

**T
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4'33"
fractals

© Udo Kasemets
2000
Toronto, Ontario
Canada

Commissioned by the Canadian Music Centre, Ontario Region
for the New Music for Young Musicians Project

introductory notes

this music is about
listening
to
sounds

to
all sounds
in the present environment
(space)
at the present
time

imagining, inventing, preparing
and
making sounds
which would gently change
the soundscape
of the present environment
(space)
at a given
time

listening
to
and keeping in
memory
the
sounds
which gently change
the soundscape
so that they can be
repeated and/or gradually transformed
so as to produce further subtle changes in
the soundscape
of the present environment
(space)
at a given
time

4'00" ◆ ◆ ◆
 _____ 4'10"

4'10" ◆ ◆ ◆
 _____ 4'20"

4'20" ◆ ◆
 _____ 4'30"

4'30" ◆ 4'33"

In 1952 the American composer John Cage presented a composition, called 4'33", where the musician on stage did not produce any sounds, and thus by his inaction compelled the audience to become aware of any and all sounds that emerged from any sources during the four and a half minute timespan. What was implied was that music is first and foremost an art of listening, and that it is in the ear and mind of the engaged listener where music achieves its reality.

Using this insight and idea and the original timeframe set by John Cage, we develop a process by which we both tune in to the existing sound environment, and also produce and listen to sounds which gently and gradually alter the nature of the soundscape. The music that emerges from this experience is like no other music. It does not aim to express any feelings or thoughts, it is not a medium for exhibiting technical prowess, nor is it a vehicle for demonstrating a talent for inventing and developing abstract musical ideas. Yet it is music which, its apparent simplicity and sparseness notwithstanding, calls for intense involvement of everyone who is sharing the immediate experience of carefully making, or keenly listening to unique sounds in the confines of a given time and space.

