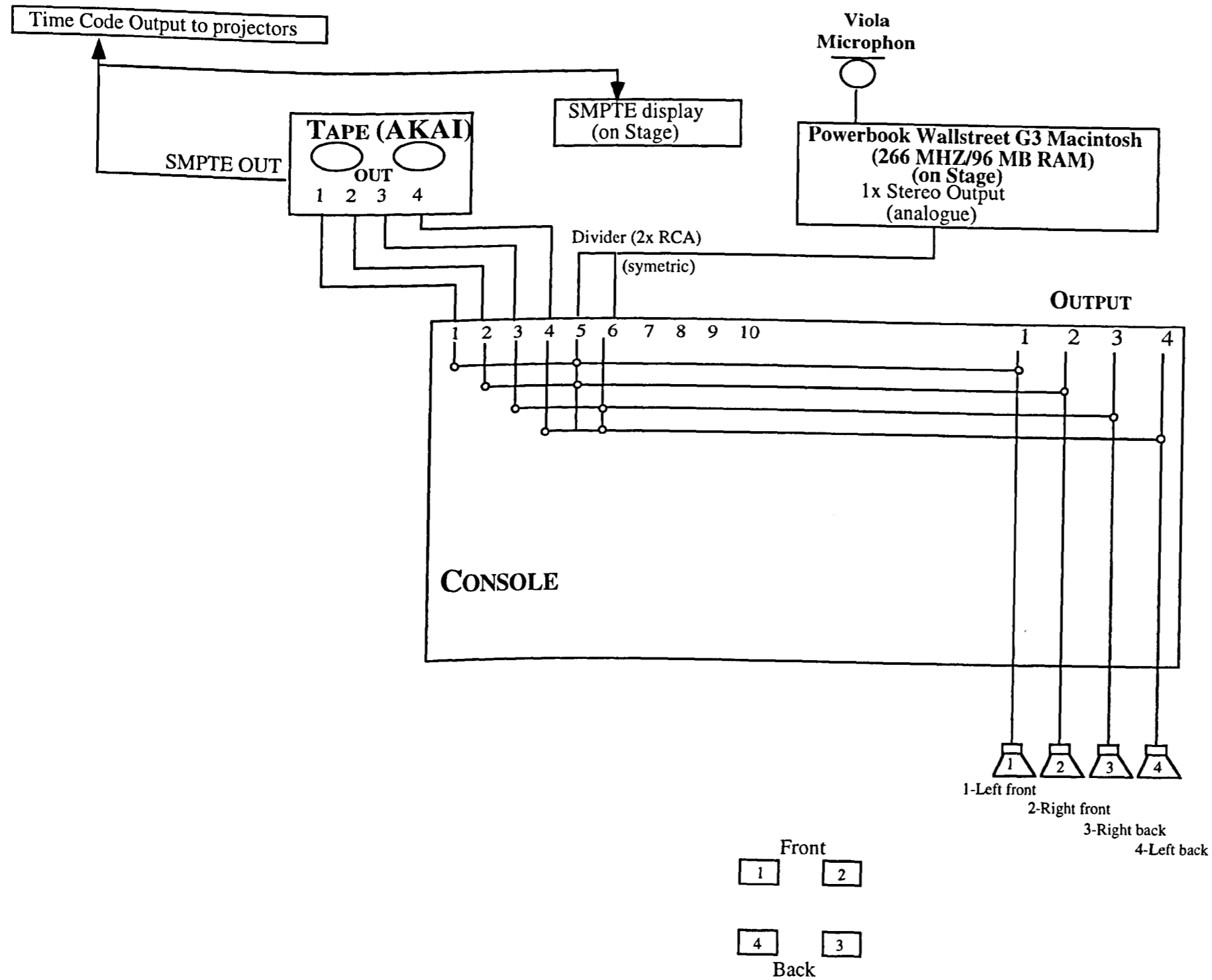
Javier Alejandro Garavaglia (ICEM-Folkwang-Hochschule Essen-Germany)

Video generation on SGI computer:

Peter Serocka (University of Bielefeld-Germany).

# Color Code

Console configurations for the 1st. performance  
(26.11.98 - Oetker Halle - Kleiner Saal - Bielefeld - Germany)



# Color Code

for

2 video projectors on 2 canvas,  
4-track-tape, viola and live-electronics (MAX/MSP)

4-track-tape score

# Color Code

(1998)

4-track-tape Score

A piece for 2 video projectors on 2 canvas, 4-track-tape, viola and live-electronics (MAX/MSP)

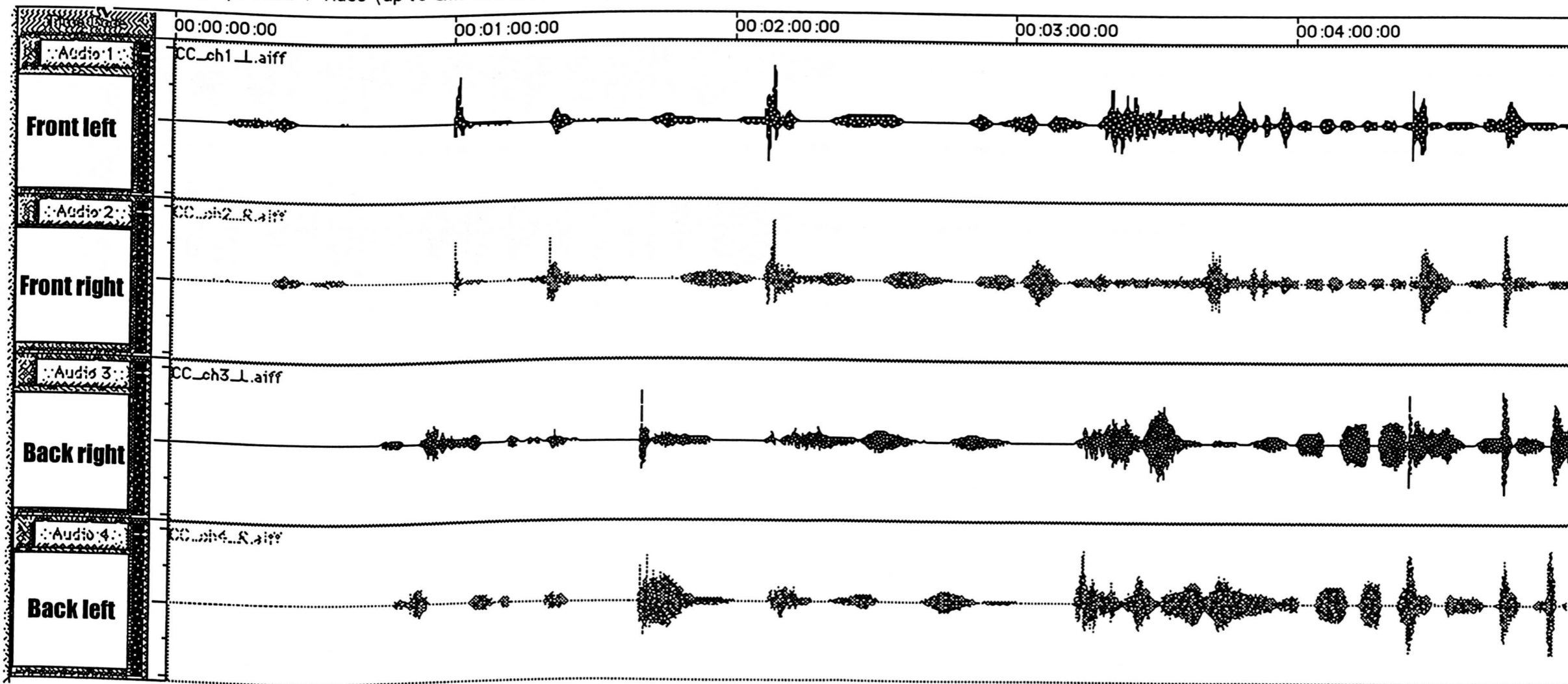
Artistic conception: Gottfried Jäger, Karl Holzhauser

Music (tape and viola) and MAX/MSP programming: Javier Alejandro Garavaglia

Video generation on SGI computer: Peter Serocha.

Act 1 - Video: Blue

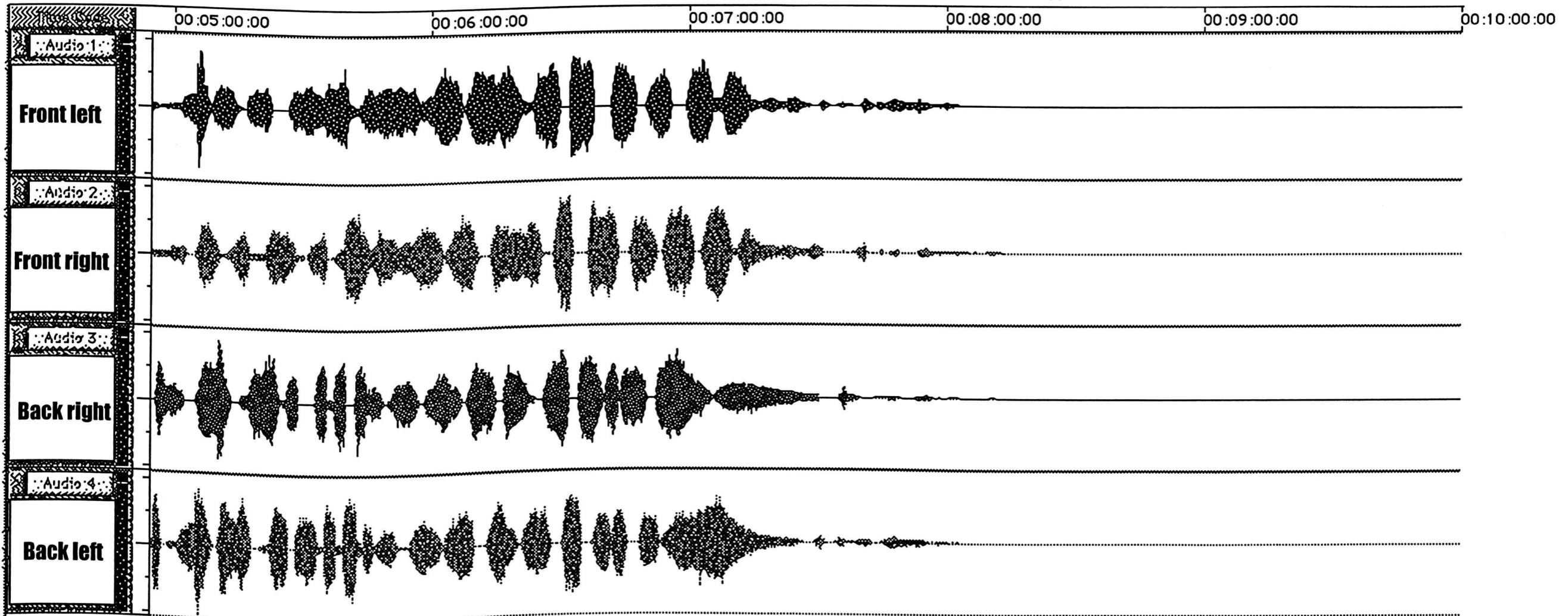
(Tape alone + Video (up to SMPTE 00:08:00:00))



*Intermezzo 1 -*

Viola + live electronics (MAX/MSP)-Patch AM+delays 7.0-  
(up to SMPTE 00:13:30:00)

*Video: off* (Light on Canvas from very bright to very dark)

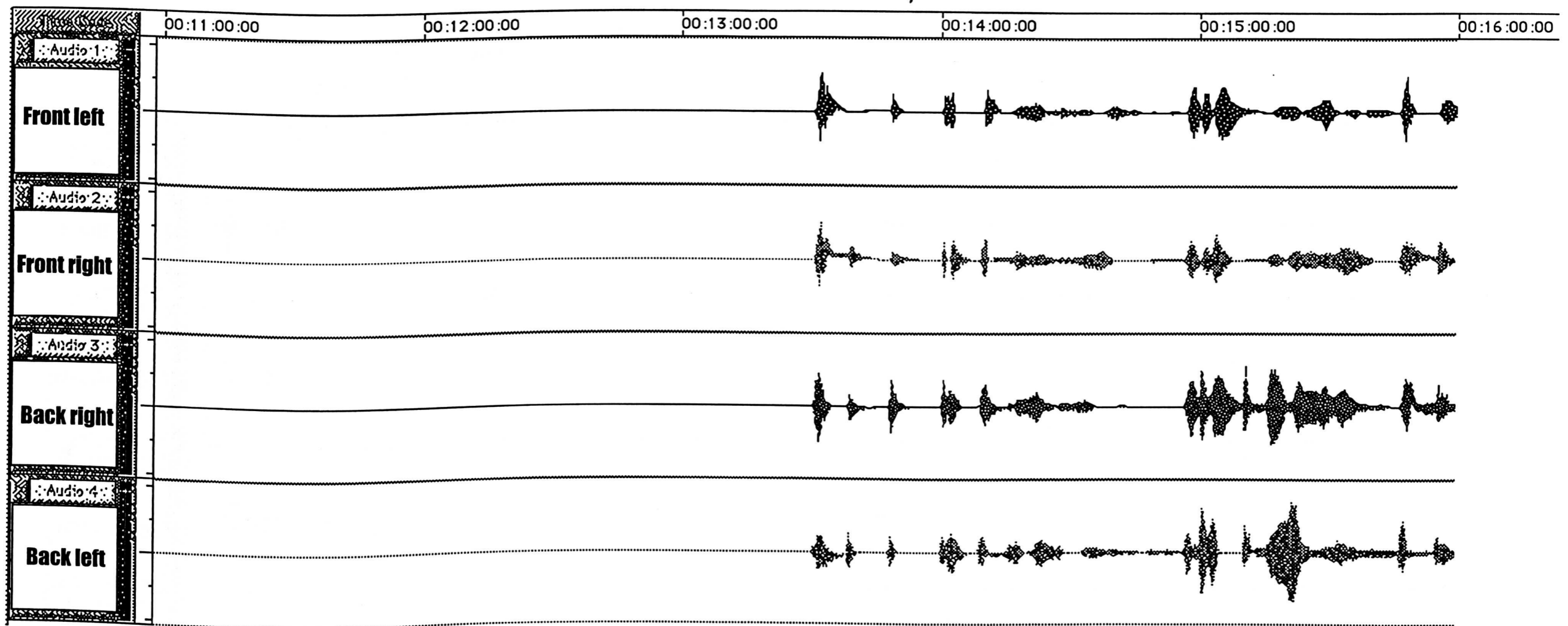




Act II

4-track-tape alone  
(from SMPTE 00:13:30:00 up  
to SMPTE 00:18:30:00)

