

LexiClone

lexical cloning system



Answering *Factoid* and *Definition* Questions: On Information for an Object.

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Abstract. In this article I substantiate my position that a human being is a point of accumulation – that is, an *object*. And based on this assumption I provide a foundation for my ontological justification of Differential Linguistics: I then introduce the understanding that ‘becoming better and the best’ is what motivates an *object* to movement (and change). Then I link this position with Egoism, and to achieve an understanding of what Egoism is I find it necessary to bring in the foundations I had previously elaborated for the New Mechanics and Differential Philosophy of Cynicism. Then I affirm that an *object* seeks information in order to ‘become better and the best’, and I show that information is required egoistically and that the finding of information is made possible by asking two classes of questions: *factoid* and *definition* questions.

‘A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it’.

Max Planck

In my article *Differential Linguistics at NIST TREC* [10] I affirmed that a human being is a point of accumulation; where, in my view, a point of accumulation and an *object* are the same thing. Therefore, as I have said previously and still say now, a human being is an *object*. Moreover, *objects* are all based on the same first principle.

Definition 1. First Principle - Reality. Everything is based on the same first principle¹, which I call Reality; where Reality is everything that exists, and everything that doesn’t exist².

Objects and Subjects. As is well known, the Late Latin word *objectum* was brought into scientific usage so that one could oppose the thinking person (*subjectus*) to everything that doesn’t think [1 [Object, Subject]] But I’ve come to the conclusion that this opposition is erroneous [12, 13]. In fact, the result of a *subject’s* thinking can be measured just as exactly as the result of an *object’s* fall from a certain height onto the surface of the Earth – by measuring the *subject’s* acceleration. And if

- the result of the *subject’s* thinking
- and the result of an *object’s* fall

can be measured in the same way, then the question of the contrast between *object* and *subject* is reduced to the question of the difference in what motivates them to accelerate – in the reason for the acceleration. In other words, if the motivation to accelerate for all thinking beings coincides with the motivation to accelerated movement for all unthinking beings, then there is no difference between a *subject* and an *object*. In that case, *subjects* can be called *objects* and vice versa – *objects* can be called *subjects*. (I’ve nevertheless decided to call them all *objects*, because I’m attempting to turn inexact sciences into exact sciences and am thus inclined to follow the traditions of the exact ones. And in the exact sciences preference has historically been given to use of the term ‘*object*’.)

Acknowledgement. To Boris Borisovich Geller, with love and respect.

¹ For me the meaning of the term ‘Reality’ is close to the meaning of the term ‘substance’ as understood by Spinoza:

‘*Corollary* I. Existence appertains to the nature of substance.

Corollary II. In the nature of things, two or more substances may not be granted the same nature of attribute.’ [25].

² In other words, a unicorn and the delirious fantasies of a mentally ill person are just as much Reality as the star called the Sun and the city of Rome.

Movement. I know that a part of Reality moves and changes; where I understand movement and change to be the same thing. Based on this premise I formulate the following axiom:

Axiom 1. On Movement. Anything that could previously have happened to an *object* or could happen to it now or in the future constitutes its movement.

Definition 2. The Characteristic of an *Object's* Movement. The characteristic of an *object's* movement is its acceleration as a quantity, characterizing the speed of change according to numerical value and to direction, in time, of an *object*; where an *object* is a set³ of minimally possible portions of Reality. [2 [Acceleration]]

In line with tradition, I consider the aforementioned ‘minimally possible portions of Reality’⁴ to be ‘light quanta’ and ‘elements (sets) of an *object*’ and refer to them as such, following in this the canons of Relativistic Mechanics, Set Theory and Topology [2 [Set Theory, Topology]; 3 [Quantum Mechanics]].

Definition 3. A Minimally Possible Portion of Reality. I suppose a minimally possible portion of Reality to exist both in time and outside time. What is more:

- a minimally possible portion of Reality in a state of rest exists outside time;
- a minimally possible portion of Reality in a state of accelerated movement exists in time.

A minimally possible portion of Reality is to be either acquired or lost by an *object*. That is, in speaking of the movement of minimally possible portions of Reality I am speaking of the non-linear character of the process of acquiring or losing that minimal portion – of the character of this process falling under the description of a harmonic function. Later, within the framework of the Definition concerning the Continuousness of Acceleration, I come to an awareness that the non-linear character of the process of acquiring or losing a light quantum is in and of itself that very continuousness.

Definition 4. The Universe. That part of Reality which exists in time I call ‘the Universe’.

Consequently, the Universe consists of *objects*.

Definition 5. Non-Existent Nothing. That part of Reality which exists outside time I call ‘Nothing’⁵.

Nothing consists of nothing.

The New Mechanics. I cannot continue to demonstrate the thesis that a human person is an *object* without a preliminary formulation of the principles of the New Mechanics. Why a New Mechanics?

I know that in the course of the last three hundred years *objects* and their movements and acceleration have been described exactly (and are so described at present) according to a generally accepted system of Mechanics⁶. But that Mechanics is incapable of explaining the motivation of a pedestrian who, midway from point A to his original destination at point B, suddenly changes his mind and goes to point C. This incapacity obviously comes from the fact that the generally accepted Mechanics is forced to divide the Universe into *subjects* and *objects*. My New Mechanics, on the other hand, offers maximally exact explanations for the motivations of any movement by any *object*, thus avoiding the separation of the Universe into *subjects* and *objects*.

