

## **A Possible Way of Measuring the Inner Universe. Quantitative-Qualitative Unit**

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### **ABSTRACT**

The subject of the inner life of man is a complicated one long debated in abyssal psychology and its various branches, but also in philosophy of mind and more recently in medicine and neuroscience. The models and results obtained so far in the definition (and understanding) of some essential terms for the inner universe of the human being such as "interiority", "self", "mind", "consciousness", "the relationship between the mind and the brain" contain substantial differences that it shows us that the problem of the inner universe is in a precarious scientific situation. 400 years ago, René Descartes introduced the dualistic view, according to which our mind has a material structure, represented by the brain, which can be studied by science, and an immaterial structure, represented by spirit and consciousness, which cannot be studied by science, but only religion and philosophy. But at some point scientists also began to study consciousness and implicitly the inner universe of Man, because consciousness is the core and essence of this universe. When they reached the level of consciousness, things got very stuck, because, as D. Chalmers (1996) shows, in brain research we have to deal with two kinds of problems, namely with some easier problems, like are perception, the transmission of nervesignals, reflexes and instincts, which we can solve with the help of classical (positivist) science, and with some more difficult problems, such as consciousness, which we cannot solve with the help of science or at least of science current. But the evolution of science has created a crossroads, the emergence of cybernetics, information theory, chaos theory, quantum theory forces us to make a difference between classical, materialistic, quantitative science and the new science-a non-material science that emerged at the end 19th century when scientists began to explore the relationship between the structure of matter and energy. The development in the field of nonlinear dynamics, fractal geometry and topology, and especially the spectacular development of information technology in the last two decades, requires a systematic analysis, including the definition of information and its importance in structuring reality alongside energy and substance. In any case, it is a mistake to consider positivist, quantitative science as the only true science, especially when it proves inadequate for the study of the inner universe of being. It forces us to see only the nomothetic face of the individual and completely ignore the idiographic, the uniqueness of the being. Even though scientific methods based on material philosophy have helped the world a lot, this type of philosophy has dominated the intellectual world up to a point. It prevented science from exploring other models, other ideas, being also opposed to the study of the complexity of the mind (for computational cognitivism suffers from a cascading reductionism) and spirituality. When phenomena were discovered that could not be explained by classical science (enough according to Thomas Kuhn's theory of scientific revolutions to lead to a paradigm shift), quantum physics came to the rescue. This new frontier science brought concepts such as energy, frequency, emotions, thoughts, beliefs and consciousness. It was discovered that these concepts play a vital role in the more correct description of what we call the material world or reality Nobel laureate Ilya Prigogine (1984) wrote: "Our science is no longer a classical knowledge, we can decipher the narrative of a new alliance. Far from excluding it from the world it describes, science once again poses the question of Man's belonging to this world". And if we talk about Man's belonging to this world, we are actually talking about his inner Universe.

**KEY WORDS:** classical science vs new science, to know is to predict, the unseen part decides everything, method of knowing the inner universe

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### **I. INTRODUCTORY CONSIDERATIONS ON THE INTERNAL UNIVERSE**

All our experience so far has proved that we cannot place ourselves in an ordinary research relationship with our inner universe. In the exploration of this familiar and at the same time strange inner space, the usual methods from other areas of knowledge cannot be used, and especially the classic tools of psychology: tests and

questionnaires... We cannot study consciousness - as an essential exponent of the inner universe - as a phenomenon physically, observing, measuring and providing mathematical descriptions to account for the patterns that appear in various situations. As in the case of consciousness, the scientific approach encounters many difficulties in another broader register, namely in the elucidation of the human psyche. We find numerous arguments formulated: the human psyche is simultaneously subjective and objective, having a double valence, material and ideal, the human psyche appears as a product and a process, being also encountered both in a latent, internalized, hidden state, as and in external state, it manifests. For reasons of this kind, defining or explaining the essence of consciousness and the human psyche, with scientific rigor, are complicated and difficult undertakings, and until the appearance of quantum theory and morphological theories (chaos theorists) they seemed even impossible. The problem of the relationship between the brain and the psyche, as well as that of consciousness, is one of those that do not seem to be able to be solved, based on the theories of classical science. It is objective, in the sense that there is the human psyche of an independent subject. At the same time, it is also subjective - from the perspective of knowledge, each individual getting involved in knowledge through the very attributes that serve him to know the psyche. Material is considered, in a reductionist approach, its origin, the biological foundation of psychic activity being considered gray matter. But the human brain is only the support of psychic activity, whose content is ideational - images, acquired ideas, individual or collective. There is a procedural flow that characterizes the entire mental activity, and the product represents a concentrate, the sum and the momentary stage of these dynamic processes of the human psyche. The complexity is increased by the fact that, many times, the two aspects do not coincide. What is manifest does not cover what is hidden and vice versa. The correlations that could exist between the characteristics or expressions of the human personality and the neural activity cannot elucidate the interiority of the subject. On the one hand, the images obtained by nuclear magnetic resonance and the correspondences with certain mental states and activities, identified by the increase in blood flow in certain areas of the brain, still require a lot of attention, since the processes that support them are insufficiently known (Vul et al. 2009 , 285). Even in the current conditions, with medical investigation equipment that can provide images in real time, human consciousness, with all other aspects that could come into discussion are far from being elucidated (Tallis 2010, 28-29). There are some substantive issues. Antonio Damasio clearly formulates one of them: "It is difficult for me to see in the scientific results, especially in the field of neurobiology, anything other than provisional approximations that satisfy us for the moment and which we remove as soon as better descriptions appear" (Damasio 2004 , 15).

