

Subluxation as a Social/Cultural Imitation: Resolving a Phylobiological Epiphenomenon

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Abstract — This is part one of a two part article. This article investigates the possibility of viewing subluxation as a part of a larger pattern of collective, survival-based adaptations common to every human being's ongoing growth and development. By examining personal connections to the "non-local" social self, it may be better understood as to why humans subluxate and how social patterns of adaptation through octal coding can be better recognized and regulated. This process reframes subluxation as a meme, a unit of cultural imitation, that possesses an unbounded capacity to be non-verbally communicated intra- and/or interpersonally. Chiropractic acknowledges that every nervous system is composed of a voluntary or phasic aspect, and an involuntary or tonal aspect. This ongoing "conversation" between these two divisions forms the tapestry of individual and collective existence.

Even at the core, humans remain social in nature. However, clinical chiropractic has historically focused on the evaluation of physical and/or mental levels of well-being as they relate to the indicators of the vertebral subluxation complex, (VSC). By viewing subluxation as a cultural undertow that extends beyond the borders of individual physical bodies, the chiropractor is free to work within the sphere of life common to both doctor and patient, that of social well-being. With both doctor and patient focusing on common targets for clinical outcomes, the emphasis shifts from normalizing the spine to optimizing nerve function for whole body benefits on both a personal and communal level. This article concludes with the theoretical rationale for a virtual adjustment, based on the evidence presented.

Key Words: Pattern recognition, cotention, ditenion, phylobiology, chaotic systems, emergence, virtual adjustment, non-locality, memes, stochastic resonance, cardiac coherence, recursion.

Introduction

The Primacy of Pattern Recognition as a Signature of Humanity

For the better part of the first one hundred years of chiropractic, practitioners relied on subjective indicators elicited from direct interaction with patients to assess for the presence, degree and severity of vertebral subluxation.¹ In the last decade, a shift has occurred, and more frequently both the practitioner and the public are turning to evidence-based criteria to

monitor clinical progress.² It is the central thesis of this paper to demonstrate that the binding force between these two approaches involves the recognition of patterns. Further, it is proposed that subluxation, as a process distinct from vertebral subluxation, works at both the organismic and symbolic levels of human interaction to innate patterns of adaptation that promote self-preservation. In this sense, the human body and the languages developed to recognize patterns through semantic and experiential mediums serve as reflecting mirrors that project the degree of coherence within each individual organism and humanity as a whole.

Before understanding the primacy of pattern recognition in human affairs, a further elucidation of subluxation is required. D.D. Palmer, the founder of chiropractic,³ was not the first to use the word subluxation.⁴ In fact, the word is used in the medical literature to literally mean a "partial dislocation."⁵ Chiropractic

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applied an additional connotation to subluxation that spoke of a neurological element.⁶ It is this aspect that interferes with the transmission of what was described as “mental impulses.”⁷ This connotation of subluxation was embodied in the model of vertebral subluxation proposed by the developer of chiropractic, B.J. Palmer. A vertebral subluxation had four components: misalignment of joint surfaces, occlusion of the intervertebral foramina, pressure to neural elements and interference to the mental impulse.⁸ While the concept of the “mental impulse” has not yet been studied, Boone and Dobson^{9,10} have discussed certain non-synaptic forms of information within and between nerves which may partially reflect the “mental-impulse.”

While evidence may continue to appear which adds to the description of the four components of Palmer’s hypothesis of vertebral subluxation, this paper investigates the nature of subluxation, which may influence the clinical application of chiropractic, as well as the direction future research takes in attempting to study the vertebral subluxation.

The Nature of Subluxation

In discussing the expansion of Palmer’s concept of the vertebral subluxation to include the nature of the subluxation as a theme, it is necessary to blend thought, language, and action at the biological and social/cultural levels of human interaction. This is accomplished by considering an integration of ideas and concepts.

Information based Process

Thus, it is at this juncture that the discussion of subluxation, is continued beyond the description of Palmer, first identifying the concept of information-based process. In that regard, Pribram¹¹ has elucidated the concept of information-based process in research on the role of language in the thought process. He offers this conclusion “...thought is a search through the distributed holographic memory for resolution of uncertainty, i.e., for acquisition of relevant information... Thought as search, is initiated (by the posterior mechanism of the brain) when a mismatch between input and memory is not resolved through action. Thought is maintained (by the fronto-limbic mechanism) until a more or less preset criterion for what is considered a match is met.”¹² Since the subluxation has traditionally been linked to the flow of information, it seems reasonable to consider it to have an information based process component which may be similar to that of the proposed thought process.

