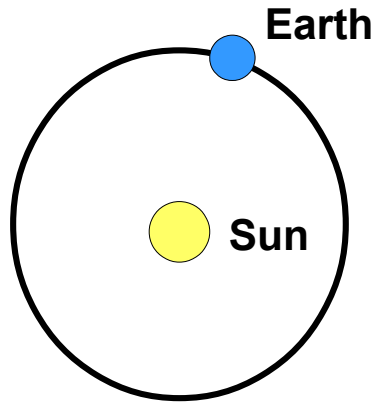
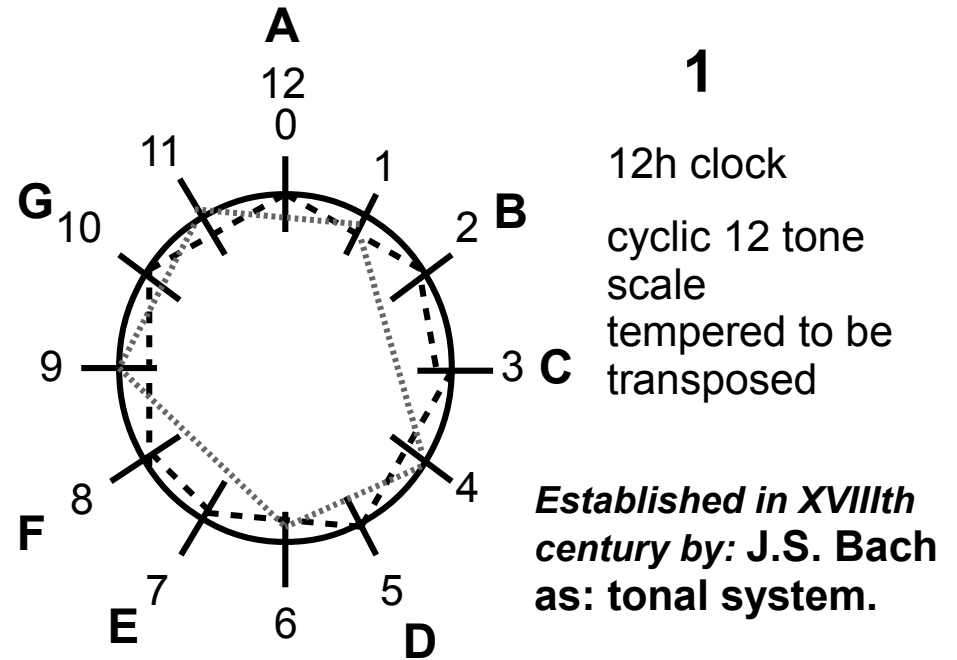


# WESTERN classical SCALE MODEL

Nicolas Copernic



Regular orbital

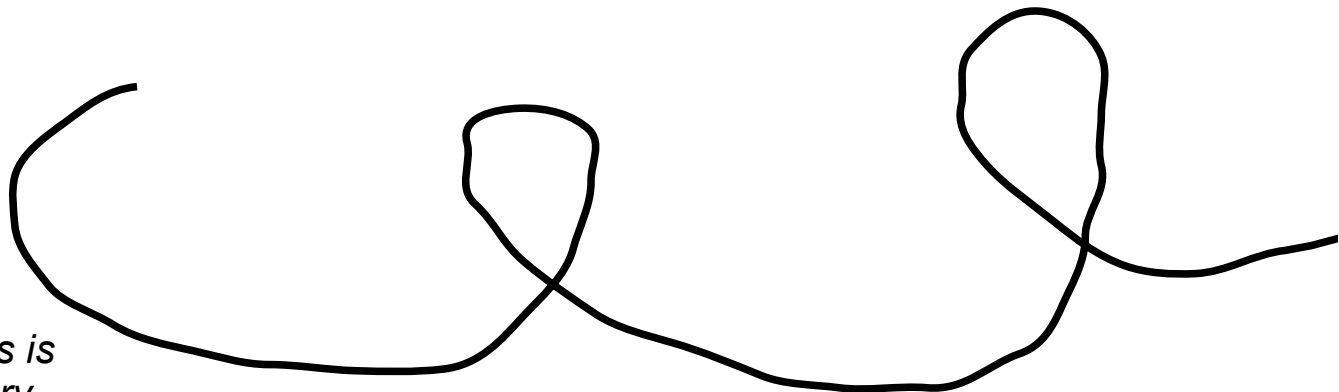


Orbit divided by 12 = 7 + 5  
heptatonic + pentatonic mode  
with 12 transpositions for each

