



Zero and Infinity in Modern Mathematical System

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In modern mathematical system of the formalized reflection of objective processes in life of a world order the following catalog of figures is used: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 and ∞ . By means of these digital signs various processes and the phenomena of life of our world order are analyzed, described and predicted.

Figures 1, 2, 3, 4, 5, 6, 7, 8, 9 make utilitarian rather clear sense and a logical explanation in realization of mathematical manipulations with figure 1, as with an elementary mathematical particle. These figures make rational sense. Numbers as derivatives of manipulations (actions) with figures, facilitate process of mathematical operations. By means of figures and numbers carry out such actions as, for example, addition, subtraction, multiplication, division, extraction from a root.

But figure 0 and ∞ remain not explained in necessary degree – drop out of the strict reasoned logical laconicism characteristic and inherent in mathematics in the formalized display of objectively existing world order. It isn't explained – what information function they bear among the mathematical catalog.

Representation about 0 as "anything" and "emptiness" doesn't correspond to the strict laconic logicity accepted in mathematics.

Representation about ∞ (infinity), existing at a time with other figures, didn't get rather real explanation of function inherent in it so far. It remains so far as if mysterious and causes active search of her explanation. The standard philosophical explanation of infinity as the factor characterizing a matter in general, possessing an inexhaustibility, infinite variety of properties and communications inseparably linked with final conflicts inherent in mathematics in strict laconic logic – is precisely formalized to reflect world order life. The philosophical explanation ∞ doesn't correspond to the qualities necessary for an explanation of its essence for mathematics. The philosophical explanation ∞ conflicts to qualities inherent in a world order, such as: rotation, unity and conflict of opposites, change of qualities "+" on "-" and vice versa. And the main thing ∞ if to consider it whole all world order, doesn't possess the main quality, inherent in the whole – borders. Whole without existence of its borders can't be that – whole.

Most objectively 0 to consider as figure which has rational value designating whole, limiting the essence from another. Figure 1 and other numbers manipulating with it reflect the processes happening in general (0), influencing a state its (whole), its development or degradation, interaction with other whole.

∞ is a figure of the catalog of figures which essence is strictly rational and in this regard it is explainable. It displays process of the vital movement, namely, contact of contrasts – a single whole (0) with another whole (0), having opposite entropy function, generating new whole (0). Through this figure the world order duality, the movement of his life, conflict of opposites and the birth of the new is displayed ...

0, used in mathematical manipulations (actions), bears in itself still additional other support function – function of an auxiliary sign as well as figures 2, 3, 4, 5, 6, 7, 8, 9. In this regard figure 0 has two different qualities answering to inquiries of mathematics as sciences, for the formalized display of the objective world and processes to it inherent. Because figure 0 has two different functional qualities is complicates judgment of its real mission.

These interpretations of zero and infinity correlate with new achievements in the field of gravitation, cosmology, the general theory of relativity. So in work [1] on the basis of the exact solution of the equations of Einstein in OTO (allgemeine Relativitätstheorie) it is shown that the inner world of elementary particles (an electron, a proton) represents the Universe squeezed by own gravitational field to very small sizes from the point of view of the external observer. That is in small part (electron) contains whole (Universe). On the basis of it mathematically exact result the conclusion about inclusion by part (0) whole is drawn (∞) and the general statement is formulated: part = whole, i.e. $0 = \infty$.

Conclusion

The catalog of figures 0, 1, 2, 3, 4, 5, 6, 7, 8, 9 and ∞ far back in the past was created by ancient mathematics not only with the utilitarian household purpose, but also with more significant purpose – the formalized knowledge and an explanation of life of objectively existing world order.