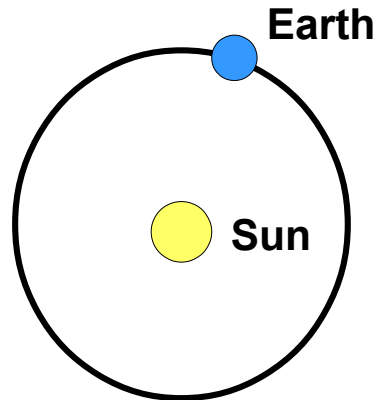
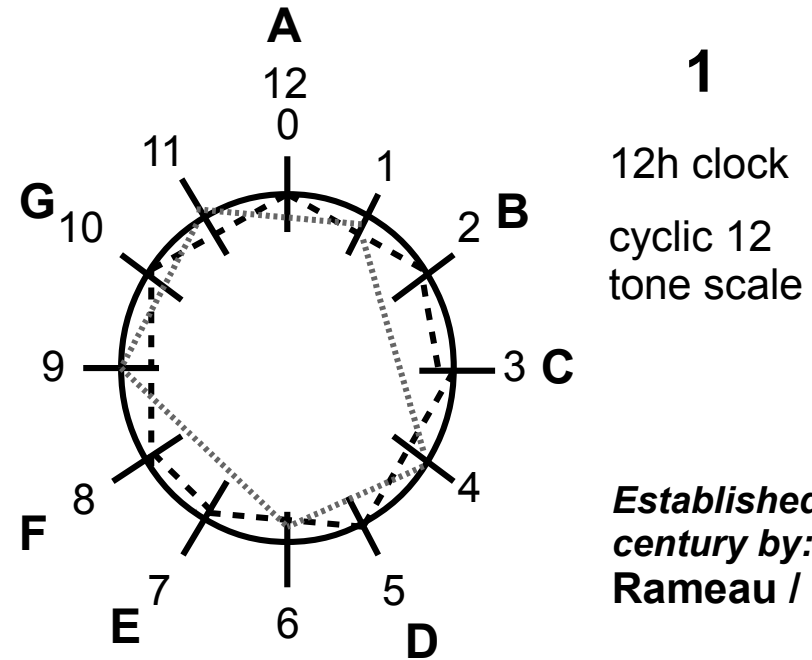


