Quantum Physics, Synergetics, UN Intangible Cultural Heritage and the Energy of Life
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Summary
We see the experience of bioenergy as the effect of an individual quantum core process, which manifests itself as the self-experience and self-expression of an individual immaterial information core. The material body acts as a receiver of information. Of the individual bioenergetic core process, only that can ever be realized, can only ever become classically physically factual, what the character armor, what the limbic system allows based on its evaluations.

Bio-Energetic Medicine: Ancient Human Wisdom Meets Cutting-Edge Quantum Physics.

Energetic thinking in medicine has existed for millennia: In Traditional Chinese Medicine (TCM), external observation, self-observation, and the concept of Chi are combined and integrated into a medical system.
Chi means - translated in Western terms - energy of the living or life energy. The term CHI, also Tschi, Qi, Ki, Khi, Ji is used in the traditional arts of Qi Gong, TaiChi, Taijiquan, TaijiQuan, more rarely TaijiKungfu, abbreviated Kung Fu. GongFu, also known as Kung Fu, means “hard work” and originally means certain exercises in martial arts. The concept of Ki is also used in the Japanese martial art AiKido. In the course of Western engagement with Tibetan Buddhism, the Tibetan meditative movement training Kum Nye has also become known. Kum Nye draws on Qi Gong exercises from Traditional Chinese Medicine and is now marketed in a typically American way as ZapChen. Finally, part of TCM is officially taken up in Western medicine with acupuncture, which is widely practiced in pain medicine.
The practice paths of Aryuvedic medicine in India are very widespread and used in our health system: in yoga, kundalini yoga and Tao yoga, the life force is referred to as prana. Yoga has long since arrived in popular culture in the West, although I am not sure whether all Western yoga teachers have grasped the energetic concept of the yoga path.
Yoga, Traditional Chinese Medicine TCM and Taijiquan are listed by the United Nations as **Intangible Cultural Heritage**
In Traditional Chinese Medicine, Chi stands for the moving and vital power of the body, sometimes also for the spiritual power or power of imagination, in short: life force or life energy, i.e. that which distinguishes the living body of a living being from the dead collection of molecules, minerals and water.
Living things are information-processing systems, whereby the information of living things is meaningful information, important for the survival of the living organism. Exchange of meaningful information on various levels makes living beings alive. Living things create meaningful information. If this process stops, they are dead, just a pile of “dead matter”.
Living things move. Dead people don't move. There is classical energy in movement, meaning in meaningful movement, i.e. information about meaning. That's why we work with movement in TCM and body-oriented psychotherapy. Living beings that want to survive and live meaningfully produce meaningful movement and thus convey meaningful information in the individual organism and in the group. In psychotherapy, meaning is central: “what does this mean to you?” Meaning creates identity.
Ultimately, life force is a universal, cross-cultural experience archetype that also existed in our culture, e.g. in PARACELSUS as vis medicatrix naturae or mumia or in MESSMER as “animal magnetism”. Later, the physicist FRITJOF CAPRA pointed out the astonishing parallels between the understanding of the world in quantum physics and global concepts of a "bioenergy." In most cultures, life is explained by the action of an immaterial "energetic"

factor. However, this way of thinking has been lost in medicine as a result of the now outdated one-sided materialism of classical physics.
When it comes to the “energy of the living” we first have a language problem. We don't yet think in information categories. When it comes to “energy” we still think in the categories of classical physics. The phrase “energy of the living” describes our everyday experience very well and is appropriate at this level of exchange. Still in the mechanistic thinking of medicine at the time, SIGMUND FREUD sought to grasp psychological energy processes with his libido theory (1910 - 1923). FREUD founded energetic medicine with the abstract concept of “libido”. This “psychic energy”, which is based on Newtonian mechanics, is rooted in the traditional way of thinking of psychosomatics, Descartes’ mind-body split. In fact, the closest thing to our thinking is to look at the physical phenomena of our body “from the outside” with more or less awareness. We identify with this observing part, the “I”. However, for much-discussed reasons, FREUD refrained from the specific physical touch and massage of his early years of treatment and limited himself - at least theoretically - to verbal interventions. But in psychotherapy that is not enough.
We are a psycho-somatic phenomenon, with the body as an agent, as a largely independently acting part, observed by a “psyche” and controlled by a “psychic” will, an “I”. Control means information. Freud already knew that this “psychic will” contains unconscious parts, the “IT”. Although CARL GUSTRAV JUNG, probably FREUD's best-known student, did not work with body therapy like FREUD originally did, he continued the libido-theoretical approach. His view of the energy archetype - as presented in his book “Symbols of Change” - has led him to a theory of personality and an image of humanity, which for me represents a suitable matrix for analytical body work. Above all, I am fascinated by how working with the body reaches an initially unconscious core of potential and possibilities of the personality beyond drives, morals, defense and adaptation, from which an individuation process unfolds and is fed energetically.
Another disciple of FREUD was the in our days less well-known WILHELM REICH, who was one of the most sought-after training analysts in Vienna at the time. REICH consistently stuck to the body dimension of the libido-theoretical approach. In his concentration on the economic aspect of libido theory, the concept of actual neurosis led him to the development of character analysis through a study of impulsive character (now known as borderline syndrome or emotionally unstable personality disorder) and masochism. In order to grasp the many phenomena of his patients' psychophysical wholeness, WILHELM REICH not only talked to his patients, but also expanded psychosomatics to include the physical dimension of movement and touch. From his therapeutic experiences he developed the concept of “bioenergy”. Without at least explicit reference, perhaps without knowing it, he resorted to the ancient human concept of the energy archetype.
In his view, a person's most important life experiences and thus also defense structures are reflected not only in their mental and emotional unconscious, their object relationship representations, but also in their body (e.g. in posture patterns, activation patterns of the stress system) and can be recognized and evoked there. Not only attitudes and character attitudes are formed, but also physical reaction patterns, posture and limited body mobility. The character structure "ingrained" in the body determines physical self-perception, self-attributions, self-image, identity and - through the filtering of perception - the worldview and entire worldviews.
So it is not surprising that by working with the body, a psychotherapeutic process is intensified, enriched and often shortened (to be precise: the process itself is not shortened, but obstacles or blockages that slow down or make the process impossible are dissolved). There are even life-defining experiences that have never found a psychological representation, either because they were reflected in (body) memory when a sufficiently mature psychological apparatus did not yet exist, or because the experience was so overwhelming, so traumatic that

the binding function of the cerebrum was overwhelmed (primary dissociation). Or the perceiving psyche anesthetized itself in a state of shock to avoid being overwhelmed and breaking. Later, there was a lack of support to resolve this then chronic shock, with the result of Chronic Posttraumatic Stress Disorder (PTSD).

The body-oriented depth psychological psychotherapy according to WILHELM REICH and the REICH student ALEXANDER LOWEN is a genuinely psycho-somatic approach to psychotherapy. Here, in a form of therapy, in a setting, body interventions are combined with depth psychological and psychoanalytic processing of the experience, in the context of a corrective relationship experience with the therapist. As a holistic treatment method, it overcomes the Cartesian soul-body split, as it is not only paradigmatically expressed in the term psycho-somatics, but is also often practiced in psychosomatic clinics: as psychotherapy by psychotherapists, as body therapy by body therapists. Body-oriented psychotherapy aims to understand the whole person in their fundamental energetic processes. That's why W. REICH spoke of bioenergy. Here I see bioenergy as analogous or even experientially identical to the chi or ki concept of traditional Chinese medicine TCM.

As in TCM, body-oriented psychotherapy uses active body techniques, such as exercises to stimulate breathing, stress positions, expressive exercises, relaxation techniques and flowing movement exercises in which neuromuscular posture and coordination patterns are reprogrammed. The therapist also involves himself through touch and (reflected) scenic “participation”, not just symbolically or imaginatively, but concretely physically supporting or holding, or mirroring, depending on the state of regression or depending on what is required for resistance analysis or structure formation. This combination of concrete, active work with the body and psychoanalytic resistance and transference analysis using countertransference information makes this form of psychotherapy a method that enables access to the deep emotional structure both through the body and through the intellectual and emotional world. In other words: the therapist provides a space in which, in addition to the classic psychoanalytic methodology - such as: B. dream interpretation or transference analysis - it becomes possible to stage and process relationship experiences, traumatic situations, transference and resistance through body psychodrama.