1. Philosophy for New Mechanics: Egocentric System of Coordinates. In choosing a System of Coordinates for the New Mechanics I have found an obvious need to reject that of Descartes⁷, adopting instead of it an Egocentric System of Coordinates derived from the speculations of G.Berkeley⁸: Reality

³ A set is a collection, an aggregate, a gathering of certain objects, referred to as its elements, which all display some characteristics in common [2 [Set]].

⁴ From a philosophical point of view the minimally possible portions of Reality can and should be equated with the *apeiron* of the ancient Greeks – ‘The *apeiron*, from which the elements [are formed]...’ Anaximander of Miletus. 610-656 B.C.

⁵ In this case I appeal to Hegel’s definition of ‘Nothing’: ‘...pure being is the *pure abstraction*, and hence it is the *absolutely negative*, which when taken immediately, is equal *nothing*. From this... a definition of the Absolute followed, that it is *nothing*... Hence, the truth of being and *nothing* alike is the *unity* of both of them; this unity is *becoming*.’ [16] A discussion of my view and interpretation of Hegel’s idea falls outside the topic of this article and is thus not included here. Nevertheless, I would like to note in passing that Hegel, in a way, defined his relation to me (although he did so 150 years before I was born) when he said that he was specifically thinking of Cynicism.

⁶ By generally accepted Mechanics I mean Newtonian and Relativistic Mechanics [3 [Newton’s Laws of Mechanics; Relativistic Quantum Mechanics]].

⁷ Descartes’ System of Coordinates is a rectilinear system of coordinates in Euclidean space [2 [Descartes’ System of Coordinates]].

⁸ Berkeley’s philosophy is currently called ‘Subjective Idealism’. [1 [Berkeley]]

exists only as long as ‘I’ exist as the centre of the Universe. And, consequently, in the event of the disappearance of my ‘I’ Reality also ceases to exist.

Having adopted the concept of Egocentrism into the New Mechanics, I decided that changes in the movement of ‘other’ *objects* of Reality [17,19,20,21,22,27] can be observed as changes in the number of ‘my’ elements, as that of a set.

2. Geometry for New Mechanics. My preference for the Egocentric System of Coordinates indicates my conscious and simultaneous choice of Topology and Theory of Sets as the divisions of mathematics to be used in the New Mechanics. Observing the changes in the Universe from the position of Egocentrism means that Geometry has no place in the New Mechanics, since neither Topology nor Set Theory recognize ‘distance between’⁹ as a measure-metric [2 [Metric]], but only a quantitative measure termed ‘power of set’¹⁰. For example, when my traveler has arrived at point C I say: this pedestrian has lost (or acquired) N minimally possible portions of Reality and has thus changed the power of the set he represented when he left point A to go to point B but turned midway to go to point C instead.

3. Mechanicism and UltraRelativism for New Mechanics. My New Mechanics is strictly mechanistic in the sense that all changes in the Universe are caused by either the acquisition or the loss of minimally possible portions of Reality. The New Mechanics is also *ultra*Relativistic; where *ultra*Relativism means a ubiquitous emphasis on the constant changeability of Reality [1 [Mechanicism; Relativism]].

Definition 6. Fact. What one calls and considers to be a fact is a change in the acceleration of the movement of an *object*, fixed¹¹ as a change in the power of the set of its elements, within a finite interval of time.

In creating the New Mechanics I also decided that both the observed *object* of a given fact and its observer always change the power of the set of their elements as a result of the observation [6,7,8]; and that it is precisely the acceleration of the movement that leads to the change in the power of the *object’s* set.

Definition 7. Observation and Interaction. The elements of an observer’s set are either included in or excluded from the set of the elements of what is observed. Such a change in the power of the observer and the observed is called ‘interaction’. This means that such

- external characteristics of an *object* as colour, smell, dimensions, etc.
- as well as such internal characteristics as mass (weight)

can be observed only as the result of interaction.

Definition 8. Time. Time is a parameter [11] – a quantity, the value of which serves to distinguish the power of the sets of observer and observed.

The accelerated movement of an *object* can be observed in time because such movement can be broken down into a multiplicity of unique¹² intervals, which are distinguishable in so far as in each one of them the observing and the observed *object* have powers of sets distinguishable from those that relate to intervals of time directly preceding or directly following them.

It is impossible to describe what is observed in a state of rest in time – in that case, the power of the set of what is observed is the same for any two intervals of time.

I’ve also come to the conclusion that uniform movement – that is, unaccelerated movement – cannot be observed because all observation is interaction. And interaction is itself an adoption of acceleration, which indicates a passage from uniform to accelerated movement.

Probability. As far as I know, all the exact sciences without exception use probability when they describe regularities in the behaviour of an *object*. Indeed, to model a situation where certain events involving certain *objects* occur exactly as they occurred previously is, in practical terms, impossible. [2 [Probability Theory; Probability]]. The New Mechanics is therefore a probability theory:

⁹ Distance is a geometrical understanding, the content of which depends on the objects for which it is defined [2 [Distance]].

¹⁰ The power of a set is an understanding, generalized from the set’s arbitrary rules, of the ‘number of elements’ [2 [Set Theory]].

¹¹ The Merriam-Webster Online Dictionary says that the word ‘fix’ means, among other things, ‘to make firm, stable, or stationary.’

