Research Article ISSN 2689-1069

Clinical Reviews & Cases

# Further Applications of the Implied Directive Utilized by Milton Erickson, M.D. in the Continuing Integration of Quantum Physics with Clinical Hypnosis

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**Received:** 11 Apr 2026; **Accepted:** 12 May 2026; **Published:** 23 May 2026

**Citation:** Bruce Gregory. Further Applications of the Implied Directive Utilized by Milton Erickson, M.D. in the Continuing Integration of Quantum Physics with Clinical Hypnosis. Clin Rev Cases. 2026; 8(1): 1-12.

## ABSTRACT

*The primary focus of this article is to illustrate how Milton Erickson M.D.'s consciousness of appreciation reflected in his resistance protocol advanced the integration of clinical hypnosis with Quantum Physics. Numerous examples will be provided that show how Erickson's interventions had parallels with the major quantum variables and concepts. Erickson's appreciation of inferences, opposites, and frame of reference will be highlighted in his utilization of time in his treatment interventions. A review of efforts to integrate Quantum Physics with Psychology will emphasize the overlaps between Erickson and the French mathematician and physicist Poincare in terms of the value of the unconscious, time and permission. Time's role in the evolution of hypnosis and Quantum Physics will complement the integration section. The implied directive will be explored in the context of it being a subset of the general set of all inferences. A detailed summary will be provided of the inferences operating in a hypnotherapeutic setting in terms of their value in facilitating bridges to novelty, 'yes sets' and the creative focusing of attention.*

## Keywords

Implied directive, Consciousness, Appreciation, Opposites, Quantum physics, Time, Being, Time distortion.

## Introduction

It is important to remember and appreciate that the evolution of psychotherapy, of which clinical hypnosis is an integral part, has taken considerable time to evolve, just as it has with other disciplines, including mathematics and physics. For example, the discovery of the unconscious is generally credited to Leibnitz, one of the founders of calculus, along with Newton, in the early 1700s. However, it is known that both Egyptian and Greek ceremonies would use trances for healing and divine connection. The Egyptian rites took place around 3300 B.C. and the Greek rites around 300 B.C. From the early 1700s it took over 200 years for Jung in 1916 to identify the transcendent function, an unconscious process, which integrated the conscious and unconscious. Following that, it took almost another 100 years until Kandel won the Nobel Prize in medicine for his work identifying the mechanisms within the hippocampus that drove much of this integration.

These mechanisms validated;

- The need for novelty
- The importance of the polarity of the old vs. new
- The capacity of unconscious resources [1-5].

The purpose of this article is to promote new directions in research in clinical hypnosis, drawing on the work of Milton Erickson, M.D., the founder of the American Journal of Clinical Hypnosis and the vast data of clinical interventions and results from his work. These new directions unfold in the context of the continuing integration of psychology, primarily through the work of Milton Erickson, M.D., with Quantum Physics.

Erickson's published works, and videos of his demonstrations provided breakthroughs in understanding what was going on in the hypnotherapeutic process, which had been initially identified by Braid in 1846. The understanding of the hypnotherapeutic process was explored by a variety of professionals and perspectives for almost a hundred years before Erickson started publishing his work around 1930. Braid, who is considered the father of hypnosis, first

thought hypnosis was a state of sleep, but later recognized that certain hypnotic phenomena like amnesia and anesthesia could be facilitated without sleep. Braid also recognized that unconscious processes could be activated by eye fixation, implying that the focusing of attention was a core variable in facilitating the transformation of consciousness. Janet focused on automatic writing in dealing with dissociations operating as a result of post-traumatic stress.

**Later researchers reflected different views about hypnosis.**

- Charcot was the head of the Salpetriere school and focused on dealing with hysteria and promoted that hypnosis was a passive process.
- Bernheim, head of the Nancy school, took the opposite position, advocating that hypnosis was an active state, driven by suggestion [4,6].
- Freud, who studied with both Charcot and Bernheim, dismissed the value of hypnosis, arguing that it didn't support the gaining of insight, or promote long term healing.
- Pavlov, a Russian physiologist, asserted that hypnosis was a physiological state of deep sleep.
- Hull, an American psychologist, conceptualized hypnosis as a psychological stage of deep suggestibility, and involved learning.

This was a period when hypnosis was still being explored, often misunderstood and criticized, and was focused on suggestibility.

## Milton Erickson and the effectiveness of indirect suggestion

Erickson published his first article on hypnosis in 1932. His early writings focused on experimental studies exploring the phenomena that could be facilitated through hypnosis. These included; sensory and perceptual changes; amnesia, age regression, automatic writing, and hypnotically induced deafness, blindness and color vision. While being strongly Influenced by Hull, he learned rigorous experimental procedures. In spite of the value of the procedures Erickson had objected to Hull's rigid standardized methods, arguing that each patient needed to be treated as an individual. In addition, Erickson objected to Hull's only seeing hypnosis as a passive process from the patient's perspective. Erickson took the debate over whether hypnosis was an active or passive process a step further, showing that hypnosis was both an active and passive process. He integrated both perspectives with his naturalistic, utilization method that incorporated a wide range of indirect suggestions. Further, he identified that direct suggestions often increased resistance, while indirect suggestions had the opposite effect [7-9].

Erickson's repertoire of indirection suggestions completed the other side of the polarity between direct and indirect suggestions, while providing a series of implications that were transformative to the understanding of the treatment process. These implications were driven by Erickson's appreciation of the implied directive, which can be understood in mathematical terms as a subset of the set of all inferences. His approach rested on two core implications; trust the unconscious, and, *recognize, value and utilize inference*s in the facilitation of unconscious problem solving and healing processes. Inferences are the driving force behind the effectiveness of the interspersal approach, one of the key indirect suggestion tools. Erickson referred to inferences as 'the implied directive'. It bears noting that the utilization of inferences lies at the foundation of mathematics, which is the backbone of classical and quantum physics. Erickson's perspective on the role and value of the implied directive is below;

'An understanding of how Erickson uses implication will provide us with the clearest model of his indirect approach to hypnotic suggestion. Since his use of 'implication' may involve something more than the typical dictionary definition of the term, we will assume that he may be developing a special form of 'psychological implication' in his work. For Erickson, psychological implication is a key that automatically turns the tumblers of a patient's associative processes into predictable patterns without awareness of how it happened. The implied thought or response seems to come up autonomously within patients, as if it were their own response rather than a suggestion initiated by the therapist. Psychological implication is thus a way for structuring and directing a patient's associative processes when they cannot do it for themselves. The therapeutic use of this approach is obvious. If patients have problems because of the limitations of their ability to utilize their own resources, then implications are a way of bypassing these limitations' [10].

