In the footsteps of Einstein and Wiener

Introductory section

To date the recognition of universal, a priori inherent in them connection between the objects of the world around us is quite rightly considered almost an accomplished fact. But on what laws do these or those sometimes rather variegated systems function in live and inert nature (including - in modern computer clusters)? Where are the origins of their self-organization activity lurked: whether at the level of still hypothetical quantum-molecular models, finite bio-automata or hugely fashionable now artificial neural networks? Answers to all these questions if perhaps will ever appear then certainly not soon. That is why the bold innovative developments presented below are capable in something, possibly, even to refresh the database of informatics so familiar to many of us.

And moreover, in principle, the pivotal idea developed here, frankly speaking, is quite simple in itself: if, for example, the laws of the universe are one, then all the characteristic differences between any evolving objects should be determined by their outwardly-hidden informative (or, according to author's terminology - "mental") rationale. By the way, these aren't at all empty words, as it might seem at first glance, because his arguments are fully supported with the specific physical & mathematical foundation too.

So as a result, the reader by himself must willy-nilly come to the inevitable conclusion at the end, to wit: only the smallest electron-neutrino ensembles contain everything the most valuable and meaningful for any natural system! At that even no matter, what namely global outlook paradigm we hold here...

I.

What is information? Throughout the last century, this seemingly lowbrow question has stubbornly haunted many learned minds that as a result led to the emergence of diverse and sometimes exotic views on its nature, laws and properties. Though contingently, all these theories can still be divided in two principal subgroups. At that the first (more early) includes those definitions, where information was considered as a kind of applied hypostasis of everyday human life. Such standpoint was particularly shared by Norbert Wiener, meaning in that case "a name for the content of what is exchanged with the outer world as we adjust to it". However, now the vast majority of researchers have eventually come (following - nota bene! - the Italian philosopher L. Floridi, with whom the author, by the way, is related to lasting partnership) to the output that information is a quite objective category inherent in any material body, not only animate. And that's exactly another, more advanced stage of the progressive semantic development of this concept. Though all similar inferences are based on the understanding of information as a measure of orderliness. For its part, the latter is created by the telic activity of a person, a robot, or – at an elementary level – some really existing "informons". At that all informons must a priori have a short-term memory, which they learned (in the course of own evolution) to translate into a long-term. But, a true, already with the help of other, more massive and instrumentally observed particles. Thus, any information - even human or computer (presented here as if summarizedly) - is "nurtured" and brought by informons.

As for the ill-fated but so many-sided chaos, on that issue the scientific community has been sharply divided at all. If, on the one hand, the majority of "techies" (linking to the first and the second law of thermodynamics) consider it a real factor, then already their antipodes-humanities are clearly inclined to classify it like a purely residual phenomenon which just indicates absence of order. Proposing an obvious analogy, in particular, with a scrawny disheveled Death who can exist except that in someone's morbid imagination or on frightening pictures from old church calendars. However, be that as it may, any

purposeful human actions for sure - at least either by an iota, at least or by bit - reduce Universe's entropy. I.e. in practice, each man-made change creates a certain countable information product (even if it's as imperceptibly small as Planck quantum of time), distancing us from the notorious doomsday. But still in more detail we'll talk about that in final sections of this article.

II.

According to the generally accepted version, everything in the world began from singular clot of proto-energy (*prāṇa*) which had zero information. Nowadays the residual energy is clearly in obedience to the Supreme Will (although other subordinate relations are quite possible between them too). At the same time, all alone it is apparently not capable of creating new information, but yet there is a high probability that knows how to absorb ready-made one (with the aim of ensuing conversion to energy).

And on the whole, you can, by and large, imagine two base dynamic schemes of universe:

a) a sort of swing "from energy (Will) ⇨ to information (Reason) and back";

b) continuous experiments or even improvisations of Will itself (by the by, the old theosophical teaching about the previously existed 5 discarnate races also fits into here);

As for the Supreme Reason, it (in contrast to the articulate canons of the Christian trinity) does not have any definitions like "Information-the-Mother"* (which, in principle, should be identical to Universe's noosphere), "Order-the-Son" or "the Holy Negentropy". And even the existence of a number of rapid-fire mnemonists (Yuri Gorny, Andriy Slyusarchuk, Shakuntala Devi) as well as phenomenal clairvoyants (Michel de Nostredame, Edgar Cayce, Vangelia Gushterova) is not, alas, any weighty and convincing argument in sense of their involvement in such a constellation of "orderly sons". For the alternative version (concerning the usage of hidden brain resources) appears more preferred here. Although, along with this, the quite obvious fact that it is precisely the negentropy scattered everywhere (or rather - its elementary carriers) plays a decisive role in planetary and technological progress, is now perceived, in essence, as an indisputable truth.