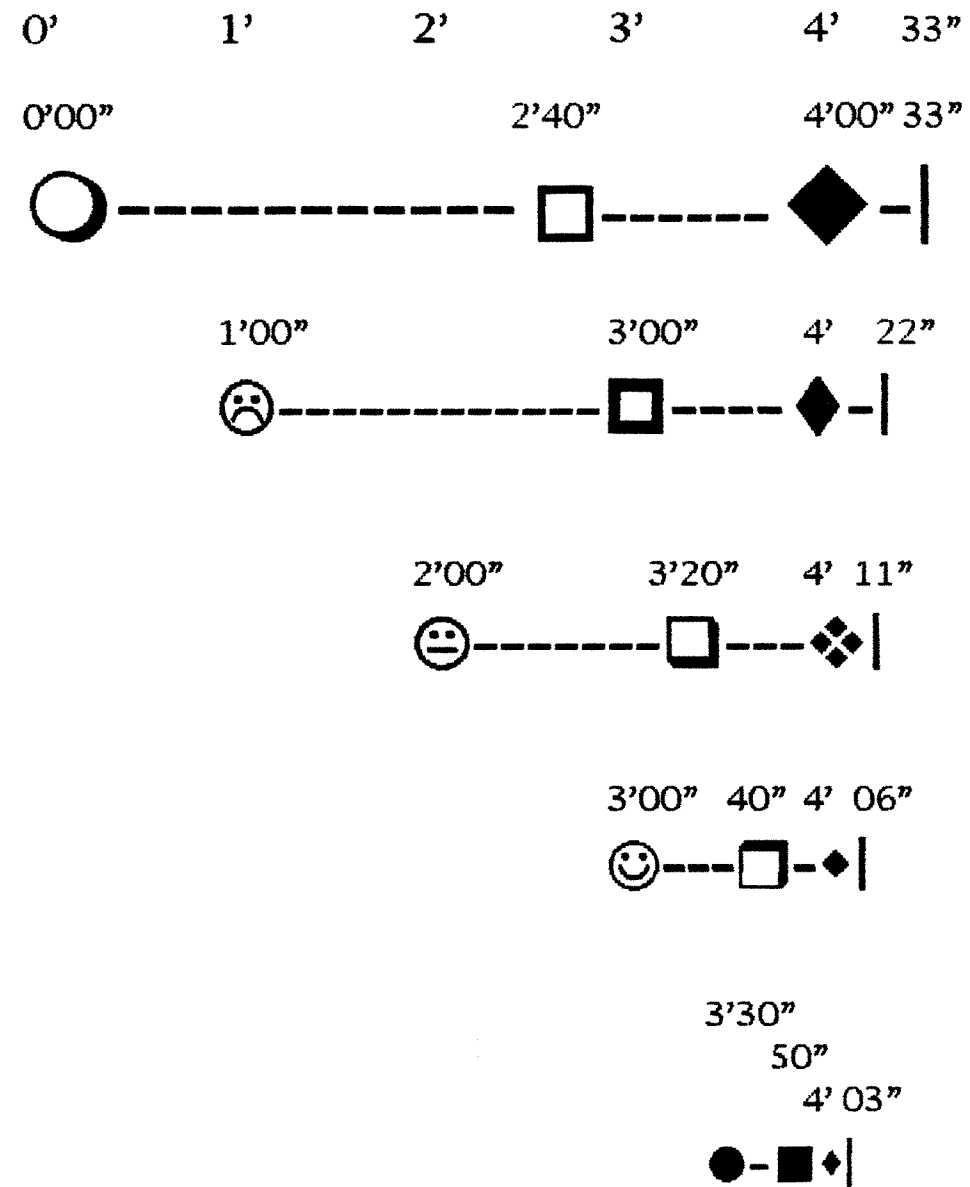
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The **master score** provides an overview of the timing plan of the piece. The five horizontals depict five partially overlapping time brackets, each divided in three segments. The proportions of the three segments are the same for all five. Such relationship is called self-similarity in the branch of mathematics which explores and explains **fractals**. A parallel self-similarity also governs the choice of the sounds to be activated during the time spans indicated by the time brackets. Three classes of symbols, circle, square and diamond, represent three distinct sounds. They mark in the score the corresponding beginnings of the time segments during which (at any chosen time point) the sounds are to be made. On each horizontal the appearance of the symbols is somewhat different from the others, but a circle remains a circle, a square a square, and diamond a diamond. Similarly each of the sounds chosen to represent one particular class of the symbols, while somewhat different from the others in some aspects, has to retain some basic characteristics, so as to establish its distinct belonging to the given class. The shape or size, or any of its other characteristics of the visual symbols should have no relationship with the pitch or timbre or duration or amplitude of the sound. These notations are meant to be of assistance only in matters of timing and memory.

The sounds to be invented for the realization of the piece may be of any origin. They may be produced by using any musical instrument, or the human voice, or any object or objects conventionally not employed in music making, or a combination thereof. The sounds may be single tones, or aggregates of them in various combinations, or small "melodic" patterns, or specific rhythmic gestures. The possibilities are unlimited.

4'33" fractals

master score



3'00"



3'20"

3'20"



3'30"

3'30"



3'40"

3'40"



3'50"

3'50"



4'00"

2'00"



2'40"

2'40"



3'00"

SpaceTimeMemory workshop

This **workshop** introduces a step by step process of building the time structure and sound content of the piece. This process may be carried out by one person in solitude, or several people present in the same space, either engaged independently in the same process, or merely listening. (Since this piece is about experiencing the sonic changes in a particular space, there is no need to differentiate between performers and audiences: everybody is an active participant/listener. Similarly, there is no need to make a distinction between "rehearsal" and "performance": each act of carrying out the process, alone or shared, is by its very nature a performance.)

The following is a series of suggestions about how to prepare and perform each individual step. These suggestions should be followed until the musician has become comfortably acquainted with all the elements that combine to provide the specific experience of creating and remembering sounds which alter a space during a given span of time. Then she or he will be able to use his/her sonic imagination, sense of time, and physical proficiency to invent any number novel soundscapes in varied spaces at different times, using merely the pages of the **performance score** or the **master score** of **4'33" fractals** as a guide.