It is important to appreciate that the implied directive implied an acknowledgment of the power of resistance, and that the structures of language could be utilized to transform it.

One additional way this inference can be utilized is by recognizing that Erickson was communicating; trust the unconscious and its capacity to receive, and respond in ways that are consistent with the patient's treatment goals. Perhaps Erickson's trust of the unconscious was facilitated partially by his medical training which exposed him to literally trillions upon trillions of resources active within the unconscious that Rossi identified in detail [4,11,12]. We will see shortly that this trust of the unconscious and its capacity lies at the core of the overlap between Quantum Physics and Erickson's treatment methodology.

## Origins of overlap between Quantum Physics and Psychology

The roots of the integration of Quantum Physics and Psychology are often traced to the friendship and collaboration between Wolfgang Pauli, one of the founders of Quantum Physics, and C.G. Jung, the Swiss psychiatrist, who founded depth psychology, placing the healing potentials of the unconscious at the core of the treatment process. Jung's theory of opposites had parallels with Heisenberg's uncertainty principle and Bohr's complementary principle. Jung's appreciation of synchronicity, the role of time, mirrored the value of time expressed in the Lorentz Transformation, Einstein's Special Relativity, and the Dirac equation [13]. In addition, the principle of synchronicity implied the possibilities of connection which were reflected by the quantum principles of superposition and quantum entanglement. Pauli maintained that quantum mechanics

was incomplete and needed the insights of psychology and the utilization of the unconscious to complete itself [14,15].

The core of the integration of Psychology with Quantum Physics, however, can be traced to the work of the French mathematician and physicist Henri Poincare [4,16]. In *Science and Hypothesis* [16], Poincare identified the relationship between the natural sciences and the unconscious. Poincare recognized that there were four primary stages in the scientific discovery process; preparation, incubation, illumination, and integration. The preparation stage involved *conscious* consideration and *permission* to explore and identify the relevant variables in the issue being addressed. The incubation stage was the allowing of time for the unconscious to process the considerations of the preparation stage. Illumination referred to the output provided by the unconscious, while integration appreciated the need for time to process and digest the results. Poincare recognized that the unconscious played a fundamental role in the incubation stage, without explicitly identifying what networks of physiological resources/ structures were being utilized. Poincare wrote;

"There is another remark to be made about the conditions of this unconscious work; it is possible, and of a certainty it is only fruitful, if it is on the one hand preceded and on the other hand followed by a period of conscious work (stages one and four). These sudden inspirations (stage 3) never happen except after some days of voluntary effort which has appeared absolutely fruitless, and whence nothing good seems to have come, where the way taken seems totally astray. These efforts then have not been as sterile as one thinks, they have set a going the unconscious machinery (stage 2/incubation) and without them it would not have moved and would have produced nothing.

The subliminal self is in no way inferior to the conscious self; it is not purely automatic; it is capable of discernment; it has tact, delicacy; it knows how to choose, to divine. What do I say? It knows better how to divine than the conscious self, since it succeeds where that has failed." [16].

As such, Poincare's insight and trust of the unconscious predated Jung's recognition of the unconscious' healing capacity [3,4]. Further, in summary, Poincare was implicitly recognizing the value of permission, depth, the role of polarities, and the partnership needs between the conscious and the unconscious minds. These four themes were consistently evidenced by Milton Erickson's consciousness of appreciation as we shall see shortly.

Around the time Poincare was recognizing the value and capacity of the unconscious and the necessity for trusting it, he was making the corrections to the Lorentz transformation.

Poincare's corrections of the Lorentz transformation were done in 1905 and were important contributions to the development of Quantum Physics. While the collaboration between Jung and Pauli and Erickson's Resistance Protocol were the main examples of the integration of Quantum Physics and Psychology, there were other significant efforts supporting this integration.

Mindell [17] stressed the role of the shamanic perspective and appreciation of 'dreaming' in the integration of psychology and physics, while contrasting the perspectives of classical physics and quantum physics. Mindell appreciated the possibilities mathematics contained, implicitly incorporating aspects of relativity, multi embedded metaphors and indirect associative focusing [7,8] for facilitating the transformation of consciousness [17]. Goswamy emphasized the role of creativity and the appreciation of a consciousness of non-locality which reflected quantum states of interconnectedness.

Rossi and Rossi [18] identified how the interference patterns in self-reflective dreaming were similar to the interference patterns of the double-slit experiment for electrons. Rossi and Rossi also noted how Bayesian probability and its application to quantum physics was very similar to the concept of expectancy in hypnosis. Wolf [19] emphasized the role of observation in the measurement process by noting the impact on neurobiological processes. Wolf neglected to recognize the role of the consciousness of the professional in the focusing of attention around what was attended to and responded to, which we will see was the core variable operating within Erickson's Resistance Protocol.

For the purposes of this article which focuses on the applications of the appreciation of time, of which Einstein's breakthrough with special relativity was revolutionary, it is important to recognize the significant breakthroughs of 19$^{th}$ century physics. Nineteenth century physics laid the foundation for what was to become Quantum Physics, and the time that was necessary to achieve them. The birth of Quantum Mechanics came in stages that followed Maxwell's discovery of the link between electric and magnetic forces around 1865. Maxwell's breakthrough followed approximately a hundred years of research involving electricity and magnetism which supported the recognition and appreciation of the electromagnetic force. Coulomb demonstrated by experiment in 1785 that the inverse square law applied to electrical currents. In 1820 Ampere identified the formula for the angular dependence between the current element, and identified that electrical currents produced magnetic fields, which laid the basis for electromagnetism; Faraday developed the idea of lines of force in 1831. In 1835 Gauss discovered two laws used by Maxwell in his equations. All of these explorations and discoveries reflected an *appreciation of structure*, and an implicit recognition of the value of depth, the need for bridges, the value of the electron, and abundant subsets for both sources of comfort, and possibilities for novelty.

The link between the electric and magnetic forces, expressed in Maxwell's equations, which were sets of partial differential equations, recognized the electromagnetic force as the force that carried *waves*, which included light waves, radio waves, and X-rays, depending on the wavelength, and the invariant, non-changing speed of light. In psychological terms, the equation implied and recognized the potential value of waves as a subset of comfort, a possibility for facilitating novelty, and a valuable resource for creatively focusing attention [20-23].