Natural Selection and Biological Imitation

The fields of sociobiology and evolutionary biology have proposed several theories that link the development of language to natural selection.¹³ Much of this study has been done by Pinker and Bloom. Their model dictates that the development of “specialization for grammar evolved by a conventional neo-Darwinian process.”¹⁴ Conversely, others have linked the evolution of language to social factors ranging from managing group dynamics, to symbolic communication and cognitive development.¹⁵ What these models share is the presupposition that genet-

ic transmission is required for the evolution of language to occur.

Imitation has also been studied relative to natural selection. It was investigated in 1896 by psychologist James Baldwin as one of several evolutionary mechanisms that could influence natural selection.¹⁶⁻²⁰ Baldwin summarizes what came to be called the Baldwin effect as follows — “...the highest phenomena of intelligence, including consciousness, the lessons of pleasure and pain, maternal instruction and imitation, culminate in the skillful performance of human volition and invention. All these instances are associated in the higher organisms, and all of them unite to keep the creature alive. ...In more modern terms, genes for learning and imitation will be favored by natural selection.”^{21,22} However, this still places the primacy of the replication process resulting in imitation within the constraints of the organism (genetic transmission).²³

It is at this point that subluxation, with its information-based signature, encounters a new form of human replication identified as “Social/Cultural imitation,” (SCI) that is not bound to genetic evolution.

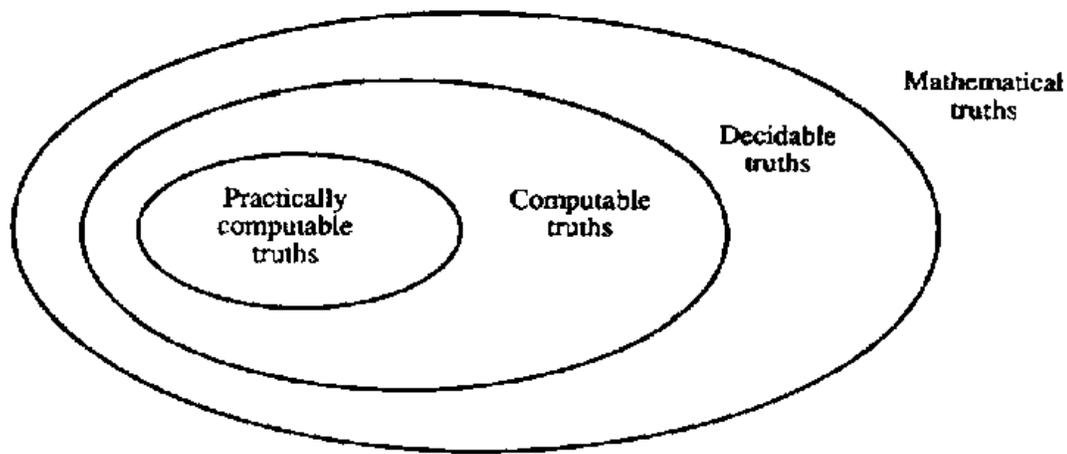
Social/Cultural Imitation

B.J. Palmer offered a similar approach to the influence of human behavior on biological integrity when he proposed the dynamics of accumulated positive survival value and accumulated negative survival value.²⁴ R.W. Stephenson, D.C. summarized this concept as follows, “Survival value is that positive value gained with every successful adaptation in organic structures...Survival value is the name of the unit of adaptational success, from a unit of mental force (mental impulse), in a unit of matter (tissue cell), when all losses have been deducted; therefore survival value is the unit element of evolution.”²⁵ Stephenson went on to discuss the role of the mental impulse with respect to physical personification. In discussing what was described as the Normal Complete Cycle, Stephenson describes it as a “the immaterial expressed in material” or “the physical representation of a mental creation.”²⁶

In the same manner, more profound thoughts (creations) of Innate Intelligence are expressed through the material of every tissue cell.²⁷ Conversely, Stephenson discussed the implications of subluxation with respect to physical personification in what was described as the Abnormal Complete Cycle. ‘From step 26’ the nerve no longer functions quietly, in carrying the ‘scrambled’ mental impulse....No longer a perfect assembled force of Innate’s, it now is a common universal force....hence there will be abnormal physical personification.”²⁸

The explanations above offer a transition for discussing subluxation apart from the realm of depersonalized biological interaction to an individuated social ensemble of selected verbal and non-verbal modes of communication.