Giordano Bruno

**INFINITY**

*Infinity in musical scales is waiting since XVI century*



# SCALE

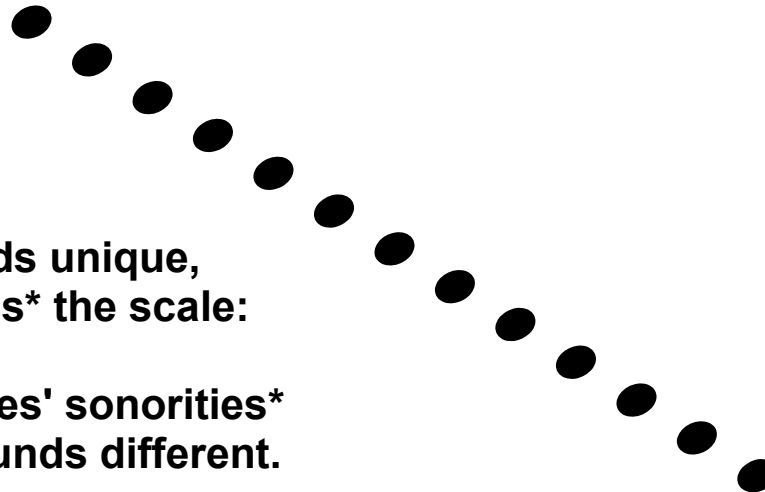
A scale gives a measurement to localize points in time.  
Musical points are notes,  
symbolizing audible vibrating: phenomena, events, etc.,  
localized in space and time like human beings to link.  
*Nowadays, in our scared society under control.*

**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

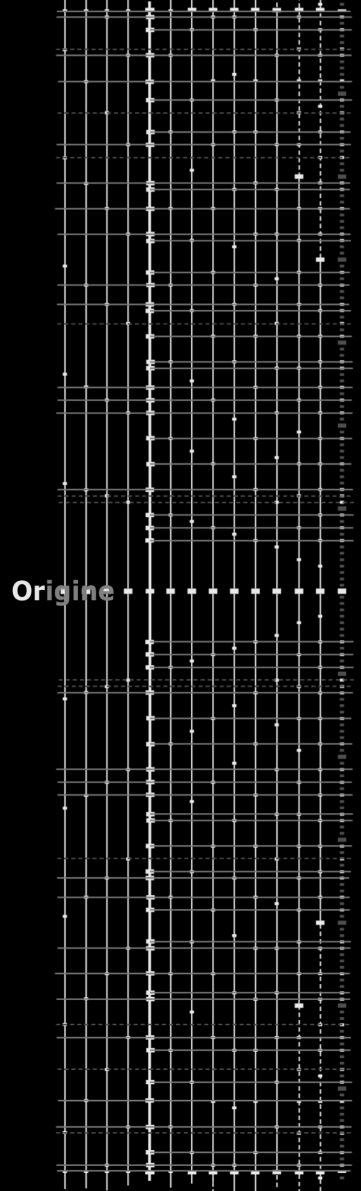
A function of a space whose value at each point is a scalar quantity.  
Used in physics to see the temperature or pressure distribution throughout space.