## Quantum Physics: Development, core variables and principles

Quantum Physics is the area of physics that deals with the microscopic features of the universe and life, by focusing on the behavior of the fundamental particles and the *implications* of their applications. The primary discoveries in Quantum Physics came from the exploration of the hydrogen atom and the electron around it. Max Planck is considered the father of Quantum Physics for his work done in 1900 on black body radiation. Planck discovered that the energy released from black box radiation came in discrete, not continuous, packets called quanta. This laid the foundation for quantum mechanics. His work was highlighted by the equation; E=hv, with h being the Planck constant and v standing for frequency. Planck received the Nobel prize in Physics for his work in 1918. The equation, like Maxwell's, Bohr's equation for the quantum condition and the Lorentz Transformation, contained a series of implications for psychotherapeutic treatment, primarily around sources of comfort, the facilitation of novelty, and the utilization of opposites.

These implications included;

- The small, or micro, has value.
- Structure has value.
- Waves have value.
- Structure and waves are subsets of the sources of comfort.

These applications will be discussed in the integration section, and the section containing the Erickson Resistance Protocol [24].

Einstein expanded quantum theory in 1905, describing the photoelectric effect which viewed light as a particle, not as a wave as Maxwell had shown. In 1913 Neils Bohr discovered the quantum model of the atom, in which he identified the dynamics of the electron orbits. Bohr discovered that electrons emitted and absorbed light in discrete amounts when they changed orbits, either going further out from the nucleus, or closer to it.

The work of de Broglie in 1924 completed the first stage of development. In 1924 de Broglie showed that all matter was composed of waves, implying that the electron was also a wave.

De Broglie won the Nobel Prize for this discovery in 1929. His work established that Lambda(wavelength) = h/p, with h standing for the Planck constant, and p representing momentum. The equation demonstrated a connection between momentum, which is associated with particles, and wavelength, which is associated with waves. This equation provided the basis for the Schrodinger equation [25,26].

Quantum Physics was developed in the 1920s by Schrodinger, Heisenberg, Pauli and Dirac. It was developed through the study of the behavior of the electron, one of the fundamental particles of the universe, a carrier of the electromagnetic force, along with the photon. The equations developed identified the key variables and principles operating on the micro level of the universe, revealing the main components of the structure of the universe at that level. We will explore in the next section how Erickson's consciousness of appreciation allowed him to utilize these variables and principles to creatively focus attention and facilitate unconscious healing processes.

Figures 1-4 are the main equations of Quantum Physics:

- Schrodinger Equation
- Heisenberg Equation
- Heisenberg Uncertainty Principle
- Dirac Equation

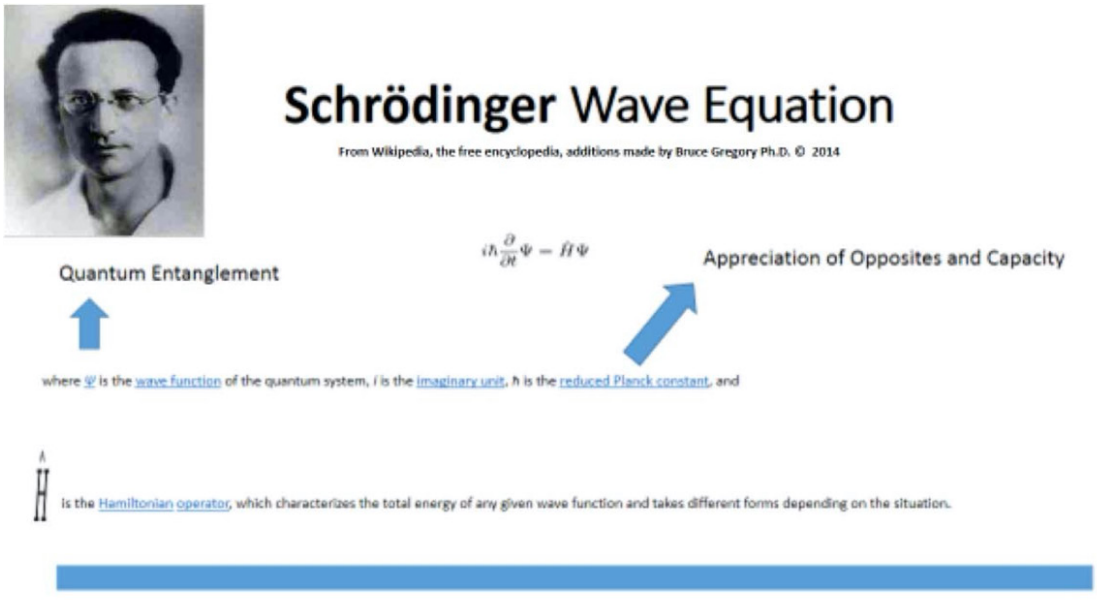


**Figure 1:** en.wikipedia.org/wiki/Schrödinger_equation, August 12, 2014 additions by Bruce Gregory Ph.D. © 2014.

These equations provide the mathematical and scientific empirical validation of the value of the unconscious resources operating at the depth of the quantum level. In terms of depth these equations answer the question; what are the sources of the comfort, and their relationship with each other. From an inference perspective, endless possibilities are opened up for *focusing attention creatively* once *yes sets* are established for the variables of the equations and the concepts contained within the equations. These possibilities will be addressed in the section on inference. Further, they imply more possibilities for appreciating and utilizing structure to focus attention, as they function mathematically as subsets of structure. They contain the inferences that support building the bridges to access deeper forms of comfort and healing. Erickson recognized that the receiving of comfort had levels of depth that unfolded through a progression. He identified this progress as; relaxation, comfort, enjoyment and delight [7]. The Schrodinger equation describes the behavior of the electron as a wave, including the core variables reflecting the structure of the universe at the quantum level. The core variables are: time, space, position, momentum and motion. The role and value of the terms 'I', and h/bar, which is the reduced Planck constant, will be discussed in the inference section in terms of metaphorical treatment with the interspersal approach to address mood disorders and symptoms from imbalances in the pressure/permission polarity. Within the Schrodinger equation were the principles of superposition and quantum entanglement, the bedrocks of quantum physics. Superposition meant that before a measurement was made the electron could be in an infinite amount of possible positions.

Quantum entanglement meant that electrons could remain connected at vast distances, implying the capacity for connection, and connecting at the deepest of levels. This further implied the question; what were the bridges, stages, and needs for making these connections?

Heisenberg Uncertainty Principle

$$\sigma_x \sigma_p \geq \frac{\hbar}{2}$$

**Figure 2:** en.wikipedia.org/wiki/Heisenberg_picture, August 12, 2014.

The Heisenberg Uncertainty Principle showed that the more one knew about the electron's momentum, the less one would know about its position. This equation mathematically validates the need for uncertainty, thereby providing permission for not knowing at the quantum level of depth. In addition, it reinforces the importance of momentum, supplying support for appreciating its relevance in terms of the containment of resistance, a prerequisite for the transformation of consciousness. In the next section that covers the Erickson Resistance Protocol examples will be provided reflecting how Erickson applied these themes to focus attention, transform resistance into receptivity, and support unconscious healing processes.

