MAGIC OF EGREGORS

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Abstract: This paper is continuation of [Lozovskiy, 2003, 2005]. The main issue is: "What esotericism can add to our understanding of human intellect, consciousness, to creation of AI?" The history of esoteric teachings covers several millenniums, while that of AI – less than 50 years. Questioned are even the philosophic fundamentals – idealism vs. materialism, concepts of matter, energy and information. In what follows I try to elucidate notions of intellectual subject, sign, signal, information, belief, mystic theories, egregors. Analysis of such concepts as "magic", "God" forces me to conclusion that they are artifacts of our psychology and socio-psychology. At the same time, real importance of these aspects can be so determinative that efforts to create AI without proper consideration of these issues look impossible.

Keywords: philosophy, noosphere, esoteric, intangible world, beliefs, faith, trust, conviction, soul, God, materialism, idealism, mystic theories, magic, egregors

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> *When one rows, it is not the rowing which moves the boat. Rowing is only a magical ceremony by means of which, one compels a demon to move the boat.*
>
> *Friedrich Nietzsche*
>
> *God is real, unless of course, he is declared an integer.*
>
> *Programmer's humor*

Introduction

The history of intensive artificial intelligence (AI) research approaches its half-century mark. Looking at overall explosion-like information technology (IT) progress, one should confess, that the progress in AI, consciousness simulation, intellectual robots drops behind expectations. The first approach to brain mechanisms understanding based on the McCullock-Pitts formal neuron approach failed due too primitive functionality of one threshold logic element. The same bad luck crowned first perceptrons and neural network paradigm. Marvin Minsky proved that primitive neural network assemblies cannot demonstrate serious functionality, while advanced multilayer neuron architectures with rich cross- and feedback connectivity were far beyond available theoretical analysis and algorithmic support. Besides, the hardware of 60-ies was too weak to support implementation of large network models in anticipation of their nontrivial behavior. No quantity – no quality… Dialectics is going strong. Neurophysiologists and psychologists of that era could not discover and explicate constructive principles of human brain mechanisms, so IT engineers were brought to necessity of saving the drowning problem with their own efforts. So, the first success in human intellect simulation was achieved with the help of introspection and heuristic programming. Impressive achievements in this field were due the progress in semiotics, knowledge acquisition and engineering, expert system development, natural language understanding within computers.

The first alert bells rang when massive automated management system creation bumped into the concrete wall of intrinsic difficulties of their development and support. Expert systems approach in AI together with goal directed programming, blackboard and production systems architectures helped to overcome some difficulties, but only temporarily loosed this Gordian knot. The same Scillas and Haribdas of complexity vs. functionality were in the same place, as before. In order to achieve richer functionality one should increase complexity of his/her solution eventually loosing control over the structure and processes within it… Besides, the problem of knowledge elicitation from application domains and human experts was also under the tremendous press of real practical requirements.

The dramatic progress in computers opened the road towards the second try in neuron network approach. Powerful strategies for training such networks were developed, genetic algorithms and multiagent architectures appeared on the scene. All that helped AI and, in general, IT-community to make several steps ahead, but… remaining far beyond the prophecies of science and fiction writers addressed to the beginning of 21st century. At the same time, we had already been accustomed that engineering achievements overcome even the wildest predictions of writers. So one can obtain the feeling, that, probably, all is not so fair in the Dutch Kingdom… Wise people say that if you encounter too serious obstacles on your way – think over your directions and methods once more.

So I was brought to the feeling that the time has come to reach better understanding of the subject which we are going to simulate and of the social activity processes with which AI creatures have to naturally interact [Lozovskiy, 1990-3, 1992, 2001]. The other motivation for the current research was the spell of esotericism, including "magic", extrasensory perception, non-traditional healing. It could happen that probably we even do not possess enough understanding how to use our natural human possibilities in handling knowledge, conscious and subconscious sphere. These considerations attracted my attention to problems of noosphere, religions, magic, faith, soul, and even God and Absolute [Lozovskiy, 2003, 2005]… Further investigations until now did not show any proofs of anything "supernatural" in our life and Nature. But the outstanding role of psychology and socio-psychology were understood to be of primary importance in our life.

More than that… One can argue that the efforts in AI development ignoring these aspects and information directed natural evolution cannot be winning. This research, of course, is only at its outline stage, but going will master road.

Physical, Mental and Cultural Domains of the Noosphere

AI started as an effort to simulate consciousness and behavior of a human being. The time has come to revise the object and the environment of our attention. First of all, our comprehension of the World became more balanced. Now we understand that, in the noosphere era we should adequately consider and simulate three types of entities: physical, mental (conscious) and cultural (social) [Lozovskiy, 2003]. Physical ones reside in the objective world – buildings, rivers, cars, live beings as physical bodies, galaxies, physical fields, energy, et al. Mental – are inhabitants of the conscious sphere of each living human: one's knowledge of mathematics, nostalgia for the birthplace, feelings, emotions, attitude to others… Cultural sphere (ideosphere) comprises all sciences, arts, fine arts, customs, political and economic systems, beliefs, religions, know-how, the adopted notions of purely «human» relations and feelings (fear, hatred, love, trust, admiration, amazement, irony, etc.) created and accumulated during evolution.

From the other viewpoint, we should understand that human consciousness could not be studied and simulated as an isolated phenomenon. Isolation creates Mowgli… Human culture, language, interaction with noosphere cannot be thought about without due consideration of psychology and socio-psychology of interactions in

humans. This sphere, or dimension, of human existence is of paramount importance in intellect and consciousness development. One can be almost sure that underestimating this aspect can bring down the hope for AI creation.