In any non-artificial (i.e. created by nature itself) objects, the information – as, say, rudimentary short-term memory – is capable of circulating for a certain period of time inside closed organic rings. And even more so, if such rings pack (as, for example, in the structure of polynucleotides) one under the other into a three-dimensional perfectly coordinated chain, then apparently, this provides us serious grounds to assume that they have some elements of the psyche. Let alone the simplest semiconductor triodes handling the exterior (i.e. clearly brought from above) genetic code on a given algorithm.

Since both information and self-organization are directly related to orderliness, therefore, these are links of all the same Universe's process. The single difference here (and even then - rather, at the level of common terminology) is that informons were born immediately after the Big Bang, while real self-organization can be talked about only, perhaps, starting from the appearance of new auxiliary attributes connected with long-term memory.

That is why the notorious scientific thesis that "the Universe is streamlining in a qualitative (ie, more significant and important) plan but being disordered in a quantitative (it means heat entropy)" should, apparently, be extended towards all classical laws of thermodynamics (and particularly the second). Although the same applies to synergetics either – contrary to Ilya Prigogine's opinion (supposedly separate fluctuations arise against the overall increase in entropy, but only in some limited space).

That is, most likely, disordering goes along the energy vector, and ordering does the informational one. However this dependence is not linear in nature, for a developed intelligence creates new algorithmic products lot easier and faster - without high energy

costs (as compared to that was at the dawn of becoming the Universe). And this means the dilemma “what exactly the current algorithms are generated by: self-organization or intelligence” doesn't already make much sense, because any contemporary intelligence is, in turn, a demonstrative result of self-organization. Practically all the laws of physics, chemistry and biology that exist nowadays (and especially the first of mentioned) are consequence of the action of self-organizing processes, for all of them, somehow or other, are associated with motion.

III

And in general, hardly anyone will now dare to deny that information is, in substance, the basis of our life. But is it possible at the same time to expand its universe’s role, having presented as a kind of root cause of being? That is, in other words, can the cosmos be globally computable?

Indeed, it is no coincidence even in the VI century BC the Pythagoreans created a philosophical & esoteric school that declared visual ghostliness of the surrounding world (in contrast to numbers with a myriad of their most diverse combinations, which are just accessible to our knowledge). Similar conjectures, like human existence is supposedly the purest illusion, were expressed after Pythagoras by the founder of the first ancient Greek academy, Plato either, who eventually came to conclusion that only ideas are truly material, and everything else is just their unsteady shadows. In addition, the postulate about the illusory nature of familiar us Space is one of the key ones in a range of Eastern religious doctrines based on the concept of Maya. Maya is a shaky mirage of routine human being against the backdrop of the true reality of the Eternal Absolute (i.e. Brahman in Hinduism or, respectively, Nirvana in Buddhism). In modern times, this complex (but very fertile for discussions) topic was creatively developed and improved by G.-E. Leibniz in his famous thesis summarium "Monadology".

However, if we still return to our days, then by and large, a lot of *outwardly* very similar, but nevertheless quite independent theories have already been developed, which really seem to confirm the digital version of the world order. These are, in particular, the hypothesis of computer simulation by the Swede N. Bostrom, the idea of the Universe as a single continuous hologram by the Dutchman G. Hooft, as well as the original interpretation of physical laws in relation to the model of cellular automata by the modern British programmer S. Wolfram. And although none of them had yet been properly supported empirically, the recent decision of the Nobel Committee to award this year's prize to three physicists for outstanding achievements in the field of quantum entanglement has rightfully become a kind of apotheosis of such research. That is, to put it simply, we are talking about quantum informatics, the first stones in the foundation of which almost at the very turn of the millennium were laid by the Italian Gennaro Auletta and our illustrious compatriot V.A. Sadovnichy.