When seen as complementing the Schrodinger equation by treating the electron as a particle instead of as a wave, the Heisenberg equation mathematically validates the capacity to address either/ or issues of splitting, which often interferes with conflict situations with couples and organizations. When the professional trusts its value, it can be utilized to expand trust in the capacity to explore, and access creative alternatives to either/ or thinking at deeper levels.

$$\frac{d}{dt}A(t) = \frac{i}{\hbar}[H, A(t)] + \frac{\partial A}{\partial t},$$

**Figure 3:** Heisenberg equation [26].

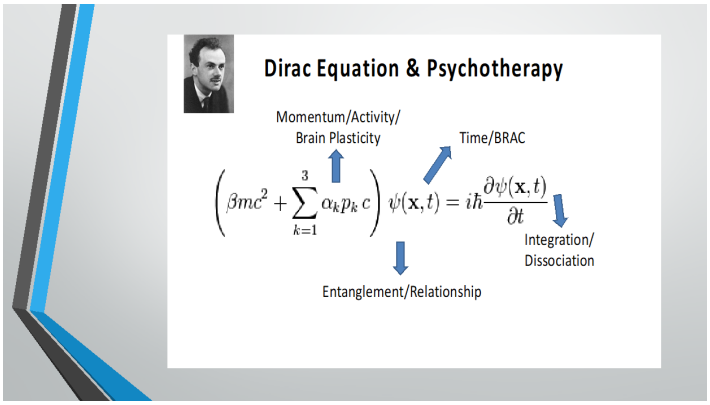


**Figure 4:** en.wikipidia.org/wiki The Dirac equation, additions by Bruce Gregory, Ph.D.©2014.

The Dirac equation (Figure 4) integrated quantum mechanics with special relativity, inaugurating what is now known as quantum field theory. In doing so, Dirac combined core elements of the structure of the universe from a macro portion with the core elements of micro portion of the universe. This was accomplished by integrating the Lorentz transformation utilized in Einstein's special relativity with Schrodinger's wave equation and by adding the momentum operator that would become so fundamental in Erickson's resistance protocol [27,28]. Further, by integrating the worlds of the large and small into one equation, the Dirac equation created another opposite that could be employed in activity dependent gene expression. With this integration of the large and the small the role of depth in the structure of the universe became more validated, valued, and magnified. Many of the technological advances of the 20th century were made from applications of the Dirac equation. These included: PET scans, lasers, MRIs, and semiconductors.

## Erickson Resistance Protocol

Erickson's Resistance Protocol was published in 1964, over a decade before his first book, *Hypnotic Realities* was published. This protocol embodied many of the core elements of Erickson's approach to treatment. His ability to consistently utilize and transform resistance into receptivity was what made Erickson distinct from almost all other mental health professionals. This

ability to transform resistance was a reflection of Erickson's *consciousness of appreciation*. Erickson appreciated opposites, their role in treatment, and how they could be worked with. One of the main opposites he appreciated was resistance and receptivity. He appreciated the inferences related to both. He appreciated that resistance was a force with momentum, and that it, like other aspects of a patient's experience, could be utilized. More important, the resistance was understood as 'not being bad', but a reflection of the best choice the patient could make at the time, and an opportunity for the therapist to creatively contain it [7-9,29].

Erickson's appreciation of the additional variables fundamental to treatment guided his choices in creatively focusing patients' attention. In his resistance protocol [29] this focusing of attention can be divided into stages which are represented by Figure 5.

The stages reflect thinking in terms of an *organized structure*, implying the value of structure, and further implying that structure is a source of comfort. Erickson would structure his treatment plans around an individual's life experiences and needs in relationship to them. Erickson was appreciating the role of individual differences, and how validating these differences creatively would support the transformation of resistance into receptivity. Simultaneously, Erickson would make a bridge to the role of the unconscious, and would progressively utilize a variety of tools/structures to facilitate a yes set and a response set to the unconscious [7]. These psychological structures included; truisms, the opposites of not knowing/knowing; doing/ not doing, positive possibilities for outcomes, possibilities for focusing attention, appreciation of the structure of time/pacing, metaphor, confusion, and shock. Erickson appreciated that time was needed to build a momentum for the patient's responsiveness. This appreciation contained the inferences that time had value, was needed, and there were vast possibilities for utilizing time. This appreciation represented an integration application of the value of the momentum operator inferred in the Dirac equation in figure 4 above. He developed a variety of structures for utilizing time that reflected mathematical thinking in terms of set theory and group theory. These structures for utilizing time will be discussed in the next section.

The following quote, from Erickson's Resistance Protocol illustrates Erickson's mathematical appreciation of the need of the resistance to be validated. Erickson did not view the resistance as a flat surface, needing only one repetition, but a force having a number of levels, requiring multiple repetitions of validation.

"You have come for therapy, you have requested hypnosis, and the history you have given of your problem leads me to believe strongly that hypnosis will help you. However, you state more convincingly that you are a resistant hypnotic subject that others have failed despite prolonged efforts to induce a trance, that various techniques have been of no avail, and that reputable men have discredited hypnosis for you and as a therapeutic aid in and of itself. You have frankly expressed your conviction that I cannot induce a trance in you, and with equal frankness you have stated that you are convinced that you will resist all attempts at hypnosis and that this resistance will be, despite your earnest desire and effort to cooperate".

The above quote illustrates that Erickson's appreciation of resistance included an appreciation that it was a force with momentum, that needed repeated doses of validation to transform

