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Mathematical Counterpoint: A Short Essay on the Point

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Synopsis

The dot is the simplest graphic symbol, and in the most diverse areas of human thought it signifies the original principle. At the point as a symbol lies the basis of antinomy in the corresponding areas; as the beginning of everything, the point is and is not. The dot represents emptiness, but also fullness. It is imagined on the border of being and non-being, either as a place of transition from what we consider reality in everyday life — to its negation, or, on the contrary, as a transition from otherworldly reality to nothingness here. In any case, the point connects two worlds: the world of the real and the world of the imagined; it is a place of transcendence.

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In ontology, a dot denotes Beginning, Unit, Primordial Cause; it is the ontological Center from which everything expands; it is the Active Principle,

Spirit, Reason, God, Iota of Kabbalistic philosophy, which itself is marked with the letter Iota, which contains a point. Hence it is the masculine principle, which has not yet separated from itself its feminine appendage, and as omnipotent, the androgen, is born of itself. The dot is a symbol of the Unspeakable, the Unknowable, etc. From the cosmic point of view, a point is a particle of the Sun or an atom of the Sun, from which the world, atom, electron, etc. are formed. It is the center of the world, being and non-being, energy and nothing. The point of darkness and the point of light — this is the relationship between the center of the central and the reverse perspective.

The clearest definition of a point was formed by the Pythagorean school: *a point is a unit that has a position*. It directly follows from this definition that a geometric body is a set, a set of points, and discussions of triangular, polygonal and pyramidal numbers have in mind the construction of geometric shapes from points. And then, from the point, the whole physical world is formed. Pythagorean things are numbers interpreted in the sense that bodies represent the sum of points and that the properties of bodies are related to the properties of the corresponding numbers. This definition of the point prevailed in Aristotle's time and lasted until Euclid. In the spirit of Euclid's definition (*a point is that which has no part*), a point is imagined as a tiny body of vanishing small size: a point is a body on the verge of its annihilation.

The Elean school constantly opposed the Pythagorean school and its many points, or monads; for there could be only one principle — being — that was material and immovable. The Elyos interpreted the One exclusively by negation, the removal of multitudes, peculiarities, movements, and the like; this clearly indicates that the idea of one can be kept in mind only if we have not removed from it the multitude of units, which stand in relation to it. The entire history of mathematics stretched between the Pythagorean and Euclidean definitions. The Pythagorean understanding was often resurrected. Isn't our time also inclined to interpret a point in the spirit of Pythagoras, even though Pythagorean precision is far from inherent in it?

In the 19th century, we come across endless attempts to see space as a consequence of the movement of points (within Herbert's school, and then in Riemann's brilliant consideration). Moving forward, the point gives a

one-dimensional whole — a line; the line with its movement gives a two-dimensional whole — the surface; the movement of the surface leads to a three-dimensional whole — space; the latter underlies the four-dimensional space, etc. The different character of these movements, according to Riemann, results in the different creation of space of this and that dimension — their different curvature. Riemann's theory was generally accepted. But, despite all the sophistication, it could never hide the basic idea that curved shapes represent space, and spaces in all their diversity are composed of points.

Georg Cantor, without any hesitation, adopted the concept according to which space consists of points as units. According to Cantor, everything should be viewed as a multitude of wholes, mentally united in one object and composed of elements, completely different from each other, with individual features, which in the process of separation give units, while only the multitude is a general concept, the general concept of simple and real number. Although Cantor's idea was to extend the set through natural numbers beyond the boundaries of the finite and create transfinite numbers and types of order, he still did not abandon the old thesis that everything is a set, and he also did not abandon the Pythagorean teaching that things are numbers; and not only did he not abandon them, but he created transfinite numbers precisely so that he would always have the right to say that everything is a number. The real meaning of his work was to be constantly understood as something discrete, to compose a continuum of points and to express the multitude that follows from there — by numbers.

If according to the Pythagorean notion a point represents a unit, according to Euclid it is understood as nothing. In the first case, the dot symbolizes a unit, such as balls on a computer, dots marking a sum, three dots in mathematics, for example, in arrays, which show that the previously marked members do not end the set, but that there are analogous members. each of which, like an imaginary unit, is marked by a single dot. In the second case, the dots provide a gap. Such a point, as a symbol of absence, acquired, of course, the meaning of arithmetic zero in the Indian and Arabic numeral systems. Our modern number zero (0) grew over time, and was originally written in the form of a very small circle (o).

One and zero, as the meanings of a point, represent the limit values; but a point can also be viewed as something that aspires to these limit values, when we interpret it as a differential, and that in a dual sense. We can observe a point as a spirit of vanished magnitude, that is, one that disappears, and then it represents a kind of zero: it is Newton's flux. In the second case, the point represents the spirit of the emerging magnitude: Leibniz differentials.

The difference in the notion of space among the two founders of the infinitesimal calculus is not, of course, accidental. According to Leibniz, true reality consists of points — monads, metaphysical points (*points metaphysiques*) or substantial points (*points de substance*), the order of coexistence of things, that is, something derived. However, according to Newton, the real reality is considered to be the *sensorium Dei*, God's sense, the Divine organ, which contains the world, the space of the world — continuous, indivisible, in whose reality points, that is, zeros, represent something secondary and derived.

Here we should mention the interpretation of Newton's younger compatriot, who declared the middle of the world, ether, as the true reality, while he considered atoms and some other primary elements of the material world to be gaps. We mean Lord Clifford's theory of atoms, according to which there are defects at some points in the four-dimensional space; in the place of the ether's outflow, these defects represent the points at which the ether is destroyed and disappears, where it is leaking from our world; we perceive the suction action of these places of swelling as a force of gravity.

A dot is a symbol of the compression of this or that physical process into some physical center. The grain in the symbolic representation of all nations; a cell or carrier of life; the sperm, or the egg; monad as a living organism; conceived as the material minimum, the posthumous bearer of life for the future resurrection, that is, the embryo of the body to be resurrected, or sacrum in Judaism; the navel as the center and starting point of the whole organism.

All this presupposes a positive meaning of the symbolic point, but it also carries a subordinate negative moment, since, in itself, it represents nothing compared to what has yet to become or is concentrated in it. In addition, it needs to come out of itself, to cease to exist, to die, to realize its potential.

The grain will not come to life if it does not die; the cell will not develop into an organism, if it is not destroyed; the sperm will dissolve in the egg to fertilize it, to create life out of this dissolution.

One law applies to all: BEING STATIONS WILL BE ONLY THROUGH THE NEGATION OF BEING.