

Campanology

for malletKAT and
live computer processing

RUSSELL NADEL

(2003)

Duration: c. 6'00"



Performance Notes:

This piece was inspired by the sound of bells, and by the deep, resonant sound of the carillon in particular. Simple melodic ideas meant to evoke the sound of bells are presented in the malletKAT part, which are elaborated and improvised on by the computer and by the Max/MSP computer program.

The malletKAT part contains a steady drone on middle C (C4), and brings in the G a fifth above (G4) to fill out the drone from rehearsal #3 through rehearsal #9. The melodic lines in the right hand begin fully diatonic, but add one accidental and lengthen by two notes at each rehearsal marking. In this way, the harmonies start off relatively stable and destabilize as the piece continues, while allowing the melodic cells time to grow and change their shape and phrasing.

The computer does a number of things to complement the activity in the malletKAT. Most of the computer's activity is in the MIDI domain, where it both analyzes and transforms the MIDI input from the malletKAT and "composes" new notes of its own. The computer breaks up the malletKAT data into five different key ranges and sends each key range out on a different MIDI channel to custom-designed K2000 patches (all of which were originally bell patches, manipulated to sound more or less resonant, synthetic, metallic, etc.). The computer also is instructed to slowly and dynamically change the panning of each individual channel. Finally, the computer is given some compositional free rein from rehearsal #2 through rehearsal #8, where an algorithm is activated that maps incoming (non-drone) velocity data from the malletKAT to the number and nature of notes improvised more or less randomly by the computer. To ensure consistency of improvisation, however, and to ensure that the computer-generated notes will not interfere with the malletKAT player's performance, the computer will always improvise in the two octaves above the malletKAT keyboard, and will always use notes relevant to the section of the piece being performed.

The only audio domain (MSP) work in this piece is the playback of a looped wind sample, the volume of which evolves over the course of the piece. The mixing board should be set so that a volume level of 60 in MSP is inaudible.

Ideally, the tempo should remain absolutely steady throughout this piece to make the computer accompaniment work perfectly; however, it would be better to drag the tempi than rush them, so as to prevent any unfortunate clicks or sudden volume jumps in the computer accompaniment. The high A-flats that trigger section changes in the pitch producer and the wind sample playback will never sound, and thus can be played at any convenient dynamic and with any convenient articulation.

NB: Dotted slurs in the score indicate phrases.

— *Russell Nadel*
March 2002

Technological Components:

- 3-octave malletKAT, by Alternate Mode, with sustain pedal: A velocity-sensitive MIDI controller with a layout that is comfortable for mallet players.
- Macintosh G4 computer running Max/MSP, by cycling '74: A graphical environment for music, audio, and multimedia.
- Kurzweil K2000 synthesizer (either rack-mounted or with keyboard), with either 3-1/2" or ZIP drive for loading custom samples: A powerful synthesizer that uses the internal V.A.S.T. (Variable Architecture Synthesis Technology) sample processing technology.
- Two stereo speakers for front sound projection.
- Mixing board to adjust sound output levels as necessary.



Campanology

for malletKAT and live computer processing

Perfectly steady, ♩ = 72

RUSSELL NADEL

MalletKAT

Computer

1

mp

p sempre

4/4 KAT: Double-check all setups before starting (see p MME)

5/4

4/4

Max: Register first section counter change
Drone notes (C4, G4) on channel 1
Modified vibraphone patch

Max: C#4 - B4 (exc. C4 and G4) on channel 2,
modified vibes patch

KAT

Comp.

5

3/4

4/4

KAT

Comp.

10

33.3"

2

mp

cresc. poco a poco al p

Wind

Max: Note generator activated; notes produced in 8^{va} and 15^{ma} ranges (relative to the treble staff), chs. 6-13
Counter changes registered at Ab's

Max: C5 - B5 on ch. 3,
modified glockenspiel patch

KAT

Comp.

14

5/4

3/4

4/4

* NB: These high Ab's will never sound. ** All notes marked with a *tenuto*: Hold mallets on pads for full note duration.

17

KAT

Comp.

pp *

1' 4.1"

3

p wind, *dim. poco a poco al pp*

Max: Density of generated notes increases with mallet velocity. Max: C3 - D3 on channel 5, modified chimes patch

21

KAT

Comp.

p — *mp* *mf*

mp

Max: Eb3 - B3 on channel 4, modified vibes patch

26

KAT

Comp.

30

KAT

Comp.

1' 47.4"

4

pp wind, *cresc. poco a poco al mp*

* Optional: Switch hands for bass notes.

34 *mf*

KAT

Comp.

38

KAT

Comp.

42

KAT

Comp.

2' 23.8"

5

mp

p

mp wind, *cresc. poco a poco* al *mf*

47

KAT

Comp.

51

KAT

Comp.

Max: Density of computer-generated pitches steadily thickens

55

KAT

Comp.

cresc.

ff

3' 12.4"

59

Relentlessly (l'istesso tempo)

KAT

6 *pesante*

Comp.

f *mf* wind, *cresc. al f*

*Ped.** *Ped.*

Max: Sustain pedal does not apply to drone pitches Max: Computer-generated notes at maximum density

62

KAT

Comp.

Ped.

* The *Ped.* marking refers to sustain pedal 1, which should not be depressed or released on any downbeat (except in m. 85).