

Psychology

THEORETICAL PSYCHOLOGY: THERE IS A REASON FOR IT TO REALLY EMERGE

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The most incomprehensible thing about the world is that it is comprehensible.

Albert Einstein.

Abstract

A ground to master the subject entitled gives a bigger realization of the very essential factors of evolution process and their inter-relations. For higher animals, the first, the cognitive principle of tolerance in brainy work, follows from the all-biological principle of tolerance ("Nature is tolerant to distinctions in the alive world"), the second, the principle of near-dominance (or of smallness of attention's volume) in activity of the animals' brain, is predefined by eliminating evolution selection. For human beings, appearances of these factors proved to be the same **cognitive principle of tolerance** (CPT) and the **shortage of panoramic thinking** (SPT). All the human history may be seen then as overcoming the SPT, with **cognitive tolerant inclusions** (CTIs) as the tools for this overcoming. It is argued that the CTI as the universal **mechanism** of all

psychical processes turns into the ***instrument*** in the process of cognition. All this permits to propose the ***Mentallion*** to contain CPT, CTI, and SPT as a conception to create a base for theoretical psychology for it to be able to give an answer to the global challenges.

Keywords: Cognitive principle of tolerance, tolerant inclusion, shortage of panoramic thinking, insight-technology, Mentallion concept.

Introduction

The state of psychological knowledge gives cause to think about theoretical psychology as a topical problem. Thus, after L.M. Vekker [24] almost all psychological theories available turn out too split up, mutually not bound and sometimes contradicting one another. It is remarked as well a breach between psychology of psychical processes and that of the person [5].

An approach to theoretical psychology was given by V.M. Allahverdov in [1.1], with characteristic sub-title: "In the genre of scientific revolution". The book should be mentioned here even if because of a roll-call of its title with that of the paper, in spite of the very author of the book characterized its full title as "twice ironic". Though this book is to some degree "declarations about intentions", there are there nevertheless several principles that are apperceived as a vision of a future theoretical psychology's grounds. These principles to be shared by the paper's author, might be considered as V.M. Allahverdov's contribution to the future theoretical

psychology. (See ad hoc Appendix C: Discussion on the logic of cognition).

Explicit presentation of the main factors defining human cognitive abilities and their root-evolutionary causes [23.15] permits to consider them as a ground for theoretical psychology. Fundamental textbook on the cognitive science [25] to contain no mention about evolution correlates of human psychical features and their modern forms confirms the novelty of such the complex approach [23.15, 23.19]. Moreover, just such new awareness gives ground to change paradigm of cognitive psychology, for it, in circumstances of global human crisis, to take into itself ***cognitive imperative of making for civilization survival*** [23.17].

The hard circumstances make think about it. Thus, after estimations [13], one billion human population, not more, would be apt only to reach sustainable development. The very title of the book [13] may be apprehended as a catastrophic prophecy, and in [15] the answer was given why. Nevertheless, one may speak about responsibility of the science to be taken – just because of those civilization omissions, i.e. for tens and more years “closed discoveries” that being found and employed would give humankind resources of all-civilization development to cope with global problems [23.10]. The confidence in this is supported as by the temporal analysis of history of scientific discoveries [20] as well as hampered perception by scientific communities of ideas carrying out radical novelties [23.4].

Evolutionary Correlates of the Human Psychical

Abilities

Such the promotion to their familiarizing is proposed: some theses together with PROs supporting each of them.

I. There is the human mind's imperfectness having the character of an atavism.

Pro 1. One may admit it is so because Homo Sapiens, having got the very successful animal species, came mostly out of the press of the eliminating selection, so human's mentality appeared to remain nearby to animals' one [23.5].

Pro 2. There is an isomorphism between the human face and the animal snout being seen in their similarity and maximal nearness of the main organs of senses (eyes, ears, nose, tongue) to the governing organ, the brain [23.17].

Pro 3. Structurally, the human brain is quite near to that of animals, just because of this a unique zone in human cortex revealed recently [10] is small: "Oxford University researchers have identified a small zone at the very front of the human brain that looks unlike anything in the brains of some of our closest monkey relatives."

Pro 4. Albert Einstein would support the thought about brainy atavism as he was sure: "The significant problems we face today cannot be solved at the same level of thinking we were at when we created them."

II. There is causes to name this atavism the ***shortage of panoramic thinking*** [23.10, 23.13].

Pro 1. Our animal forebears were surely characterized by

a small attention's volume as being in correspondence with frequent extreme situations of their life in conditions of the eliminating natural selection, and signs of this SPT are seen everywhere

(intentact.webs.com/spt_signs.htm).

Pro 2. Characteristic time of the human sensory memory is compared with 0.5 s [16]. It is inherited by us from those times when our forbears had to scan all about to avoid dangers.

Pro 3. Law 7 ± 2 about (i.e. not too big) human capacity for processing information [18] is nearly about the same.

Pro 4. It is proposed to juxtapose: "Errare humanum est"; our too hasty both conclusions and actions; our "ability" to overlook even most essential things – for then to have seen that all these are appearances of the SPT.

Pro 5. Enormous distribution span of human intelligent qualities -- from idiots, stupid, foolish, "so-so", clever, gifted, and up to geniuses -- might get such because of excluding Homo sapiens' brains (fully or almost fully) out of the evolution selection.

III. In the living nature is acting **All-Biological**

Principle of Tolerance: Phase space's volume of a species' features is some not zero value [23.5, 23.15].

Pro 1. Manifold of the life's appearance, millions of animal and vegetable species, the very biological taxonomy make formulate: Nature is not intend to create the single perfect organism to cloner it then, i.e. **Nature is tolerant to diversity in the alive world** [23.5, 23.21].

Pro 2. The rule of contraries may be used to show impossibility for a species to live in a changed

environment having no diversity by the species' signs [23.15].

