

# Information: From Philosophic to Physics Concepts for Informational Modeling of Consciousness

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Science and Technology of Information

Information was a frequently used concept in many fields of investigation. However, this concept is still not really understood, when it is referred for instance to consciousness and its informational structure. In this paper it is followed the concept of information from philosophical to physics perspective, showing especially how this concept could be extended to matter in general and to the living in particular, as a result of the intimate interaction between matter and information, the human body appearing as a bipolar informed-matter structure. It is detailed on this way how this concept could be referred to consciousness, and an informational modeling of consciousness as an informational system of the human body is presented. Based on the anatomic architecture of the organism and on the inference of the specific information concepts, it is shown that the informational system of the human body could be described by seven informational subsystems, which are reflected in consciousness as corresponding cognitive centers. These results are able to explain the main properties of consciousness, both the cognitive and extra-cognitive properties of the mind, like that observed during the near-death experiences and other similar phenomena. Moreover, the results of such a modeling are compared with the existing empirical concepts and models on the energetic architecture of the organism, showing their relevance for the understanding of consciousness.

*Keywords:* information, philosophic and physics concepts, consciousness, informed matter, bipolar info-matter structure, informational modeling, cognition centers, seven-type informational architecture of consciousness

## Introduction

The human was since ancient times interested to understand what is his status in the world which he live, so since immemorial times intended to discern his origin and his aptitudes with respect to his environment. Particularly, the essence of consciousness was a permanent open question for philosophy, which was the first one, among the other investigation fields, to propose various ways to explain it. The “*mind-body problem*,” equivalent also with the *mind-matter* issue, has been hotly debated by philosophers for thousands of years, and it remains one of the foremost unsolved “puzzles” in science today (Radin 2018). That is because the nature of consciousness, which is actually the most important feature determining our connection with the environment

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For the Romanian Science and Technology of Information: tradition, continuity, reinforcement.

(mind-matter) and with ourselves (mind-body), is not really understood yet. The open questions on consciousness are always the same, asking to know where consciousness comes from, why consciousness does exist, and what are the associated specific mechanisms and their support. Over time, many models of consciousness have been proposed, but most of them refer only to some particular aspects of consciousness. The phenomenological description was firstly approached by philosophy, starting with the ancient empirical observations on the universe and human body, like Taoism, Hinduism, and Buddhism, continued with Greek contributions (Radin 2018) and with more recent contributions up to the present days (Chalmers 1995; Draganescu 1979; 1990; 2004). However, the philosophy alone cannot respond to questions concerning the intimately implied mechanisms and their support, so the intervention of other scientific domains was necessary to deeply investigate them. Particularly, it was necessary to approach this theme from the perspective of the quantum physics (Hameroff 1998; Hameroff & Penrose 1996; 2014), because the so called extra-power properties of mind, like the remote transmission of information by mind (Radin 2006) and other similar properties, qualified recently as “real magic” phenomena (Radin 2018), cannot be explained by means of the classic concepts. Moreover, the near-death experiences (NDEs), well controlled and known by the medical sciences as veridical phenomena (Fracasso & Friedman 2011), including the time-returning to the infancy period, extra-corporal view and the crossing process of a virtual “tunnel”, were considered to be outside from the common understanding (van Lommel 2006). Taking into account such a dispersion of data, it seems to be difficult to open a new direction, scientifically sustainable, allowing to unify the present and older concepts in an integral, general model of consciousness. In spite of the difficulties, this attempt was already done and suitable results were recently reported in a series of research studies, starting from the concept of information, and reinforcing it (Gaiseanu 2016a; 2016b; 2017b; 2017c; 2018c). The aim of this work is to present the philosophic and physics concepts concurring to a new vision on the mind-matter problem, allowing a modeling of consciousness as an informational system of the human body.

## **1. Information**

In the common sense of the word, by information it is understood basically an observed property of the objects or of the elements composing a life scene, or a news, or transmitted or received data (Meijer 2013a). Due to the high development of the microelectronic and microsystem technologies, we benefit today of information in all the communication media like television, radio, and internet, allowing “in-live” connection with various news, otherwise and other times impossible to be done. However, from the point of view of consciousness, we are focused on the issues which contributed to the development of information concepts, opening the way to an informational understanding of consciousness. We therefore approach information as a philosophic and then as a scientific concept, allowing to follow the introduction of such concepts in the assessment and informational modeling of consciousness. From this point of view, the communication field contributed substantially to the development of the concepts on information, assuring the base for the high increase of specific technologies studied today by the science and technology of information.