Video: Green



*Intermezzo II-* (SMPTE 00:16:00:00)

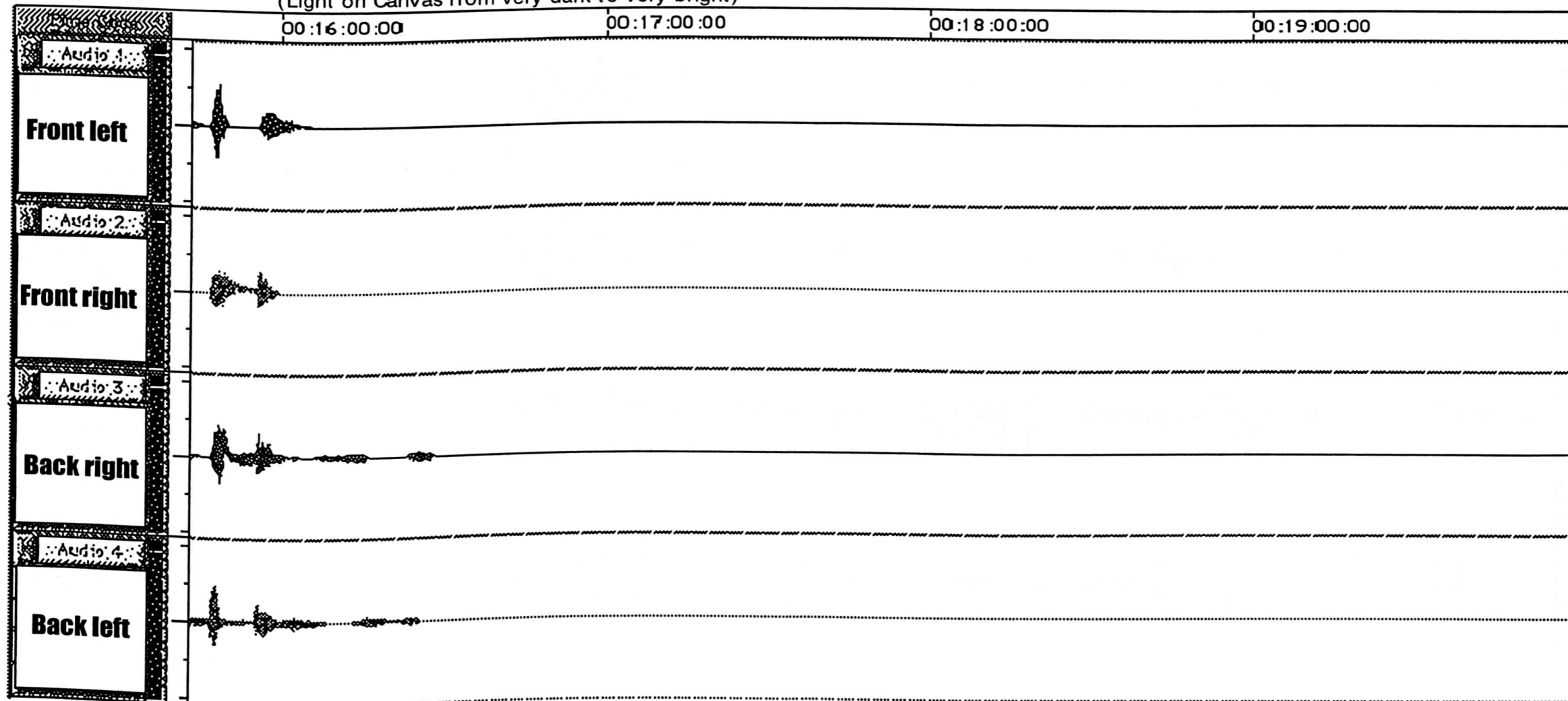
Viola + live electronics (MAX/ MSP)-

Patch = "Convolve signal A & Signal B with Mic. Input"-

(up to SMPTE 00:21:55:00)

*Video: off-*

(Light on Canvas from very dark to very bright)



*Act III*

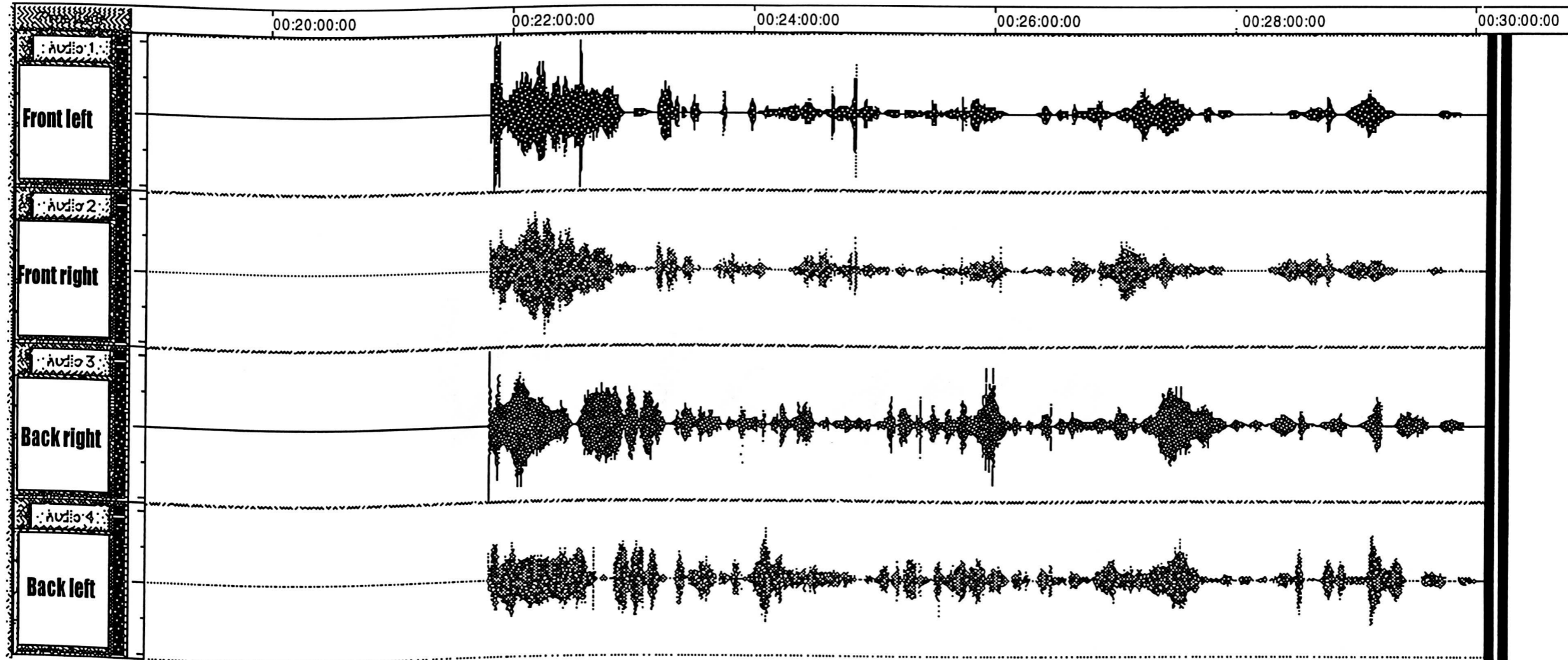
4-track-tape alone  
(from SMPTE 21:55:000 up  
to SMPTE 30:03:000)

*Video: Rot*

*Coda (optative)-* (SMPTE 00:26:38:00)

Viola + live electronics (MAX/MSP)-  
Patch = "Convolve signal A & Signal B with Mic. Input" (b)-  
(up to SMPTE 00:31:30:00)

*Video: off-* (from SMPTE 00:30:03:00)



# Color Code

for

2 video projectors on 2 canvas,  
4-track-tape, viola and live-electronics (MAX/MSP)

# Viola solo

# COLOR CODE

## INTERMEZZO I

JAVIER ALIANDRO GARAVAGLIA (1998)

MSP  
ON: 07:55:00

SMPTTE: 08:00:000

Dietro il Pont.  
Viola

MSP: 00:00  
12" pizz. norm.  
2" pizz.  
15" arco  
8" *mf* < *mf* *acell.*  
5" *ff* (Slow---->Very fast)  
20" *ff* (Slow---->fast)  
5" *mp* < molto !! *fff*  
MSP: 01:00

Sul Pont.  
Viola

10" *ff* (AM) *ppp*  
10" *ff* (Slow---->Very fast) *ppp*  
20" *ppp* Flageolet gliss.  
norm.

Vla.

MSP: 01:45  
1" pizz. *sfz*  
10" arco norm. *sfz*  
1" Flageolet gliss.  
3" pizz. *ppp*  
6" arco *f*  
1" *f*  
3" *f*  
1" *f*  
6" *f*  
1" *f*  
3" *f*  
1" *f*

Vla.

MSP: 02:08  
8" *mp* *fff*  
2" *mp* < *f*  
9" *fff*  
6" *fff*  
2" *f*

Vla.

MSP: 02:55  
5" *ff*  
2" pizz. *ff* *sfz*  
2" norm. *sfz*  
2" pizz. *fff*  
6" *fff* c.l.b.  
2" *f*

Vla.

MSP: 03:19  
Tranquillo  
3" arco *mp*  
10" *mp*  
3" Flageolet gliss.  
6" *f*  
2" *f*

Vla.

10" *mp* (simile)  
15" *f* *f* *f* *f* *f* *f* *f* *f* *f*  
6" *f*  
3" *f*

Vla.

MSP: 04:44  
5" pizz. *mp*  
4" arco *ff*  
8" *ff* *acell.*  
5" Flageolet gliss.  
5" *f*

Vla.

SMPTTE: 13:00:000  
MSP: 05:00  
5" Flageolet gliss. *f*  
6" *f*  
9" *f*  
2" *f*  
2" *f*

Vla.

MSP: 05:31  
1" *f*  
1" *f*  
1" *f*  
1" *f*  
1" *f*  
1" *f*  
1" *f*  
1" *f*  
1" *f*  
1" *f*  
1" *f*  
1" *f*

MSP: slow fade out up to  
SMPTTE 13:50:000

# COLOR CODE

## INTERMEZZO II

JAVIER ALEJANDRO GARAVAGLIA (1998)

MSP  
ON: 15:56:000

SMPTE: 16:00:000  
MSP: 00:00

Viola

60" pizz.

20" poco a poco Sul Pont

*mf* *p* *sfz p* *f* *fff*

(Slow)----->Fast----->Slow  
(from 0" to 60")

MSP: 01:20

30" c.l.b.

Vla.

*f* (lento e rubato)

10" Sul Pont.

10" Gliss. lento

MSP: 02:00

10" pizz. norm.

*ff* *ff*

10" 10" 20"

Vla.

*sfz* *sfz* *sfz* *p* *f* *fff*

MSP: 02:10

10" Sul Pont.

10" Sul Tasto

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

SMPTE: 18:40:000  
MSP: 02:40

25" 15" 10"

Vla.

*mp* (lento e rubato)

Elautanda

Sul Pont.

norm. pizz.

Gliss. lento

Sul Pont.

Sul Pont.

*ff* *ff* *mp* *ff* *mp* *ff*

(ad libitum)

SMPTE: 19:35:000  
MSP: 03:35

10" 15" 30" 85" - 90"

Vla.

Sul tasto

Gliss. lento

*fff* *fff* *fff* *fff* *fff* *fff*

acelerando molto

(*fff*) (Very fast)----->(From 0" to 85"-90")

(*p*)

SMPTE: 21:50:000 (ACT III)

Vla.

# COLOR CODE

CODA

MSP  
ON: 26:33:000

JAVIER ALEJANDRO GARAVAGLIA (1998)

SMPTE: 26:38:000  
MSP: 00:00

Viola

30" 10" 90"

*mf* arco  
*mf* acell.

Molto espressivo e dolce. Rubato-libero

Vla.

SMPTE: 28:48:000  
MSP: 02:10

Vla.

20"

*mp* Flageolet gliss.

SMPTE: 29:08:000  
MSP: 02:30

SMPTE: 29:40:000  
MSP: 03:02

Vla.

27" 5" 20" 5"

*mp* Molto espressivo e dolce. Rubato-libero  
*f*

SMPTE: 30:30:000  
MSP: 03:52

Vla.

20" 5" 15" 5" 12" 5"

*mf* *sffz* *mp* *p* morendo

SMPTE: 31:27:000  
MSP: 04:49

Vla.

