Comparison of infinitely large and infinitely small quantities. Formatting of three-dimensional space.

(A reduction of all linear and volume values of the space, as well as objects contained in the space, to the unified system of measures).

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Abstract. The three-dimensional space formatting allows to operate on infinitely large and infinitely small quantities confidently, without any contradictions, paradoxes and uncertainties.

We use the real space for the main theoretical constructs as spatial model.
We use Dekart coordinate system as a volumetric scale.

Notation:
R – a linear measuring unit.
A linear measuring unit **R** is an arbitrarily chosen linear value, which is further the only linear measuring base for all (either large or small) distances in the real space (**R** selected once and the same for all further calculations).
(for clarity sake **R** can be assumed to be equal to some amount of, for example, meters)

n – a nonfinite quantitative indicator,
which commonly means nonfinite quantitative value.
In particular, a nonfinite quantitative indicator **n** could be as a sufficiently large number.
A nonfinite quantitative indicator **n** is a logical analog of quantitative expression for a converging to infinity variable (popularly -infinity (∞)).

L - geometric ray(the length of a geometric ray). A ray is a linear value, bounded from one side.
There are two possible approaches to a geometric ray **L** length representation problem :

The first approach
The length of a ray is defined as a theoretical model, consisting of dimensionless points nonclosed set of (the common interpretation).

The second approach
The length of a ray is defined as a nonclosed set of calibrated linear values (segments).
The length of any segment is defined as a set of the smallest segments with length which is not equal to zero.
We use the second approach. In this approach a linear measuring unit **R** is taken as a ray basis (some segment of a certain length). The length a ray is taken equal to the product of a measuring unit **R** and a nonfinite quantitative indicator **n**.

Properties of linear dimensional unit **R**
A length **R** (after selecting its particular value) is taken to be mutually dependent
1. On the length of a ray, consisting of sections **R** ,

$$L = Rn \tag{1}$$

2. On point segments **T**, which compose a length **R**
where **T** is the length, obtained from

$$T = \frac{R}{n} \tag{2}$$

Total dependence is taken the following

$$\frac{L}{R} = \frac{R}{T} = n \tag{3}$$

where a linear measuring unit **R** consists of **n** "number" of point segments **T**
and where a ray **L** consists of **n** "number" of measuring segments **R**.

$$T = \frac{R}{n} \tag{2}$$

$$R = Tn \tag{4}$$

Let's define the linear length of the three-dimensional space:
A geometric ray is a half-line.
(a line consists of two rays).
The length of axis **0X** is a ray in one direction
(a line in both directions).
The length of a geometric ray **L** is equal to the product of a measuring unit **R** and a quantitative value of **n**.

$$L = Rn \tag{1}$$

A value of **n** can be interpreted not only as converging to infinity quantitative value.
For solving of particular problems, not depending on the duration of the geometric beam, the value of n can be interpreted as a sufficiently large number.

Taking the original format $\frac{L}{R} = \frac{R}{T} = n$ (3)

we thus format without exception all of the spatial variable.
It looks like this:
The length of a geometric line **E** is equal to the sum of its rays length.

$$E = 2L = 2Rn \tag{5}$$

Where $2L$ is the length of a line, expressed by the length of a ray,
Where $2Rn$ is the length of line, expressed by measuring units (segments of the length **R**).
Also we can express the length of a line in terms of point segments **T** ,
Then **E** will be the form:

$$E = 2Tn^2 \tag{6}$$

A world line **E** (a geometric line having a square cross-section T^2 (with the parties T))
The length of a world line

$$E = 2L = 2Rn = 2Tn^2 \qquad (7)$$

The volume of the world line V_E (of T^2 cut section),

$$V_E = ET^2 = 2RnT^2 = 2T^3n^2 = 2R^2T \qquad (8)$$

A world ray is a ray with initial cross-section T^2
The length of a world ray

$$L = Rn = Tn^2 \qquad (9)$$

The volume of a world ray

$$V_L = T^2Rn = T^3n^2 \qquad (10)$$

The area measuring unit (square measure).
R^2
Is a square which sides are **R**
And area

$$R^2 = RR = TnTn = T^2n^2 \qquad (11)$$

A world tape (a strip of R width (both directions along the axis)).
The area of a world tape is equal to

$$S_{ER} = 2R^2n = 2RRn = 2TnTnn = 2T^2n^3 \qquad (12)$$

A world sheet **W** (a full plane).
The area of a world sheet **W** is equal to epy product of **2n** and the world tape area:

$$W = 2n2R^2n = 4RRnn = 4TTnnnn = 4T^2n^4 \qquad (13)$$

A world layer is a part of the space limited by parallel planes, which are located at a distance equal to an initial basic cross-section **T** from each other.
The volume of a world layer is equal to

$$V_T = 4R^2Tn^2 = 4T^3n^4 \qquad (14)$$

A world piece is a part of the space limited by parallel planes,
which are located at a distance **R** from each other
The volume of a world piece

$$V_P = 4R^3n^2 = 4T^3n^5 \qquad (15)$$

A world rod is a part of the space. A world rod has a through square cross-section R^2

(a volume limited by two pairs of parallel planes located at a distance **R** , when the location of pairs of planes is a perpendicular to each other).

The volume of a through world rod is equal to

$$V_B = 2R^3 n = 2T^3 n^4 \tag{16}$$

A half of a world rod

$$\frac{1}{2} V_B = R^3 n = T^3 n^4 \tag{17}$$

A world volume

$$V_G = 8R^3 n^3 \tag{18}$$

Hence, the multiplicity of a world volume (multiplicity of the adequate three-dimensional space) is $8n^3$ in the dimension of R^3.

An obvious consequence of the above formatting is the following:
If the entire volume of the observable part of the Universe is taken while formatting the space to be equal to R^3, then the ration between the volume of the observable part of the Universe and its actual volume will be equal to $\frac{1}{8n^3}$,
and moreover, from once accepted value R^3 (equal to a specific volume measuring in real sample units) we without any difficulties can obtain other calculations.

However, **n** – a nonfinite quantitative indicator (an analog of a converging to infinity value numerical expression (popularly - infinity (∞)), can be widely used as the number of (multiplication, division, raising to the power , without any contradictions, paradoxes and uncertainties, with the full observance severity of the final result severity).
Such the three-dimensional space formatting completely extricates problematic of infinitely small and infinitely large quantities.

The formatting of the three-dimensional space is a convenient tool for cosmological version consideration and particular physical phenomena explanation.
Having carried out the formatting of the three-dimensional space, we technically described linear values, haven’t used any theoretical assumptions.
Thus we stated the actual course of things. For this reason the formatting of the three-dimensional space does not require any additional prooves and has the status, equal to the status of “proven”.