## MUSIC SCALES FIELD

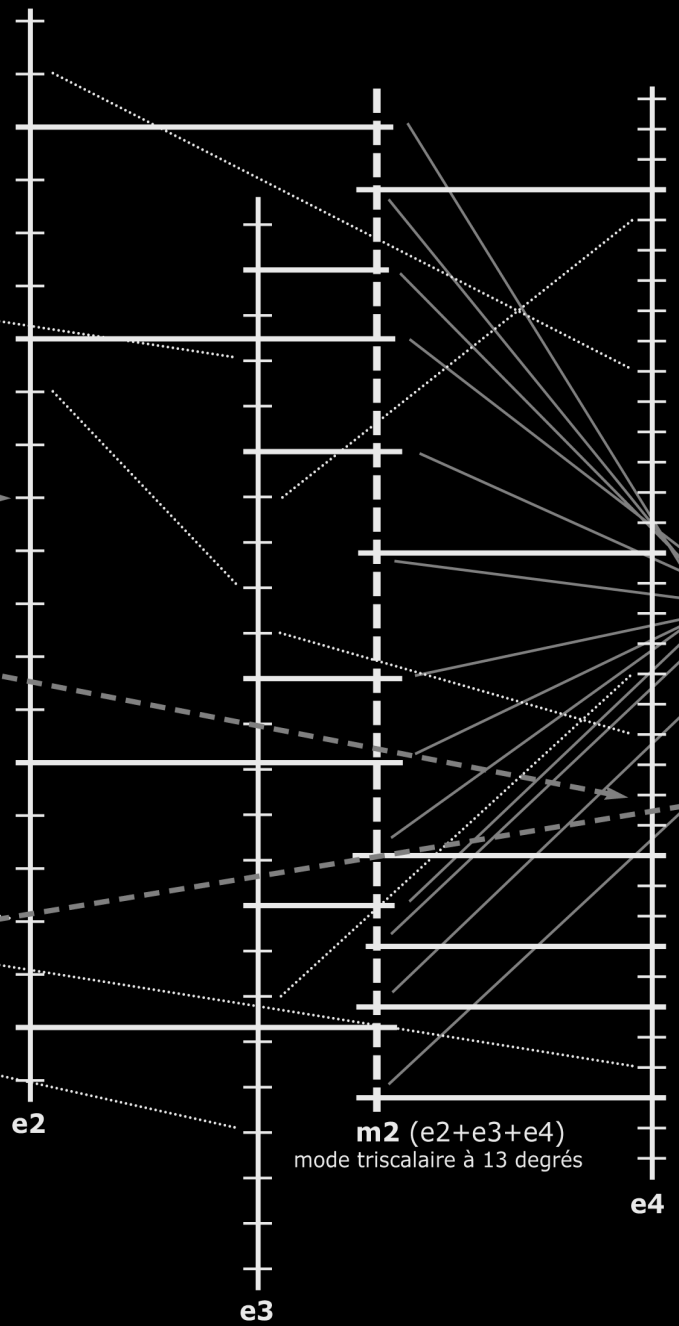
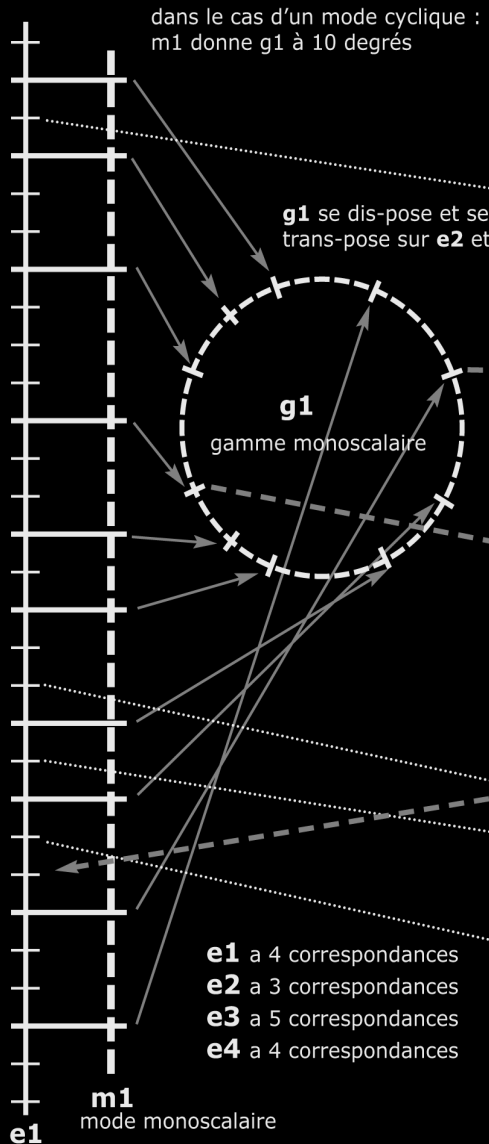
Nothing to see, nothing to quantify, values are many and various.  
We keep the idea of turbulent playground\* of links influences.  
The field is an essential space for scales to interact, mutate and evolve.  
As **Iannis Xenakis'** "composition hors temps", but with time.

