Mathematics as a tool for survival

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Friend or Enemy?

The need for immediate decision under emergency situation

Friend or Enemy!

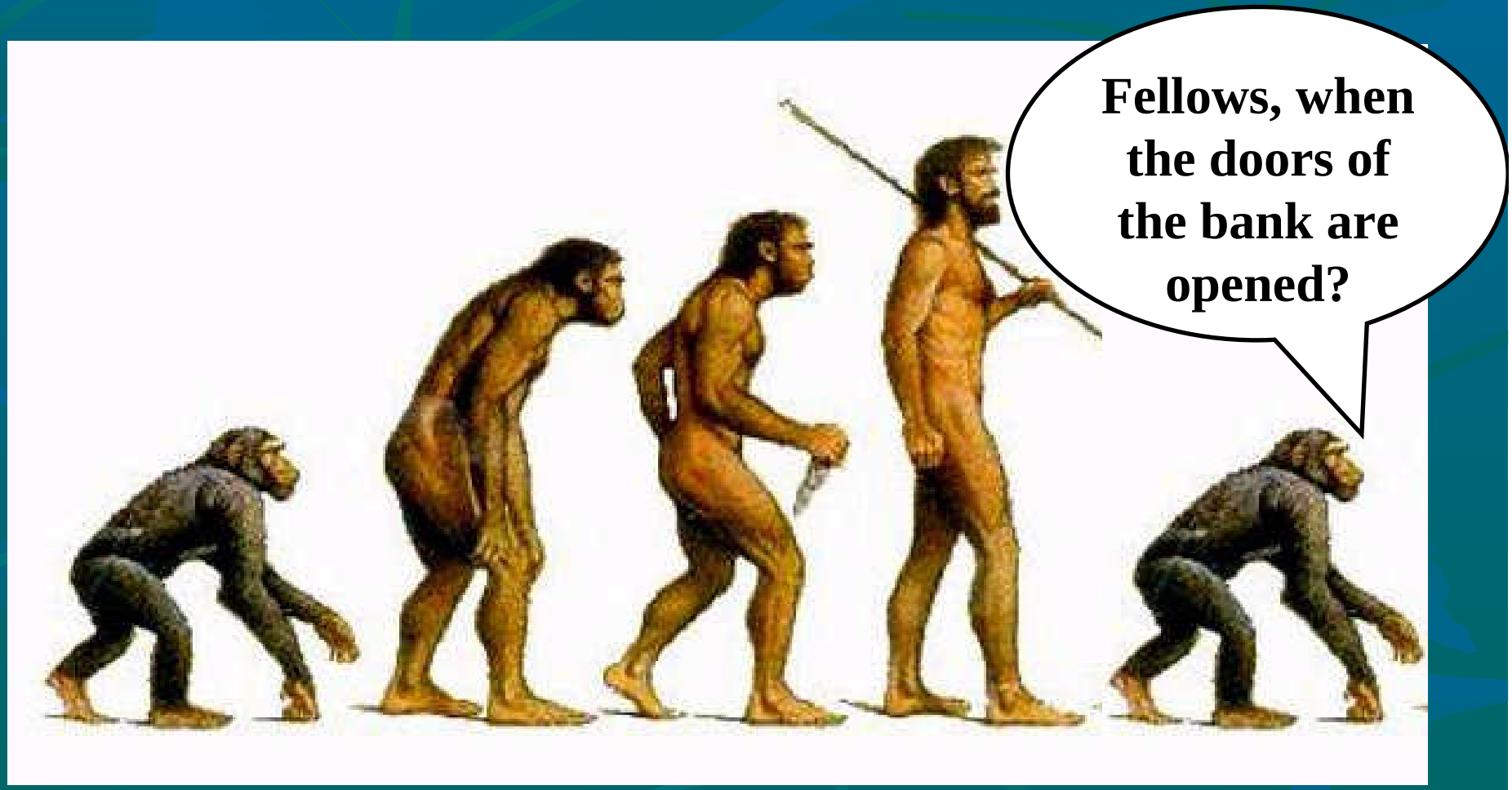
Friend or Enemy!

Totalitarian regimes use emergency atmosphere as a fundamental condition for their survival


Democracy
Friend ? Enemy
I disagree with you, but I'll do my best
in order to give you the chance to air your view

Development at evolutionary scale

The rise of Complexity



Does a civilization survives the power of its developed technologies?

Destruction = The collapse of complexity

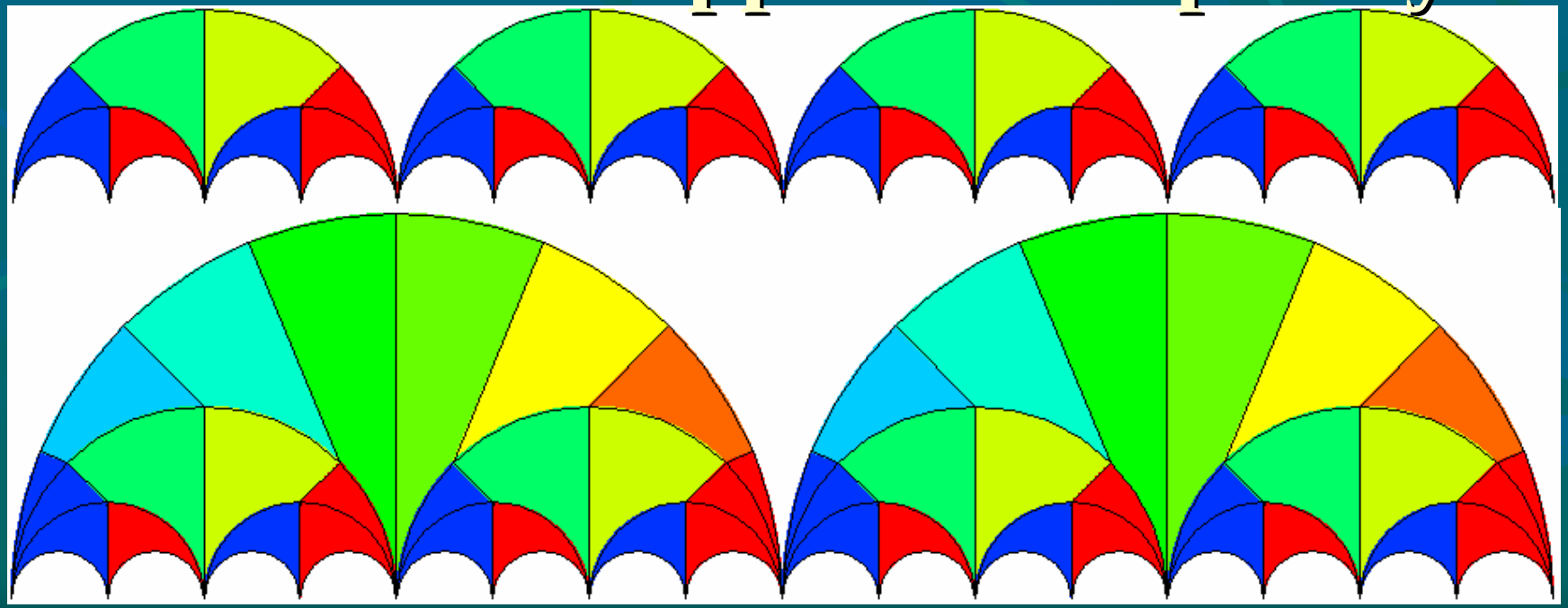
Correlation between specials
Ethics that supports Complexity

Ethics at evolutionary scale

In\Out are the same

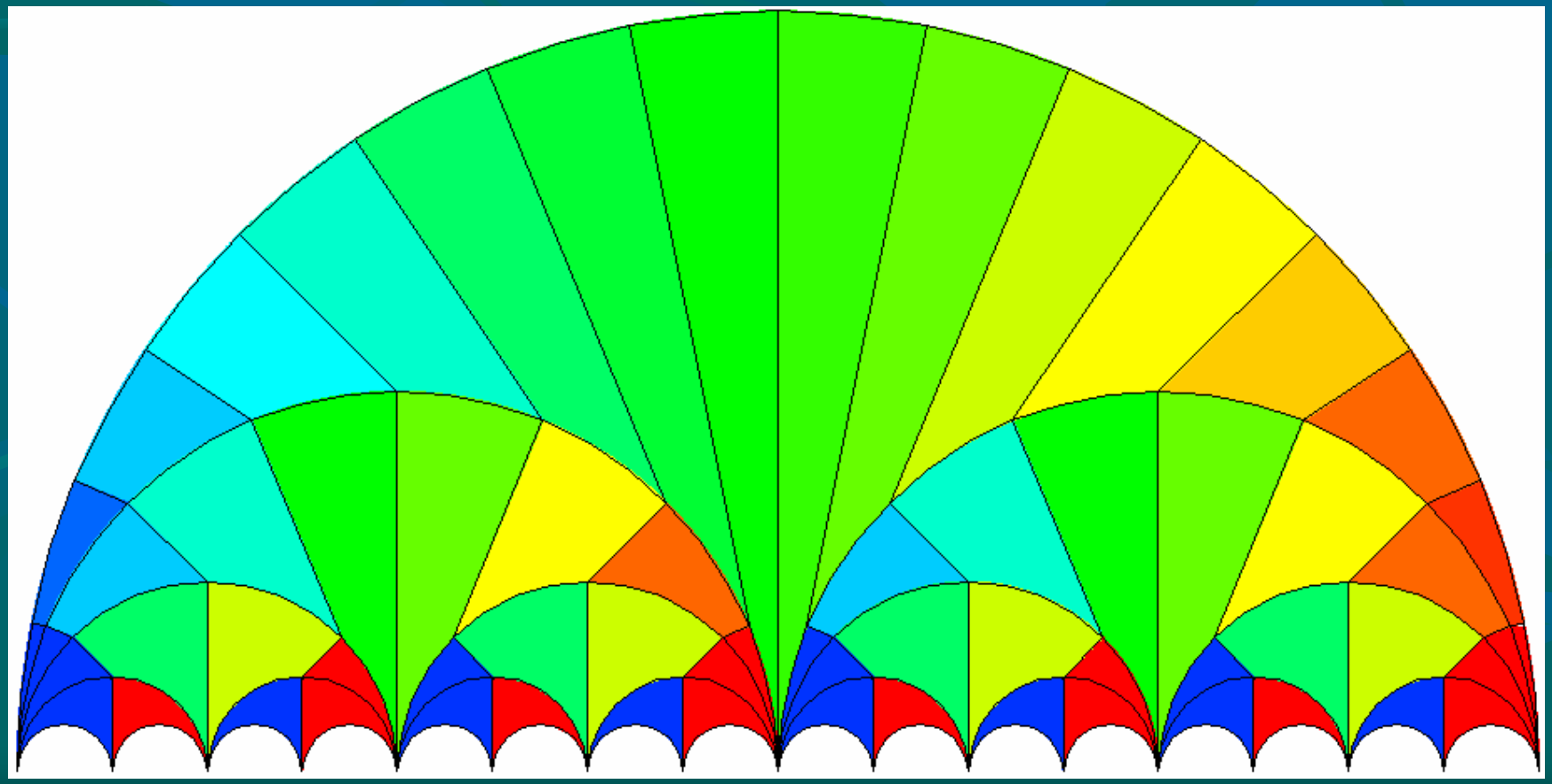
In\Out are different, Friend\Enemy ethics