20"

*mp* *ppp*

# Color Code

for

2 video projectors on 2 canvas,  
4-track-tape, viola and live-electronics (MAX/MSP)

live-electronics part

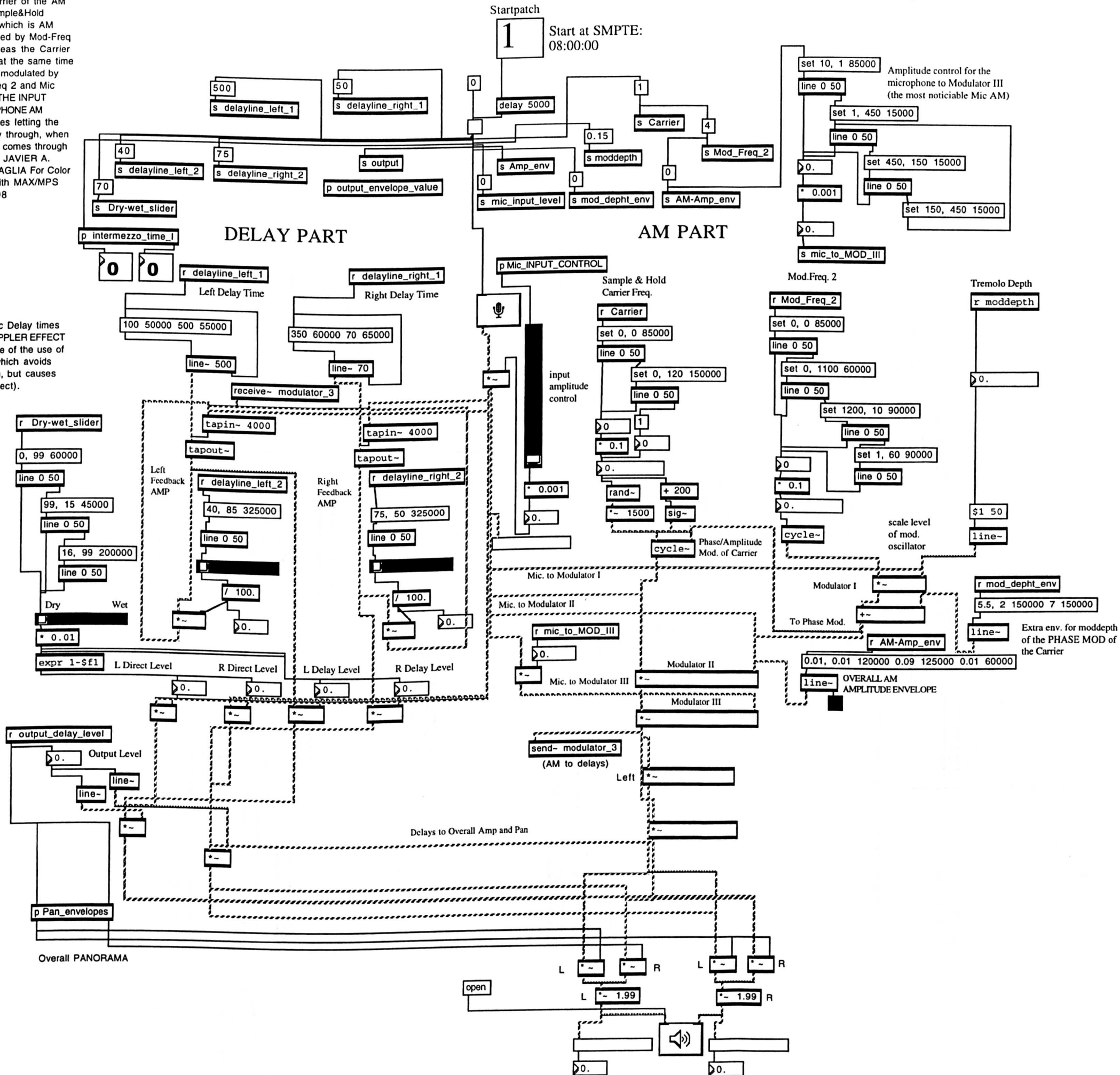
MAX-MSP patches-documentation



# Color Code / INTERMEZZO I / live electronics (AM + DELAYS 7. Patch)

AM with dynamic "Doppler" delay lines. The Carrier of the AM is a Sample&Hold signal, which is AM modulated by Mod-Freq 2, whereas the Carrier will be at the same time PHASE modulated by Mod-Freq 2 and Mic Signal. THE INPUT MICROPHONE AM modulates letting the AM only through, when a signal comes through the Mic. JAVIER A. GARAVAGLIA For Color Code with MAX/MPS 20.10.98

Dynamic Delay times with DOPPLER EFFECT (because of the use of line-, which avoids clipping, but causes this effect).



# Color Code - INTERMEZZO II - live-electronics

PATCH = Convolve signal A & signal B with Mic.Input

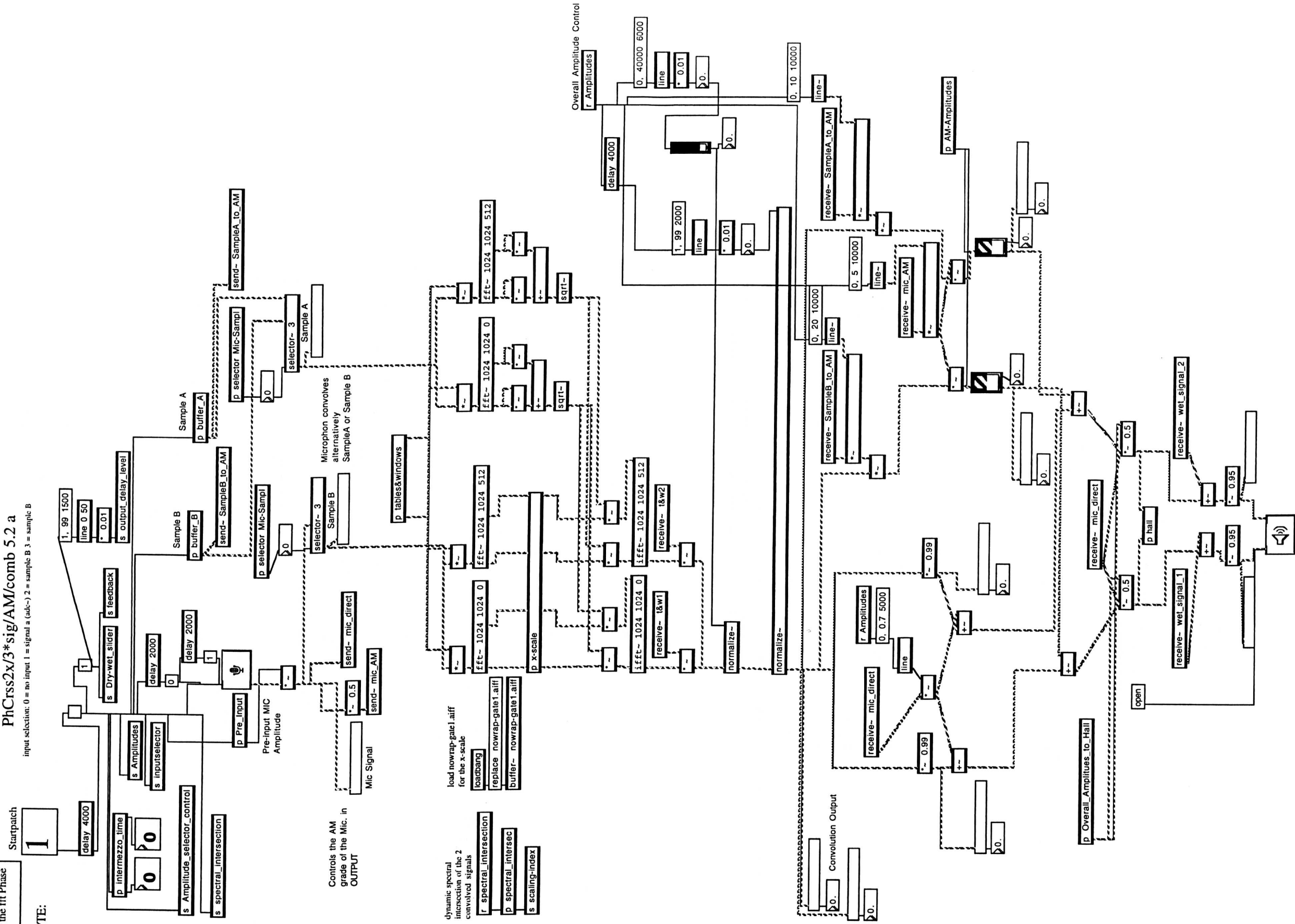
PhCrss2x/3\*sig/AM/comb 5.2 a

input selector: 0 = no input 1 = signal a (alt-) 2 = sample B 3 = sample A

Attention!!! put the I/O Vector and signal vector size on the DAC = 64 (if not, there are clicks on the output because of the fit Phase value (multiple of 64))

Start at SMPTE:  
16:00:00

Convolution of Viola INPUT and alternative two Samples, taken from the Tape materials. The OUTPUT of the Convolution will be AM modulated with the INPUT of the Viola JAVIER A. GARAVAGLIA for COLOR CODE with MAXIMSP NOV.98



Attention!!! put the I/O Vector and signal vector size on the DAC = 64 (if not, there are clicks on the output because of the fft Phase value (multiple of 64))

Start at SMPTE:  
26:38:00

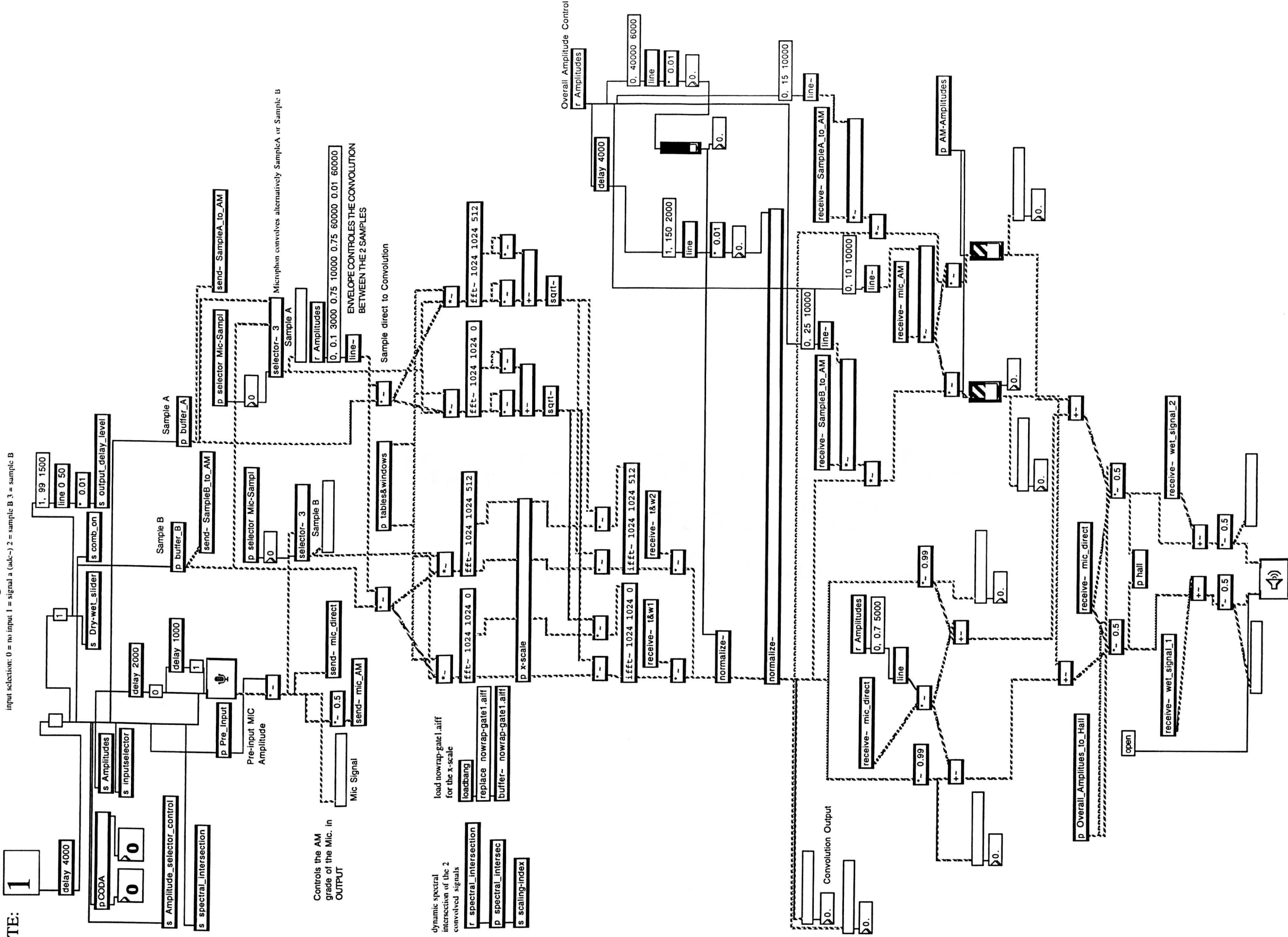
THIS PATCH IS ONLY FOR THE CASE, THAT THE PIECE WONT BE PLAYED WITH THE VIDEO. Convolution of Viola INPUT and alternative two Samples, taken from the Tape materials. The OUTPUT of the Convolution will be AM modulated with the INPUT of the Viola JAVIER A. GARAVAGLIA for COLOR CODE with MAX/MSP NOV.98

# Color Code - CODA - live-electronics

## PATCH = Convolve signal A & signal B with Mic.Input

### PhCrss2x/3\*sig/AM/comb 5. b

input\_selection: 0 = no input 1 = signal a (adc-) 2 = sample B 3 = sample B



*Crround code files for „Color Code“  
(May to August 1998)  
Javier Alejandro Garavaglia*

**Csound code files for "Color Code" (May to August 1998)**  
**Javier Alejandro Garavaglia**  
**(programer & composer)**