Gone with the wind are efforts to build AI system on the basis of theorem proving. Afterwards it was found that human reasoning in last turn reminds theorem proving. It is, first of all, based on subjective apprehension of reality and on personal goals which are to be achieved. That is why we are witnesses of disputes between subjects and existence of various viewpoints. This domain is almost virgin for knowledge engineers. The situation aggravates due the enormous role of psychological and socio-psychological aspects and inner springs in human behavior. Here I will try to briefly consider only some of these issues.

Information within Material World

My personal interest in this theme started from esotericism. The first impression was that AI specialists probably ignore the great bulk of functional power of human mind and behavior. Problems of faith, belief, soul, God, magic had to be studied more closely, giving constructive definitions, exploring the real power of these theories and techniques.

Earlier [Lozovskiy, 2005] I argued that materialistic world-view can pretend for better adequacy to reality, than the idealistic one. Ideal entities do exist in reality, they "feel" themselves quite natural and "cozy" within their material frames, but their status is somewhat more delicate and complicated than that of material ones. Consistent materialist philosophy approach precludes us from the fallacy of considering matter, energy and information as having equal rights as fundamental World-nature building bricks. In order to put this issue straight, we need to reconsider the notion of signal, information, knowledge, interpretation and intellectual subject.

Material (physical) world consists of substance and energy. It is populated with objects, which interact in some or other way. Interaction occurs according to certain objective Laws (properties) of Nature. We shall not argue now, who "created" this World including its Laws and "put it into operation", how it sprang into existence. What I would like to emphasize now is the "law-abidingness", naturalness of all processes occurring in this world. The Laws of Nature have the general cause-effect form. They are not spontaneous and do not change sporadically from time to time. Materialism denies existence of any consciousness, goal directed activity at this level. During its history, the Earth passed through the epoch of cosmogenesis, geogenesis, biogenesis, sociogenesis (civilization), and is now at the stage of noogenesis [Lozovskiy, 2003]. Our Universe now, besides the physical world, comprises mental worlds of currently living conscious beings and the cultural world of the whole humanity. In order to consider problems of knowledge, information, cultural stratum of the noosphere creation, we should analyze the process of knowledge acquiring by intellectual subject (IS) through its sensors, and then – information exchange between IS'es.

The conscious of live being receives signals from its organs, body parts and from environment through its five (?) senses. The sources of these signals are purely physical: movement of some objects, matter or flows of some energy. We shall call them primary effects (PE). Sometimes certain instrumentation is used to change modality of these PE, transform them to the form which could be perceived by the sensors of live being. Humans use microscopes, telescopes, thermometers, radio signals receivers, x-ray indicators, etc. The raw PE have limited usability for the living creature. Their receptor cells, organs, senses and nerve system assemble them into primary patterns, sometimes using preprocessing, detecting certain features $\{f_1 \ldots f_n\}$ potentially useful in being's goal directed activity. These primary patterns are encoded into certain material media in the form of signs. A sign S here is an entity which signifies these features. Usually there is a set of signs signifying different instantiations of features: $S = \{S_i\} = \{f_{i1} \ldots f_{in}\}$, where $i = 1, \ldots m$ – specific instantiation of n features. S we shall call an alphabet

of separate signs S_i. So, the main reason behind signs is that they signify some prototype entities – denotations. They say that the denotative value of the certain sign is specific denotation. This correspondence remains implicit. And it is the root of the notion of intellect, consciousness. Signs are the simplest ideal objects in the noosphere. Their creation and usage is closely entangled with the interpretation activity of conscious beings. The basic process behind it is reflection, mapping of reality into the knowledge sphere of the conscious beings. It is done *informally*, basing on the **personal** experience of the being.

Thus, we are speaking now about subjective mental signs, i.e. signs in the conscious sphere of the specific IS: $S^m = \{D, Sg, IS\}$. The mental sign is a triplet: specific denotation D, its designation Sg and IS itself in whose consciousness and from the viewpoint of whose goal directed activities this mental sign reside.

Of course, these interpretations are somehow correlated between live beings in the process of their social interaction giving some cultural representation – common denomination. "1:1 In the beginning was the Word, and the Word was with God, and the Word was God" [Bible]. That is how the human culture started – with the words of language, with signs, which were used to explicate mental signs of people socializing them for human communities, forming the cultural strata of the noosphere. Of course, by "word" we understand here not only words of the natural languages, but also the pictures, ritual dances, cave art – all situations of signs creation and their explication in the form of such or other signals.

In order to transmit signs to the proper destination signs themselves – ideal entities - cannot be used. Instead are used signals – material objects representing, substituting signs. The signals are created *formally* according to the laws and rules exploited in the process of sensors engineering (if they are technical devices) or in the process of evolution, if we speak about senses of live being. Communication networks, through which signals are transmitted, handle them formally as pure material objects. They, of course, do not "understand" their meaning or value in any way.

Let us consider now the conscious being – communicant, which receive some signals from its senses. Its first task is to interpret this signal reconstructing the source sign, i.e. the meaning in the terms of its denotation. Interpretation results in obtaining the set of parameters – attributes which specify corresponding features extracted by senses at the stage of interaction with reality. Usually these set of attributes are considered as connotative semantics of the given sign – its informational content. The second task is to match this sign against its own knowledge and data base (KDB, or simply: knowledge). At this stage the received information is evaluated.

Creation of the SELF identity. One of the first problems to be solved by the conscious being is to segregate itself from environment constructing its identity – its SELF. In this procedure exceptionally important role play own activity supported by being's effectors. Here the physical body of the being becomes the research and tuning instrument. For example, a kid sees a bright toy hanged over his/her cradle. First he just looks at it. Then he stretches a hand and touches it. This process is not straightforward – the kid at first cannot move his hand directly to its destination. But the goal of the movement is evolved, and the kid tries to accomplish it. When he sees that his hand moves in the wrong direction, he acts with his muscles to correct its trajectory. Even during the process of solving such primitive task, the kid learns to discern feelings obtained from his limbs and from objects in his environment: they are "closer" to him, and over them he has better control. Besides, he teaches himself to construct sensor patterns of possibly different sensors. In our example with touching a toy – he combines the sensors of arm and hand position, acceleration, fingers' control, touching the toy. At the same time he becomes acquainted with the objects belonging to its environment, which he can perceive, but his control over them is limited. On the next stages the space around the subject is explored, the measure of proximity to SELF is studied empirically.

