Crack is for electric guitar, percussion, trumpet and computer (computer with its own performer).

2011 version

Guitar

The guitarist should have a main loudspeaker on stage for his direct sound to the audience. Make sure this is a high quality loudspeaker without 'hiss'.

A volume pedal must be used throughout. An e-bow and spoon are necessary in some places.

Guitar sounds

General note: make sure that the highest volume is the same for each sound.

Clean sound: this should be bright, without the classical round 'jazzy' sound. The volume of the bass strings should be approximately equal to those of the treble strings. No chorus or flange effect on the clean sound.

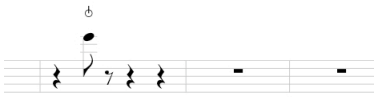
Partly distorted sound: a partly distorted sound to provide roughness, sustain and play with harmonics and effect. Don't allow the sound to be noisy or 'grungy'. Keep the sound bright.

Distorted sound: a heavier distortion, but be careful not the be 'grungy' and keep rests clean.

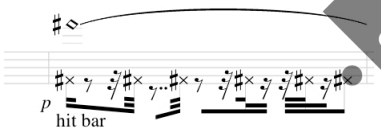
Brittle sound: add high pass distortion

Quarter-tones may be achieved with the bar or by bending the string – which ever is most suitable for the context.

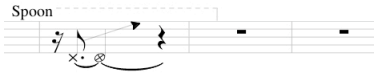
Take careful note of all dynamics markings



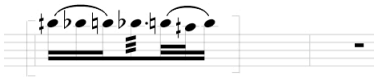
Bartok pizz



Sustain top note, finger bottom note and hit the bar to make a percussive effect



Scrape with spoon



(Removed in the 2011 revision).

Hammer on with left hand, or hit string, or make short grungy sound – which ever is possible in context

Trumpet

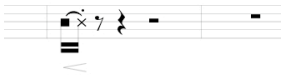
Attempt to approximate quarter-tones via fingering changes, lip and breath.

Make all articulations clear (flutter tongue, staccato, accents, timbral changes).

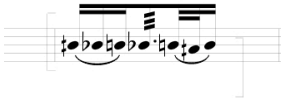
Note the microphones placements.

Flutter tongue (rough sound)

Air note



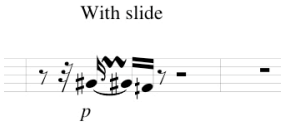
Air sound with short and dynamic crescendo to percussive stop. Should be a loud “reversed” type of sound, emphasised with a tongue slap.



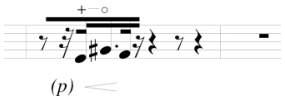
(indication removed from 2007 version).

Percussive tongue slap, as loud as possible

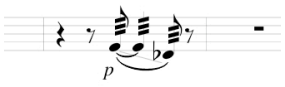
Half press valve



Make wide gliss-ornament with slide



Mute indication: closed to open

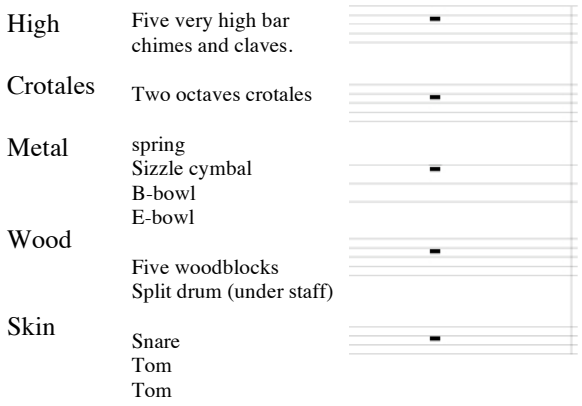


Gliss with flutter tongue

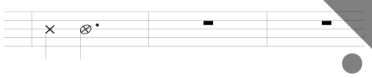
Percussion

Instruments

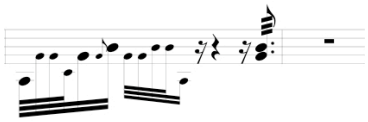
High: Five very high bar chimes and claves. Needs to be higher in pitch or sharper in timbre than the crotales.
Crotales: Two octaves.
Metal: two different sized resonant bowls, pitches E and B, and one sizzle cymbal, one large spring (30 cm long, positioned horizontally)
Wood: five woodblocks, one medium split drum
Skin: Bass drum, two toms, one snare. Dampen the toms to considerably reduce the resonance.

