

A New Theory of Human Behavior and Motivation

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ABSTRACT

We introduce a novel and comprehensive theory of human behavior and motivation, which incorporates within it both the laws of biology and core aspects of the social sciences. In continuation of the governing postulates of natural sciences we formulate the principle of preservation as the primary law of psychology; provide precise criteria for the definition of basic human needs and uncover their origin; explore the relation between body and mind; and show correlations between individual and social perspectives of life. Subsequently, we integrate these concepts into a unified model of human behavior. We reevaluate the place of psychology within the overall domain of social science and postulate the key role of psychological drives in formation of social processes both in the current and historical perspectives. The paper signifies a step towards establishment of a common paradigm of psychology.

Keywords: human behavior, process of human behavior, basic needs, definition of basic needs, law of psychology, law of preservation, preservation of mind, paradigm of psychology, body and mind, culture, society and individual

A NEW THEORY OF HUMAN BEHAVIOR AND MOTIVATION

In earlier papers our focus was on developing models of psychological phenomena, including models of subjective well-being, human needs, unified psychology, and an algorithm of human behavior (Kopsov, 2019a, 2019b, 2021b). All these notions contain a degree of theoretical conceptualizing; however, we emphasized their flexible, impartial nature, by which we mean that they are not constrained or strictly affiliated with any one particular theory. For instance, the proposed model of needs can accommodate *any* classification system of needs (e.g., Maslow, 1970b; McClelland, 1988; Reiss, 2004) and the proposed algorithm of human behavior can incorporate different perspectives of psychology (biological, psychodynamic, behavioral, cognitive, etc.). Our emphasis on constructing models (rather than pure theoretical conceptualizations) is rooted in our belief that “the aim of psychology should be to move away from narration and towards measurement”, and that “measurement requires the establishment of models – of behavior, human needs, emotions, etc.” (Kopsov, 2020b).

In this paper we depart from our hitherto “impartial” conceptualizations and introduce a novel and comprehensive theory of human behavior and motivation, though the premise of this theory still originates from the previously referenced models, which form an integral part of the theses presented in this paper. The primary idea behind our proposition is that *motivation* (i.e. reasons for acting) and *behavior* (i.e. an act itself) are not unique attributes of humans and animals, but rather general phenomena relevant for all levels of complexity of nature, which we describe as i) matter, ii) life, and iii) mind. We hypothesize that *motivation* originates from the fundamental laws of the universe, from which all other laws that govern matter, life, and mind,

originate. Through this prism, basic human needs can be described as being derived from the governing principles of nature, as opposed to just the “intuitive thinking” behind extant concepts of motivation. The proposed approach allows us to reexamine the relationship between the physical “body” and the psychological “mind”, as well as between “mind” and the sociological “society”.

The Process of Human Behavior

Behavioral models have been conceptualized within different branches of physiology, psychology, and the social sciences, with varying degrees of concretization. Developed in the early 20th century, the pioneering theory of animal and human behavior was the S-R (Stimulus – Response) model (Pavlov, 2010; Thorndike, 1898). The model establishes a causal dependency between action and an internal or external stimulus, whilst the organism itself is considered to remain passive and its response predetermined. To account for the active role of the individual, the S-O-R (Stimulus-Organism-Response) concept was proposed (Woodworth, 1918), in which the organism plays an essential role in defining its response. However, further analytical elaboration of the “organism” component proved to be challenging for psychology scholars. Despite numerous enhancements and modifications (e.g., Boyd, 1987; Galperin, 1976; Luthans & Davis, 1979) initiated predominantly within other branches of science, the S-O-R model found itself discredited within the field of psychology, largely because it became equated to simplistic “if...then” processing. There is a popular and (in some circles) dominant opinion that human reasoning fundamentally contrasts to purely algorithmic or analytical processing systems because it is “largely guided by motivation and emotion” (Henriques, 2011). This view, or rather misconception, originates from the lack of knowledge and understanding in dominant psychological thought of risk analysis, perception control, and other methods describing processes with multiple possible outcomes, and allowing to capture the ambiguity of human behavior.

To prove this point, we present an original and extended S-O-R model of human behavior, defining the path from stimulus to response as steps of a behavioral act (Kopsov, 2021a). In doing so we demonstrate how human behavior can be described by a process diagram, that more precisely reflects the complexity, uniqueness, and uncertainty of outcomes of a behavioral act.

Humans are immersed in a vast array of stimuli originating from physical, physiological, psychological, and social signals. Prior to further processing, signals must be detected (this is the first phase of the behavioral cycle). Not all signals are detected; many are missed or not recognized due to the limitations of the sensory system. Upon detection, a signal must be assessed with regards to its significance to human existence; not all signals are relevant in the context of life, for example, availability of oxygen has no significance for an individual under “normal” life circumstances, despite it being one of the key preconditions to human existence. The fact that an assessment occurs implies that a comparison against a set of “criteria” must take place. We refer to and represent such “criteria” as human *needs*. In the long-term needs may establish stable patterns, but in momentary perspectives they form a highly volatile congregation of distinct needs, wants, and desires – all of which are highly affected by extrinsic (outside environment) and intrinsic (internal physiological and psychological state) circumstances. If it is ascertained by an individual that a signal is relevant to the satisfaction of a specific need, it translates into a stimuli of a behavioral act and the next step of the behavioral

process can commence, which is to devise a plan of action. This requires the existence of relevant knowledge and skills, that allows one to contemplate a course of action. Hence, the behavioral model includes what we refer to as an *experience database*, which represents a repository of all the knowledge and skills of an individual. It also contains practical lessons learned, and a consolidation of attitudes, norms, and cultural predispositions of that individual. The experience database is dynamic – it is continuously updated and altered throughout one's life. When a plan has been derived, it does not however imply that actual commitment to an action has been made. The plan must initially be assessed from a risk perspective; an individual rates the likelihood of potential gains and losses of an action against the criticality of a given need. If a goal can be achieved through different ways, multiple iterations between the risk analysis and planning stages may be required before a forward-path is determined by the individual. If the potential gains are assessed as substantial, possible failures manageable, and the estimated energy expenditure acceptable, the individual proceeds to action execution (based on the predetermined plan). On the other hand if risk criteria are not met a potential action is abandoned.

This outlined model of the behavioral act represents the following sequence: signal(S)-detect(D)-assess(A)-plan(P)-risk analysis(R)-act(A), and can be illustrated as a process diagram, shown in Figure 1 (Kopsov, 2021a). *Needs* and the *experience database* are not separate steps of the behavioral cycle, nevertheless they play a pivotal role. Hence, we define the behavioral model as S-D-A(N)-P(E)-R-A. In this sequence *needs* (N) and *experience* (E) are included in brackets as they do not form part of the sequence itself, but rather provide input at the *assessment* and *planning* stages.