Ethics that supports Complexity



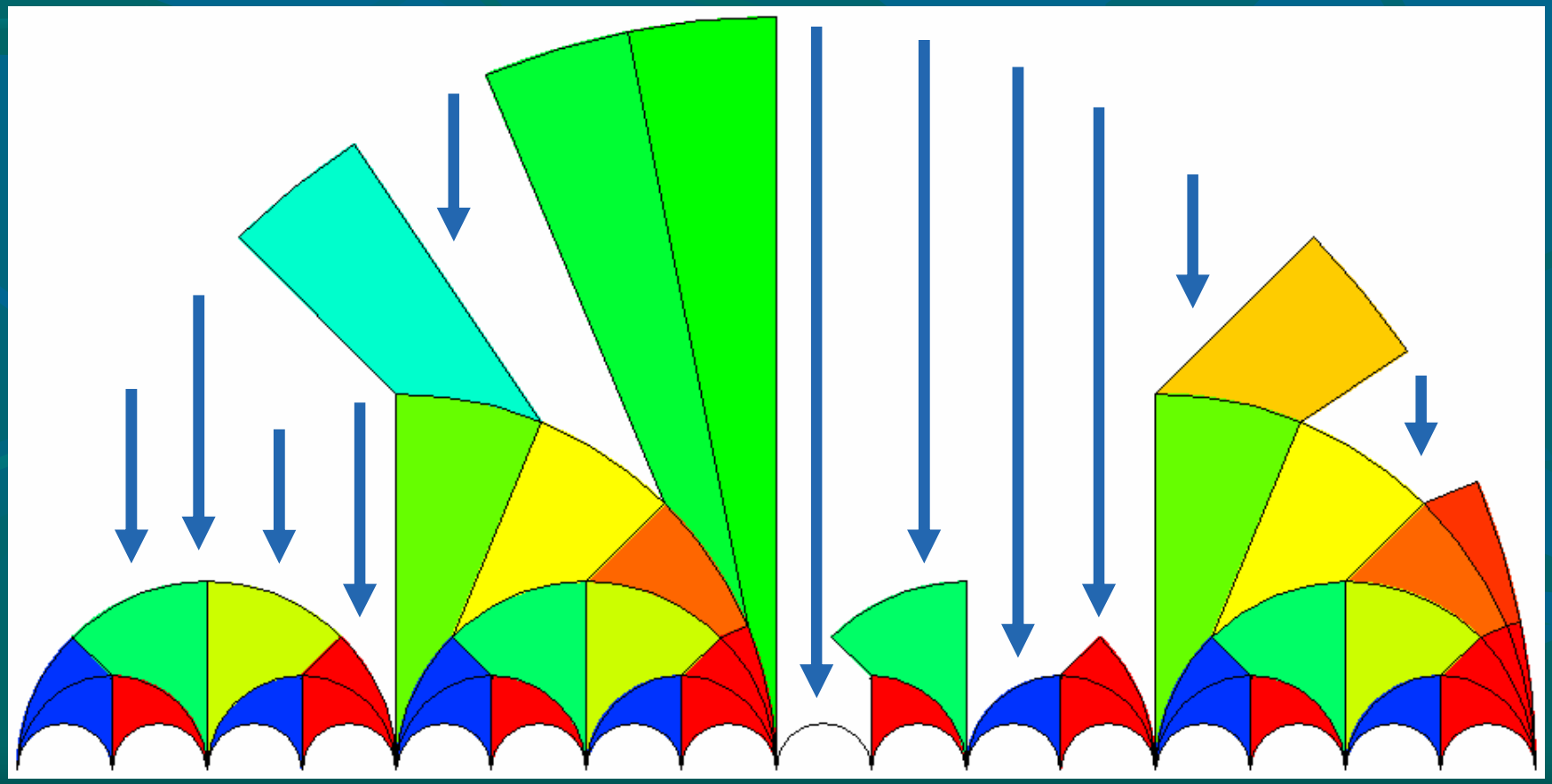
Development at evolutionary scale

The goal, an ecosystem that supports and develops itself as a one complex and open system