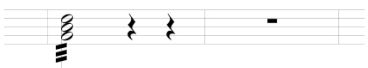


Ensure page turns are arranged so as not to interfere with microphones or amplification.
Observe stick changes and other notes in the score concerning interaction with the live electronics


Rim shot or hit edge of drum


Circular swish on cymbal or scrape along spring

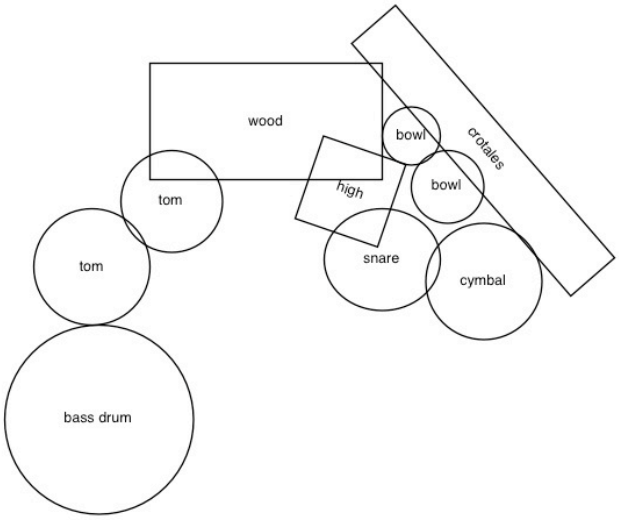

(Mostly removed from the 2011 revision)


Fast random (not patterned) tremolo across all notes

General notes:

Something about the foot trigger.... to come. performers

Suggested instrument layout:



Computer performer

The computer part is run from MaxMSP, is substantial and requires its own performer in addition to the person mixing the sound. This person should be able to accurately follow the score while controlling the computer. The computer performer works in close association with the percussionist who also controls some aspects of the computer part.

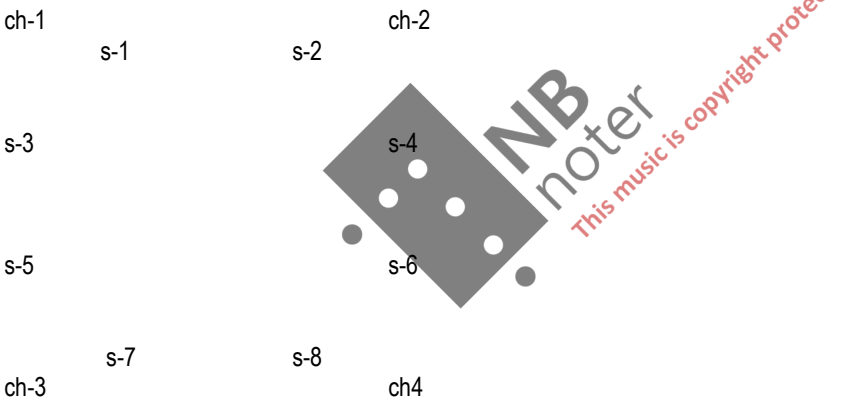
Technical set-up

1. PA

Crack is spatialised in real-time from MaxMSP over 4 channels directly from the computer, along with a stereo mix for additional spatial fill.

These output channels should be distributed over a PA providing full spatial coverage of the concert space, and 8 similar speakers are recommended. The PA should be a high quality PA, not a rock-band PA. Speakers such as Meyer or L'acoustic, not JBL, Electrovoice etc. The PA must be balanced such that all loudspeakers have the same volume and frequency response. Four loudspeakers can be used in smaller spaces assuming they provide sufficient spatial and sound coverage.

The channels are routed in the following way (ch=computer output channel; s=speaker number).
Channel 1 – routed to speakers 1+3
Channel 2 – routed to speakers 2+4
Channel 3 – routed to speakers 5+7
Channel 4 – routed to speakers 6+8



A stereo mix-down of the spatialised source is added to all channels to smooth discontinuities in the speaker set-up, room acoustics and audience location.

NOTE: the electric guitar should be played through one or two high quality loudspeakers located beside the guitarist, such that the guitar sound comes from the location of the performer

2. Microphones

The trumpet uses two condenser microphones. One is positioned on stage for use in movements one and two. One is positioned off stage within the concert hall but outside the loudspeaker array for use in movement three. This second microphone is for amplifying air-noise sounds and will require a high gain. It is important to mute this microphone during movements one and two, and locate it outside the speaker array (to prevent feedback).