Pro 3. It was American ecologist Victor Shelford who published in 1911 something similar, the ***ecological law of tolerance*** [6]. It sounds: "Each organism --whether the individual or the species population --is subject to an ecological minimum, maximum, and optimum for any specific environmental factor or complex of factors. The range from minimum to maximum represents the limits of tolerance for the factor or complex."

Pro 4. Tolerance as a phenomenon in the living nature has wide distribution. Tolerance appears every time already at cell level when sperms are allowed to enter into an egg; males and females of the same species as a rule are tolerant one to another; mothers more than tolerant to their children; even pistil and stamen appear to be tolerant sufficiently to be joint.

IV. Principle of tolerance in the work of the brain expresses, in particular, its capacity not to remark, to neglect, not to take into account differences / distinctions between things being like, similar, comparable or analogous.

Pro 1. It was mathematician J. Bronowski who wrote in his book "The Principle of Tolerance" published in 1977 (see [3]): "The Principle of Uncertainty is a bad name. In science or outside of it we are not uncertain; our knowledge is merely confined, within a certain tolerance. We should call it the Principle of Tolerance".

Pro 2. For us to use Principle of Tolerance, there is a root cause not only because of it is better than the principle of uncertainty. The cause is that all-biological principle of

tolerance (ABPT) governing in the live nature [23.5, 23.21] must have touched the brain, and the ***Psychological Principle of Tolerance*** (PPT) does show itself among people [23.5, 23.15].

Pro 3. Appearances of PPT are seen within any animal species as collective existence is evolutionary justified when individuals of a species are mutually tolerant.

Pro 4. There is the work [26] where the supposition is said out that “sufficient near states of the brain define the same thought”, so these states forms a tolerant space, as such being an object of the authors-mathematicians’ interest.

Pro 5. A case of implicit use of PPT is given in [1.2] where the term “the zone of realized disregarding of differences” is used to present the law of classification: “Everything to be realized is realized necessary via belonging to a class and identified with other members of the class.”

Pro 6. All-biological character of the principle “Nature is tolerant to differences” permitted to propose (via the DPI/UN) an insertion (intentact.webs.com/UNESCO_plus.htm) into the substantiating part of the UNESCO Declaration of principles on tolerance (1995) in order to strengthen the meaning of the document.

To realize better

Here is to show in action the complex approach [23.15, 23.17, 23.20] what permit to present this article with such challenging title. We can remark that the principle of representation is usable among us. It is when a

representative identified by us (for a time and not fully) with that it represents. Thus, a name for us is identified with the bearer of the name, a title of a book presents the very book, a bank account – the money saved under this account, a trade mark – the company, a country's name – the very country. Essentially, a term and its sense (definition) forms similar pair as well. It is a reason to name this principle cognitive as having to do with investigating cognition.

However strangely it is, this **cognitive principle of tolerance** (CPT) is acting among animals as well. Really, they can identify an alarming cry with a danger and a smell with the food having this smell. So, as well as people they are ruled by CTP, too. And for us and for animals to follow CTI means to be able, in processes of cognizing the world, to accomplish **cognitive tolerant inclusions** (CTIs) of the subject type and control their results with appraising CTIs [23.19, 23.20].

The same inference about CTP and CTIs, as defining life activity of beings with the brain, follows from considerations given in [23.21] where the cause-effect connection has been shown between the **all-biological principle of tolerance** (OBPT) and CTP. It means that because of such straightforward evolution origin, CPT is ready to get the **all-psychological principle of tolerance** (APPT). To underline the said: just as owing ABPT had been created the life on Earth, like this owing APPT human beings with their Reason had created the civilization.

ABPT and CPT are neared as well because of the common root cause [23.21]: near-dominant character of the brainy activity to be inevitable in conditions of the eliminating selection, with its plenty of extreme situations. In result, narrow volume of attention to be advantage in the wild nature, is for human beings, in conditions of civilization, already atavism [23.19, 23.13] what appears itself as the **shortage of panoramic thinking**.

Presenting the Shortage of Panoramic Thinking

This presentation is done taking into account together circumstances revealed in the human evolution prehistory [23.5], J. Warfield's Mentomology of mindbugs [25] with its "evolutionary" replenishment (intentact.webs.com/spt_mentom.htm), and the evolutionary correlates of human mentality [23.15]. All this shows that the SPT is something more than the narrow-mindedness only as its appearances much wider (intentact.webs.com/spt_signs.htm).

Latin figures below (I to IX) refer to classes of "mindbugs", Arabic ones -- to more specific their manifesting. "Bugs" described by John Warfield are marked as (JW).

- I. Affinity to All-Encompassing Hierarchic Organization in All Spheres of the Life and at Any Social System
 - 1* Since times of tribe existence, people use the dominant-subdominant form for their organizations.
 - 2* Presence of gods as the highest hierarchs in human

consciousness to fill in their physical absence in the world.

II. Mood to Using Binary (Black-White) Logics in Words and Dealing

- 1* (JW) Affinity to all-encompassing dichotomies.
- 2* Misconstruing something another as diametrically opposed.

III. Getting Confused at Thinking When Quantity of Objects of Thought Exceeds a Quite Not Big Number

- 1* Narrowed volume of attention. both outer and inner, in comparison with normally narrow, at psychological tensions.
- 2* Unawareness of flaw lexemes existence in any language.
- 3* (JW) Irresponsible propagation of under-conceptualized themes.
- 4* "Careful" transfer of delusions, errors, myths and beliefs from one generation to next.
- 5* Possibility of long / permanent existing language "bugs" (defect words / lexemes).
- 6* (JW) Misinterpretation of linguistic adequacy of natural language.
- 7* Wide using of trial-and-error method both for researching and out-of-researching goals.

IV. Affinity to Hasty Both Mental and Behavioral Actions

- 1* Enormous lagging synthetic activity behind analytical.
- 2* Logical mistakes being usually those of hasty conclusion.
- 3* (JW) Aversion to deep thought.

4* (JW) Leaping to Misassociations.

5* (JW) Affinity to unstructured discussions.

6* (JW) Misattribution to consensus.