## **SHORT HISTORY. THE LAST 200 YEARS IN SCIENCE**

**THE EVOLUTION OF SCIENCE IN THE LAST 200 YEARS.** It has known two great stages, marked by two reference paradigms. The first paradigm:-positivism which, conceptually, we owe to Auguste Comte. A paradigm that recognizes to be science and scientific, only what can be measured and determined quantitatively and repeated under laboratory conditions. It has been a long time that Rene Guenon in the book "The Reign of Quantity and the Signs of the Times", after reviewing the signs of spiritual decay grinding the West, examines the preeminence of the principles of quantity in industrialization, the blind trust in statistics, the tendency to simplify things to the extreme , hatred of hidden things, excessive rationalism. And speaking of rationalism, the sentence given by Blaise Pascal is relevant. "There are two equally dangerous excesses: to exclude reason, to admit only reason." Let's just state that the official, classical psychology totally surrendered, with arms and baggage, to positivism, strictly following its rules, dreaming of becoming a science like the exact sciences: mathematics, physics, chemistry. At the International Congress of Psychology in Beijing (2004), Nobel laureate Daniel Kahneman would say: "With all due respect to statisticians, I must state that statistics produce unforgivable mistakes." But in arithmetic, if we have learned to add the numbers from 1 to 10, then – by analogy – it will not be difficult for us to add numbers like 10, 20, 30, etc. The addition of tens, hundreds or thousands can be done by analogy with the addition we already know. The secret is that the transition from one case to another keeps the structures intact. But when it comes to people, not numbers, the rules are encapsulated in the individuality of each individual case. This is because Man is an unpredictable, completely ambiguous being, incomprehensible in statistics, formulas and typologies. However, even now in 2022, only that supported by statistics is still considered scientific psychology, and we do not register from the positivists any kind of openness to the new paradigm of scientific knowledge, often not even the proof that they know what it is about. The paradigm shift in the evolution of science occurred in the 40s of the last century. It is about the quantum paradigm based on quantum mathematics-created by David Hilbert which has so far proven to be the most accurate of all forms of mathematics. In the context of this paradigm we also discuss morphological theories-theories of chaos. Their laws help us to approach the knowledge of the individual from uncertainty to certainty, thus confirming Jung's statement: "the condition of Man's existence is uncertainty". But the fundamental difference from the statistical paradigm lies in the reference to the entropy point. If in the positivist paradigm entropy is considered at point 1 (cf Shannon and Boltzman's formula)-specific to closed systems, in

the new paradigm—a paradigm of open systems and far from equilibrium entropy is at point 0.5—discovery that belongs among others and the Romanians Ștefan Lupașcu and Gh. Zapan. It is a fundamental discovery for understanding the psychic universe. In the case of Man, maximum entropy (state of disorganization) occurs when opposing forces (good and evil, truth and falsehood, morality and anti-morality) are equiprobable. And the point of maximum uncertainty is reached at the moment of the option (decision). Maximum entropy is a situation of indecision, when the individual cannot distinguish between good and bad, between being moral or immoral, truth and lies. But the positivist paradigm completely ignores this aspect of entropy which is dependent on the function T (time), and then it is no wonder that on the basis of this paradigm one cannot make forecasts and anticipate behaviors. The psychic universe of the individual represents a closed entity, like a kind of crystalline melting of all possibilities (truths), which opens in reality through the two a priori forms of human sensitivity (I. Kant): space and time.