¹² The Merriam-Webster Online Dictionary affirms that the term ‘unique’ implies in particular ‘being the only one’. But I would like to point out that this affirmation – ‘being the only one’ – has a very specialized meaning in Philosophy. And the Merriam-Webster writers either don’t know it, or ignore it. Below I present – for unavoidable and harsh criticism – my own definition of uniqueness.

Definition 9. Probability. I take probability to be a numerical, statistical characteristic of the possibility of occurrence of certain specific events for similar *objects* in certain specific circumstances object to being repeated an unlimited number of times.

Philosophy. The Pythagoreans. I can and must be considered a continuator of the numerological tradition of the Pythagoreans¹³ in the sense that I, like them, am inclined to numerological mysticism; where I understand the numerological mysticism of the Pythagoreans to be the reduction of *objects* to points and figures, and then to numbers. (Explaining the nature of numbers and figures is beyond the scope of this article¹⁴).

Form and Content of Objects. I agree with Aristotle's observation: 'by the matter I mean... the bronze, by the shape the plan of its form, and by the compound of these the statue.' [4 [1029^α.5]]. This means that

- that I consider the content of an *object* to be a set of minimally possible portions of Reality in a state of accelerated movement
- the overwhelming majority of which (within the bounds of reasonable statistical error) are moving in the same direction
- with practically the same (within the bounds of acceptable statistical error) rate of acceleration
- forming a certain three-dimensional volume; I call this volume the form of the *object*.

In other words, an *object* is, for me, what another *object* receives as a set of minimal portions of Reality, in time.

In the same way, a thrown stone remains the *object* of the one who threw it as long and in so far as the stone moves with the same rate of acceleration and in the same direction as the overwhelming majority of the minimal portions of Reality constituting the *object* that threw the stone.

The Three-Dimensionality of Form. I am unaware of any *object* in the Universe that is not three-dimensional. Therefore I affirm that the form of *objects* is always three-dimensional¹⁵.

Mass (Weight) as Content. I consider the concept of mass (weight) in traditional Mechanics to correspond in meaning to an *object's* content, since mass (as well as weight) is an internal characteristic of an *object* of the Universe.

Definition 10. Density. The relation of form to content and content to form for *objects* of the Universe is considered to be a qualitative measure. That measure is called 'Density'.

Definition 11. Point of Accumulation. A 'point of accumulation'¹⁶ is an *object* such that in any part of its neighborhood¹⁷

- there is always at least one minimal portion of Reality coming into the composition of the given *object* that is moving with almost the same rate of acceleration and in almost the same direction;
- or there exists a set of minimal portions of Reality coming into the composition of the given *object* that is moving with almost the same rate of acceleration and in almost the same direction.

Definition 12. Uniqueness. Uniqueness is a statistical quantity: an *object*, as a point of accumulation, is unique within certain bounds of probability.

Definition 13. Material Point. I call a material point a point of accumulation which has only content.

But in so far as all *objects* of the Universe have form and content, material points don't exist in the Universe. (Material points are two-dimensional *orispheres* in Lobachevskii's sense, rather than revolving

¹³ I have in mind primarily the pre-Platonic 'esoterics', the so-called 'mathematicists': Philolaus, in part Speusippus, Arkhetas of Tarentum. In general allusions to the Pythagoreans can be pointed out in the works of Aristotle [1, [Pythagoras, The Pythagoreans]; 4].

¹⁴ But, without going into detail, I would like to draw the reader's attention to the fact that the definition of a natural number [2 [Number]] provided by G. Cantor is erroneous from my point of view.

¹⁵ A light quantum isn't an *object* – for instance, according to Relativistic Mechanics a *quantum* does not have a shape.

¹⁶ A point of accumulation is the boundary point of the set M – a point x of the topological space $X \supset M$, any neighborhood of which contains an infinite number of points of the set M ; where the environs, neighborhoods of point x in the topological space X is the set $U \subset X$, for which x is an internal point. [2 [Point of Accumulation, Environs, Topology]]

¹⁷ A neighborhood is a set which contains an open set containing the point x . [2 [Environment]]

bodies in Lyapunov's sense [2 [Lobachevskii Geometry; Orisphere; Reiman Geometry], 34¹⁸,35,36,37,38]; where I speculate that any *object* is a defective, imperfect revolving body. (A more detailed examination of the problem of the measure of objects' forms falls outside the objectives of this article.))

I call the density of material points the 'Constant Density' P:

$$P = \frac{m_1}{l_1} = \frac{m_2}{l_2},$$

where m_1 and m_2 are respectively the content of two material points,

where l_1 and l_2 are respectively the forms of two material points.

Definition 14. The Continuously Changing Density of Points of Accumulation. I call the density of points of accumulation the 'Continuously Changing Densities' P' and P'':

$$P' = \frac{m}{l + dl} \quad \text{and} \quad P'' = \frac{l}{m + dm}$$

where m_1 and m_2 are respectively the content of two unique points of accumulation,

where l_1 and l_2 are respectively the forms of two unique points of accumulation,

where dm stands for magnetic properties¹⁹ and dl for electrical properties and are the increase in content and form of two unique points of accumulation by comparison with the Constant Density of a material point with the same (constant) content P; I also call dm and dl the 'defects' of the points of accumulation.

Definition 15. Better. How much 'better' a point of accumulation has become is measured by how small is the defect dm and dl of the given point of accumulation.

Definition 16. The Best. The complete absence of defects in an *object* is the best²⁰.