The percussion uses four condenser microphones.

Assuming that the guitarist is using his own effects software and soundcard (rather than conventional guitar amplifier) then the guitar is routed directly into the mixer and from there a signal routed back on stage to the guitar loudspeaker.

3. Amplification and signal routing

All microphones and guitar signal are sent first to the mixing desk.
Four auxiliary outputs are routed into four inputs of the soundcard:

The guitar is routed to aux 1 / sound card input 1 (**level set pre-fade**).
The trumpet is routed to aux 2 / sound card input 2 (**level set pre-fade**).
The percussion microphones are routed to aux 3 and 4 / sound card inputs 3 and 4 (**level set pre-fade**).
One auxiliary output (aux 5) is routed to the guitarist's loudspeaker (**level set pre-fade**).
One auxiliary outputs (aux 6) is routed to an external reverb effect (**level set pre-fade**).

Six outputs from the soundcard (4+2) and stereo from the reverb are routed back into the mixer and sent to the 4/8 loudspeakers.

Levels sent to the computer, reverb and guitar amp should be set for their max-min range.
Relative levels of acoustic sound, amplified sound, live processing / EA sound and reverb should be controlled for equal balance.

The computer processes the live sound as well as distributes a percentage of the unprocessed amplified sound. In addition, a small amount of the unprocessed amplified sound should be mixed to the concert PA directly from the mixing desk. The amount will depend on the size of the space, likewise with the reverberation effect.

4. On stage monitors

In a large concert space the performers may need on stage monitors. Great care should be taken to avoid microphone signal feedback.

7. Mixing desk providing the following:

Six microphone inputs
Nine line inputs (six from computer, two from external reverb, one from guitar)
Six aux pre-fade sends (four to the computer, one to the external reverb, one to the guitarist's onstage loudspeaker)
Eight outputs on faders (to main PA)
Sends to on-stage monitors (if used).

8. Location of the computer and mixing desk

The MaxMSP computer should be located beside the mixing desk if there is only one person able to oversee the computer as well as mix the live sound. The computer and mixing desk location therefore has implications for the length of the screen extension and ethernet cables. Alternatively the computer performer is on stage and a second person controls the mixer.

9. The motion sensors and interface

The percussionist is wired with motion detection sensors. This equipment is required to play the piece. The first version of Crack used two 2-D accelerometers and two gyroscope sensors (one of each on each hand, see below) and the La Kitchen Warhol Ethernet 2 Mhz speed interface. The current version had been redesigned such that any hardware interface can be used.

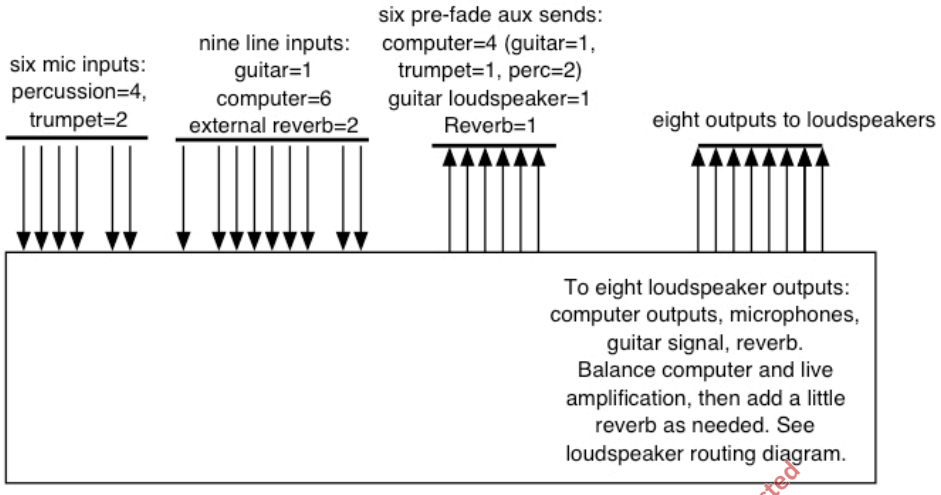
The sensors are connected to the Max/MSP computer via an ethernet cable. An ethernet cable long enough to extend from the Max/MSP computer to the percussionist is required.