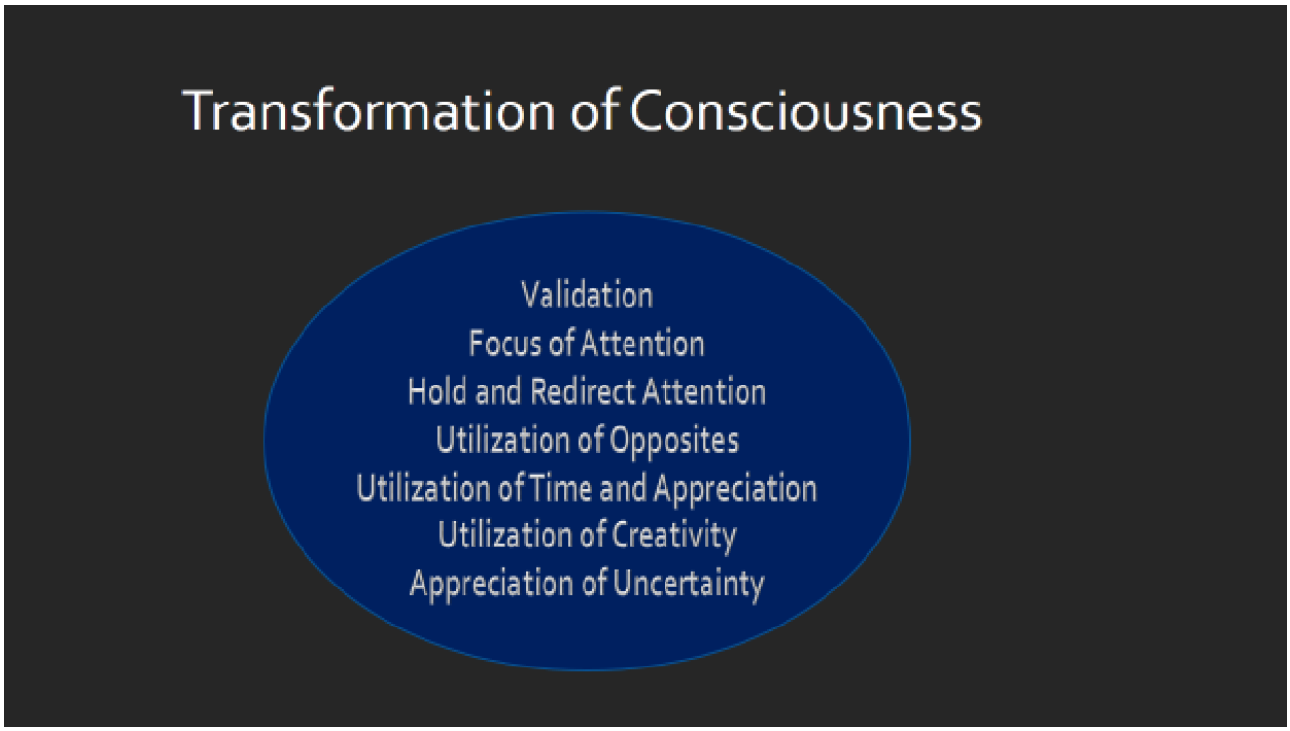


**Figure 5:** Organization of Erickson Resistance Protocol. © 2014 Bruce Gregory, Ph.D.

that momentum. Without explicitly referring to it, Erickson was acknowledging one of the implications of the Dirac equation with its incorporation of the momentum operator, that recognized its fundamental role in the structure of the universe.

Figure 6 represents a biological model of some of the core consciousness variables Erickson was appreciating during the treatment processes. Each of these variables can be considered atoms from a metaphorical perspective.

The following quote from the Erickson Resistance protocol is an example of Erickson applying core variables and principles from Quantum Physics through appreciation of time, opposites, possibilities, and uncertainty. This was complemented by his utilization of set theory which deals with categories, and group theory, which deals with permutations around a theme that maintain structure.

"In other words, I will ask a question to which only your unconscious mind can give the answer, and concerning which your conscious mind can only guess if it does at all; maybe correctly, maybe wrongly, or maybe have only some kind of opinion, but if so, only an opinion, not an answer.

Before I ask that question, I would like to suggest two possibilities. (1) Your conscious mind might want to know the answer. (2) Your unconscious mind might not want you to know the answer. My feeling, and I think you will agree, is that you came here for therapy for reasons out of the reach of your conscious mind. Therefore, I think that we should approach this matter of the question I am going to put to your unconscious mind for its own answer in such a way that your own deep unconscious wishes to withhold the answer or to share the answer with your conscious mind are adequately protected and respected.

Now, to meet your needs, I am going to ask that yes or no question, and be prepared to be pleased to let your unconscious mind answer, and in doing so either to share the answer with your conscious mind or to withhold it, whatever your unconscious mind thinks to be the better course. The essential thing, of course, is the answer, not the sharing nor the withholding. This is because any withholding will actually be only for the immediate present, since the therapeutic gains you will make will eventually disclose the answer to you at the time your unconscious minds regards as most suitable and helpful to you. Thus you can look forward to knowing the answer sooner or later, and your conscious desires, as well as your unconscious desires, are the seeking of therapy and the meeting of your needs in the right way at the right time".

"An unconscious mind response is different, because you do not know what it is to be. You have to wait for it to happen, and consciously you cannot know whether it will be 'yes' or 'no'. It does not need to be in accord with the conscious answer that can be present simultaneously in accord with your conscious mind's thinking. You will have to wait, and perhaps wait and wait, to let it happen. And it will happen in its own time and at its own speed".

In the above Erickson demonstrated an appreciation of the consciousness of group theory by creatively permuting the polarity between the conscious and unconscious, the polarity between knowing and not knowing, and the quantum variables (time, space, motion, momentum, position, and uncertainty) [30-33].

