The amount and the volume

A number of things (atoms, molecules, apples, pears, etc.) are regularly distributed on the surface. **First, let's assume a circle of some radius with the circumference at which things are regularly distributed.** Instead of things, there could be a certain amount of energy or matter. Knowing the circumference of the circle gives us the density with which things are distributed. If we reduce the radius of the circle, the density of the placement of things will be greater. If we increase the radius of the circle so the density of the placement of things will be less. This is valid for two-dimensional space called the surface. Where the distance from the beginning is the radius. What does it mean? If we have three-dimensional space, see a volume, the density drops more sharply with a larger radius then the two-dimensional space. The reason is clear. **The greater the number of dimensions the greater the dissipation of things (the matter) or the energy. See the entropy.**

We all know Newton's Law of Gravity - **the attractive force between two bodies decreases with the square of the distance between such bodies**. *Or let's look at the expansion of the universe, if at the beginning there was maximum energy or mass. I do not write more about the inflationary stage of the universe, when its energy soared at the expense of the negative energy of gravity.*

There is a difference between one-dimensional, two-dimensional, three-dimensional and multidimensional spaces. **The gravitational force in one-dimensional space remains constant regardless of the distance.** Gravitational force in two-dimensional space decreases with distance (area radius). **Gravitational force in three-dimensional space decreases with the square of distance**, etc. The time arrow cannot exist in one-dimensional space. Only in two and multidimensional spaces where there are more possibilities of arrangement - see the entropy.

Projecting smaller lines onto larger lines. Have a look at the projection made by George Cantor. The „density" does not depend on line size. In the reality of a universe where there are fundamental parts, it is obvious that the density of parts decreases with increasing area.

The more space the more ways to organize the elements. See Fig. 1.

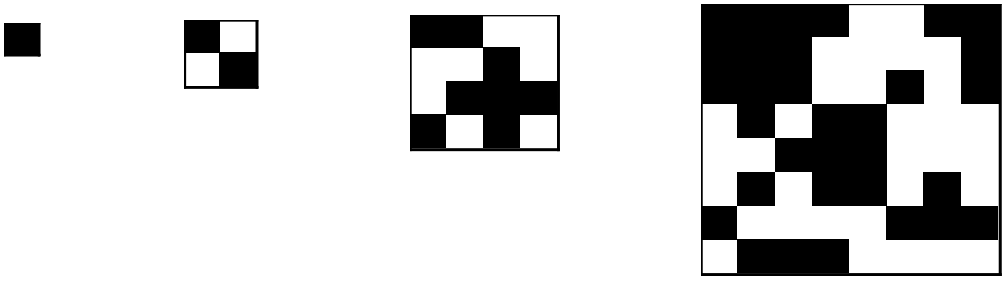

Fig. 1 – a possible distribution of elements (black marked) in squares 1x1, 2x2, 4x4 and 8x8

How many ways are there to distribute black squares into different shapes in a large square? That depends on the number of squares. With one black square the size of a large square 2x2 one square the number of ways is equal to 4. With two black squares in the same 2x2 square, the number of ways is equal to 10. For larger squares as 8x8 or 16x16 the number of ways is a very big number. A certain arrangement of elements may remind us of something. Make sense, in other words. Whether a picture or a letter. See Fig. 2.