V. Ever-Presenting a Widely Understood Interest Doing its Impact onto Mental Activity

1* Distortion of one's arguing and inferences when material interest is presenting.

2* Perversion of one's train of thought when from conclusion done depends one's life, fate or social position.

3* Tendency to explain wars and other crimes by considerations of fairness and higher interests.

4* Believing in the truth of preferable and not-believing in the truth of undesirable (F. Bacon's Idol of Human Race).

VI. Intention to Get Even If an Illusion of Understanding or Orientation in the World

1* Attractiveness of metaphors, quotes, dictums, comparisons being widely used in interlocutions.

2. Demand for images and pictures (drawn or mental ones) when thinking process is stopped without of absence of mutual understanding.

VII. Inclination of Under-Using the Mind

1* Adherence to ritual ceremonies, meetings, sessions, conferences etc. where the majority are only present at.

2* The highest interest for events and shows (command / individual competitions, and variety performances)

demanding only non-burdensome mental convoy of the perceived.

3* Affinity to think by rote, to misuse mental automatisms.

4* Demand of intercourse with talking "about nothing".

VIII. Otherness as Provoking to Experience Alienation, Estrangement, Xenophobe, and Hostility

1* There always are under psychological tension frontiers dividing people of different faiths, nationalities, cultures, social strata.

2* Prevailing criticism over self-criticism.

3* Different mindsets causing phenomenon of intellectual clusters' forming among intelligent people and hampering their union for cooperation [2].

4* Emotional sphere to be innate that supports these appearances.

IX. Just Because of SPT as All-Human Feature, SPT Is Until Realized as the Main Civilization Threat

1* Distorted trending to aggressiveness, formerly biologically expedient, getting more and more dangerous for humanity.

2* Unawareness of the verbal aggressiveness [22] doing Human the very aggressive animal.

3* SPT individual to be acting at any group level doesn't give to realize imperative necessity of intelligent web planetary resource to reveal civilization omissions and counteract civilization threats (intentact.webs.com/abstrct.htm).

For realizing a better, ***what does mean to live with SPT?*** Because of SPT [23.13]:

- people can debate long time with no result;
- PR services propose advertising texts what later appear to be anti-advertising, to great surprise of those who have prepared it;
- MPs adopt laws what need corrections shortly after their appearance. As for politicians, they always have found human material for recruiting adherents;
- a murderer almost always is able to justify the murder performed;
- heads of state can't come to agreements with others heads of state – how to avoid wars, and with own peoples – how to avoid revolutions;
- there are people who, after having lived almost all the life, suddenly realize that their lives were for nothing.

The list may be gone on.

But having SPT appears to have positive consequences. Really:

- * people realized since prehistoric times that panoramas of their thinking and cognition are limited by their ignorance – and learning and teaching were honored as necessary kinds of activity;
- * it had been realized as well that overcoming SPT, i.e. thinking in more panoramic way, more self-critically, avoiding illusions and prejudices means to remove further horizons of unknown, and in result the science

and inventiveness arose and got necessary convoy of human existence;

* people live not only governed by reason, but as well by passions being included into the huge complex of SPT phenomena. The art based wholly on Reason only would be poorer, hardly at all might arise and be claimed;

* owing to SPT there is such vast and pleasant phenomenon as the humor. Realizing others' underthinking to be remarked as absurdities and thoughtlessness of spoken or written language permits humorists to think "for others" and think up as-if-absurdities and as-though-thoughtlessness to cause a comic effect. So, the evolutionary secret of humor is in essence just in playing on SPT, if concretely, on weak ability to confront one things with another [23.9]. Today Colorado psychologists confirmed this inference (didn't know about its existence) testing publicly effects of social norms' violations with preliminarily instructed volunteers [12, 17].

About Cognitive Tolerant Inclusion As a Term

It is proven [23.17] that ***tolerant inclusion*** and ***sub-tolerant inclusion*** as concepts are scientific metaphors having 4 of 5 features to be associated with such the metaphors.

Cognitive t-inclusion as a term with the verbal noun to means a process and a result of the process generalizes two terms, categorization and category. Generalized character of CTI appears as well in that it has to do both

with people and animals.

Animals themselves had been forming their species, the taxonomy gave them the names only. It means that ABPT – ***Nature is tolerant to inner-species differences*** [23.5, 23.15, 23.21] – for animals with brains turns into the ***cognitive principle of tolerance*** (CPT). For CPT as a principle to get presenting in the psychology explicitly, there were some possibilities what were omitted (see [23.10, 23.18]). So, there are stimuli to realize that owing to CPT we intercourse and understand one another, gain life experience (see Appendix B), and the very civilization exists [23.16].

As if confirming the thesis on scientific omissions of whole civilization significance [23.10], the psychological science to use principle of tolerance ***implicitly*** does not give it some ***explicit*** articulation (see [23.13, 23.15]). Even word “tolerance” is used in psychological papers and textbooks only in connection with ***physiological and socio-physiological notions*** as steadiness, endurance, pliancy, tactfulness, toleration, self-possession, but not as with the main features of the human brain to be tolerant to differences within some frameworks (see [23.15]).

Thus, in a wide review [4] of the tolerance as a term, even when cognitive and creative components of tolerance being mentioned, the tolerance was understood only in connection with one’s representation about oneself, about the world and one’s place in the world (cognitive component) and with one’s responsibility,

flexibility of thinking, maturity of the thought (creative component).

There is a sense to consider ***cognitive sub-tolerant inclusions*** (or cognitive t-separations) as substructures of any CTI. As for ***psychological tolerant inclusions*** (PTIs), these are used to compare things of the same kind, i.e. considered as similar, resembling, alike, in some sense near. The very important cause for humanity to use PTI is verbal communication when some word, spoken or written, is understood by many people in spite of differences between its pronunciations, writings, and its 'auras'.

In accordance with the said above, PTIs in our mental space accomplish when area of mental actions is default evident. For example, when comparison is done between some definitions of the same concept. Nevertheless, though areas of mental activity executed with PTIs are overlapped by those of CTIs, the former notion is for using as well when of a significance is to underline their differences.

