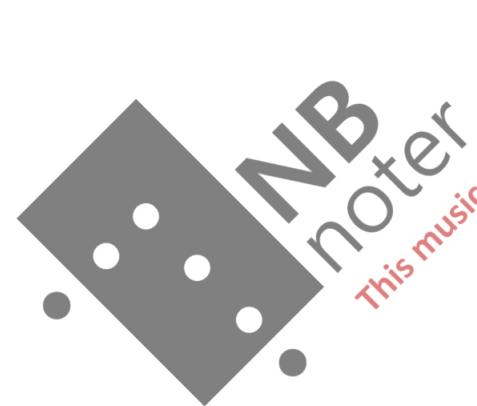




PerM Lindborg
2000



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gin/gub

cello soloist
string ensemble (nine to twenty or more players)
conductor
macintosh
electronist (computer technician)
sound engineer

duration is eight minutes

for performance, the following material is requested
items 1) - 4) are available on rental from NMI at www.mic.no

1)
part for the cello soloist

2)
parts for the ensemble string players, designated
vln1 (two staves)
vln2 (two staves)
vla (two staves)
vlc (two staves)
cb

the optimal string ensemble consists of twenty (20) players
6 vln1
5 vln2
4 vla
3 vlc
2 cb

a minimum of nine (9) players are requested
if gin/gub is played with less than 20 players, slight modifications of the score
(double-stops etc) will be necessary
changes are left to the discretion of the concert master

3)
conductors score

4)
gin/gub CDR containing the computer performance material
note that additional software may be needed, such as Max/MSP, OMS etc
Max/MSP is available from Cycling'74 at www.cycling74.com

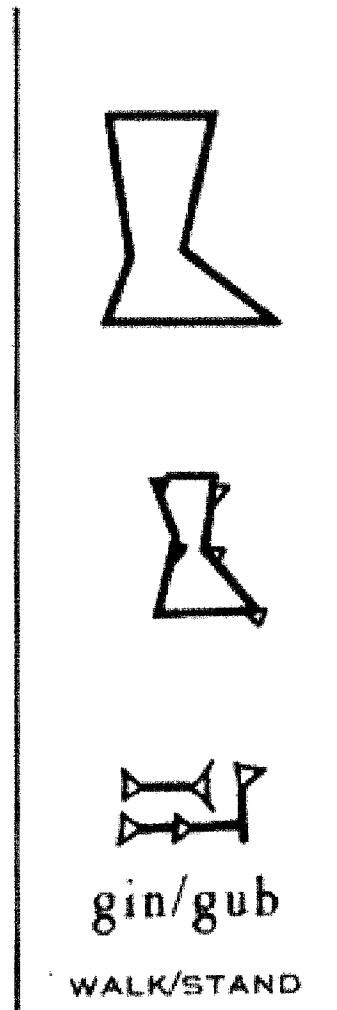
5)
macintosh computer & audio equipment
the hardware setup consists of
- G3 (G4) ≥300 MHz with ≥ 64 Mb RAM, preferably with Max/MSP installed
(if not, gin/gub_master.app can be used, although this is not recommended)
- microphone (placed close to the bridge of the solo cello)
- audio card (optional)
- midi interface
- pedal (for triggering events, used by soloist or conductor)
- MPX100 effect unit (controlled via MIDI)
- general reverb effect unit
- mixer ≥5 channels (mic, 2 mac, 2 MPX)
- PA system

gin/gub was commissioned by Drivhuset (founded by Jon-Halvor Bjørnseth), with
fundings from Norsk Komponistråd, as a part of the pedagogical project Bryt
Lydmuren ("Break the sound-barrier"), in a collaboration with Barratt-Dues
Musikkinstitutt and the Ultima Festival.

It was first performed by Anton Lukoszevieze, Barratt-Dues Kammerensemble and
PerM Lindborg on the 15th of October 2000 at the Oslo Philharmonic 2nd Hall,
in a production by the Ultima Festival.