If a pedestrian begins moving from point A to point B and suddenly turns towards point C, he does it in an effort to lessen or not augment his defect, and thus to become better and/or the best. This clear recognition of a motive for the spontaneous change in the movement of an object constitutes the cardinal distinction between the New Mechanics and generally accepted Mechanics (with the former succeeding the latter, by the logic of evolution).

The One Law of Nature Presented as a Formula. The One Law of Nature for points of accumulation, presented as a formula, looks like this:

$$\frac{m_1}{l_1 + dl} * tr \left(\frac{dl}{dt} \right) * \frac{m_2}{l_2 + dl} * tr' \left(\frac{dl}{dt} \right) * d \left(\frac{L}{M} \right) - F = 0;$$

or

$$\frac{l_1}{m_1 + dm} * tr \left(\frac{dm}{dt} \right) * \frac{l_2}{m_2 + dm} * tr' \left(\frac{dm}{dt} \right) * d \left(\frac{M}{L} \right) - F = 0;$$

where $m_1/(l_1 + dl)$ or/and $l_1/(m_1 + dl)$ is the Continuously Changing Density of the first point of accumulation;

where $m_2/(l_2 + dl)$ or/and $l_2/(m_2 + dl)$ is the Continuously Changing Density of the second point of accumulation;

where tr is one of the trigonometric functions - *sec*, *sin*, *cosec* and *cos*: I proceed from the notion that there are 64 variations of the One Law of Nature. This abundance of variations of the One Law is undoubtedly the real reason why the many attempts made over the ages to enunciate the One Law as a formula have met with so little success: without a Metaphysical-Philosophical awareness of the problem any such attempt is doomed to failure. (I have come to this conclusion based on Newton's opinion in *Mathematical Principles of Natural Science*, Book III, "General Theory": "Physics, beware of metaphysics!" He knew that I am coming and even burned his archive...);

¹⁸ "...we are able to find a direct analogy to the most well studied class of chemical reaction – unimolecular reactions." [34] "It is quite interesting that some of the same techniques used in the celestial context can also be used in the molecular context..." [37]

¹⁹ This problem isn't dealt within this article.

²⁰ "...for the end should not be just any last thing, but the best." [4, [194^α,30]].

where dt is a closed interval of Time;

where $d(M/L)$ and $d(L/M)$ are the same and it is the Continuously Changing Constant, although in Newtonian Mechanics it was already named the Gravitational Constant G . This constant expresses the relation of the number of all minimally possible portions of Reality in the Universe to their total number. (The problem of the closedness as the wholeness of Reality isn't dealt within this article);

where $[\ast]$ is the sign of multiplication: it appears that the force of the interaction between two *objects* striving for unity is a product. (Although, from the point of view of Topology and Set Theory, the use of multiplication isn't entirely correct: as is well known, Topology and Set Theory don't know the traditional signs of arithmetical operations, of Arithmetic; today, at the present moment, I don't see what sign could be used in the formula instead of the sign of multiplication. But I am persuaded that a Differential Topology needs to be created and that specifically such a science must provide the sign.

where F is the force of the striving of two *objects* to unite or to separate in order to lessen their defect;

where θ is the state the/an end and a/the beginning of Reality

Constant Continuously Changing Density. There also exist a certain intermediary state, which I call the 'Constant Continuously Changing Density' of a point of accumulation;

$$P' = \frac{m_1}{l_1 + d_1} = \text{const} \text{ and } P'' = \frac{l_2}{m_2 + d_2} = \text{const};$$

where both P' and $P'' \neq P$,

Obviously, a point of accumulation with a Constant Continuously Changing Density cannot exist, since it presupposes uniform movement²¹.

Avogadro Number. I affirm that, for *objects*, the so-called Avogadro number defines

- such values of the Continuously Changing Densities P' and P'' of points of accumulation
- that are maximally close to the value of the Constant Density P of material points with the same contents as those points of accumulation
- but leaves the points of accumulation with the possibility of accelerating their movement, and thus of augmenting their content or their form.

In other words: a pedestrian is going somewhere because he wants his Continuously Changing Density to be maximally close or equal to the even Constant Density of a material point (with the same content as the pedestrian) at the expense of maintaining his defect unchanged. Or he wants his Continuously Changing Density to become equal to zero.

Definition 17. Continuousness of Acceleration. Acceleration is continuous – within any infinitesimally small intervals of time the power of the set of the elements of an *object* changes to the extent that the *object* always, continuously acquires or loses light quanta.

The Function of the Universe. The Universe is a function to the extent that there are given two sets:

- the set of minimal portions of Reality E ,
- and the set of minimal portions of Reality united in an *object* E' ,
- and because an *object* of the Universe strives to become better and/or the best;
- where to every element $x \in E$ corresponds an element $y \in E'$, represented as $y = f(x)$

then one can say that the function of the Universe is set as $y = f(x)$, $x \in E$ and $y \in E'$.

Differential Analysis. The passage of *objects* into a new quality can and must be considered the attainment of the function of their Limit²². And it means that the Universe is a continuous and differentiable function.

The Definition of Multiplicity and Oneness. For an object, multiplicity exists as the parts of the Oneness they form. (The solution to a problem involving "three objects" can always be reduced to the solution of a problem involving two bodies and all the rest of Reality.)

Newton's Laws. Newton's Laws are actual for a Reality that has no parts such as material points or points of accumulation: these Laws are actual only for Oneness.