Each of us is very nearly contiguous to CTIs. Therefore, it would be absolutely improbable if your ability to accomplish CTIs was not shown in your personal computer. And such the ability is really seen as there are there file shortcuts (names) and corresponding them files (contents), command shortcuts (combinations of keystrokes) and corresponding PC actions (executed commands) -- for you to have easier access to information, commands, and information processing in

general. Nothing to say, each of us have in the head the very explanatory dictionary where a word has been memorized with its sense(s), and some people have such dictionaries even several, by number of languages known.

Tolerant Inclusion Classification

These t-inclusions may be [23.15]:

- by the principle applied: cognitive, psychological, and psycho-physiological (both last to be varieties of the first);
- by accomplishment: accomplished (process) and complete (result of the process);
- by the function realized: objective and appraising;
- by number of sub-t-inclusions involved: binary, ternary, quaternary, etc.;
- by intentionality: intentional (voluntary) and unintentional (involuntary);
- by relation to time: time-regular (accomplished in time) and time-irregular;
- by participation of consciousness: conscious and non-conscious;
- by presence of an algorithm: algorithmic and non-algorithmic;
- by precedence: primary (early not used) and customary;
- by preparedness: trial and adjusted;
- by purposefulness: current (life-providing) and special-aimed (all the last).

In particular, **accomplished t-inclusions** may be: by directedness -- *sub-directed* (looking for sub-t-inclusions and/or classification) and *over-directed* (looking for over-t-inclusion and categorization), by result -- *covering* (wider tolerance's frameworks) and *narrowing* (at when sub-t-inclusions realized or found); **objective t-inclusions** by control used may be: appraised and non-appraised.

More exemplifying, **time-regular cognitive t-inclusions** are accomplished when we are in the state of vigilance and let our both consciousness and attention change currently their scopes, or speaking our own or hearing others' speeches, or doing after an algorithm planned before, or watching for development of some events.

Correspondingly, **time-irregular cognitive t-inclusions** permit us to think, learn and investigate, gain the life experience, appraise ourselves and others, juxtapose the seen and the heard with that restored in our memory, try making some affairs at once.

According the classification, the very **Classification of T-Inclusions**, with this name including, is an example of a complex t-inclusion having adjectives: *cognitive, complete, objective, non-appraised, 11-ary, intentional, time-irregular, narrowing, conscious, non-algorithmic, primary, adjusted, special-aimed.*

Something about the Appraising t-Inclusions

These are always **cognitive** ones as having a heterogeneous structure {[App], [A], [B], ...}, where sub-t-inclusion [App] is that appraisals' kit chosen by one in correspondence with belongingness of sub-t-inclusions [A], [B], ... to one or a few areas of one's cognitive interest.

The most custom appraising t-inclusion's type to have triplet structure a kind of {[App], [A], [B]} is done to elucidate whether [A] and [B] are tolerant one another in a wide sense, i.e. that they, exemplifying, do not contradict one to another, or that [A] is in any sense better/worse than [B] (bigger/smaller, more beautiful/less beautiful, more reasonable/less reasonable) or that the true is rather on the side of [A]/[B] than of [B]/[A], or that to choose [A] means to be undergone more/less danger that to choose [A]/[B], or that to adopt [A] is more/less profitable than to adopt [B]. So, the appraising t-inclusions are quite habitual for us, because we always, voluntary or involuntary, something compare and appraise.

On Unique Human Mentality

It was *World Science* [10] that in early 2014 gave information about a unique area within the human frontal cortex, which non-human animals have not. M. Rushworth, one of the researchers, elucidated that owing to this area human beings are able **to plan the future**, to be flexible in approaches, be able to learn from others. Conclusion was done: "We identified this area ...as seemingly having to do with our cognitive abilities."

How it follows of the said, character of producing t-inclusions within the brain is different: people are able to accomplish both realized and non-realized t-inclusions, whereas animal can only do non-realized ones. It means there is a hypothesis what just suggests itself: revealed frontal area to be available at people and absent at their nearest forbears-primates is responsible just for ***realized both t-inclusions and sub-t-inclusions***.

The remark "able to plan the future" is confirming the hypothesis, as any plan intended by a person represents itself as an intentional t-inclusion of some actions to do. As to "flexibility in approaches" then it is moreover in correspondence with CTIs as they done owing to the CPT, whose alternative name because of this might be "***the principle of cognitive voluntarism***".

Engrams as Tolerant Inclusions Saved

Representation about engrams, or memory traces, or neuronal substrate of memory, was adopted as evident at when thin experimental neurological investigations [21]. This permits to say out several assertions.

- 1.** Universal character of the CTIs, i.e. cognitive tolerant inclusions, is proved to be in correspondence with that of the ***engrams***, being their neurophysiological bearers [23.15, 23.17]. If "catching the engram" experiments like described in [21] will turn out really possible, then an idea of the experiment may be proposed to verify the speculative imaginations about the universal character of

CTIs. It is to verify that any CTI accomplished and memorized may be revealed as an engram having **nodal-netting structure**. At that its "node" (separated smaller net) is corresponding to the name of the mental representation or its characteristic feature, with "net" (bigger part of partially connected neurons) corresponding to the very mental representation memorized and saved.

2. Higher animals are seemingly furnished with ancient built-in mechanisms, a kind of innate mental algorithms having been evolutionarily formed and genetically kept, that are skilled to create these memory traces and govern them. Following V.M. Allahverdov's principle of simplicity [1.1], this mechanism may not be nothing another than some **algorithmic CTI**. Standing on the platform supported by principles of tolerance in the brain's work, the above said means that there is seen a way towards theoretical investigations on the unconscious mind.

3. The mechanism of algorithmic CTI, as being inherited, is launching usual (objective) CTIs in people as well, the difference from animals is that the person are only able to take a part in performing **intentional** CTIs [10, 23.17].