This procedure of new identity creation is performed by any driver, pilot, bicyclist, even the typist in the process of mastering their engagement. After the certain period of coordinating receptor patterns and effecter control the subject obtains the feeling akin his body expansion, becoming a whole with his apparatus. Even the apprehension of geometrical dimensions in the consciousness of the driver changes so that he on the reflex level controls the driver + his car complex rationally during maneuvering.

It is instructive to evaluate information-delta – the state change of information within the KDB. Five alternatives are possible here.

1. *Deferred or irrelevant information*. It happens when correlation with being's KDB fails – being cannot "understand" the sign received. So, it could be stored for possible future consideration, or just rejected if such procedure is not planned. The value of received information (KDB knowledge-delta) at the time being is nil.

2. *Redundant information*. Information completely duplicates some fragment of the KDB. It can be rejected as useless, and the value of knowledge-delta here is again nil.

3. *Information augmentation*. This happens when received information correlates with the current status of the DBMS and can be used for its augmentation, bringing something "new" about the problem domain. Knowledge-delta here is positive.

4. *Contradictory information*. Received information can be correlated against the current state of the KDB, but it contradicts with information already present. In this case, there must be initiated the procedure which should investigate this case and decide who is who here. Knowledge-delta is nil, if the new information will be classified as erroneous, and positive if it will lead to bringing the KDB in better correspondence with reality.

5. *Erroneous information*. Formally it appears to be augmentative information, but in reality it erroneously reflects the situation in the problem domain. Knowledge-delta here should be considered negative.

The aggravating factor at this stage is that frequently the information received cannot be correctly classified on the fly according to types just presented.

Up to this point we have considered the process of signs creation within some conscious being. These signs are based on its personal senses (PS) - sight, hearing, touch, smell, taste, transformed into signals, which reach its sphere of consciousness and as a result of signal interpretation become information chunks which can influence (augment, decrement or modify) the KDB of this being. This knowledge remains within the consciousness sphere of this IS. But the cultural sphere support requires explicating this knowledge and passing it there. Only this process can make personal achievements of one being to become a quota in the treasury of all-human knowledge.

There exist two methods of passing our information to others: direct (personal) and indirect (via the cultural noosphere domain). Everyone will agree that personal is more efficient. And it is not only the due convenience of multimodal broadband communication between the subjects. Very important is that we frequently can use the direct method of passing signs to our collocutors: I show a tree, and say – it is a pine. Everyone can come up, see it, touch it, smell it, feel its beauty… That is why, when we cannot show to our pupils natural object, we show a picture, draw it ourselves on the sheet of paper – trying to approach to direct situation as close, as is possible.

But when there is no means of passing information to our communicants directly, for example, to our progenies – we use various methods to fix it in some form for future use by anybody to whom it may concern [Lozovskiy, 2005]. Thus the cultural domain – ideosphere - is formed and nourished.

The consideration just undertaken helps us to formulate the following definitions.

Intellectual subject (*IS*) is the being which can receive signals from its senses or from other IS, interpret them obtaining information, knowledge, ideal objects which it uses in its goal directed activity.

Sign is the entity created in the KDB of some IS having its denotation in the problem domain and designation - in the KDB of this IS supported with the connotative semantics needed for the goal directed activity of this IS.

Signal is the symbolic representation of some sign using specific material basis, carrier. Signals are produced by IS in the process of signs' encoding, modulation of the carrier. Examples: books, acoustic speech, radio station transmission.

IS willing to obtain some information from the other IS directly or from the KDB of cultural domain should have the possibility to decode signals from these sources and interpret them according to alphabet, vocabulary and language rules used. Of course, information obtained should be relevant (at least, potentially relevant) to the success of goal-directed activity, in which this IS could be involved.

Let us summarize the main issues of this section from the viewpoint of the leading AI objective: solving the enigma of human consciousness origination.

1. At the dawn of intellect appeared signs: special constructs comprising denotation in the problem domain, its connotation in the KDB of the being which was done for the benefit of some type of its goal directed activity.

2. Joint functioning of subject's receptors and effectors led to segregation of SELF identity out of the environment. This step is the indispensable requisite for behavior planning of the being.

3. IS had to communicate between themselves and create the KDB of the humankind – which gave rise to the ideosphere: cultural domain of the noosphere. Communication was done by means of signals transmission, where signs (ideal objects, chunks of information) were first encoded, attached to the material carrier in the form of signs and then due the inverse procedure – interpretation – ideal objects (signs) were reconstructed.

My conjecture is that this procedure, in its integrity, is vitally important for consciousness and intellect birth either in human society or in the course of this phenomenon simulation. It is emergence of the soul and spiritual life.

Beliefs as a Basis for Knowledge

I think belief is the notion of primary importance in knowledge engineering, psychology and in esotericism [Lozovskiy, 2005]. Here we shall study further elaboration of this theme.

Belief is a situation when model entity in a knowledge and data base (KDB) system is considered to be in adequate correspondence with prototype entity in given problem domain (PD). Strictly speaking, all model entities in any KDB are beliefs. Beliefs can be classified from the viewpoint of pragmatics.

- *Axiomatic beliefs in formal systems.* These systems comprise axioms and inference rules. Axioms are assumptions taken by IS without proof – on some pragmatic or aesthetic foundation, for example, axioms of Euclidean geometry. They are true on assumption base, i.e. for all those IS who agrees to believe in them. The characteristic feature of these beliefs is that they are completely abstract and need not have denotation in the PD. So they do not intersect in any way with the "real" life and are in no way "responsible" for any discrepancies between "the theory" and realities of PD.