²¹ I. Kant called such a state of points of accumulation the state of 'things-in-themselves'; where a 'thing-in-itself' is a philosophical term denoting things as they exist by themselves (or 'in themselves'), as distinct from how they appear to us, in our cognition [1 [Thing-in-Itself]]

²² Limit is a mathematical concept, indicating that a certain variable, in the observed process of its change, is approaching a constant value. [2 [Limit]] And I think that the limit is equivalent to Aristotle's "best" as well as Hegel's Nothing, the Result. Thus G. Berkeley's Solipsism is the Result in Hegel's sense [1 [Solipsism]].

Newton's Law of Gravity is intended for the first derivative of the function of the Universe – for two material points and the rest of Reality, as for a multiplicity. (The practical applicability of Newton's Law of Gravity to *objects* comes from the fact that, in the overwhelming majority of cases, it has been applied to revolving bodies with few defects – for example, the *objects* observed by the science of Astronomy.)

I, on the other hand, have devised my One Law of Nature for the second derivative of the function of the Universe – for two points of accumulation that constitute a perceived revolving body – that is, for a multiplicity of revolving bodies.

Newton's Laws and Newton's Law of Gravity are the Limit(s) for my One Law of Nature [39].

Now, having theoretically grounded – in an ontological key²³ – the initial, basic notions

- that all thinking things and all unthinking things are *objects* of the continuous and differentiable function of the Universe
- that all thinking things and all unthinking things are equally motivated to strive to become better and/or the best

I would like to pass on to the problem of the search for information, having first formulated what information is.

Definition 18. Information. Information is something that is needed and sought by an *object* in order to become better and/or the best.

My premise is that information is always required Egoistically²⁴ by the person seeking it. In other words,

- by projecting the conviction that I share with Arthur Schopenhauer²⁵ [33] – that any human activity exists only as long as and in so far as that person's Egoism exists
- onto the concrete problem of the *computerized* search for textual information

I practically demonstrate that the search for information always supposes the presence of redundant²⁶ information about the Egoism of the person seeking the information, and equally redundant information about the Egoism of the creators of the texts in which the information is being sought. And I said that Egoism is a person's immanent²⁷ striving to include in himself (both literally and figuratively) everything that is outside himself, in order to become better/ the best; where Egoism is, for me, the most vivid instance and the most easily discoverable sign of the One Law of Nature.

The Differential Philosophy of Cynicism. The philosophy of Cynicism, which I have resurrected after millennia of oblivion and recreated, is seen to be a Differential Philosophy: Cynicism takes Reality to be a function with a limit (boundary)²⁸. According to my redaction of Cynicism there is an inherent distinction between the attributes of a function and those of its limit. (This conception is quite close to that of G.Leibnitz [18], who separated the attributes of a Monad from those of the Supreme Monad.)

Egoism is the basis of Cynicism, and Cynicism [23,24] is one of the three pillars on which my Philosophy of Differential Cynicism rests – the other two being Stoicism and Cyrenaism.

I. In my article *Differential Linguistics at NIST TREC* I said that the founding fathers of Cynicism are Ecclesiastes and Jeremiah. Indeed, these Old Testament philosophers supposed

²³ Ontology is the study of being in and of itself, a division of philosophy that studies the fundamental principles of being [1 [Ontology]].

²⁴ The word 'Egoism' comes from Latin *ego* – 'I'. [1 [Egoism]]

²⁵ Telling that I share Schopenhauer's opinion I refer a reader to the lengthy discussion of the problem: some still believe that there is the unmotivated egoistically altruism.

²⁶ Redundancy is a concept in information theory. The presence of redundancy in the recording of statements from any source of information manifests as the possibility of recording those statements in a (on average) more concise way, using the same symbols (that is, exchanging one code for another that uses the same alphabet). [2 [Redundancy]]

²⁷ 'Immanent' (from Latin *immanens* – abiding in something, characteristic of something) is a concept referring to some characteristic (regularity) internally present in some object, event, or process. [1 [Immanently]]

²⁸ One of the founding fathers of Cynicism – whom I have decided to count as such – Jeremiah, said: 'For My people have committed two evils. They have forsaken Me, the fountain of living waters, to hew for themselves cisterns, broken cisterns, that can hold no water' [28 [Jeremiah, Chapter 2&13]]. This statement can be counted as one of the first recognitions of the Differential nature of Reality in *almost-Western* and *pre-scientific* thought. (Although the rest of Jeremiah's text gives us reason to suspect that this passage is either a borrowing or a later interpolation.)

- that there exists only one limit, and that all people are subject to an immanent striving towards it
- and that attaining this limit implies the impossibility of continuing to describe that which has become the limit by the same terms used to describe that which hasn't yet become it [28].

It is thought that the Bible is a collection of texts about Egoism in the process of becoming better and best.

II. From Stoicism my Differential Cynicism has derived its Cosmology²⁹ and its Ethics³⁰:

- the Universe in Differential Cynicism is presented as a finite manifestation existing as *something* and striving to organize its parts into an expediently placed Nothing;
- in reality, in observations and sensations, there exists only *something*, which changes in time;
- there exists an unchanging Nothing, in eternity;
- there exist two beginnings – something and Nothing;
- the development of the Universe takes place cyclically – from Nothing to Nothing;
- an individual's relation to the Universe, to everything and to other individuals (that is, an individual's Ethics) depends solely on himself, and is defined solely by himself [1 [Stoicism]; 4,9,23,24,30,32].