### *1.1. Philosophical Concepts*

Looking on the past, we have to note that information was a concept implicitly assumed when the Greek philosophers for instance approached the perception and the possible mechanisms of mind. Although the Greek philosophers, like Pythagoras, Socrates, Plato, and Aristotle, questioning the origins of the universe and

founding the origins of logic, mathematics, and rational analysis, with reflexive contributions on consciousness and on the way of perception of information, obtained the most recognized results by the scientific world, some philosophies, like Taoism in China, referring to the dual forms Yang/Yin of energies of the universe, and the philosophies based on the seven-type configuration of the human energetic system originated in India, could be also mentioned (Radin 2018). Although active also up to the present days in the collective consciousness, only some of them were validated by science in a rigorous way. For instance, the concept of the association during the perception process is recognized today as valid, and used as a base for the modeling of this process, with application in the neural networks (Perlovski 2001). Plato, student of Socrates and teacher of Aristotle, proposed the existence of a “higher domain” of pure ideas, arguing that there is a difference between the everyday appearance of the world, shaped by everyday language and concepts, and the world itself. His reflections are still a reference for the present studies on consciousness (Radin 2018). When we speak today about ideas, we implicitly think actually at information.

Passing to the more recent and today actuality, Mihai Draganescu was among the first philosophers and scientists who drown a philosophic value and description of information, as one of the fundamental component of our universe (Draganescu 1979; 1990; 2004). Other contemporary philosophers like Chalmers (Chalmers 1995) or scientists on the medicine field (van Lommel 2006) claimed information as a possible conceptual tool to understand consciousness, but not well defined concepts and appropriate methodology were proposed, without the contribution of other science fields like physics and the science of information. As a forward advance, consciousness was associated with the processing of information by specific processors (Baars 1988), like in the microelectronic systems.

With its specific instruments of contemplation, allowing analyzing various aspects of nature, its mechanisms and correlation between its parts, philosophy was able to contribute with observational, descriptive ideas to understanding of matter and information. We can recognize today a large variety of possibilities to describe the information concepts (Meijer 2013a), starting from a simplified description, as specific property of the objects, to reflective intuitive affirmation assigning to information the power “to make the difference” (Bateson 1972). Although this seems to be a “simple” affirmation, this got a deeper significance by the comparison with the mathematical tool to measure the quantity of information. Indeed, a paraphrase of this affirmation, expressed as “the difference which makes the difference” (Tononi 2008), refers to the possibility to measure the integrated information on a certain level in the brain by a difference of entropies.

Mihai Draganescu was among the first philosophers and scientists, probably the first, who has granted to information a much deeper significance than a simple property: He suggested that information is actually a constituting, fundamental component of matter, which can be described by a tendency to a goal, able to structure the “deep” matter, defined as the last level of matter, an ultimate and passive layer of the reality. With other words, (deep) matter cannot be structured by itself, without the contribution of information (Draganescu 1979; 1990), as the following fundamental relation shows: Passive (deep) matter + Information => Structured matter. Moreover, the living entities contain more information, according to the relationship: Structured matter + Information => Living structures, showing that living is much more info-related complex structure.

What we have to learn from these concepts is that:

- (1) Information is a fundamental component of matter;
- (2) Information is an active agent which allows the structuration of matter;
- (3) Information, as an added component to the structured matter, allows the living structuration.

The Draganescu's philosophical model covers therefore the all range of material structures, surprising by the generality and the accurate vision of the essential features of the constituting fundamental elements in nature.

### 1.2. Physics Concepts

The advances of theoretic (Tagmark 2014; Gate 2010) and experimental physics (Denkmayr et al. 2013; Aharonov et al. 2013) confirm and even consolidate the Draganescu's earlier concepts (Gaiseanu 2016a; 2017b; 2017c). Indeed, the theoretical research results of the physicist Tagmark shows that the universe would be actually, as an ultimate form, an expression of the laws and rules (Tagmark 2014), so informational. On the other hand, the assessment of the universe by means of an informational binary (0; 1) form of some of the fundamental equations proposed by the physicist Gate Jr., exhibits an informationally-based structure, which can be also extended to the living structures, as error repairing codes (Gate 2010).

Some results in the cosmologic field recently reported by the physicist Hajdukovic, showing that the hypothesis of the vacuum polarization of the permanently generated matter/antimatter particle pairs in vacuum space, due to the gravitational field of the matter bodies (Hajdukovic 2010; 2011; 2012), including within the Solar System (Hajdukovic 2013), could explain the expanding of the universe, the birth of the universe, dominated alternatively by matter and antimatter, and the mystery of dark matter (assimilated with antimatter), this undetectable directly and still unknown species of matter, representing more than 80% of matter of our universe (Freese 2017).