**MATERIALIST THOUGHT AND THE AGE OF CERTAINTY.** In the 1900s, during the first industrial revolution, it seems that we are reaching, according to science, an end of history. We are entering the era of certainties. In the first place of intellectual certainties, such as those that made Lord Kelvin, one of the greatest physicists of the 19th century, to state: "Physics has provided a coherent a priori complete description of the Universe. A certainty founded on a vision of the world in which, in a three-dimensional Euclidean space, stable and eternal (which emphasized the meaninglessness of the question of its origin)—the Earth moves on which live living beings that arose from a evolution due to chance and natural selection, where man's consciousness is secreted by the brain like the liver, and where everything is composed of matter". "Go ahead there is nothing (else) to see"! classical science tells us, nothing else in this Universe but this level of realization in which we live, immersed in time, space and matter. Man comes to conceive the world in its totality, there is no longer, within this conception, even the smallest place for the existence of a transcendental dimension, of another level of reality. This decentering, which, starting with Copernicus' conception of the Universe, forbids Man to consider himself the center of the Universe, continues in other areas. Darwin shows us that man is only an animal among animals and that he cannot claim a central place in the world of biology, any more than in the world of astronomy. Then psychoanalysis and the notion of the unconscious will lead to the statement that man, who is no longer at the center of the world, is not the center of his own self either, because most of his actions are dictated by something that he is not aware of. Such a Universe cannot have Sense and Ernst Renan (1890) already announces the "positive" era, the one in which lucid humanity, freed from ancestral superstitions such as religions, will find itself alone in front of its own destiny. "God is dead" - proclaimed Nietzsche (1885)! God (or gods, or spirits, Jacques Monod will group the three concepts under the term animism) thus seems expelled from history. The spread of this vision of the world, determined by the evolution of the sciences, had, during the 20th century, an enormous artistic, intellectual, philosophical resonance (such as the development of the philosophy of the absurd, for example - Albert Camus, *The Myth of Sisyphus*), all these fields registering an evolution of nonsense that has exerted influences on the ethics of human behavior.

**THE DECONSTRUCTION OF MAN.** One of the foremost materialist scientists, said to be a Sovereign Pontiff of sociobiology, Edward Osborne Wilson (2009), concludes at the end of his major work "Sociobiology": "It is fitting to end this book, as she began, with a grim foreboding of Albert Camus: "A world that can be explained even by faulty reasoning is a known world. Instead, in a universe devoid of illusions and light, Man feels alien. His exile has no cure because he is deprived of the memory of a lost home or the hope of a promised land". There are also scientists who dare to say that materialism, the age of certainties inevitably leads to the end of every imaginable form of humanism, whether it is the Christian humanism of the Renaissance or the materialistic humanism resulting from the Age of Enlightenment. Michel Foucault (1961) had already warned us: "Man could not become the object of science except by reference to his own destruction." Nobel Laureate Steven Weinberg (2015), who stated, "The more we understand the world, the more meaningless it seems to us," makes an additional argument and quotes Princeton astrophysicist Jim Peebles: "I am tempted to believe that we are nothing but remains of wood floating on the surface of the sea" for if the Universe has no Meaning we can truly affirm that Man can invent his One. Thus Marvin Minsky, one of the pioneers of Artificial Intelligence, tells us how the computers of the next generation will certainly be so intelligent that we will be lucky if they accept us around them as pets. Hans Peter Moravec of the Robotics Institute of Carnegie Mellon University in Pittsburgh, USA) speculates, as far as he is concerned, on the topic of how different organs in the body will be replaced - including the brain! being supported by the evolutionary biologist Richard Dawkins (2015), *Breaking the rainbow*) who announces, after the era of living beings, beings based on genes, the era of machines based on memes (quantity of information, the meme being defined as the smallest informational unit). As for Ruiz de Gopegui, Minsky's student, he does not hesitate to say: "Freedom is an illusion, you are not smart or stupid, but well or badly programmed. Along with individual liberties, civil and political liberties will disappear." Francis Crick (1992), Nobel laureate in medicine with James Watson for the

discovery of the double structure of DNA tells us: "The astonishing hypothesis is that you, your joys and pains, your sense of identity and free will are nothing more than the behavior of a vast bundle of nerve cells and their associated molecules. As Lewis Carroll's Alice might put it: You're just a bundle of neurons." And Jean Pierre Changeux (1995) tells us: "Man no longer has anything to do with the spirit, it is enough for him to be a neural man." They are not mere overreactions, devoid of practical consequences, by some scientists. Let us remember Nazi eugenics and the will of the Stalinists or the Khmer Rouge, of communism in general, to create the new man at the cost of millions of deaths. The idea that we can shape man as we please results precisely from this deconstruction of man. A bundle of neurons can change and destroy itself at will. Then in the name of what would we still respect Man?