III. Cyrenaism has influenced the formation of the Aesthetics³¹ of Cynicism:

- no thing is objectively just or beautiful, since that is defined by means of generally accepted concepts,
- happiness is impossible
- and as a consequence one must independently choose the justice and beauty that is statistically most appropriate to one's pursuit of happiness, which is itself unattainable. [1 [Cyrenian school]; 26].

But an individual is always searching (and always needs to search) for objective justice and beauty as long as he exists – otherwise, as I suppose, he ceases to exist. The philosophy of Cynicism has helped me become aware of the foundations of Berkeley's semantics, and that understanding has in turn allowed me

- first, to ground my method of searching for textual information in theoretical terms
- and then to create a program for NIST TREC (a program which anyone interested can reproduce by following the steps described in US Patent #6.199.067).

Berkeleyan Semantics. As is well known, G.Berkeley's philosophy is based on the affirmation that *esse est percipi*, that is, to be is to be perceived (or to perceive). It is also generally accepted that, taken to the limit, this Berkeleyan principle leads to solipsism, for which the thinking subject is the only indubitable reality, and everything else exists only in the individual's consciousness [1 [Berkeley, Solipsism], 3].

As a Cynic I say that the single and true meaning of a word exists only for – and can only be found by – an individual who has become Nothing. But since, according to the theory of Differential Cynicism, there are no such individuals in the Universe, no word, consequently, has or can have the only true meaning³²! To search only for the one, common, generally accepted meanings of words is, therefore, a complete waste of time. (Plato millennia ago clearly demonstrated that). And for this reason the Berkeleyan Semantics I have elaborated is based on an awareness that the meaning of a word is a probabilistic quantity. Consequently, I use the Compatibility instrument [12,14], which is aimed at finding probabilistic information when seeking information.

Differential Linguistics. Information does exist in the form of words – it's the second Axiom. And I have previously adduced certain rules for the organization of such information in texts in my article *Differential linguistics at...* [10]. In that article I supposed that the paragraphs of a text are the second derivative of the function of describing Reality used by the author of that text³³. That is, when searching for information an individual

- literally integrates the paragraphs of a text by conserving in memory the context of the text as a sum of the contexts of the text's paragraphs;

²⁹ Cosmology is a domain of science which studies the Universe as a whole and cosmic systems as parts of that whole. [1 [Cosmology]]

³⁰ The core of Cynical Ethics lies in the Cynical appraisal of what will happen with one if something is included into the composition of one's self. [11]

³¹ Cynical Aesthetics is the Cynical analysis of how something can be (practically) included in one's self – the active mechanics of such a process. [11]

³² 'For we know in part and we prophesy in part. But when that which is perfect has come, then that which is in part will be done away.' [28 [Paul, 'I to Corinthians', 9&10]]

³³ There exist many functions of describing Reality – and every *object* can dispose of many such – and these functions are continuous. Moreover, the first and second derivatives of these functions are discrete and, as I suppose, they are sequences, not series. [10]

- where the contexts of the text's paragraphs are "summaries" of the predicative definitions most frequently found in the paragraphs and of the substantives (nouns) extracted and distilled from those definitions; which substantives (nouns) are found to be constant after integration;
- and which constants correspond (according to Berkeley's semantics of approximation to principle) to the constants used earlier, in the previous paragraphs of the text.

Later it is precisely these "summaries" of predicative definitions and constants from the preceding paragraphs that allow one to pick out of the subsequent paragraphs of the text only those predicative definitions that are significant, that are important for understanding the special meanings in which the author of the text used/could have used words: information exists in the *combinations* of words collected in a text's paragraphs – not in the form of separate, unconnected words.

The Ontological Justification of Differential Linguistics. Some *objects* (people, for instance) use (many) languages of communication as tools for interaction (I take communication to be interaction). This is an Axiom. Consequently, if the aforementioned theories of the New Mechanics and the Differential Philosophy of Cynicism are true, then languages of communication must necessarily contain clear, tangible traces of the One Law of Nature. And, as I earlier supposed and now affirm, the Grammars of languages of communication, which are immanent in all languages, do indeed reveal that Law! And, in reflecting that Grammars are collections of rules about

- how to unite predicative definitions into the meaningful sentences of a paragraph
 - and how to indicate the time of occurrence of the facts presented in paragraphs,
- I have decided to leave aside the links between the objects described in paragraphs and their times, extracting and accumulating all possible predicative definitions from every sentence of the paragraph of a text. As a result I have obtained lists, "summaries" of predicative definitions [10,14] The fact that these summaries that I discovered can be reproduced independently of me I take to be a trustworthy, hard ontological justification of Differential Linguistics and, consequently, of the New Mechanics and of Cynicism, in so far as I have found in these summaries a multiplicity of completely distinct Egoisms!

NIST TREC and Questions. I have concluded that in the process of searching for (textual) information an *object* can pose two kinds of questions. And it appears to me that *NIST TREC* has come to the same conclusion, calling the two classes of questions 'factoid' and 'definition' questions; where

- the name 'factoid' appears to have been given by *NIST TREC* to one class of questions as a noun derived from the word 'fact'. Indeed, the Merriam-Webster Online Dictionary does indeed provide the following definition of the word 'factoid': 'an invented fact believed to be true because of its appearance in print.' The same source also affirms that the word 'fact' can be understood to mean 'a piece of information presented as having objective reality.' Therefore, the answer to a "factoid" question is information about Reality outside time – that is, information about Nothing, about something finished.
- the same Merriam-Webster Online Dictionary indicates that the word 'definition' can, among other things, mean 'the action or the power of describing, explaining, or making definite and clear. So I have decided that *NIST TREC* chose to call the second class of questions "definition" questions because such questions require descriptions of what happens to Reality in time – of something uncompleted, of something that may be interpreted.