COMPLETE RIDER

Main PA (8 speakers high quality loudspeakers)
On-stage loudspeaker for main guitar sound
Three small stage monitors for performers (optional)
Six condenser microphones and stands
External stereo reverb

Small LCD computer screen plus long screen cable
Long ethernet cable

Mixing desk providing the following:
Six microphone inputs
Nine line inputs (four from computer, two from external reverb, one from guitar)
Five aux sends (three pre-fade to the computer, two post-fade)
Sends to on stage monitors
Eight outputs on independent faders (to main PA)



1. Ensure computer performer has calibrated percussion motion sensors
2. Set aux sends levels for the max and min range (see computer adc levels, onstage guitar speaker, reverb levels. All input channels are sent to the reverb).
3. Play movement 1 and balance computer sound with amplified sound.
4. Check movement 2 functions likewise

Movement 1: Atomic crack

♩ = 120

Straight mute

Emphasise flutter tongue, trills and dynamics

Trumpet in C

sfz *mp* *f*

Electric Guitar

sfz *mp* *f*

Left Hand

Lightly distorted, not too thick. Keep articulations clean.

♩ = 120

High

Hard rubber beaters

Crotales

sfz

Metal

Wood

see pedal without percussion attack

Skin

Snare on

p *f* *mf*

T1- pre-start (pressed before the peformers begin to play)

Computer

7

C Tpt.

mp *mf* *molto* *f* *molto* *p*

E. Gtr.

w/bar

mp *mf* *mp*

Perc.

mf *mp*

Computer

13

C Tpt.

mf *p* *f*

E. Gtr.

B

p *mp* *mf* *f*

Perc.

f

Computer

17

C Tpt.

E. Gtr.

Perc.

Computer

p mp f mp

tr tr tr tr

mf p f mp

22

C Tpt.

E. Gtr.

Perc.

Computer

ff mp sfz

tr quater tones w/bar w/bar

f mp mp

f mp

25

C Tpt.

E. Gtr.

Perc.

Computer

sfz mf

w/bar

f (subito) mf

ff mp

29

C Tpt.

E. Gtr.

Perc.

Computer

32

harmon mute without stem

sharp brittle sound

Clean sound

w/bar

WAIT FOR TRUMPET MUTE TO BE IN PLACE!

wooden sticks

T2

37

(spring)

T3

T4

44

C Tpt.

E. Gtr.

Perc.

Computer

mf

w/bar

(mp)

p

(Cymbal)

mp

mf

53

With slide

mf

p

mf

mp

mp

p

T5

61

With slide

With slide

♩ = 90

(p)

(molto)

mp

Watch dynamics!

(p)

mp

♩ = 90

hard rubber beaters

Watch dynamics!

p

T6

69

C Tpt.

E. Gtr.

Perc.

Computer

T7

T8

73

C Tpt.

E. Gtr.

Perc.

Computer

gliss.

76

C Tpt.

E. Gtr.

Perc.

Computer

T9

T10

82

C Tpt.

E. Gtr.

Perc.

Computer

mf

E

tr

mf

mf

ff

T11

87

C Tpt.

E. Gtr.

Perc.

Computer

f

f

mp

f

T12

91

C Tpt.

E. Gtr.

Perc.

Computer

p

mp

mf

Remove snare

T13

T14

96

C Tpt.

E. Gtr.

Perc.

Computer

mp

3

3

mf

f

p

3

mp

3

99

C Tpt.

E. Gtr.

Perc.

Computer

p

(molto)

f

p

f

f

p

f

T15

104

C Tpt.

E. Gtr.

Perc.

Computer

p

mp

f

5:4

Articulated

ff

ff

p

ff

T16

T17

110

C Tpt.

E. Gtr.

Perc.

Computer

Cup mute

♩ = 60

p

Played straight and strict

NOTE pedal here!

T18

116

C Tpt.

E. Gtr.

Perc.

Computer

122

C Tpt.

E. Gtr.

Perc.

Computer

More articulated

Movement 2: Deep Ice

♩ = 120

soft sounding straight mute

Trumpet

mp *pp* *mp* *gliss.*

Clean sound

Guitar

E->C#

mf

♩ = 120

High

Light and fleeting.
Rubber beaters

Metal

Wood

mp

Skin

T1- pedal prestart

Computer

6

Tpt.

gliss.