4. Adopting a supposition that "near thoughts have near neuronal associations" [27], one may admit as well some memory mechanisms of generalization, association, and chunking explained as reiterated cognitive t-inclusions controlled unconsciously by algorithmic

appraising CTIs within inner (mental) space [23.19].

Arguments for Technological Accessibility of the Cognitive Insight [23.19]

By the significance of the goal, alongside the creating an united theory both of the psychical processes and the person, it is the creating some theory of cognitive insight that may solely be posted. Here are some arguments that enigmatic cognitive insight may be in rational way presented and then mastered by researchers.

There are always something significant behind the horizon of the cognition narrowed because of SPT. It is proved in particular by quite recent discovery (definitely belated) of the uniquely human area in the frontal cortex [10]. At that, the area being small shows our neurobiological nearness to primates. Here may be seen an additional consideration to take into account the evolution correlates of human cognitively creative abilities [23.15] in while investigating psychical phenomena.

Widely cited is William James thought: "The art of being wise is the art of knowing what to overlook". It may be considered how his foreseen of a principle tolerance in the brain's work (more about it is in Appendix 1). To be in context of the subject above, his thought may be continued: "But your art of being the wisest is the art of guessing what have overlooked everybody but you."

Alloplastic adaptation doesn't exclude autoplasmic one.

The evolution of non-human animals was autoplasmic as they were changed genetically to fit more their habitats, whereas Homo sapiens' adaptation is alloplasmic mainly as changing the very habitats [9]. Existential civilization threats [23.13, 23.16] make us remember our ability to adapt ourselves also in autoplasmic way. The highest goal here is to heighten our mental abilities so to get able to reveal scientific omissions of civilization significance [23.10].

Existence of the single neurophysiological basis of all psychological processes, including processes of cognitive-investigating activity [23.14, 23.17]. The t-inclusion as such the single basis, being both **psychical mechanism** and **cognitive instrument**, permits researchers to reveal new causes, phenomena, and linkages doing earlier impossible sequences of trial cognitive t-inclusions.

Evidence of insight-like processes (ILP). Everyone strongly sleeping when being suddenly awakened experiences ILP of realizing himself/herself, his/her tomorrow affairs, today planning occupations. Mother looking for her little child being lost in crowd experiences ILP when the child found. A sick to be delivered at a hospital in unconscious state experiences ILP realizing his/her new state and location. To have met the known person being not seen for a long time is as well to experience ILP.

The insight is orgasmic, the orgasm being insight-like. It

is about two biologically important creative processes, sexual reproduction and creative production, that are isomorphic structurally, and it has to do more with insight that with the orgasm, in distinction from paper [7] where the ratio is reverse. As for the isomorphism, an act sexy and an act creative are both sequences of enclosed cognitive t-inclusions:

[preparation] – [frictions] – [orgasm] – [emotion]

and

[preparation] – [incubation] – [insight] – [emotion].

The first being of conditioned-reflex type mostly, the second of that not so much; so a resource of higher cognition here may be seen.

Knowing about this parallelism a researcher may set aside his preconception concerning the insight as something exclusive and enigmatic and heighten his/her chances to be more successful.

Insight may quite be with no emotional "Eureka!".

Emotional accompaniment of the orgasm is weakened with age and experience, and the similar as well may be concerned the insight. One may imagine some generator of ideas who to be dawned upon by a new scientific idea shows a quite moderate reaction, a kind of "seemingly, here is a cause to think over". So, it needs that an intellectual insight against every eventuality be good explored for a discovery to be not omitted.

Vital needs of any human organism is provided with 'supply'. It is the principle of energetic excess, one of

consequences of ABPT, i.e. of the all-biological principle of tolerance [23.5, 23.8, 23.21]. Just owing to this excess, there had been once the under-adaptation of pre-people to changed milieu and therefore an intention to assimilate new natural habitats, as well as interest to the new, abilities to learn, create, dream and foresee.

From the author's own experience of looking for the novelty. My advantage over others of opening something unknown was only that I realized more or less phenomena of SPT and ABPT as begot by the circumstances of long evolutionary process [23.5]. But only this permitted me to propose a new algebra using inherent and outer relations of tolerance [23.2], to bring ahead a hypothesis on the new understanding of physical laws [22.6], to propose a conception how to overcome the aging [23.8, 23.11], to said out arguments for existing scientific omissions of civilization significance [23.10]. My own SPT however was the cause that the evolution correlates of human psychical abilities were found quite recently [23.15], as well as that SPT to be the existential civilization meta-problem [23.13] conceals from people enormous resources of civilization development (intentact.webs.com/abstrct.htm).

Creative intuition, as well as life experience may be gained. Psychological experiences show that memorizing may be proceeded implicitly [19, p. 35]. It means that human consciousness can find ways which conditions should be created for the mechanism of implicit memorizing to be working. A possibility for this is seen in that there is admitted the conditioned-reflex mechanism of gaining the life experience in the inner

(mental) space [23.19].

Factual argument to widen intuitive creative space. The interrogation to be carried out among Nobel price laureates in areas of natural sciences and medicine showed [19, p. 70] that 72 laureates of 83 ones connected their scientific success with the intuition. This does more convincing the attitude to use the conditioned-reflex mechanism to gain intuitive experience.

Evolutionarily phenomenological and logical approach to psychical phenomena [23.15] opens new possibilities for researchers. CTI as both the universal mechanism of higher psychical processes and the tool of the cognition includes the cognition of the very cognition, i.e. the **meta-cognition**. It means that great information available about higher psychical processes – voluntary attention, perception, memorizing, recognition, recollection – being seen under angle of this ambivalence's vision is surely of big significance for the cognitive creativity as shortening the way of a theoretical psychologist to mastering the cognitive insight-technology.

Spontaneous activity of the brain may be taken into consideration. Researcher's cognitive dynamical system to be including his/her consciousness, nearest under-consciousness, near under-consciousness and unconscious mind [23.17, 23.19] may experience in processes of insight and incubation an influence of spontaneous activity of the brain (SAB). Consolidated traces of the long-term memory are hardly remarkably

influenced (just because of it serve for some decades as a reliable information depository), whereas traces of working memory may be undergone SAB's influence essentially. It means that mental illuminations experienced by a researcher may quite be of occidental character, especially if his/her under-consciousness is good prepared for this.