On this basis and including other suitable examples from nature, like that referring to the bipolarity of the forces, expressed as action/reaction, to the positive/negative electrical charges, or to the entropy/antientropy and gravity/antigravity shown by matter/antimatter, equivalent finally with the YES/NO—type decisional prototype, which is the specific unit for any informational system, the physicist Gaiseanu has shown that the universe is actually a bipolar informational system, assuring on this way the local or steady-state equilibrium, and which influences/determines the living structuring (Gaiseanu 2016a; 2016b; 2017b; 2017c). Such a behavior is also revealed in the semiconductor materials by the pairs atom/vacancy and electron/hole (Gaiseanu 2013; 2017a). Moreover, the physicist Erik Verlinde has demonstrated that the attraction law between the matter bodies can be deduced by using information terms, assuming that the information of matter is distributed on a spherical surface around the total (visible and invisible, but expressed by Einstein's relation  $E = mc^2$ ) matter mass body, showing in this way that the gravity is actually an emergent force, derivable from entropy. Therefore, if the gravity force of matter is actually an expression of entropic matter, then the antigravity force of antimatter should be an *antientropic force*, assisting the living structures (Gaiseanu 2016a; 2016b; 2017b; 2017c). In such antimatter system, the *time arrow* should be *reversely oriented*, as shown by the physicist Sean Carroll (Carroll 2015), so according to the informational modeling presented below, could explain the life retrovision phenomenon during the near-death experiences (NDEs) (Gaiseanu 2017b; 2018a) and other similar phenomena.

The physicist Michio Kaku has shown also that the living creatures could be classified in four categories, from the lowest to the highest order of complexity, according to the reaction degree with respect to the environment conditions, like temperature, light, and humidity necessary for plants, up to that required for human, who is able to design by mind his present and future conditions of life (Kaku 2014). This is actually another way to recognize the high, determining role of information in the evolution of the living with respect to the environmental informational signals.

Other evidences, maybe the determinant ones, are provided by the experimental physics, showing that under certain conditions of experiment, particles like neutrons (Denkmayr et al. 2013) or groups of particles or atoms (Aharonov et al. 2013) could be disembodied, i.e., their properties, so information, can be separated from their body. The recent results obtained by CERN (European Organization for Nuclear Research), confirmed also that the particle mass is actually a result of interaction with a so-called Higgs field, showing actually that the mass body is not an intrinsic property of matter (Anthony 2012). All these discoveries allowed to define an *informational field of matter*, as it was recently reported (Gaiseanu 2016a; 2017b).

### 1.3. Information as a Scientific, Measurable Quantity

*Information* as a descriptive, philosophic concept is not sufficient for the use within the rigorous sciences, which need to operate with information under a mathematical form. The information theory intersects today the physics (by the statistical mechanics), mathematics (by the probability theory), electrical engineering (by the communication theory), and computer science, where it is referred to the algorithmic complexity (Cover & Thomas 1991).

In Electrical Engineering, specifically in the Communication Theory, it is used the Shannon *entropy* to calculate the *quantity of information*, as a difference between the entropies of two different states of a system (Shannon 1948). This definition, or variants of it, is applied today in the Science of Information and more recently (Tononi 2004; 2008), as a tool to depict the informational integration mechanisms in the brain.

In Physics, specifically in Thermodynamics, the Statistical Mechanics is the birthplace of *entropy* and the second law of thermodynamics, showing that the entropy of the material systems always increases (Cover & Thomas 1991). The statistical theory concerning entropy in physics, known as the Boltzmann's statistics, is a *measure of disorder* (Jaynes 1965), very similar with that used in the communication theory and in the information science, where this is actually a measure of the noise, basically due to the erratic thermally-induced movement of the electrons.

In Mathematics, the specific terms of entropy and information are discussed within the Probability Theory and Statistics, and are the fundamental quantities of information-entropy theory, defined by functions of probability distributions. This is a more extended theory, with more applications than that related to the Shannon's information theory (Cover & Thomas 1991).

Philosophy of Science contributed also in this field with various contemplative affirmations, like for instance with the lemma "Causes shall not be multiplied beyond necessity" attributed to William of Occam, or to paraphrase it, "The simplest explanation is best," converted in a mathematically applicable principle (Cover & Thomas 1991). In Economics, specifically in the investment field, the theory of entropy/information is used for an optimal investment in the stock market (Cover & Thomas 1991).

Surprisingly, although the concept of information is largely applied in science as it was emphasized above, little contribution was done for the investigation of consciousness, as it will be furthermore discussed.

Information is measured in *probabilistic* terms, within a dual system, with two possibilities suggestively represented by the binary YES/NO alternatives, as in our own decision-making system (Gaiseanu 2016a), each of them equally probable. The most common example of such a system is that represented by the coin tossing. The unit of information and entropy is the Binary Digit (Bit), defined by the mathematical relationship  $\log_2(2) = 1$ . However, we have to make a fundamental distinction: while *entropy is a measure of uncertainty*, as in physics, where it is a measure of disorder, the *information is a measure of certainty*, so of the order, being

expressed by a difference between the entropies of two different states.