Note: many of these Csound sounds were treated transformed with other programs with procedures such as Phase Vocoding (pitch-shift & time stretching), cross synthesis, spectral extraction, reveberation, etc.

```

;;;(00grFM )+ add Synth.orc

;;; Add. Synth-For Color Code (1998)

        sr=44100
        kr=441
        ksmps=100
        nchnls=2

gasignall init 0
gasignal2 init 0

instr 2 ;;(sine waves for the add.synth)

isine2= p4+(p4*0.15)

asig1 oscil      1000, p4, 1
asig2 oscil      1000, isine2, 1

outs  asig1,asig2

gasignall=asig1
gasignal2=asig2
endin

instr 10 ;;(overall amplitude envelope)

iamp      =      ampdb(p4)
irisel    =      0.175*p3          ;%of total dur, l=entire dur of note
idecl     =      0.9*p3           ;% of total duration
ioff1     =      p3 - (irisel + idecl)

kpan      line          0,p3,1
kamp      linseg       0,irisel,iamp,idecl,0,ioff1,0

asig1=(gasignall*kamp)*kpan
asig2=(gasignal2*kamp)*(1-kpan)

outs  asig1,asig2

endin

;;;(00grFM )+ add Synth.sco

;;; Add. Synth-For Color Code (1998)

;score

i2      0.00      30.00      400
i2      .         .         450
i2      .         .         500
i2      .         .         550
i2      .         .         600

```

```

i2      .         .         650
i2      .         .         700
i2      .         .         750
i2      .         .         800
i2      .         .         850
i2      .         .         900
i2      .         .         950
i2      .         .         1000

```

```

i10 0.00      30.00 2
e
*****
;;00WNa+hall.orc
;;; WN + hall
;;; JAG 16.06.98 for Color Code

        sr=44100
        kr=4410
        ksmps=10
        nchnls=1

gareverb init 0

instr 1 ;;low FM

iamp=ampdb(p4)
irise=0.2*p3
idec=0.90*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp      linseg       0,irise,iamp,idec,0,ioff,0
anoise    rand         inoise

kindex    line         1,p3,3
kndx      =            kamp * kindex
kfreq     linseg       20,p3*0.5,40,p3,20
kbw       linseg       30,p3*0.5,850,p3,9

afm1      foscil       iamp,0.5,1,2,kndx,3
afm2      foscil       iamp,0.7,1,3,kndx,3
afm3      foscil       iamp,0.4,1,4,kndx,3
aboom     oscil        iamp,((afm1+afm2+afm3)/4)*p5,1

afilt1    reson        aboom,kfreq,kbw
afilt2    reson        anoise,kfreq,kbw

aout      =            (afilt2 + afilt1 + aboom) * 0.0004 * kamp

        out          aout

gareverb = gareverb+aout*1.5

endin

instr 2 ;;White noise

iamp=ampdb(p4)
irise=0.3*p3

```

```

idec=0.7*2.50*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise

kfiltfreq     linseg    200,p3*0.45,5000,p3,20
kbw           linseg    65,p3*0.45,200,p3,5

afilt         reson     anoise,kfiltfreq,kbw

aout          =         afilt * 0.0007 * kamp

                out     aout

gareverb = gareverb+aout

endin

instr 10 ;;(overall reverb)

irevtime      =         5

apdelay delay gareverb, sqrt(irevtime)/50

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum ` =      (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.0063
asig2 alpass asum,irevtime, 0.0061
asig3 alpass asig1,irevtime,0.0062

out (asig0+asig1+asig3+asig2)*4

gareverb = 0

endin

;;00WNa+hall.sco
; GEN functions

f1 0      2048      10  1      ;sine

f3 0      2048      10  1  0    .3  0    .2  0    .14  0    .111 ; Square

;score
i1          0.00          3.50          4          100
i2          0.00          80.00         1.5
i1          30.00         5.50          4          200
i1          45.00         8.50          4          300
i1          65.00        10.50          4          400

i10         0.00          86.00

e

*****
;;01WN.orc
;;; White Noise
;;; JAG 19.06.98 for Color Code

```

```

sr=44100
kr=4410
ksmps=10
nchnls=1

instr 1 ;;low FM

iamp=ampdb(p4)
irise=0.2*p3
idec=0.70*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise

kindex        line      1,p3,3
kndx          =         kamp * kindex
kfreq         linseg    20,p3*0.5,50,p3,20
kbw           linseg    30,p3*0.5,450,p3,9

afm1          foscil    iamp,0.5,1,2,kndx,3
afm2          foscil    iamp,0.7,1,3,kndx,3
afm3          foscil    iamp,0.4,1,4,kndx,3
aboom         oscil     iamp,((afm1+afm2+afm3)/3)+p5,1

afilt1        reson     aboom,kfreq,kbw
afilt2        reson     anoise,kfreq,kbw

aout          =         (((afilt2 + afilt1)* 0.0004) + aboom)*kamp*2.5

                out     aout

endin

instr 2 ;;WN

iamp=ampdb(p4)
irise=0.3*p3
idec=0.70*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise

kfiltfreq     linseg    p5,p3*0.45,p6,p3,p7
kbw           linseg    65,p3*0.45,200,p3,5

afilt         reson     anoise,kfiltfreq,kbw

aoutb         =         afilt * 0.0004 * kamp

                out     aoutb

endin

;;01WN.sco
;;; White Noise
;;; JAG 19.06.98 for Color Code

; White Noise + dynamic filter
;

```

```

; GEN functions

; waveform

f1 0 2048 10 1 ;sine
f3 0 2048 10 1 1 1 1 .7 .5 .3 .1 ; Pulse

;score
i1 0.00 2.50 4 100
i2 0.50 60.00 1 200 5000 100
i2 0.50 60.00 1 2000 20000 2000
i1 20.00 5.00 4 200
i1 40.00 10.00 4 50

e

*****
;;; 01WN+Hall.orc
;;; WN + hall
;;; JAG 16.06.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=1

gareverb init 0

instr 1 ;;low FM

iamp=ampdb(p4)
irise=0.1*p3
idec=0.60*p3
ioff=p3
inoise=20000

kamp          linseg 0,irise,iamp,idec,0,ioff,0
anoise        rand    inoise

kindex        line 1,p3,3
kndx          =      kamp * kindex
kfreq         linseg 20,p3*0.5,50,p3,20
kbw           linseg 30,p3*0.5,450,p3,9

afm1          foscil iamp,0.5,1,2,kndx,3
afm2          foscil iamp,0.7,1,3,kndx,3
afm3          foscil iamp,0.4,1,4,kndx,3
aboom         oscil  iamp,((afm1+afm2+afm3)/3)+p5,1

afilt1        reson  aboom,kfreq,kbw

afilt2        reson  anoise,kfreq,kbw

aout          =      (((afilt2 + afilt1)* 0.0004) + aboom)*kamp*2.5

out          aout

```

```

gareverb = gareverb+aout*8.5

endin

instr 2 ;;WN

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 ;
inoise=20000

kamp          linseg 0,irise,iamp,idec,iamp/2,ioff,0
anoise        rand    inoise

kfiltfreq     linseg p5,p3*0.45,p6,p3,p7
kbw           linseg 65,p3*0.45,200,p3,5

afilt         reson  anoise,kfiltfreq,kbw

aoutb         =      afilt * 0.0006 * kamp

out          aoutb

gareverb = gareverb+aoutb
endin

instr 10 ;;(overall reverb)

irevtime      = 9

apdelay delay gareverb, sqrt(irevtime)/50

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.0063
asig2 alpass asum,irevtime, 0.0061
asig3 alpass asig1,irevtime,0.0062

out (asig0+asig1+asig3+asig2)*0.04

gareverb = 0

endin

;;; 01WN+Hall.sco

; WN+ dynamic filter
;
; GEN functions

; waveform

f1 0 2048 10 1 ;sine

f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square

```

```

;score
i1 0.00 1.50 3 100
i2 0.50 5.50 1.5 200 5000 100
i2 0.50 55.50 1.5 2000 20000 2000
i1 20.00 4.50 3 200
i1 40.00 9.50 3 50

i10 0.00 60.00

e
*****
;;Add Synth 02+hall.orc
;;; Add. Synth
;;; JAG 5.06.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=2

gasignal init 0

instr 2 ;;(sine waves for the add.synth)

asig1 oscil p4, p5, 1
asig2 oscil p4, p6, 1

outs asig1 * 0, asig2 * 0

gasignal=asig1+asig2+gasignal

endin

instr 10 ;;(overall amplitude envelope)

iamp = ampdb(p4)
irisel = 0.175*p3 ;%of total dur, 1=entire dur of note
idecl = 0.80*p3 ;% of total duration
ioff1 = p3 - (irisel + idecl)

kpan line 0,p3,1
kamp linseg 0,irisel,iamp,idecl,0,ioff1,0

asig=(gasignal*kamp)

outs asig*kpan, asig*(1-kpan)

gasignal=0

endin

;;Add Synth 02+hall.sco
; Additive Synthesis
;
; GEN functions

; waveform

f1 0 2048 10 1 ;sine
;score

```

```

i2 0.00 40.00 300 200 225
i2 . . 300 250 275
i2 . . 300 300 325
i2 . . 300 350 375
i2 . . 300 400 425
i2 . . 300 450 475
i2 . . 300 500 525
i2 . . 300 550 575
i2 . . 400 600 625
i2 . . 400 650 675
i2 . . 400 700 725
i2 . . 500 750 775
i2 . . 500 800 825
i2 . . 500 850 875
i2 . . 600 900 925
i2 . . 600 950 975
i2 . . 600 1000 1025

i10 0.00 40.00 5
e

*****

;;Add Synth 03+hall.orc
;;; Add. Synth + hall
;;; JAG 5.06.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=2

gareverb init 0

instr 2 ;;(sine waves for the add.synth)

asig1 oscil p4, p5, 1
asig2 oscil p4, p6, 1

outs asig1 * 0, asig2 * 0

;gasignal=asig1+asig2+gasignal
gareverb=asig1+asig2+gareverb ;;NO DIRECT OUTPUT. OUTPUT THROUGH INSTR 10

endin

instr 10 ;;(overall amplitude envelope + OVERALL REVERB)

iamp = ampdb(p4)
irisel = 0.175*p3 ;%of total dur, 1=entire dur of note
idecl = 0.80*p3 ;% of total duration
ioff1 = p3 - (irisel + idecl)
irevertime = 5

kpan line 0,p3,1
kamp linseg 0,irisel,iamp,idecl,0,ioff1,0

apdelay delay gareverb, sqrt(irevertime)/50

acomb0 comb apdelay, irevertime, 0.05
acomb1 comb apdelay, irevertime, 0.056
acomb2 comb apdelay, irevertime, 0.061

```



```

acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.0063
asig2 alpass asum,irevtime, 0.0061
asig3 alpass asig1,irevtime ,0.0062

;asig=(gasignal*kamp)
outs (asig0+asig1)*0.5*kamp*kpan, (asig2+asig3)*0.5*kamp*(1-kpan)

gareverb = 0

endin

;;Add Synth 03+hall.sco
; Additive Synthesis
;
; GEN functions
; waveform
f1 0 2048 10 1 ;sine

;score
i2 0.00 40.00 300 200 225
i2 . . 300 250 275
i2 . . 300 300 325
i2 . . 300 350 375
i2 . . 300 400 425
i2 . . 300 450 475
i2 . . 300 500 525
i2 . . 300 550 575
i2 . . 400 600 625
i2 . . 400 650 675
i2 . . 400 700 725
i2 . . 500 750 775
i2 . . 500 800 825
i2 . . 500 850 875
i2 . . 600 900 925
i2 . . 600 950 975
i2 . . 600 1000 1025

i10 0.00 46.00 5
e

*****
;;;Add Synth 04+hall.orc
;;; Add. Synth + hall
;;; JAG 5.06.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=1

gareverb init 0

instr 1 ;;low FM

iamp=ampdb(p4)
irise=0.3*p3

```

```

idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp          linseg      0,irise,iamp,idec,0,ioff,0
anoise        rand        inoise*kamp

kindex        line        1,p3,3
kndx          =          kamp * kindex
kfreq         linseg      20,p3*0.5,40,p3,20

afm1          foscil      iamp,0.5,1,2,kndx,1
afm2          foscil      iamp,0.7,1,3,kndx,1
afm3          foscil      iamp,0.4,1,4,kndx,1
aboom         =          (afm1+afm2+afm3)/3

afilt1        reson      aboom,kfreq,65
afilt2        reson      anoise,kfreq,65
aout          =          (afilt2 + afilt1) * 0.0005 * kamp

out           aout

endin

instr 2 ;;(sine waves for the add.synth)

iamp          =          ampdb(p7)
irise1        =          0.175*p3      ;%of total dur, 1=entire dur of note
idec1         =          0.80*p3      ;% of total duration
ioff1         =          p3 - (irise1 + idec1)

;kpan         line        0,p3,1
kamp          linseg      0,irise1,iamp,idec1,0,ioff1,0

asig1 oscil   p4, p5, 1
asig2 oscil   p4, p6, 1

aout = (asig1+asig2)*kamp

out  aout * 0

gareverb=aout+gareverb
endin

instr 10 ;;(overall reverb)

irevtime      =          5

apdelay delay gareverb, sqrt(irevtime)/50

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6

```

```

asig0 alpass asum,irevtime, 0.006
asigl alpass asig0,irevtime,0.007

out (asig0+asigl)*6

gareverb = 0
endin

;;;Add Synth 04+hall.sco
; Additive Synthesis- for Color Code (06/1998)
;
; GEN functions
; waveform

f1 0      2048      10      1      ;sine

;score
i1 0.00    8.50      3

i2 0.00    40.00    300 200 225 9
i2 0.00    40.00    300 250 275 9
i2 0.00    40.00    300 300 325 9
i2 0.00    40.00    300 350 375 9
i2 0.00    40.00    300 400 425 9
i2 0.00    40.00    300 450 475 9
i2 0.00    40.00    300 500 525 9
i2 0.00    40.00    300 550 575 9
i2 0.00    20.00     10 600 625 1
i2 15.00   20.00     10 660 685 1
i2 15.00   20.00     10 710 735 1
i2 15.00   20.00     10 770 795 1
i2 15.00   20.00     10 800 825 1
i2 15.00   20.00      5 840 865 1
i2 15.00   20.00      5 880 905 1
i2 15.00   20.00      5 910 985 1
i2 15.00   20.00      5 1000 1025 1
i2 15.00   20.00      5 1060 1095 1
i2 15.00   20.00      5 1100 1125 1
i2 16.00   20.00      5 2000 2125 1
i2 17.00   20.00      5 3100 3125 1
i2 18.00   20.00      5 4300 4325 1
i2 20.00   25.00    300 110 135 9
i2 20.00   25.00    300 160 185 9
i2 20.00   25.00    300  80 105 9
i2 20.00   25.00    300 190 195 9

i10 0.00   50.00

e
*****

;;;Add Synth 05+hall.orc
;;; Add. Synth + hall
;;; JAG 5.06.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=1

gareverb init 0

instr 1 ;;low FM

iamp=ampdb(p4)