- *Hypotheses in formal systems.* If we accept some axioms to be true (axiomatic belief), so, on the formal basis, are true all correct inferences from the axiom set – theorems, which supplement the axiomatic basis of the given theory and could be used for future inferences. Hypothesis in some formal system is the certain statement, which given IS lets, or assumes, to be true – *believes in its validity*. This statement

remains hypothetic until it is proved or disproved within the frames of the given formal system. Proved hypothesis becomes a theorem.

- *Natural-science beliefs, or AD-hypotheses.* Probably, they belong to most complicated category of beliefs. Researchers formulate certain assertions, or systems of assertions concerning the realities of the application domain (AD) considered. First, they have the status of hypotheses, i.e. beliefs. Eventually these hypotheses should be verified: theoretic, or model, facts or estimations should be in specified correspondence with known real data – according to specified requirements and accuracy. Besides, AD-hypotheses are tested in the prediction mode: the inferences about unknown, or future, AD facts should be confirmed by the factual information during future AD studies. Usual requirement to these confirmations is stability obtained irrelevantly of factors, which should not influence measurements: invariance to time, place, instruments, persons, et al. All these requirements should be scrupulously specified by the author of the hypothesis. While more confirmations of this type are obtained, more plausible the given AD-hypothesis is considered. While testing of a hypothesis supplies exclusively positive results, its weight increases, and gradually it drifts towards the "theory" qualification. But researchers should not loose wariness and look for falsifications of such "theories". One reliable falsification is enough for reconsideration of the theory – either slight, or even principal. Sometimes, it leads to its complete abandonment. Thus, "reliability" of natural science "theories" can vary in the broad range only asymptotically approaching the 100% figure.

- *Extrapolatory AD beliefs.* These beliefs are variations of AD-hypotheses and apply to events, processes or parameters' values, which, according to given IS understanding of phenomenon considered, should happen, or actualize in future. This belief may be based on intuitive extrapolation of observed process. Not excluded is the use of algorithmic methods. It is important to notice that it is impossible to accurately predict future on the basis of formal methods: processes in the AD are always liable to uncontrolled influences and restricted accuracy. According to [Ashby], in AD we always have to deal with incompletely observable systems. Such systems, from time, to time behave themselves whimsically due the interference of unknown to us factors. It is not the intrinsic statistical essentiality of the given phenomenon – it is just limitation of our knowledge.

- *Belief-insight.* Sometimes humans are embarrassed to explain their arrival to some idea. Frequently it happens quite suddenly without noticeable process of reasoning and inference. Mystics explain it with the help of God's providence and direction. At the same time they slyly omit the fact that such revelations condescend only to specialists in specific field of knowledge, who spent much time and efforts studying their theme and trying to arrange their knowledge in some systematic form. Of course, the great support comes from one's subconscious sphere.

- *Cultural (ideosphere) beliefs.* The human progress brought us the noosphere phenomenon with its ideosphere including ideal entities, created by humankind: sciences, arts, religions, etiquette, folklore, habits, customs, etc. Every human belongs to the certain historic, social and culture stratum, accepts linguistic, ethic and aesthetic habits and conventions of his native land. Holding to specific cultural beliefs tends to consolidate people within corresponding social units. Existence of cultural beliefs is indispensable feature of human progress. Everybody accepts, as an initial capital, achievements and inventions of previous generations. He should assimilate them, believe in them and add there his own achievements. Without acceptance and assimilation of these beliefs, each human being would have to start his own progress from the zero level and all his knowledge accumulated during his life will vanish with him. It is clear that a person cannot check personally all the bulk of knowledge produced by civilization: he has just to believe in it relying on the joint human experience. Of course, sometimes even the conventional truths

are reconsidered. But essentials of this notion – cultural beliefs – remain. There are several kinds of cultural beliefs. In what follows we shall consider absolute belief, mystic theories, confidence and egregors.

- *Absolute belief: faith.* This belief usually concerns Intangible World, about which, according to the definition, we have no positive knowledge. Faith, religious belief in its purest form does not need motivations, argumentations and confirmations. It is given to its followers "as is". At most, you will receive reference to some "Holy" books or to authority of certain "known" people. Pure beliefs have nothing in common with World comprehension and can be thought of as some variety of cultural beliefs. Usually specific faith is adopted within certain community and is presented to children as indispensable attribute of their life: "You should believe, because all our people believe". In folklore, fiction literature we have popular genre of fairy tails, which are close relatives of religious beliefs being the product of people's dreams about better world, or having some didactic moral.

- *Mystic theories (MT).* They closely resemble absolute beliefs. From the other side, the term "theories" is used here intentionally: creators of MT present them as if they are natural-science theories, which explain our World, Nature, Universe, human behavior… By the way, the term "theories" is, of course, exaggerating here – even to use the term "hypothesis" there should be certain grounds. Main efforts are put there to perform this mimicry: you will find numerous references to natural events, to social situations; even situations in human life, human feelings, psychological state, emotions, in relations to other persons – everything suggestively "illustrate" the adequateness of such "mystic theory". In argumentation you frequently find phrases: "It is well known…", "Scientists have proved…", "Numerous evidences exist…", - but you will never find exact clues to any of the mentioned "facts" or documents. As a support, very popular are the references to prominent, well known authors of the past. Sometimes they name contemporary authors, which, of course, are academics of certain self-made academies having no relationship with National Academy of science, but this nuance is frequently omitted. The funniest thing is – when you pick such source materials – you will frequently find there the same rootless argumentations. The trick is in the hope that many readers will believe in the given "theory" and will not check the issue from the sources… You will never find such thing as mystic hypothesis – only "theories" which sprang into existence by some irrational way – no one will answer you the questions: "Why do you say so?", "What validating facts exist in its support?" Frequently you will be informed that on the basis of the given "theory" many useful devices with fantastic capabilities were implemented. Of course, you will never obtain factual confirmations for these claims. Good analysis of mysticism and MT was performed by [Nan]. In the similar sense he uses the term "virtual patterns". Frequently MT use very dim undefined entities, for example – the concept of God, spirit. These theories are usually very general – they explain *everything*... Of course, they are completely independent from natural-science and other MT. Usually these theories rely heavily on human psychology and socio-psychology making very far-reaching conclusions about general principles of World construction, problems of matter, energy and information. MT is characterized by absolute isolation from reality. On the basis of such theories one cannot perform certain actions with guaranteed result. Sometimes something "works", sometimes – not. Experiments typical for natural science are rejected by MT adepts from the doorstep. Frequently MT is declared as completely subjective one – that is why you cannot ask somebody to demonstrate practical results: you should work out and believe in them yourself. MT closely resembles religion, absolute belief. Sometimes certain practical effects are used in support of specific MT. The closer analysis show that they are, in fact, independent: the same effects could be achieved on the basis of some other MT or without any theory at all.