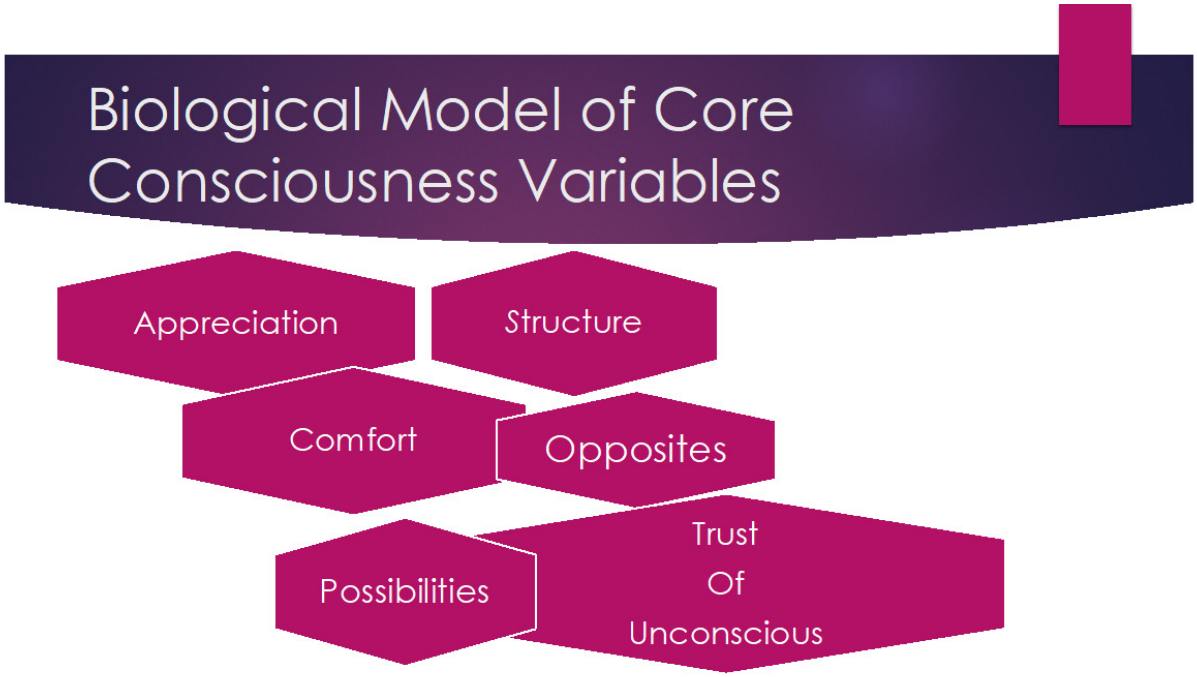


**Figure 6:** Biological Model of Core Consciousness Variables © 2025 Bruce Gregory, Ph.D.

In terms of set theory, Erickson was appreciating and utilizing subsets of possibilities, which reflect the qualities of superposition in the quantum world, and subsets of transformational structures. In terms of the consciousness of appreciation, Erickson was appreciating all of the above, including the creative focusing of attention, one of the core variables in the transformation of consciousness, martial arts, and classical music theory [34,35]. Erickson's choices, which were natural consequences of the quality of his consciousness of what he appreciated, reflected parallels with two major components of quantum physics; superposition, and the collapse of the wave function laid out in the Schrodinger equation. The principle of superposition reflects a scientific and mathematical validation of the value and incorporation of 'infinite possibilities' in the structure of the universe and life. The logic of superposition had been worked out in 150 A.D. by the Buddhist philosopher, Nagarjuna, in his work, the Madmamayika [36].

The collapse of the wave function is made through observation. Erickson's choices of where he focused attention functioned as the observation collapsing the infinite possibilities of choices that a professional can conceivably make during treatment in any given moment. In terms of treatment value, by trusting and utilizing 'infinite possibilities', attention is being given metaphorically to the polarity between hopelessness and hope, one of the core dynamics in the treatment of the depression mood disorders, and the catastrophic thinking component of the anxiety mood disorders.

From a set theory perspective, a subset of the consciousness of appreciation is the *consciousness of possibilities*. A subset of the consciousness of possibilities is the possibilities of structure. The quote below from the Erickson protocol is another example of the application of the appreciation of possibilities.

"Now I don't really care if you listen to me with your conscious mind, because it doesn't understand your problem anyway, or you wouldn't be here, so I just want to talk to your unconscious mind because it's here and close enough to hear me, so you can let your conscious mind listen to the street noises or the plane's overhead or the typing in the next room. Or you can think about any thought that comes into your conscious mind, systematic thoughts, random thought because all I want to do is talk to your unconscious mind, and it will listen to me, because it is within hearing distance even if your conscious mind does get bored. Just be comfortable while I am talking to your unconscious mind, since I don't care what your conscious mind does".

In additional to going back and forth between the conscious/unconscious polarity, Erickson was valuing the need for permission, trusting the value of possibilities, valuing time and the taking of it. The message to the unconscious was; time is valuable, you can take it, you can use it, we are using it now, your unconscious knows about its value and how to access its resources.

## Erickson's Utilization of Time

By incorporating Special Relativity and the Lorentz Transformation, the Dirac Equation, discovered in 1928, was recognizing the role and value of time, and the implications that accompanied this recognition [27]. The primary inference was that time had value, and was somehow a part of the mechanisms that facilitate comfort, problem solving and healing. Simultaneously, it provided the scientific evidence that frame of reference mattered, at a fundamental level in the structure of the universe. It is noteworthy that Erickson utilized reframing as one of his primary interventions to facilitate receptivity [7,8].

The Dirac equation reinforced Einstein's breakthrough in special relativity, which had resolved Leibnitz's and Newton's argument about the nature of time. Newton had argued that time was absolute and unchangeable, while Leibnitz posited that time was simply a bookkeeping mechanism. Both had been wrong. The scientific validation of the work of Lorentz, Einstein, and Dirac all implied that time, a fundamental variable in the structure of the universe, and life, could be a source of comfort. It should be noted that Galileo, considered to be the father of modern science, also took this position in 1632. Galileo's thought experiment on the relative nature of time is presented in the quote below.

"Shut yourself up with some friends in the main cabin below deck on some large ship, and have with you some flies, butterflies, and other small flying animals. Have a large bowl of water with some fish in it: hang up a bottle that empties drop by drop into a wide vessel beneath it. With the ship standing still, observe carefully how the little animals fly with equal speed to all sides of the cabin. The fish swim indifferently in all directions; the drops fall into the vessel beneath; and, in throwing something to your friend, you need throw it no more strongly in one direction than another, the distances being equal; jumping with your feet together, you pass equal spaces in every direction. When you have observed all these things carefully, have the ship proceed with any speed you like, so long as the motion is uniform, and not fluctuating this way and that. You will discover not even the least change in all the effects named, nor could you tell from any of them whether the ship was moving or standing still".

His famous "ship experiment" implies that, without outside reference, a clock ticks at the same rate in a cabin regardless of the ship's steady motion.

Nine ways Erickson utilized time will be presented. In order for a professional to utilize a tool the primary requirement is that the professional have a 'yes set' for that tool, whether the tool is the unconscious, indirect suggestion, or reframing. One of the primary ways to build a yes set for a theme or tool is to consider it in terms of set theory, which was developed by Cantor in 1873 [34], and is considered the foundation of mathematics. Simply put, one would consider the types of time that might be possible. These include: past, present, future time; absolute, relative time; linear, non-linear time; condensed versus expanded time: and from a Buddhist perspective, lower time and Great Time [37]. Drawing upon the discoveries of Jung, Neitzsche, Hegel, the Greeks, the Taoists, and the Buddhists, time can also be viewed in terms of opposites. Viewing time in terms of opposites opens up a variety of treatment

processes identified by Jung, Perls, Rossi and others, that have been validated by Kandel and his colleagues in their work on the mechanisms of the hippocampus, the Kreb cycle, and neurogenesis [3,5,18,38]. From an existential, philosophical perspective, time's value was recognized by the Buddhist philosopher Nagarjuna in the *Madmamayika* [36] in the doctrine of dependent origination. Through rigorous logic that examined the relationship and implications between past, present and future time it was shown by Nagarjuna that time was one of the primary sources of experience. The term dependent origination reflects that conclusion.

Erickson's utilization of time can be understood as a consequence of his appreciation of opposites and possibilities, both of which were core components of his resistance protocol. This was enhanced by his appreciation of the time parameters of the autonomic nervous system.

Simply put, when the sympathetic nervous system was active time would speed up, but when the parasympathetic system was active time would slow down. The ways Erickson utilized time are summarized below.