```

```

irise=0.1*p3
idec=0.60*p3
ioff=p3
inoise=20000

kamp      linseg  0,irise,iamp,idec,0,ioff,0
anoise    rand    inoise

kindex    line    1,p3,3
kndx      =      kamp * kindex
kfreq     linseg  20,p3*0.5,50,p3,20
kbw       linseg  30,p3*0.5,450,p3,9

afm1      foscil  iamp,0.5,1,2,kndx,4
afm2      foscil  iamp,0.7,1,3,kndx,4
afm3      foscil  iamp,0.4,1,4,kndx,4
aboom     =      (afm1+afm2+afm3)/3

afilt1    reson   aboom,kfreq,65
afilt2    reson   anoise,kfreq,65

aout      =      (((afilt2 + afilt1)* 0.0004) + aboom)*kamp

out       aout

gareverb = gareverb+aout*8.5

endin

instr 2 ;;(sine waves for the add.synth)

iamp      =      ampdb(p7)
irise1    =      0.175*p3      ;%of total dur, 1=entire dur of note
idec1     =      0.80*p3      ;% of total duration
ioff1     =      p3
;kpan     line    0,p3,1
kamp      linseg  0,irise1,iamp,idec1,0,ioff1,0

asig1 oscil  p4, p5, 1
asig2 oscil  p4, p6, 4

aout = (asig1+asig2)*kamp

out  aout * 0

gareverb=aout+gareverb
endin

instr 10 ;;(overall reverb)

irevtime = 9

apdelay delay gareverb, sqrt(irevtime)/50

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068

```

```

acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.0063
asig2 alpass asum,irevtime, 0.0061
asig3 alpass asig1,irevtime,0.0062

out (asig0+asig1+asig3+asig2)*0.04

gareverb = 0

endin

;;;Add Synth 05+hall.sco
; Additive Synthesis with 7ths
;
; GEN functions

; waveform

f1 0 2048 10 1 ;sine
;f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111 ;
Sawtooth

;f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111
; Square
f4 0 2048 10 1 1 1 1 .7 .5 .3 .1 ; Pulse

;score
i1 0.00 8.50 3

i2 0.70 45.00 300 200 225 9
i2 0.70 45.00 300 250 275 9
i2 0.70 45.00 300 300 325 9
i2 0.70 45.00 300 350 375 9
i2 1.20 45.00 300 400 425 9
i2 1.20 45.00 300 450 475 9
i2 1.40 45.00 300 500 525 9
i2 1.40 45.00 300 550 575 9
i2 1.40 20.00 300 600 625 9
i2 15.00 25.00 300 1400 685 9
i2 15.00 25.00 300 1750 735 9
i2 15.00 25.00 300 2100 795 9
i2 15.00 25.00 300 2450 825 9
i2 15.00 25.00 300 2800 865 9
i2 15.00 25.00 300 3150 905 9
i2 15.00 25.00 300 3500 985 9
i2 15.00 25.00 300 3850 1025 9
i2 15.00 25.00 300 4300 1095 9
i2 20.00 30.00 300 28.57 135 9
i2 20.00 30.00 300 35.71 185 9
i2 20.00 30.00 300 42.85 105 9
i2 20.00 30.00 300 50 195 9
i2 20.00 30.00 300 57.14 195 9
i2 20.00 30.00 300 64.28 195 9
i2 20.00 30.00 300 71.43 195 9
i2 20.00 30.00 300 78.57 195 9
i2 20.00 30.00 300 85.71 195 9

i10 0.00 55.00

e
*****
"ResBank2-grncld 35"PhVT4x ovzlp"

```

```

<snap>
Macintosh HD:Programme:Cecilia2.0 for
MacOS:files:builtin:Spectral:Resonators:ResonatorBank

cec_graph feedback {0.0 0.99500099500099504 1.0 0.99500099500099504}
cec_graph delay1 {0.0 0.4147411088308014 1.0 0.4147411088308014}
cec_graph level1 {0.0 0.89617320510677034 1.0 0.89617320510677034}
cec_graph delay2 {0.0 0.42810056494444437 1.0 0.42810056494444437}
cec_graph level2 {0.0 0.89998999899990006 1.0 0.89998999899990006}
cec_graph delay3 {0.0 0.44046948936535124 1.0 0.44046948936535124}
cec_graph level3 {0.0 0.8045701516716558 1.0 0.8045701516716558}
cec_graph delay4 {0.0 0.45198468251128315 1.0 0.45198468251128315}
cec_graph level4 {0.22972972972972974 0.89694656488549618 0.0 0.96869228907623595 1.0
0.96869228907623595}
cec_graph delay5 {0.0 0.46275642631951835 0.10585585585585586 0.30152671755725191 1.0
0.46275642631951835}
cec_graph devfreq {0.0 0.89898989898989901 1.0 0.89898989898989901}
cec_graph level5 {0.0 0.89998999899990006 1.0 0.89998999899990006}
cec_graph delay6 {0.0 0.47287492428270794 1.0 0.47287492428270794}
cec_graph delaydev {0.0 0.0 1.0 0.0}
cec_graph level6 {0.0 0.89998999899990006 1.0 0.89998999899990006}
islider offsource "0.00"
cec_filein source "Macintosh HD:Desktop Folder:Color Code:color code-
SOUNDS:graincloud 35'TimeVPH 4xoverlap"
islider total_time "65"
cec_toggle loop "0"
kslider delayoff "0.0000"
cec_toggle remdc "0"
kslider ingain "0.50"
kslider outgain "0.77"
</snap>
*****
;;;00 subway.orc
; Additive Synthesis

;;; Add. Synth + hall
;;; JAG 24.07.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=1

gareverb init 0

instr 1 ;;low FM

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp linseg 0,irise,iamp,idec,0,ioff,0
anoise rand inoise*kamp

kindex line 1,p3,3
kndx = kamp * kindex
kfreqfilt linseg 20,p3*0.5,40,p3,20

afm1 foscil iamp,p5,1,2,kndx,1
afm2 foscil iamp,p6,1,3,kndx,1
afm3 foscil iamp,p7,1,4,kndx,1
aboom = (afm1+afm2+afm3)/3

afilt1 reson aboom,kfreqfilt,3000

```

```

afilt2      reson      anoise,kfreqfilt,65
aout        =          (afilt2 + afilt1) * 0.0003 * kamp
            out        aout*0.79
endin

```

```
instr 2 ;;(sine waves for the add.synth)
```

```

iamp        =      ampdb(p7)
irisel      =      0.175*p3      ;%of total dur, 1=entire dur of note
idecl       =      0.80*p3      ;% of total duration
ioff1       =      p3 - (irisel + idecl)

```

```

kamp        linseg      0,irisel,iamp,idecl,0,ioff1,0
kfreq       line        p5,p3,p6
asigl       oscil       p4, kfreq, p8

```

```
aout = asigl*kamp*0.79
```

```

out aout ;;* 0
endin

```

```
instr 3 ;;WN
```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp        linseg      0,irise,iamp,idec,0,ioff,0
anoise      rand        inoise*kamp

```

```
kfreq      linseg      p5,p3*0.5,p6,p3,p6*2
```

```
afilt2      reson      anoise,kfreq,65
```

```

aout        =          afilt2 * 0.0007 * kamp
            out        aout*0.79

```

```

gareverb=aout+gareverb
endin

```

```
instr 4 ;; FM
```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)

```

```
kamp        linseg      0,irise,iamp,idec,0,ioff,0
```

```

kindex      line        1,p3,3
kndx        =          kamp * kindex
kfreq1      linseg      p5,p3*0.5,p8,p3,p5

```

```

kfreq2      line        p6,p3,p9
kfreq3      linseg      p7,p3*0.5,p10,p3,p5

afm1        foscil      iamp,kfreq1,1,2,kndx,1
afm2        foscil      iamp,kfreq2,1,3,kndx,1
afm3        foscil      iamp,kfreq3,1,4,kndx,1
aboom       =          (afm1+afm2+afm3)/3

```

```
aout = aboom * kamp * 7000
```

```

            out        aout*0.95
gareverb=aout+gareverb
endin

```

```
instr 10 ;;(overall reverb)
```

```
irevtime    =          5
```

```
apdelay delay gareverb, sqrt(irevtime)/50
```

```

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.007

```

```
out (asig0+asig1)*2.6
```

```
gareverb = 0
```

```
endin
```

```
;;;00 subway.sco
```

```

;;; Add. Synth + hall
;;; JAG 24.07.98 for Color Code

```

```
; GEN functions
```

```
; waveforms
```

```

f1  0  2048  10  1      ;sine
f2  0  2048  10  1  .5  .3  .25  .2  .167  .14  .125  .111 ; Sawtooth
f3  0  2048  10  1  0  .3  0  .2  0  .14  0  .111 ; Square
f4  0  2048  10  1  1  1  1  .7  .5  .3  .1  ; Pulse

```

```
;score
```

```

i1  0.00  15.00      2.5  0.5  0.7  0.4
i3  5.00  35.00      5    305  305
i3  5.00  35.00      5    520  520
i3  5.00  35.00      5    740  740
i3  5.00  35.00      5    960  960
i3  5.00  35.00      5   1180 1180
i3  5.00  35.00      5   1400 1400
i4  6.00  25.00      1.5  50   70  40 111  300  95
i4  6.00  25.00      3.0  50   70  40 55   75  45
i3  5.00  35.00      5   1620 1620

```

```
i3 5.00 35.00 5 1840 1840
```

```
e
```

```
;;;00a subway.sco
; Additive Synthesis
;;; JAG 24.07.98 for Color Code
; GEN functions
```

```
; waveforms
```

```
f1 0 2048 10 1 ;sine
f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 1 1 .7 .5 .3 .1 ; Pulse
```

```
;score
```

```
i1 0.00 15.00 2.5 0.5 0.7 0.4
i3 5.00 60.00 5 305 305
i3 5.00 60.00 5 520 520
i3 5.00 60.00 5 740 740
i3 5.00 60.00 5 960 960
i3 5.00 60.00 5 1180 1180
i3 5.00 60.00 5 1400 1400
i4 6.00 59.00 1.5 50 70 40 111 300 95
i4 6.00 59.00 3.0 50 70 40 55 75 45
i3 5.00 60.00 5 1620 1620
i3 5.00 60.00 5 1840 1840
```

```
e
```

```
*****
```

```
;;;FM Add.orc
;;; FM Add. Synth + hall
;;; JAG 24.07.98 for Color Code
```

```
sr=44100
kr=4410
ksmps=10
nchnls=1
```

```
gareverb init 0
garvbboom1 init 0
```

```
instr 4 ;; FM
```

```
iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
```

```
kamp linseg 0,irise,iamp,idec,0,ioff,0
```

```
kindex line 1,p3,3
kndx = kamp * kindex
kfreq1 linseg p5,p3*0.5,p8,p3,p5
kfreq2 line p6,p3,p9
kfreq3 linseg p7,p3*0.5,p10,p3,p5
```

```
afm1 foscil iamp,kfreq1,1,2,kndx,1
afm2 foscil iamp/2,kfreq2,1,3,kndx,1
afm3 foscil iamp,kfreq3,1,4,kndx,1
```

```
aboom = ((afm1+afm2+afm3)/3)*kamp
```

```
aout = aboom * kamp * 5000
```

```
out aout*0.7
gareverb=aout+gareverb
endin
```

```
instr 101
;;;Boom
```

```
iamp = ampdb(p4)
irise = 0.2*p3 ;%of total dur, l=entire dur of note
idec = 0.7*p3 ;% of total duration
ioff=p3 - (irise + idec)
irvgain = 0.4
```

```
kamp linseg 0,irise,iamp,idec,0,ioff,0
kindex line 1,p3,3
kndx = kamp * kindex
```

```
afm1 foscil iamp,0.5,1,2,kndx,1
afm2 foscil iamp,0.7,1,3,kndx,1
afm3 foscil iamp,0.4,1,4,kndx,1
aboom = kamp * (afm1+afm2+afm3)
```

```
aout1 = aboom * 0.04
```

```
out aout1/11
```

```
garvbboom1=garvbboom1+ aout1 * irvgain
endin
```

```
instr 10
;;;REVERBERATOR only for instr. 101 (Boom instrument)
```

```
iamp = ampdb(p4)
irise = 0.2*p3 ;%of total dur, l=entire dur of note
idec = 0.7*p3 ;% of total duration
ioff=p3 - (irise + idec)
```

```
kamphall linseg 0,irise,iamp,idec,0,ioff,0
krvbtime line 3,p3,6
```

```
areverb1 reverb garvbboom1,krvbtime
```

```
aboomsout1 = areverb1*kamphall
```

```
out areverb1/11
```

```
garvbboom1=0
endin
```

```
;;;FM Add.sco
;;; FM Add. Synth + hall
;;; JAG 24.07.98 for Color Code
```

```
; Additive Synthesis of FM
; GEN functions
```

```
; waveforms
f1 0 2048 10 1 1 1 1 .7 .4 .3 .2 .1 ;sine
f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 1 .7 .5 .3 .1 ; Pulse
```

```
;score
i4 00.00 35.00 3.5 50 70 40 60 80 50
i4 00.00 35.00 2.0 111 300 95 100 290 85
i4 00.00 35.00 0.05 500 700 400 600 650 500
i4 00.00 35.00 0.05 1500 1700 1400 1600 1650 1500
i4 00.00 35.00 0.05 3500 3700 3400 3600 3650 3500
i101 00.00 0.40 65
i10 00.00 05.00 37
```