## 2. Consciousness

Consciousness was and remains a debate issue, especially because it is not easy to understand the intimate mechanisms of mind operation and especially the relation between brain and mind, so actually the relation mind-matter. Although a multitude of researches were been dedicated to this topic, each of them referred to some particular aspects of consciousness, depending on the perspective from which this issue was regarded. As the investigation of consciousness includes therefore many and various distinct aspects, a contribution of corresponding scientific fields like medicine, psychiatry, psychology, neurology, anesthesiology, philosophy, and especially physics, should be involved. In spite of such effective efforts, consciousness is still not really understood.

### 2.1. *Consciousness Approach*

According to the human accumulated experience, there are three conventional forms to approach the investigation of consciousness (Radin 2018): While the philosophy analyzes the concepts, logic, states, with respect to certain particular assumptions used to describe consciousness, the science studies consciousness from the outside in, typically by measuring the electrical activity of the brain and body, or by asking people to report their experiences. In a distinctive way from the previous mentioned methodologies, the mind meditators study consciousness from the inside out, by deep introspection and such a way is characteristic, although not limited to some oriental like Taoism, Hinduism, and Buddhism-based philosophies.

A special way to investigate the properties of consciousness is the approach the psychic *extra-properties* of consciousness, often called paranormal, or psy phenomena (Radin 2018). That is because such distinctive phenomena enter into a extra-normal behavior range, not too much investigated by science, probably not only because of a sceptic position of a part of the scientific community, excluding unfortunately sometimes automatically the part which is not understood or accepted by the scientific mainstream, but also because of the lack of the technical tools able to investigate these phenomena. However, the high technological performances offered today by the integration of the microelectronics and microsystems in the medical investigation tool, particularly able to recover and to save the human life, allowed a scrupulous analysis of NDEs and associated phenomena, as the *consciousness disembodiment* and *extracorporeal view*, placing on the scientific working table typical example of extra-normal capacity of mind (Fracasso & Friedman 2011; Gaiseanu 2017b).

This was one of the reason to approach consciousness not only on the base of the philosophic concepts or classical physics, including or limited to the electrical activity of the brain, as a lot of studies (impossible to cite all of them) were done, but from the perspective of quantum mechanics, involving a “strange” behavior of microparticles or particle systems, like the *entanglement* effect. This was described for the first time by Einstein and co-workers, and today is experimentally demonstrated and invoked as a basic process to explain remote mind correlation (Radin 2006).

### 2.2. *Consciousness Models*

Various models were proposed over the time, focusing on some concrete aspects of consciousness. However, although the mind operation is informational, little literature was dedicated to explain consciousness from such a perspective. Besides of other reasons, that is also probably due to not existing or inadequate concepts on information, as a specific component of matter. Therefore, although some of research studies like

that of the philosopher Chalmers (Chalmers 1995) and of the cardiologist Pim van Lommel (van Lommel 2006), proposed information as an adequate candidate to model consciousness, only recently a coherent modeling began to be concretized (Tononi 2004; Gaiseanu 2017c). Some of previous proposed models based on information are shortly presented below.

Chronologically, an informational approach of consciousness was proposed by the psychologist and neurobiologist Barnard Baars (Baars 1988). He presumed that consciousness is the result of the operation of various centers of the brain, likened to the processors of the microelectronics systems, which change information each other on various levels of operating range. However, although the information may come from various centers, the mind works as a Global Workspace, arranging the received information according to some specific criteria of emergency. According to this Global Workspace Theory, while each operating processor could work under a quite independent conditions with respect to the others, and in automatic way, like in the subconscious domain, the processors associated with the conscious range are related each others, operating in a series mode. In such a mode, the received information should “wait” in a “standby room,” before to enter inside of the workspace.

The physicist Perlovsky proposed a model within the Theory of Modeling Field, explaining the mechanism of the perception of the new information, based on the similarity with already “a priori” existing one, as postulated by the philosopher Aristotle (Perlovski 2001). On this basis it was possible to mathematically model this mechanism, by using Fuzzing functions, with applications in the artificial intelligence, but with conclusions useful for understanding of the mind operation. To make a clarifying distinction, the concept of field is referred in this case to the mathematical process allowing the simulation of new information.

The psychiatric doctor Giulio Tononi has analyzed consciousness as a system able to integrate the received information (Tononi 2004; 2008). According to his Integrated Information Theory, the key to understand consciousness is therefore the capability of brain to integrate information at various levels of complexity. He applied the theory of information related to the relative entropy, in order to calculate the integration factor, essential for the integrated perception of the primary information.