0'33"

the following score page represents a timespan of
33 seconds

divided into three segments:
20 seconds, 10 seconds, 3 seconds

within each segment appears a different symbol
- a circle, a square, a diamond -
representing three different sounds,
each to be sounded at some point
during its own given timespan of
20 seconds, 10 seconds, 3 seconds

listen and listen and listen
to all sounds that occur at any moment
in the space around;

then
imagine
three special sounds,
different from each other,
that could be made
by using the musical instrument of your choice
(or voice or object)
and be sounded,
one after another:
the first during a 20 second period,
the second during a 10 second period,
the third during a 3 second period,
and
prepare
in your mind the actions needed
to make the sounds

then
start the stopwatch;
at any timepoint during the first 20 seconds
make the first sound;
at any timepoint during the next 10 seconds
make the second sound;
at any timepoint during the last 3 seconds
make the third sound;

hold in your
memory
the sound of each sound
and the actions of how they were made.

1'00"



2'00"

Repeat this step several times. Each time imagine, prepare, and make different three sounds. Explore various possibilities of sound making. Always listen to the sounds around, and the ones you make. This is a very important step: all the rest grows from it (remember fractals!). Once you have settled on three distinct sounds, remember them well: they will have to reappear time and again. Then proceed to the next step.

0'00"



1'00"

0'00



0'20"

0'20  0'30"

0'30  0'33



1'06"

the following score page represents a timespan of
1 minute and 6 seconds
divided into five segments:
30 seconds, three times 10 seconds, 6 seconds

within in each segment appear
one or two symbols
- circles, squares, diamonds -
some exactly identical to those in step 0'33",
others retaining the basic form
- circle, square, diamond -
but with a distinct difference

held in your
memory
are the three sounds represented by
a circle, a square, a diamond;
now
imagine and prepare
three more sounds,
each one very similar to one of the three in
memory,
but each one also quite different in some special way

then
start the stopwatch;
at any time point during the first 40 seconds
make the first new sound;
at any time point between 30 seconds and 50 seconds
make the first remembered sound;
at any time point between 40 seconds and 1 minute
make the second new sound;
at any time point between 50 seconds and 1 minute
make the second remembered sound;
at any time point between 1 minute and 1 minute 6 seconds
make the third remembered and the third new sound;

Note: when a circle, or square, or diamond of a special form appears on several timelines, it means that the sound it represents is "at home" on any of these lines, but it will be sounded only once during the combined timespan of the lines.

during the fourth minute
first at the 20 second mark,
then at 10 second intervals
the presence of the "circle" sounds
(with the exception of a brief appearance of a fifth variation)



is eliminated one by one,
while the presence of the already established "square" sounds



continues to the end of the minute
along with a step-by-step addition of
three new derivatives



Note: it is to be clearly understood that the presence of a particular symbol in a given time bracket indicates solely that the specific sound represented by the symbol may be, but does not need to be sounded (or repeated) during this timespan. The number of any given symbols on a page is in no relation to the number of sounds to be activated during the minute.

after reaching the 4 minute mark
imagine and prepare
and
make a new sound,
entirely different from the ten before



and within the given timeframe
spanning 33 seconds
add to it (without repeats)
four of its derivatives



at 4 minutes, 33 seconds
stop the stopwatch

=====

during the third minute
 for the first forty seconds
 at deliberate intervals
 repeat the two sounds,
 and also add to them a third sound,
 similar to the first two,
 yet somewhat different



after the 40 second mark
 stop repeating the first sound;
 instead introduce an entirely new sound,
 different in all aspects from the previous three



make the sound,
 and
 repeat it along with the two sounds



after the clock reaches the 3 minute mark
 stop repeating the second "circle" sound;
 instead introduce two new sounds:
 another variation of the "circle"



and a new variation of the "square"



make these two sounds,
 and
 repeat them along with the two previous sounds



0'00"



0'30"

0'30"



0'40"

0'40"



0'50"

0'50"



1'00"

1'00"



1'06"

2'11"

the following two score pages represent a timespan of
2 minutes and 11 seconds
divided into seven segments:
1 minute, 20 seconds, four times 10 seconds, 11 seconds

held in your
memory
are now the six sounds represented by
two distinct circles, two distinct squares, two distinct diamonds,
on the previous page;

imagine and prepare
three more sounds,
each one similar to one particular pair of sounds held in
memory,
but each one again quite different in some special way

keep clearly in your
memory
which particular symbol
- circle, square, diamond -
in which specific form represents
each remembered or new
imagined and prepared
sound

then
start the stopwatch;
following the score
make the remembered and new sounds
at any point during their indicated timespans

Note: as in 1'06", when a circle, or square, or diamond of a special form appears on several timelines, it means that the sound it represents is "at home" on any of these lines, but it will be sounded only once during the combined timespan of the lines.