**BREAK THIS WAY OF THINKING. A NEW PARADIGM IS BORN.** One of those who perceived this idea best is Antoine de Saint Exupey (1931). He answers in advance to Jean Pierre Changeux and Francis Crick: "There is in Man, as in any other being, something that does not explain the materials that compose him. A cathedral is something else than the sum of stones. It is geometry and architecture. It is not the stones that define her, it is she who enriches the stones with her own meaning. Then he observes with extraordinary accuracy the drama of atheistic humanism that even lucid contemporary philosophers such as Andre Comte-Sponville (1999) have recognized: The impossibility of finding a solid foundation for humanism in a world in which Man would no longer be anything nothing more than a bundle of neurons. "We say nothing of Man unless we seek to define him by the qualities of Man. Thus humanism worked in a previously blocked direction. We have slipped, in the absence of an effective method, from Humanism based on Man to this anthill based on the sum of individuals. If our society could still seem desirable, if Man still retained any prestige it would be to the extent that true civilization, which we betray through our ignorance, would still project its doomed radiation upon us and save us in spite of ourselves'.

**SCIENCE OF THE 20 TH CENTURY.** The 20 th century witnessed a rare event: a global paradigm shift. What is a paradigm? This term is used by Thomas Kuhn (1962) in a seminal work in the history of science. It is a set of beliefs, recognized values and techniques that are common to the members of a given group (La structure des revolutions scientifiques). That is, it is the very heart of what constitutes the worldview that a society has in a given era. Scientifically (in this field Kuhn will most often use the term) a paradigm is a set of rules and concepts (beliefs) that constitute the foundation of a science. Thus we will speak of a Newtonian paradigm that will succeed a Ptolemaic paradigm (which was valid for more than five thousand years) before being replaced by an Einsteinian paradigm. How do you substitute one paradigm for another? 1) There is a "normal science" (classical) in an age 2) Crises arise caused by the fact that classical science fails to explain certain things. 3) A real revolution takes place: concepts radically different from those of normal (classical) science appear to explain the things that the latter fails to integrate 4) Then a battle takes place, which can last from several years about a century - and which is sometimes violent - between the supporters of the old paradigm and the new 5) Then, the new paradigm is imposed and is used as the foundation for a new science that will become, in turn, a classical or a normal science. The transition from a paradigm in crisis to a new paradigm from which to give birth to a new tradition of normal science is far from a cumulative process, achievable starting from variants and extensions of the old paradigm. Rather, it is about the reconstruction of an entire sector on new foundations, a reconstruction that changes some of the most basic theoretical generalizations in that sector. When the transition is fully realized, specialists gain an entirely different way of thinking about their field, methods, and goals.

**THE EMERGENCE OF NEW PARADIGMS.** The 20th century witnessed the emergence of a whole series of new paradigms, some of them already well established, others still being developed. First results of the study of the micro level (quantum physics) and the macro level (astrophysics), these paradigms appear, then in logic, then in the study of life (biology) and finally in the study of consciousness. An extraordinary thing happens. Reality demonstrates a solid connection between the new concepts. This is how we talk about incompleteness, uncertainty, undecidable... It is very important to specify that it is not about a regression of knowledge, about an abdication of man in front of the mysteries that surpass him. On the contrary, the scientific method allows us, in the context of the new paradigm, to know with extreme precision the reasons why we do not know, and the reasons why we will never know certain things. It is about a progress, therefore, and not about a regression of science. But to understand this requires a reversal of perspectives, an evolution of mentalities. In short, while the old paradigm was based on certainty and reductionism (the famous one: we are nothing but a bundle of neurons) and closed within it the reality we live in, the new paradigms are paradigms of openness. They allow the opening to new horizons of the conceptions that science offers about Man and the World. The convergences of these paradigms thus allow us, despite the diversity of the latter, to speak of a new global paradigm. And this is something very rare. The last example of such a phenomenon is that of the transition

from the world view of the Middle Ages to that of modern times. All disciplines evolved gradually - over a long period of time and not all at once - to allow the emergence of a new synthesis, which today has become classical or modern science. And now we are witnessing the same phenomenon: we are moving from modernity to something else, what we sometimes call postmodern. A global paradigm that has quantum theory at its core **WHY IS A NEW PARADIGM NEEDED?** The most dysfunctional element of the classical paradigm (of normal or positivist science) is its inability to explain the future. To develop forecasts. Positivist psychology-currents such as behaviorism or computational cognitivism, enthusiastically entered the sphere of positivist sciences. But the inability of this psychology (which is currently called official psychology) to prevent human catastrophes, to prevent crimes, suicides, accidents, events with a major negative impact on humanity and the destiny of the species, greatly undermines its social and scientific prestige-make psychology a minor science that deals with "micisms". And the statements of some representatives of this paradigm like: "for me, only what is standardized, clustered, randomized...the golden rule" etc., represent a form of intellectual blindness, a narrowness of the horizon that maybe in the exact sciences is necessary, welcome, but in the social and human sciences or in the life sciences - that is, in open and farfrom balanced systems - it constitutes an important brake on their progress. The new paradigm based on quantum theory and morphological theories (theories of chaos) offers a great chance for knowing Man truly.. Quantum theory refers to the need to know Man both from the perspective of the outer Man and especially of the inner Man. The state of a system is given not only by the totality of its effective properties (the seen part), but also by its potentialities (the unseen part). As quantum theory claims, the state of a system is essentially a sum of possibilities, with different weights, and the real property that the system can acquire represents an objective chance, a kind of necessary chance. Such an approach helps us to discover what did not happen but could have happened. And what doesn't happen but could happen.