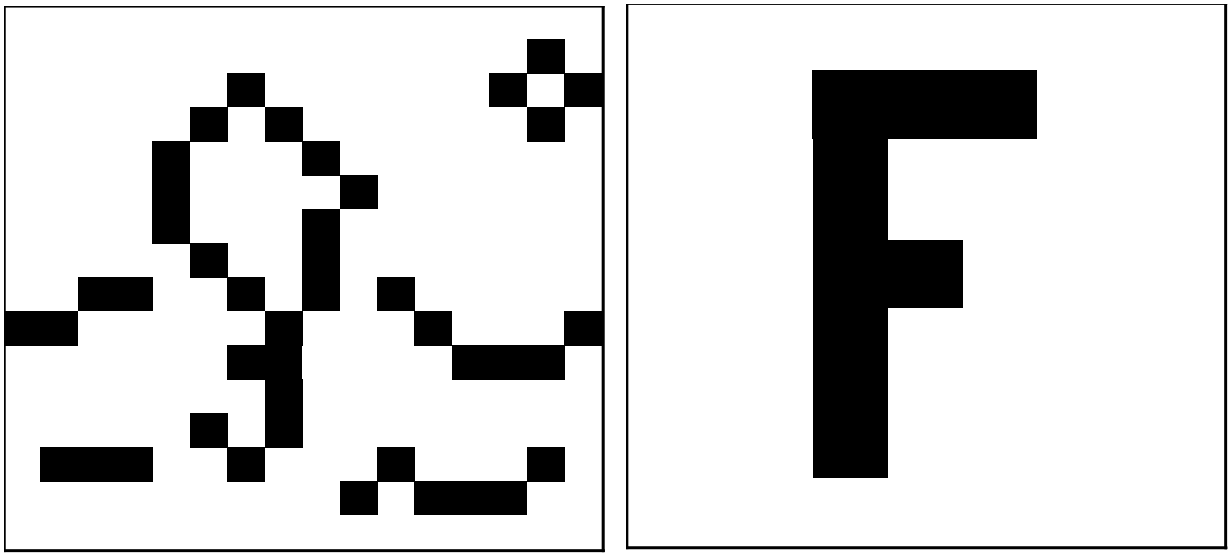

Fig. 2 – a distribution of elements (black marked) in squares 16x16

Go back to the initial conditions. I mean the basic shapes in two dimensional space. For the first time there is only one square. After some time there are several squares. For the first view we predict all squares are equal to each other. I´v remebered at the creation of our universe. What doeas it mean? **The structures in the beginning of our universe had to diveded to small**

structures. *In the same way as with dividing of cells in biology. But all cells are different to each other (the shape, the volume, the rhytm of the „living" moving etc).*

In the beginning of our universe there could be only one or several structures which become larger through the time. But such structures were divided into small different structures. After that the inflation stage and we have the history of our universe. I mean the suitable model of the history – not a reality.

The larger area of the space the more number of combinations.

to be continued

Go back to a density. Of course in two-dimensional space. For the first approach, there are two circles with different radii. A certain amount of something (atoms, elements, electron orbits) with a unit size is distributed in the first circle with a smaller radius. If the quantity is moved to a circle with a larger radius, it is clear that the unit of quantity will remain the same but will be spread over a much larger circumference. See the Fig. 3.

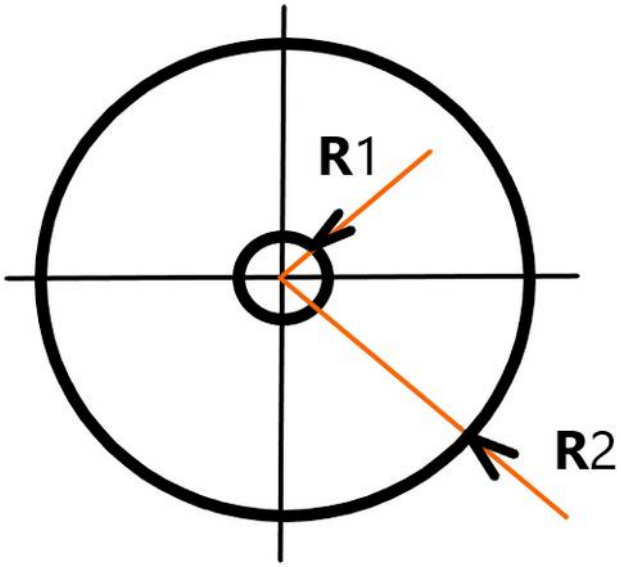

Fig. 3 – two circles with a different radius

to be continued