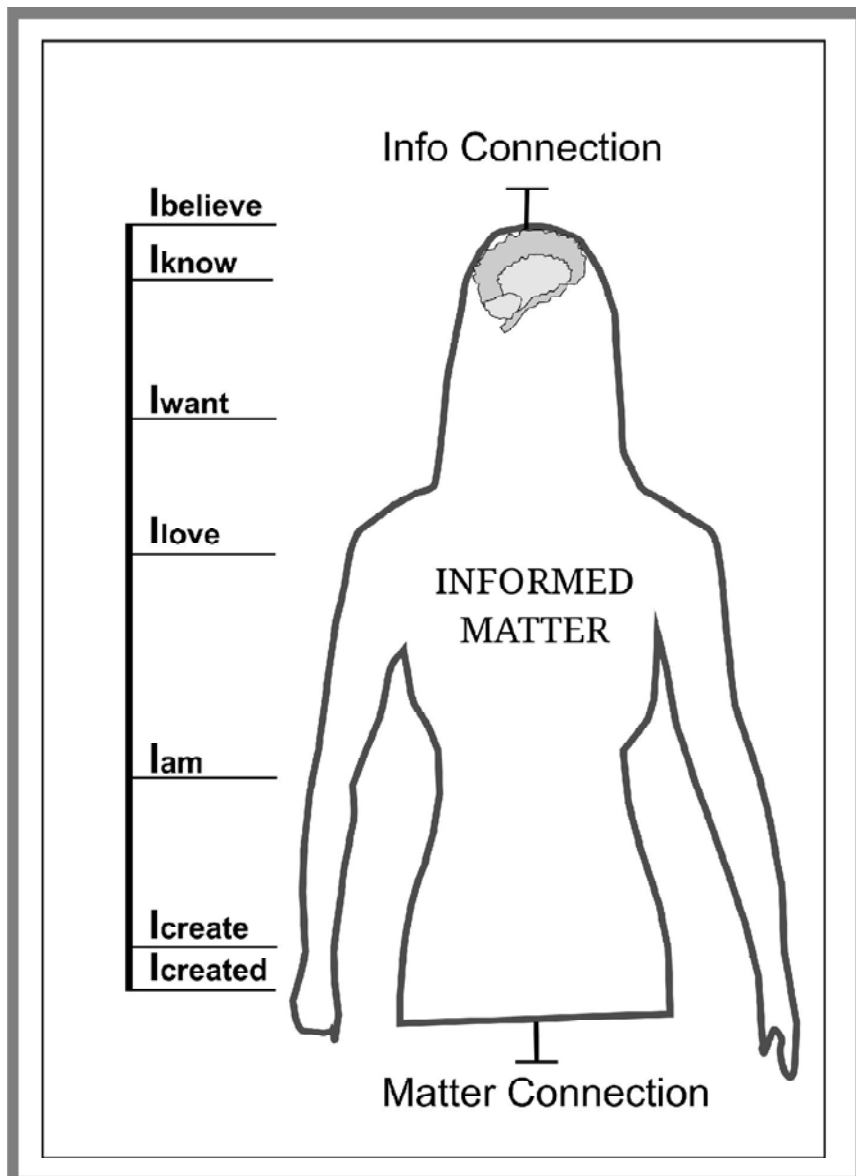
### **3. The Informational Model of Consciousness**

The fundamental evidence demonstrated by the recent physics discoveries discussed above, showing that information is a component of matter, is a base for the understanding of consciousness as an informational system of the human body (Gaiseanu 2016a; 2016b), and is described within the Informational Model of Consciousness proposed earlier (Gaiseanu 2017b; 2017c). According to the philosophic concepts previously defined (Draganescu 1990; 2004) and the recent reports in astrophysics and quantum physics, it results that: (i) Information is a component of matter, indispensable for the matter structuring (Draganescu 1990); (ii) the living entities are structured adding more information to the material structures (Draganescu 1990); (iii) information can be disembodied from matter (Denkmayr et al. 2013; Aharonov et al. 2013); (iv) the universe is an informational bipolar system (Gaiseanu 2016); (v) the informational system of the human body is connected to the informational system of the universe (Gaiseanu 2016a; 2017b; 2017c; 2018b).

#### *3.1. The Informational System of the Human Body and Its Architecture*

The concepts described above allowed elaborating a new model of consciousness, presented as the *Informational Model of Consciousness (IMC)*. This model shows that the *informational system of the human*

*body* is connected to *information*, as a “free” (*operational*) *entity*, and to ordinary (non-living) *matter*, resulting that the human body is actually an *informed matter* (IM) *structure*, as it is presented in Fig. 1. According to IMC, the informational constituting components of the informational system of the human body are: (1) *informational subsystems*, which will be presented in detail below; (2) *internal and external sensors*, detecting and transmitting information; (3) *execution elements*, assuming an executive role.