WESTERN classical SCALE MODEL

Nicolas Copernic



Regular orbital



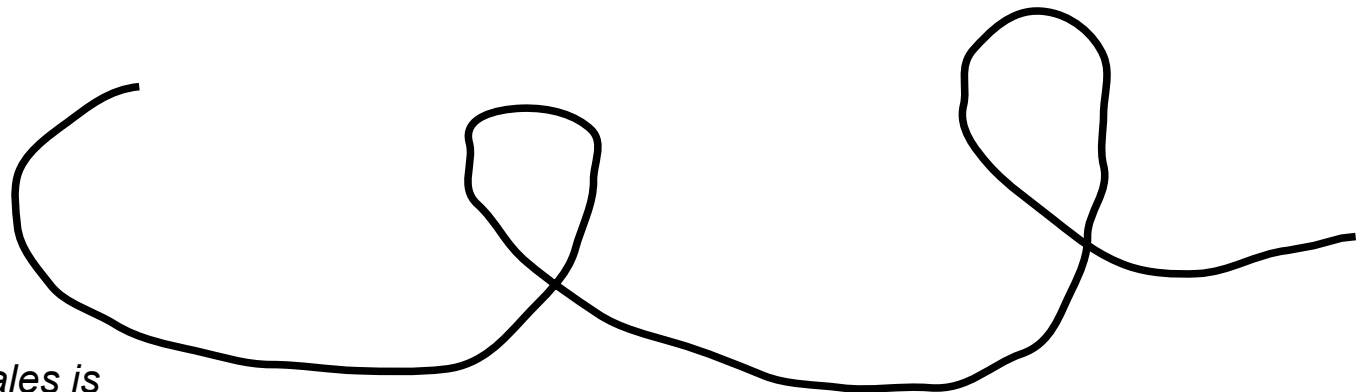
12h clock
cyclic 12
tone scale

*Established in XVIII
century by:
Rameau / Bach*

Orbit divided by 12 = 7 + 5
heptatonic + pentatonic mode

Giordano Bruno

INFINITY



*Infinity in musical scales is
waiting since XVI century*

SCALE

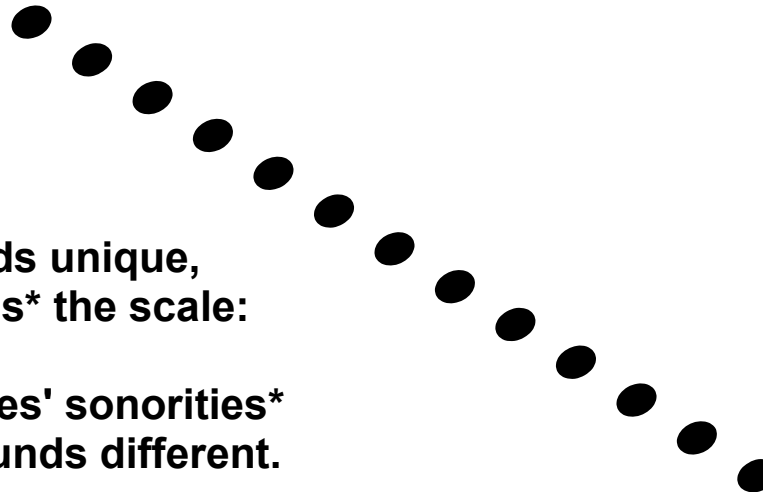
A scale gives a measurement to localize points in time.
Musical points are notes,
symbolizing audible vibrating: phenomena, events, etc.,
localized in space and time like human beings to link.
Nowadays, in our scared society under control.

alone point:



**non-understandable:
no link, lost or free by itself.**

**Equidistant points give a scale
with a same interval:**



**A specific interval sounds unique,
and sounds* the scale:**

**Frequency of Frequencies' sonorities*
means: any scale sounds different.**

There is an
infinity of scales.
Each one sounds
different.
Their function is
to localize and
link phenomenon.

**In French: « sonorité » is more appropriated ; sound is a recorded, and archived object to deal of audible vibration.
And « tone » refer to tonality which can have the same sound.*

FIELD

The idea of **electromagnetic field** was introduced by **James Maxwell** in XIX century to understand "electricity, magnetism, and light as manifestations of the same phenomenon, electric and magnetic fields travel through universe as waves moving at the speed of light"