As for the computer-simulated theory, which is popular nowadays, it first appeared in the works of the modern Ukrainian naturalist - the vice-rector of the metropolitan Aviation University Yury Teslia, not in frigid-rocky Scandinavia. For even more than a quarter of a century ago, he published a detailed cybernetic monograph, in which he expressed a very far-sighted guess about the primacy of information impact processes (in other words, that nature is a giant computer, where the trajectory of each Cosmic object depends on the information coming to it).

And besides, based on the unshakable apriorian message that precisely motion is the universal form of the existence of matter, Y.N. Teslia deduced the following equation which correlates the speed of any body with its mental content:

$$\vec{V} = (2 \cdot p - 1) \cdot \vec{c} = \frac{d}{i} \cdot \vec{c}$$

where $\vec{c}$ is the speed of light in vacuum; $\vec{V}$ – a drift velocity of the object; p – probability of displacement of a given object by one quantum of space for one quantum of time; a – quantitative predetermination of such a movement; i – complex awareness of the object about the potential dynamic capabilities (for each specific case).

Going back to the core idea, which appears in the article title, I'd like to note that this equation can be extrapolated (and most important - very successfully) to the Einstein's theory of special relativity in the modern scientific space of Norbert Wiener. Due to the fact it is directly based on the informational and probabilistic interpretation of mechanical movement.

For example, having creatively extended the well-known postulates of A. Einstein to such concepts as discreteness or "diginesis" (from the English "digit" and the old Greek "κίνησις"), with the help of a digital model of mechanical movement, it is not difficult to come just to well-known formulas of the special theory of relativity. Whence it follows this algorithm may well even underlie all Nature's interaction. And thus, the whole world around us is information-digital too.

At that given thesis deserving particular attention has already received the first indirect confirmation - say, in the analysis of the statistical laws of natural human speech (and the very principles of its age development). Which, in turn, may indicate both the unshakable universe's one-management and the fact information is present absolutely everywhere, thereby determining the current characteristics of each material object.

In addition, if we contingently assume that the mechanical motion is realized in accordance with the proposed digital model, then from here it's possible to come, along the way, to the following valuable for us output. At *f*irst a hypothetical "preparatory" quasi-matter has been created, in whose memory there was none*:* either a program for responding to influences, or any knowledge. But in the process of development, it gradually learned still something and now satisfies most important qualitative criterions. Moreover, the change in the speed of interactions (as well as the various physical constants related to it) is a direct result of the permanent improvement of such quasi-matter. After all, it's the information stored in digital memory *(*and also adequately tuned program working with it*)* that determines one or another answer, which is usually interpreted in scientific literature as a consequence of a priori natural laws. And besides, the totality of similar "right responses" has been reflected in the final choice of physical constants too.

That is, after a thorough examination, according to the conclusions of Yuri Nikolaevich, there are certain things in nature that we perceive under the guise of spatio-temporal dependence, universal gravitation, electromagnetism, weak and strong nuclear interactions. However, all these visible (although often deceptive) effects are realized through the corresponding info-fields. In other words, if some nth field exists, it means that somewhere there must be an object that creates it – which, according to prof. Teslia's logic, is already authentic information for other objects neighboring it. Therefore, I would like to cite another curious and bold quote from his most recent published works: "The motion of any natural body is determined by their information content, i.e. ability developed over 13.8 billion years to correctly respond to the existence of other neighbors. Especially considering that in such a long period of time a sufficient cluster of reflexes** useful for them has already appeared".

IV.

Thus, resuming all these hypotheses, today we can single out the following most probable formats of the world order.

1. Standard, obeying the generally accepted physical laws of Einstein, i.e. it is based on the usual "analogue" matter.

2. The Teslya’s model already known to us.

3. The alternative Bostrom’s version, in which the surrounding world is a computer simulation, while its emergence and development is just a software and information product of some unknown external creator.

In the first model, everything is exactly as it is usually interpreted by physicists: there is a section of the Universe with a certain space-time continuum that we actually observe. Absolutely everything moves and contacts each other within it, and mass serves as the most convenient measure of mutual correlations among various concepts and quantities. But nevertheless, many unresolved problems still remain, primarily related to the presence of "scissors" between quantum mechanics and the theory of relativity, and also, by the way, to an adequate interpretation of dark energy.