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program note

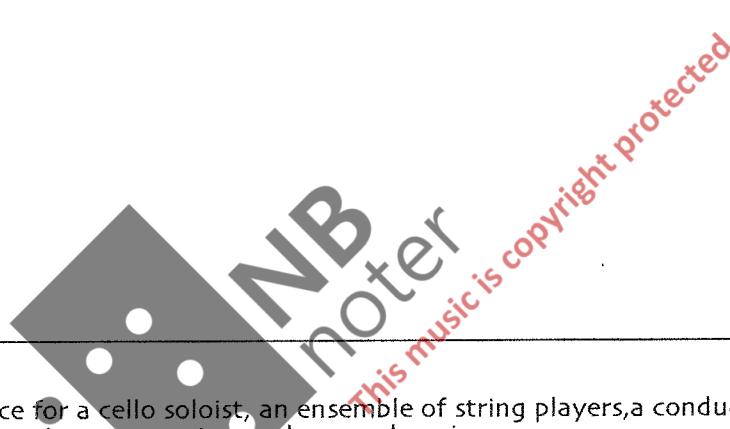
gin/gub is a piece for a cello soloist, an ensemble of string players, a conductor, an electronist running a computer, and a sound engineer.

The title is the approximate pronunciation of an ancient Mesopotamian word which translates as walk / stand. Apparently, the same pictogram (in its earliest form resembling a boot) could take on both meanings. I find correspondances with the music in the sense that the music, too, either proceeds (runs, jumps, struts) or stands rather still. The computer music, relying entirely on live recorded material, brings about a reflection on the act of memorizing, imprinting and re-reading of a scripture and how this physical evidence of sound is affected over time. The Mesopotamian representation of the words' pronunciations was inscribed onto a clay tablet in the form of a pictogram, still readable more than 5000 years later. In the computer of gin/gub, a sound buffer is written (as it were, onto a tablet made of silicon) and is then read some milliseconds later; at later times in the piece it may be read again. When the piece is finished the buffers are emptied. We, the listeners, have in our memory an inscription of the music, which is all there is left.

The computer runs a program which treats the sound of the cello soloist in real time. There are no pre-fabricated soundfiles. During the piece, direct audio (or earlier live recorded material) is used by different kinds of audio treatments, i.e. granular synthesis, filtering, harmonizing and spatialisation. In addition, there is a virtual instrument, using physical modelling synthesis, excited by jumbled bits of recorded material. The behaviour of the machine is dictated in a script indicating when to record a passage, when to generate a treatment, when to replay a segment and what treatment to pass the audio through, and so on. Each action is composed, and clusters of actions are triggered at moments specified in the score. The computer can react responsively to agogic variations, and the audio result depends to a high degree on the sound being fed the computer by the soloist. In this way, the interaction is dynamic.

gin/gub was commissioned by Drivhuset (founded by Jon-Halvor Bjørnseth) with fundings from Norsk Komponistråd as a part of the pedagogical project Bryt Lydmuren ("Break the sound-barrier"), in a collaboration with Barratt-Dues Musikkinstitutt and Ultima Festival 2000.

It was first performed by Anton Lukoszevieze, Barratt-Dues Kammerensemble and PerM Lindborg on the 15th of October at the Oslo Philharmonic 2nd Hall, in a production by Ultima Festival 2000.



computer instruments

followin
contains an amplitude tracker and a noise measurer built on zerox~ object
[Dudas 1999]
the noise measure affects the spectral spread of the filters in fantasin (see below)
the amplitude of the reverbffs (reco1, reco2, reco7 etc) that have been stored in
corresponding coll files which are subsequently used to modulate the noise that
excites strängin (see below)

recordin
records sound and amplitudes into buffers and coll files, respectively, at certain
passages in the piece (see above)

grainin
uses granular synthesis on a reverbff to generate 1- to 4-note chords that can be
stretched, transposed or glissed (from one chord to another following a
prescribed curve) to fit a passage

harmin
transposes the incoming audio signal in order to produce 1- to 4-note chords (see
also mpxin)
built on harmv2b~ object [Jimmies by Zack Settel 1994-8]

memberin
play back of a reverbff, with a certain (primitive) spatialisation
also generates clusters of sounds (aleatoric choice of buffer, onset, pan and level)

strängin
uses the amplitude of a certain reverbff as stored in a coll file (ampreco1,
ampreco7 etc) to modulate noise which excites a sträng~ object [Dudas 1997-8]
"a Modaly's mono-string with force connection"