**Fig. 1. Informational architecture of consciousness represented by the cognitive centers suggestively called Ibelieve, Iknow, Iwant, Ilove, Iam, Icreate, Icreated and the correspondence with the organic structure of the organism.**

The distinction, besides *information as a “free” (virtual) operational component of consciousness*, of that of *codified (matter-related), bounded information*, allowed to identify the following informational subsystems of the human body:

- (1) *Center of Acquisition and Storage of Information (CASI)*, defined as the sum of all brain areas and the



corresponding circuits connected to information *sensors*, dedicated to the acquisition and storage of information, reflected at the conscious level as a *cognitive center* suggestively called *Iknow*;

(2) *Center of Decision and Command (CDC)*, responsible for the processing of information and the elaboration of the decision, reflected at the conscious level as the cognitive center *Iwant*;

(3) *Info-Emotional System (IES)*, responsible for the info-emotional activity, as a *reaction* of the organism to the detected information; this system is recognized in the conscious range as the cognitive center suggestively called *Ilove*, synthesizing the “symphony” of all palette of *emotions*, *sentiments*, and *emotive states*, as it will be discussed in detail in a future volume;

(4) *Maintenance Informational System (MIS)*, assuring the individual *at present body survival*; this system corresponds at the conscious level with the cognitive center *Iam*, detecting the status and the image on oneself person;

(5) *Genetic Transmission System (GTS)* ensures the reproduction and transmission of *genetic (matter-codified) information* to the subsequent generations, so the *survival of species* in the future; this system is detected at the conscious level as the cognitive center *Icreate*, referring not only to the reproduction impulses and actuation, but also to the responsibility to develop and maintain the social relations and the formation of the new generation within the family;

(6) *Info-Genetic Generator (IGG)* assures the development of the body according to the specific age, and is reflected in consciousness by predisposition, talents, skills, and facility for certain typical behaviors, within the cognitive center *Icreated*.

(7) *Anti-entropic Connection (AC)*, as a part of the *Info-connection* of the human body, provides the access to the antientropic force assisting the life and extra-power properties of the mind, like that described within the *NDEs phenomena*; this connection is reflected in consciousness by the cognition center suggestively called *Ibelieve*.

As it is shown in Fig. 1, all these systems are managed by the *brain*, and are connected to the corresponding body organs, with an *executive/sensitive/supporting* role. Therefore, when we speak about sensors and their detecting specific information, we have to understand not only the well known *external senses*, i.e., seeing, hearing, smell, taste, touch, but also the all range of the *internal type of signals* like hungry, thirst, corporal needs in general, health status and alarm signals, transmitted to the brain from sensors by means of specific *informational circuits*.

CASI manages the acquisition and storing of information received from the external and internal sensors and it is detected at the conscious level as memory. The accumulated experience during the life represents the personal informational baggage, a *data library* suggestively called *Iknow*, from which CDC is supplied with information for analysis and decision, expressed by *Iwant*. All these activities are operated by the brain, as an organic support. However, *Iwant* is closely related also, although not limited to the *vocal execution system*, as an organic support, so this specific relation is emphasized in Fig. 1 by a corresponding marking line. *Iwant* represents actually the *attitude*, i.e., the *information output* of the *operative (conscious) informational system*.

As the mind is an informational creating system, an *info-creational field* of consciousness could be defined, over which the thought acts as an *informational operator* (Gaiseanu 2016a). This is justified by the following evidences: (i) Information is associated to matter, but in a distinctive and identifiable/separable way, as discussed above, and as some recent quantum experiments have been shown (Aharonov et al. 2014; Denkmayr et al. 2014); (ii) the mind is able to operate with *virtual/conceptual “mass-free” type information*, as a specific

working mode.

IES is responsible for emotions, sentiments, emotional states in general and is recognizable in consciousness by the center Ilove, called in this way to point out the power of love and the large range of emotions implied within this fundamental emotional state. Emotions are actually a response, a *reaction of the organism* (informed matter) to the receive information, an impulsive *tendency to the action*. IES is therefore closely related with the heart, the central organic motor assuring in any moment and in any part of the organism the appropriate feeding with the nourishing elements transported by blood. This connection is necessary not only for the current feeding, as included actually in the MIS operating mission, but particularly to support the *dynamics of the feeding process induced by emotion*, detected actually by Ilove.

Love is an associative property of consciousness, relating the object/subject of love with the own person. Therefore, from the perspective of IMC, it is to be noted that love tends to unify the desire, which is actually an informational force, with either ordinary matter or living informed matter. The emotions are memorized in CASI, associated with the corresponding information which triggered them. The emotional state, as part of the conscious range, could be one of the powerful criteria implied in the attitude, and therefore could be considered a participative/active component of the *Operative Informational System (OIS)*, so finally OIS is defined as:  $OIS = (CASI + CDC + IES)$ . The common and interrelated activities of these centers assure the operative, *short/medium-term adaptation* to the environment.

While OIS represents the conscious level of consciousness, the Programmed Informational System defined as  $PIS = (MIS + GTS + IGG)$  operates as an automatic systems, supporting the survival of the organic structure of the body. Indeed, MIS is responsible especially for the connection with matter and the absorption/biotransformation/dejection processes, so it includes the *input/output matter circuits* and the associated operational systems. The corresponding center Iam is the reflection of MIS in the conscious range of consciousness, detecting both the internal sensor signals referred to the corporal needs and the health and power status of the organism. MIS actually works as a power (energy) supplier, distributing it in the entire body. Therefore, this is practically closely related to the digestive and the cardio-respiratory distribution system. The high density of the nervous network in the abdominal region of the body, considered as a second brain of the organism, reveals the high importance of such a process.