e

\*\*\*\*\*

```
;;01FM +WN-hall.orc
; Additive Synthesis of dynamic filters + FM
```

```
;;; JAG 24.07.98 for Color Code
```

```
sr=44100
kr=4410
ksmps=10
nchnls=1
```

```
gareverb init 0
```

```
instr 1 ;;low FM
```

```
iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000
```

```
kamp linseg 0,irise,iamp,idec,0,ioff,0
anoise rand inoise*kamp
```

```
kindex line 1,p3,6
kndx = kamp * kindex
kfreqfilt linseg 20,p3*0.5,40,p3,20
```

```
kfreq1 expseg p5,p3*0.5,p8,p3,p5
kfreq2 expon p6,p3,p9
kfreq3 expseg p7,p3*0.5,p10,p3,p5
```

```
afm1 foscil iamp,kfreq1,1,2,kndx*0.3,1
afm2 foscil iamp,kfreq2,1,3,kndx*0.5,1
afm3 foscil iamp,kfreq3,1,4,kndx*2,1
aboom = (afm1+afm2+afm3)/3
```

```
afilt1 reson aboom,kfreqfilt,1000
afilt2 reson anoise,kfreqfilt,65
```

```
aout = (afilt2 + afilt1) * 0.0005 * kamp
```

```
out aout*0.1
```

```
gareverb=aout+gareverb
endin
```

```
instr 3 ;;WN
```

```
iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000
```

```
kamp linseg 0,irise,iamp,idec,0,ioff,0
anoise rand inoise*kamp
```

```
kfreq linseg p5,p3*0.5,p6,p3,p6*2
```

```
afilt2 reson anoise,kfreq,65
```

```
aout = afilt2 * 0.0005 * kamp
```

```
out aout*0.2
```

```
gareverb=aout+gareverb
endin
```

```
instr 4 ;; FM
```

```
iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
```

```
kamp linseg 0,irise,iamp,idec,0,ioff,0
```

```
kindex line 1,p3,3
kndx = kamp * kindex
kfreq1 linseg p5,p3*0.5,p8,p3,p5
kfreq2 line p6,p3,p9
kfreq3 linseg p7,p3*0.5,p10,p3,p5
```

```
afm1 foscil iamp,kfreq1,1,2,kndx,1
afm2 foscil iamp,kfreq2,1,3,kndx,1
afm3 foscil iamp,kfreq3,1,4,kndx,1
aboom = ((afm1+afm2+afm3)/3)*kamp
```

```
aout = aboom * kamp * 7000
```

```
out aout*0.1
```

```
gareverb=aout+gareverb
endin
```

```
instr 10 ;;(overall reverb)
```

```
irevtime = 7
```

```
apdelay delay gareverb, sqrt(irevtime)/50
```

```
acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
```

```

asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.007

```

```
out (asig0+asig1)*4.5
```

```
gareverb = 0
```

```
endin
```

```
;;01FM +WN-hall.sco
```

```
; Additive Synthesis of dynamic filters + FM
; GEN functions
```

```
; waveforms
```

```

f1 0 2048 10 1 ;sine
f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 .7 .5 .3 .1 ; Pulse

```

```
;score
```

```

i1 0.00 15.00 0.5 0.5 0.7 0.4 1 2 3
i1 10.00 15.00 1.0 0.9 0.5 0.75 2 3 4
i1 20.00 15.00 2.0 0.3 0.2 0.1 3 4 5
i3 0.00 35.00 6 305 305
i3 3.00 35.00 12 520 520
i3 6.00 35.00 12 740 740
i3 9.00 35.00 12 960 960
i3 12.00 35.00 12 1180 1180
i3 15.00 35.00 12 1400 1400
i3 18.00 35.00 12 1620 1620
i3 21.00 35.00 12 1840 1840
i4 30.00 30.00 1.5 50 70 40 60 80 50
i4 20.00 13.00 1.6 50 70 40 111 300 95
i4 10.00 30.00 0.05 500 700 400 600 800 500
i4 35.00 9.00 2.0 111 500 95 50 70 40

```

```
i10 0.00 65.00
```

```
e
```

```
*****
```

```
;;04FM +WN wet02.orc
```

```
; Additive Synthesis of dynamic filters + FM
;;; JAG 25.07.98 for Color Code
```

```

sr=44100
kr=4410
ksmps=10
nchnls=1

```

```
gareverb init 0
```

```
instr 1 ;;low FM
```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise*kamp

```

```

kindex        line      1,p3,6
kndx          =         kamp * kindex
kfreqfilt     linseg    20,p3*0.5,40,p3,20

kfreq1        expseg    p5,p3*0.5,p8,p3,p5
kfreq2        expon     p6,p3,p9
kfreq3        expseg    p7,p3*0.5,p10,p3,p5

afm1          foscil    iamp,kfreq1,1,2,kndx*0.3,4
afm2          foscil    iamp,kfreq2,1,3,kndx*0.5,4
afm3          foscil    iamp,kfreq3,1,4,kndx*2,4
aboom         =         (afm1+afm2+afm3)/3

afilt1        reson     aboom,kfreqfilt,1000
afilt2        reson     anoise,kfreqfilt,65

aout          =         (afilt2 + afilt1) * 0.0007 * kamp

out           aout*0.1
gareverb=aout+gareverb
endin

```

```
instr 3 ;;WN
```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise*kamp

```

```
kfreq          linseg    p5,p3*0.5,p6,p3,p6*3
```

```
afilt2        reson     anoise,kfreq,65
```

```
aout          =         afilt2 * 0.0005 * kamp
```

```
out           aout*0.1
```

```
gareverb=aout+gareverb
endin
```

```
instr 4 ;; FM
```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)

```

```

kamp          linseg    0,irise,iamp,idec,0,ioff,0

```

```

kindex        line      1,p3,3
kndx          =         kamp * kindex
kfreq1        linseg    p5,p3*0.5,p8,p3,p5
kfreq2        line      p6,p3,p9
kfreq3        linseg    p7,p3*0.5,p10,p3,p5

```

```
afm1          foscil    iamp,kfreq1,1,2,kndx,4
```

```

afm2      foscil      iamp,kfreq2,1,3,kndx,4
afm3      foscil      iamp,kfreq3,1,4,kndx,4
aboom     =           ((afm1+afm2+afm3)/3)*kamp
aout      =           aboom * kamp * 1000

```

```

out      aout*0.05
gareverb=aout+gareverb
endin

```

```
instr 10 ;;(overall reverb)
```

```
irevtime =7
```

```

kfreqfilt line 50,p3,3000
kbwreject line 400,p3,1700
abr        butterbr   gareverb, kfreqfilt , kbwreject
apdelay    delayr     0.7 delayw      abr

```

```
;apdelay delay abr, sqrt(irevtime)/50
```

```

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.007

```

```
aout =(asig0+asig1)/2
```

```

alp  butterlp aout,300
abr2 butterbr  aout, 300, 500

```

```
out (alp+abr2)*3.2
gareverb = 0
```

```
endin
```

```

;;04FM +WN wet02.sco
; Additive Synthesis of dynamic filters + FM
; GEN functions

```

```
; waveforms
```

```

f1 0 2048 10 1 ;sine
f2 0 2048 10 1.5 .3 .25 .2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 1 .7 .5 .3 .1 ; Pulse

```

```
;score
```

```

i1 0.00 15.00 1.5 0.5 0.7 0.4 1 2 3
i1 10.00 15.00 1.5 0.9 0.5 0.75 2 3 4
i1 20.00 15.00 1.0 0.3 0.2 0.1 3 4 5

```

```

i3 3.00 35.00 12 740 745
i3 3.50 35.00 12 960 965
i3 6.00 35.00 12 1180 1185
i3 9.00 35.00 12 2400 2500
i3 12.00 35.00 12 3620 3720
i3 15.00 35.00 10 4840 5000
i3 18.00 40.00 10 5000 6000

```

```

i3 21.00 48.00 6 500 400
i3 21.00 48.00 6 400 250
i3 21.00 48.00 6 300 50
i3 21.00 48.00 5 1300 650

```

```

i4 30.00 40.00 3.0 50 70 40 60 80 50
i4 20.00 15.00 1.2 50 70 40 111 300 95
i4 10.00 20.00 0.09 500 700 400 600 800 500
i4 25.00 25.00 2.0 111 500 95 50 70 40

```

```
i10 0.00 75.00
```

```

e
*****
;;;00Add Synth +WN-hall.orc
;;; Add. Synth + hall
;;; JAG 24.07.98 for Color Code

```

```

sr=44100
kr=4410
ksmps=10
nchnls=1

```

```
gareverb init 0
```

```
instr 1 ;;low FM
```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp      linseg      0,irise,iamp,idec,0,ioff,0
anoise    rand        inoise*kamp

```

```

kindex    line        1,p3,6
kndx      =           kamp * kindex
kfreqfilt linseg     20,p3*0.5,40,p3,20

```

```

kfreq1    expseg     p5,p3*0.5,p8,p3,p5
kfreq2    expon      p6,p3,p9
kfreq3    expseg     p7,p3*0.5,p10,p3,p5

```

```

afm1      foscil      iamp,kfreq1,1,2,kndx*0.3,1
afm2      foscil      iamp,kfreq2,1,3,kndx*0.5,1
afm3      foscil      iamp,kfreq3,1,4,kndx*2,1
aboom     =           (afm1+afm2+afm3)/3

```

```

afilt1    reson      aboom,kfreqfilt,1000
afilt2    reson      anoise,kfreqfilt,65

```

```
aout = (afilt2 + afilt1) * 0.0005 * kamp
```

```
out aout*0
```

```
gareverb=aout+gareverb
endin
```

```
instr 3 ;;WN
```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3

```



```

ioff=p3 - (irise + idec)
inoise=20000

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise*kamp

kfreq         linseg    p5,p3*0.5,p6,p3,p6*2

afilt2        reson     anoise,kfreq,65

aout          =         afilt2 * 0.0005 * kamp

              out      aout*0

gareverb=aout+gareverb
endin

instr 4 ;; FM

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)

kamp          linseg    0,irise,iamp,idec,0,ioff,0

kindex        line      1,p3,3
kndx          =         kamp * kindex
kfreq1        linseg    p5,p3*0.5,p8,p3,p5
kfreq2        line      p6,p3,p9
kfreq3        linseg    p7,p3*0.5,p10,p3,p5

afm1          foscil     iamp,kfreq1,1,2,kndx,1
afm2          foscil     iamp,kfreq2,1,3,kndx,1
afm3          foscil     iamp,kfreq3,1,4,kndx,1
aboom         =         ((afm1+afm2+afm3)/3)*kamp

aout          =         aboom * kamp * 9000

              out      aout*0
gareverb=aout+gareverb
endin

instr 10 ;;(overall reverb)

irevtime = 7

apdelay delay gareverb, sqrt(irevtime)/50

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.007

out (asig0+asig1)*5

```

```

gareverb = 0

endin

;;;00Add Synth +WN-hall.sco
; Additive Synthesis
; GEN functions

; waveforms

f1 0 2048 10 1 ;sine
f2 0 2048 10 1 .5 .3 .25.2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 1 .7 .5 .3 .1 ; Pulse

;score
i1 0.00 35.00 2.0 0.5 0.7 0.4 1 2 3

i3 0.00 35.00 5 305 305
i3 3.00 35.00 5 520 520
i3 6.00 35.00 5 740 740
i3 9.00 35.00 5 960 960
i3 12.00 35.00 5 1180 1180
i3 15.00 35.00 5 1400 1400
i3 18.00 35.00 5 1620 1620
i3 21.00 35.00 5 1840 1840
i4 0.00 60.00 1.5 50 7040 60 80 50
i4 20.00 13.00 2.0 50 70 40 111 300 95
i4 10.00 30.00 0.05 500 700 400 600 800 500
i4 35.00 9.00 2.0 111 500 95 50 70 40

i10 0.00 70.00

e

*****

;;;02FM +WN-hall.orc
;;; Add. Synth + hall
;;; JAG 25.07.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=1

gareverb init 0

instr 1 ;;low FM

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise*kamp

kindex        line      1,p3,6
kndx          =         kamp * kindex
kfreqfilt     linseg    20,p3*0.5,40,p3,20

kfreq1        expseg    p5,p3*0.5,p8,p3,p5
kfreq2        expon     p6,p3,p9
kfreq3        expseg    p7,p3*0.5,p10,p3,p5

```

```

afm1      foscil  iamp,kfreq1,1,2,kndx*0.3,1
afm2      foscil  iamp,kfreq2,1,3,kndx*0.5,1
afm3      foscil  iamp,kfreq3,1,4,kndx*2,1
aboom     =      (afm1+afm2+afm3)/3

afilt1    reson   aboom,kfreqfilt,1000
afilt2    reson   anoise,kfreqfilt,65

aout      =      (afilt2 + afilt1) * 0.0005 * kamp

          out     aout*0.1
gareverb=aout+gareverb
endin

instr 3   ;;WN

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp      linseg  0,irise,iamp,idec,0,ioff,0
anoise    rand    inoise*kamp

kfreq     linseg  p5,p3*0.5,p6,p3,p6*3

afilt2    reson   anoise,kfreq,65

aout      =      afilt2 * 0.0005 * kamp

          out     aout*0.2

gareverb=aout+gareverb
endin

instr 4   ;; FM

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)

kamp      linseg  0,irise,iamp,idec,0,ioff,0

kindex    line    1,p3,3
kndx      =      kamp * kindex
kfreq1    linseg  p5,p3*0.5,p8,p3,p5
kfreq2    line    p6,p3,p9
kfreq3    linseg  p7,p3*0.5,p10,p3,p5

afm1      foscil  iamp,kfreq1,1,2,kndx,1
afm2      foscil  iamp,kfreq2,1,3,kndx,1
afm3      foscil  iamp,kfreq3,1,4,kndx,1
aboom     =      ((afm1+afm2+afm3)/3)*kamp

aout      =      aboom * kamp * 7000

```

```

          out     aout*0.1
gareverb=aout+gareverb
endin

instr 10  ;;(overall reverb)

irevtime  =7

apdelay delay gareverb, sqrt(irevtime)/50

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum      =      (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.007