As presented earlier, in order to lay the foundation of the thesis proposed in this paper is necessary to blend ideas of the processes involved in thought, language and action at the social and biological level. To this point, it has been identified that; (1) subluxation has both a literal and figurative use, which; (2) the model of vertebral subluxation embodies by including an immaterial component {disruption of the mental impulse}, and; (3) this repositions subluxation as both process-oriented and infor-



The realm of mathematical truths with its division into decidable and undecidable statements and a further subdivision of decidable truths into those whose shortest demonstration places them beyond human reach during the age of the Universe.

Figure 1: The Relationship Between Mathematical Reality and Human Computational Potential (Reprinted with permission of Little, Brown and Company © 1992)

mation-based, which; (4) brings it under the realm of language and thought, and this; (5) takes it beyond the boundary of biology (6) opening it up to be replicated through other mechanisms representing Social/Cultural imitation.

Memetic Driving

In 1976, Richard Dawkins proposed that humans had a second mechanism that worked in both concert and competition with the genes within the species. He called this new information transmitter a meme, which constituted a cultural unit of imitation.²⁹ Dawkins proposed that instead of working to promote the survival of the organism, memes work for their own replication, using the human brain, body, language and culture as vectors. This process is termed “memetic driving,” which is summarized as follows: “Once imitation arose three new processes could begin. First, memetic selection (that is the survival of some memes at the expense of others). Second, genetic selection for the ability to imitate the new memes (the best imitators of the best imitators have higher reproductive success). Third, genetic selection for mating with the best imitators.”³⁰ Relative to this concept, psychologist Albert Mehrabian³¹ established that approximately 93% of communication is non-verbal. This supports the idea of memetic driving. Also supportive of the idea of “memetic driving” is the work of Blum on Reward Deficiency Syndrome, (RDS).³² Like “memetic driving,” RDS proposes a genetic predisposition to alcoholism, and other addictive personality disorders such as obsessive-compulsive disorder (OCD) and attention-deficit disorder (ADD).

Patterns

Central to the thesis of this paper, it is proposed that the unifying force that binds the subjective and objective clinical indi-

cators of vertebral subluxation involves the recognition of patterns. By distinguishing subluxation as a process, hence considering its etiology and nature, from vertebral subluxation as a model, the focus is shifted to features of the concept of information-based transference. It has been evidenced that subluxation impacts health related quality of life (HRQOL).³³ Other authors have documented the negative implications of impaired HRQOL upon both individual and collective social well-being.^{34,35} By viewing subluxation as SCI, we can extend the notion of memetic driving to examine issues of social disharmony by information exchange.³⁶ Thus, a more detailed introduction to relevant fundamental socially-shared patterns is required.

Mathematical Patterns

The utility of abstract mathematical patterns by humans dates back to our earliest history and its potential is yet to be discovered.³⁷ The three-dimensional spatial awareness of humans (Figure 1), and its corresponding Cartesian coordinate system has provided chiropractic with a basis to elucidate elaborate models of the biomechanical aspects of subluxation. This process dates to the contributions of Pythagoras, who was instrumental in providing Western civilization with a system to relate form, number, color, music, and geometry with patterns.

Lawlor states, “We have bodily instruments which are consciously or unconsciously receptive to terrestrial and celestial milieu in many levels of frequency; these external environmental patterns trigger and guide, and to some degree control, the internal functions which unfold the metabolic time capsule of the electromagnetic body.”³⁸ Since this circumstance is shared among all human beings, mathematical models could prove to be an effective tool for chiropractors to track, measure, and quantify subluxation indicators. However, the provincial use of

mathematical patterns, by their object-oriented physical nature, may not fully complement the chiropractic assessment as there will always exist in human experience that which remains incomputable despite efforts to logically deduce them. For those experiences, other types of patterns must be considered.

Experiential Patterns

Webber and Zbilut describe the line between life and math as one with inherent boundaries: "The complexity and non-linearity of physiological systems typically defy comprehensive deterministic mathematical modeling, except from a statistical perspective. Living systems are governed by numerous interacting variables (high dimensional problem) with drifting parameters (non-stationary) in the presence of noise (internal and external perturbations)."³⁹ This realization leads to the examination of other underlying experiential patterns that together weave the biological ancestry of human beings into our everyday physical, mental and social interactions, rather than singularly focus on the biology of the individual.