- *Personified, authoritative, social belief, or trust*. Trust has deep roots in cultural belief and is based on personal relations of believer to other person or other source of knowledge. If I trust to somebody or some knowledge source – I will believe in facts and advices, which I obtain from this source. Children trust their parents, students trust in their teachers, absolute believers trust in their Gods and prophets. Of course, we can argue about foundations of such trusts. Sometimes we trust to sources, which proved their reliability in the past – personally or transitively - due advice of somebody in whom we trust. Sometimes – because we should or have to. Regretfully, uncritical social belief frequently leads people to belief in mystic theories. Being asked – why do you believe in this – the answer is: because He (?) said it…

- *Autosuggestion.* Using computer slang, this belief could be named self-programming. These beliefs are constructed in one's own mental sphere. Belief in victory, in overcoming obstacles, in own recovery – they all program our conscious and subconscious spheres for insistent goal-directed activity, helps our personal neuro-somatic system in adjusting functional disorders, stimulating our activity in the specified direction. "One but fiery passion" is the powerful mechanism for making one's dreams come true.

Concluding this section dedicated to various kinds of beliefs, we can state the following.

1. Beliefs are indispensable part of our conscious goal-directed activity.

2. Any belief should be crowned by some important *real* outcome, must be proved to be true: "the proof of the pudding is in the eating". This outcome not necessarily is material – quite possible, it will manifest itself in some ideal, psychological form, but it has to do it!

Egregors and the Cultural Noosphere World

Egregors [Egregors, 1-4], [Bernstein] are probably among the most powerful and distinguished components of our culture. They are both its creature, content and indispensable part. More than that – without egregors neither existence, nor development of our noosphere cultural strata could be possible. Here is my definition of egregors.

Egregor is the system of socio-psychological relations forming certain social unity with the set of some common features: language, goals, interests and other bylaws. Examples are: nations, countries, organizations, societies, teams, families, religions, political parties, affinity groups, sporting or hobby circles, various geographical or situational communities (population of a town, village, district, current passengers of a given bus, participants of some birthday party et al).

Each person belongs to several egregors at a time; some being rather stable, others quite situational. He cannot be "free" – he is bound by rules, written and unwritten laws, regulations, moral "do's" and "don't's". So, his behavior is a resultant force in this complicated informal superposition of different egregorial tendencies and influences. Understanding human behavior from any point of view: societal management, governmental policy, simulation of intelligence and organizational management systems creation is impossible without closer acquaintance with egregorial technique, their internal structure and dynamics.

Determinative features of egregors are issues of their content, interrelations between their members, relations between egregor and its members, and "outer" relations: with other egregors and their members. Egregors manifest themselves in powerful factors of psychological influence and inter-influence on conscious and subconscious levels, which frequently add to them certain mystic hue. Theosophists associate with egregors fine-material fields, energy or entities, which can "suck energy" from participants, protecting them, in their turn, from (hostile?) influence of other egregors. Up to now I have no confirmations of any external (besides participant's psychics) existence and properties of this mystic energy-information egregor component. Their social and psychological components really have great influence on people. We shall study this issue closer.

- *Existence of some common grounds.* Specific community is created around some idea, belief, sphere of common interests, or just on the basis of certain common features of their members: territorial proximity, geopolitical preferences, relatives, graduates of some university, common language, ethnicity, hobby, religion, sporting teams, organization's staff, et al.

- *Teaching.* The most powerful and durable egregors have certain Teaching (from capital "T") in their core. It plays the role of the central kernel, bearing axis which allow put the Movement, societal mechanisms to the full swing. The Teaching should bear some great spiritual idea – achieving total happiness, world of general welfare and justice, redemption of sins, self-improvement, achieving Kingdom of Light, eternal life, merging the God. All known religious cults, socio-political movements are here: socialism, communism, fascism, nationalism, chauvinism. Very important is the Teaching's age. Antique teachings accrete with own myths, history (real or fictitious). These factors render significant influence on their participants' psychics.

- *Originator of the Teaching.* Weight of the Teaching is effectively supported by the personality of its founder, originator – either real or mythical, his companions and disciples. As a rule, the founder's and disciples' portraits are delivered. They are necessarily idealized, taken at the earlier age, intensively retouched. Grey hair and other chevelure deficiencies usually are repaired. Worshiped personality is ennobled, natural facial asymmetry – corrected, frequently kind smile enlightens the face, or, at least, eyes become more affable than in reality, height is corrected. Sometimes, the leader's images become medal-like. Compositions can be used, where leaders are put together with the jubilating crowd in the background, rays of the raising sun, sky, white clouds... One should pay special attention to the personality of the current leader, or the head of the organization. If he, at the same time, is the founder of the Teaching or organization, if he pretends for special distinction: being incarnation of God, Jesus, Buddha, modern prophet, superhuman, extraterrestrial intellect envoy, if he does not share his lordship with nobody else, pays the primary attention to boosting his personal authority – we may deal here with a sect, probably, destructive cult. Instead of explicit (implicit are always present) leader, some other object of worship could be present – fetish, artifact, deity, natural power, et al.