**TO KNOW MEANS TO PREDICT.** The French sociologist Auguste Comte said that "to know is to foresee". Starting from this thesis, the "father" of American psychology, William James (1909), states that psychology will truly become a science only when it is able to write anticipated biographies of people from the moment of their birth. The role of psychology, like any science, is to reveal what is hidden. The psychologist has the crucial role of stimulating the individual not to remain unaware of his possibilities, allowing himself to be dragged along by life... living at the will of fate, without even knowing what he has lost. To help him understand his environment, the insertion microgroup, so as not to live alienated from the other, without knowing him, without looking for him, without understanding him... To help him penetrate as deeply as possible into his own soul, there where lies the fruitful seed of his personality. To understand their anxieties, longings, motivation, concerns. To understand the system of representative values of this Time, which he is obliged to defend and promote. To teach him to cultivate and develop in consciousness the fertile and specific germs through which he may become himself; to cultivate the light that will guide him on the road at the end of which he will be a fulfilled Being with Meaning oriented towards good, truth and beauty. It has the role of helping the individual to know his... the unknown. The psychologist's inability to accurately predict the events of a human destiny "disqualifies" him, says James, from being a scientist. "From science comes prediction, from prediction comes action" - wrote Auguste Comte. As long as it is not able to make predictions, psychology lacks the raw material, the impetus for effective action. According to Arthur S. Reber, psychology is what scientists or philosophers of various orientations have created to meet the need to understand the mentalities of various human beings as well as their behaviors. In conclusion, psychology is not "a thing", but something about something.

**THE UNSEEN PART DECIDES EVERYTHING.** The Romanian philosopher and essayist Horia Roman Patapievici (2020), physicist as a basic training, talks about the need for "Reinventing the world" that follows the period of "Disenchantment" marked by materialism and the positivist conception, after he achieves in the book "Recent Man" a broad portrait of contemporary man, that Man who made Andre Malraux say: "If the 21st century fails to find another type of man, humanity will be in big trouble." In the book "Partea nevazuta decide everything" Patapievici writes: "All the meaning of our life can be thought of as bringing to visibility, through our way of seeing, the invisible part of the world and of each one. It is not the supersensible or extrasensory unseen. There is nothing mystical about the unseen I speak of and nothing mystagogic about the way I invoke it. Invisible is not an option. The unseen is here, next to us, in us, as an inescapable given of the world and our nature. We are completely surrendered to him in him, as we are surrendered to the water, when we dive, or to the air, when we find our breath. The singularity of our condition consists in the fact that the unseen part, in our life, decides everything, in the situation where the only evidence of the unseen on which we depend lies in the seen we run after, or run from, or lose."

**BASIC PREMISES FOR A NEW PARADIGM.** At the International Congress of Mathematicians in 1928 in Bologna, David Hilbert formulated four problems whose solution was to make possible a foundation of

mathematics comparable to that carried out by Euclid for geometry. Hilbert envisioned a program for measuring and demonstrating by finite means the consistency and completeness of a formal axiomatic-deductive system, with direct reference to logic, number theory and analysis. Hahn, a participant in the Bologna Congress, encouraged the young Kurt Gödel (1928) to approach them. Gödel solved all four problems, but his answer did not confirm Hilbert's expectations, but was exactly the opposite, invalidating the master's entire program. Gödel constructs, in the context of a complex system, a formula of the type: "this statement is true, but unprovable". The self-referential, looping character of these statements has become a term of reference for many situations in computer science and logic. But also from psychology, because in psychology true but unprovable propositions overwhelmingly dominate the number of true and provable statements - as David Hilbert believed and as followers of computational cognitivism still believe, that everything can be measured and demonstrated in binary logic. The new paradigm is knowledge of interiority governed by fuzzy logics, by n-valent logics. In formal logic a contradiction is the symbol of a defeat but in fuzzy logics and in the evolution of true knowledge it is the first step in progress towards victory. It is a paradigm of unity between quality and quantity. Human behavior must be understood through the interaction between quantitative and qualitative, through their unity. Quality is a kind of quantity that turns inwards, towards the intimacy of the object. Quantity without quality breeds chaos. The role of quality is to organize intimacy in such a way that the object does not lose its identity in the quantitative chaos. This is because in morphological theories, mathematics, as a way of knowing the human being, is not a simple tool for calculation and prediction, but also serves as the germ of some abstract structures (the logos in the theory of catastrophes, the archetype in analytical psychology, etc.). The paradigm shift can be synthetically expressed in an aphorism: the transition from the principle "Man becomes what he is" to the principle "Man is what he becomes"...