Energy archetype and quantum physics

World explanation models are almost always wrong, but often helpful. We are not our thoughts, our beliefs. We are more.
"Old" medicine—viewed as a classical "natural science"—is essentially chemistry and physics applied on the basis of atoms and elementary particles. If we adhere to this widespread model of psychosomatics, living beings—including humans—are regarded much like computers, consisting of hardware (matter, the body) and software-controlled information processing. This leads to a form of radical determinism that is incompatible with modern physics.
What is a human being? A machine determined by neuronal processes? Brain researcher DIRK SWAAB succinctly asserts: "Our mind is the product of the interaction of these billions of nerve cells" (2011). Neurobiologists WOLFGANG ROTH and WOLFGANG SINGER hold similar views.
What distinguishes a computing machine possessing "Artificial Intelligence" (AI)—based on statistics and cybernetics—from a living organism? In a computer, electrons are set in motion, yet the matter—the hardware—itself remains unchanged. Living cells, by contrast, are altered by information; they adapt in response to new information. Without this ability, they could

not survive. Classical physics offers no answer to the phenomena of "life" and "consciousness."
When it comes to life and death, in particular, the classical model ceases to suffice, and something immaterial comes into play.
The structure of our brain dictates our capacity for imagination and our patterns of thought. Characteristic examples include our concepts of atoms, "orbits," and minute "particles"—all of which are notions we have hitherto translated into models of "classical physics." Our brain is capable of conceptualizing only classical physics. Classical physics operates using the mean values of—from a quantum-physical perspective—vast numbers of identical quantum systems. The laws of classical physics describe deterministic changes in facts. The differential equations employed in classical physics to describe change generally suffice as approximations for describing deterministic processes. Classical physics relies on approximations: the infinitely large and the infinitely small. Classical physics deals only with the simplest aspects: the sum of additively accumulated parts. For everyday phenomena and the realm of classical physics, this is generally sufficiently accurate and adequate.
In information medicine, the concept of "action" or “effect” is central. The concept of "information" is implicit in "action." Quantum physics began with MAX PLANCK’s "quantum of action." Physically, action is defined as energy multiplied by time. The quantum of action is one of the constants of nature—or fundamental constants—such as the speed of light, the elementary charge, the electric field constant, the BOLTZMANN constant, and the gravitational constant; from these, other basic physical quantities can be mathematically defined and derived. These are units within quantum physics that have no counterpart in our conceptual world and can only be grasped through abstract mathematics. They mark the limit up to which we can distinguish between cause and effect. Beyond this limit, the laws of classical physics no longer apply. Yet, this mathematics is highly precise. Quantum physics and its mathematical formalisms are so fundamental to the technology of our information age that we could well speak of a "quantum information age." Our information technologies—such as mobile phones or quantum computing—cannot be understood or mastered without theoretical physics, and specifically quantum physics.
Our brains are incapable of forming mental images of the principles underlying quantum physics. We can only perceive qualities from the realm of classical physics and articulate them through language. However, the abstract mathematics of theoretical physics is capable of describing the quantum-physical underpinnings of reality with great precision and harnessing them for technical applications.
With Heisenberg’s uncertainty principle, a new way of thinking entered physics—one that extends far beyond classical physics: the physics of possibilities. According to Heisenberg, certain properties of quantum particles—such as position and velocity—are not fixed from the outset. Only a measurement in the classical sense causes a property to become a "fact"—either position or velocity. Possibilities are abstract, yet real. Quantum physics is multiplicative; it is the physics of tensor products. Quantum physics is the physics of spaces of possibility. Quantum physics "plays" with multiplicative possibilities that only become material facts—in the classical sense—through "measurement." Quantum information processes are processes involving possibilities. Quantum processes are not arbitrary; they are determined by the information processed within them—and with great precision. The possibilities are manifold, involving vast amounts of information that remain open as long as no decision—and thus no fixation—has taken place. Spaces of possibility are of fundamental importance to living beings because they open up potential reactions to changing environmental conditions. Without open spaces of possibility, adaptation is impossible. Without spaces of possibility, there is no evolution. Which of the many possibilities are "sensible" for the organism—meaning significant and functional for the individual's life and survival—must first be determined. Only then does one of these possibilities become a fact.

This is the essence of the creative process. That is why THOMAS GÖRNITZ speaks of the "creative cosmos"(2002).
As early as the 1930s, one of WERNER HEISENBERG's most outstanding students—the physicist and zoologist PASCUAL JORDAN—attempted to use quantum mechanics to overcome the determinism of classical physics in the explanation of life. Many quantum physicists and biologists are now conducting research in this field.
What exactly is the connection between quantum physics and the energy of living things? According to ALBERT EINSTEIN's famous formula, a property—specifically, kinetic energy—can transform into matter, and matter into energy. Properties are information. According to MAX PLANCK, "action" is defined as energy multiplied by time. When examining the relationship between the Planck constant (the starting point of quantum physics) and the energy-term in classical physics, the very term "Planck constant"—or *Wirkungsquantum* in German—contains the concept of "action" or "effect"(*Wirkung*). Thus, there exists a quantum of action or effect. Since information can produce an effect, every quantum bit must be associated with at least the action of the Planck constant. The energy value of a specific quantum bit is so minute that it is virtually undetectable. In short: information involves almost no energy. This goes beyond classical physics.
In his cosmology, the physicist CARL FRIEDRICH VON WEIZÄCKER—drawing on quantum field theory—proposed a view of the world that traces both matter and information back to a fundamental primordial substance: the basic information unit of a quantum bit, or the quantized binary alternative, which he termed the "Ur-Alternative" (primordial alternative). His student, the theoretical physicist THOMAS GÖRNITZ, took up this approach of an information-based cosmology and developed it into a mathematically rigorous cosmological framework (see *Der kreative Kosmos* [2002], *Von der Quantenphysik zum Bewusstsein* [2016], *Quantentheorie verstehen* [2022], and numerous other publications at www.Goernitz.de). He expanded the theory of primordial alternatives by introducing a crucial distinction: since we intuitively equate information with meaning, he differentiated between meaning-free quantum information and information structures composed of entangled quantum information—structures that, as a unified whole, can acquire significance for living beings through their specific properties. According to GÖRNITZ, the simplest and most fundamental unit of information is "Absolute Quantum Information" (AQI). This absolute quantum information is abstract and, in isolation, possesses no inherent meaning. An AQI is an energetically precise quantum of action characterized by maximum spatial extent across the entire cosmos, the longest possible wavelength, the lowest possible frequency, and consequently, the minimum possible energy. Only a vast number of quantum bits can be localized as an entangled unit within a specific region of cosmic space (mathematically described as Minkowski space)—a process requiring a great deal of positional information. It is only through the combination of a vast number of quantum bits that a quantum field with a defined range of action is formed.
In living systems, these effects can convey information of vital importance. A living system that exerts no influence on its environment or its own metabolic processes cannot survive. It lacks the control mechanisms necessary to maintain its dynamic equilibrium (steady state), its homeostasis, and its responses to the environment. It lacks the capacity to shape its environment—to engage in autopoiesis, as described by FRANCISCO VARELA and HUMBERTO MATURNA. This capacity for control and shaping is an essential characteristic of "bio-energy." Only within a quantum-physical model can "bio-energy" be described as a *henadic* structural property of living systems—one derived from their underlying quantum-physical nature. With regard to the human psyche, self-efficacy is a crucial psychological element in the development of a sense of personal identity.
We instinctively associate "information" with meaning. However, according to GÖRNITZ, information at the level of AQIs is not necessarily linked to meaning. This initially runs

counter to our everyday understanding of "information." All properties and meanings emerge secondarily. All entities possessing properties—such as matter, energy, and the psyche (with its meaningful informational content)—arise from the unformed, meaning-free fundamental building blocks known as AQIs.

Quantum theory captures the mathematical structure of AQIs. The evolution of the cosmos began with this simplest of structures: "in the beginning, there were AQIs." AQIs were identified as an absolute physical quantity by drawing upon the theory of black hole entropy developed by JAKOB BEKENSTEIN and STEPHEN HAWKING. Put simply, the fundamental building blocks of matter can be traced back to AQIs, that is information.

In the theory of AQIs, quantum information becomes an absolute physical quantity, just like mass and energy. For instance, a massless quantum of light—a photon—can be assigned approximately 10^{32} quantum bits. The larger the quantum particles—such as quarks, electrons, or protons and neutrons—the greater the number of qubits, and the more precisely their location in the cosmos can be determined, down to the level of the individual atom with a circumscribed, defined location.

With the emergence of life in the cosmos, AQIs become carriers of meaning—specifically, of information vital for survival.