That is, individual perceptions, memories, and feelings promote the biological imperative of diversity, as opposed to the individual's biology. ReMine concludes, "Diversity is the antithesis of lineage. Diversity destroys the semblance of lineage. Diversity places data points into those "void" regions. In my wording: Diversity thwarts phylogeny."⁴⁰ Although humanity shares a common physiology, on a social/cultural scale humans are diverse with an autonomy that the multiple languages and cultures emphasize.

The human brain is believed to contain a microcosm of the paradox between the diversity and commonality regarding the experiential patterns of the task-oriented nervous systems. Pribram's research on the brain's design, structure and function offers this insight when facing this conundrum, "...when the input poses problems that are poorly specified, the output from the central nervous system generator is critical. Due to the storage properties of the frontolimbic systems, the central generator becomes shaped by experience...On the basis of these central generators, computations proceed 'as if.'"⁴¹ Thus, even at the neurophysiological core, humans are designed to oscillate between biological abundance and the unique life experience.^{42,43}

Experiential patterns are believed to be used as reference points that monitor and regulate human behavior according to shifting psychophysiological thresholds. Pribram's work reveals that the central nervous system develops a rolling hierarchy that arranges our outward performance according to the task at hand. When confronted with a novel experience, the nervous system is reshaped by that encounter and the hierarchy is reconstructed. This process occurs so rapidly and at so many levels of the inner being, the aggregate perception seems unchanged as much of the activity occurs subcortically. Just as it is believed that the central nervous system develops teleologically, it is so believed that collective subjective experience is patterned from simple to complex as task-specific resources are mobilized. This process unfolds both within and between individuals.

This inherent meshing of prior, current and subsequent experiential patterns make the task of clinically monitoring

human performance challenging. Kondraske states, "...to measure performance, one must isolate the desired system and then stress it to the maximally along one dimension (or more, if interaction effects are desired) to determine performance resource availability."⁴⁴ As human performance becomes more clinically compelling, the constraint of isolating subsystems must be overcome to work with a subluxation-centered approach. To accomplish this, subluxation must be viewed as a state-dependant whole body adaptation and not limited to aberrant neuro-musculo-skeletal dynamics.

Delving deeper into experiential patterns, the more obvious it becomes that there are complex dynamical systems at the level of the individual.⁴⁵ However, socially-shared experiences give way to a more impersonal and self-less oriented interconnectedness. When the self/non-self boundary is dissolved, as when in a hypnotic or meditative state, experiential patterns are believed to be relayed through an expanded awareness. This is believed to provide a commonplace for other human beings to interact, exchange and share timelessly.

Linguistic Patterns

The shift from experiential patterns to descriptive linguistic patterns (symbolism), requires language to relate the human experience, including the concept of subluxation.

It is proposed that as human beings crossed-over from primarily instinctive, non-verbal communication to intellectual verbal modes of communication, a significant amount of the socially-shared "non-local" self was filtered out of awareness. What remains consists of an increasing order of inference and abstraction that develops over a period of years into a sense of consciously identifiable self, or "I"ness. Thus, the higher level of communication that occurs at a more flexible, non-verbal symbolic level gives way to a formal, syntactical lower linguistic level. Norretranders states, "Our sociolinguistic fellowship with one another is based on exchanges at sixteen bits a second. Our direct-natural fellowship with the world is based on exchanges within a bandwidth many millions of bits per second."⁴⁶

It is within this level of abstraction that higher cortical functions are finally integrated, unifying right and left hemisphere activity toward task-specific behavior. Penrose observed, "Whereas analytical thinking seems to be mainly the province of the left side of the brain, geometrical thinking is often argued to be the right side, so it is a very reasonable guess that a good deal of conscious mathematical activity does take place on the right!"⁴⁷ As recent research into neuro-physiology of the neocortex reveals, the polarity between image and word, to no surprise, is embedded in an overlapping network of chaotic (dynamical, non-linear) attractors.⁴⁸ As well, Calvin offers this resolution, "Phrase structure is presumably a matter of the coherent cortico-cortical links to contributing territories, having their own competitions and tendencies to die out if not reinforced by back-projecting codes."⁴⁹ Thus, as emphasized, the realm of the individual is that of a complex dynamical chaotic system, whereas socially shared experiences tend to be linked to cultural experiences, independent of our biological inheritance.