#### **METHODS OF KNOWLEDGE OF THE INTERNAL UNIVERSE. NUMBER WORD ASSOCIATION TEST (TANK) A**

**GENERAL PRESENTATION, MAINLY THEORETICAL.** "I presented this method briefly in the article: On the Need to have an Additional Methodology for the Psychological Product Measurement and Evaluation" (Corneliu Sofronie, 2010). TANC is based on the principle of synchronicity formulated by Jung and Pauli and on the basis of the basic idea of the probabilistic Monte Carlo method, applied in an original way. We also used the principles of scale-free networks discovered by the American-born scientist Albert-László Barabási. The Monte Carlo method assumes the existence of a random number generator (that is, those numbers whose value cannot be predicted in advance). The random nature of numbers highlights one of the classical laws of quantum theory, namely that any manifestation is the result of a necessary event, and in this case the necessity is caused by a particular need of the subject. The number generator is itself the subject of testing, which will perform its generation function on account of numbers in the range 0-100, associated with a set of variables called themes in the test. In the TANC test, there are, in principle, between 28 and 34 variables, which have the gift of stimulating, through the psychologist, the generator (the subject) to emit random numbers. In the conditions of the accumulation of a large amount of downloaded numbers (on average 180 numbers; for each theme-variable, the generator will produce six downloads) there will be numbers that will be repeated, imposing themselves as a dominant trend. We introduced in the context of the test a number attractor (the number itself being an attractor), represented by a need from the system of human needs, which has the role of grouping within itself all the variables (themes) downloaded by the same number, highlighting, in this way, the dominant tendency (and implicitly the dominant need) and achieving, at the same time, a certain degree of coherence and structure of the variables (which signify the subject's life experiences). The dominant need becomes, in a way, a way of functioning of the entire system under certain conditions. I applied this method in the context of associating numbers with the human system of needs (ten needs, therefore, ten attractors of numbers), starting from the hypothesis that the meaning that the subject gives for his existence to a certain need will lead to the activation of the subject's memory of his experiences, symbolically concentrated in the numbers downloaded as life experiences in the respective need. However, in the specific context of TANC, the numbers do not have their usual value, they do not therefore represent quantitative determinations, but are life experiences of the subject. Thus, the numbers synthesize, closing in a specific symbol, experiences that compete to become the subject's personality, they are meanings of his destiny. That's why the value of numbers is not a quantitative one, a value that numbers generally have in all applications (and especially in the economic field), but primarily a qualitative one. The principle of synchronicity (Jung - Pauli) refers to the possibility of associating random life experiences, between which there is, at least apparently, no causal connection. Through TANC we highlight the value of the principle of synchronicity, its depth and ability to capture subtle forms of a relationship (association) based on Sense. The numbers grouped in the same need represent random experiences from the subject's existence, and the needs give these experiences a degree of order for the subject's inner universe.

The association between need and number was made on the basis of an experiment containing two aspects: •

The first side of the experiment was based on the creation of a system of needs by the authors of the test in accordance with some existing motivational models in cultures and traditions from both the East and the West. This system of needs was presented to the subjects who were asked to associate each need with a single number from 1 to 10, namely the one they estimated would best respond to the content of the respective need. In the book *Measure for the Devil and the Good God I* presented the resulting percentages for each need. • In the second stage, after establishing the symbiosis between numbers and needs in this way, we subjected to the experiment another group of subjects who were presented with the system of 10 needs and the numbers associated with each individual need, as it resulted from the first experiment, asking him to express by YES or NO his agreement or disagreement with the presented need-number relationship, the correlation with the first aspect of the experiment being 0.78. According to the information from mathematical logic (applied to the IT field), the number, as we use it in TANC, represents a "functor", that is, it is an operator that allows the establishment of relationships between statements (themes). It is considered that two statements have a relationship between them (an order, so the relationship does not necessarily have to be equal, but must be some kind of relationship) when they have the same functor. In these conditions, by the fact that it establishes relationships between themes, the number is that operator which is called a functor. The TANC as a neuromimetic network with ten memory registers. In the IT network, the network nodes are represented by microprocessors. Microprocessors are real minicomputers that contain a command and control unit, an operational unit and a system of registers, as the basis of access to the internal memory. The TANC is designed as a computer containing ten microprocessors, the information processing, unlike a classic computer, being of a structural-phenomenological nature. In TANC, the task of command and control, as well as the operational task, are solved by the brain of the subject and the brain of the psychologist. The ten needs represent the registers of the microprocessor with the help of which the access to the internal memory is achieved. The processing is done with the help of the reference system: good, bad, love, hate which can be coded 1 0, 1 0. Dissonances: good-bad, love-hate, are forms of quantum overlaps that obey the coding rule 1 and 0 in unity. The inner universe of the individual a network of lines and nodes. The abyssal universe of man represents a perpetuum mobile. He is in continuous motion; it is, to refer to the model of the human psyche, (taking as a point of reference the way of conception of the psychic apparatus by Sigmund Freud) a network of lines and knots that are made and undone continuously. The configuration of a network at moment  $t+1$  is no longer the same as at moment  $t$ , even if not much time elapses between the two moments. As neuropsychology demonstrates, perception and memory are constantly being reorganized. It is, in the equation of the quantum model:  $C = N(q, T, M)$ , (where  $C$  is the behavior,  $N$  – non-linear function,  $T$  – time disturbances, medium), the state  $q$ . The state  $q$  refers to the qualia phenomena (motivations, interests, aspirations, state of health), which determine the state of the individual's inner universe. This model of the mental system is confirmed by the findings of neurophysiologists who prove that the structure of the brain is constantly changing through the continuous modification of the connections between neurons. External reality is deposited in the inner universe of the individual, like files in an archive, in the form of life experiences. W. Penfield even demonstrates the existence of a recording mechanism present in our brain, a mechanism that does not miss anything from what man has lived and lives throughout his existence.