Consequently, the physical reality of the psyche—including thoughts—can be traced back to the underlying, mathematically describable physical fundamental structure of AQIs (Abstract Quantum Information units). According to Görnitz, the contents of our psyche can be described scientifically as structures of quantum information. It follows that the contents of the psyche are information and, from a scientific perspective, just as real as the brain. Consciousness is based on AQIs—the simplest possible quantum structures in mathematical and physical terms.

What constitutes life is what WILHELM REICH called "bioenergy." In information medicine, it is the largely unconscious, governing information process that—as the conscious "psyche"—is also capable of recognizing itself and becoming self-aware.

The only model I know of that captures this enlivening and life-sustaining information process is the quantum information process, as GÖRNITZ described. GÖRNITZ theoretically derived abstract quantum information from quantum physics as the basis of the entire cosmology. On the basis of this quantum information theory, he explains the phenomenon of consciousness as information about information, which is only possible due to entangled quantum information systems.

If it is true that the exchange of information and the control of life processes through the exchange of information are essential for life, then medical systems that attempt to explain the regulation of life processes through the exchange of information make sense. Information exchange regulates and can influence life processes. TCM seems to me to be such a system, even if the concept of information did not yet exist. The flow of “Chi” in the body should be improved and “blockages” should be removed. This makes sense when you look at it from the perspective of information flow. Chi could be equated to a flow of information between molecules, cells and entire organs. Interventions that remove chi “blockages” would be interventions that improve the flow of information. The corresponding western system is bioenergetic analysis

Only a quantum information process can become aware of a part of itself and create an information picture about itself, which in turn affects the entire system. Only quantum information processes can entangle, form higher-level entangled quantum information systems, partially share information, absorb and release information, and at the same time remain “metastable” in a second-order system.

The psyche is, above all, the regulation of life processes through quantum information processes. From a scientific and physical perspective, the conscious psyche is an information

structure composed of entangled, meaningful quantum information, realized as a property of a system of entangled photons within a highly developed living brain.
There is no life without regulation. It goes without saying that the vast majority of regulatory processes follow patterns already encoded—molecularly in memory and anatomically in neural networks—because they have proven to be meaningful and "sensible." Mostly "sensible"—otherwise, there would be no pathological regulatory failure, and psychotherapy would not be necessary. Colloquially, “psyche” often means the perceiving psyche, consciousness. However, very few psychological control processes are conscious, least of all those at the quantum information level. There is the unconscious and that is big. This was already recognized by IMMANUEL KANT. Already ERNST PLATNER spoke of unconsciousness already in 1793. The concept of the unconscious was first introduced into philosophy in 1800 by FRIEDRICH WILHEM JOSEPH SCHELLING. SIGMUND FREUD based his depth psychology on this construct.
The vast majority of processes in our nervous system occur unconsciously. We usually attribute consciousness to Homo sapiens. When it comes to shaping behavior, the extent to which higher mammals have self-awareness and are therefore capable of conscious control is a broad field and is being intensively researched. Of course, their life processes are also controlled via quantum information processes. The question is, only reactively through the environment, in adaptation to the environment, or with conscious willful decision while consciously reflecting on several imagined possibilities?
What is man?
A machine determined by neural processes? If this machine worked according to the laws of classical physics, there would be no free will, no consciousness. One would have to make intellectual contortions if one wanted to grant creativity to these admittedly complex humanmachines, or to living-machines in general with all their ingenious adaptive achievements in the course of evolution. But the most important thing: with HEISENBERG's uncertainty principle, a way of thinking has broken into physics that goes far beyond classical physics. Quantum physics is the physics of possibility spaces. Quantum physics “plays” with the possibilities that only determine material facts in the sense of classical physics through “measurement”. Quantum information processes are processes of possibilities. Quantum processes are not arbitrary. They are determined by the information processed in them. But they are diverse, with many options, all of which are still open as long as no decision and thus determination is made. Which of these options are “useful” for the living being in the sense of being meaningful and functional for the life and survival of the individual must first be decided. Only then does one of the possibilities become reality. This is the essence of the creative process. That is why GÖRNITZ speaks of the “creative cosmos”.
For the psyche, the meaningful quantum information processes or the quantum information field can be identified as the basic physical structure. In psychotherapy, thoughts and ideas are referred to as “psychic objects”, even if you cannot “touch” them. These “psychic objects” or complexes of ideas can change their information carrier, i.e. their photon complexes, but remain constant as information complexes or “psychic objects” for a while. Countless photons are constantly being emitted and absorbed again. In every moment there are different photons that carry the information of the “psychic objects”.
Information that the psyche processes in this way is meaningful.
Whether they are also “meaningful” for the living being in the sense of being meaningful and functional for the life and survival of the individual remains to be seen. The new information arriving via the sensory organs combines with the already existing activated information and changes the state of the coherent quantum information process. A comparison takes place between the previous information structure, previously stored in memory, and the new input. This is called learning.

Is the now enriched, new quantum information process helpful and meaningful for survival and quality of life? The task of the psychotherapeutic process is to find out. How do psychological contents arise, how do psychological "objects" arise that we are more or less conscious of? Psychoanalysis is the analysis of psychological information complexes. As a doctor trained in the natural sciences and analytical psychology, I am interested in such questions of neurophysiology and philosophy. What defines people, what gives people human awareness of themselves and thus identity? What can confront neuronal activity with consciousness and perceive itself and then shape itself and become creatively active?
As described, quantum information systems can open up a space of possibilities. Possibility space means choice. Decision takes will. Free will requires choice between several options. This requires thoughts and therefore information on a quantum level. Only meaningful quantum information systems can split off quantum information about themselves and thus observe themselves, create an "image" of themselves and attribute meaning. This is the prerequisite for consciousness. AI will never be able to view itself with self-awareness.

We see the sujective experience of bioenergy as the effect of an individual quantum core information process, which manifests itself as the self-experience and self-expression of an individual immaterial information core. The material body acts as a receiver of information. Of the individual bioenergetic core process, only that can ever be realized, can only ever become classically physically factual, what the character armor, what the limbic system allows based on its evaluations.

The Equivalence of Matter, Energy, and Meaningful Information

I never cease to marvel at how this cosmos of ours can simultaneously be matter, energy, and information. I marvel at the equivalence of matter, energy, and information. Energy is the prerequisite for change in matter.

The scientific foundation of psychosomatic medicine lies in the capacity of information to exert influence upon living organisms. Relationships in nature extend not only to energetic interactions that affect matter, but also to meaningful information which, through energetic processes, exerts an effect upon the material structures of living bodies.
By BioEnergy, we refer both to information within living organisms that brings about an effect, and to the resulting movement—that is, movement driven by meaningful information.

Meaningful information can trigger the release of stored energy. Such triggering energy takes the form of photons, and entails the alteration of molecules.

örnitz has identified the exchange of information via photons—based on quantum physics—as a defining characteristic of living systems. A hallmark of life is the regulation of enzymatic processes, which are invariably linked to electromagnetic interactions—and thus to photons. Regulation alters matter. Meaningful regulatory information can trigger the release of available energy. In this context, light quanta serve as information carriers—indeed, they are absolutely essential as such. Entangled, coherent systems of light quanta transmit information regarding properties.
Within and between cells, meaningful information concerning properties is transmitted via entangled photons in such a way that it triggers the release of energy made available by adenosine triphosphate (ATP). Recall that action is defined as energy multiplied by time. The released energy can move matter (ions, molecules) and alter its properties. Properties equate to information.

Mathematically, one can conceptualize a photon as being composed of approximately 10^{32} quantum bits of abstract quantum information (AQI). However, meaning only emerges in living systems through the interplay of millions upon millions of entangled photons and the information-bearing properties of these entangled quantum-informational wholes. In living systems, photons are rapidly broken down into their constituent parts: energy and information. This energy is subsequently re-emitted as thermal radiation (long-wave photons). Living systems radiate because they produce meaningful photons while emitting photons devoid of meaning as "waste heat."

FRITZ-ALBERT POPP was among the first to speak of biophotons as carriers of information within living systems. He demonstrated the existence of these "biophotons"—as light emissions—in living systems using low-light amplifiers.

The properties of light quanta originating outside an organism can also trigger effects within it. For instance, in the human eye, a single light quantum can alter the shape of a rhodopsin molecule, thereby triggering a nerve impulse. However, for the meaningful perception of a light-emitting object, at least three coherently entangled—and thus interrelated—light quanta must strike the retinal plane at different locations so that an initial spatial image of the external object can be derived from them. Through a cascade of network activations, the light-emitting object is linked to the spatial plane projected onto the retina and is perceived by the visual cortex as a point of light within the constructed perception. The relationship between the three photons involved thus contains the fundamental information required to perceive a point of light, required for vision. Rrelationship implies information. This simple example illustrates the immense complexity involved in even the "simplest" quantum information process.