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

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



Origine

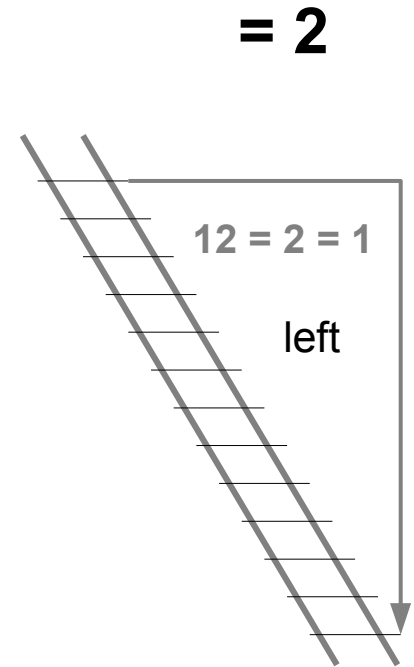


ETC.

derrière toute échelle, il existe un ensemble d'échelles nonoctaviantes multiples entre elles

correspondance d'échelles :  
 .....

*un mode n'est plus cyclique quand il emploie + de la moitié de l'ambitus (range) de l'instrument.*



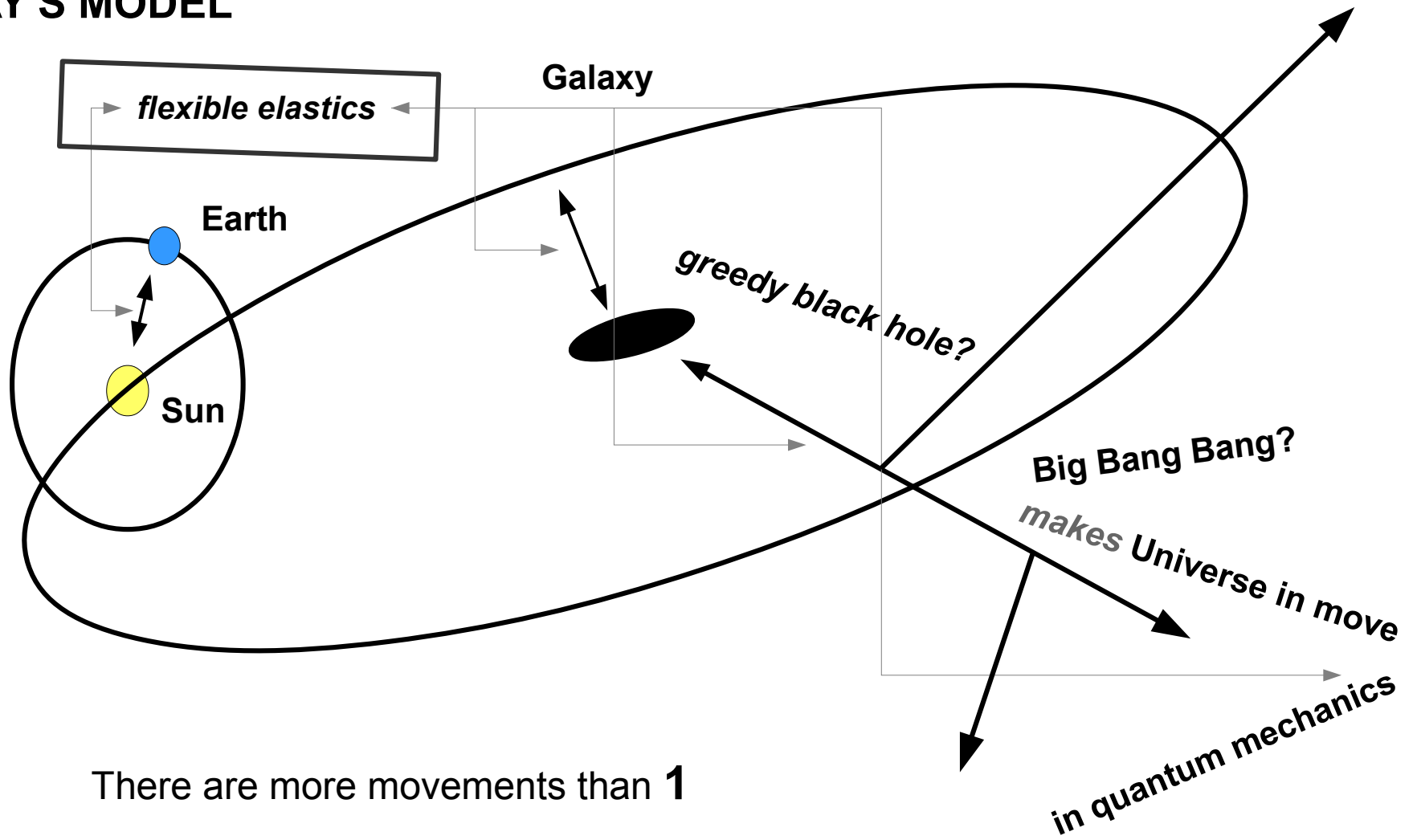
**where:  $2 = 1 \iff$  unison = fusion**  
 process of assimilation/integration