### **THE DEFAULT MODE NETWORK (DMN) AND THE NUMBER WORD ASSOCIATION TEST IN NEUROSCIENCES**

The default mode network (DMN), also known as the default network, default state network, or anatomical medial frontoparietal network (M-FPN), is a large-scale brain network composed primarily of the medial prefrontal cortex, posterior cingulate cortex/precuneus, and angular gyrus. It is active when a person is not focused on the outside world and the brain is in a relaxation phase, such as during daydreaming. It can also be active while focusing thought on external tasks in order to achieve performance. Other times when the DMN is active: when the individual thinks about others, when he thinks about himself, when he remembers the past and when he plans the future. (conclusion: it is also active during TANC testing) Although initially it was observed that the DMN is deactivated in certain goal-directed tasks and has sometimes been called the negative-task network, this name is now considered largely misleading, only apparent, because the network can be active in conceptual cognitive tasks. But the DMN has been shown to correlate negatively with other networks in the brain, such as attention networks. Evidence has pointed to DMN disruptions in people with Alzheimer's and autism spectrum disorders. The DMN network is structured on 9+1 hubs, which allowed us to find some analogies between the DMN and the POPQ requirements system. In short Functional Hubs: Information on the Self. Posterior cingulate cortex (PCC)- and precuneus: combines bottom-up (uncontrolled) attention with information from memory and perception. The ventral (inferior) part of the PCC is activated in all tasks involving the DMN, including self-related, other-related, remembering the past, thinking about the future, and processing concepts plus spatial navigation. The dorsal (upper) part of the PCC involves awareness and involuntary arousal. The precuneus is involved in visual, sensorimotor and attentional information. Medial prefrontal cortex (mPFC): decisions about self-processing such as personal information, autobiographical

memories, future goals and events, and making decisions about very close people such as family. The ventral (lower) part is involved in positive emotional information and internally evaluated reward. Angular gyrus: connects perception, attention, spatial cognition and action and helps with parts of episodic memory recall The dorsal medial subsystem: thinking about others Functional hubs: PCC, mPFC, and GU-angular gyrus. Dorsal medial prefrontal cortex (dmPFC): involved in social thinking, such as determining or inferring the purpose of others' actions. Temporoparietal Junction (TPJ): Reflects on beliefs about others also known as theory of mind. Lateral temporal cortex: retrieval of semantic and conceptual social knowledge. Anterior temporal pole: abstract conceptual information especially of a social nature The default mode network (DMN) is active during passive rest (the subject's state when testing with TANC): which typically involves thinking about others, thinking about oneself, remembering the past, and envisioning the future, rather than the task at hand. However, recent work has challenged a specific mapping between the default mode network and mind wandering, given that the system is important in maintaining detailed representations of task information during working memory encoding. Electroencephalography studies (which involve placing electrodes on the surface of a subject's cerebral cortex) have shown that the default mode network becomes active within a fraction of a second after participants complete a task. Furthermore, during attention-demanding tasks, sufficient deactivation of the default mode network at the time of memory encoding has been shown to lead to more successful long-term memory consolidation.