The Search for Nothing (Reality) and Truth. The answers to factoid questions can always be found somewhere (in already indexed databases, for instance) because they are about a Truth that is the only one of its kind. The case is different with descriptive questions: they have lots and lots of different answers, each of which is more or less Truth.

Having created a program that utilizes the principles of Differential Linguistics, I encountered the obvious practical difference between seeking answers to factoid questions and seeking answers to definition questions. For example, searching for answers to definition questions requires infinitely more computer time than doing so for factoid questions. This is because, while a very few predicative definitions – less than 50 – will suffice to provide the answer to a factoid question, the number of predicative definitions necessary to answer a definition question is very high and can run to several tenths of thousands. (A Lexical Clone³⁴ is created on the basis of the cross-comparison of 5 to 600-800 texts' (pre-

³⁴ A Lexical Clone is a summary of predicative definitions extracted from already, previously utilized by user texts. I consider such a Clone to contain in itself information about how the Clone's prototype (egoistically) proposes to become better and/or the best [10]. (Also, speaking of Egoism, a Clone contains

fused [10]) paragraphs; the texts for the comparison *a priori* being taken and pre-indexed (in the terms of predicative definitions [10]) as relevant. It takes 1-20 and much more – up to 200+ – minutes to create a Lexical Clone, which is/ could be a few tenths and even hundredths of thousands of predicative definitions (up to 340.000 and, possibly, more)).

Thus the search for an answer to a definition question in a little less than 2 megabytes of text (I've used F. Dostoevsky's *The Brothers Karamazov* as an example) takes the program from 5 to 25 minutes or more (using a computer with an Athlon 700mGz processor, 128RAM, Windows XP). (*The Brothers Karamazov* is pre-indexed). On the other hand, the search for the answer to a factoid question in the AQUANT collection of texts (3.6 Gig – ~1.800 times larger than *The Brothers Karamazov*), using the same computer, requires only from 40 seconds to 20 minutes. This fact makes me suppose that the human brain is a kind of extremely efficient computer that works with (among other things) predicative definitions [29, 31]. (This problem isn't dealt with here.)

Examples of the Search for Answers to Definition Questions. When searching for answers to definition questions in *The Brothers Karamazov*³⁵ I have in particular gotten the following kinds of answers:

Question: *Do you hate me so much? I am leaving you! Two answers with Compatibility 35.4% And if I am* and with Compatibility 26.3% *You are a fool, that's what you are*

My next remark: *Why do you insult me? You called me a fool, you said that I am insane! How could you?* Answer with Compatibility 36.6% : *You are a fool, that's what you are*

Question: *Listen, you are a hooligan and ruffian! You insult me for nothing! I challenge you to a duel!*

Answer with Compatibility 19.5%: *Why do you insult me* (This phrase is borrowed from the history of the interrogation and it's mine).

Question: *I am attacking you! Are you ready to defend yourself?* Answer with Compatibility 33.3%: *You are a fool, that's what you are*

In order to search for information in *The Brothers Karamazov* my program created a Lexical Clone of F.Dostoevsky, as a description of the text he wrote. I then take the Clone to be F. Dostoevsky himself. Following the principles of Differential Linguistics, the program created summaries of the paragraphs of the text; where each paragraph contains information on how F.Dostoevsky thought it possible to become better by interacting with the *object* in definition questions. And only after that were the most appropriate answers found – through the Compatibility instrument – in the selected paragraphs. (For example, in calling me a fool F. Dostoevsky defined how much acceleration he wanted to acquire.)

I also asked (Clone of) Plato³⁶ some definition (descriptive) questions:

Question: *You are dead for many years. I took your speeches and analyzed them closely. I understood what you are speaking about and how are you speaking. Now I can reconstruct your soul base on your contemplations.* Answer with Compatibility 31.6% : *And who are you*

Question: *I am your grandson.* Answer with Compatibility 28.9%: *CALLICLES: Yes, I do; but what is the inference*

Question: *I need to get the proof that this is you and you can talk and think. Would you ask me something that I will know that this is you?* Answer with Compatibility 41.4%: *SOCRATES: And what would you consider this to be*

Question: *I know that you like an order. You always were tried to build a system of understanding, the system that helps to understand everything. I know that you looked for somebody that knows. Did you find one who knows?* Answer with Compatibility 13.4%: *You have been proved to see that which you do not see; and you have already admitted that seeing is knowing, and that not-seeing is not-knowing: I leave you to draw the inference*

Question: *Am I right? Did I understand you?* Answer with Compatibility 14.0%: *CALLICLES: I will do you the favour of saying 'yes'*³⁷

only information that directly characterizes a person's Egoism, without any admixtures. By admixtures I mean, for example, the various commentaries, interspersions, explanations and clarifications unavoidably brought in by, for instance, Psychology, which is an amorphous conglomerate of many schools of (sometimes, in some sense) thought that are opposed to each other.

³⁵ The whole account of the search is at http://lexiclone.com/Conversation_with_Fedor_Dostoevsky.html. As the source of text I used one that I found at the Project Gutenberg.

³⁶ The whole account of the search is at http://lexiclone.com/conversation_with_plato_extra.html As the source of texts I used Plato's works found at the Project Gutenberg.