;out (asig0+asig1)*4.5
out asum *0.55
gareverb = 0

endin

;;;02FM +WN-hall.sco

; Additive Synthesis of dynamic filters + FM
; GEN functions

; waveforms

f1 0 2048 10 1 ;sine
f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 1 .7 .5 .3 .1 ; Pulse

;score
i1 0.00 15.00 1.5 0.5 0.7 0.4 1 2 3
i1 10.00 15.00 1.5 0.9 0.5 0.75 2 3 4
i1 20.00 15.00 1.0 0.3 0.2 0.1 3 4 5

i3 3.00 35.00 12 740 745
i3 3.50 35.00 12 960 965
i3 6.00 35.00 12 1180 1185
i3 9.00 35.00 12 2400 2500
i3 12.00 35.00 12 3620 3720
i3 15.00 35.00 10 4840 5000
i3 18.00 40.00 10 5000 6000
i3 21.00 48.00 8 500 400

i4 30.00 40.00 2.0 50 70 40 60 80 50
i4 20.00 15.00 1.6 50 70 40 111 300 95
i4 10.00 20.00 0.05 500 700 400 600 800 500
i4 25.00 25.00 2.5 111 500 95 50 70 40

i10 0.00 75.00

e

*****

03FM +WN wet01.orc
; Additive Synthesis of dynamic filters + FM

```

```

;;; Add. Synth + hall
;;; JAG 25.07.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=1

gareverb init 0

instr 1 ;;low FM

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise*kamp

kindex        line      1,p3,6
kndx          =         kamp * kindex
kfreqfilt     linseg    20,p3*0.5,40,p3,20

kfreq1        expseg    p5,p3*0.5,p8,p3,p5
kfreq2        expon     p6,p3,p9
kfreq3        expseg    p7,p3*0.5,p10,p3,p5

afm1          foscil    iamp,kfreq1,1,2,kndx*0.3,1
afm2          foscil    iamp,kfreq2,1,3,kndx*0.5,1
afm3          foscil    iamp,kfreq3,1,4,kndx*2,1
aboom         =         (afm1+afm2+afm3)/3

afilt1        reson     aboom,kfreqfilt,1000
afilt2        reson     anoise,kfreqfilt,65

aout          =         (afilt2 + afilt1) * 0.0005 * kamp

out           aout*0.17
gareverb=aout+gareverb
endin

instr 3 ;;WN

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp          linseg    0,irise,iamp,idec,0,ioff,0
anoise        rand      inoise*kamp

kfreq         linseg    p5,p3*0.5,p6,p3,p6*3

afilt2        reson     anoise,kfreq,65

aout          =         afilt2 * 0.0005 * kamp

out           aout*0.2

gareverb=aout+gareverb

```

```

endin

instr 4 ;; FM

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)

kamp          linseg    0,irise,iamp,idec,0,ioff,0

kindex        line      1,p3,3
kndx          =         kamp * kindex
kfreq1        linseg    p5,p3*0.5,p8,p3,p5
kfreq2        line      p6,p3,p9
kfreq3        linseg    p7,p3*0.5,p10,p3,p5

afm1          foscil    iamp,kfreq1,1,2,kndx,1
afm2          foscil    iamp,kfreq2,1,3,kndx,1
afm3          foscil    iamp,kfreq3,1,4,kndx,1
aboom         =         ((afm1+afm2+afm3)/3)*kamp

aout          =         aboom * kamp * 7000

out           aout*0.17
gareverb=aout+gareverb
endin

instr 10 ;;(overall reverb)

irevtime =7

apdelay delay gareverb, sqrt(irevtime)/50

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum         =         (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.007

;out (asig0+asig1)*4.5
out asum *0.5
gareverb = 0

endin

03FM +WN wet01.sco
; Additive Synthesis of dynamic filters + FM
; GEN functions

; waveforms

f1 0 2048 10 1 ;sine
f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 .7 .5 .3 .1 ; Pulse

```

```

;score
i1  0.00  15.00  1.5  0.5  0.7  0.4  1 2 3
i1  10.00 15.00  1.5  0.9  0.5  0.75 2 3 4
i1  20.00 15.00  1.0  0.3  0.2  0.1  3 4 5

i3  3.00      35.00      12  740  745
i3  3.50      35.00      12  960  965
i3  6.00      35.00      12 1180 1185
i3  9.00      35.00      12 2400 2500
i3  12.00     35.00      12 3620 3720
i3  15.00     35.00      10 4840 5000
i3  18.00     40.00      10 5000 6000
i3  21.00     48.00       6  500  400
i3  21.00     48.00       6  400  250
i3  21.00     48.00       6  300   50

i4  30.00 40.00  3.0  50  70  40  60  80  50
i4  20.00 15.00  1.6  50  70  40  111 300  95
i4  10.00 20.00  0.05 500 700 400 600 800 500
i4  25.00 25.00  2.5  111 500 95 50 70 40
i10 0.00 75.00

```

e

\*\*\*\*\*

```

;;;03FM +WN wet02.orc
;;; Add. Synth + hall
;;; JAG 25.07.98 for Color Code

```

```

sr=44100
kr=4410
ksmps=10
nchnls=1

```

gareverb init 0

instr 1 ;;low FM

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp          linseg  0,irise,iamp,idec,0,ioff,0
anoise        rand    inoise*kamp

```

```

kindex        line    1,p3,6
kndx          =       kamp * kindex
kfreqfilt     linseg  20,p3*0.5,40,p3,20

```

```

kfreq1        expseg  p5,p3*0.5,p8,p3,p5
kfreq2        expon   p6,p3,p9
kfreq3        expseg  p7,p3*0.5,p10,p3,p5

```

```

afm1          foscil  iamp,kfreq1,1,2,kndx*0.3,1
afm2          foscil  iamp,kfreq2,1,3,kndx*0.5,1
afm3          foscil  iamp,kfreq3,1,4,kndx*2,1
aboom         =       (afm1+afm2+afm3)/3

```

```

afilt1        reson   aboom,kfreqfilt,1000
afilt2        reson   aboom,kfreqfilt,65

```

```

aout          =       (afilt2 + afilt1) * 0.0005 * kamp

```

```

out           aout*0.17

```

```

gareverb=aout+gareverb
endin

```

instr 3 ;;WN

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp          linseg  0,irise,iamp,idec,0,ioff,0
anoise        rand    inoise*kamp

```

```

kfreq         linseg  p5,p3*0.5,p6,p3,p6*3

```

```

afilt2        reson   anoise,kfreq,65

```

```

aout          =       afilt2 * 0.0005 * kamp

```

```

out           aout*0.2

```

```

gareverb=aout+gareverb
endin

```

instr 4 ;; FM

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)

```

```

kamp          linseg  0,irise,iamp,idec,0,ioff,0

```

```

kindex        line    1,p3,3
kndx          =       kamp * kindex
kfreq1        linseg  p5,p3*0.5,p8,p3,p5
kfreq2        line    p6,p3,p9
kfreq3        linseg  p7,p3*0.5,p10,p3,p5

```

```

afm1          foscil  iamp,kfreq1,1,2,kndx,1
afm2          foscil  iamp,kfreq2,1,3,kndx,1
afm3          foscil  iamp,kfreq3,1,4,kndx,1
aboom         =       ((afm1+afm2+afm3)/3)*kamp

```

```

aout          =       aboom * kamp * 7000

```

```

out           aout*0.17

```

```

gareverb=aout+gareverb
endin

```

instr 10 ;;(overall reverb)

```

irevtime      =       7

```

```

apdelay delay gareverb, sqrt(irevtime)/50

```

```

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068

```

```

acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.007

```

```

out (asig0+asig1)*4.5
;out asum *0.5
gareverb = 0

```

```

endin

```

```

03FM +WN wet02.sco

```

```

; Additive Synthesis of dynamic filters + FM
; GEN functions

```

```

; waveforms

```

```

f1 0 2048 10 1 ;sine
f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 .7 .5 .3 .1 ; Pulse

```

```

;score

```

```

i1 0.00 15.00 1.5 0.5 0.7 0.4 1 2 3
i1 10.00 15.00 1.5 0.9 0.5 0.75 2 3 4
i1 20.00 15.00 1.0 0.3 0.2 0.1 3 4 5

```

```

i3 3.00 35.00 12 740 745
i3 3.50 35.00 12 960 965
i3 6.00 35.00 12 1180 1185
i3 9.00 35.00 12 2400 2500
i3 12.00 35.00 12 3620 3720
i3 15.00 35.00 10 4840 5000
i3 18.00 40.00 10 5000 6000
i3 21.00 48.00 6 500 400
i3 21.00 48.00 6 400 250
i3 21.00 48.00 6 300 50

```

```

i4 30.00 40.00 3.0 50 70 40 60 80 50
i4 20.00 15.00 1.6 50 70 40 111 300 95
i4 10.00 20.00 0.05 500 700 400 600 800 500
i4 25.00 25.00 2.5 111 500 95 50 70 40
i10 0.00 75.00

```

```

e

```

```

*****

```

```

;;04FM +WN dry.orc

```

```

;;; Add. Synth + hall
;;; JAG 25.07.98 for Color Code

```

```

sr=44100
kr=4410
ksmps=10
nchnls=1

```

```

instr 1 ;;low FM

```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp linseg 0,irise,iamp,idec,0,ioff,0
anoise rand inoise*kamp

```

```

kindex line 1,p3,6
kndx = kamp * kindex
kfreqfilt linseg 20,p3*0.5,40,p3,20

```

```

kfreq1 expseg p5,p3*0.5,p8,p3,p5
kfreq2 expon p6,p3,p9
kfreq3 expseg p7,p3*0.5,p10,p3,p5

```

```

afm1 foscil iamp,kfreq1,1,2,kndx*0.3,1
afm2 foscil iamp,kfreq2,1,3,kndx*0.5,1
afm3 foscil iamp,kfreq3,1,4,kndx*2,1
aboom = (afm1+afm2+afm3)/3

```

```

afilt1 reson aboom,kfreqfilt,1000
afilt2 reson anoise,kfreqfilt,65

```

```

aout = (afilt2 + afilt1) * 0.0005 * kamp

```

```

out aout*0.8

```

```

endin

```

```

instr 3 ;;WN

```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp linseg 0,irise,iamp,idec,0,ioff,0
anoise rand inoise*kamp

```

```

kfreq linseg p5,p3*0.5,p6,p3,p6*3

```

```

afilt2 reson anoise,kfreq,65

```

```

aout = afilt2 * 0.0005 * kamp

```

```

out aout*0.8

```

```

endin

```

```

instr 4 ;; FM

```

```

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)

```

```

kamp linseg 0,irise,iamp,idec,0,ioff,0

```

```

kindex line 1,p3,3
kndx = kamp * kindex
kfreq1 linseg p5,p3*0.5,p8,p3,p5
kfreq2 line p6,p3,p9
kfreq3 linseg p7,p3*0.5,p10,p3,p5

```

```

afm1 foscil iamp,kfreq1,1,2,kndx,3
afm2 foscil iamp,kfreq2,1,3,kndx,1

```

```

afm3      foscil      iamp,kfreq3,1,4,kndx,2
aboom     =          ((afm1+afm2+afm3)/3)*kamp

aout      =          aboom * kamp * 7000

out       aout*0.8

endin

;04FM +WN dry.sco
; Additive Synthesis of dynamic filters + FM
; GEN functions

; waveforms

f1  0 2048  10  1      ;sine
f2  0 2048  10  1 .5   .3 .25 .2  .167 .14 .125 .111 ; Sawtooth
f3  0 2048  10  1 0    .3 0 .2  0   .14 0   .111 ; Square
f4  0 2048  10  1 1    1  1 .7  .5  .3  .1   ; Pulse

;score
i1  0.00 15.00  1.5  0.5  0.7  0.4  1 2 3
i1  10.00 15.00  1.5  0.9  0.5  0.75 2 3 4
i1  20.00 15.00  1.0  0.3  0.2  0.1  3 4 5

i3  3.00      35.00      10  740  745
i3  3.50      35.00      10  960  965
i3  6.00      35.00      10 1180 1185
i3  9.00      35.00      10 2400 2500
i3  12.00     35.00      10 3620 3720
i3  15.00     35.00      10 4840 5000
i3  18.00     40.00      10 5000 6000
i3  21.00     48.00      5  500  40
i3  21.00     48.00      5  400  250
i3  21.00     48.00      5  300  50
i3  21.00     48.00      5 1300  650

i4  30.00 40.00  2.0  50  70  40  60  80  50
i4  20.00 15.00  1.2  50  70  40  111 300 95
i4  10.00 20.00  0.09 500 700 400 600 800 500
i4  25.00 25.00  2.0 111 500 95 50 70 40
e
*****
;;;04FM +WN WET01.orc
;;; Add. Synth + hall
;;; JAG 25.07.98 for Color Code

sr=44100
kr=4410
ksmps=10
nchnls=1

gareverb init 0

instr 1 ;;low FM

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