SCALAR FIELD

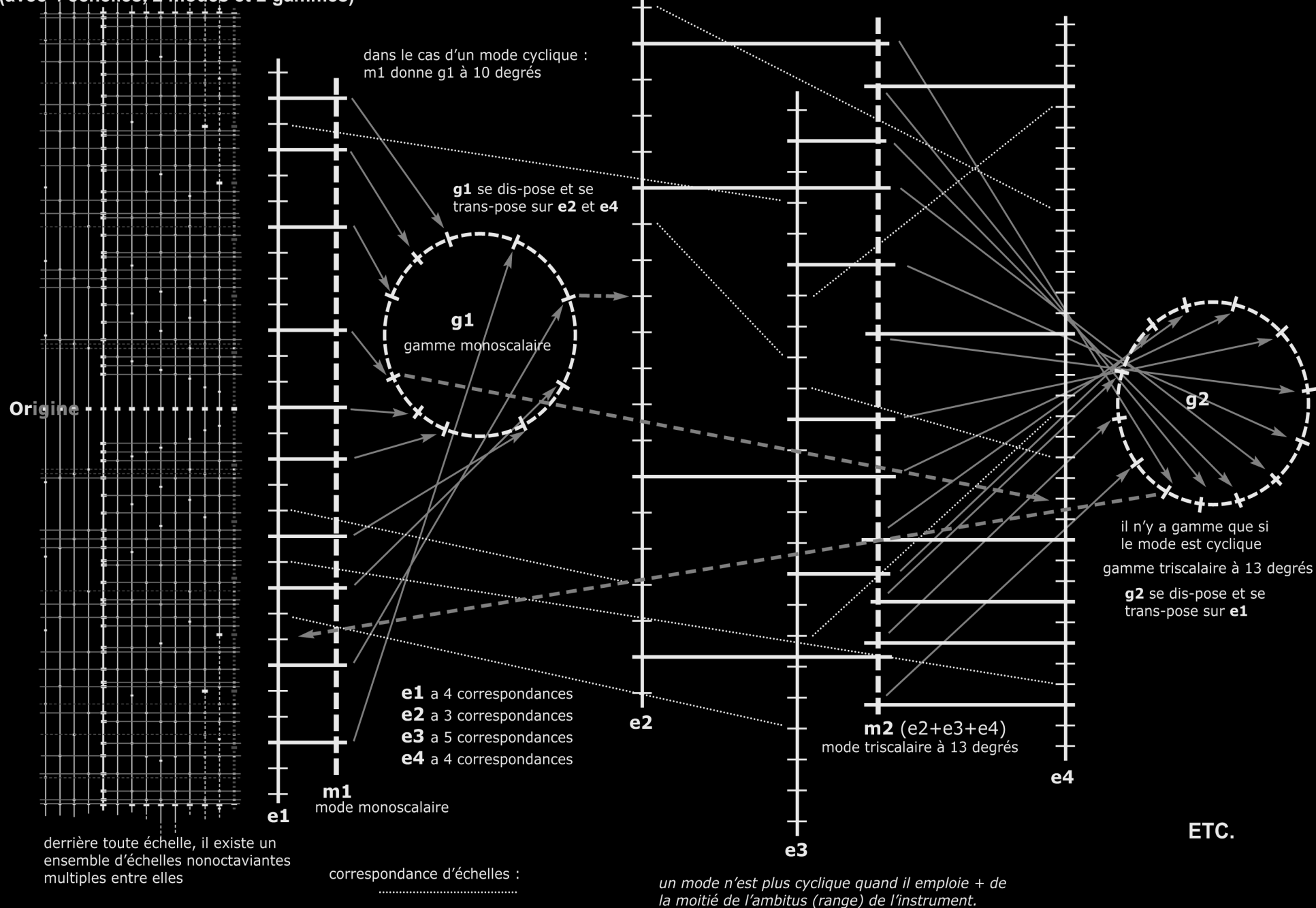
A function of a space whose value at each point is a scalar quantity.
Used in physics to see the temperature or pressure distribution throughout space.

MUSIC SCALES FIELD

Nothing to see, nothing to quantify, values are many and various.
We keep the idea of turbulent playground* of links influences.
The field is an essential space for scales to interact, mutate and evolve.
As **Iannis Xenakis'** "composition hors temps", but with time.

* as « *espace d'influences de créations* » in French

SCHEMATISATION D'1 CHAMP SCALAIRE simple (avec 4 échelles, 2 modes et 2 gammes)