Information mediated by photons within living organisms thus influences the triggering of "energetic" processes. Meaningful information can cause one to feel suddenly highly energized or, conversely, dejected. In everyday language, the term "energy" is evidently used as a figure of speech to describe a psychological state or a subjectively experienced mood—one that may well have corresponding manifestations in "material" metabolic processes. Information mediated by photons in living organisms can influence metabolism and, consequently, the triggering of "energetic" processes. Meaningful information can cause a person to suddenly feel highly energized—or, conversely, deeply dejected. In everyday parlance, the term "energy" is evidently employed as a figure of speech to describe a psychological state or subjective emotional condition—one, however, that may well have corresponding correlates within the "material" realm of metabolism.

This begins with the very concept of "energy provision": Adenosine triphosphate (ATP) and Guanosine triphosphate (GTP) serve as the universal energy carriers for all living organisms. Energy for physiological processes is supplied primarily by ATP—and less frequently by GTP—generated, in higher organisms, within the mitochondria. Energy is released through the cleavage of the ATP molecule into Adenosine diphosphate (ADP) and a phosphate molecule. This energy manifests actively in the form of the photons emitted during this process. Photons are the carriers of electromagnetic interactions in all living organisms; they are the quanta of the electromagnetic force. The classical force associated with electric charge —the Coulomb force—drives the movement of ions within nerve cells. In quantum physics, the classical, static Coulomb force is described in terms of virtual photons. Accelerated charges set ions in motion, constituting a current that corresponds to the so-called "firing" of nerve cells. Accelerated electric charges emit real photons. When electrons change their orbital state, real photons are emitted. It is this process that enables electrochemical coupling at the synapses and triggers the release of neurotransmitters, which in turn stimulate the target nerve cell to fire. This effect carries significant information—initially as a property of coherent photons, then as "firing," and subsequently as neurotransmitter release. In this

context, meaning is not "objective"; rather, it emerges as a property of the system through the processing of information.

Example: Muscle Movement. A muscle movement involving mechanical kinetic energy requires both supplied chemical energy—provided by material ATP (adenosine triphosphate)—and the immaterial information signaling that the muscle's contractile myofibrils are to contract, consuming ATP in the process, to generate mechanical motion. One could describe ATP as the universal "energy currency" through which energy is made available within the body. Photons, in turn, represent minimal units of kinetic light energy and simultaneously serve as carriers of information that trigger the conversion of ATP into ADP—releasing energy for mechanical muscle movement.

Just as energy can be "absorbed" by matter, meaningful information can be absorbed by—and stored within—energetic and material objects, and subsequently released by them. The resulting effects then depend on the semantic content of that information.

In technical information processing, meaningful information and control functions are classified as "software." The material carriers of the process are referred to as "hardware"—tangible objects like a personal computer (PC) in which electrons move without the hardware itself undergoing change.

For biological organisms, however, there exists a fundamental, characteristic inseparability of hardware and software. Memory contents are properties—that is, information regarding molecular matter. Information about properties can be transmitted via electrochemical interactions in the form of real and virtual photons; this, in turn, activates networks of other properties, altering them in the process that is learning. GÖRNITZ introduced the evocative term "uniware" to describe this concept. In medicine, one would speak of a "holistic" approach or "holistic medicine."

Today, technical systems are increasingly being modeled after natural neural networks, such that—via these complex hardware systems—the hardware of many conceivable information-processing systems can be simulated. As software, this simulation mirrors a segment of reality, behaving as though it were a real-world object. This holds significant relevance for Artificial Intelligence (AI) and its applications. Through the deep layering of these modeled networks, a high degree of abstraction can be achieved. Outwardly, this manifests as learning or self-organization. Strictly speaking, however, only units of information known from the training phase are combined according to statistical specifications (algorithms) and the most probable—i.e., most frequent—combinations were filtered out. At most, it is these combinations that can be described as “new”.

In contrast, a scientific understanding of living systems is far more complex.

Living systems do not learn merely through the statistical combination of existing data. Through learning, the structure of living systems is altered. Learning changes the neural networks themselves. This cannot be understood without quantum theory.

To speak of energy in living systems without taking information into account is to fall short. Living systems evaluate information and ascribe meaning to it. To ascribe meaning is to engage in abstraction, for it entails ignoring that which is insignificant. Because meaning always refers to something else—thereby establishing a relationship—it must be simultaneously abstract and grounded in concrete perception. Perception entails the perception of differences. Similarity and difference play a fundamental role in every evaluation—that is, in every interpretation of the world. No AI system can create new meaning; at best, it can merely recombine elements that are already known. Psychotherapy operates by engaging with cognitive dissonance. We learn through those things that do not fit within our existing perception of the world. We learn through differences. Meaning serves the function of self-preservation—the function of sustaining our identity and our social structures. "Do you mean something to me?"

Memory and Character

The information content of neural networks is crucial for both health and disease. Communication within and between neural networks is mediated by hormones, hormone-like transmitters, and ultimately by ionic shifts accompanied by corresponding electromagnetic forces (Coulomb forces). In the language of quantum physics, these are referred to as virtual light quanta. As previously mentioned, in living systems, these light quanta are termed biophotons (Popp). Light quanta themselves are devoid of intrinsic meaning; however, they can convey meaningful information if the receiving entity—be it an organelle, a cell, an organ, or a neural network—is able to utilize them constructively—for instance, by regulating vital processes via feedback mechanisms to ensure the system remains stable and in homeostasis. Neural networks are typically highly stable. After all, they serve a vital purpose: to safeguard the function and survival of the entire system. Through usage—or, in electrophysiological terms, through the "firing" of neurons—they become progressively more stable. This stabilization is evidenced by the growth of synapses. At the synapses, electrical excitation is converted into the release of neurotransmitters; thus, the meaningful information undergoes a change in its carrier medium.

Synapses, acting as transmitters within neuronal networks, thicken in response to repeated neuronal excitation. The more they "fire," the thicker and more stable they become. The principle here is "use it or lose it"—either use your synapses, or they will shrink and gradually be lost through disuse and degradation, much like muscles that are not exercised. This is highly relevant to psychotherapy. Patterns of excitation—and, by extension, patterns of thought and behavior—become more stable through constant repetition; conversely, they can lose their unconscious shaping power if they cease to fire. Alternatively, they can be supplanted by superior, more functional patterns. This occurs when these new patterns are practiced frequently. The repeated firing of these new synapses stabilizes the emerging network, thereby endowing it with greater potency. This constitutes the very essence of psychotherapy. A negative extreme example of such degradation can be observed in cases of prolonged high stress and trauma: cortisol receptors are broken down and destroyed. The result is a profound alteration in the responsiveness of the stress system. The counter-regulatory mechanism within the stress-regulation loop fails, leaving the system locked in a state of high stress—persisting until physical and psychological exhaustion sets in—with all the attendant negative consequences for the organism as a whole: high blood pressure, inflammation, arteriosclerosis, depression, and much more. The ultimate result is a trauma-related disorder.

Due to the partial absence of corticosteroid receptors, the set point of the stress-regulation circuits is altered in such a way that a state of permanent over-arousal—or hyperarousal—of the stress system emerges as a new "normal" within the body's felt experience. Lower levels of arousal feel "abnormal," "lifeless," and "boring." The "kick" is missing. This quest for arousal can take on an addictive quality: "no risk, no fun." For this reason, such individuals are often referred to as "stress junkies." The absence of these receptors can never be altered through "the power of thought," but only through compensatory resource networks and—activated therein via a bottom-up process—the actual, felt experience of "vitality."

In psychotherapy, information from memory is transferred onto photons—acting as information carriers—for the purpose of processing, thereby rendering it labile. Additional quantum information, drawn from the possibility space within the broader quantum information realm, becomes entangled with this recalled information. A genuinely creative process thus emerges. This implies that when we remember, we do not do so statically—like immutable, hard-coded data stored on a hard drive, DVD, or USB stick. Rather, memory is activated through an active process and subsequently re-stored, at the very least, within a new context. This constitutes the fundamental principle underlying both psychotherapy and trauma

therapy. Since all cells within a living system are maintained—at the cost of energy expenditure—in a state of unstable dynamic equilibrium, they possess the capacity to learn. They are able to respond to new information disseminated throughout the body via photons. Living brains can accomplish everything that "electronic brains" can—albeit more slowly. Yet, they can do so much more. Garry Kasparov and Joseph Weizenbaum capture the essence of this distinction perfectly: the machine decides (based on logical algorithms), whereas the human chooses. The machine calculates probabilities based on a given set of input data. The human being, however—driven by psychological imperatives—can choose to act against the probable outcome and embrace the risk instead. Risk carries with it the possibility of failure, but also the potential for novelty. To choose risk is to accept responsibility.