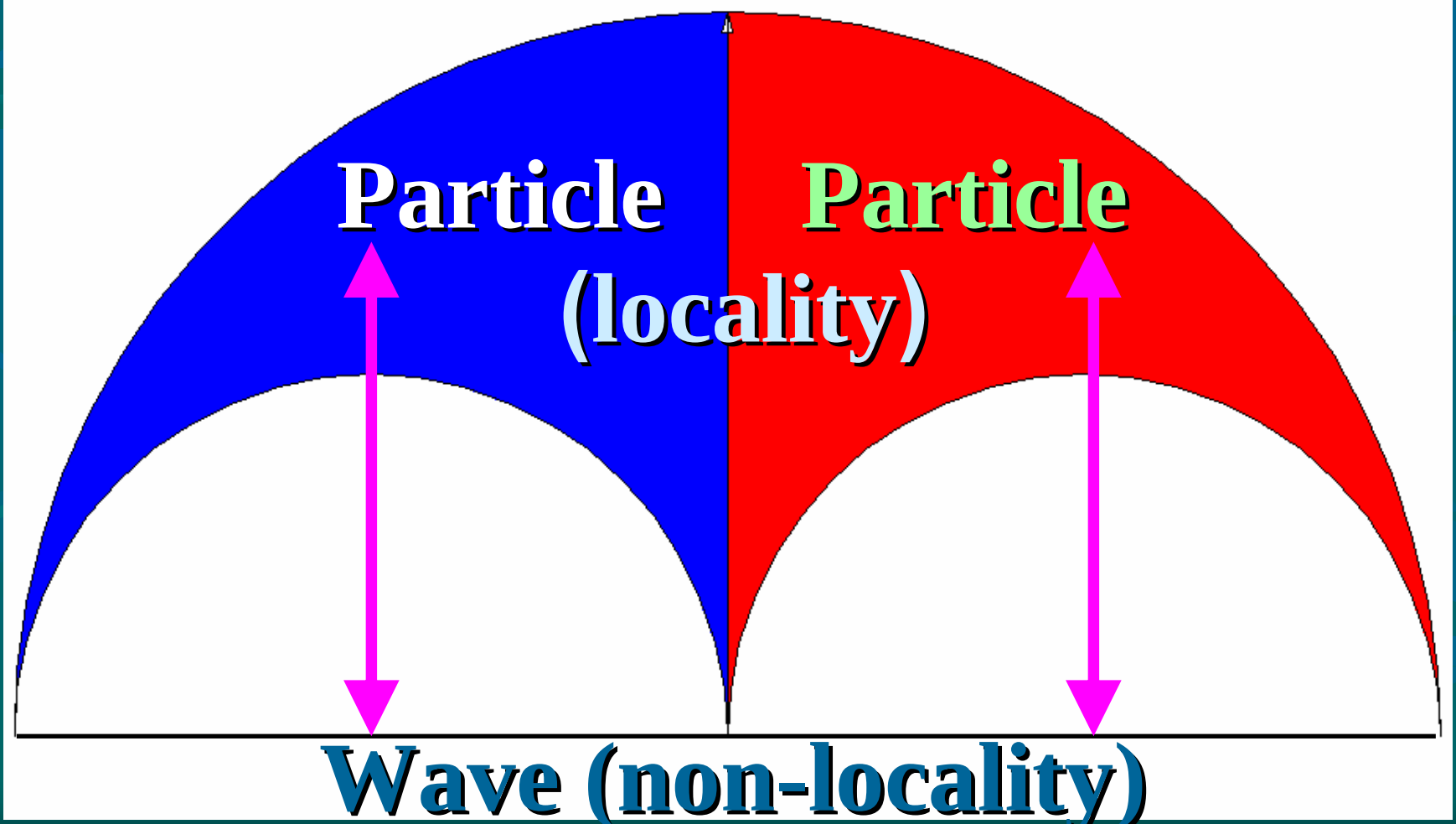
Development at evolutionary scale

The danger, the collapse of Complexity into its building-blocks



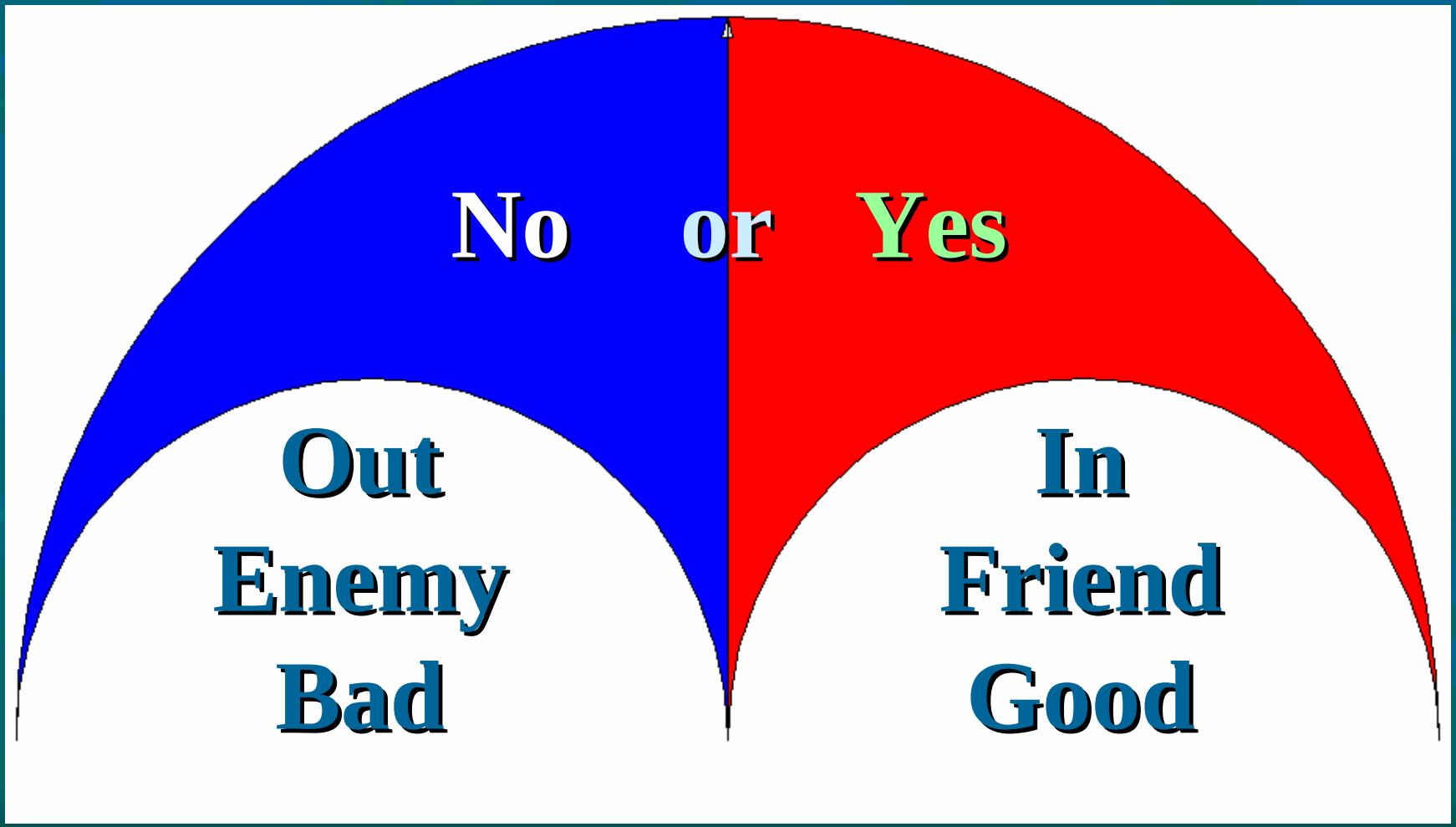
Development at evolutionary scale

Quantum Mechanics teaches us that the basis of matter is a complementation between non-locality and locality.



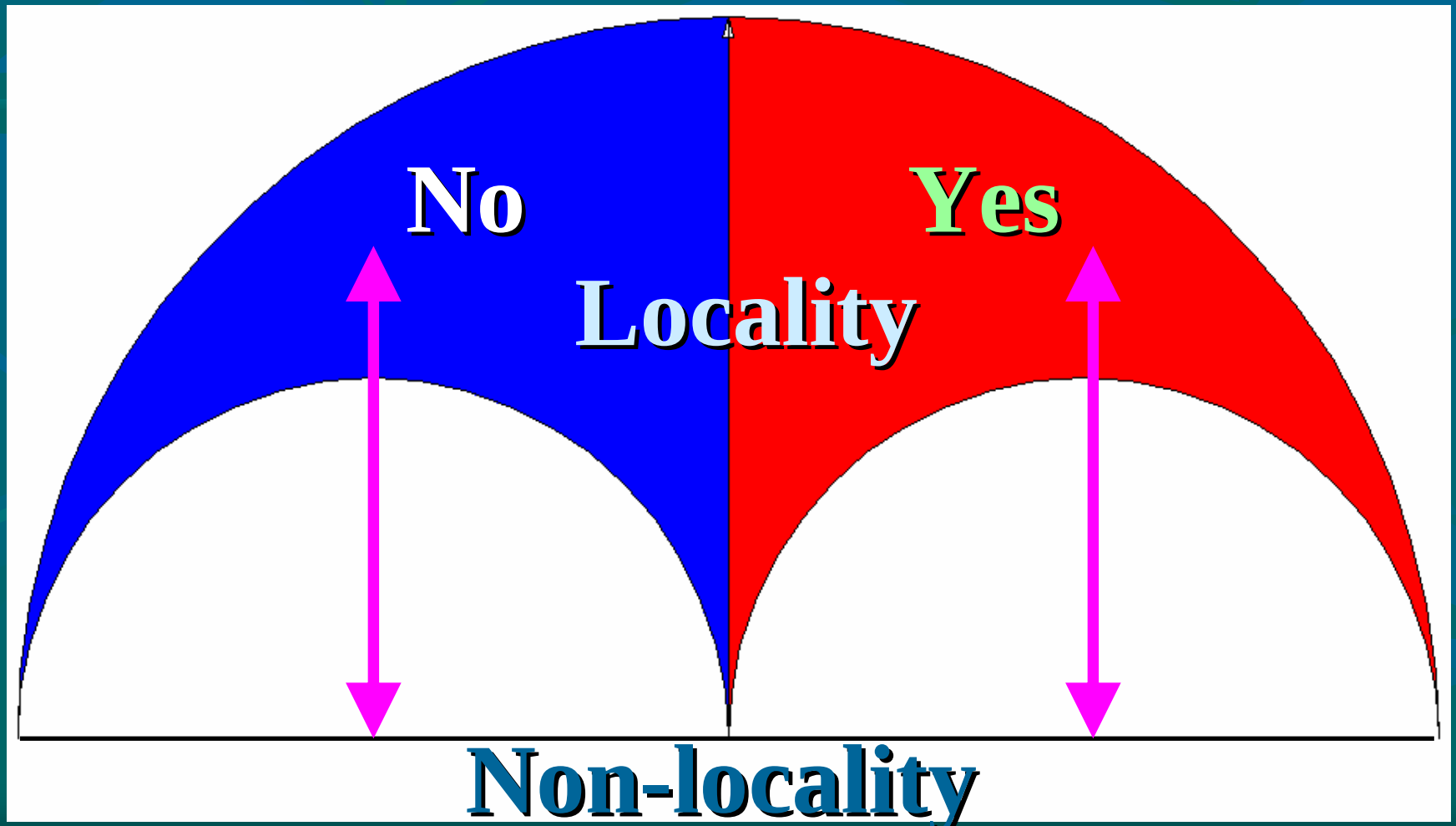
Development at evolutionary scale

Classical Logic that stands at the basis of many technological developments, is based only on locality



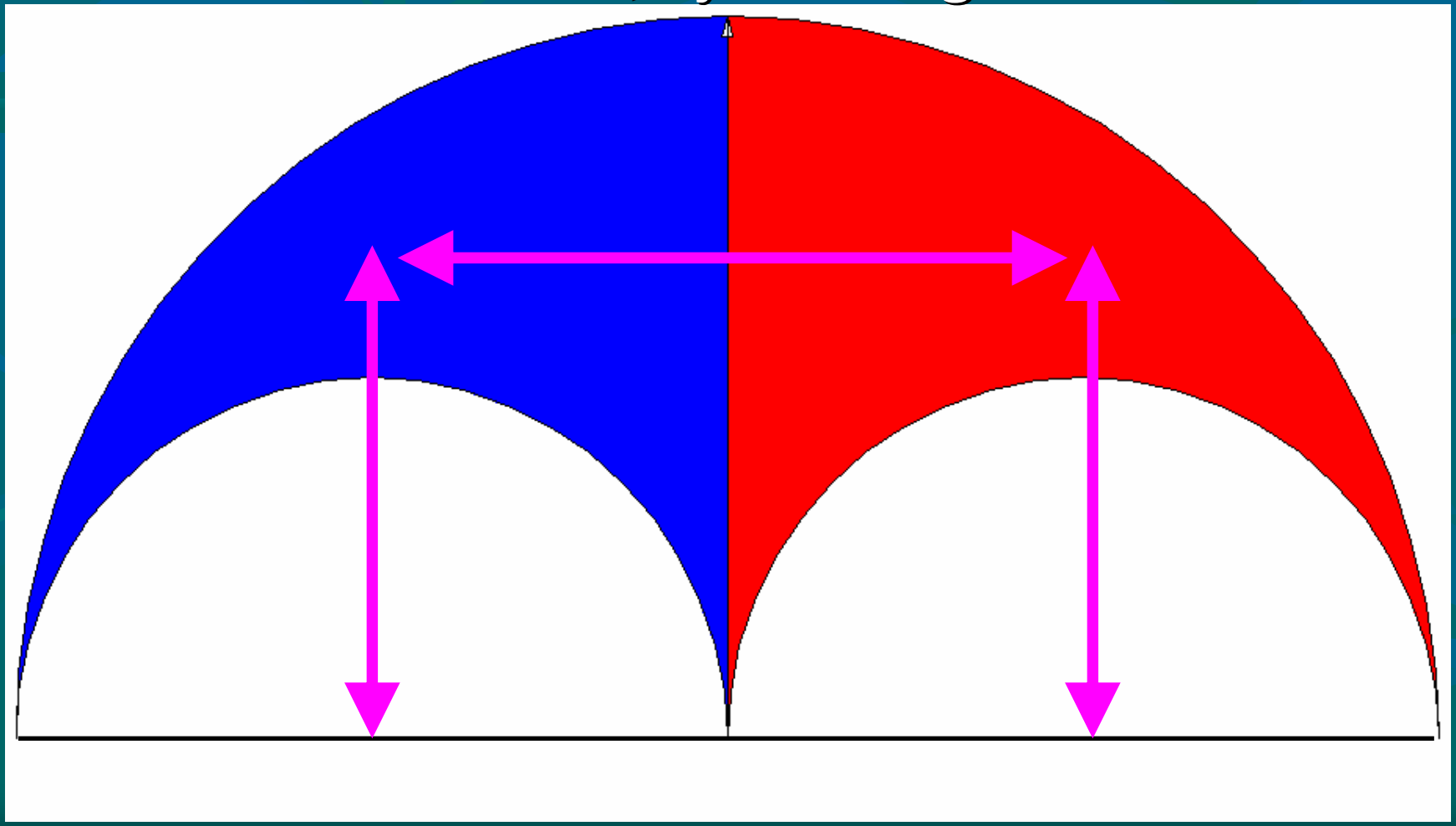
Development at evolutionary scale

Possible solution, using Complementary Logic between opposites.