Associative cortex of the brain may be supported with help of the energetic pumping up. This mechanism of the psycho-physiological self-regulation is revealed at when analyzing a hypothetic differential equation for the level of vigilance was done [23.1]. The analysis gave reasonable inferences as for falling asleep [23.1] as well for associative cortex activation [23.7]. This possibility of the cortex activation is in concordance with representation about the unity of psychical and neuronal-psychical processes taking a part in mental acts [23.15].

A cognitive insight may be found quite close by. Here is to demonstrate especially short train of the thought to a novelty near by to get opened. It is about zoologist V. Shelford's Law of tolerance [6] being known since 1911. Its sense is that an individual or a species population is subject to an ecological minimum, maximum, and optimum for any specific environmental factor or complex of factors. "The range from minimum to maximum represents the limits of tolerance for the factor or complex."

But living within some diapason of conditions means possibility to have diapasons of individual differences, what in turn means nothing other than principle of

tolerance in work of animals' brains. Alas, such the cognitive throughout to both principles of tolerance, all-biological and all-psychological, had not been then done, and Shelford's Law of tolerance not accidentally has epithet only "ecological".

The Mentallion for Mastering Areas of Theoretical Researches

To remind: CPT -- cognitive principle of tolerance, CTI – cognitive tolerant inclusion, SPT – shortage of panoramic thinking.

The cognitive bind, uniting into one the factors of the human mentality [23.15], i.e. CPT, CTI, and SPT, had predefined Homo Sapiens appearance and our pre-historical and historical past [23.16]. Our future nowadays depends as well on these factors in such or another way. It means this complex of notions to be of the biggest significance for the life of people, deserves to have special name, and its name should be very carefully thought over.

The very union of quite different concepts concerning the human mental activity, i.e. the principle (CPT), the mechanism / instrument (CTI) and the feature (SPT), is possible owing to the very CPT that permits us to take into a tolerant inclusion any things, as "tolerant" characterizes only **our** relation to the things we have taken into consideration, not **their** interrelatedness. So, these antipodes, CPT and SPT, may quite be both within special CTI, meta-CTI.

The name **Mentalion** was chosen for this union to provoke contaminations: for "**mental-**" to direct you to CPT as to the principle of **mental** activity, and for "**-lion**" to remind about **animal origin** of SPT, and for "quintillion" (10^{48}), being phonetically near to "mentallion", to give you an allusion to a hidden might of the Mentallion when being mastered by theoretical psychologists.

Mentallion as a conception to be understood explicitly give a cause to have execute a wide, if not full, revision of understanding of all psychical phenomena and to see their interrelatedness in order to get opportunity, for example, because of their common CTI-base, to interpreter one via another, e.g. **looking for the truth** as **recognizing the truth**. Good learned phenomena, such as perception, memory, and attention, are seen as well useful when less learned, such as the investigative cognition, is likened them.

Seldom a science from its arising had such vast fields opened for its researches as theoretical psychology, and these are as well stimuli for it to emerge.

Given the Mentallion, much areas of researches really are open: to complete creating the joint theory of psychical processes and the person; to create the cognitive investigating insight theory; to suggest for the world education system methodological guiding lines how to teach and learn overcoming SPT at all educational levels; to elaborate a new typology of the person; to realize a new approach to psychical diseases; as for theoretical psychology, then it, getting developed enough, may get a

collective methodologist for all scientific cognition.

Members of American Psychological Association after some time being “in the position to deeply contemplate what a flourishing theoretical psychology might look like” concluded in result [8]: “theoretical psychology can flourish as a subdiscipline by remaining true to its nature and functions.”

Given Mentallion conception, the future theoretical psychology seems to have gone from stage of this flourishing to that of fruiting. It is in direct relation to the article’s title where you are proposed to apprehend word “**reason**” in two senses, not only as *cause and occasion*, but as well as capitalized **Reason**, the main distinguishing human feature, Mentallion being its renewal presentation. Thus, the title expresses a double idea that there are as causes for the psychology to strengthen its theoretical part, as well as possibilities revealed to have done this, in order the theoretical psychology, together with creative psychology and theoretical cognitive science, could get the collective methodologist of all sciences, the very triplet mentioned including, and open for humankind in result, owing to scientific discoveries of all-civilization meaning, enormous, until hidden, resources of sustainable and progressive civilization development.

In V.M. Allahverdov’s book [1.1] three basic principles of the future theoretical psychology are proposed that appear to be in full correspondence with the investigation carried out. Here are these: *Nature-philosophical*

principle: "Nature of psychical phenomena is simple and does not seem to be of superfluous causes", *Principle of rationality*: "Psychology as a science should be based on that all psychical phenomena may be rationally explained", and *Principle of ontological reduction*: "Psychical activity is inevitable consequence of the process of cognition. Its logics should be considered sufficient for explaining all phenomena and mechanisms of the process".

The Allahverdov's principle of rationality was default near me at writing the paper as accepted by the very complex nature-philosophical approach to psychical phenomena. The principle uniting psychical activity with processes of cognition has justified itself as getting upright confirmation in result of the investigation here presented -- in view of the universal character of the **cognitive** tolerant inclusions revealed. The principle postulating a simple Nature of psychical phenomena has been confirmed even more as it is the CTI that works as the single mechanisms both of psychical phenomena and processes of cognition.

To replenish Allahverdov's contribution of principles for the theoretical psychology, the Nature-biological **Principle of innate reliability** may be proposed:

Any hypothetical psychical factor studied what has a near analogue in animal world may be considered reliably established for humans also.

CPT and CTIs are evidently such factors even if because

of that animals are able in the ontogenesis to learn and feel a danger on its signs. It means the Mentallion is reliable ground for it to use at when creating a psychological theory.