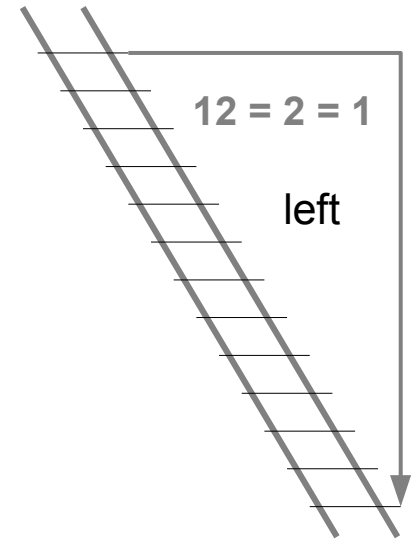




8 not ∞



= 2



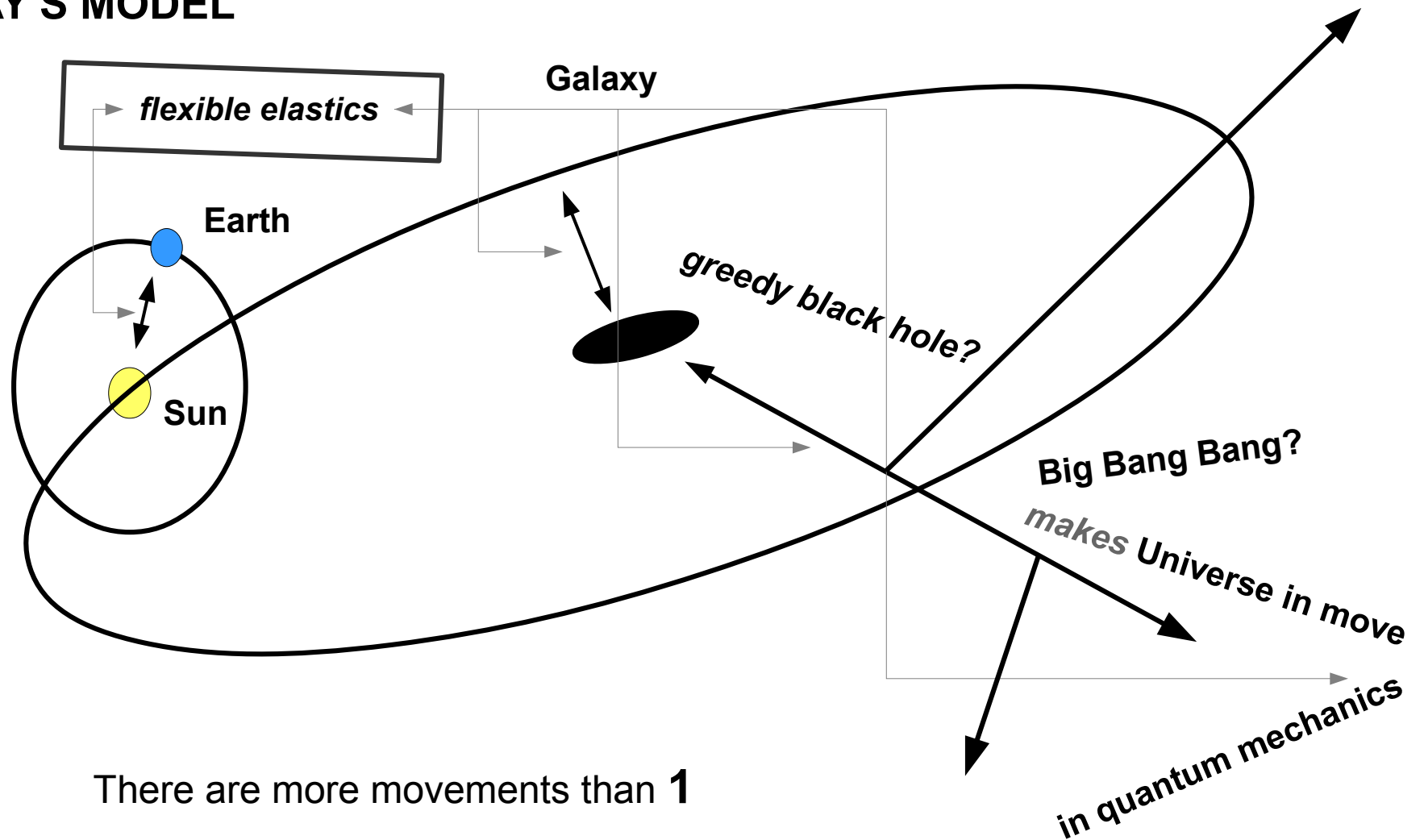
where: $2 = 1 \Leftrightarrow$ unison = fusion
process of assimilation/integration