```

```

kamp      linseg      0,irise,iamp,idec,0,ioff,0
anoise    rand        inoise*kamp

kindex    line        1,p3,6
kndx      =          kamp * kindex
kfreqfilt linseg      20,p3*0.5,40,p3,20

kfreq1    expseg      p5,p3*0.5,p8,p3,p5
kfreq2    expon       p6,p3,p9
kfreq3    expseg      p7,p3*0.5,p10,p3,p5

afm1      foscil      iamp,kfreq1,1,2,kndx*0.3,1
afm2      foscil      iamp,kfreq2,1,3,kndx*0.5,1
afm3      foscil      iamp,kfreq3,1,4,kndx*2,1
aboom     =          (afm1+afm2+afm3)/3

afilt1    reson       aboom,kfreqfilt,1000
afilt2    reson       aboom,kfreqfilt,65

aout      =          (afilt2 + afilt1) * 0.0005 * kamp

out       aout*0.1
gareverb=aout+gareverb
endin

instr 3 ;;WN

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)
inoise=20000

kamp      linseg      0,irise,iamp,idec,0,ioff,0
anoise    rand        inoise*kamp

kfreq     linseg      p5,p3*0.5,p6,p3,p6*3

afilt2    reson       aboom,kfreq,65

aout      =          afilt2 * 0.0005 * kamp

out       aout*0.1

gareverb=aout+gareverb
endin

instr 4 ;; FM

iamp=ampdb(p4)
irise=0.3*p3
idec=0.80*p3
ioff=p3 - (irise + idec)

kamp      linseg      0,irise,iamp,idec,0,ioff,0

kindex    line        1,p3,3
kndx      =          kamp * kindex
kfreq1    linseg      p5,p3*0.5,p8,p3,p5
kfreq2    line        p6,p3,p9

```

```

kfreq3      linseg      p7,p3*0.5,p10,p3,p5

afm1        foscil      iamp,kfreq1,1,2,kndx,3
afm2        foscil      iamp,kfreq2,1,3,kndx,1
afm3        foscil      iamp,kfreq3,1,4,kndx,2
aboom       =           ((afm1+afm2+afm3)/3)*kamp

aout        =           aboom * kamp * 7000

out         aout*0.1
gareverb=aout+gareverb
endin

instr 10 ;;(overall reverb)

irevtime =7

apdelay delay gareverb, sqrt(irevtime)/50

acomb0 comb apdelay,irevtime,0.05
acomb1 comb apdelay,irevtime,0.056
acomb2 comb apdelay,irevtime,0.061
acomb3 comb apdelay,irevtime,0.068
acomb4 comb apdelay,irevtime,0.072
acomb5 comb apdelay,irevtime,0.078
asum = (acomb0 + acomb1 + acomb2 + acomb3 + acomb4 + acomb5)/6
asig0 alpass asum,irevtime, 0.006
asig1 alpass asig0,irevtime,0.007
;out (asig0+asig1)*4.5
out asum *0.5
gareverb = 0

endin

;;;04FM +WN WET01.sco
; Additive Synthesis of dynamic filters + FM
; GEN functions

; waveforms

f1 0 2048 10 1 ;sine
f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 1 .7 .5 .3 .1 ; Pulse

;score
i1 0.00 15.00 1.5 0.5 0.7 0.4 1 2 3
i1 10.00 15.00 1.5 0.9 0.5 0.75 2 3 4
i1 20.00 15.00 1.0 0.3 0.2 0.1 3 4 5

i3 3.00 35.00 12 740 745
i3 3.50 35.00 12 960 965
i3 6.00 35.00 12 1180 1185
i3 9.00 35.00 12 2400 2500
i3 12.00 35.00 12 3620 3720
i3 15.00 35.00 10 4840 5000
i3 18.00 40.00 10 5000 6000
i3 21.00 48.00 6 500 400
i3 21.00 48.00 6 400 250
i3 21.00 48.00 6 300 50
i3 21.00 48.00 5 1300 650

i4 30.00 40.00 3.0 50 70 40 60 80 50
i4 20.00 15.00 1.2 50 70 40 111 300 95

```

```

i4 10.00 20.00 0.09 500 700 400 600 800 500
i4 25.00 25.00 2.0 111 500 95 50 70 40
i10 0.00 75.00

e
*****
;;StochasticGrains04.orc
sr = 44100
kr = 4410.0
ksmps = 10
nchnls = 2

gkppwaveform init 0
gkwaveform init 0
giwaveform init 0
;;; Initialization of I-rate sliders
gkseed init 0.510
giseed init 0.510

instr 100 ; Cecilia's Magical
; Csound Instrument

gkdensity oscilli 0,1,p3,191 ; 2 points
gkfreqmin oscilli 0,1,p3,185 ; 2 points
gkwaveshape oscilli 0,1,p3,2 ; 2 points
gkfreqmax oscilli 0,1,p3,184 ; 2 points
gkspatial oscilli 0,1,p3,190 ; 2 points
gkmod oscilli 0,1,p3,193 ; 2 points
gkcarrier oscilli 0,1,p3,192 ; 2 points
gkintensitymin oscilli 0,1,p3,189 ; 2 points
gkspeedmin oscilli 0,1,p3,187 ; 2 points
gkintensitymax oscilli 0,1,p3,188 ; 2 points
gkenveloppe oscilli 0,1,p3,23 ; 5 points
gkindexenveloppe oscilli 0,1,p3,27 ; 3 points
gkspeedmax oscilli 0,1,p3,186 ; 2 points

endin

instr 101
gkppwaveform init p4
endin

instr 151
gkwaveform = gkppwaveform
; kdump gkwaveform, "filezzz", 6, 4/kr
endin

instr 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25

kidur init .1
iseed = 0.51*p1
kpdur rand 1, iseed*.243
kpfreq rand 1, iseed*.734
kpint kexprand 4
kppan rand 1, iseed*.634
kpjou rand 1, iseed*.824
kpphs rand 1, iseed*.951

kgfs = gkfreqmax
kgfi = gkfreqmin
kgvs = gkspeedmax
kgvi = gkspeedmin
kgis = ampdb(gkintensitymax)
kgii = ampdb(gkintensitymin)
kgps = gkspatial
kgjs = gkdensity

```

```

kidur = int( kr/ exp( log(kgvi) + (abs(kpdur) * (log(kgvs)-log(kgvi)))))/kr

chicoutimi:
  idur      = i(kidur)+1/kr
  ifreq     = exp(log(i(kgfi))+abs(i(kpfreq))*(log(i(kgfs))-log(i(kgfi))))
  ipan      = i(kppan)
  ijou      = abs(i(kpjou))
  idens     = i(kgjs)
  iphs      = abs(i(kpphs))
  ispa      = i(kgps)
  iinten    = exp(log(i(kgii))+abs(i(kpint/6))*(log(i(kgis))-log(i(kgii))))
  iamp      = (ijou < idens?iinten:0)
  itabb     = i(gkwaveform)+1
  icar      = i(gkcarrier)
  imod      = i(gkmod)
  timeout 0, idur, montreal
  reinit chicoutimi

montreal:
  aline line 0.0001, idur, 1
  klin  oscil 18, 1/idur, 27

asog      foscil      iamp, ifreq, icar, imod, klin, itabb, iphs
aenv      table      aline, 23, 1

outs      aenv*asog*((1+ipan*ispa)), aenv*asog*((1-ipan*ispa))

        endin

;;StochasticGrains04.sco

i 151 0 45.22

i100 0 45.22
f 191 0 8192 -7 0.50000 8192.000 0.50000 ; density
f 185 0 8192 -5 100.00000 8192.000 100.00000 ; freqmin
f 2 0 8192 -7 -1.00000 8192.000 -1.00000 ; waveshape
f 184 0 8192 -5 10000.00000 8192.000 10000.00000 ; freqmax
f 190 0 8192 -7 1.00000 8192.000 1.00000 ; spatial
f 193 0 8192 -5 1.05000 8192.000 1.05000 ; mod
f 192 0 8192 -5 1.00000 8192.000 1.00000 ; carrier
f 189 0 8192 -7 50.00000 8192.000 50.00000 ; intensitymin
f 187 0 8192 -5 1.00000 8192.000 1.00000 ; speedmin
f 188 0 8192 -7 80.00000 8192.000 80.00000 ; intensitymax
f 23 0 8192 -5 0.00010 8.192 1.00000 811.008 0.70000 4915.200 0.60000 2457.600 0.00010 ;
enveloppe
f 27 0 8192 -5 0.60000 819.200 0.05100 7372.800 0.00010 ; indexenveloppe
f 186 0 8192 -5 10.00000 8192.000 10.00000 ; speedmax

f1 0 8192 10 1 0 0
i1 0.002 45.22
i2 0.002 45.22
i3 0.002 45.22
i4 0.002 45.22
e
*****
;;SampleGrainRP.orc

;          70_04_1.orc
; synthesis: granular
;          basic granular sampling engine
;          uniform pseudorandom selection of
;          grain start point, inter-grain time,
;          and grain length

```

```

; coded:      3/95 RKP

sr=44100
kr=441
ksmps=100
nchnls=1

instr 1
  itrns = p4 ;1000=@ original pitch
  iamp = p5 ;amplitude of overall event
  imiigt = p6 ;minimum inter-grain time
  imxigt = p7 ;maximum inter-grain time
  imigl = p8 ;minimum grain length
  imxgl = p9 ;maximum grain length
  iseed = p10 ;seed value for randh units
  irvar = p11 ;random variation around read pointer
  ifns = p12 ;sound file source table
  ifnrp = p13 ;line function for read pointer

;inter-grain time
kr1 randh (imxigt-imiigt)/2,1/imiigt,iseed
kigt = imiigt+(kr1+((imxigt-imiigt)/2))

;grain length
kr2 randh (imxgl-imigl)/2,1/imiigt,iseed
kgl = imigl+(kr2+((imxgl-imigl)/2))

;read pointer
newvar:
kr3 randh irvar*1000,1/imiigt,iseed
krpt oscil 0,1,p3,ifnrp
kbegg = (krpt*1000)*44.1+(kr3*44.1)
kendg = kbegg+(kgl*itrns)*44.1

;amplitude of overall event
kenv linen iamp,p3*.005,p3,p3*.005

reset:
  timeout 0,i(kigt)+i(kgl),contin
  reinit reset
contin:
  andx line 0,i(kgl),4096
  agenv tablei andx,81
  adyn line i(kbegg),i(kgl),i(kendg)
  a1 tablei adyn,ifns,0,0,0
  out a1*agenv*kenv

endin

;;;SampleGrainRP.sco

;          70_04_1.sco
;          coded: RKP 3/95

;itrns = p4 1000=@ original pitch
;iamp = p5 amplitude of overall event (0-1)
;imiigt = p6 minimum inter-grain time
;imxigt = p7 maximum inter-grain time
;imigl = p8 minimum grain length
;imxgl = p9 maximum grain length
;iseed = p10 seed value for randh units
;irvar = p11 random variation around read pointer
;ifns = p12 sound file source table
;ifnrp = p13 function number for read pointer

; GEN functions

;grain envelope
f81 0 4096 8 0 1024 1 2048 1 1024 0

```



```

;input source
f71 0 131073 1 "grain cloud 2.8 sec" 0 4 1

;line generators for read pointer
f31 0 4096 8 0 1024 1 2048 1 1024 0;;JAG
;score

;ins strt dur itrns iamp imiigt imxigt imigl imxgl iseed irvar ifns ifnrrp
i1 0 45 1000 5000 .005 .02 .02 .05 .001 .001 71 31
i1 . . . . . . . . .002 . . .
i1 . . . . . . . . .003 . . .
i1 . . . . . . . . .004 . . .
i1 . . . . . . . . .005 . . .
i1 . . . . . . . . .006 . . .

;s
;ins strt dur itrns iamp imiigt imxigt imigl imxgl iseed irvar ifns ifnrrp
i1 0 15 1000 5000 .005 .02 .02 .05 .001 .1 71 31
i1 . . . . . . . . .002 . . .
i1 . . . . . . . . .003 . . .
i1 . . . . . . . . .004 . . .
i1 20 15 . . . . . . . . .005 . . .
i1 . . . . . . . . .006 . . .
e

```

\*\*\*\*\*

```

;;; Metal Boom FM.orc
;;; JAG 15.08.98 for Color Code

```

```

sr=44100
kr=4410
ksmps=10
nchnls=1

```

```

gareverb init 0
garvbboom1 init 0

```

```

instr 101
;;;Boom

```

```

iamp = ampdb(p4)
irise = 0.2*p3 ;%of total dur, 1=entire dur of note
idec = 0.7*p3 ;% of total duration
ioff=p3 - (irise + idec)
irvgain = 0.4

```

```

kamp linseg 0,irise,iamp,idec,0,ioff,0
kindex line 1,p3,3
kndx = kamp * kindex

```

```

afm1 foscil iamp,0.5,1,2,kndx,1
afm2 foscil iamp,0.7,1,3,kndx,1
afm3 foscil iamp,0.4,1,4,kndx,1
aboom = kamp * (afm1+afm2+afm3)

```

```

aout1 = aboom * 0.04

```

```

out aout1/11

```

```

garvbboom1=garvbboom1+ aout1 * irvgain
endin

```

```

instr 10
;;REVERBERATOR only for instr. 101 (Boom instrument)

```

```

iamp = ampdb(p4)
irise = 0.2*p3 ;%of total dur, 1=entire dur of note
idec = 0.7*p3 ;% of total duration
ioff=p3 - (irise + idec)

```

```

kamphall linseg 0,irise,iamp,idec,0,ioff,0
krvbtime line 3,p3,6

```

```

areverb1 reverb garvbboom1,krvbtime

```

```

aboomsout1 = areverb1*kamphall

```

```

out areverb1/11

```

```

garvbboom1=0
endin

```

```

;;Metal Booms FM.sco
; Metal Booms FM with reverb
; GEN functions

```

```

; waveforms

```

```

f1 0 2048 10 1 1 1 1 1 .7 .4 .3 .2 .1 ;sine
f2 0 2048 10 1 .5 .3 .25 .2 .167 .14 .125 .111 ; Sawtooth
f3 0 2048 10 1 0 .3 0 .2 0 .14 0 .111 ; Square
f4 0 2048 10 1 1 1 1 .7 .5 .3 .1 ; Pulse

```

```

;score

```

```

i101 00.00 9.00 60.5

```

```

i10 00.00 14.00 35

```

```

e

```

\*\*\*\*\*