Conclusion

The Reason is evidently the main creator of civilization, but its might is limited because SPT, and global problems are in more and more threatening way hanging over Humankind [13], and somebody sees even the end (intentact.webs.com/Re_Martin_Rees_talk.htm). SPT is argued to be the existential meta-problem of our civilization [23.13], at that as the main civilization threat hitherto not realized (intentact.webs.com/abstract.htm). Theoretical investigation of all manifold of SPT appearances is of civilization importance as well because of those hidden resources [23.10] that as such are until now apprehended.

To overcome SPT with educational means is in concordance with new reality of the world overloaded with information, moreover when almost any information is accessible. The educational priority "to teach in order to know" is already obsolete, and a new priority should appear, the priority "to teach and learn overcoming the backwardness of the mind" for new generation of people may appear, of those thinking in panoramic way (intentact.webs.com/pan_th.htm). Such the priority may be considered even as related to a new dimension of human rights (intentact.webs.com/new_dim_hrs.htm), what has been a cause to comment the Universal Declaration of Human Rights from this point of view

(intentact.webs.com/comm_UDHR.htm). Great not opened ideas and conceptions of all-civilization significance as if pre-exist [23.10], ignorance of SPT seeing one of them, and methodological guide lines how to look for them to have found may be one of the main tasks of the theoretical psychology as a coming-to-be science supported by Mentallion conception.

CTI to be both the mechanism of psychical activity (processes) and Reason's instrument of cognition (personal ability) permits naturally to complete creating the joint theory of psychical processes and the person begun by L.M. Vekker [24] and proceed by his followers (see [5]).

The civilization imperative of survival (intentact.webs.com/appeal_Rio20.htm) might be apprehended by the theoretical psychology as a ***cognitive imperative*** of making for achievement of the sustainable development, in way of creating well-grounded theory of cognitive investigating insight [23.17, 23.18]. Arguments above presented for technological accessibility of such the insight [23.19] must have looked like stimulating ones.

SPT as a heterogeneous phenomenon [23.15, 23.13] throws a challenge down to theoretical psychologists for them to get investigators of the phenomenon fully enough in order to know better how overcome it. Anyone to overcome SPT is overcoming one's own evolution backwardness. Such understood SPT permits to transfer the sense of the word "panoramic" from the

visual perception to the mental activity what is justified by especial significance of the vision among people.

Overcoming SPT at individual level to be all-civilization existential meta-problem [23.13] absorbs all other global problems, and to take a part in solving it means to making for humanity survival. To give the world education system some methodological guiding lines how to teach and self-teach overcoming SPT at different educational levels -- it is as well task of especial significance for theoretical psychology.

Individual SPT being not overcome makes the exclusively hard and important a question whether SPT can be overcome at the groupthink level [2], especially if the group of negotiators is a structure of global scale, a kind of the global brain. Mentallion gives theoretical psychologists opportunity to glance at the future and think over in advance how to approximate to these different level group problems, including the global brain. The last of them to be of all-civilization significance as the global brain, even if only with function of consulting, would be essential for reaching an agreement and pacification in the world. Necessity to create a kind of World-Wide Intellectual Resource seems to have even imperative character (intentact.webscom/abstrct.htm).

Here is the problem of distribute creativity (DC) as it presented in [11]: "Creativity can no longer be said to reside 'within' the person, product, etc. It emerges as a form of action engaged in by various actors... in relation to multiple audience..., exploiting the affordances of the

cultural (symbolic and material) world and leading to the generation of artefacts (appreciated as new and useful by self and/or others)." The said even more than with **artefacts** has to do with **intellectual products** (theories, conceptual ideas, projects, discoveries etc.) as how much such DC at the global level has achieved depends on panoramic thinkers having overcome their mental evolution backwardness. Just such thinkers to be more able and inclined to cooperate might apprehend such great common affair as their own and open perspective of a better future for humanity. On all stages to this goal theoretical psychology might play directional role.

* * *

Albert Einstein's thought in the epigraph is ambivalent. On one hand he was delighted by human ability to cognize the world, but on another hand he expressed his great amazement, a kind of disappointment, by that abilities of human cognition were until understandable. It is so as he saw the existential problem: "*We shall require a substantially new manner of thinking if mankind is to survive*".

So, the epigraph is a kind of appeal not only to elucidate those incomprehensible cognitive abilities, but as well to enforce them.

As for the elucidation, it appears to have relative character. After studying evolution correlates of the human mentality [23.15], the conclusion was done that our animal forbears were **cognitivists**. Really, their life was conveyed with **cognitive** t-inclusions like such as

those that permit to identify individuals amongst “us”, to find a food by a smell, or to realize a danger by some alarming cry. So, we have merely inherited this ability to accomplish such cognitive t-inclusions.

As for some activation of these abilities, then such possibility is grounded in the article. In particular, to have “a substantially new manner of thinking” turns out to master the panoramic thinking, i.e. that overcoming SPT, our evolutionary mental backwardness, quite realizing the instrument for – the cognitive tolerant inclusion.

* * *

APPENDIXES

Appendix A. “The law of constancy in our meanings”

It was big joy for the author to find in the book by William James [14] where “***the sense of sameness***” studied that description of the sameness had to do almost directly with the ***principle of tolerance to differences***. The sameness was presented in such way:

“The thing we mean to point at may change from top to bottom and we be ignorant of the fact. But in our meaning itself we are not deceived; ***our intention is to think of the same.***”

This appearance of our subjectivity the very author appraised as “***the most important of all the features of our mental structure.***” If so, this assertion should

be true even more as the CPT is evidently overlapping the law of constancy in our meanings.

One may admit however that W. James having mentioned "change from top to bottom" intended to say about the **perceptive constancy**, not more. Even if it is so, then the phenomenon is as well an appearance of principle tolerance in the brain's work. But he surely meant something more than comparatively simple perceptive constancy phenomenon. It is seen in his "our intention is to think of the same" (i.e. in spite of differences), and "in our meaning itself we are not deceived" (i.e. we as if want to be deceived ourselves). It is quite in agreement with Mentallion concept, where one of its inferences is that CTI and SPT, i.e. cognitive tolerant inclusion and shortage of panoramic thinking, existing both as given us by the evolution, permit us to do a compromise between intending to exactness of understanding and limited possibilities to reach it.