In 1 God

Nonoctave Scalart Field actions, release from being digested = conditioned

with no Gods
and out of any domination

TODAY'S MODEL

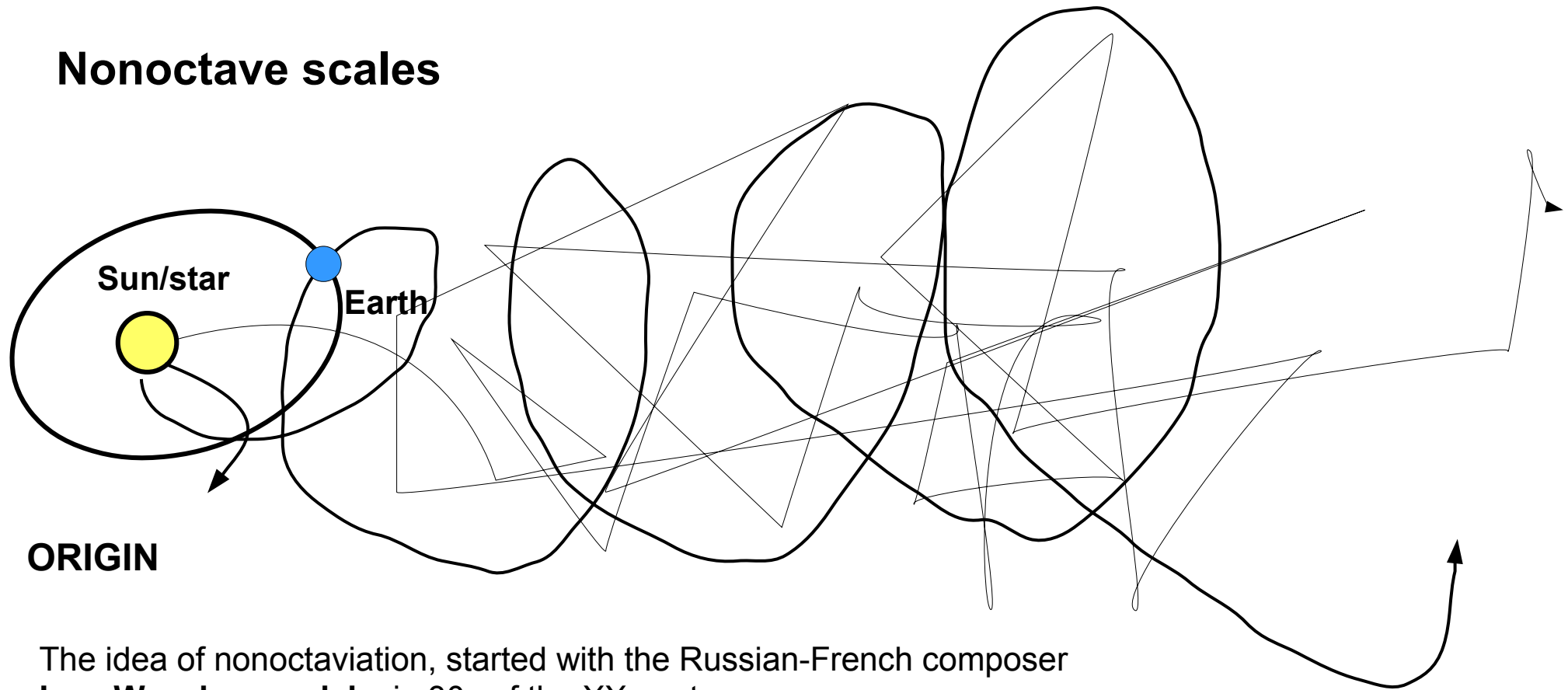


There are more movements than 1

in NONOCTAVE state of mind: $\bar{8ve} = \infty$

Avoiding: $8ve\ 2 = 1$, gives the opportunity to ear beyond what was masked by education.

Nonoctave scales



ORIGIN

The idea of nonoctavation, started with the Russian-French composer **Ivan Wyschnegradsky** in 30s of the XX century,

he called : « **espace non-octaviant** ».

With 6 + 3 scales dividing the 8ve from 24 to 72 \Leftrightarrow
 $1/4, 1/5, 1/6, 1/7, 1/8, 1/9, 1/10, 1/11, 1/12$ of tone.

9 octavian microtonal scales;

where around the 8ve, are microtonal intervals
which allow to play “**modified octaves**”,

is how he designed his « **espace non-octaviant** ».

But, these 6 scales stay octavian

Like the Harry Partch's 13 scales

Nonoctave scales are scales with any octave at all

How to build scales without octave?