In 1 God

**Nonoctave Scalart Field** actions, release from being digested = conditioned

with no Gods  
 and out of any domination

# TODAY'S MODEL



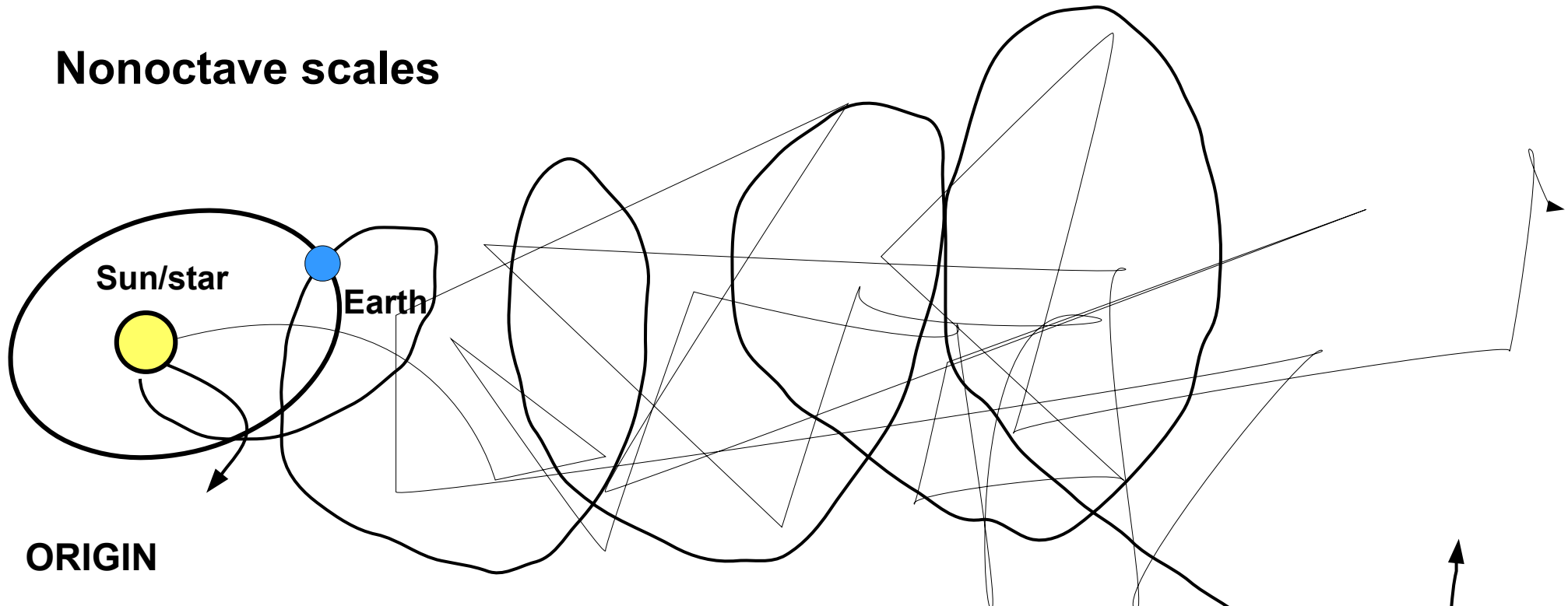
There are more movements than **1**

**Albert Einstein's** multiple times to travel  
clocks

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 the 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 9 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:  
4<sup>th</sup>; 5<sup>th</sup>; 6<sup>th</sup> major; 6<sup>th</sup> minor; 7<sup>th</sup> minor; 7<sup>th</sup> major;  
8<sup>ve</sup>+2<sup>d</sup> minor; etc., to: double 8<sup>ve</sup>+6<sup>th</sup> 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 4<sup>th</sup>*

*. 46 nonoctave scales was extracted from the 5<sup>th</sup>*

*. 31 nonoctave scales was extracted from the 6<sup>th</sup> minor*

*. 50 nonoctave scales was extracted from the 6<sup>th</sup> major*

*. 77 nonoctave scales was extracted from the 7<sup>th</sup> minor*

*. 84 nonoctave scales was extracted from the 6<sup>th</sup> major*

*. 99 nonoctave scales was extracted from the 8<sup>ve</sup>+2<sup>th</sup> 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>