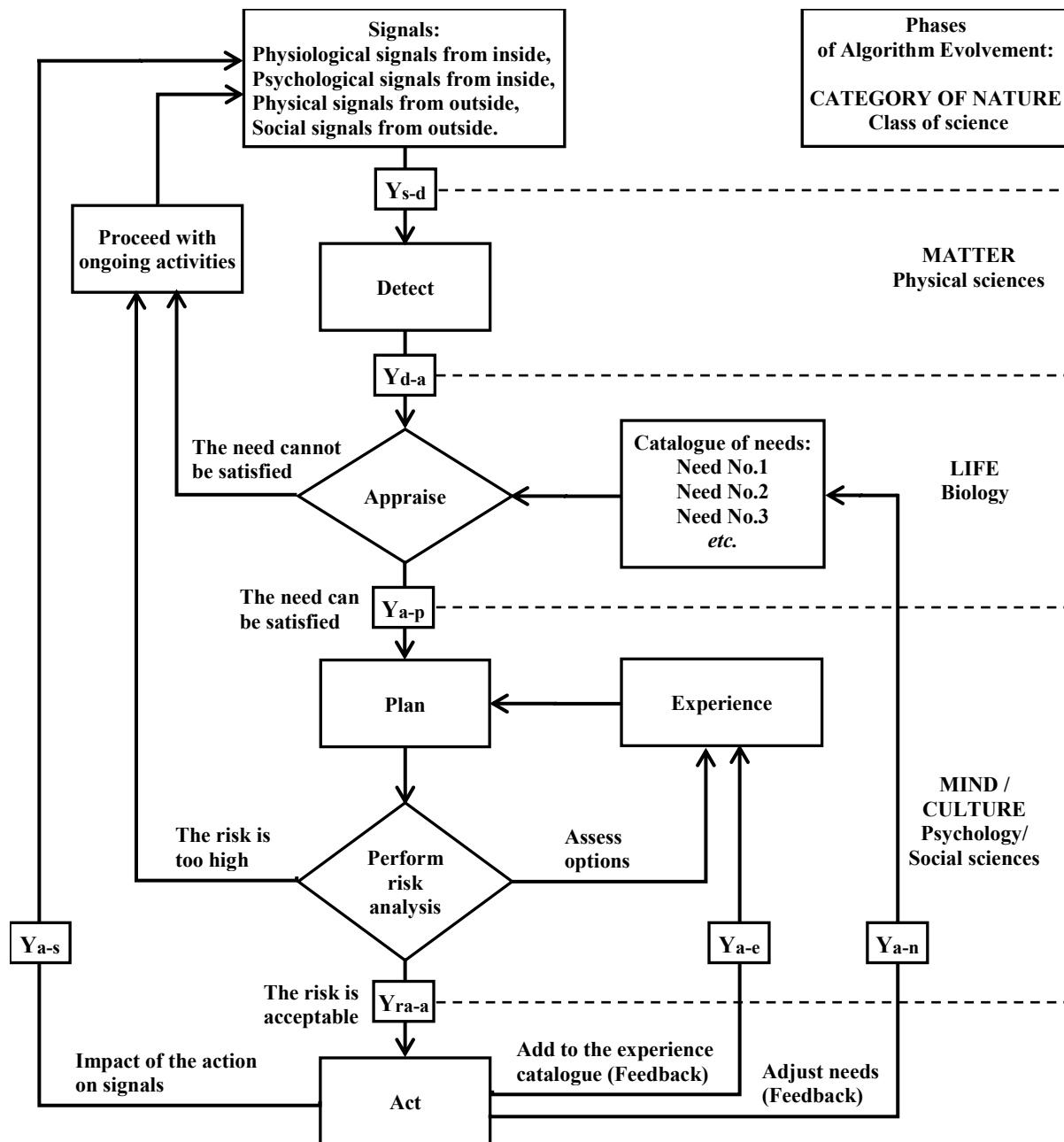


Figure 1. The process diagram of human behavior and phases of its evolvement (Kopsov, 2020b).

The model also includes auxiliary components, i.e. transfer functions (denoted by the Y symbol in Figure 1) and feedback loops. Transfer functions are necessitated by the fact that each phase of the behavioral sequence operates using unique principles, and to facilitate the exchange of information between the phases, they require a “translator”. Within the model this role is played by transfer functions, which translate outputs of one system to the inputs of another.

In accordance with the model, actions are initiated and then executed, due to and based on, signals, dominant needs, and the experience database. In turn, the outcomes of actions affect future signals, add updates to the experience database, and redefine the catalogue of needs,

which triggered the actions in the first place. Consequently, the model includes several feedback loops: 1) plan – risk analysis – life experience – plan; 2) life experience – action – life experience; 3) needs – action – needs; 4) signal – action – signal. Feedback loops exemplify the reverse effect of the act, on the parameters that triggered or influenced it. Feedback loops continuously generate new updates, which create the dynamism of human cognitive and emotional states. Individuals always exist in a state of unbalance, which requires continuous effort and adjustments to counter, which in turn allow for the preservation and continuity of human existence. The behavioral algorithm represents a dialectical model of human development and incorporates non-linear interactive dynamism between individuals and the environment.

An essential feature of the derived model is its ability to address not only intrinsic acts of human behavior, but also providing a model for future orientated aspirations (Kopsov 2019a). The latter represents future anticipated so-called *deferred needs*. In case of deferred needs, the *act* stage of the behavioral sequence is absent, and the forecasted behavioral sequence ends at the *risk analysis* stage. Hence, human aspirations are defined as the S-D-A(N)-P(E)-R sequence/model.