Consistency

Consistency in Complementary Logic is the ability to find the bridges between opposites under a one framework, by avoiding self contradiction



Organic Mathematics in a nutshell

Goal: Bridging Logic\Technologic and Ethics

Way: A development of a formal language, which reduces the abilities of its users to ignore current and future influences on user's ecosystem

Basic concepts: Non-locality\Locality

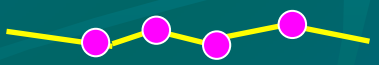
Local Membership

- ***Organic Mathematics*** **membership is based on 3 logical connectives.**
- ***Xor*** **connective is the logical basis of local membership, where any mathematical thing belongs** ***Xor*** **does not belong to a given domain.**
- **This state can the represented by a point, that exists {•} *Xor* { }• of a given domain.**
- **The concept of Membership of Classic Mathematics is based only on** ***Xor*** **connective.**

Non-local Membership

- ***And*** **and** ***Nor*** **connectives are the logical basis of Non-locality, such that a given thing is not limited by a given domain.**
- ***And*** **connective can be represented by a line, that exists { } *And* { } of a given domain.**
- ***Nor*** **connective can be used for Non-locality, such that does not exist { } *Nor* { } of a given domain.**

The researched, the researcher and the concept of Number

- ***Organic Mathematics*** **establishes the concept of Number on the interaction between the researcher's memory, which provides the non-local aspect of the number, and the researched subject, which provides the local aspect of the number.**
- **If we represent the memory by a string ——— and the researched subjects by beads ● ● ● ● , then a number is represented as a necklace** 
- **By this analogy we can understand that a fundamental concept like Number, is the result of the bridging between the researched and the researcher.**

Uncertainty and Redundancy

Definition 3: ***x*** is an element

Identity is a property of ***x***, which allows its recognition.

Definition 4:

Copy is a duplication of a single identity.

Definition 5:

If ***x*** has more than one single identity, then ***x*** is called **Uncertain** .

Definition 6:

If ***x*** has more than one single copy, then ***x*** is called **Redundant** .

Paradigm's change: Distinction

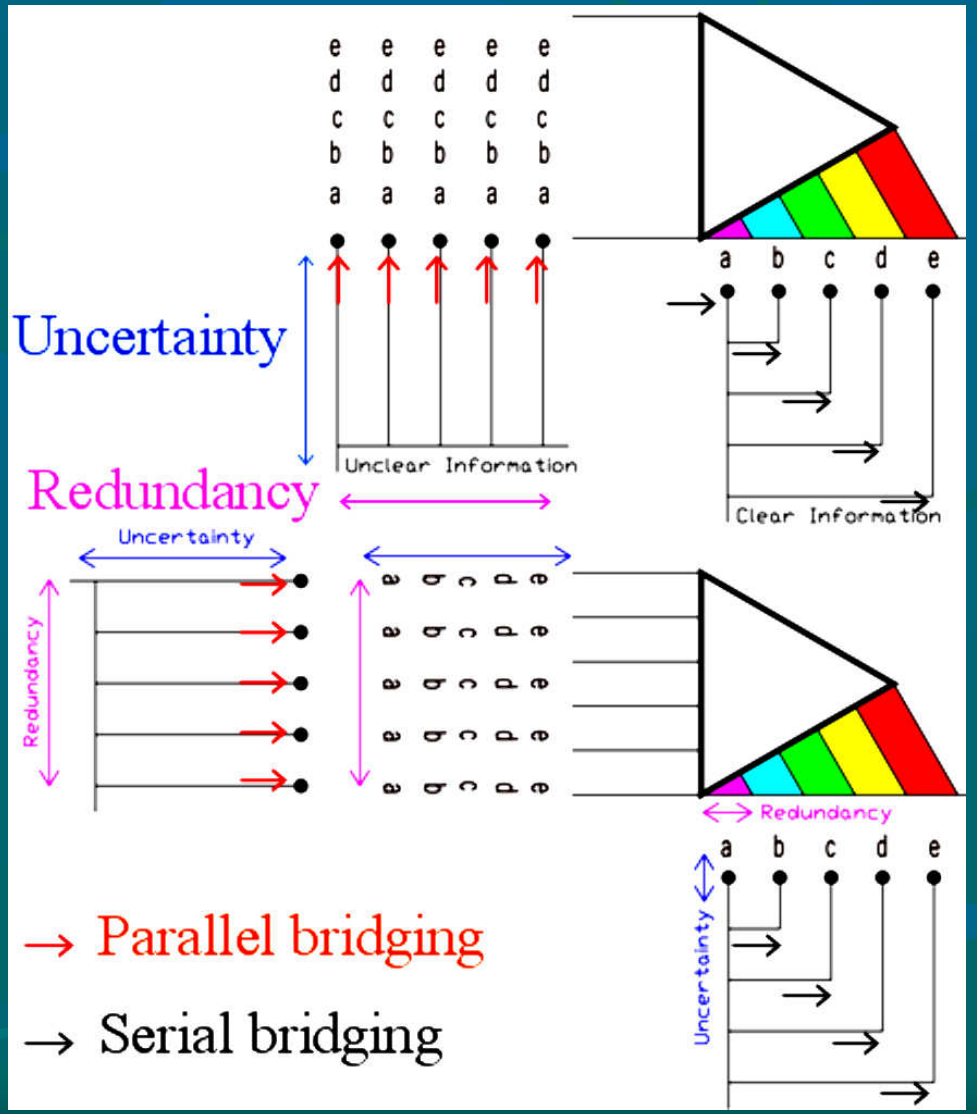
Organic numbers are based on a new philosophy, which says that a point and a line are two abstract observations that if associated, enable to define things mathematically, where Distinction is their fundamental property.

The line represents a Parallel Thinking Style where things are understood at-once, without using step-by-step analysis.

The point represents a Serial Thinking Style where things are understood by using step-by-step analysis.

Organic Numbers

Organic Numbers are the result of Memory\Object interaction, such that each object is observed as a superposition of identities (by parallel "white" observation), as a single id (by serial "colored" observation), or as any possible association of parallel\serial observation:



The Partition function

n	*Pr(n)*
1	1
2	2
3	3
4	5
5	7
6	11
7	15
8	22

Representation of a whole number as the sum of whole numbers, for example 5:

5=5

5=4+1

5=3+2

5=3+1+1

5=2+2+1

5=2+1+1+1

5=1+1+1+1+1

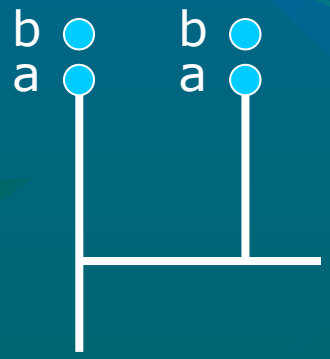
Total = 7

Organic number 1

The point’s identity is clearly known

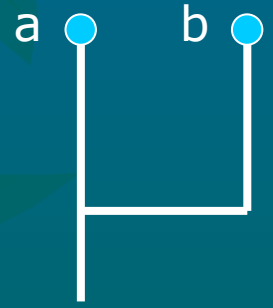
2=(1)+(1)

The identity of the points is in a superposition.

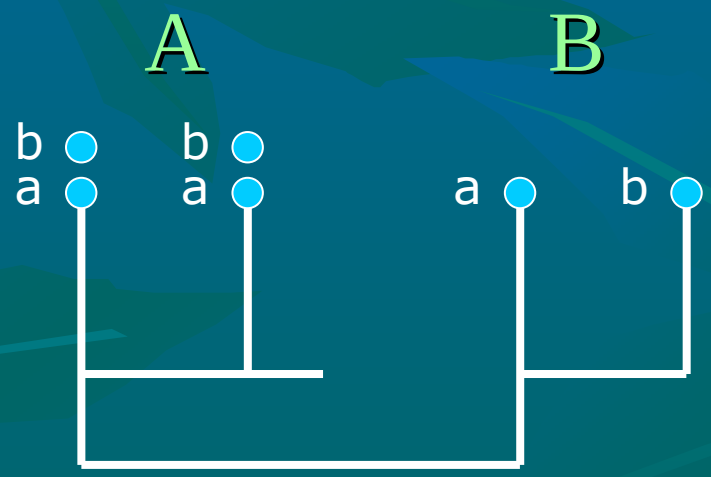


2=(1)+1

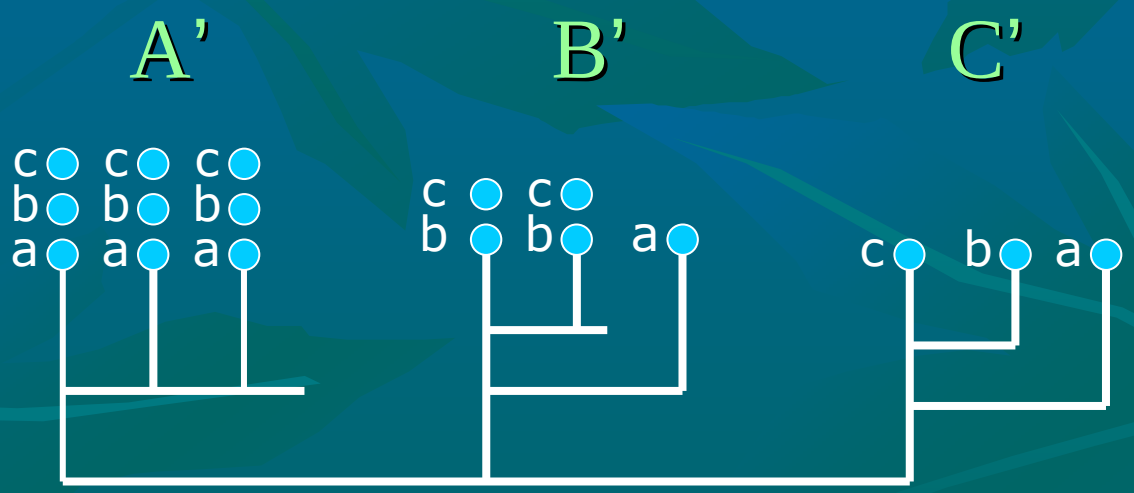
The identity of the points is not in a superposition.