³⁷ The problem of Artificial Intelligence isn't dealt within this article.

Conclusion. In the article I gave the ontological justification of Differential Linguistics that is based upon my New Mechanics and the Differential Philosophy of Cynicism.

References.

- [1] Encyclopedical Dictionary of Philosophy. 1983: Soviet Encyclopedia. Moscow.
- [2] Encyclopedical Dictionary of Mathematics. 1988: Soviet Encyclopedia. Moscow.
- [3] Encyclopedical Dictionary of Physics. 1984: Soviet Encyclopedia. Moscow.
- [4] Aristotle. 1995: *A new Aristotle Reader*. Princeton: Princeton University Press.
- [5] Berkeley, G. 1957. *A Treatise Concerning the Principles of Human Knowledge*. London: The Bobbs-Merill Company Inc.
- [6] Bohr, N. 1962: *Atomic Physics and Human Perception*. Moscow: Nauka.
- [7] Bohr, N. 1992: *Can Quantum Mechanical Description of Physical Reality Be Considered Complete?* Moscow: Nauka.
- [8] Bohr, N. 1992: *Continuity, Determinism and Reality*. Moscow: Soviet Radio.
- [9] Dudley, D. 1937: *A history of Cynicism from Diogenes to the Sixth Century*. London: Methuen & Co. Ltd.
- [10] Geller, I. 2005: *Differential linguistics at NIST TREC*. Washington: The Fourteenth Text REtrieval Conference Proceedings (TREC 2005).
- [11] Geller, I. 2004: *LexiClone Inc. and NIST TREC*. Washington: NIST Special Publication 500-261. The Thirteenth Text REtrieval Conference Proceedings (TREC 2004).
- [12] Geller, I. 1997: *New mechanics :the foundation*. http://lexiclone.com/NEWONE1_BODY.html
- [13] Geller, I. 1997. *A sketch concerning the 'new' foundation of science after physics*. http://lexiclone.com/ARTICL_BODY.html
- [14] Geller, I. 2003: *The role and meaning of predicative and non-predicative definitions in the search for information*. Washington: NIST Special Publication 500-255. The Twelfth Text REtrieval Conference (TREC 2003).
- [15] Gribbin, J. 1984: *In Search of Schrodinger's Cat: Quantum Physics And Reality*. New York: Bantam.
- [16] Hegel, G. 1991: *The Encyclopedia Logic*. Idianapolis: Hacket Publishing Company Inc., 140-141
- [17] James, W. 1897: *The Will to Believe*. New York: Longmans, Green&Co.
- [18] Leibniz, G. 1965: *Monadology and other Philosophical Essays*. Indianapolis: Bobbs-Merrill Co.
- [19] Leher, K. and Paxson, T. (eds) 1969: *Knowledge: undefeated justified true belief*. The Journal of Philosophy, 66.8, 225-237.
- [20] Malcolm, N. 1959: *Knowledge and Certainty*. The Journal of Philosophy. 59.
- [21] Priece, H. 1938: *Our Evidence for the Existance of Other Minds*. Philosophy. 13.
- [22] Russell, B. 1927: *The Outline of Philosophy*. London: George Allien&Unvin.
- [23] Sayre, F. 1938: *Diogenes of Sinope. A Study of Greek Cynicism*. Baltimore: MD: JH Furst Co. Shioya.
- [24] Sayre, F. 1948: *Greek cynicism and sources of cynicism*. Baltimore: MD: JH Furst Co. Shioya.
- [25] Spinoza. 1970: *Ethics*. London: J.M.Dent&Sons Ltd, 3-4
- [26] Tsouna V. 1998: *The Epistemology of the Cyrenaic School*. Cambridge: Cambridge University Press.
- [27] Quine, W. 1969: *Ontological Relativity And Other Essays*. New York: Columbia University Press, 68-90.

Some Extra References.

- [28] *Bible*.
- [29] Fodor, J.1998: *The Trouble with Psychological Darwinism*. London: London Review of Books. V. 20
- [30] Mates, B. 1973: *Stoic logic*. Los Angeles.
- [31] Pinker, S. 1998: *How the Mind Works*. Allen Lane.
- [32] Rist, John M. 1969: *Stoic Philosophy*. Cambridge: Cambridge University Press.
- [33] Schopenhauer, A. 1965: *On The Basis of Morality*. Indianapolis: Library of Liberal Arts, Trans. E.F.J. Payne.

Mathematic-Astronomical References.

- [34] Jaffé C., Ross S. D., Lo M. W., Marsden J. E., Farrelly D., and Uzer T. 2002. *Statistical Theory of Asteroid Escape Rates*. Phys. Rev. Lett. 89, 011101–1
- [35] Lobachevskii, N. 1956: *Selected works on Geometry*. Moscow-Leningrad
- [36] Lyapunov, A. 1953: *Selected Works. On the Shape of Celestial Bodies*. Moscow-Leningrad

[37] Marsden Jerrold E. and Ross Shane D. 2005: *New Methods in Celestial Mechanics and Mission Design*. Bulletin (New Series) Of The American Mathematical Society, Volume 43, Number 1, Pages 43–73

[38] Reiman, B. 1956: *Basics of Geometry*. Moscow: Nauka.

An Eccentric Reference.

[39] Geller, I. 2005: *Principles of a New Mechanics (re-writing, 2005)*.

http://lexiclone.com/Principles_of_a_New_Mechanics.pdf