The Origin of Human Behavior

We regard the phenomenon of behavior as a general attribute of matter, life, and mind, rather than as a unique feature of animals and humans (Henriques, 2011; Kopsov, 2020b). From this vantage point, chemical reactions between substances, biological processes, and social interactions, all constitute acts of behavior. Accordingly, we have previously derived models of functionality of physical objects and living organisms in line with the methodology previously applied to the description of the process of human behavior as depicted in Figure 1. The outcome was a series of behavioral models which represent different dimensions of complexity of reality (i.e. matter (inanimate matter), life (animate life), and mind (mental phenomena)). We conceive that human behavior results from an evolutionary progression of evolvement of behavioral phenomena, which initially concern the “functioning of matter”, then develop to the “functioning of organisms”, and subsequently develop to the “functioning of minds”. We propose that behavior of inanimate matter is described by the S-D-A model, i.e. signal(S)-detect(D)-act(A). According to this model, functionality of inanimate matter is fully characterized by its properties, which are represented by the detect (D) component of the behavioral model; it stipulates the type and strength of signals that affect the existence of inanimate matter. The behavior of animate life is defined by the S-D-A(N)-A model, i.e. signal(S)-detect(D)-assess(A)(need (N))-act(A), and accounts for the influence of needs. For animate life, such as plants, the detect (D) component is also present; however the primary element of the behavioral process is the assessment (A) phase, which correlates signals to needs and defines an organism’s response to stimuli. Subsequently, human behavior is defined by the S-D-A(N)-P(E)-R-A model, which includes the planning (P) and risk analysis (R) stages and represents the most advanced form of a behavioral process, supervening the principles of functionality of inanimate matter and animate organisms.

We stipulate that each level of complexity is associated with a specific dominant element of behavioral process (Figure 1). For inanimate matter, the governing parameter of the behavioral process is the detect (D) phase which exemplifies material properties of the substance. For animate life the key phase is the assessment (A) of signals against predefined needs. This phase embodies the ability of living organisms to generate an array of complex pre-defined responses

to a variety of environmental impacts. Lastly, behavior of mind is dominated by the planning (P) and risk analysis (R) phases, which epitomize mental phenomena.

The Law of Preservation as a Principal Law of Behavior

The model of human behavior (as well as the theory of its evolvement) points towards a tripartite nature of humans comprising the domains of matter, body, and mind. It is plausible to suppose that human needs have similar arrangement that reflect the three aspects of human behavior, incorporating the functionalities of inanimate objects, biological organisms, and the mind. In the following sections we evaluate the needs associated with these domains, and in doing so, identify the core basic needs, i.e. the fundamental needs to which all other needs can be ascribed. We will also examine their origin and consider whether they may all be attributed to a common law of nature or set of laws.

As a congregation of physical substances humans are unequivocally part of the physical world and are subject to material forces and their effects (such as the act of falling due to the effects of forces of gravity). The materials our bodies consist of are subject to all laws governing the existence of inanimate matter, main ones being the laws of conservation of mass and energy, which are essential postulates within the overall doctrine of the universe. Nevertheless, these laws play only a marginal role in forming the human psyche, and their impact is more evident in how they affect physiological functions.

The basic principles that govern the existence of living organisms were first formulated by "naturalist" scholars in the late 18th and 19th centuries. In *An Essay on the Principle of Population*, Malthus (1798) coined the notion of "struggle for existence", which itself originated from the hypothesis that living organisms exist in numbers which are far superior than can actually survive and reproduce. This excess of organisms is required to ensure the prosperity of a group, which (when necessary) is achieved at the expense of any one individual in the group. In the consequently conceived theory of natural selection developed by Darwin (1859) and Wallace (1858), the key tasks of any organism are defined as its self-preservation and reproduction; in combination these two drives translate into the principle of preservation of organisms and their groups. The general laws of natural history and biology are similarly applicable to humans, at least in their capacity as biological beings. Humans therefore comply with the principle of organismic preservation that is manifested through the laws of self-preservation and reproduction.

We hypothesize that the domain of the mind must also be governed by the law of preservation, but – if there is such a law of preservation of the mind – unlike with matter and body, it is not fully transparent how it is exemplified, though we will attempt to shed light on this subject. The mind concerns the mental aspect of existence and exemplifies mental images of the world, encapsulating conscious, subconscious, imaginative, intelligent, judgmental, perceptual, and linguistic perspectives. In a broader view, the definition of the mind also includes personal skills, capabilities, memories, views, and cognitive interactions with the world. The common attribute of all characteristics of the mind may be described as *cognitive information*; therefore at its very essence, the sole function of the mind is to process cognitive information, which is also the key enabler of social processes. In a civilizational context, the exchange of information enables education and empowerment of individuals, the exchange of knowledge and opinions between members of society, and the preservation of norms (whether social, economic,

scientific, or ethical), regulations, and traditions. Building on analogies with matter and life, we put forward the notion that the law of preservation of the mind is exemplified by preservation and reproduction of cognitive information, which is achieved through its dissemination and absorption.

In line with Malthus' (1798) proposition that organisms exist in numbers far greater than can successfully reproduce, which results in the so-called "struggle for existence", we advance the premise that humans also produce far more cognitive information than can ever be exchanged and accumulated between and by these organisms. This results in what we refer to as the "struggle for informational distribution". An excess of cognitive information is required to ensure informational prosperity of both any single individuals and of groups, as its shortage would result in inferior knowledge and skills. As Darwin (1859) and Wallace (1858) developed the theory of "natural selection", we put forward the notion of "*informational selection*" – according to which the fundamental functions of organisms' mental existence are preservation and reproduction of cognitive information, which are enabled through its dissemination and absorption. When combined these drives exemplify the principle of preservation of the mind when relating to organisms and their groups.