Organic number 2 (partial example)



Organic number 3 (partial example)



4=(1)+(1)+(1)+(1)

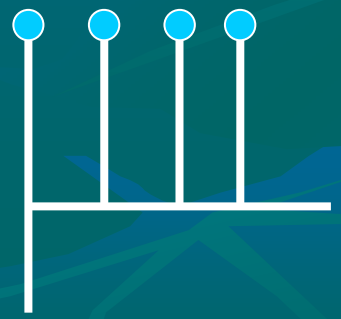
Superposition of identities:

d d d d

c c c c

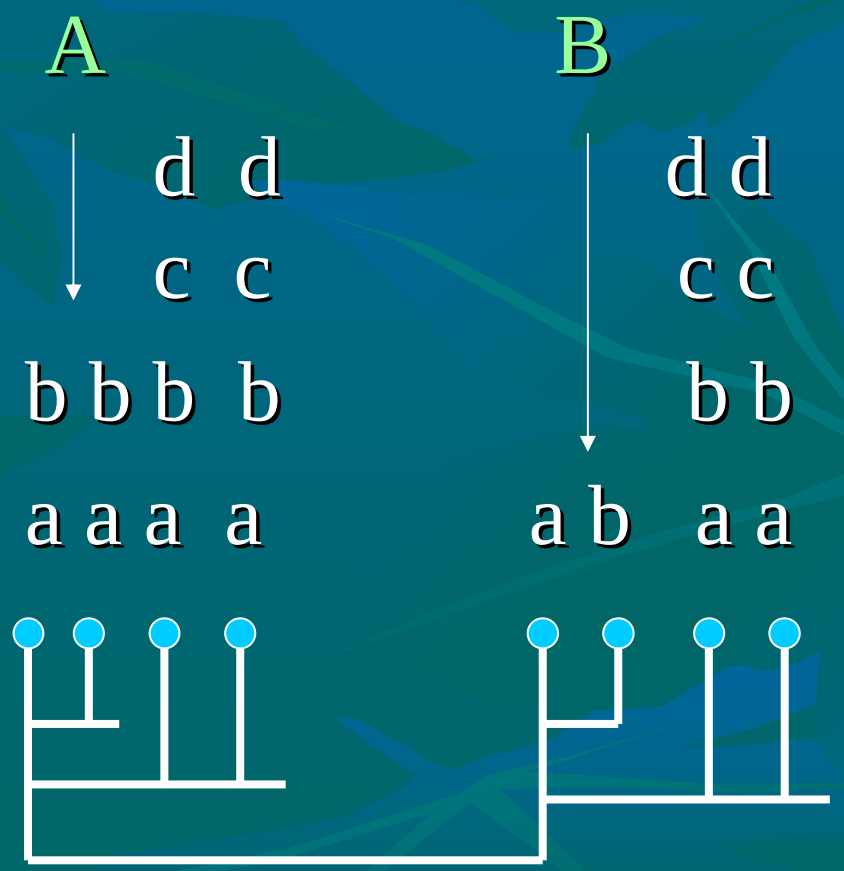
b b b b

a a a a



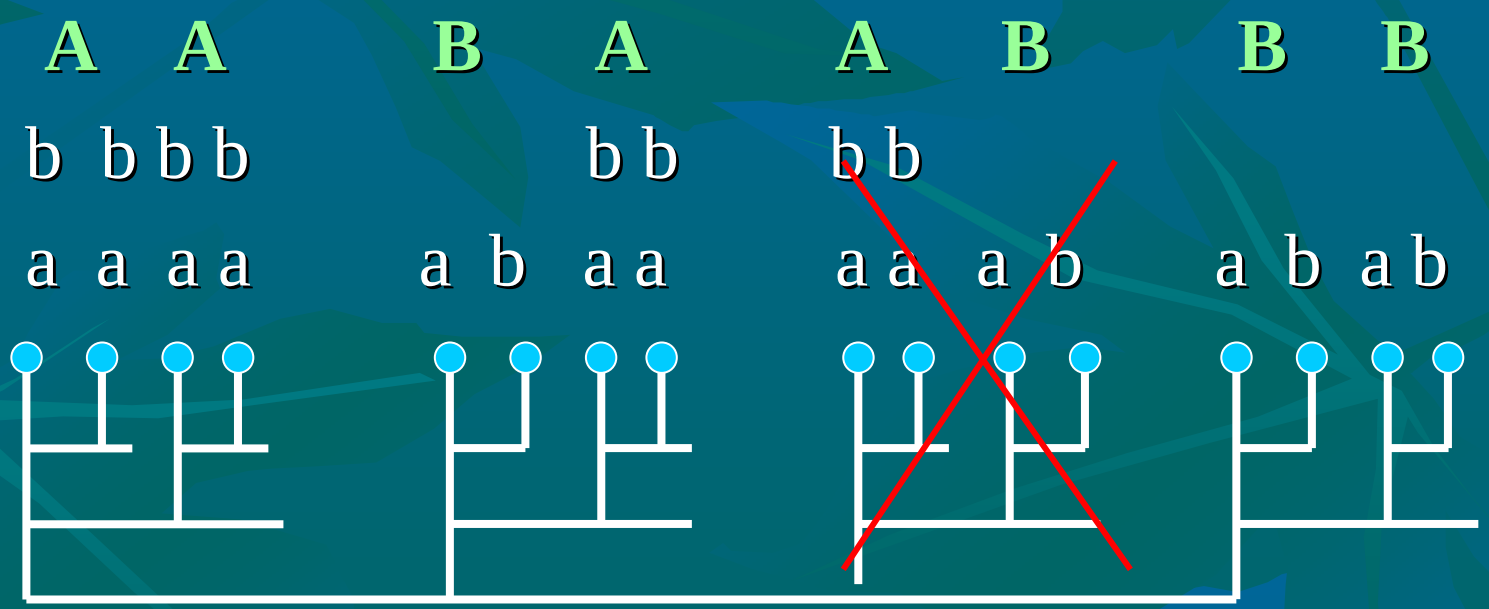
4=(2)+(1)+(1)

Recursion of *n*=2 within *n*=4



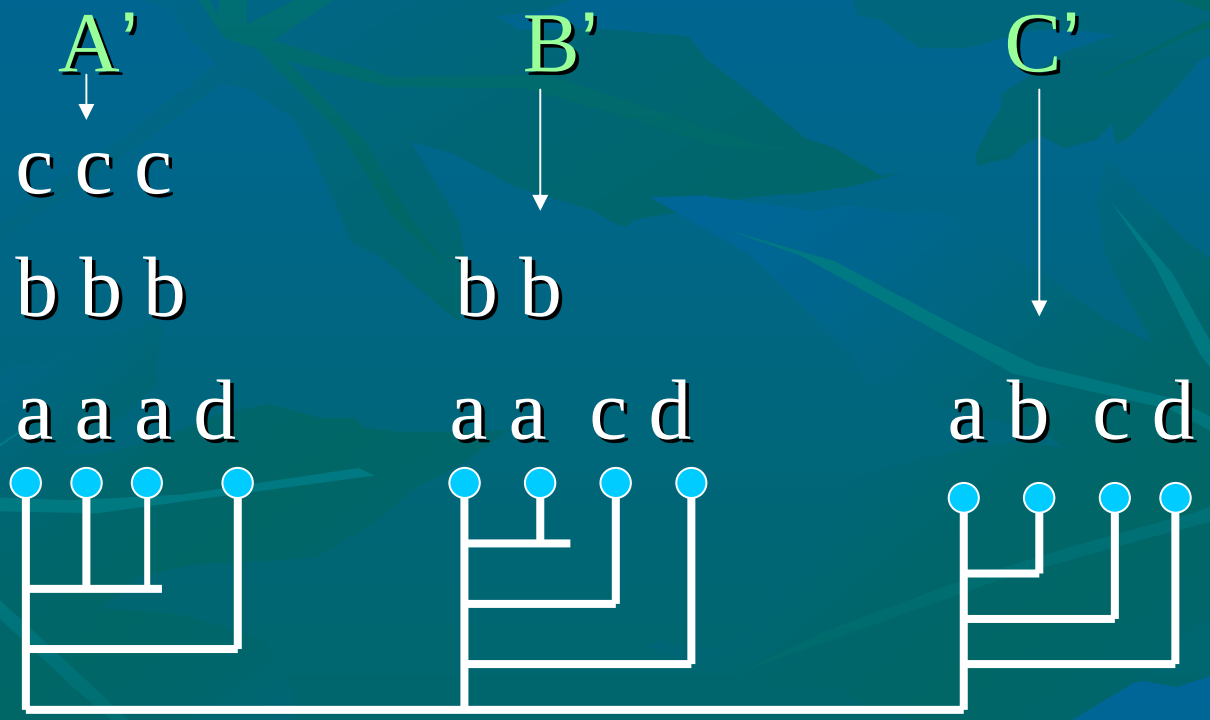
4=(2)+(2) - order has no significance

4-1=3 because order has no significance.