### **POPQ NEED SYSTEM AND DEFAULT MODE NETWORK. DMN NETWORK A GIANT STEP FOR A NEW**

**PARADIGM OF SCIENTIFIC THINKING.** Neuroscience discoveries (and experiments) have allowed us to identify the neurological basis for the Word Number Association Test (POPQ System of Needs). There are discoveries made especially in the years 1990-2000, a period called the "Decade of the brain" that prove that projective tests (like psychoanalysis, in fact Sigmund Freud was a neurologist) have scientific support, deep science allows access to the inner universe of Man . It means something other than statistics, quantitative mathematics, to which it is not opposed, but, on the contrary, is complementary to it. It is, in the last instance, the complementarity between the Psychology of totality and Elementary Psychology. We call the POPQ system of needs "The system of needs of the personal space of the individual or the needs of self-awareness and the world". They are the needs of the intimate/familial space (independence, inner harmony, identity) in which self-consciousness governs and of the public/social space (social integration, social becoming (progress), ideals (the social project of the individual). It is the space of world consciousness ( the consciousness of the other). There are also the needs of the self-world space: the need for proximity/relationship, the need for utility and social transformation, and the need for social norms/morality. To these nine needs (3x3) is added a tenth: the need for balance dEnemy which represents the need to connect between individual and social space. In neuroscience, the Default Mode Network (DMN), also known as the default network, default state network, or anatomical medial frontoparietal network (M-FPN), is a large- scale brain network composed mainly of the medial prefrontal cortex, posterior cingulate cortex/precuneus, and angular gyrus. It was discovered by a group made up of doctors and computer scientists who also designed its structure in cybernetic terms, as if leaning on 9+1 Hubs.

## **II. COMMENTS AND CONCLUSIONS**

Knowledge of the inner universe of Man (Inner Man) cannot be achieved with the help of classical (positivist) science. René Descartes introduced the dualistic view, according to which our mind has a material structure, represented by the brain, which can be studied by classical science, and an immaterial structure, represented by spirit and consciousness, which cannot be studied by science, but only of religion and philosophy. But at some point scientists began to study the consciousness and implicitly the inner universe of Man. When they reached the level of consciousness, things got very stuck, because, as D. Chalmers (1996) shows, in brain research we have to deal with two kinds of problems, namely with some easier problems, like are perception, the transmission of nerve signals, reflexes and instincts, which we can solve with the help of classical (positivist) science, and with some more difficult problems, such as consciousness, which we cannot solve with the help of science or at least of science current. But science in its evolution did not stop at the positivist paradigm and the quantitative mathematics that proved inadequate for the knowledge of the interiority of the being and in general of open and far from equilibrium systems. Especially in the humanities, the ignorance of the inner Man, the exclusion of time and space from the equation of the knowledge of the individual, made it impossible to achieve the fundamental goal of a scientific approach as formulated by the father of positivism Auguste Comte himself: prediction. The emergence of higher mathematics, morphological theories (catastrophe theory, fractal theory, strange attractor theory), chaos theories, modal logic, fuzzy logic, and especially quantum theory changed the perspective. These sciences have confirmed their theoretical value and practical social utility for the benefit of mankind. And the future seems to be theirs because it provides

much more of a basis for making correct predictions. We must not forget for a moment the failure of classical science - statistics in spe, in making viable forecasts regarding the evolution of the COVID virus - both in terms of the number of deaths that will be recorded until the end of the crisis, as well as the actual duration of the pandemic, the several statistical forecasts predicting a short and very short duration of the health crisis, confusing the political decision-maker who thus took controversial measures, proving a lot of insecurity. Today we must necessarily discuss a material (positivist) science addressed to the outer Man and a non-material science addressed to the inner Man. Non-material science is the foundation for the creation of qualitative-quantitative methods (in unity) that allow approaching the inner universe. We propose a complementary measurement: calculation-forms (quantitative- qualitative) according to the medical model: analysis-imaging. No result obtained with the help of the classical methodology is certain, but only probable because the methodology itself is based on the theory of probabilities. And then isn't it natural, in the spirit of cybernetics, to have a feed-back from a different measurement, of a different type based on fuzzy logic, quantum theory, etc.? In this sense, we propose the complementary measurement by shapes. Rene Thom (1972), the father of catastrophe theory, writes: "One of the fundamental problems of the human spirit is that of the succession of forms. Whatever the ultimate nature of reality (assuming that this expression makes sense), we cannot say that the universe is a chaos: we can distinguish in it beings, objects, things that can be named in words. These beings or things are forms, structures endowed with some stability, they occupy a certain position in space and last for a certain period of time. The very fact that we can recognize the same being in the multitude of its external aspects poses a problem that only the psychologists of the Gestaltist school put in a geometrical perspective, accessible to scientific interpretation..." A true science of consciousness will have to be a new type of science, which deals more with qualities than quantities and relies more on shared experience than on verifiable measurements. The data of such a science will be models of experience that cannot be quantified or analyzed with classical means. On the other hand, the conceptual models that connect these data will have to be logically consistent, like all scientific models, and may even include quantitative elements.

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