Psychotherapy harnesses the quantum-physical potential for making new decisions—and for navigating decision trees—at the level of quantum information, thereby transcending old, ingrained patterns.

We can imagine possibilities previously experienced, thereby opening up "possibility spaces" in the sense of resource-rich opportunities that were realized in the past—that is, opportunities that had already become concrete realities at that time. Furthermore, we can—in a completely novel and creative manner—"discover" possibilities that were previously unknown. Operating within an entangled quantum state, the patient and therapist can jointly open up a shared possibility space; here, drawing upon their own experiences and resources, the therapist imagines possibilities that they can then share with the patient—whether through that very entangled quantum state, verbally at the level of thought, or actively through mirror-neuron-mediated bodily resonance. To achieve this, however, the patient must be in a sufficiently labile state of "indeterminacy" at the level of their quantum information processing—remaining "open" to these new possibilities, yet secure and stable enough to tolerate the destabilization of their previously established patterns.

Because they are mediated via quanta or biophotons, thoughts can influence neuronal networks.

The question is how stable these networks are—and how receptive they are to "new," divergent information. Networks are stable for good reason: they have served—and continue to serve—a survival function; otherwise, they would have long since been dismantled and erased. During puberty, "unnecessary" networks are routinely pruned—sometimes with "collateral damage." When information is of great significance, it can trigger an extensive cascade of neuronal "firing," thereby influencing numerous neighboring networks and, in some instances, leading to the formation of an entirely new neuronal network. The synapses involved develop accordingly; it is only through this process that the new functional state—the new pattern—becomes stabilized.

The neural networks of higher organisms are hierarchically structured, extending even into their anatomy: fundamental life-sustaining functions—such as breathing, heartbeat, and temperature regulation—are "managed" within the brainstem, a phylogenetically ancient region. Postural and movement patterns are controlled by the basal ganglia and the cerebellum. The limbic system—the "emotional brain"—is responsible for emotions. Perception is mediated by the cortex, the outer layer of the cerebrum. "Rational" control is found only in higher mammals and humans, featuring a frontal brain capable of exerting a unidirectional inhibitory influence upon the limbic system.

Synthesizing all this information—derived from a wide variety of sensory organs and processing regions of the brain—into a single, coherently experienced informational gestalt is a demanding and highly complex task. The processing of information across various perceptual modalities is carried out by the neural networks of the cerebral cortex, a process that entails high energy expenditure and substantial blood flow. The act of binding these diverse sensory impressions—much like arranging a bouquet of flowers—into a coherent, internally consistent experiential gestalt is referred to as "binding." This unified whole can be

explained by the formation of coherent states—or, at the quantum level, by the formation of entangled states. As they synchronize into a unified whole, the participating molecules become entangled with one another in terms of their informational content; this entanglement, in turn, extends to the photons that mediate these interactions. Through the continuous interaction of photons with the molecules within the cells, psychological (informational) states become conceivable as entangled quantum information states. These entangled molecules subsequently emit photons that are, in turn, entangled with one another. Thus, the informational contents of the psyche can form holistic entities of quantum information—entities that, despite being carried by extremely rapidly fluctuating and short-lived photons, change relatively slowly.

Under conditions of extreme stress, this bonding fails due to sensory overload and overwhelm. The cerebral cortex suffers from insufficient blood flow. Consequently, the formation of coherent states becomes severely impaired—or even entirely impossible. While light quanta (photons) are capable of conveying meaningful information, under extreme stress, these light quanta may lose their significance because the "receiver"—the neural networks—no longer functions in a sufficiently holistic manner.

Primary dissociation occurs, manifesting as a sense of falling apart, shattering, or hyperfocus accompanied by tunnel vision. Tunnel vision entails focusing exclusively on the most critical, survival-essential sensory inputs while blocking out much else—such as pain. While this may aid survival in the immediate moment, it fundamentally represents a failure to synthesize and integrate these inputs into a coherent, reality-based overview. This dissociation is the hallmark of extreme stress and—if not counteracted in a timely manner—can lead to a trauma complex characterized by fragmented, internally shattered memories.

Another key characteristic of high-level stress is the maximal activation of the stress system via the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic nervous system—a vital component of the stress system that is triggered in situations of difficulty and danger. When life or psychological integrity is threatened, this system activates—mobilizing the entire body—to respond actively to the perceived attack through either "fight" or "flight." Should these fight-or-flight responses prove unsuccessful, the result is panic or a state of immobilization, manifesting as a "playing dead" reflex.

High stress is not synonymous with trauma. A trauma complex develops following a high-stress situation only when the system is unable to recover—when it fails to relax and remains locked in a state of high-stress arousal. Recovery and resilience are, therefore, the most critical variables for preventing traumatization—that is, the formation of a chronic trauma complex. Recovery requires relaxation: the activation of the parasympathetic system, the counterpart to the sympathetic system. Recovery demands safety, care, interpersonal support, and self-care. It calls for understanding, empathy, and self-empathy. The sooner recovery takes place, the less likely it is that a stable trauma network will form.

Trauma Complex and Character Armor

If, under conditions of high stress, recovery—specifically the subsequent reassembly and integration of individual, dissociated trauma fragments—fails to occur, the psyche is compelled to compensate. These unmanageable and often unbearably painful perceptual fragments are split off and stored within a separate network, forming what is known as a trauma complex. As described by WILHELM REICH, this process involves the formation of a compensatory structure that enables the individual to continue functioning in daily life and ultimately evolves into the person's neurotic character. This compensation is achieved through "pulling oneself together" or "standing rigidly at attention"—that is, through a rigid posture of the muscular system. This rigidity serves a dual purpose: it prevents a collapse into the "playing dead" reflex, while simultaneously acting as a protective armor against threats from

the external world and against the activation of the trauma complex by triggers. The term "armor"—in the sense of a protective shell—is spontaneously employed in this manner by many trauma survivors; it was this usage that led REICH to coin the term "character armor," as expounded in his seminal work, *Character Analyse*(1933).
Therapy brings about a change in experiential patterns precisely where atmosphere or experiential quality is embodied. Subjective experience, physical sensations, and mental imagery are repeatedly projected into an altered state of being—so frequently, in fact, that this activation of the involved neuronal networks becomes encoded. Repeated activation leads to the thickening of synapses and the rewiring of neuronal connections. Thus, the activation of quantum information effectively manifests as anatomically verifiable—and therefore "factual"—changes within neuronal networks. This process of neuronal activation occurs initially within the therapeutic setting, and subsequently in everyday life; however, it invariably requires repeated reinforcement during therapeutic sessions in its early stages. Only through repetition are stable neuronal patterns established. This is why therapy is a time-consuming process. Healing, in this sense, is achieved through meaningful information—often novel information—conveyed via the classic sensory channels of the sense organs:
visually—through sight and the optical perception of the other person via the mirror function (mirror neuron system);
acoustically—through hearing, sounds, vocal timbre, and music;
sensorimotorically—through movement, touch, muscle tone, and body awareness (proprioception);
and through smell (which is very important) and—though rather rare in a therapeutic context—through taste.
Thoughts and mental imagery play a significant role in this process at the level of quantum information, serving as a bridge between already established patterns of world-perception and new modes of perception yet to be created. It is this very diversity that constitutes the beauty of successful psychotherapy.