4=(3)+1

Recursion of *n*=3 within *n*=4.



Organic number 4 (partial example)

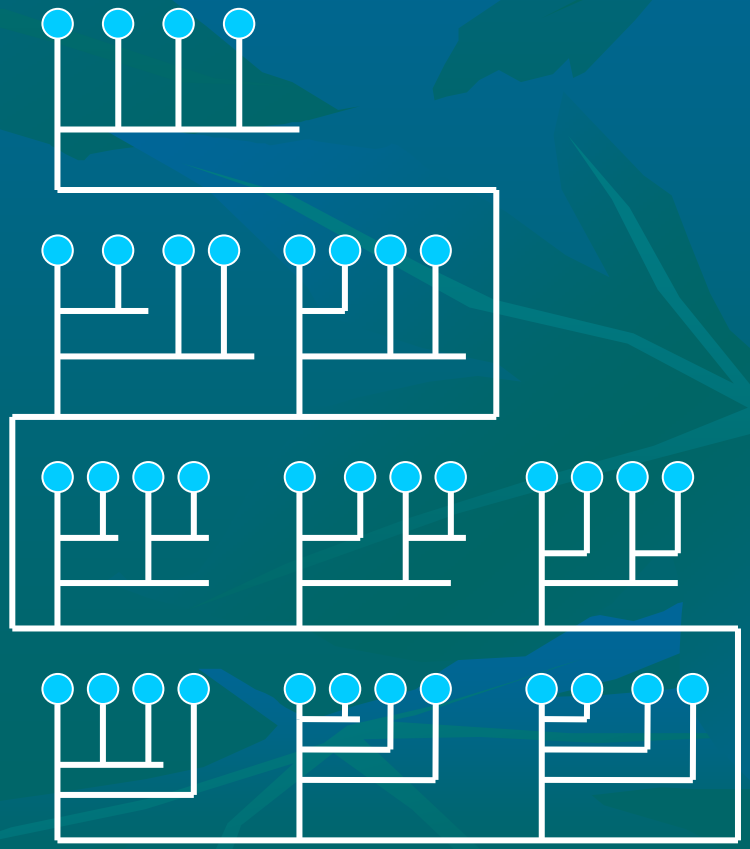
There are 9 different distinctions in 4.

4=(1)+(1)+(1)+(1)

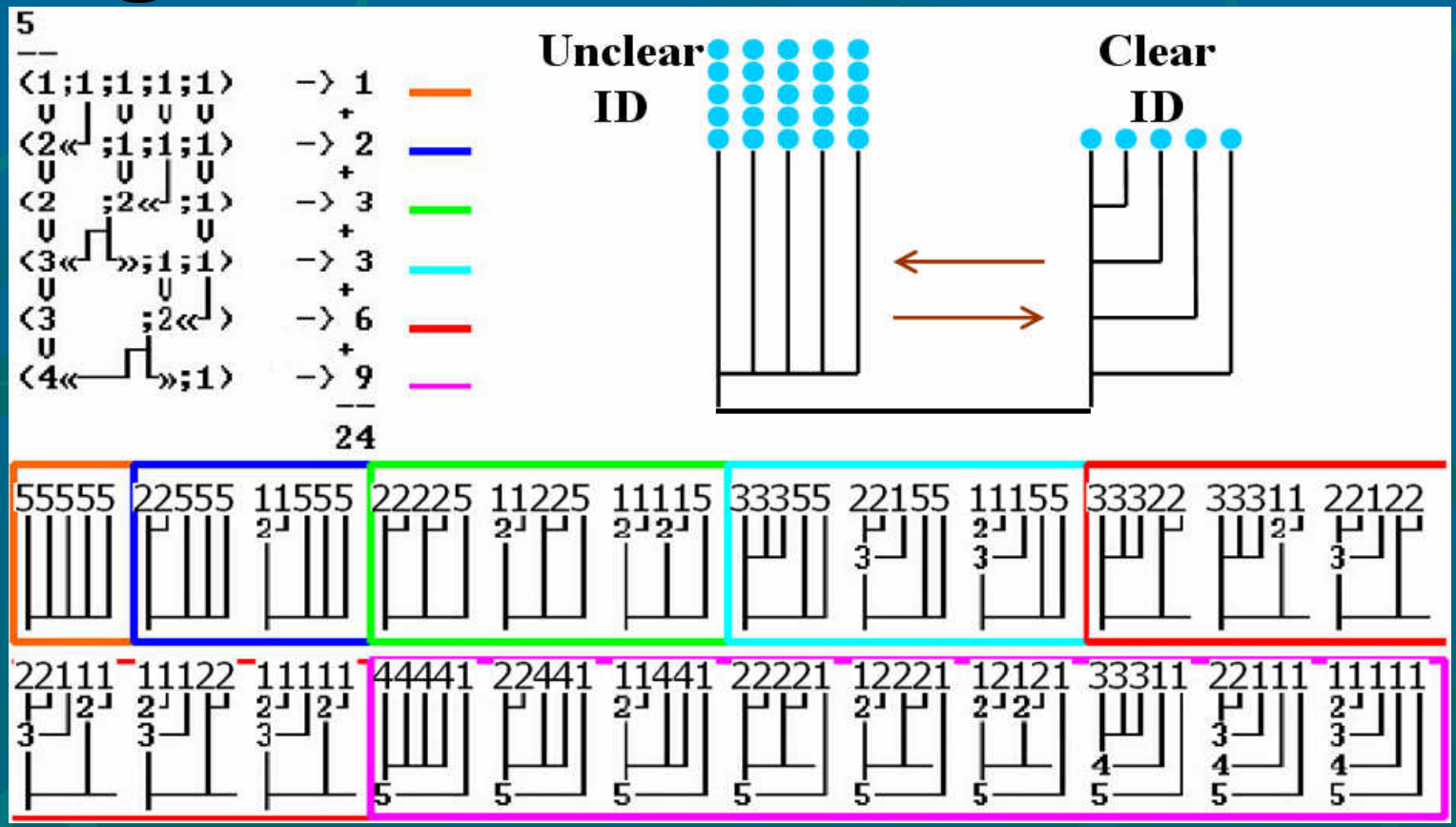
4=(2)+(1)+(1)

4=(2)+(2)

4=(3)+1

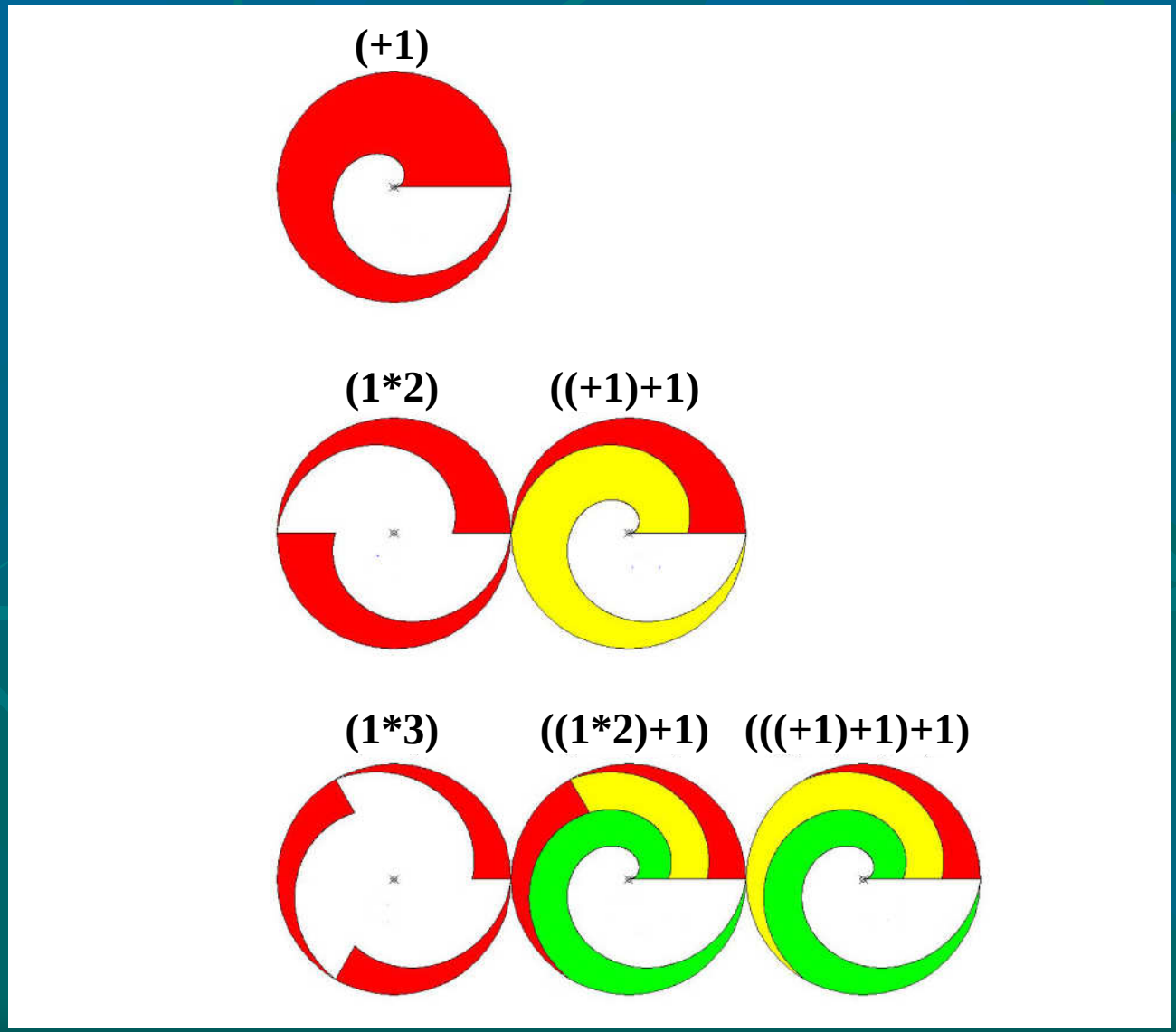


Organic Number 5 (partial example)