Guitar

High

Metal

Wood

Skin

Computer

11

Tpt.

Guitar

High

Metal

Wood

3 3 3

Skin

Computer

16

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

mf

21

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

3

T2

26

Tpt.

very textured (growly)

molto

Guitar

High

Metal

Wood

Skin

Computer

3

f

All 1/4 or 1/2 tone intervals glissed to from the previous note

33

Mute, not too pinched. Which?

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

ff

mf

mf

p

Drum sticks

T3

41

With urgency (not swayed or pretty). Try to keep tempo.

49

T4

57

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

mp

mp

f

64

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

72

Tpt.

sfz

Guitar

High

Metal

Wood

Skin

Computer

T5

80

Tpt.

Guitar

change to partly distorted sound

f

High

Metal

f

Wood

f

Skin

3

Computer

88

Tpt.

Guitar

High

Metal

Wood

Skin

T6

mf

Computer

Tpt.

new mute, thinner sound

Guitar

E-bow (begin earlier if needing more preparation time)

(ppp)

Tremolo across notes as fast as possible
alternating between triplet and straight feel.

Increasing emphasis to top note

High

Metal

Wood

Skin

Computer

103

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

f > p

f

mp

Gliss and flutter

mp

f

p

f

p

hit bar

f

Change to softer beaters

sfz

mp

T7

T8

109

Tpt.

Guitar

mp

f

mp

gliss.

gliss.

With bar

pp

Re-articulate to keep sustained.
Slowly impro. with bar and volume pedal
on microtones and sudden dips,harmonics
and small volume changes.

115

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

123

Tpt.

mp

No mute!

Guitar

High

Metal

Wood

Skin

T9

Computer

131

Tpt.

Improvise air swirly noise gesture surges.

p

f *p* *f*

add 'ploppy' sounds and tongue slaps

p

Guitar

High

Metal

Wood

Skin

Computer

139

Tpt.

mp

Very strict timing *mp*

mp

Guitar

clean sound *mp*

mp

High

Metal

Wood

Skin

3

mp

T10

Computer

147

Tpt.

mp

mp

Guitar

Each fast unit as fast as possible, Ok if not as fast as tempo, but start each new unit in tempo (i.e. rob the rests)

High

Metal

Wood

Skin

Computer

153

Tpt.

mp

mp

Guitar

p

High

Metal

Wood

Skin

Computer

T11

159

Tpt.

Guitar

High

Metal

Wood

Skin

Snare on

Computer

166

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

mp

mp

3

3

3

Yarn wound beaters

173

mf

3

f

p

p

T12

181

Harmon mute, with stem

pp

Distortion, but don't be grungy

With slide

p

mf

mp

3

189

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

f

f

mf

T13

196

Tpt.

Guitar

sfz

f

f

High

Metal

Wood

Skin

Computer

203

Tpt.

Guitar

High

Metal

Wood

Skin

Computer

T14

210

Tpt.

Guitar

Spoon

High

Metal

Wood

Skin

Computer

T15

217

Slide

224

COMPUTER CONTINUES

Movement 3: Horizon

Move to second microphone off stage away from loudspeakers
Computer also makes some automated gain changes

♩ = 64

Trumpet

Breath as necessary.
Improvise textures and gestures but only air sounds.
Play very close to microphone. Sound controlled at mixing desk to ensure audibility as a background layer, somtimes rising to foreground

Guitar

pp *mp*

With e-bow. Improvise small glissandi, harmonics and dynamic changes microtonally around pitch centre. Can change octave if wished.
Very distorted, control volume such that guitar remains with trumpet as a background layer, sometimes rising ro foreground.

Metal

Soft wound beater, plus big soft beater for bass drum

Wood

Skin

Computer

T1- pedal prestart

Tpt.

Guitar

Metal

Wood

Skin

Computer

17

Tpt.

Guitar

Metal

Wood

Skin

Computer

25

Tpt.

Guitar

Metal

Wood

Skin

Computer

30

Tpt.

Guitar

tr

Metal

Wood

Skin

Computer

37

Tpt.

Guitar

tr

Metal

Wood

Skin

Computer

43

Tpt.

Guitar

Metal

Wood

Skin

Computer

T2

46

Tpt.

Guitar

Metal

Wood

Skin

Computer

slowly improvise measured articulations on all metal instruments press pedal on every other hit!

T3