In trauma therapy, grounding is central. Grounding signifies both physical stability—as opposed to collapse—and a connection to reality, specifically to the "earth" around us. It is extremely rare to achieve this solely through words, and even then, it is possible only if there already exist sufficiently stable neural networks established through concrete past experiences of being grounded. In most cases, immediate bodily experience is required—involving specific postures within the gravitational field—alongside the sense of being emotionally held within the therapeutic relationship. In this process, the resonance of the therapist's (bodily) posture—mediated through the neuronal mirror system—plays a crucial role for the patient. The therapist's positive state of being is reflected, more or less unconsciously, in the patient's bodily resonance. If the therapist is stably grounded—radiating positive strength and resilience through their posture and actions—this serves as a vital resource for the patient. This interplay of resonances resembles a shared dance, unfolding within a stimulating yet restorative and constructive atmosphere. This atmosphere neutralizes the distressing elements of the trauma complex and can be internalized by the patient—and neurally encoded—as a personal resource.
Trauma networks are generally very stable. This has fundamental consequences for the use of language in psychotherapy. When survival is at stake, thoughts alone—formed within the cerebral cortex—cannot alter a comprehensive trauma network deeply anchored in the basal survival structures; nor, therefore, can they alter a neurotic compensatory network. As previously described, quantum information—that is, information mediated via quantum entanglement—can only become effective if the system has been destabilized to such an extent that minimal energies are sufficient to induce a change in its organizational structures. These organizational structures must be destabilized by stimuli that are—in the synergetic

sense—energizing and thus destabilizing, and which influence the sensitivity of sensory systems (JACK PANKSEPP).
In cases of trauma, activation through words and thoughts alone is insufficient to bring about transitions from one state of order to another. Trauma cannot be treated without sensorimotor activation at the bodily level. Therefore, it is not enough to merely discuss traumatic content on an intellectual level—that is, solely to formulate thoughts and mental images. Trauma therapy takes this into account.
The **BASIC** concept applies here:
Behavior and **B**reathing (Brainstem and Basal Ganglia)
Affects/Feelings (Limbic System)
Sensing/Bodily Sensations (Proprioception across multiple levels) Imagination/Memory
Images (Cerebral Cortex) and, in summary:
Cognitions(Self-Attributions/Identity).
All these levels must be therapeutically addressed and activated through body-oriented therapy.

Therapy fuels order-to-order transitions. Therapy is applied synergetics.

In the language of synergetics, living systems are metastable. As living organisms, they are—on the one hand—in constant exchange of information with their environment; on the other hand, as systems, they must maintain themselves and remain in a state of order that is flexible yet stable, despite external influences. Living organisms achieve stability through demarcation from the outside and internal regulation. In higher organisms, neural networks—acting as information-processing systems—ensure a (meta)stable state of order. Feedback loops within the cells, as well as within the hormonal and neural networks, are central to this process.
To alter the states of order within metastable neuronal networks—and to surmount high "potential differences"—considerable "energy" is required; that is to say, extensive "firing" of neurons across all involved levels, not merely at the cognitive level. Indeed, KLAUS GRAVE (2004) —followed by the synergeticians HERMANN HAKEN and GÜNTER SCHIEPEK (2006) —employs metaphorical language to speak of "energy" and "potential landscapes," thereby taking up concepts that Bioenergetic Analysis intuitively attempts to articulate as "bio-energy," and Traditional Chinese Medicine as *Chi*.
In neurophysiological terms, this refers to meaningful neuronal excitation—or, more precisely, the meaningful "firing" of neurons. Indeed, the metabolic processes involved actually require chemical-electromagnetic "energy"—for instance, in the form of ATP—across all levels of organization. This has a measurable basis: in continuous operation, the brain consumes approximately 20% of the body's total glucose simply to keep "running."
Psychotherapy aims to alter states of order and seeks to achieve transitions between states of order—via "energizing"—through the stimulation of sensory channels. This is precisely what occurs in Bioenergetic Analysis. A wide variety of stimulation techniques engage the eyes, ears, kinesthetic perception, and sense of smell—and occasionally, taste.
The mental imagination of sensory impressions may indeed exert a top-down influence, flowing from the cerebral cortex into the body. This phenomenon is termed "embodiment"—loosely translated as the physical manifestation of imagination. Thoughts are inextricably linked with bodily memories. In the infant and toddler, the sequence of development begins with bodily activation, movement, and physical sensation; followed by the resonance of caregivers—the "gleam in the mother's eye"; then comes conscious awareness of these states; and finally, the linguistic constructs through which caregivers name the infant's resonance and affective states, thereby integrating them into a shared linguistic reality. Emotionally significant memories exist in a highly energetic state when they are retrieved; as such, they

can contribute to a transition from one state of order to another. Herein lies a therapeutic opportunity.

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However, due to the layered structure of neuronal organization, mental imagery rarely succeeds in reaching all the layers involved. Concrete sensorimotor stimulation is far more effective and charged with significantly greater excitation and energization of neuronal networks. High levels of excitation—and substantial potential differences—are required for transitions between ordered states. The more stable these ordered states are—and the more deeply ingrained the habitual patterns of posture and experience—the greater the degree of activation required.

When highly emotionally charged experiences already exist within previously established, pre-stored networks, imagery and linguistic figures can serve to address these networks. This is particularly relevant for the recall of "resource states"—states of inner strength and resilience—which, once activated in this manner, can come into contact with the dysfunctional patterns residing in networks formed by "traumatic" experiences (trauma complexes); in doing so, they can effectively "envelop" or "weave themselves into" these trauma-complex networks, embedding them within a new, positive experiential context. Stable trauma networks are activated through the act of remembering, thereby shifting into a higher, "labile" potential state; subsequently, they are linked with a resource network and re-stored within a new, superior state of organization. The trauma network has become "different"—less threatening, more clearly defined, consciously integrated into one's self-perception, and interwoven with resource-based experiences—effectively becoming "neutralized." As such alternative networks are created or reinforced, the nature of the memory associated with distressing trauma complexes undergoes a transformation. Consequently, these "old" memories can be re-stored within a new, constructive context—that is, as a newly organized state embedded within a positively altered, expanded network. They have been "digested"; they now belong strictly to the "past" and no longer exert any significant—or indeed any—determining influence over the present. What was once an actively triggering trauma network has now been transformed into merely one among many (unpleasant) memories—an integral, yet no longer dominant, part of one's personal history.

The body as a holistic system—including its sense of identity—possesses an inherent tendency to stabilize itself, always with the aim of ensuring survival. This tendency may be described as a self-healing capacity, and it is deeply embedded within our genetic makeup. Life itself seeks to stabilize itself within states of healthy order. The communication governing this process is anchored both materially—within the body's physical structures—and at the quantum level. Life is characterized by a quantum information process mediated by biophotons. Within this quantum information process lie alternative possibilities to the survival patterns that have hitherto become established facts within the neural networks. These new possibilities can, to varying degrees of functionality, ensure the organism's survival in previously unknown situations.

One thing is clear: the aspects of the system that have already become established—typically the neuronal networks—must be sufficiently labile or open to accommodate these quantum possibilities. In a therapeutic setting, given appropriate sensorimotor activation, these basal neuronal networks can give rise to new, more functional, and healthier states of organization. Only then do new states of organization and changes emerge holistically, rather than being retroactively projected onto the body's physical state in a top-down manner. Instead, anchored within the deeper levels of organization, they rise into consciousness from the bottom up. These new states of organization or patterns must then be accepted—through a process of conscious awareness—by the thoughts and self-attributions residing in the higher-level structures. Fitting new self-attributions must, as it were, be integrated into this new, altered identity.

Identity

Consciousness is information about the information stored within the information system that we call the "body" or "organism" (the living body). As described, however, this entire informational configuration requires the prior creation of a unified gestalt—a holistic form—which is brought about through the merging ("binding") of various sensory qualities. This act of association—this "binding"—is a highly complex and demanding task for the brain; it is by no means a self-evident process. As long as our brain functions properly, we scarcely notice this work it performs. Thus, unconsciously and continuously—operating in self-repeating "loops" within neuronal networks—we construct a more or less accurate image of both inner and outer reality: an image sufficiently complete to ensure our survival as individuals. We create an identity for ourselves.

Under conditions of extreme stress, blood flow to the cerebral cortex becomes impaired. Consequently, the brain becomes overwhelmed and unable to construct a unified experiential gestalt. We undergo primary dissociation. At times, we become consciously aware of this as depersonalization and derealization. Depersonalization signifies the loss of the unified experiential gestalt of our self. In depersonalization, our sense of identity—which is in a state of perpetual formation—is disrupted. We become estranged from ourselves—that is, from our consciously perceiving "I." In derealization, the construction of an internally consistent experiential gestalt of external reality is disrupted. We are no longer able to establish an internally coherent quantum information process—one that is experienced by our perceiving consciousness as "our identity" or our "I."

Memory contents within long-term memory are encoded onto the molecular and synaptic structures of our neural networks and are stored in this manner. This mnemonic information constitutes a part of our psyche; it defines our identity. When these molecular and synaptic structures are activated, the memory contents encoded within them are transferred onto neuronally generated real and virtual photons—onto light and ion currents (Coulomb forces)—and are thereby introduced into the quantum information space. This activation can be triggered by information incoming via the sensory organs, but also by thoughts, mental images, and acts of imagination. This process invariably involves the participation of photons acting as information carriers. The photons generated through this neuronal activation carry information which, in turn, stimulates the activation of further memory contents—contents that are then likewise transferred onto photons. Complexes of photons are formed, bearing meaningful information and capable of becoming entangled to form overarching, coherent states of quantum information. An entangled quantum information field emerges, composed of complexes replete with meaningful informational content. These meaningful informational complexes govern our life processes; yet, they also give birth to new thoughts and mental images—thus engaging in creative activity. The newly generated photons open up a quantum information space offering novel possibilities—possibilities that, initially, exist only virtually.