Contrary, in the second model, the world is especially digital. And although the laws of motion and interaction, at first glance, are almost the same as in the analogue version, however here just in the foundation of being isn’t a dull inert mass, but "Her Majesty" information!

And, finally, in the third case considered above, physical reality as such is absent altogether. As for the world we see, it is the result of the activity of some super-powerful computer. At that its clock frequency should be commensurate with the Planck time, and its memory - practically unlimited. In appearance, seemed, the purest groundless fantasy. But, fortunately, quite recently astrophysicists suggested one original «saving exit»: it turns out that matter, devoid of own observer, has (compared to ordinary, i.e. observed from the outside) a much smaller number of dynamic parameters. And therefore, it in theory will scarcely slow down the work of such an all-encompassing mega-computer.

However, perhaps the most intriguing and fruitful here could be the natural conceptual combination of the second and third models. Well, and what if our being really is just a kind of computer game***, where all the basic laws and principles of interactions correlate, in addition, with the aforementioned Teslya's algorithm?!

V

As it known, order and ordering are two different philosophical categories: the first is determined by a finite set of structural components in the post-singular phase; while the second is characterized by the existence of some tiny “super-hard-workers” which are constantly involved in the building a percentage of the order everywhere around them. At that the main functional advantage of such micro-agents is their memory. However, since we are still talking here about common elementary particles, then of course, they are very far from possessing truly constructive skills. By and large, some initial creation glimpses (let alone planning) could arise exceptionally after their rallying in a limited volume. And even then - only under the influence of an extraneous factor, because they will be unlikely able to organize themselves into such a system.

At that regard, the trendy now but very controversial “law of indestructibility of karmic information”, apparently, would be more correct to formulate as follows: a complete intellectual product (made both by human community and the catchall cosmic supra-mental as well as scattered informons) cannot be, unfortunately, auto-saved. Meanwhile, how long successful fleeting notion-images or even priceless author’s finds may keep in memory of the creators of such a product – that’s *r*eally enough difficult issue solved every time in own way.

As for one more property of information that is no less relevant – virtually unlimited copyability – in theory, it should be determined by the corresponding characteristics of its elementary carriers; namely, either self-doubling, or contactless transmission of some internal parameters. Therein lays the main difference between such mobile and harmonious micro-particles from the “Holy Spirit”, which (even if, for example, we'll *i*dentify it with a

certain gauge field) is based on absolutely inert and weightless but, on the other hand, the eternal and truly all-pervading “volintons”. In addition, it isn’t excluded that the energy presented to us from above (exactly the same as the Universal Time) can’t be broken down into the smallest discrete components at all, since is de-facto an attribute, not a subject of progressive evolutionary development (or, if you like, interplay between any types of matter).

By the by, seemingly polarity of interests of Reason and Will is actually sometimes felt except that, perhaps, in the socio-historical plane. While in all the rest, they go near, as if complementing each other; and moreover at the supremacy (for now, at least) of Reason. In this way, here it would be admissible (and even then - on Universe’s scale) their principled opposing only in terms of time parameters: from the energy of saturated but structureless chaos - to an extremely structured but cold-lifeless Cosmos. And just at this finish segment, due to the critical shortage of natural resources, the energy-dependent transition to the hegemony of robots seems a quite real.

VI.

Since information and energy have a common starting point in their lineage, it means that some self-explanatory parallels aren't excluded between them. So, for example, by analogy with the classical Einstein's formula $\mathbf{E = mc^2}$ (connecting rest mass with energy), it is possible, apparently, to make a similar equation for the needs of synergetics either. However, in this case, it should undoubtedly be considered that with the same weight a 6-ton pile of manure, an African elephant and the academic staff of a design institute will have completely different informational significatives (let alone citation indices). Moreover, even the aforementioned elephant itself can be either dead or alive; and the institute could locate as in civilized Europe as amid the wild Papuan jungles (with the corresponding IQ of its employees). That is why here we should primarily operate with a hidden (i.e. dark matter) instead of the usual mass, given simultaneously that of five theosophical sheathes at least 90% of the information is concentrated exactly on the level of a mental and also within field carcass (or so-called “spirit”).