- Taking up to seven hours to train patients in hypnotic responsiveness before initiating treatment.
- Taking extended amounts of time to prepare inductions going from 15 pages to 7, then 5, then 3, and finally one page that encapsulated the core components.
- Pacing
- Pseudo orientation in the future
- Age regression
- Pausing
- Time distortion
- The cadence of his delivery was slow and even
- Erickson would often have extended sessions with his patients to take advantage of the ultradian rhythm, which recognized that every 90-120 minutes brain chemistry would change, making patients more receptive to parasympathetic states.

Erickson's taking of seven hours to train patients in developing hypnotic phenomena was an appreciation of Ebbinghaus' learning curve. Erickson appreciated that patients needed time to learn to trust that they could be receptive, trust the professional to be sensitive to their needs, trust they could connect to the unconscious, trust the capacity of the unconscious, trust that they wouldn't be pressured, and trust that there was enough time. He applied the same process to himself when learning the core variables of the induction process. He took the time; he broke it into stages; he explored, hunted and repeated, over and over. He was trusting time, trusting his need for time, and trusting his resources.

Pacing was one of Erickson's main tools. He took the time to match breathing patterns, nonverbal cues, validate resistance, and utilize truisms to build rapport, trust, and enhance receptivity and responsiveness. The simple intervention, 'that's right', acknowledged the patient's receptivity, receiving and capacity simultaneously. More importantly it inferred that there was time for receiving, receiving was valuable, and that there were levels for receiving.

Erickson's recognition of this progression was; relaxation, comfort, enjoyment and delight [7].

Pseudo-orientation in the future [7] and age regression [39] were two ways that Erickson utilized opposite components of time to increase trust in resources, creatively problem solve, reduce fears, regulate moods, and increase self- esteem.

Pausing was utilized by Erickson to interrupt rigid patterns, facilitate confusion, and enhance receptivity. The main inference here was that time had a variety of uses, which included bridging to unconscious problem solving and healing processes.

Erickson provided many case histories of time distortion from both sides of the polarity between time condensation and time expansion. Time condensation helped with experiences of pain and frustration, while time expansion supported accelerated problem solving.

## Inferences and Therapeutic Applications

What was not in the articles and books was clearly demonstrated throughout the videos of Erickson's work; his demeanor. There was no rush, no pressure. The message was creatively communicated and repeated, over and over; we have time, I am interested, you have capacity, and there are limits to what your conscious mind can do. These messages implied questions, which include:

- What does the unconscious know about time?
- Are there specific genes for utilizing time as a resource?
- Are there certain areas of the brain that are more active when time is being utilized?
- How does the use of time affect the endocrine and immune systems?
- How does the use of time impact inflammations?

## For patients

- What was your experience of time?
- Did you ever replay the experience in slow motion?
- Did you ever replay the experience at an accelerated speed?
- Did you ever replay the experience backwards?
- Have you imagined being in the future and looking back at the experience?
- Have you ever observed the experience from above, or below, or any one of a multitude of different angles?
- Questions like the ones above, when *delivered slowly* with *trust of their value*, can facilitate novelty in the patient.

The experience of novelty in general can interrupt rigid, chronic patterns of processing experience that sustain positions of helplessness, hopelessness and victimhood and replace them with experiences of receptiveness, curiosity and hope which can facilitate unconscious healing processes, activity dependent gene expression and neurogenesis [7, 12, 40]. Most patients are either *fused* with their frame of reference and/or *unaware of the possibilities and implications of frame of reference* [7,9]. Novelty

in terms of one's frame of reference begins the development of a yes set [7] for frame of reference, in addition to opening up possibilities for new forms of comfort in relationship to position, space and time, all important factors in the treatment of trauma and addiction. Figure 7 illustrates the progression of stages in the application of frame of reference.

When the consciousness of appreciation is applied to inferences, we can identify a number of inferences with respect to time. The first, and most important inference, is that a patient's position with respect to time, that of being a victim of time, can be transformed. This is the foundation of the Ericksonian approach, that a patient's experience of being a victim of a certain set of experiences can be transformed into one of learning, problem solving and empowerment through the accessing of unconscious resources and previous experiential learnings. A number of inferences emerge from the foundational inference.

They include, along with the basic accessing questions that promote unconscious searches [7,11];

- The unconscious has information and strategies to address this problem.
- What needs attention to transform an 'old' experience of time, and one's relationship with it, to a 'new' experience of time, and a 'new' relationship with it?
- The hippocampus has vast resources to facilitate new learning [5,12].
- What is an 'old', unsatisfying relationship with time based upon?
- Experiential learnings with respect to time can be explored.
- What experiences led to the conclusion that there isn't enough time?
- When a 'yes set' with time is established, the patient can receive from time.
- There will be many opportunities for creatively focusing attention around this theme.
- Linking time with receiving can facilitate new learning and new forms of comfort.

Figure 8 is one example of a progression of inferences

A summary of the inferences referenced in this article include:

- Unconscious is a structure embodying intelligence, knowledge and capacity.
- Unconscious is composed of substructures (set theory/ subsets).
- Substructures can be combined to creatively focus attention.
- Unconscious contain vast networks of structures designed for receiving.
- Receiving is dependent on time, and has stages and rhythms.
- Appreciation of structure and receiving can support the creative focusing of attention.
- Appreciation of receiving and time can support the increase of trust within professionals.
- Deepening the appreciation of structure can support more openings and possibilities.
- Openings and possibilities imply more novelty with respect to structure.
- Permission is a molecule supporting the appreciation of structure.
- Novelty is needed and has value.
- Appreciation of set theory and group theory support the utilization of structure in focusing attention.
- Appreciation and utilization of yes sets support the utilization