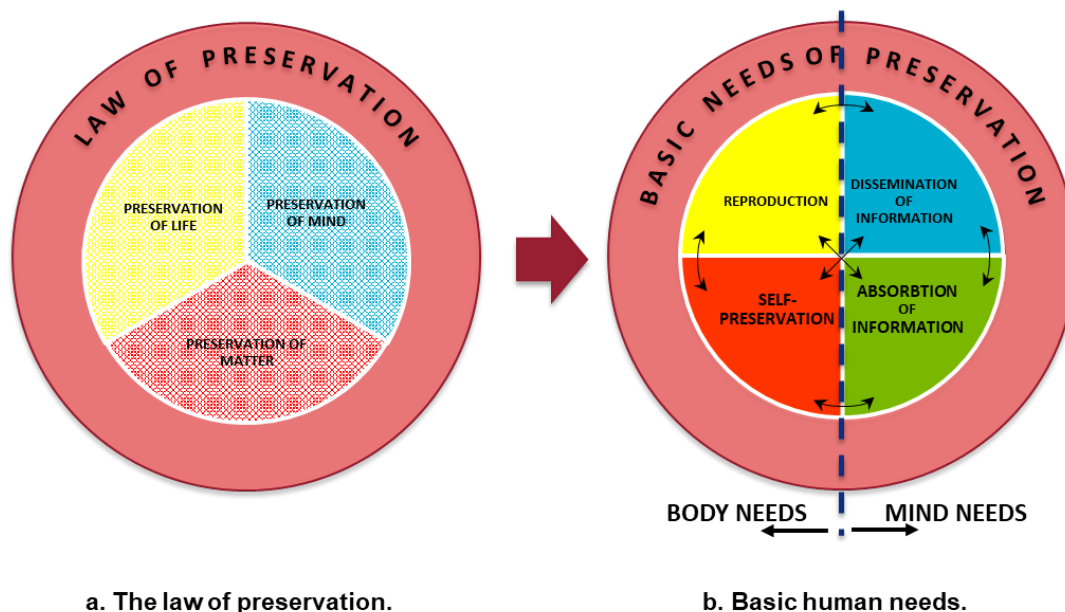


Figure 2. The law of preservation and basic human needs

In summary, we advance the theory that the most fundamental law of nature is the law of preservation, which ultimately governs the existence of the universe, and from which all other laws originate. Its genesis is unknown, but it appears to be enabled by (or within) the universal algorithm (Figure 1) of functioning (e.g., which governs all "behavior") which evolved through the phases that correspond to the emergence of the domains of matter, life, and mind. In each phase of evolutionary development, the law of preservation manifests itself through an increasingly specific formulation; first the preservation of matter, then the preservation of life, and finally the preservation of the mind (Figure 2a). These three laws of preservation fuse together the principles of existence of separate domains of human life.

THE FOUR BASIC NEEDS

Earlier we noted that the domain of matter, though affecting human behavior, has minimal impact on the human psyche, and that the human psyche is predominantly governed by the domains of life and mind. The law of preservation of living organisms translates into the laws of self-preservation and reproduction; whilst the law of preservation of mind is exemplified by dissemination and absorption of cognitive information. Consequently, we hypothesize that the principles of preservation of life and mind translate into the following four basic human needs: (1) self-preservation; (2) reproduction; (3) absorption of information; and (4) dissemination of information (Figure 2b). The former two needs predominantly define the functioning of the body, whilst the latter two needs predominantly define the functioning of the mind. Absorption and dissemination of cognitive information can be also seen as its preservation and reproduction.

Despite their different origins, the four basic needs are intrinsically interlinked. Let us take exchange of information as an example; it is not simply only a cognitive function – it also plays a vital role in reproduction, as it involves the exchange of genetically encoded information. Similarly, human reproduction also contains a very significant cognitive component, which is exemplified by the substantive learning and development process children go through in their formative years. Many more such examples can be provided, such as cognitive information absorption enhancing self-preservation (e.g., learning skills which enable one's continued survival), which in turn facilitates information dissemination, and so forth and so on. Thus, the basic needs can be analyzed separately, however they always remain interconnected due to the fusion of body and mind. Nevertheless, the four basic needs remain very distinct from one another as they originate from different distinct laws that govern different domains of human nature. The schematics of their interactions, which can be either contesting or symbiotic, are illustrated with arrows in Figure 2b.

In addition to the multiplex interrelations between basic needs, the human psyche is also affected by existential conflicts between the mind and the body, and between the individual and society at large. Consequently, individuals exist within an ever-changing inner state and fluid extrinsic circumstances, resulting in the highly complex character of the human psyche. The contradictory and dynamic nature of human motivation is illustrated by the ring model of human needs (Kopsov, 2019b), in which each distinct need is illustrated as a ring within a circle, which itself represents the combined state of all needs. It allows to analyze the dynamics of human needs in momentary, ontogenetic, or evolutionary perspectives. In the momentary perspective all distinct needs compete for an individual's "attention" within the ever-changing setting an individual finds itself in, as distinct needs appear, disappear, are satisfied, or negated (e.g., hunger results in the emergence of a need for sustenance, whilst its subsequent satisfaction diminishes it once again, although only for a period of time). This highly fluid state is depicted by the dynamic ring model (Figure 3b) which is well-suited for modeling of "distinct needs", i.e. transiently experienced components of human psyche, including wants, desires, wishes. The more dominant a distinct need is, the larger its associated ring, and the closer it is positioned to the exterior of the circle of needs. As a need gets satisfied its dominance decays and the diameter of the corresponding ring reduces.