4 METHODS, *and more*

contextual

1. starting with the range of a musical instrument:
An interval X divided par Y steps with the formula:
 $y\sqrt{x} = x^{1/y}$ with $x \neq 2; 4; 8; 16; 32; 64; 128$

2. continuing **historically** the tone division and extract its multiple nonoctave scales from:
1/16; 1/15, 1/14; 1/13; 1/12; 1/11; 1/10; and 1/9 of tone. Above scales are included in these 8 ones.
The extraction can go beyond 1/16 of tone. In these 53, 11 are microtonal, and 42 are macrotonal.

3. Each nonoctave scale extracted from a micro-tone got her cyclic range **from a tonal intervals** as:
4th; 5th; 6th major; 6th minor; 7th minor; 7th major;
8^{ve}+2^d minor; etc., to: double 8^{ve}+6th minor, and beyond.

4. Using **intervals from the harmonic series**
to build nonoctave scales.

The result was unexpected: from 7/6 to 69/68 only one ratio
 $51/50 = 1,02$ is strictly octavian: $35\sqrt{2} = 1,02$

*In 1982 the music for flutes **Ourdission** was composed with this principle dividing the full range of the flutes by the **prime number 41**.*

To get the 3 noncyclic scales:

C flute = B3–C7 $^{41}\sqrt{8,4757} = 1,05351 = 90.244$ cents

Piccolo = D4–C7 $^{41}\sqrt{7,55} = 1,0505 = 85.36$ cents

Bass flute = C3–C6 $^{41}\sqrt{8} = 1,05202 = 87.76$ cents

<http://centrebombe.org/livre/1982a.html>

In 80s,

53 nonoctave scales was extracted

<http://centrebombe.org/livre/10.1.html>

In 80s/90s,

. 29 nonoctave scales was extracted from the 4th

. 46 nonoctave scales was extracted from the 5th

. 31 nonoctave scales was extracted from the 6th minor

. 50 nonoctave scales was extracted from the 6th major

. 77 nonoctave scales was extracted from the 7th minor

. 84 nonoctave scales was extracted from the 6th major

. 99 nonoctave scales was extracted from the 8^{ve}+2th minor

<http://centrebombe.org/livre/10.1.3.html>

In 80s,

63 nonoctave harmonic scales was extracted

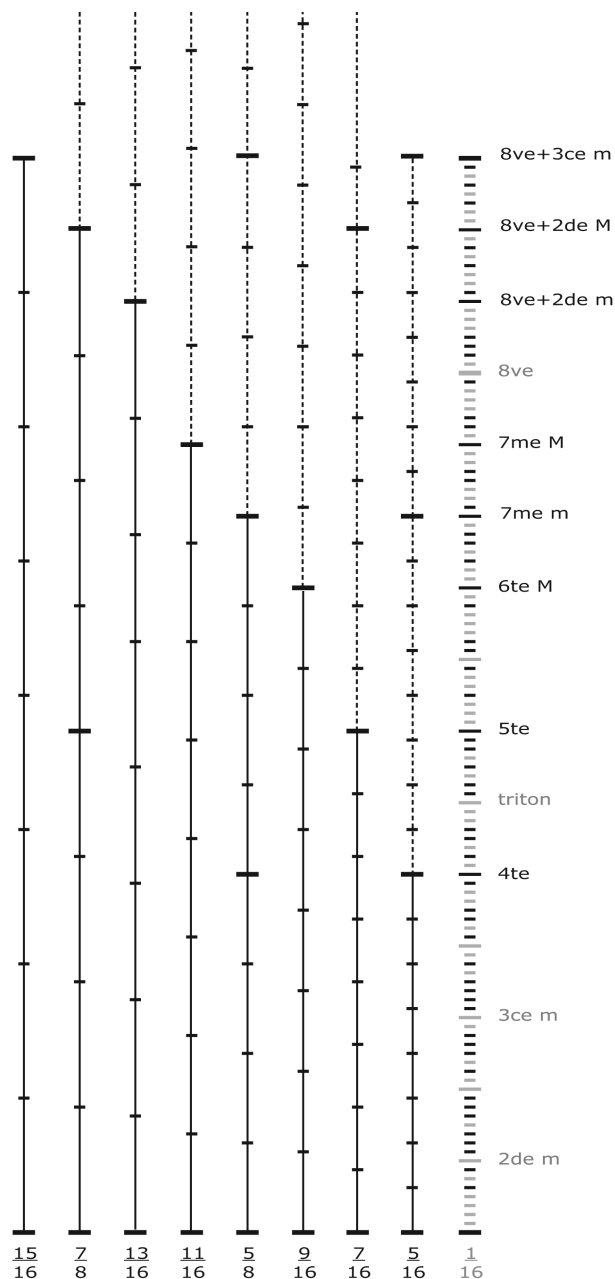
<http://centrebombe.org/livre/10.1.4.html>