- *Documentation.* In the foundation of egregorial formations usually there is documentation concerning this community or Teaching. It could be some "sacred book", or books – in case of religion, unwritten laws, ethnic traditions, statute of the party, marriage contract. "Sacred books" usually include abundance of (different) elucidations, explanations and interpretations. Frequently you find there evidently contradicting items: it helps sacred book interpreters to justify any politically alleged action. Sometimes simplified versions are provided for children – using understandable examples. Children, women, youths are approached with the keen attention. Within youths' programs are being thoroughly developed sublimed ideals, positive patterns, various parables, stories with educative undertones. Most powerful, influential egregors are attraction points for various art workers: painters, litterateurs, sculptors, composers, which, according to their talent and capabilities, produce emotional and iconic background for the Teaching they back up. By the way, the quality of such humanitarian production frequently can be outstanding. These artists' authority and immediate influence on people's psychics efficiently support their political order.

- *Membership regulations.* Special regulations may exist concerning the membership. Officially registered egregors, as a rule, have regulations, where the principal ideas of the corresponding Teaching are formulated together with mandatory requirements to the persons allying the Society. Becoming a member may be free or paid, an applicant should satisfy some requirements (believe in The Idea, have certain qualities, or be eager to obtain them, etc). So, there exists a procedure of initiation, enrollment into the community. Special rituals of joining the community are developed. There can be several qualities of

participation according to candidate's maturity, preparedness and merits. Rites for initiation, consecration, rank granting are worked out. They can be simplified, constituting, probably, only the informal talk; sometimes, written or even oral statement is enough. But it can be a pompous ritual, oaths with summons to the party's functionary, mystic ordinance in the presence of consecrate, senior colleagues. The neophyte can be exposed to certain trials, exams, to which he prepares himself in advance and agitates together with his relatives and friends. Analogously, formal procedures and rituals exist for condemnation of member's misconduct – including exemption, disfellowship or even the more rigid punishment.

- *Member's rights and obligations*. As a rule, these documents are an inalienable part of the documentation corpus of organization. They may be written, or be words of mouth and fix members' obligations and rights – in material and spiritual aspects, their do's and don't's, how to treat their egregor's outsiders. Each member has a set of liabilities concerning the broad spectrum of what should and what should not be thought, said and done at proper circumstances. As a reward community's member receive sometimes material, but – what is much more important – moral, spiritual support, that wonderful feeling of participating in some great, true, even holy activity. Frequently, such community promises take a form of future happiness to come, maybe even after physical death. This issue has paramount importance and is probably determinative in the whole community–members' affair. This mechanism works on psychological level and has powerful suggestive effect. They are suggested that they are participial to the great and sacred affair. Pictures of happiness and glory are depicted, overall happiness, sublimation and awards, usually, in future, or even in future life… In the later case, the conception of postmortem existence is developed, where generously all possible rewards are promised: sins forgiveness, piety and other feats in this life requital. Special attention is paid to mutual support of egregor's members. It could be both moral and material – money, roof over head, kind attitude, caress, empathy, spiritual support – up to trance, suggestion methods and psychedelics. As a result, community member arrives at the conviction that he has found true defenders and mates, which surely will punish his offenders and rescue him from dangerous situations. Members of egregorial community frequently use specific addressing towards each other: friend, comrade, colleague, brother (sister) et al. All these factors, in complex, have exceedingly strong influence on the psychics of each member. He becomes overwhelmed with "energy", sincere and cheerful feelings of belonging to something great, glorious and honorable, and it creates so strong ties with the Teaching, he appreciates his membership even more and more, and, according to constructed positive feedback, with all his might yearns to become better, escape blaming and punishment, longing for praise and acknowledgement of "senior comrades". Personality suppression methods are widely used, which make possible members' behavior monitoring and management. Resulting human beings sometimes are easily recognized due the unhealthy eyes glister, excess activity, or contrariwise – excess aptitude to depression, illegitimacy of behavior, failure to communicate in themes diverging from those adopted in his society.

- *Membership certificates*. Sometimes members of a community are formally registered and receive personal certificates confirming their membership. It adds to their confidence and self-respect, impresses relatives and acquaintances. Sometimes such certificates are used to obtain certain benefits or preferences beyond the societal boundaries. When putting inadvertently such certificate into somebody's face, its owner really feels the power of his egregor behind his shoulders. Similar sensations are expected (or really induced) in his opponent. Psychological, suggestive power of an egregor increases with its age and the number of its members. Egregor's heads and officers adore mentioning these figures, and also other ones, characterizing egregor's power and penetration into society.

- *Symbolism and rituals*. It is the last in the list, but not less important factor aimed at egregor's unity, power and increase of its influence on others. Usually, special thoroughly developed symbolism is present. Official blazon, colors, uniform, flags and banners, badges, ribbons and knots decorating suits, dresses, car antennas et al. The same color gamut is used for scarves, ties, bras, slips and bathing suits. Sometimes this stuff is distributed free of charge or for just symbolic price – so that even plain people can demonstrate their support of new power. Special garments fashion can be introduced, which is carefully thought over with attraction of good designers and artists. It also had to discipline members, render impression on others, suggesting respect and prompting them to join the Society. Considerable attention is devoted to acoustic impacts. Besides the acknowledged pieces of music and choreography: songs, marches, hymns, dances, - widely used are NLP (neuro-linguistic programming) and various hypnotic, suggestive and trance techniques – including drums, which role could play even empty iron barrels, fifes. Songs also comply with strict social control task; widely used are primitive slogans, short words, affirmations, their multiple repetition. All these sounds, at the pain threshold levels, conforming with the certain rhythm aimed at psychic's suppression suggesting inevitability of the coming… no, already achieved victory of the new Teaching, new bright and just social formation.