And yet, in spite of the apparent problematic nature, it’s possible, in theory, to count such almost elusive visually substance. For this, it’s quite enough just to deduct the “lion’s share” of the nucleons from the total weight of a person. Although, by the way, there is another fallback method consisting in long-term (two- or even three-day) thorough observation of dying people, from which, in principle, the subtle posthumous entities of interest to us should separate one by one.

Further, instead of light-speed we put, needless to say, the velocity of hypothetical informons propagation in a vacuum.

And, finally, the turn came to the most, perhaps, difficult part of the task associated with inconspicuous but crucial in its role a superscript character. Indeed, despite the fact the level of organization of matter, it seems, should be present here, however, in what exactly form (coefficient, degree, natural logarithm or even factorial) - that's, alas, still unclear. Besides, the question remains open whether to take into account the intersystem levels (atom - molecule - nucleotide - gene - cell - family – nation) as self-substanted or to be limited to only five basic, spiritualized ones.

Thereby, the provisional formula of the immanent (synonyms: inward, apriorian) information intrinsic to a certain physical body could roughly look like this*:*

$$\mathbf{I_{(p)}=(M_{(d)}K)^L}$$

(where L - a positive integer which in practice, i.e. excluding the infinite fractal divisibility in the spirit of Anaxagoras, can be in no wise greater than 15; so in this context the superior “L” has nothing to do with the logarithm: it's just an abbreviation for the word “level”).

And concerning the long-term human memory, as the main repository of all acquired and newly created information, then foremost it is obviously important to find out, on what numeral system (robotized binary or more familiar for us decimal one) such a memory is recorded in the deep brain structures. By the way, in the first case, the sum of active mnemo-bits would probably be much easier to calculate – for example, by the total amount of significant dual “jumpers” in there protein molecules. But, true, given the fact that not all intra-peptide hookups can fulfill this role. In particular, center carbon stroma (together with carboxyl group directly attached to it) should be recognized as creatively inert organic foundations, while amino-pyramid and branched side radical are just the very carriers of memory that are of interest to us.

The power of thinking is determined almost similarly; but with the obligatory consideration, furthermore, the multi-tiering of "substantia grisea", due to what the cumulative number of possible relay switches as a result exponentially increases. At that it's both within the hemispheric modules themselves, and between individual links of the neo- and paleocortex.

Nevertheless, it should still be emphasized that converting information into energy is objectively estimated (well, at the current stage of technical-engineering readiness, at least) as a completely illusory, arch-fantastic venture for modern mankind. And even their unified starting point is unlikely to somehow help here: after all, though by ontological pedigree they are indeed "sisters" but, alas, in no way twins. So the external similarity of the certain laws of development does not mean anything yet!..

VII.

Weird artifacts on snapshots taken in pitch darkness (but with manual exposure), Raudiv’s voices, “phonic modulations” by Lamoreau brothers as well as various heavenly and especially UFO-signs indicate either that interpreting by us information - as holistic pan-universe phenomenon - can be not quite correct, or we perceive it, and hence are aware through our subtle sheaths, i.e. warpedly. At the same time, the most prominent role in explaining such paradoxes belongs, perhaps, to modern American scientists J. Allen Hynek and Jacques Vallee who advanced own alternative hypothesis of extra-dimensional intelligence (abbr. - EDI) to the global academic community. In particular, thanks to their restlessness and ebullient exploratory enthusiasm, somewhere at the end of the last century, it became possible to put into overall use many demanded today by researchers the terms like sensory filter, info-subjectivism, parallel worlds. Although, as it thereafter turned out, even the very father of cybernetics Norbert Wiener had latent doubts about precise determinity of information, implying by it (in contrast to the rustic and artless cryptographer Shannon) enough vague data that any actively perceiving subject is able to interpret in his way.