Extraction METHOD 2

<http://centrebombe.org/livre/10.1.html>

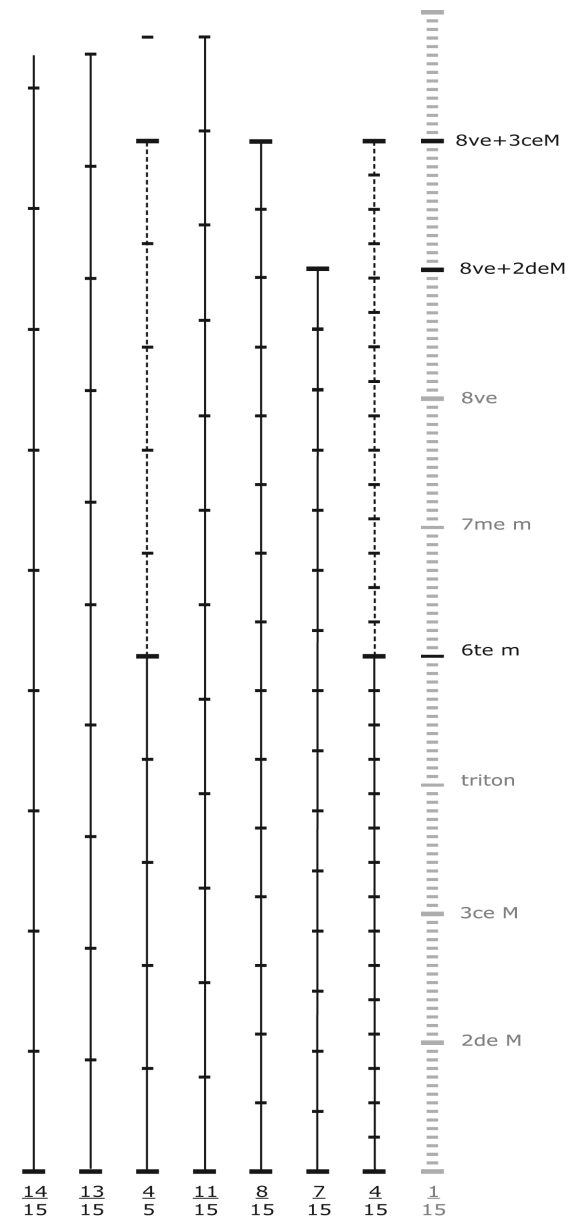
Les 8 premières échelles non-octaviantes
symétriques et cycliques multiples de
l'échelle 1/16 de ton
(12,5 cents) $96\sqrt{2}=1,00725$:

1/16th



7 échelles non-octaviantes asymétriques et
cycliques multiples de l'échelle 1/15 de ton
(13,33.. cents) $90\sqrt{2}=1,00773$:

1/15th



nonoctave scales
from octave micro-tone scales

Isn't it funny?

From now, ^{simple} ~~the textual nonoctave scales~~ ^{not included context is around} 532 nonoctave scales stored, and 257 published

Ready to be performed, in Scala file format.
Scala is the scale calculator I was waiting for, 35 years ago.
Thanks to Manuel Op de Coul since ~ 2000.