fantasin
filters the semi-jumbled playback of 1-3 reverbffs using the lifeFilter, based on the
Life object [Vorn 1996]
"This cellular automaton is based on Conway's Game of Life. It is modeled as a 2D
grid of cells and each cell has one of two possible states: alive or dead."
in lifeFilter (based on a patcher by Jhno 1999) the x-axis represents left-right
panning, while the y-axis represents the central frequency of the bands
the amount of spectral covering is affected by the current noise measure picked
up, in that a noisier cello sound gives a larger (and, in fact, more harmonic-
soundig) mapping of the filter onto the current reverbff

mpxin
controls via MIDI the external effect unit Lexicon MPX100
in measures 1-49 and 79-117 are employed various pitching and detuning effects
(see harmin) and
in measures 50-78 a reverb (room size) effect
for details, refer to the help text (inside patcher)

rehearsal notes

the conductor
should provide for at least 3 hours of rehearsal time
and must see to that ALL performers are present
(including electronist and sound engineer)
as well as having the electronics (computer, MIDI, PA etc) set up and running
for any rehearsal to be effective

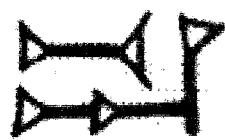
the electronist (computer technician)
has to be knowledgeable about Max/MSP as well as score reading
his/her function is to

- set up the computer hardware (including MIDI stuff) and software
- monitor the patcher during performance (possibly trigger events if necessary)
- work out changes in the script gin/gub_events with the musicians (if necessary)
- the hardware setup consists of
 - G3 (G4) ≥ 300 MHz with ≥ 64 Mb RAM, preferably with Max/MSP installed
 - (if not, gin/gub_master.app can be used, although this is not recommended)
 - microphone (placed close to the bridge of the solo cello)
 - audio card (optional)
 - midi interface
 - pedal (for triggering events, used by soloist or conductor)
 - MPX100 effect unit (controlled via MIDI)

the sound engineer
should design his/her setup knowing that

- gin/gub does real-time treatment of audio pick-up from the cello soloist's mic
- the mono signal from the mic goes preferable straight to the audio card
(or via a DI-box to the SoundManager in)
- from the computer, 2 channels (left & right) come from the audio card
(or via a stereo DI-box from the SoundManager out)
- hardware minimum:
 - general reverb effect unit
 - mixer ≥ 5 channels (mic, 2 mac, 2 MPX)
 - PA system

© PerM Lindborg
December 2000
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gin/gub

Per M Lindborg, 2000

Mac

1

FANTASIN (lifeFilter)

GRAININ, MEMBERIN

[MPX chorus] HARMIN, MPXIN, STRÄNGIN

2

rec01 [o]

rec01 [pp-mf]

rec01 rec02

vlc

$\frac{13}{4}$

clb — ord

$8'' \left(\frac{13}{4}\right)$

pp — p mf

A $\text{♩} = 96$

1

vln1

$\frac{6}{4}$

$\frac{6}{4}$

$\frac{3}{4}$

$\frac{3}{4}$

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vln2

$\frac{6}{4}$

$\frac{6}{4}$

$\frac{3}{4}$

$\frac{3}{4}$

vla

$\frac{13}{4}$

$\frac{13}{4}$

$\frac{3}{4}$

$\frac{3}{4}$

vlc

$\frac{9}{4}$

$\frac{9}{4}$

$\frac{3}{4}$

$\frac{3}{4}$

cb

$\frac{9}{4}$

$\frac{3}{4}$

Mac
 3
 4

vlc
 rec03
 pont
 [w. nail]
 simile poco f
 Slap D-string (with the thumb) at ft. release (mf) immediately
 approx: rit.
 4 [♩ = 96]

vln1
 vln2
 vla
 vlc
 cb

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1. sola (senza sord)
 2. soli (senza sord)
 gli altri sord
 sord div
 mf

2

5

Mac.

vlc

vln1

vln2

vla

vlc

cb

rec01,03

rec01

rec03

$10'' \left(\frac{17}{4}\right)$

vibr-

liberamente

$10'' \left(\frac{17}{4}\right)$

(p)

(p)

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6 7 8

Mac

vlc

rec07

clb ord. tr tr (dotted) tr tr tr tr

mp mf mf pp mf pp pacf pp p subito

MPX b8 harm

10

vln1 vln2 vla vlc cb

(non div) senza sord clb *(non div)* senza sord senza sord senza sord div senza sord #

mf *p* *mf* *p* *mf* *p* *mf* *p* *mf* *p*

tutte *pizz d* *tutte* *pizz d* *tutte* *pizz d* *tutti* *pizz* *tutti* *pizz* *pp* *pp* *ppp*