The Organic Numbers enable systematic research between symmetrical superposition of identities, and asymmetrical crisp identities. Such a research trains the researcher's mind to get things form several points of view and enrich his ability to act under uncertain conditions

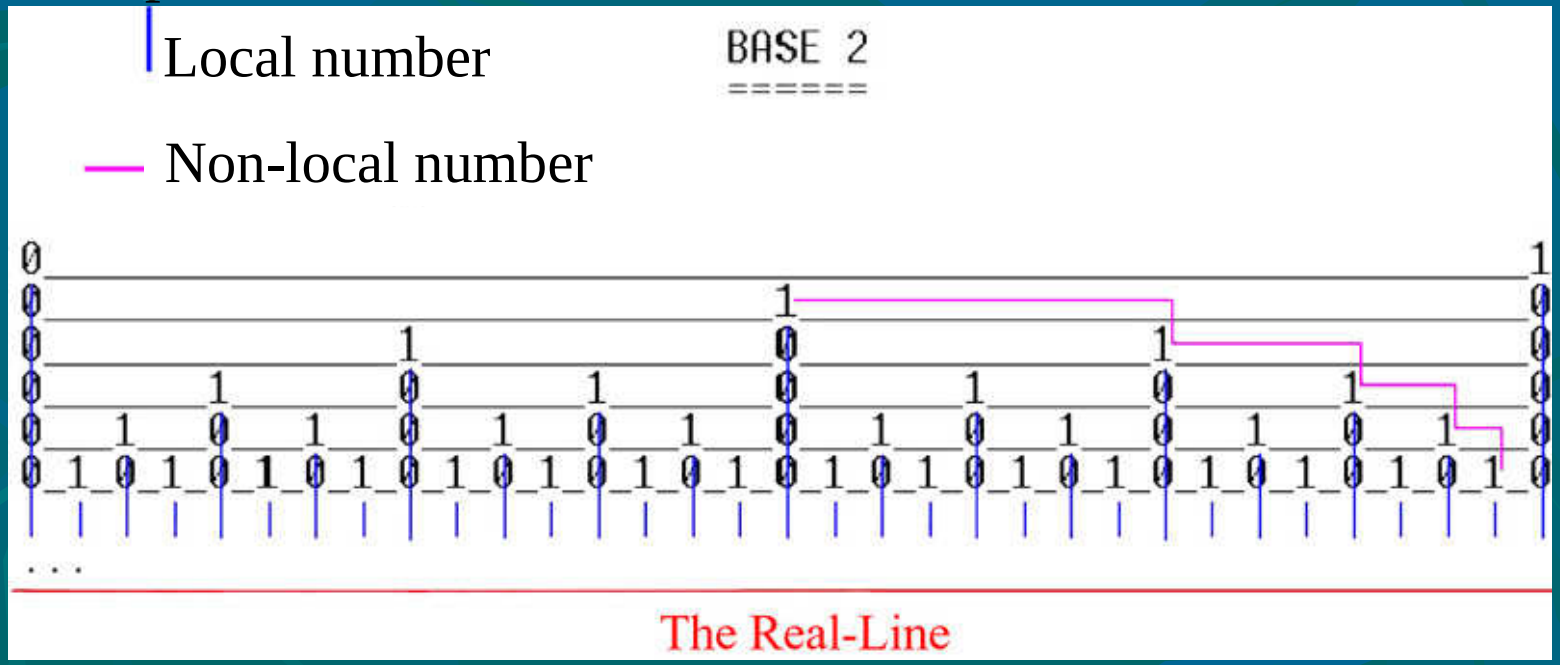
Symmetry and arithmetic



Locality, Non-locality and the Real-line

If we define the real-line as a non-local urelement, then no set is a continuum. By studying Locality and Non-locality along the real line we discover a new kind of numbers, **non-local numbers**.

For example:

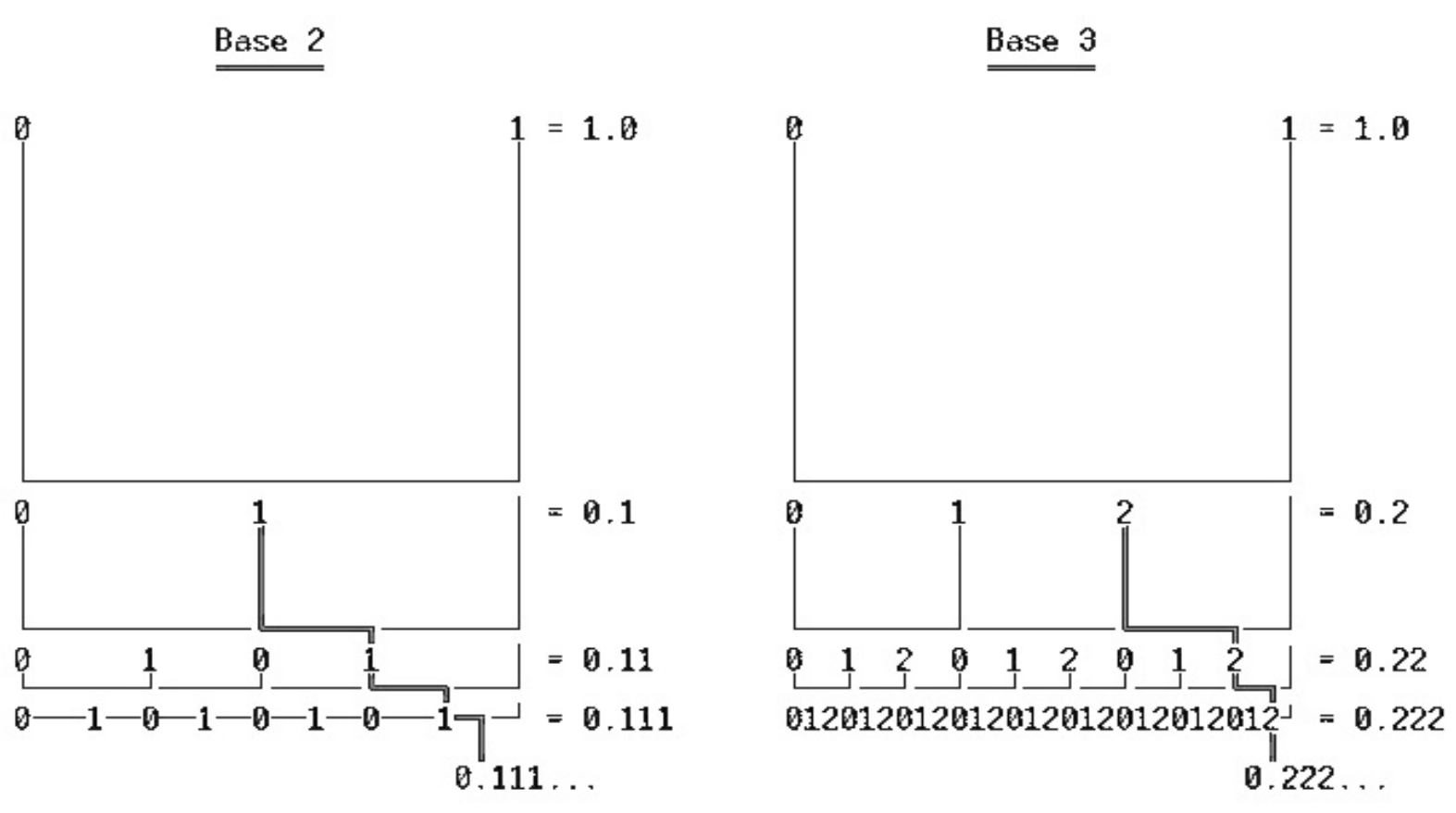


The diagram above is a spatial proof that 0.111… is not a base 2 representation of number ***1***, but the non-local number ***0.111… < 1***.

The exact location of a non-local number does not exist.