As mentioned, an archetypal language binds the body of humanity together at the higher level of non-verbal communication. Depending on whether there are outward relayed sub-cortical messages through a system of facial expressions, voice intonations and body gestures, or inwardly shared universal images at the level of dream states, there is a shift from the realm of symbolic union to the language of signing.

Perri's research revealed, "Neuroscience has more recently discovered that there are not only neural networks that function unconsciously in this regard, but that there are cells in specific brain locations that code for this information. For instance, the cells within the inferior temporal cortex provide an extensive alphabet of over 1300 or more codes which can be sequentially modified to specify the complex patterns associated with facial expressions."⁵⁰ This illustrates to this author that underlying our outward individuality lies another realm of shareable patterns or existential patterns. It is the coalescence of the mathematical patterns, the filtered boundaries of experiential patterns, and the symbolic distortions of linguistic patterns that give rise to the epiphenomenon of existential patterns.

Existential Patterns

The potential index of existential patterns offers human beings a wide range of expression. Through this expression communication with human beings, past, present, and future, incorporates the concepts discussed thus far. The resources of the spatiotemporal, chaotic, and symbolic realms converge to permit an evaluation of allowing humanity to assess its origins.

Despite the divergent nature of pursuing the meaning of existence, humans have developed pattern-based methods to explore some of the immaterial aspects of life. The intricacies of implicit memory have been studied within the realm of the neurosciences. One of the focal points of this research concerns the process of "priming." This unintentional form of learning straddles the bridge between familiar experience and its associated subliminal recollection. Schacter, studying the learning patterns of amnesic patients, states, "Amnesic patients have little or no episodic memory, but they often show normal priming. We concluded that the source of priming must lie outside the episodic system. But where?...Priming, like other kinds of implicit memory, operates invisibly. It is a silent part of our mental lives, but an important source of memory's fragile power."⁵¹ This illustrates how the immaterial nature of existence can impact the material nature of experience.⁵²⁻⁵⁴

Music, yet another cultural epiphenomenon, extends the impact of existential patterns into the symbolic realm of linguistic patterns. Jourdain, states, "Music mimics experience rather than symbolizes it. It carefully replicates the temporal patterns of interior feeling, surging in pitch or volume as they surge, ebbing as they ebb. It leads opposing forces into battle and then to reconciliation. Or it just moves in interesting ways."⁵⁵ The utility of music, similar to the utility of memory is embedded into the fabric of human existence. From our biological signaling to our physiological pulses, beats and rhythms to our psychological affects and on to our sociological interactions, the

dance of existential patterns binds these discontinuous scales of reference into a coherent wholeness.

As chiropractic embraces its cross-cultural philosophical advantage to bring this into clinical practice, the key revolves around reorienting both doctor and patient toward social well-being. By merging the autonomy of spinal neural integrity with the intimacy of "socially-shared health," chiropractic can usher in a new era of clinical competence that can extend outward to impact the culture.

The importance of pattern recognition relative to humanity brings with it messages from both the past and the future. With this comes some new perceptions. Stocking writes, "Because people are susceptible to patterns, people are endangered. Patterns cut both ways, to the survival and termination of the species. A predator uses the patterns of an animal to get dinner, but becomes susceptible to another predator by its patterns. A wolf may see the patterns of the deer, but in all likelihood it would be a much more successful species if it could see its own. Not seeing one's own patterns makes a species a sitting duck."⁵⁶ Capra as noted by Seem, states, "Like physicists [the new practitioner] may have to be content with a network of interlocking models, using different languages to describe different levels of reality. As we use different maps when we travel to different parts of the world, we would use different conceptual models on our journeys beyond space and time, through the inner world of the psyche."⁵⁷

Historical Basis for a "Socially-Shared" Subluxation

The Concept of Phylobiology and a "Non-Local" Social Self

The study of the intertwined relationship between humanity and its surroundings goes right to the core of chiropractic's focus, both clinically and philosophically. That fundamental process serves as the nervous system's priority on many scales of operation. The popular chiropractic expression, "above-down, inside-out," holds true whether you encounter it at the higher dimensional levels of "being" or the more mundane lower levels of everyday life.⁵⁸ The message is interpreted to be humans live as reflections of nature."

In order to shift the discussion regarding subluxation toward an awareness of its impact on humanity as a whole, the work of Burrow is important. Beginning in the early 1920's, what he originally termed "social self-inquiry" serves as a primer for a modern application, a "virtual adjustment."⁵⁹ The central thesis to this work revolved around the concept of "phylobiology," which was Burrow's term for a science of behavior that contains principles very similar to what chiropractic supports as its "major premise."