In psychotherapy, these thoughts and mental images are also referred to as psychological "objects." As information, these psychological objects can switch their information carriers, yet they remain constant as psychological "objects" for a certain duration. They can transfer to other real photons—and even to virtual photons—which, in classical electromagnetism, corresponds to the Coulomb force, and thereby to ion fluxes and the "firing" of neurons. In living systems, countless photons are continuously emitted and subsequently reabsorbed—a process that, at the quantum level, corresponds to a quantum information process. At any given moment, it is a different set of photons that carries the information of these psychological objects. The information processed by the psyche in this manner is inherently meaningful, or else meaning is ascribed to it. What constitutes "meaningful" is determined on the basis of incoming sensory data. The new information entering via the sensory organs combines with the information already present within an entangled quantum state; this alters In quantum physics, one therefore speaks of (new) spaces of possibility at the quantum level. Whether these new possibilities become factual—that is, actually realized in reality—depends on a "measurement process," which can be understood, in simplified terms, as the selection and fixation upon one specific possibility from the virtual space of possibilities. In living organisms, this selection is largely predetermined by neuronal patterns and feedback loops, which sustain vital processes and present the system with proven survival options. However, not all biological processes in living organisms are so strictly determined by molecular and neuronal factors that new "paths" cannot be taken; otherwise, most organisms would perish very quickly in the face of changing environmental conditions. Higher organisms—such as mammals—can also incorporate experiences stored virtually in their thoughts and mental imagery into their decision-making framework; indeed, they can even learn from one another and communicate among themselves regarding their experiences with various possibilities—for instance, in the context of foraging and food selection, hunting strategies, and tool use. the state, thereby creating a new state accompanied by new possibilities.
For us humans—as *Homo sapiens*, the "knowing human"—these possibilities for decision-making are at times a matter of conscious awareness, enabling us to exercise our "free will" to determine which option we imaginatively project into the future as "the best." Naturally, however, our decisions are profoundly influenced by the specific neuronal states, emotions, moods, and other internal conditions prevailing at that very moment. Our will is not quite so "free" after all. Nevertheless, since the rational prefrontal cortex—acting as our "decision-making authority"—possesses a certain degree of independence from the limbic system (the "emotional brain"), we can—provided we possess sufficient self-awareness—override these emotions and moods to a significant extent, assuming, of course, that our decision-making faculty is sufficiently trained.

"Quantum Healing," Quantum Physics, and Consciousness

The term "quantum healing" is nonsensical. Quanta can neither heal nor do they need to be healed. Information can heal. It is the meaningful information—transmitted by light quanta acting as information carriers—that, passing from person to person, can alter the information system of living beings. For this reason, I speak of Information Medicine. Life is a vast complex of meaning and is likely very rare in the cosmos. In living organisms, meaning constitutes meaningful information at the meta-level—meaningful for survival, and meaningful for conscious life.

THOMAS and BRIGITTE GÖNITZ have established a quantum-physical foundation for information medicine as well as for the emergence and possibility of consciousness (e.g., *Der kreative Kosmos* [2002], *Von der Quantenphysik zum Bewusstsein* [2016]). The

cosmos, they posit, evolved from life all the way to human consciousness. Based on the fundamental premise of Absolute Quantum Information (AQI), quantum information was introduced as an absolute physical quantity, and its equivalence to mass and energy was demonstrated. AQI—as the fundamental information unit, the "quantum bit"—can be understood both as a primordial precursor to matter and as the fundamental form of thought. Thoughts, too, consist of information.

We are familiar with the fundamental "digital" unit of information—the bit—from computer science: zero or one, yes or no, plus or minus, positive or negative, up or down, right- or left-spinning, and so on. This represents a choice between two possibilities. A single bit acquires meaning only within the context or framework of many other bits. No computer expert would ever conceive of equating the information contained within a software program with the hardware—that is, the concrete, material computing instrument itself. The information processed by a software program creates new information and new interconnections. A hardware error can certainly lead to problems and malfunctions in software, and may manifest itself within the software—much in the same way that a malfunction of the brain can manifest itself in the "psyche," or subjective experience.
The evolution of the cosmos gives rise to information processing for the purpose of survival. For GÖRNITZ, a quantum-physical information process constitutes the essence of life. Should this information process come to a halt, the result is death. This quantum information process distinguishes living beings from inanimate matter. The evolution of life continued; nervous systems and brains emerged. With *Homo sapiens*, arguably the most complex form of biological—that is, living—information processing to date came into existence: namely, that of conscious and even linguistically communicable reflection. Human beings process information about information. We are able to consciously "observe" ourselves as we live, and even communicate these observations to one another. Information about information: this is possible only upon a quantum-physical information foundation—for only quantum information systems are capable of self-reflection. The psyche is information at the level of quantum information.
Consciousness is quantum information that experiences and knows itself.
A memory content is an indivisible whole distributed across many neurons, which can be viewed physically as a property of a totality of mutually entangled, coherent photons. Entangled photon properties, together with their tensor products, form indivisible part-wholes. Consciousness emerges as a form of quantum information so extensive that a part can capture the essential contents of the whole, analogous to a hologram.
In conjunction with anatomical structures, ions and molecules serve as the carriers of information stored as memory. Photons act as the carriers of information activated during psychological processes. Psychological processes are, fundamentally, information processes. Within the biological realm, what is perceived and thought exerts a reciprocal influence upon neuronal networks. This distinguishes living systems from hardware-based computers. Consequently—according to GÖRNITZ—it is appropriate to speak of "**Uniware**." The "Uniware" system implies that every instance of information processing within a living organism is inextricably linked to metabolic processes. Ultimately, every metabolic process also exerts an influence on psychological phenomena. Neuronal networks serve as the tools for information processing. Like any tool, these networks predispose—defining certain possibilities while precluding others. In doing so, they generate an information structure—a perceptual pattern—that serves as the foundation for our model of reality. The activation of a network entails the transfer of the information contained therein onto real photons (light) and virtual photons (Coulomb forces, ionic motion). Through this mechanism, the information becomes destabilized, rendered dynamic, and made accessible for further processing.
Thoughts can alter psychological patterns, for they are information.

However, thoughts can modify the information within psychological patterns only as long as they remain entangled—within a quantum information process—with the information of the existing patterns. The entire quantum information process is thereby activated, and the patterns become destabilized. Within this new quantum information space of entanglements, new possibilities for information combinations emerge. The entangled quantum information process becomes creative. A crucial point here is this: thoughts can alter psychological patterns only if they have not yet solidified into facts—that is, in the form of structural changes to molecules and the synapses of neuronal networks.

Thoughts devoid of emotional involvement—that is, without activating the neuronal networks of the limbic system—can be highly useful for exploring spaces of possibility. Thoughts can be creative tools for solving problems at a purely conceptual level. This constitutes the great evolutionary advantage (and curse) of the human being: we can construct entire conceptual edifices within our quantum spaces of possibility, without initially having to concern ourselves with the repercussions for our bodies or our environment. Rational thoughts need not be intertwined with emotions; indeed, such a connection would likely prove disruptive to mathematical and technical reasoning. Fundamentally, it is, at first, merely a "game" played with possibilities. Yet even this game can trigger emotions and physical sensations—for instance, a sense of "excitement" over a "brilliant idea" or the perceived "beauty" of a logical derivation. This becomes particularly relevant in the context of psychotherapy when "old" experiential and memory traces are simultaneously activated—in a quantum sense—thereby rendering them accessible for reconsolidation. Emotional patterns can only be altered by new emotional patterns when the old patterns are currently active; similarly, old motor patterns can only be overwritten by new ones under these same conditions.

The relational history of emotions and movement patterns must be simultaneously present. All meaningful memory is emotional and held significance in the past. These "old" emotions imbued past experiences with such profound meaning that they were deemed worthy of being stored—indeed, worthy of survival. Furthermore, any new quantum information process must be emotionally significant and grounded in the concrete environment of survival; otherwise, it remains mere intellectual speculation—lacking the necessary "grounding," the physicality, and the resonance within the holistic, body-wide quantum information process. Psychotherapy truly begins only when the psychophysical totality is activated at the quantum level, thereby rendering existing patterns labile. Only at this juncture do transitions from one state of order to another become possible. Merely speaking *about* memories—while failing to allow the associated emotions to enter the conscious process—is psychotherapeutically unproductive. Such an approach would lack the quantum information regarding the body's actual state—information that is absolutely indispensable for the emergence of new, more productive life patterns. Stated conversely: within the psychotherapeutic setting, the specific patterns—which are factually encoded within the memory system—must be activated at the quantum level. The more stable a given pattern is, the greater the degree of physical activation required across all levels. Quantum physics is the physics of possibilities. With his model positing the quantum information process as the fundamental basis of all life, Görnitz has offered a worldview that carves out a legitimate space for "will"—conceived as a physical possibility—within our broader understanding of both the world and the self. "Will," in this context, signifies a "measurement process"—specifically, the act of selecting from among the various possibilities that present themselves within the quantum information space. This concept is fundamentally incompatible with determinism. We are not machines.