BUT

The point is not just to tune musical instrument.
The point is since 80s to create the next harmony

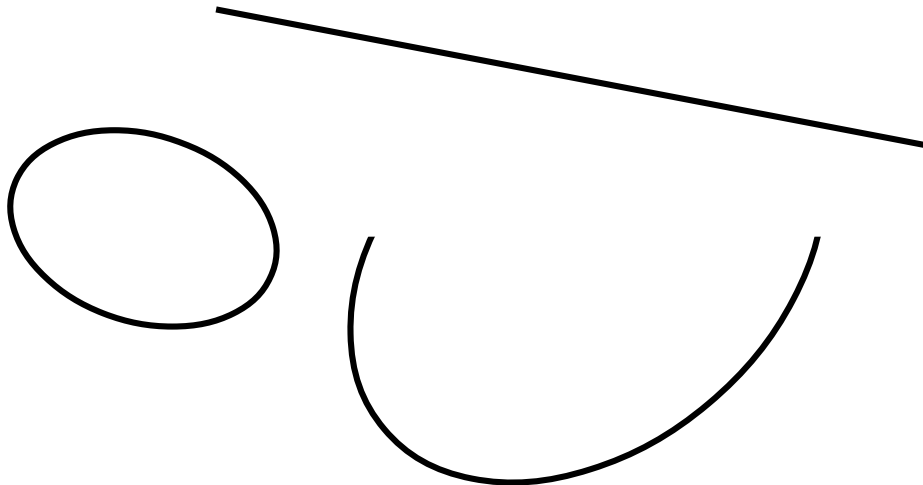
A turbulent harmony-synthesis in constant metamorphosis

Be for, few essential reminders:

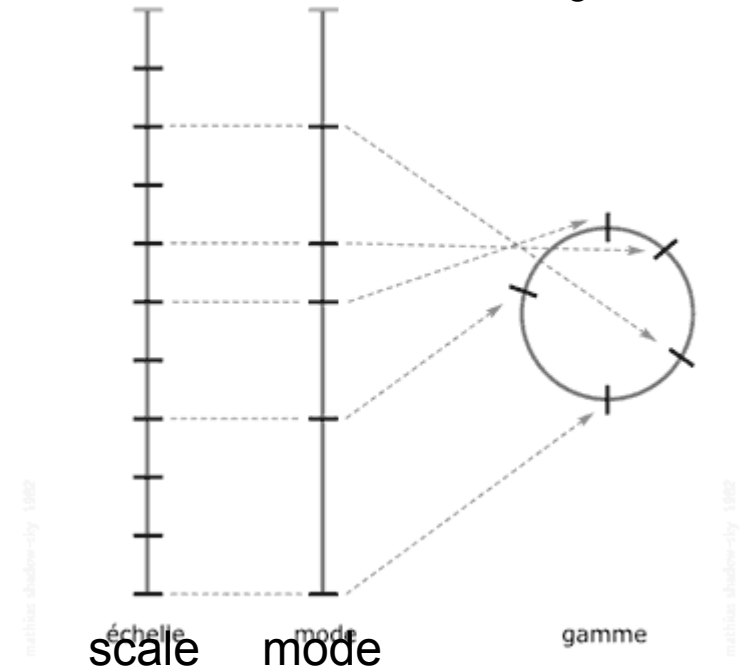
1. we consider the range of intervals to built a scale from 11 cents to 239 cents
11 cents give a 109,09.. pitches per 8ve, 239 give 5,0209205.. pitches per 8ve

4. nonoctave composed scales
<http://centrebombe.org/livre/10.0.3.html>

2. 3 types of scales: cyclic, quasicyclic, noncyclic
works with range identification



3. differences between : scale, mode, gamma



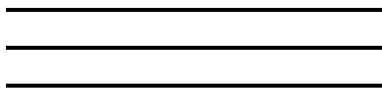
The nonoctave Scalar Field harmony

Is the playground of a moving map where to
compose connections, links, relationships, sympathies, and resonances
between fixed scales (modes & gammas) and/or in metamorphosis: all playing together.

The benefit of the nonoctave harmony is to be released from inevitable attraction.
The tonal harmony is included with its multitonality principle, but its exclusion rules are not working anymore.
To go elsewhere, somewhere and not come back inevitably.
Without any false note A huge amount of unheard chords are waiting to be heard

A NEW START FOR A NEW MUSICAL ADVENTURE FOR THE NEXT 300 YEARS.

from



stressed

to



calm