GTS monitors the genetic (codified) information processing, assuring the *long-term survival* of the species and is represented in consciousness by Icreate. GGT is therefore the *informational matter-related output of the body* and is connected to the reproductive system. However, the center Icreate monitors not only the reproduction impulses, but also all the other related needs: associativity, protection and formation of the new generation, the personal growth within the social frame in order to have access to the necessary recourses for family.

GGT is the *mater-related informational input* inherited from the parents, and manages the individual evolution according to the age. GGT is reflected in consciousness by talents, skills, and predispositions, within the cognitive center Icreated. The development of the fetus and of the children within the first years of life is subjected to the formation of the informational system, starting from the effective structuration till the assimilation of the cultural, religious, and social rules, which become some strong *decision criteria* for entire life.

The Anti-entropic Connection (AC) is the gate for the connection to the antentropic force of the universe, virtually represented by the anti-gravitational field of antimatter and revealing/explaining the nature of

extra-power properties of the mind, as described by NDEs (Gaiseanu 2017b; 2018a; 2018b). AC is reflected in consciousness by the cognition center Ibelieve, assuring trust, *stability and equilibrium*. AC is included in the *Info-connection pole* of the organism, which appears according to IMC description, as a *bipolar info-material structure*, as shown in Fig. 1.

As it was discussed earlier (Gaiseanu & Graur 2018), although Iwant is a main decisional center, all other cognitive centers Iknow, Ilove, Iam, Icreate, Icreated, and Ibelieve are involved actually in the final attitude, because they provide both information and decision criteria (Gaiseanu 2018c).

### 3.2. Results and Discussion

The Informational Model of Consciousness (IMC) described above, reveals the existence of seven information centers, as represented in Fig. 1, showing distinct but integrated functions, informationally sustained. This informational model identifies and describes for the first time the informational contribution of such various informational centers, fully integrated, but with distinctive architecture, according to the specific structure of the human body.

Starting from such a specific architecture, a comparison could be made with some empirical, philosophical models, like that based on seven chakras promoted by Buddhism and Hinduism (Ignatenko 1994). Because does not dispose yet, either of the technical nor of the necessary theoretical tools to investigate them, the science is still owe to explain various empirically observed evidences on this domain, so the way is still largely opened. Therefore, according to this desideratum, we can compare the results of IMC with such empirical models, and it can be remarked an evident coincidence between them. Indeed, the empirical models claim first of all the existence of seven centers of energy (chakras), which were actually identified within IMC as informational centers, but supported this time by scientific reasons. Secondly, these centers are located practically in the same body regions, as it was represented in Fig. 1, which correspond with the operational executive systems connected to the informational subsystems defined within IMC.

In the Taoism philosophy, the Yin/Yang contrary principles/energies of the world and human body (Odooul 2014), are equivalent within IMC with the bipolar matter/antimatter constituents of the universe, with the entropic/antientropic forces of the organism and with the YES/NO unit of the decision, which is actually the basic informational operator (Gaiseanu 2016a; 2017b; 2018b; 2018c). The ignoring of the knowledge which the humanity already learned from own experience, and much less of that accumulated from millennia by various human communities, would be a foolish (Radin 2018). Therefore, such similarities between the ancient philosophies and IMC results would be a challenge for a deeper investigation of these coincidences, IMC offering an open gate and a valid starting base for further suitable researches on this field.

IMC allows understanding the normal, but also the extra-normal properties of consciousness, included recently in the category of the “real magic” phenomena (Radin 2018). The “normal” properties of the mind are mentioned within the specific activity of the cognition centers, as described above. Among these, it is important to note that the informational structure of the Programmed Informational System (PIS) covers the entire temporal horizon of the human existence, assuring its continuity over the time: GGT operates with the codified (genetic) information coming from parents, so from the past, MIS sustains the present existence of the body, while GTS assures the codified (genetic) info-transmission for the next generation, so for the future.

Among the “extra-normal” phenomena it could be cited the following: telepathy, which allows the transmission/reception of information (images, emotions) between minds separated by distance; clairvoyance,

which consists in the remote perception of various events; precognition, consisting in the perception in advance of some events at distance; psychokinesis, described by the possibility to influence or determine the movement of some objects by the mind power, including the own body, process known as levitation. To such “strange” range of phenomena could be added the exploration by mind of some geographical regions (Meijer 2013b), or remote diagnostics (Myss 1996).