Wealth is frequently equated solely with the consumption of material resources.

Given a vast and ever-growing global population, this is no longer compatible—nor acceptable—within the context of a healthy, balanced environment. In contrast, meaningful information is, in principle, infinitely reproducible. Naturally, the fundamental material and energy prerequisites for human survival—namely food, clothing, and shelter—must be

secured for everyone. Yet, discussions regarding income and wealth typically fail to distinguish between the basic income required to ensure survival and the well-being that extends beyond it. Experiences, intellectual assets—such as creativity, culture, art, and science—as well as physical sensations, the sheer joy of movement, and social connections can generate at least as much meaning, happiness, and well-being as the consumption of material objects.

The Chatbot: your "friend and helper," your "therapist."

As described, for living beings, meaning—and their relationship to the environment and to fellow creatures—is fundamental. Meaningful information is significant for survival, and significant for conscious life: "**This** means something to **me**!" This is what **I** feel, do, and think. The "me" is the observing, conscious part of the quantum information process—the part that observes itself, along with all its meaningful information, thereby creating an "**I** see **myself**," but also an "**I** see **you**!" "**I** see **myself**" creates identity. "**I** see **you**" creates relationship.
"**You** mean something to **me**!" That is what relationship is. Relationships never exist solely on the linguistic level. Or, to put it another way: purely verbal exchange is abstract, stripped of physicality, and ill-suited to the sentient human being who inhabits a body. It lacks the reciprocal communication and resonance facilitated by the neuronal mirror system. Resonance takes place on the bodily level. Observe the interaction between a mother and her baby: the baby does not utter a single word, yet it is in resonance with its mother. And vice versa: the mother mirrors the baby's movements, vocalizations, and moods in a myriad of ways. This is demonstrated in the extreme in the "Still-Face Experiment": if the physically present mother fails to respond to the baby's manifold non-verbal bids for contact—if her face remains expressionless (or if she is looking at her phone)—the baby becomes increasingly distressed. If it is true that psychotherapy functions through relationship, then "communication" with a chatbot (such as ChatGPT) can never constitute therapy. Artificially generated linguistic messages—whether written or spoken—are invariably based solely on abstract linguistic fragments, assembled by AI according to probabilities. Even emotion recognition relies on language models—encoded linguistically and processed statistically. The emotion-recognition software reads statistically evaluated micro-movements within the body and face. These "recognized" emotions are then fed back and communicated linguistically, as if the chatbot were a "real" friend. We associate specific emotions with specific linguistic figures. While the chatbot's "language" may indeed stimulate imaginary mental constructs in the listener or reader, these are subsequently projected back into our emotional system in a top-down manner (embodiment). "Relationship" is merely simulated. It is a perfect, self-reinforcing system! Fundamentally, however, this constitutes manipulation—not empathy—no matter how "real" or potent it may seem, much like a movie on television or a tutorial video on YouTube. What is missing is the non-verbal, reciprocal bodily resonance and mirroring. A loss of physicality implies a loss of the capacity for empathy. Empathy consists, in large part, of *Einfühlung*—the act of feeling one's way into another. Feeling is a physical process. Resonance mediated by the neuronal mirror system (the mirror neuron system) entails the neuronal activation of the motor system—of bodily movement and posture—thereby creating a resonance of *Einstellung* (mental set or attitude): a resonance within one's inner disposition, and a resonance within one's physical stance and posture.
Chatbots are "intelligent" linguistic simulations. Chatbots are only as "intelligent" as self-help books—and whatever other thoughts and fabrications happen to be circulating on the internet. AI is only as "sensible" as its training data. Thousands—millions—of self-help books, podcasts, and scholarly treatises undoubtedly contain the condensed rational knowledge of

humanity. Yet they are not living counterparts capable of truly connecting with us—with resonance and empathy.

A loss of physicality entails a loss of the capacity for empathy. Empathy consists, in large part, of the act of feeling into another—of attunement. Feeling is a physical process. Resonance mediated by the neuronal mirror system constitutes the neuronal activation of the motor mirror-neuron system—of body movement and posture—thereby giving rise to attitudinal resonance: resonance in one's stance, resonance in one's physical bearing and posture, and resonance in one's overall state of being. The recognition of another person's inner state is a function of this neuronal mirroring mechanism—specifically, of the interconnections within the mirror-neuron network and the consequent entanglement of the quantum information systems of two individuals. This constitutes the very purpose of the neuronal mirroring function: to foster connection and understanding.

A chatbot possesses no inner state.

A chatbot has no muscles, no posture, no neural mirror system. A chatbot possesses only linguistic snippets—stock phrases regarding inner states. These "zombie friends" possess neither subjective experience nor consciousness of their own. Yet, by means of "clever quips," they are capable of feigning consciousness. Even if AI were someday to advance beyond merely reciting statistically filtered self-help platitudes, it would at best be able to simulate behavior analogous to reason—but under no circumstances genuine fellow-feeling or empathy. In the realm of the living, by contrast, energetic and material substrates mutually influence one another—mediated through entangled quantum information systems—extending even to the formation or retraction of filopodia and synapses. Technical systems neither possess filopodia and synapses, nor are they capable of such mutual influencing. Technical information processing is based on classical logic, which is formulated into mathematical algorithms. Everything is strictly deterministic. In contrast, the quantum interconnections of biological information processing create a certain scope for freedom. Quantum theory demonstrates that, in nature, facts are never fully and invariably causally linked. Consequently, nature opens up the possibility of free volitional decisions. Quantum systems open up spaces of possibility.

Consciousness, in turn, enables the formation of concepts regarding future possibilities and—through decisions—the ability to influence future facts. "Measurements" allow possibilities to become facts, to the exclusion of other discarded possibilities. This is particularly important in social and economic contexts. Responsibility arises from freedom of decision. Artificial intelligence will never be able to assume responsibility.

One of the therapist's most critical tasks is identifying a patient's blind spots. This is comparable to the role of a management consultant. Recognizing blind spots requires years of specialized training. How, then, is a chatbot—which responds solely to verbal inquiries or prompts—supposed to detect blind spots within a patient's non-verbal communication? Furthermore, how could a chatbot convey these blind spots to the patient in a manner so carefully calibrated and empathetic that the patient is able to accept this new information, rather than retreating into conscious or unconscious resistance against a challenge to their established patterns of communication and worldview?

One future day, AI—aided by cameras and perhaps even by the monitoring of physiological parameters such as heart rate, skin conductivity ("lie detector"), respiration, and micro-movements—will record the patient's myriad non-verbal reactions and cross-reference them against a vast database of standard images; this will include identifying statistically significant incongruities—instances where written or spoken responses fail to align with physical reactions. Drawing upon millions of stored standard questions, the AI will select standard answers based on decision trees (algorithms). Whatever lies beyond the scope of these decision trees remains in the dark—a blind spot, remaining in the realm of the unconscious. And even today, this very process of selection is being brutally manipulated and exploited

within so-called social media. The addictive potential of social media already constitutes a massive problem.

Integrating the complex system of visual observation, tactile information, bodily resonance, vocal interpretation, and linguistic data into a coherent structure of perception and meaning is known as social learning. Children with typical development require years to acquire the basics of empathic communication and imbue them with meaning. Mastering the independent formation of relationships takes decades—if not an entire lifetime. Guiding children and adolescents through this process, and serving as compassionate "training partners," constitutes the greatest challenge for parents, educators, and teachers.

Many fail at this, despite tens of thousands of hours of interaction. Social learning represents the great challenge for human beings as social creatures. It entails a widely underestimated fundamental competence: the perception of impulses, emotions, and states of mind—as well as the socially acceptable management and adaptation of these inner states to social requirements. As a social being, the individual cannot simply give free rein to their impulses of anger and desire; doing so clashes with the needs and freedoms of others. Unfettered self-expression destroys community. The drives for self-preservation and the preservation of the species must be controlled, balanced and sublimated. That is culture; that is civilization.