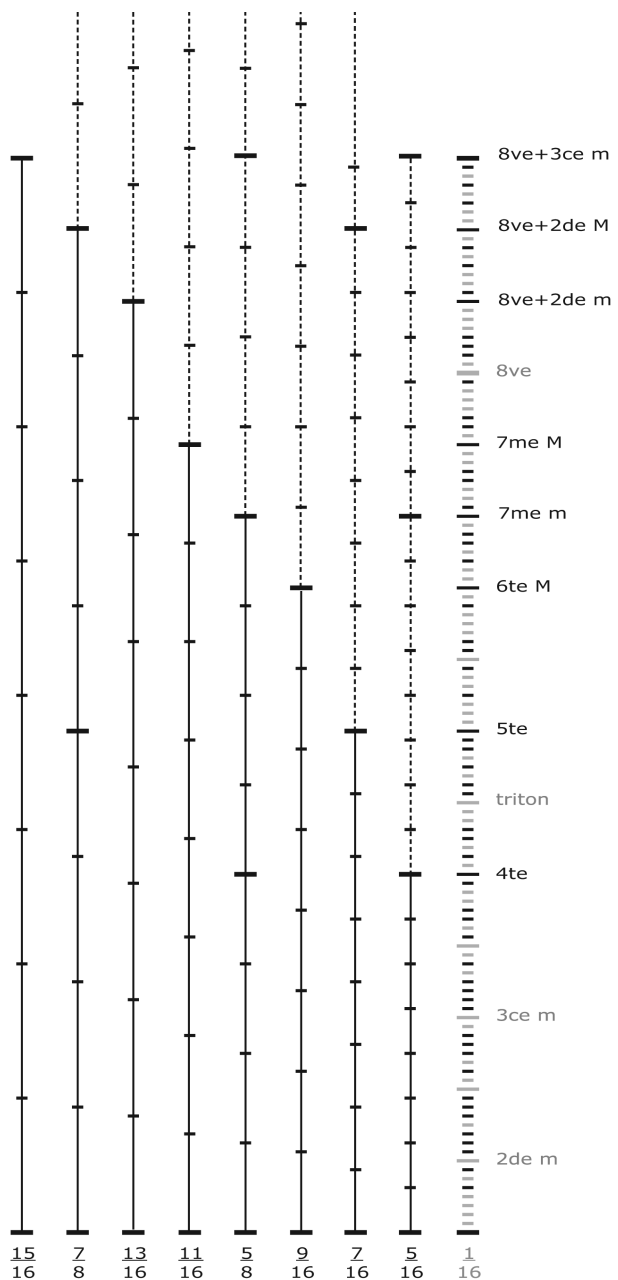


# Extraction METHOD 2

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

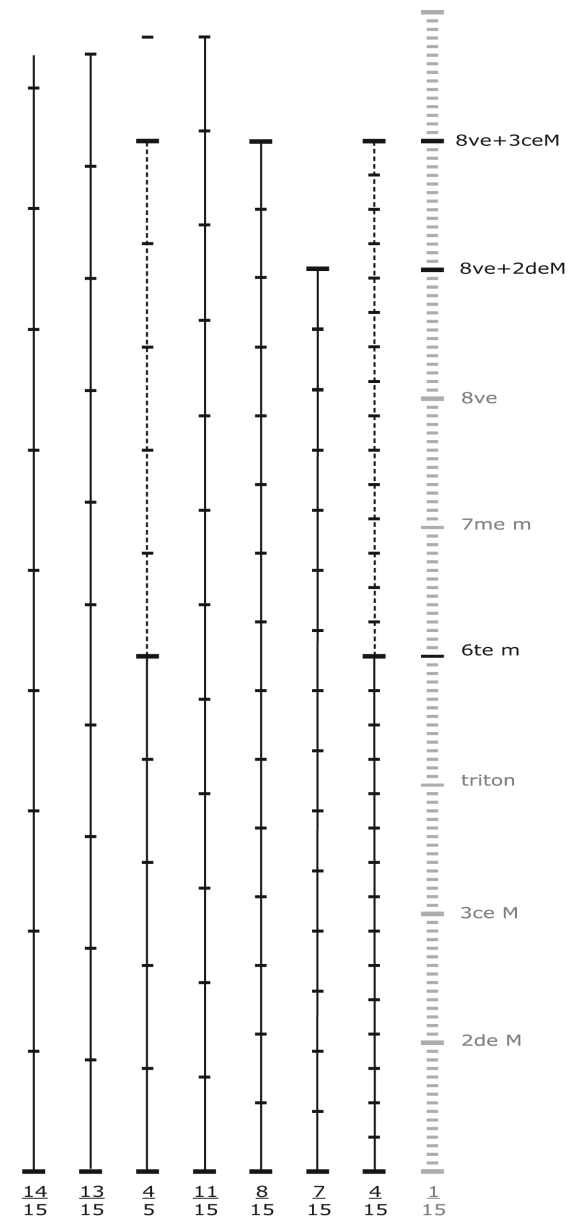
Les 8 premières échelles non-octaviantes symétriques et cycliques multiples de l'échelle 1/16 de ton (12,5 cents)  $96\sqrt{2}=1,00725$  :

1/16<sup>th</sup>



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

1/15<sup>th</sup>



nonoctave scales  
from octave micro-tone scales

*Isn't it funny?*



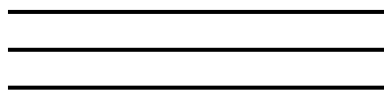
# The nonoctave Scalar Field harmony

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