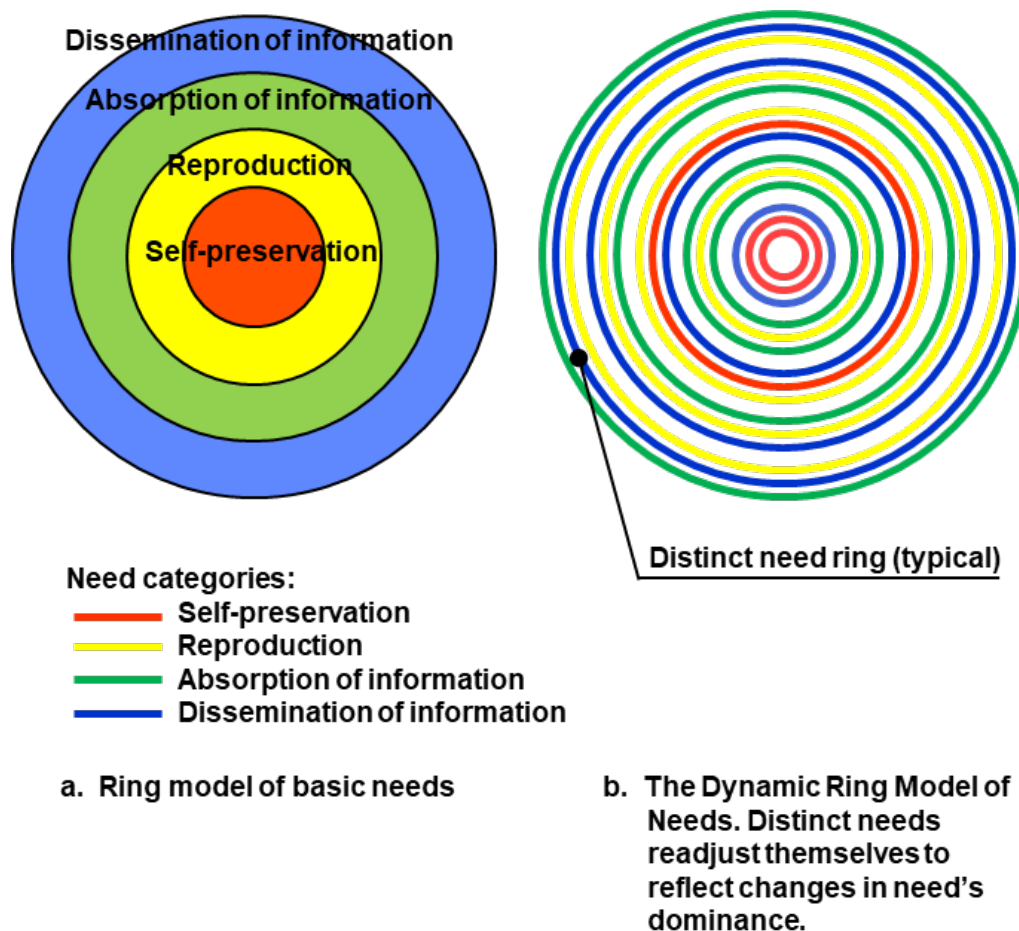


Figure 3. A ring model of human needs

Ontogenetic and evolutionary perspectives of human needs are better depicted by the general ring model (Figure 3a), within which there is a dedicated ring allocated to each basic need; the size of a ring corresponds to the dominancy or “relative weight” of a need. A novelty of this model is that it enables the introduction of quantitative methods to trace evolvement of needs, both within the context of a life span and within evolutionary progression.

The four basic needs are not just “intuitively suggested” through observations of human activity, but methodologically derived from widely accepted or newly hypothesized laws of preservation of organisms and the mind, therefore, it is not by accident that they are well suited for quantitative assessment, as they can plausibly be correlated and matched with measurable parameters. Examples include: levels of adrenaline or metabolism as a measurable parameters of the need for self-preservation; levels of testosterone as a measurable parameter of the need for reproduction; kilobits of information received as a measurable parameter for the need for information absorption, and kilobits of information shared as a measurable parameter of the need for information dissimulation. The breadth of such possible measurable parameters is so vast that they can be precisely selected to suit the evaluation of very specific factors of human life or psyche. Most extant taxonomies of needs (e.g., Maslow, 1943; McClelland, 1988) are unsuitable for quantification, as it is impossible to conceive a measurable parameter (apart from the unreliable and unstandardized method of self-assessment) associated with them, as

there are no systems in existence that would allow to grade such things as needs for love, power, social belonging etc.

The four proposed basic needs correlate to an extent with traditional “layman” classifications of needs as well as terminology used by extant theories of motivation. In this regard, the class of basic needs defined as self-preservation needs equates to a combination of physiological needs (with the exception of sex) and safety needs; the class of reproduction basic needs includes sex, child rearing, and intrasexual dominance; the class of absorption of information basic needs manifests itself through learning, acquisition of skills, social belonging, imitation, and conformity with social norms and traditions; the class of dissemination of information basic needs correlates with aspirations for respect, ego, status, child mental upbringing, mastery, and competency, as these are characteristics and abilities which allow individuals to command attention and spread their own views. Moreover, many traditionally defined needs (e.g., needs for belonging, self-actualization etc.) represent narrative – rather than analytical – descriptions of the “inner-self”, as a majority of these are multi-componential and relate to more than just a single basic need.

Additionally, there are certain commonly recognized basic needs which fall outside our proposed taxonomy of the four basic needs, such as the need for friendship (Maslow, 1943). According to our classification of motives, friendship does not represent a basic need but is rather a social instrument for self-preservation as well as absorption and dissemination of cognitive information.

A verification criterion, that can be used to distinguish basic needs from other needs, is if a basic need is not collectively satisfied it results in the extinction of a species within one generation. The four basic needs fully satisfy this criterion, as an inability to fulfil any of them would result in the termination of existence of a being or its direct descendants. Conversely, desires for esteem, love, self-actualization do not fit this verification criterion, even though they are evident in the realms of desires and wishes and their satisfaction affects subjective well-being and quality of life. Based on this, a basic need can be defined as a need upon which survival of the species is conditional. Unlike prevailing theories of motivation, which represent either intuitive or mental constructs, the postulated taxonomy of needs is closely integrated with concepts of biology and social science.

THE RELATIONSHIP BETWEEN MIND AND BODY

Humans incorporate all domains of complexity (i.e. matter, body, and mind). As relating to the human psyche, physical aspects of existence, whilst impacting behavior, play a rather trivial role due to their transient character. Therefore the human psyche is predominantly conditioned by the functioning of body and mind. The functioning of the body is governed by laws of self-preservation and reproduction, and the functioning of mind is governed by principles of acquisition and dissemination of cognitive information. Hence, body and mind are two adjoined but autonomous attributes of human existence.

The mind emerges because of the evolutionary development of the body. Within this development, the mind becomes so distinguishable that it can be thought of or viewed as extrinsic to the body itself. Nevertheless, it is rooted within the body, affected by the body, and to a large extent controls the body’s well-being. However, this cohabitation is not entirely

amicable. The mind acts in a supervening manner on the body, and at times negates it, by advancing its own priorities at the expense of bodily preservation and reproduction. This is typified by behaviors such as suicide, childfree living, unforced extreme risk taking, which cater for inclinations of the mind but neglect biological needs for self-preservation and reproduction. Generally, humankind is becoming increasingly mind-orientated (at times at the expense of bodily well-being), as cognitive information exchange and acquisition become dominant drivers of economic, political, and (to an extent) ethical developments.

THE RELATIONSHIP BETWEEN INDIVIDUAL AND SOCIETY

The social sciences are largely influenced by anthropocentrism and cognitive biases, which historically originated from religious doctrines. The result of these biases is an exaggeration of the uniqueness of human nature and misinterpretation of interactions between the social, biological, and cognitive sides of existence. Moreover, humans view the surrounding world from a vantage point where bodily, social, and cognitive perspectives are intricately interlinked, both supplementing and contrasting each other. This complicates rationalization of the world and leads to a false interpretation of reality.

In our previous work (Kopsov, 2021a) we demonstrated that in the generally perceived progression of evolvement of the levels of complexity of nature, i.e. matter-life-mind-culture, the latter transition cannot be validated. The homogeneity of processes of individual and group behavior leads to the proposition that the human mind/psyche and culture domains belong to the same level of complexity of nature. This notion challenges the commonly held perception that society/culture is a standalone category of reality supervening the mind.

There are additional arguments supporting this point of view, as it can be reasoned that the functioning of mind and culture are conjoined, whereby one cannot exist without the other. The mind cannot sustain its existence outside of the social domain, which may appear counterintuitive, as individuals can technically survive outside society, but this could only ever be feasible for only a single generation. The mind can maintain a short-term isolated existence but will go extinct without social interactions (including sexual reproduction or child rearing). Hence, it must be concluded that mind does not exist without society, and society cannot exist without mind. This correlates with conclusions presented in earlier sections where we postulated that socialization in the form of exchange of cognitive information is a basic need of humans, i.e. critical for survival.