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Mac
 vlc
 vln1
 vln2
 vla
 vlc
 cb

9
 rec07
 rec09
 cresc
 rec01,03,07
 rec09
 v
 f
 molto cresc.
 rit. poco
 3^{II}($\frac{7}{4} + \frac{1}{8}$)
 [♩ = 136]
 ord
 pp
 ord.
 3
 4
 mf
 ord
 d
 2
 4
 3
 4
 mf
 arco
 div
 2
 4
 3
 4
 mf
 senza sord.
 unis pizz #
 2
 4
 3
 4
 mf

sträng
 MPX chorus

Mac.

11

rec09

MPX

harm

12

rec02

rec01

rec12

[marcato]

vlc

pp

p

mf

mf

f

21

vln1

(pp)

mf

mf

ord.

pp

mf

mf

vln2

vla

vlc

cb

Mac

14

15

rec12

rec02

rec07

sträng

hamm

pizz [b]

$3^{\#}(8)$

meno forte

f

arco v n

pp mf pp mf

27

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vln1

vln2

vla

vlc

cb

$3^{\#}(8)$ [J=136]

2/4

clb gliss

clb

div ord n

ord

mf

clb gliss

clb

ord n

mf

marcato

(ord) arco div

pizz

pizz

unis

P PP

arc. div

pizz

P PP

7

Mac
 vlc
 vln1
 vln2
 vla
 vlc
 cb

16
 rec02
 rec16
 [ad lib: gliss]
 MPX
 ad lib:
 33
 4
 2
 3
 2
 3
 2
 3
 2
 3
 2
 3
 2
 3
 (ord)
 unis

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Mac

18

19

[MPX gliss]

rec17

molto vibrato

pont

ord.

harm

recog

rec19

MPX

gliss

vlc

39

tutti

PP

f

tutti

PP

f

arco

ord.

div.

(n)

vln1

vln2

vla

vcl

cb

22

arco

3

2

1

2

3

4

5

6

7

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9

10

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20
 Mac.
 rec20
 vlc
 3 sempre giss 2 poco vibrato 4 f pizz v
 45 (nondiv.) 3 sord. 4 1.solo 3 tutti
 vln1
 3 f pp ppp 4 6 1.solo 3 tutti
 vln2
 3 (nondiv.) 2 sord. 4 (div) pizz 3 arco
 vla
 3 unis 2 sord. 4 1.solo 3 arco
 vlc
 3 (div) pp 2 sord. 4 1.solo 3 tutti
 cb
 3 f 2 sord. 4 div pizz 3 f

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reverb [room size]

22 23 24

Mac

rec 01,02,03,17 sträng harm chorus/detune harm

rec 22 rec 23 rec 24

vlc arco f sul G pizz mf pp (mf) 2 1 4 16

vln1 sul G p

vln2 2 1 4 16

vla 2 1 4 16

vlc clb clb mf 2 1 4 16

cb pizz mf 2 1 4 16

B = 44

50

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25

Mac.

rec 19
PP
rec 17,19,23

26

rec 16,17,20

vlc

senza vibrato

P

56

vln1

PPP

vln2

senza sord.
senza sord.

PP

vla

PPP

vlc

ord.
ord.

[armonici]

PP

cb

arco

P

PP

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=40

Mac
 27
 rec07,12,16,17
 01.03.07.12
 rec17
 8va
 sträng
 vlc
 (Arco)
 pizz + come sopra
 molto p
 clb
 60
 vln1
 vln2
 vla
 vlc
 cb

reverb

29 30 31

Mac.

vlc

vln1

vln2

vla

vlc

cb

rec 23

arco ord.

[non vibr.]

SUL D & G:
armonici ad lib.

mf

p

pp

=44

ord.

ord.

p

1.2. vibrato

1.solo

2.solo

molto p

PPP

mf subito

14

Mac
 vlc
 vln1
 vln2
 vla
 vlc
 cb

32
 rec24
 33
 rec33

simile
 pizz
 mp

come sopra
 [ord.]
 mf

69
 1. con sord.
 2. $\frac{2}{4} \frac{1}{16}$
 3. $\frac{3}{4}$
 tutti
 via sord.
 mf