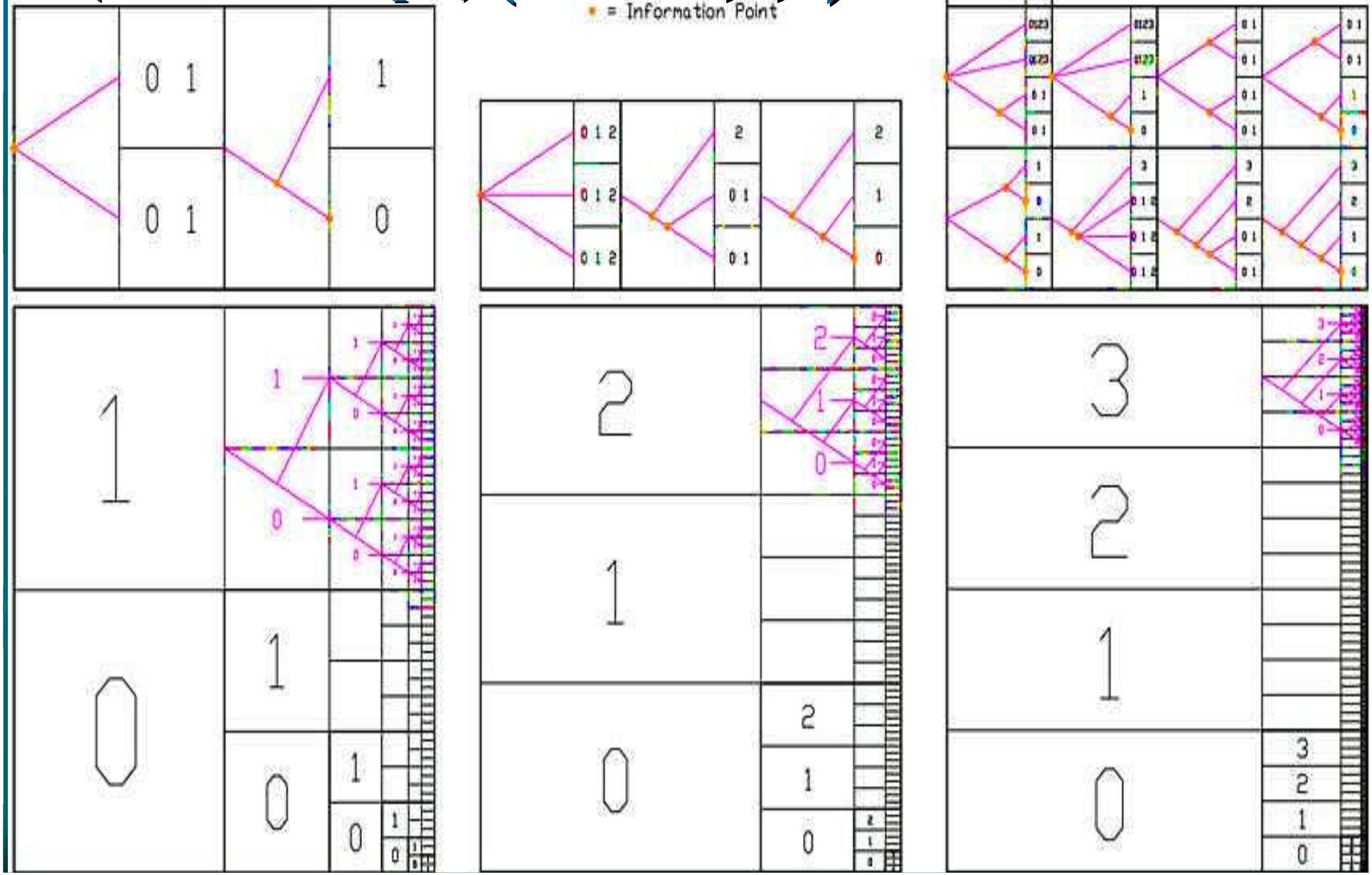
Non-local Numbers

One asks: “In that case, what number exists between ***0.111…*** [base 2] and ***1***?”. The answer is “Any given base ***n>1*** (***k=n-1***) non-local number ***0.kkk…***”, for example:

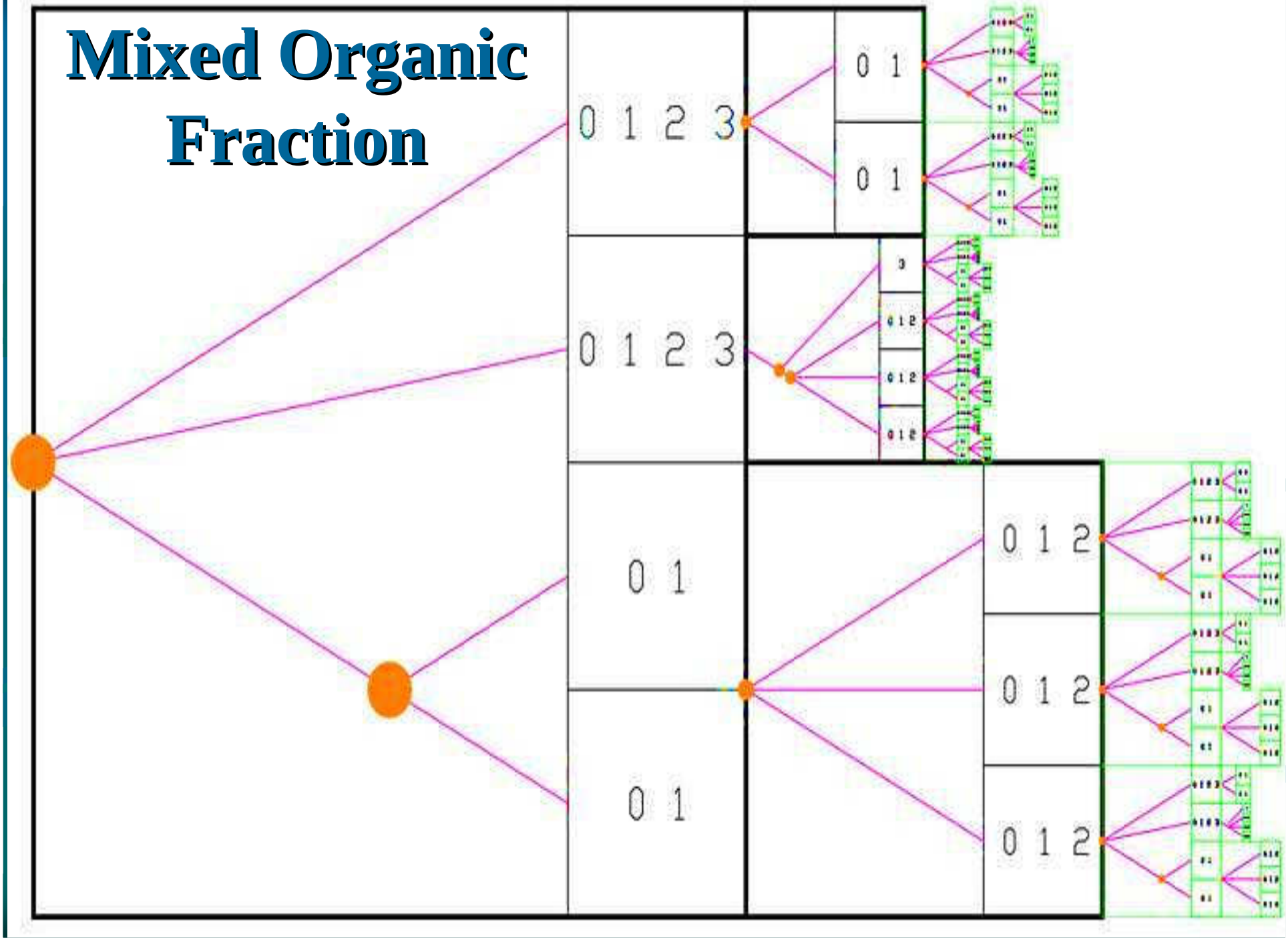


Organic Fractions

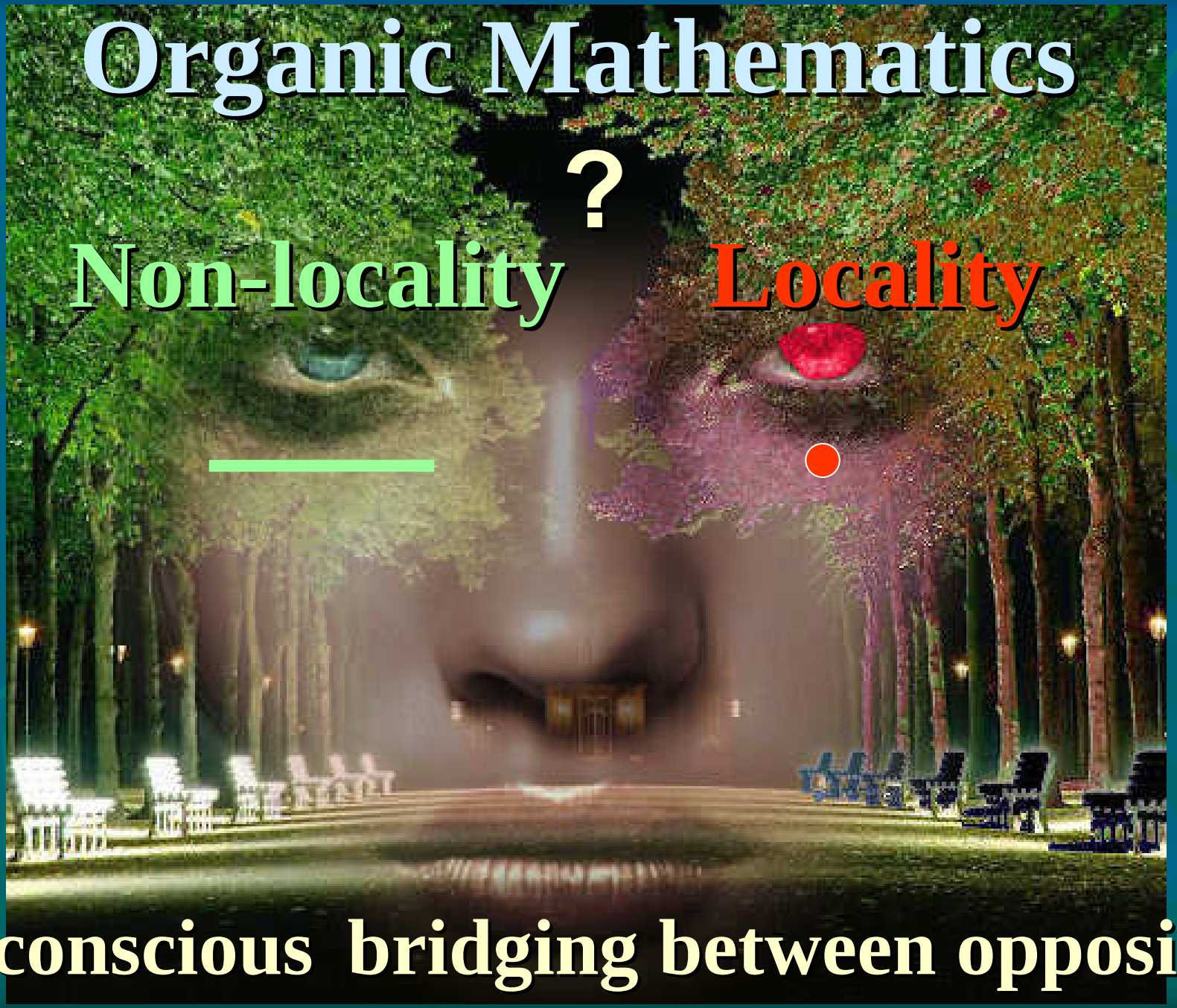
(Partial example) (bases 2,3,4)



Mixed Organic Fraction



Organic Mathematics



A conscious bridging between opposites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Thank you