But with that, despite the seeming speculativeness of this concept, it certainly must still have a specific material justification (at least in the form of some so far elusive quasi-particles or a gauge field); forasmuch otherwise one can sink to empty sophistry and agnosticism. So, to this end let’s now refer to the law of over-couple similarity and recall that the direct hierarchical ancestor of any multi-cellular organism is a free thermal neutron, alas, fairly limited in terms of its vital activity - as, unfortunately, the current "master of nature" Homo sapiens himself. It lives on average 880.1 ± 1.1 seconds, after that breaks down, as a rule, into three shards which are completely inequivalent. But since at times other exclusive cases can be observed here, it’s better to visually represent all this as a triad of paired formulas. Paired - because next to each trivial quantum-mechanical equation, its macro-analogy projected, so to speak, on our reality will be together indicated too.

a) $\beta^1 (n \rightarrow p + e^- + \bar{\nu}_e)$

$LC \rightarrow s/d + s^v + s^m$

Here is ordinary, i.e. quite ubiquitous type of death, in which a former living creature decomposes into a corpse (subject for dissection), a vegetative lepton covering and a residual mental sheath.

$$\text{б) } \beta^2 \ (n \rightarrow p + e^- + \bar{\nu}_e + \boldsymbol{\gamma})$$
$$LC \rightarrow s/d + s^v + s^m + s/s$$

And this is just more unusual variant - with the extra emission, besides, of weightless shining substance. Wherein, apparently, only some the most advanced gurus, prophets and wonderworkers are able to get out of life in this way.

$$\text{в) } \beta^3 \ (n \rightarrow {}^1H + \bar{\nu}_e)$$
$$LC \rightarrow hr + s^m$$

And that is already the rarest, truly unique natural phenomenon, which results in the emergence of incorruptible holy relics - when the body still retains certain of its vegetative functions, although the person himself is irrevocably dead.

Conclusion

So, now is the time to draw a resumptive line, that is, to answer the question as clearly and easily as possible, what inferences useful for academic science could follow from here.

Well, to begin with the fact the sole carriers (and perhaps even the original creators) of information can, obviously, be except that amazingly ever-present, energetic and tireless hard workers-leptons. And besides this output is quite defined, specific, peremptory and is not, as they say, subject to appeal. For, no matter what global paradigm we here hold, but both in the expanded (so called Teslia's) formulation, and in the traditional one, only the smallest electron-neutrino ensembles contain everything truly valuable and meaningful for any natural system.

Secondly, the resurrection of the dead (be it in a new-created or even former, seemed already outlived itself body - which is sometimes found out during the exhumation), it turns out, practically exists indeed. In modern nuclear physics, a similar process (the opposite - I note - in relation to all three of the above options) is, properly speaking, well studied too and named, by the by, scientifically as K- or L-capture. This is described more detail in the latest fundamental edition of the director of the metropolitan "Institute of artificial intelligence" acad. Anatoly Shevchenko "The path to Truth".

But with that, as if along the way, many other purely corpuscular "inconsistencies" immediately also surface here. For example, at least following. As indicated in any university tutorial on cosmology, right there after the Big Bang, in a kind limited space an almost equal amount of currently known elementary particles (including protons, neutrons, antiprotons, electrons, positrons, etc.) were formed. However, due to direct contact of matter with antimatter, the lion's share of them has mutually annihilated, thereby giving a push to the ubiquitous relic radiation. And further (in the same textbook), literally a few pages later, we read: the total number of neutrons in the Universe now is about 15% of the corresponding one of protons. Wait, but how is this, pardon, possible: after all, they (being neutral per definitionem) did not react with anyone - which means that everything, by and large, should be exactly the opposite!..

So turns out, only authorial theory of spiroemanogenesis can offer a sufficiently intelligible consistent justification here: for, in essence, most of protons' inert mass is simply an elementary rubbish dump (or, if you like, an accumulation of corpses) left over from the former neutron vital activity. Because in the femto-world, alas, there aren't own bacteria or fungi that would be able to decompose carrion.

Nevertheless, as with any innovative concept, unfortunately, not without certain dark spots here. And the most obvious of them is somehow connected with an adequate

interpretation of the very mysterious and truly elusive "volintons". So it remains for the time having to reassure myself that given philosophical issue is clearly just beyond the bounds of informatics. However, on the other hand, this also means that it will necessarily need to pay more close attention in our future publications!..

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* *Although, at the same time, in the computer-simulation concept considered below, it is clearly and unambiguously stated that this kind of "Information-the-Mother" must certainly be present in our world!*

** *Here it's implied that reflexes present an integral response of this particular object to information came from the outside.*

*** *By the way, in this case, bits and bytes, so well known to IT-specialists, per default will already move to the rank of the main source of interaction of all its supposedly material objects.*

EMIR E. ASHURSKY