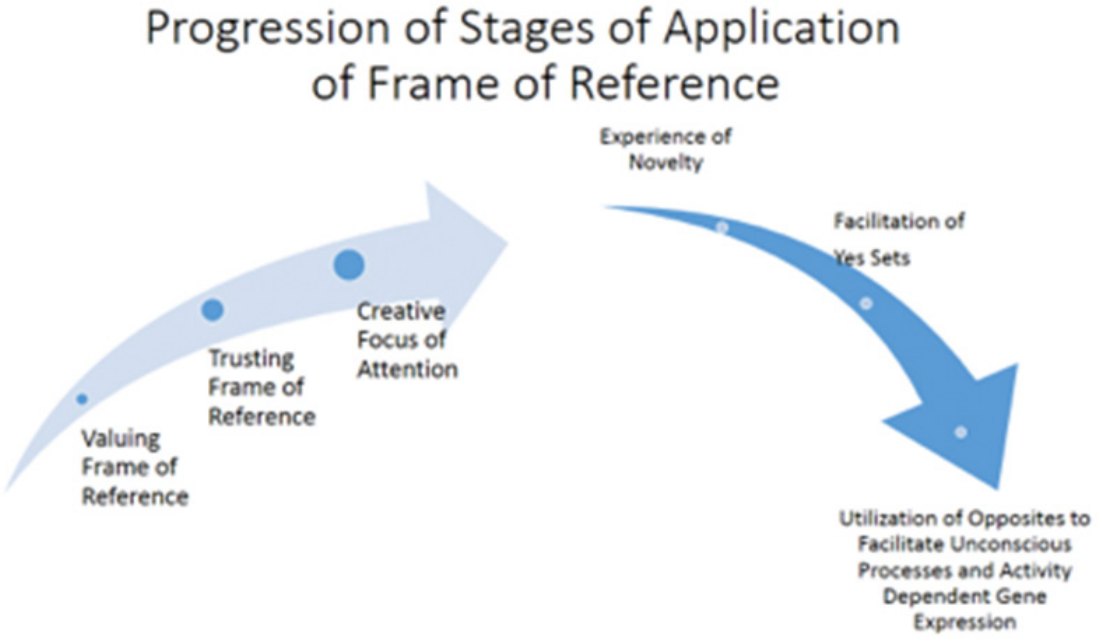


**Figure 7:** Progression of Stages. 2014 Bruce Gregory, Ph.D.

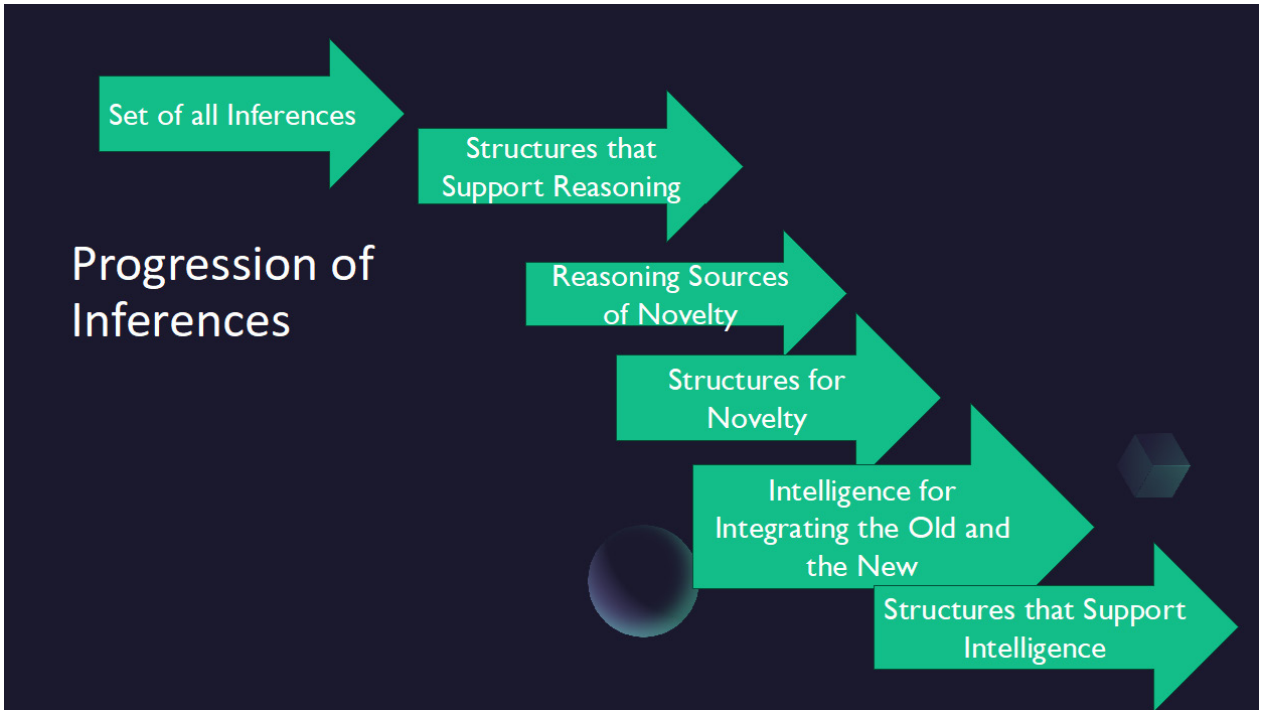


**Figure 8:** Progression of Inferences © 2025 Bruce Gregory, Ph.D.

of structure in focusing attention.

- Reasoning about inferences reflects an appreciation of structures, and the role of structures.
- Hidden patterns revealed through mathematics are bridges to deepening appreciation of structure.
- Using set theory and group theory we get the limits of structure and the possibilities of limits.
- The possibilities of creatively combining various structures which implies the possibilities of healing.

Additional inferences with respect to the integration of Quantum Physics with Clinical Hypnotherapy, and Psychology in general include:

- When a 'yes set' for the quantum variables is established, a vast amount of possibilities open for focusing attention creatively, facilitating unconscious healing processes, and learning to access new forms of comfort.
- The role of the imaginary number and the reduced Planck constant in the Schrodinger equation provide validation of the value of 'the small' as being a source of comfort. This complements research in the chaos theory branch of physics [4,41] in terms of critical phase transitions and the butterfly effect. The learning set and multi-embedded metaphor can be utilized through these variables to treat the pressure, anxiety, and depressive components of mood disorders.
- Integration of the appreciation of the momentum operator from the Dirac equation with Erickson's interventions with resistance, reveals a progression of time parameters for the experience of the patient with resistance, receptivity, responsiveness and receiving that can be explored and paced to support unconscious processes.
- The Lorentz Transformation within the Dirac equation can be applied through truisms, multi-embedded metaphor and reasoning to facilitate learning and 'yes sets' for the value of time, frames of reference, and motion.
- This paradigm has been worked in detail by Wilkes [42] in his step by step explanation of the derivation of the Lorentz transformation.

## Summary

This article has explored how Milton Erickson's Resistance Protocol can be utilized as a template for furthering the integration of Quantum Physics with Clinical Hypnotherapy, and Psychology in general. Numerous examples are provided illustrating Erickson's consciousness of appreciation in his implicit application of quantum variables and concepts in his interventions. Erickson's work is compared with the work of the French mathematician and physicist Poincare.

Erickson's appreciation and utilization of the implied directive in formulating indirect suggestions to bypass resistance and enhance receptivity is expanded to an appreciation of inference in general. Erickson's appreciation and utilization of time is highlighted, pointing to a need for more research in this area to establish experimentally the value of time in the treatment process. Possible directions for research in this area may include double blind studies where time is utilized in one research group, and not the other to assess what parts of the brain and what components of gene expression are being activated.

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