However, the deepest studied phenomena are that included/described by NDEs (Fracasso & Friedman 2011). The main typical phenomena associated with NDEs are the following: a peace state, a retrovision of the life from present to the childhood period, the crossing of a “tunnel”, the extra-corporal view of the surrounding space. The main problem of NDEs is actually to understand if consciousness can be disembodied, because such phenomena were detected after the death of the body, i.e., after the clinical finding of the heart arrest and ceasing of the brain activities (Fracasso & Friedmann 2011). Although it seems to be “super-natural,” incredible phenomena, these could be fully explained on the basis of the physics concepts on the natural, normal properties of matter/information and matter-antimatter system within IMC, namely, the connection of the info-creational field of consciousness to the entropic/antientropic informational field of the universe (Gaiseanu 2017b; 2018a) and the disembodiment of information from matter, as demonstrated by quantum experiments (Aharonov et al. 2013). Therefore, the retrovision of life is a consequence of the connection of consciousness to the antientropic component of the informational field, where the time axis is oriented from the present to the past. The same connection explains also the premonition, consisting in the detection of the future events. The consciousness disembody from informed matter, which is converted in a trivial, non-living matter, explains the peace state, by disconnection from the internal sensors. The detection of a “tunnel”-like space could be interpreted as the passing from a matter-bounded (“black-hole”-like) information to a (“luminous”) mass-free informational entity in an antientropic (coherency) field. The extra-corporal view is a consequence of the power of mind to directly “scan” the informational field of matter, by the own specific “mind eye.” The same power could explain also the remote diagnostics and the remote “view” of various geographic landscapes by means of the mind, as described earlier (Meijer 2013b). The clairvoyance is a consequence of the high sensitivity of some especially trained, or naturally endowed persons, to detect remote events by a direct “scanning” of the matter field, as described above. The telepathic transmission/reception is an expression of the informational power of mind, able to transmit and receive information by means of the info-connection pole and the info-creation field of consciousness, connected (“switched-on”) to interchange information through the universal field. The psychokinesis phenomena could be also approached by IMC, which takes into consideration the connection to antigravity. All informational extra-properties of the mind are actually supported by the info-connection pole of the organism, including the anti-entropic connection (Fig. 1).

IMS allows to approach also the immortality of the human being (Meijer 2013b; Hameroff & Chopra 2014) as a consequence of the disembody process (Gaiseanu 2018a). The separation of the informational entity after death could be explained by the matter-information mechanisms described above. The problem of the time duration and time-scale of such informational entity is however an open question.

By the identification and description of the consciousness cognitive centers, IMC opens the fruitful perspective to discuss the human individual trajectory in the life and the relation between destiny and free will decision (Gaiseanu 2018c). IMC can open also new opportunities for the application as an individualized therapy method within the medicine procedures as an adjuvant for the recovery of various mind disorders (Gaiseanu & Graur 2018), opening also new perspectives for the brain control and simulation.

#### 4. Conclusions

The overview of some philosophic concepts on information, starting from millenary oriental (Taoism, Hinduism, Buddhism) and Greek (Aristotle, Platon) philosophies and arriving to the modern (Draganescu Chalmers) philosophy on information, allows to be focused on the physics concepts and mechanisms relating the information with matter, and to approach in this way the modeling of consciousness.

The basic philosophic terms allowing a deep understanding of information concept were given by Draganescu's studies, showing that matter, as a deep, but inactive level of universe, cannot be structured without the participation of information, as a constitutive element. Following this line, it was shown that the living entities are structured by matter plus additional information.

Although information is the main operational component of consciousness, little information in literature is referred to this topic, probably because the essence and definition of this concept was not still sufficiently understood, either from the perspective of physics and nor from the perspective of the information science applicable to the brain. Some notable approaching models of consciousness from an informational perspective were however pointed out, like Global Workspace Model, Theory of the Modeling Field and Integrated Information Theory.

The Informational Model of Consciousness (IMC) presented in this work is referred to the informational system of the human body, as an integrate all, allowing to identify seven informational subsystems, with distinct but interrelated functions, collaborating to capture, operate, and transmit information, as a reactive process for adaptation and survival. These subsystems are reflected at the conscious level by seven corresponding cognitive centers. From the perspective of IMC, the human body appears as a bipolar informed-matter structure, connected to matter and to information. The virtual input information from the external and internal sensors is operated by the Operative Informational System to assure the adaptation for short and medium time and is expressed by the informational output (Attitude), while the automatic informational processes, assisting and supporting the body, are monitored by the Programmed Informational System, connected to the past by the input genetic information inherited from parents and to the future by the output genetic information, which has to be transmitted for the species survival.

IMC is structured on the base of the last discoveries in the quantum physics and astrophysics and is able to explain both normal properties of the mind, as described by the cognition centers and the extra-power properties of the mind like that described by NDEs and by the so called "real magic" phenomena. IMC allows also approaching some fundamental life themes like immortality and the relation between destiny and free will decision. Comparing the IMC results with the ancient philosophies, a surprising agreement both with the Taoist concepts and with the seven-type architecture of the energetic structure of the organism can be revealed.

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