1. $\frac{2}{4} \frac{1}{16}$
 2. $\frac{3}{4}$
 P
 tutti
 via sord.
 via sord.
 fsub
 mf

senza sord.
 con sord.
 senza sord.
 con sord.
 fsub
 mf

$\frac{2}{4} \frac{1}{16}$
 3
 $\frac{3}{4}$

Handwritten musical score for Mac and vlc. The score consists of two staves. The top staff is for Mac, featuring a treble clef, a key signature of one sharp, and a tempo marking of $\text{rec}33$. It includes dynamic markings f , $dotted$, and harm . The bottom staff is for vlc, featuring a bass clef, a key signature of one sharp, and a tempo marking of $\text{rec}01$. It includes dynamic markings mf , pp , p , and mf . Measure numbers 34 and 35 are indicated at the top left and top right respectively, with arrows pointing down to the staff.

Mac

36

sträng

recos

harm

rec19

[filter] rec20

clb (mf) molto dim.

ord.

pizz

f

vln1

80

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f

vln2

81

toco

pizz

unis

f

vla

clb f

div

pizz

arco

unis ord.

f = p

vlc

div clb

pizz

f

cb

pizz

f

(pizz)

17

38
01,07,12,20
chorus
mpx, harm
[arco]
f non troppo
(f)
f

39

86
1-solo
f non troppo
pizz (secco)
gli altri, con sord
sul g
f

sord
sord
f

sord
sord
f

sord
sord
arco
f

cb

40

Mac

rec02

chorus

rec40

[vibrato]

rec41

vlc

sotto

92

vln1

(1. solo)

f

pizz.

p

p molto

vln2

pizz.

f

p molto

vla

f

p molto

vcl

f

p molto

cb

arco

f

Mac
 vlc
 vln1
 vln2
 vla
 vlc
 cb

42
 [MEMBERING] rec03,07,33,40,41
 43
 rec33
 toto rec07
 pizz 6 arco
 (1. solo) pocaf
 3 pizz

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Mac
 vlc
 vln1
 vln2
 vla
 vlc
 cb

103
 111
 filter rec01,03,07,24
 rec24
 [chorus]
 pizz 6 arco pp
 secco f mf p mf
 3
 4
 3
 4
 3
 4
 3
 4

(f sempre)

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45

46

Mac.

vlc

rec 07,23,24 07,24 02,23,33

mpx, harm

$10'' \left(\frac{17}{4}\right)$ arco liberamente

vln1

vln2

vla

vlc

cb

 $10'' \left(\frac{17}{4}\right)$

107

 $[= 96]$

NB

noter

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47 ↓ 48 ↑

Mac
rec20 *f* *[all recbuffs]* *rec22* *[recbuffs]* *8v*

vlc
 $\frac{2}{4} \frac{1}{8}$ *vibrato* $\frac{7}{4} (12)$
f, non troppo

110

vln1 $\frac{2}{4} \frac{1}{8}$ *(gli altri)* $\frac{3}{4}$ *pizz* *pp* *arco* *ppp*
vln2 $\frac{2}{4} \frac{1}{8}$ $\frac{3}{4}$ *mp*
vla $\frac{2}{4} \frac{1}{8}$ $\frac{3}{4}$ *mp*
vlc $\frac{2}{4} \frac{1}{8}$ $\frac{3}{4}$ *mp*
cb $\frac{2}{4} \frac{1}{8}$ $\frac{3}{4}$ *mp*

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Mac

115

Mac part (top):

- Measure 1: Dynamics p, mfp, dim.
- Measure 2: Dynamics mp, f.
- Measure 3: Dynamics ppp.

Vlc part (bottom):

- Measure 1: Pizzicato (pizz.)
- Measure 2: Arco (arc.)
- Measure 3: Arco (arc.)

Labels: rec01,03, rec02, rec01, strings.

[$\text{J} = 96$]

115 (1. solo) $\xrightarrow{\text{mf}}$

vln1 part:

- Measure 1: Sul G, \xleftarrow{p}
- Measure 2: Dynamics mf.

vln2 part:

- Measure 1: Sul G, \xleftarrow{p}
- Measure 2: Dynamics mf.

vla part:

- Measure 1: Sul G, \xleftarrow{p}
- Measure 2: Dynamics mf.

vlc part:

- Measure 1: Sul D, \xleftarrow{p}
- Measure 2: Dynamics mf.

cb part:

- Measure 1: Sul C, \xleftarrow{p}
- Measure 2: Dynamics mf.

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