What can be said as an implication of this rather lengthy consideration?

1. The phenomenon of egregors is total: our life in its social aspect is superposition of oodles of egregors. Each one is organized according to definite principles, but in their dynamics they interact in rather complex way producing conflicts and resource clinches. That is why planning goal-directed activity in AI remains so difficult task in real applications.

2. The main clue to understanding this aspect of human behavior is further investigations in the sphere of human psychology and sociology. It is inevitable from positions of human society management enhancement, and as a countermeasure against evil attacks from antihuman forces: destructive religions and cults, imported "color-revolutions", attempts to subdue or zombify people.

3. In the course of this research effort was not revealed a single argument in favor of any supernatural, "fine-material" foundation which according to some esoteric sources is an immanent component of egregors. No mystic influences, no mysterious "magic" – just psychology, though much more elaborated, than "classic" one.

Magic. Psychological Hypostasis

Miracle for certain IS is some activity, or result of an activity, when it (she, he) fails to follow the cause-effect dependability between events. According to [Augustine], - miracles are not contrary to nature, but only contrary to what we know about nature. Of course, this definition is really subjective, dependent on IS, its knowledge base, attention and goals. What is miracle for one could be quite evident for the other. A miracle can vanish, if somebody explains you the situation.

Magic is a miracle demonstrated by some IS, which is called *magician*. Pay attention that miracle demonstrated by non-IS remains miracle – not magic.

Juggler is a magician, who demonstrate "self-made' miracle created by knowingly concealing or distorting some cause-effect structure in the process of his performance. Thus, we can say that magician is "true magician", while juggler is only pretending to seem a "true magician".

The nature of a miracle. The phenomenon of a miracle is determinative for the process of World cognition by civilization (system of IS'es). Research efforts stem from revealing discrepancies between expected course of events and observed one, that is, first, we reveal some miracle, and then discrown, demiraclify, demystify it by

working out explanations, models, theories, concepts, even new paradigms – if it is needed. Thus, science functions as destroyer, extinguisher of miracles. Here is the main controversy between scientists and humanitarians, who prefer to "play" with miracles, live in mystic worlds. Yes, existence of miracles spiritualizes our life. Unanswered questions should always remain the part of our culture. While scientists demiraclify the World, humanitarians defamiliarize [Defamiliarization] it. Here is dialectic contradiction in action. Disappearance of the last miracle would be the death of the culture.

When some IS encounters a miracle, we can put a question about its explanations: are they rooted in the problem domain, in his cognizing world system (psychics), or both. For every IS the whole Universe can be divided into two parts: its internal, subjective, psychic, mental [Lozovskiy, 2003] sphere and all the rest material World. Of course, our IS is not an isolated being – it exchange signals with ideosphere, with other IS's and transforms them into knowledge thus nourishing its own mental resource, supplying, in his turn, his own contribution to the all-human noosphere.

I shall not pay special attention here to the material World. It ought to be done by specialists in physics, biology, astronomy, et al. according to classical natural-science approach: gathering of evidences - hypothesis formation – experimental validation while checking invariance over instrument, experimenter, time, place change, predictions, accumulation of reliable statistics – lookup for falsifications – hypothesis adjustment, or even paradigm change – recurrence to experiments. During these iterations hypotheses gradually earns the status of natural-science theory.

My conjecture is that majority of mysterious effects which overwhelm esoteric books has psychological basis. The main principle here should be that of Occam's razor: The principle states that the explanation of any phenomenon should make as few assumptions as possible, eliminating, or "shaving off," those that make no difference in the observable predictions of the explanatory hypothesis or theory. In our case, if we have evident materialistic explanation of some phenomenon, there is no need in alluding to any mystic, fine-material and the like esoteric factors. In esotericism the antithesis to Occam's razor principle – that of the suslik is very popular: "Do you see suslik? - No... - Neither do I!... But he is there!" (film "ДМБ"). Hereinafter we consider several "esoteric" phenomena.

First of all, I should state that all my efforts from 2003 up to now did not produced reliable evidences of any objective "supernatural" effects in the physical world. Neither telepathy, nor clairvoyance, telekinesis, levitation… The healers and "clairvoyants", with whom I contacted, dealt only with humans. They either strongly opposed to participate in pure statistically reliable experiments, for example, Zener cards reading, or results obtained were within statistical expectancy limits. The resulting natural impression was that probably one should carefully study the peculiarities of human being as an object of esoteric activity. The most important, discriminatory feature of humans is their consciousness, fine psychological processes, accompanying all intellectual activity, including social psychology which is the backbone of all egregors. The phenomenon of consciousness, goal-directed behavior is the result of gestalt-effect on the basis of the material entity – human being with all its structures, subsystems and processes, organized "in proper way". Performing the inverse operation, - that of analysis - we inevitable find psychology as the determinative hypostasis for behavior of humans.

Magical impacts: malefice, spiritual injury, damnation. We shall not go into fine distinctions of these acts, as superstitious people do. In what follows, I will try to nominate several important aspects, common to all known to me magical acts.

1. All humans, before they can experience any magical influences, should be prepared. If we deal with religious influence, they should know the main dogmata of this religion, to be believers, be included into the corresponding egregor. In case of orthodoxy, they must believe in God, Jesus, angels, paradise, hell, Satan, sinners being tortured in the kettles with boiling pitch. In esotericism very popular is the

notion of "energetic entity", which is – as they say – some fine-material being, which could suck energy from the poor victim, or implant some malicious "programs" into his soul, changing his behavior in malicious way… Superstitious people afraid of black cats, number # 13, Fridays, etc.