This way of thinking is not constrained to a particular taxonomy of domains of nature. An alternative to the matter-life-mind-culture representation of levels of nature would be the following categorization: subatomic particles, atoms, molecules, cells, organic structures, multi-celled organisms, consciousness, and society. This classification also explicitly distinguishes between consciousness and society. In fact, all known classifications of the primary domains of nature contain a divide between mind and consciousness on one side, and culture, society, and civilization on the other. We maintain that such distinctions incorrect, and that mind and culture are completely integrated concepts, as they cannot exist without each other, and their functionality is governed by the same algorithms. Thus, they represent a united form. Conversely, matter can and does exist without life (biological organisms), and life can exist without mind, and they function in accordance with the distinctive behavioral algorithms.

Many authors argue that the phenomenon of behavior is not a unique attribute of humans or animals but also a generic feature of functionality of inanimate matter and animate life (Hawking, 1988; Henriques, 2011; Whitehead, 1985). Likewise, we consider that society is not a unique attribute of animalia or humanity but rather a general form of existence of all forms of nature. In this way material substance represents a community of atoms. On the biological level individual living organisms establish their own communities, i.e. congregation of organisms. Similarly, individual minds form cultures when aggregated. In the cosmogenic context, the social phenomenon evolves through a progression from material substance to a community of organisms, and then to cultural formations. Humankind is a combination of two social phenomena: congregation of organisms and congregation of minds.

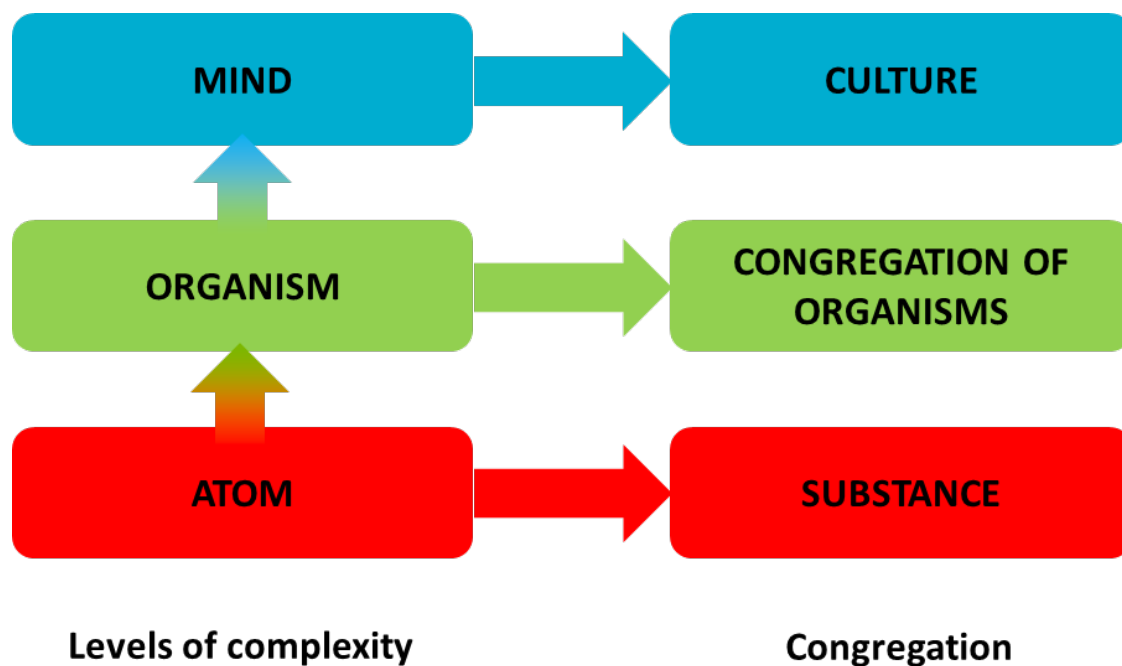


Figure 4. Levels of complexity and congregations

This approach (as illustrated in Figure 4) represents the domains of nature not as a linear progression of matter-life-mind-culture, but as a two-dimensional matrix of individual elements (atom, organism, mind) and their aggregations (substances, communities of organism, culture). From the vantage point of the universality of the congregation phenomenon, analyzing society separately from the human mind and psyche equates to studying material substances whilst ignoring their atomic composition. Even though such an approach is still plausible, and may even carry some advantages, disregarding atomic properties of materials would remain a grave error given the current state of knowledge. Analogously, for social sciences to become a truly comprehensive research field it must integrate studies of psyche. The continued concealment of the interconnections between mind and society prevents the unraveling of the psychological drivers of social phenomena. We believe that the role of psychology in analyses of social processes is grossly undervalued. Human psychology does not just contribute, but fundamentally defines, such momentous and complex social phenomena, as ethical doctrines, generational conflicts, civilizational confrontations, and social revolutions. From this point of view moral and ethical confrontations determine which mental pictures are

formed and furthered by social groups in the overall process of preservation of mind. The rationality for this is the generic nature of information acquisition and dissemination processes originating from the law of preservation of mind. We are confident that further study into the competition for cognitive informational domination, as well as cognitive informational collaboration, will spearhead new knowledge on psychological drivers behind social processes, both in current and historical perspectives.

We perceive individuals as having a dual nature comprising body and mind. Accordingly, society is a form of existence of human bodies and minds, and plays a dual role by organizing lives of organisms as well as integration of minds. Provision for the continued existence of biological organisms and functioning of minds are primary, yet segregated undertakings of each and every social group. Furthermore, as the body and the mind exist both through collaboration and mutual enmity, groups exhibit similar complimentary and confrontational aspects related to these two sides of human nature. Groups generate tensions between individuals, as well as between society and individuals. However, interactions are not necessarily confrontational or competitive; depending on circumstance, individuals may choose to support each other, and similarly individuals and society may foster mutual prosperity. In that regard, moral notions (for instance altruism or dispensing care for another) are not purely ethical or moral concepts but demonstrations of the law of preservation in social settings.