W. James book appeared (1890) when the first experimental studies of perceptive constancy began (1889). His prevision of some main feature of human mental structure might be direction for psychologists to think farther and open the main principle of the brain's work. But experimental psychology appeared then more interesting than its theoretical deliberation.

There is well known another W. James thought: "The art of being wise is the art of knowing what to overlook". Knowing concept Mentallion and unbroken connection SPT and CPT, this prevision of psychological principle

tolerance in the work of brain may be gone on in such the way: "But the art of being the wisest for you is guessing what essential might be overlooked by everybody but you".

Appendix B. Psycho-physiological principle of tolerance

The Nobel Committee's evaluation of I.P. Pavlov's scientific contribution contained words: "in recognition of his work on the **physiology** of digestion". New understanding of evolutionary origin of human mental abilities [23.15] permits to bring some belated "correction" into the 1904 Nobel Committee's resolution concerning I.P. Pavlov's work:

"in recognition his discovery of the **psycho-physiological principle of tolerance** having disclosed in his experiments on the conditioning."

Such "amendment" of the appraisal is justified because non-human animals and humans may only live and gain life experience owing to innate tolerance to differences, being their main **psychological** feature.

At that, there was also an incorrectness in the appraising the work because of "**digestion**". Really, in place of **salivation** to be fixed in his experiments with dogs might be quite another unconditioned reaction (UR), for example, the **defense reflex** paired with conditioned stimulus (CS). So the digestion must not have counted there as the main investigating area.

True, the very author of the discovery must have been as well "to see" his own achievement and explicitly it articulate. In result that Pavlovian work on classical conditioning to be considered by that Nobel Committee under rubric "Physiology or Medicine" turned out to concern rather to **psychological** appearances than to **physiological** ones only about 2 decades later.

Psychological aspect of the discovery may be shown in terms of CTIs. Let us suppose that CS (conditioned stimulus) is the sound of bell, US and UR being correspondingly an attractive food shown (unconditioned stimulus) and salivation (unconditioned reaction). There is as well one more "agent of influence" default -- "the same" laboratory situation (LS).

Correspondingly, influence on a dog is triple, not pair: LS, CS, US --> UR.

After some repetitions of the triple, procedure with pair began to give a result

LS, CS --> CR,

where conditioned response CR was by salivation like UR.

So, dogs showed in such experiments their ability to accomplish **cognitive t-inclusions**, objective and appraising ones.

The principle above named, being a variety of cognitive principle of tolerance, is separate here by the special name as vitally important and defining our abilities to learn and gain life experience. In the chapter *Technological accessibility of the cognitive insight* arguments are given that a kind of "life experience" may be gained in inner (mental) space as well.

Appendix C. Discussing the logics of cognition

Here is an excerpt from the paper [1.3] written by the authoritative Russian psychologist V.M. Allahverdov:

"Being a radical cognitive scientist I issue from a conviction that all psychical events, the consciousness including, are provided with any neurophysiologic mechanisms, but may not be explained by them." There are here several causes for Replies (Res).

Re-1. The last part (about impossibility to explain) demands 2 comments: 1) the neurophysiologic language may be merely not adequate for psychical phenomena's explanation though if because of their appearances are hidden under the cranium; 2) how arguments of the chapter *Engrams and their representing in tolerant inclusions* give evidence, some neurophysiologic explanation for all that may be given.

Re-2. The ability to accomplish tolerant inclusions is inalienable feature of our psychology. That is why there is much more radical statement revoking the first part of Allahverdov's thought, namely: any scientist, not necessarily cognitive one, even any human being, is **radically oriented to the cognition** because of that innate ability, that is why there is no cause for the one to separate as such just oneself.

Once more citation of the paper: "The consciousness builds idealistic objects,... it is able to **identify non-identical and discern indiscernible.**"

Re-3. There is known Allahverdov's saying: "The man

distorts the world up to recognition." Being in paradoxical form expressed, it is in essence that he called the first, i.e. our ability "to identify non-identical". It is in my terms the all-biological principle of tolerance [23.5, 23.21] applied to the human psychical features. Alas, he "forgot" his own beautiful dictum at while writing his paper.

Ability "to discern indiscernible" may not be posted aside with that "to identify non-identical" as the latter have given us as the possibility to create sciences and the very civilization, whereas the former is hardly marked as a rare and fine event, at that explained, being not independent, with help of the latter. Why, for example, one can't think that resulting discerning is an effect of manifold repetitions of those indiscernible influences?

Appendix D. The mathematics to be in need of a tolerant treatment

In the physical changed world, where there are not two equal things, and any thing is even not equal itself (as any comparison takes a time it changing), the equality relation is possible to use just owing to our ability to ignore or identify differences, i.e. owing to CPT, the cognitive principle of tolerance [23.15]. Nevertheless, this principle is not present in foundations of the mathematics. In result the tolerance though is studied in the mathematics but only as one of many relations being reflexive, symmetric and non-transitive one. True, the equality to be used there, i.e. idealized tolerant relation with zero scope, has been justified by masse of applied

sciences, but another mathematics, with tolerance within its foundation as being nearer to the main feature of the cognizing brain, would surely have other causes to justify its existence as well. Here were 2 my attempts [23.2, 23.6] to contribute something in its coming-in-being. Then (in 1980s), in order to stand up for this new mathematics' idea against opponents (physicists, not mathematicians), even a kind of scientific parable [23.3] was written.

The future theoretical psychology having been established may give to mathematicians a scientifically societal order for creating such new mathematics, without not quite justified idealization like equalities, points, and "yes-no" axioms of existence. Reason for it is that there is such the natural tolerant space as ***the very brain*** [27].

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