2. If the given person is not yet "prepared", the primary magician's task is to "explain" him what he should be *afraid of*… Please, mention, that one of the most efficient instruments in magic is a *fear*, better – terror. Magician, in order to be successful, has to rip out his subject from the adequate nature perception, replant him in the field of magic theory, where precedently adequate thinker becomes the true believer.

3. To the full swing is used suggestion – in every possible form: classic, Ericksonian, Gypsy hypnosis, NLP.

4. Powerful influence is experienced by a subject participating in deeply and broadly developed egregors. This influence can be so intense, that mystics attribute it to some supernatural forces, immaterial energy and information field.

Virtual communities – forums, chats and trolling. The progress in Internet communications facilitated creation of virtual communities – specific form of egregors, where participants can be spread geographically all over the globe, but they are bound with some sort of common interests, science, technology, hobbies, language, way of life or behavior. Each participant has the broad spectrum of features to create an image he likes. He can change his real age, gender, appearance, use nicks and specific pictures – avatars – representing his identity. It opens the door to real identity proliferation. Thus one physical person can develop several absolutely distinct personalities. Changing your virtual identity gives phenomenal experience absolutely unachievable in real life. For example, very popular become identity deception games. These virtual communities become more and more efficient substitute for the "real" physical contacts. Of course, psychiatrists should be aware and preclude our society change to fantastic one, foreshown by [Aldani]. Forums and chats became widely accepted practice today.

A few words should be probably said about [Trolling] – less known practice. Trolls can be existing members of a community that rarely post and often contribute no useful information to the thread, but instead make argumentative posts in an attempt to discredit another person, concentrating almost exclusively on facts irrelevant to the point of the conversation, with the intent of provoking a reaction from others. A troll is a person who approaches a board with the specific intention of stirring things up, either with no particular motive or provocation in mind, other than to be purely destructive or if the motive or provocation is against the ethos of the board. A troll can disrupt the discussion on a newsgroup, disseminate bad advice, and damage the feeling of trust in the newsgroup community. Sometimes it can appear as the Devil's advocate.

Good and bad luck. Sometimes, people become fascinated by the overall arrangement of their life attributing it to their "fate", destiny, karma, or just saying that somebody is lucky, or, contrariwise, pursued by bad luck. Esotericism pretends to give certain mystic, transcendental explanations, while quite straightforward explanation is given by inherent and trained personality type plus evident practice in memory and attention development, positive attitude towards neighbors, meditation, relaxation and concentration practices.

Premonition. Sometimes, we can hear stories about premonition, forecasts, anticipation of some events. These phenomena are also attributed to Providence, or some extrasensory connection with global energy-information field, **Akashic records** and the like. The Akashic record is an imagined spiritual realm, supposedly holding a record of all events, actions, thoughts and feelings that have ever occurred or will ever occur. Theosophists believe that the akasha is an "astral light" containing occult records which spiritual beings can perceive by their special "astral senses" and "astral bodies". Clairvoyance, spiritual insight, prophecy and many other untestable

metaphysical and religious notions are made possible by tapping into the akasha. Interesting peculiarities are extant in all these evidences:

- they all are a posteriori ones – when a person experiencing some good or bad influence tries to find his aforegoing feelings and anticipations, and, as a rule, succeeds in it;

- no one journalize thoroughly his life from this point of view – in order for to check in future: how many premonitions were successful, and how many – not – which could facilitate calculation of reliable figures;

- we obtain refusal to organize reliable experiment which within the sound statistics could help in finding actual efficiency of such premonitions.

All phenomena considered in this section emphasize the outstanding importance of human psychology which together with socio-psychological egregorial constructs alone could be responsible for vast majority of situations, which, from the viewpoint of esotericism, should be attributed to fine-material, magic, or occult occurrences.

Conclusion

While being enthusiast of knowledge engineering approach to AI, it occurred to me, that we, trying to simulate human conscious and behavior, probably have rather vague understanding of what human intelligence really is, how does social life influence our mental sphere, how to overcome the immanent complexity barrier due which we inevitably bump into the concrete wall of controllability, or even, understandability when are trying to simulate really nontrivial behavior. My attention was attracted by esotericism with its very long history, quite different explanations of conscious – subconscious – superconscious, even its extravagant attitude to basic questions of philosophy. It was interesting to learn what was this exciting discipline about, and what the moral could be drawn from there for supporting progress in AI. Here are my findings.

1. According to evidences obtained by me from 2003, esotericism comprises neurosomatics, psychology, socio-psychology and rampageous fantasy frequently taking the form of mystic theories. No decisive indications of energy-information field, telepathy or clairvoyance were discovered. Of course, obtaining such evidences in future could change the attitude of nature-science specialists to this field.

2. The role of psychology, especially, socio-psychology in creation of human consciousness is tremendous. AI cannot be created through preprogramming. On this way we should expect not more than Mowgly being. Evolutionary approach towards AI should include, first of all, acknowledgement of SELF. And, of course, it is possible only in the frame of integral robot with the complete set of receptors, effectors and possibility to interact with the physical world and other beings, communities.

3. Materialistic approach to the problems of noosphere – is the sound foundation to the concepts of sign, information, knowledge, ideal object, intellectual subject, while the whole construct moulders to clay if we start our consideration from concepts, ideas, "word".

4. The notion of belief was considered. It occurred that there are about 10 different kinds of beliefs. Beliefs themselves are indispensable part of human conscious activity.

5. The key notion of social activity – egregors was completely purified from any occult interference: fine-matter fields, "energies", General Universe Intelligence. Their functioning can be completely specified from the positions of socio-psychology. At the same time, all humans live in egregorial jungles, and their real influence on genesis and behavior of humans is immeasurable.

6. Many "mysterious" effects, such as, magic, powerful spell of virtual communities, trolling, human fate and premonition could be naturally explained in terms of egregorial influences.

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