TOWARDS A PARADIGM OF PSYCHOLOGY

Our earlier devised model of unified psychology (Kopsov, 2021b) was aimed at uniting divided perspectives of psychology. It offered a framework to accommodate contending psychological theories, whilst maintaining their individual integrities. Whereas the hypothesis presented in this paper maintains this integrational potential, its comprehensive character distinguishes it as a full theory of mind and behavior, incorporating the following concepts:

- a newly formulated principal law of psychology,
- a universal algorithm of behavior,
- a theory of the origin of the behavioral algorithm,
- a model of unified psychology,
- a model of subjective well-being,
- a ring model of needs,
- a definition of basic needs,
- a concept of relation between body and mind, and
- a concept of relation between individual and society

Taken together the above concepts define a structured and comprehensive theory of psychology, which describes human motivation and behavior within the context of the general laws of nature. The theory is integrated with other branches of science and, in essence, represents a novel paradigm of psychology. Furthermore, it is not constrained to the field of psychology, but provides a broader perspective of the cosmogenesis. In this regard it capitalises on Henriques' (2003, 2011) proposition that all categories of nature are characterized by shared fundamental phenomena such as information processing and behavior. We elaborate on this, that these fundamental phenomena also comprise a governing law of preservation and a separate congregate class. Hence, for each category of nature, a set of common fundamental characteristics includes behavior (and with it an associated governing function of the

behavioral algorithm (ref. Figure 1)), a governing law, a governing information processing type, and a congregation class, as presented in Table 1.

Table 1. Fundamental characteristics of categories of nature.

Fundamental characteristics of categories of nature					
Category of nature	Basic component	Governing law	Governing behavioral function	Governing information processing type	Congregation class
Matter	Atom	Conservation of mass & energy	Detection	Anatomic arrangement	Substance
Life	Organism	Preservation of organisms	Assessment	Genetic encoding	Congregation of organisms
Mind	Individual mind	Preservation of cognitive information	Planning and Risk analysis	Neuronal processing	Culture

For the matter category, the governing function of behavior is the detection of signals exhibited through material properties; the principal law of existence is the law of conservation of mass and energy; information is preserved through atomic arrangements; congregation is embodied by material substances. For living organisms, behavior is governed by the function of assessment of signals against predefined needs; the principal law of existence is the law of preservation of organisms; the governing type of information processing is genetic encoding; and congregation is represented by communities of organisms. For the mind, behavior is primarily affected by planning and risk analysis activities; the principal law of existence is the law of preservation of cognitive information, which in turn is enabled by neuronal processing; congregation is represented by culture. It should be précised that the fundamental characteristics presented in Table 1 are *governing* rather than exclusive.

We hypothesize (see also Kopsov, 2020b) that evolvement of categories of nature is an evolutionary process transpiring through enhancement of fundamental characteristics and enabled by the following transformations:

- addition of a new category to the law of preservation,
- enhancement of behavioral process (Figure 1) by addition of new steps and feedback loops,
- increase of future-orientation of behavior,
- addition of a new information processing methods, and
- enhancement of structure of congregation.

We consider the law of preservation as the principal law of nature, which in case of the domain of mind, translates into the law of preservation of cognitive information. However, preservation of information has a broader perspective, as all laws of preservation can be defined in terms of preservation of information. The laws of conservation of mass and energy define preservation of the atomic arrangement, which in itself represents a record of information. The laws of

biological self-preservation and reproduction equate to the preservation of genetic encoding of DNA. In accordance with this line of thought, in a cosmogenic context the information phenomenon emerges at the moment of the advent of the universe and then evolves through a multi-phased progression from atomic to genetic and then to neuronal systems. The placement of information handling at the core of the human psyche allows to integrate psychology into the field of science of information processing.

CORRELATIONS WITH OTHER THEORIES

According to Ilyn (2002) there are more than 50 theories of motivation, and the number of which continues to expand (Dover, 2016; Feist et al., 2013). Despite all of these being defined by their authors as motivational theories, they often address very different aspects of human behavior, such that their assembly under one umbrella term is only superficial. On closer examination they represent either models of instigation of human needs, taxonomies of human needs, or models of human behavior.

Numerous theories of motivation are dedicated to the taxonomy of needs. The most publicly renowned scholar of human needs, Maslow (1943), initially contemplated a five-level system comprising needs of a physiological nature, such as safety, belonging, love, esteem, and self-actualization. He subsequently extended it to seven levels by adding cognitive and aesthetic needs (Maslow, 1970a), and then to eight levels by including transcendence needs (Maslow, 1970b). Alderfer (1969) compressed Maslow's classification to the three so-called ERG needs - existence, relatedness, and growth. Similarly, McClelland (1988) advanced three key driving motivators, but defined these as needs for achievement, affiliation, and power. Reiss (2004) expanded the list to 16 basic desires. That was still less than the earlier system by Murray (1938) which consisted of primary needs based upon biological demands and 22 psychological needs, which were not fundamental for basic survival, but essential for psychological well-being. There are many more theories attempting to classify human needs but none have gained general acceptance, and they all share common deficiencies: (1) they are all intuitive, mostly aimed at composing systems suiting the observed pattern of human behavior and expressed in layman terminology; (2) they fail to distinguish for needs which are vital for survival of individuals and the human species in general; and (3) they mostly fail to capitalize on the body of knowledge generated within natural sciences. The proposed theory of motivation in this paper rectifies these drawbacks as we introduce a systematic definition of the basic needs (ref. Figure 2) and closely link psychological needs to perspectives of biology and information processing.

Another group of motivational theories focuses on the mechanisms that trigger actions for need-attainment, rather than on classification of needs. Research on this subject was pioneered by Lewin (1935, 1936), who devised the concept of the field of psychological force and proposed a psychological equation of behavior. Multiple authors followed in his footsteps by creating even more elaborate versions of behavioral equations. For example, Vroom (1964) proposed the Expectancy theory and Steel & Konig (2006) derived the Temporal motivation theory, all providing sets of parameters affecting instigation of actions. None of the proposed models are universally accepted, nevertheless, they represent a plausible move towards the introduction of quantifiable methods in psychological studies, and correlate closely with our ring model of needs (Figure 3).

Another perspective of motivation is provided by the behavioral theories pioneered by Pavlov (2010), Watson (1924), and Skinner (1938) and later expanded by proponents of various schools of psychology. These are the most comprehensive theories attempting to define not only drives, but also uncover the means for implementation of motivation, often in the context of an extrinsic environment as well as an inner transient state. These theories utilize the S-O-R (Stimulus-Organism-Response) model (Woodworth, 1918). As discussed earlier in this paper, theorization of the "O"-organism component was proven to be rather challenging in academic circles. However, this approach flourished in applied applications, such as theories of management, warfare, and decision-making. A number of enhanced models were proposed, amongst others, the S-O-B-A (Stimulus-Organism- Behavior-Accomplishment) and S-O-B-C (Situation-Organism-Behavior-Consequences) models (Luthans & Davis, 1979), Galperin's (1976) M-C-P-CA concept (Model-Clarify-Plan-Control Action), and the more empirically-focused OODA loop (Boyd, 2018/1987), which defines a decision cycle as consisting of four primary steps, Observe-Orient-Decide-Act. We have previously reviewed these concepts (Kopsov, 2021b), identified their shortcomings, and put forward that the propositioned S-D-A(N)-P(E)-R system provides a unified and comprehensive model of human behavior.