PERFORMANCE PROCESS

listen
to all sounds that occur at any moment
in the space around

start the stopwatch

imagine and prepare
a sound that would make a subtle change in
the soundscape of the space



at any point
during the first minute
make the sound,
hold in your
memory
the sound of the sound
and the action of its making

now and then
without undue hurry
repeat the sound
as accurately as possible

continue this sporadically
during the second minute.
but also alternate it with another sound,
similar to the first,
yet somewhat different



hold in your
memory
the sound of both sounds
and the action of their making

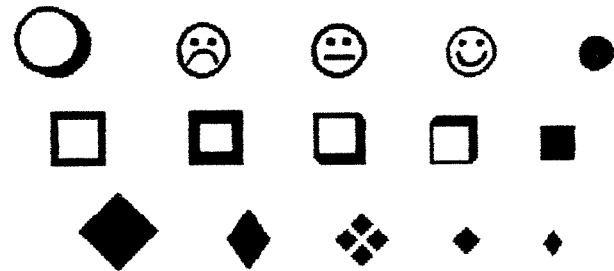
4'33" fractals

performance score

the five score pages represent a timespan of
4 minutes and 33 seconds;
each of the first four pages
represents a duration of 60 seconds,
the fifth page stands for 33 seconds

clocktime indicators at left and right margins
mark spans of time
during which select sounds are to be made

the sounds are represented by three sets of symbols
- circles, squares, diamonds -
each set displaying five diverse forms:



the symbols
- circle, square, diamond -
are to be interpreted as
three distinctly different sounds;

the five various disguises of the symbols
within each of the three classes
are to be interpreted as
denoting a definite basic similarity
of the five sounds,
while at the same time exhibiting
a pronounced difference in some aspects
from the other four.

0'00"



1'00"

1'00"



1'20"

1'20"



1'30"

1'30"



1'40"

1'40"



1'50"

1'50"



2'00"

2'00"



2'11"

3'00"



3'10"

3'10"



3'20"

3'20"



3'22



2'00"



2'20"

2'20"



2'30"

2'30"



2'40"

2'40"



2'50"

2'50"



3'00"

3'22"

the following four score pages represent a timespan of
3 minutes and 22 seconds
divided into ten segments:
twice 1 minute, 20 seconds, six times 10 seconds, 2 seconds

proceed as before:

hold in your

memory

the nine sounds made earlier,
and the specific forms of the symbols

- circles, squares, diamonds -
which represent them

imagine and prepare

three more sounds,

each one similar to one particular threesome of sounds held in
memory,

but each one again quite different in some special way

start the stopwatch;

following the score

make the remembered and new sounds

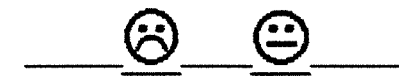
at any point during their indicated timespans

Note: since the "home times" of some of the new and remembered sounds are now quite extensive (from 40 and 50 seconds up to 2 minutes), the sounds to be made during the longer timespans can be repeated any number of times. The repeats should be as accurate as possible and not too frequent in appearance. It should be noted that not all sounds notated in any given horizontal time bracket need to be activated; where the symbol of a given shape and form appears in several adjacent time brackets, the specific sound (and any of its repeats) may be made at any point of time during any of the segments featuring the symbol. It has to be assured that every notated sound appears at least once.

The above process may be extended to also perform the score of **4'33" fractals**. Indeed, until one feels completely comfortable with the fundamental principles underlying the performance, this would be the most appropriate way to approach the task. Only after one has achieved full mastery over handling the interlinked issues of listening, imagining, inventing, making and remembering sounds in complex time configurations, may one approach tackling the **4'33" fractals performance score** "from top down", i.e. developing the whole process, without any preplanning, right on the spot, from the seed of the first invented sound.

0'00"

1'00"



1'00"

2'00"