There are also multiple hybrid theories, which combine elements of need theories and particular components of behavioral models. For example, in the Self-determination theory, Deci and Ryan (2008) integrate elements of theories of needs with the stimulus component of behavioral model, or the theory of flow (Csikszentmihalyi, 1990) which effectively embodies a specific method for the enhancement of subjective well-being by balancing needs and skills. These types of theories, whilst not systematic, provide an intriguing viewpoint on certain features of human behavior. Most hybrid theories represent a specific combination of the components that are included in the S-D-A(N)-P(E)-R model.

A standalone and rather original concept of self-organization and active inference is presented through the Free Energy Principle (FEP) introduced by Friston (Friston et al., 2006), who also argue that FEP unites multiple extant brain theories. As FEP accounts for action, perception, and learning, it may provide a perspective on the unified psychology as well (Friston, 2010). FEP is based on statistical modeling, and as such is rather distant from more conventional motivational and behavioral theories. Nevertheless, the primary components of the FEP behavioral model, detection of signals, analysis of signals, accumulation of experience, and corrective adjustments, match with those defined in our behavioral process model. These correlations require further evaluation.

LIMITATIONS AND FUTURE RESEARCH

According to the U.S. National Academy of Sciences (2008), a scientific theory - to qualify as such - must have the following key attributes: (1) a comprehensive explanation of some aspect of nature; (2) it must be supported by a vast body of evidence; and (3) it must contain predictions about natural events or phenomena that have not yet been observed. Regarding these criteria our hypothesis requires greater supporting evidence and detailing to qualify as a scientific theory, consequently the following steps can be envisaged for it to advance as such:

- Development of a methodology for quantitative analysis of basic needs,
- Determination of the composition of basic needs. If basic needs equate to first tier needs, the next step would be to establish second tier needs which define

transient experiences. In case of self-preservation needs, classification of second tier needs is evident, as these would be needs for food, oxygen, vitamins, etc. In case of needs of the mind, their definition remains obscure, as commonly used notions such as the phenomena of love, shame, pride require an unambiguous explanation and scientific validation,

- Further study on how cognitive information distribution translates into social processes,
- Study of the psychological basis for ethical, political, and social movements and doctrines.

Some features of the human psyche are not covered by our theory and require further examination, including the “irrational aspects” of human nature, e.g., the subconscious, emotions, intuition, and instincts. The primary reason for this is the lack of clarity on the origin of these phenomena. Nevertheless, even though the domain of the subconscious mind is not explicitly addressed in our theory it does not invalidate our conclusions. We consider that the concepts presented in this paper are equally valid for both conscious and unconscious processes, as conscious perception is neither a precondition nor a criterion for the postulated laws and models. We do, however, believe that the study of the subconscious mind would generate interesting and novel knowledge on the subject matter.

It should be noted that scientific discourse concerning distinct ontological levels of organization of living systems is far from complete (Kirchhoff & Froese, 2017), and multiple points of view exist on the subject. Some philosophical and neuroscientific schools of thought argue for a universal character (i.e. applicable to both living and non-living systems) of attributes such as perception, experience, and freedom of choice (Friston et al., 2006; Whitehead, 1958). According to these arguments even material things have some measure of freedom or creativity (however infinitesimal) which allow them to be at least partly self-directed. Recent research (Volkov et al., 2009) indicates that certain species of plants possess short-term memory, which itself is a feature of intelligence. It is therefore possible that the aforementioned levels of complexity (as well as the defined behavioral process algorithms) are in reality more nuanced. Such conceivable adjustments would not negate the main postulates of our proposed theory, but nevertheless, may lead to an acceptance of the existence of some rudimentary features of intelligence and active perception on the lower levels of complexity of nature. In such instance, while maintaining the fundamental framework of derived postulates, it would be more appropriate to relate to the “dominant” or “prevailing” behavioral processes, rather than unequivocal features of defined behavioral algorithms.

CONCLUSION

We propose that the fundamental law of nature is the law of preservation, which governs the existence of the universe, and from which all other laws originate. Whilst the genesis of the law of preservation is unknown, it is hypothesized that for each category of nature (matter, life, and mind) the law of preservation manifests itself through ever more specific formulations, such as preservation of matter, preservation of life, and preservation of mind. These three laws of preservation define the key principles of existence of the separate domains of human life.

Human identity is predominantly governed by the laws of life and mind. Within the domain of the psyche these laws translate into basic needs, which we classify as needs upon whose successful satisfaction the survival of a species is conditional. Consequently, the law of preservation of life translates into the basic needs of self-preservation and reproduction. The law of preservation of mind translates into the basic needs of absorption of information and dissemination of information. These four basic needs both complement and contrast one another.

It is hypothesized that the laws of preservation are enabled through the generic universal algorithm of behavior, and which have evolved from behavior of matter to behavior of organisms, and then to behavior of mind. The latter represents the most complex version of the behavioral process defined by the sequence signal(S)-detect(D)-assess(A)-plan(P)-risk analysis(R)-act(A). This behavioral process model allows to unify extant theories of individual and group behavior.

Mind and body are each governed by their own separate sets of laws. Nevertheless, the mind is accommodated within the confines of the body, and to a large extent controls the body's well-being. Regarding its functional purpose, the mind is extrinsic to, and supervenes, the body and at times may advance its "own priorities" at the expense of bodily preservation and reproduction. This is typified by such behaviors as suicide, childfree living, unforced extreme risk taking etc.

Similarly to humans having a dual nature (typified by the body and mind) the same is true of society, which represents a community of human organisms and minds. A community of minds defines a culture, which we view not as a unique category, but as a form of the universal phenomenon of congregation, which is evident for all categories of nature, including matter and life. Accordingly, atoms congregate into substances, organisms into communities of organisms, and minds into culture. Following this line of thinking, culture and mind cannot be segregated. This proposition leads to a reevaluation of the role played by psychological factors in defining social processes, as we posit that the human psyche plays a governing role in forming ethical doctrines, generational conflicts, civilizational confrontations, and social revolutions etc.

The proposed postulates convert into a comprehensive theory of human motivation and behavior developed in the context of the general laws of nature. The theory is integrated with multiple branches of science and, at its essence, represents a novel paradigm of psychology.

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