For Comparison:

Phylobiology — The science of behavior that studies the relation of the organism as a whole in its adaptation to the environment and to other organisms. Phylobiology posits a principle of functional unity and solidarity activating the behavior of individual and species.⁶⁰

The Major Premise — A Universal Intelligence is in all matter and continually gives to it all its properties and actions, thus maintaining it in existence.⁶¹

The overlapping message of a “universal intelligence” or a “functional unity” connecting “all matter, individual, and species,” giving it “all its properties and actions” illustrates the underlying philosophical nature of life in general.

Burrow’s work pursued what he termed “social neurosis,” which he described as the “...generic condition of which the individual manifestations of mental and nervous disorders, crime and social conflict are merely symptomatic expressions.”⁶² Since subluxation, as a process, reflects that conflict within individualized manifestations, it would follow that the cause of subluxation is rooted in social discord. Burrow focused on the advent of language, which he felt was the origin of modern social life for humanity, as the source for what he termed “*affect*, an artificial linkage between feeling and symbol, leading to an imbalance and distortion of inter-relational behavior.”⁶³ This split social communication between the realms of verbal and non-verbal, abstract and concrete, perceptual and sensory-specific. Language shifted humanity from a collective experience to a fragmented, symbolic one. It also created avenues for exchange that were not exclusively biological.

Burrow went on to explore what he called the “neurodynamics” of the affect of man as a whole. It was at this point that his work crossed over to the more somatic aspect of phylobiology. He discovered that the nature of “...the inter-relational disorders of man are due to disturbance in the organism’s internal tensional patterns.”⁶⁴ This concept parallels what DD Palmer described when he wrote, “Life is the expression of tone. In that sentence is the basic principle of Chiropractic. Tone is the normal degree of nerve tension.”⁶⁵ This places both disciplines back to the common problem of each organism relating well with its environment. As in the previous discussion of humanity’s experiential patterns, the dilemma of self-reference is encountered again from “inside-out.”

Cotentive States and Coherence

As Burrow’s focus shifted to a more physiological basis, he revealed an important clue about how social neurosis and subluxation may run parallel when he began his investigation on the subject of “attention.” According to his research, “attention,” since it carries with it the capacity for an organism to relate to its environment, works as a bionomic or ecological process.⁶⁶ “Attention” provides a human being with a connection to the outside world. He called this binding between an organism and the environment, “ecosomatic.”⁶⁷ Burrow felt that when language over-stepped its usefulness, attention shifted the organism from working in harmony with specific objects around them, to focusing interest at them. This symbolic orientation created an unbalanced subjective awareness, which led to the social neurosis manifesting in the culture.

Burrow’s investigation of the physiological characteristics of “attention” led him to make a distinction that helped shape the keystone of his life’s work. He had deduced that the interface between an organism’s exteroceptive action-pattern and its pro-

prioceptive pattern of response was the “organ of vision.”⁶⁸ He felt that the eyes reflected the nature of the relationship between what he referred to as the organism’s two overlapping patterns of attention, “cotention and ditention.”⁶⁹

Burrow further identified two distinct physiological states that were correlated with “attention” as a process. The first was the primary pattern, called “cotention” which was “...characterized by a constructive, impersonal type of interest that is inclusive or organismic.”⁷⁰ The second was the more common form of attention, called “ditention.” In ditention, interest does not flow directly to the objects and people around; it is diverted back upon the self-image...⁷¹ Even more conclusive was the physiological markers of the two patterns. Burrow found that the state of cotention contained a slower, more abdominal respiratory rhythm, a reduction in the number of eye movements and a brainwave pattern with reduced alpha time and general diminution in cortical potential, which is most pronounced in the motor regions as compared to that of ditention.

Burrow’s work with cotention expresses a theme that has been explored in clinical chiropractic for over a century, the concept of a “normal complete cycle.”⁷² This process of interlocking awareness, sense, affect and intelligence underscores what Bohm called, “a proprioception of thought,”⁷³ and what Goleman termed “emotional intelligence.”⁷⁴ The common meeting place of these concepts is summed up in the physiological state of “coherence.”⁷⁵

Cotention returns the organism to a harmonic experience of its relationship with the environment. Burrow focused his research on developing methods to facilitate cotentive states through what he called “group analysis.” He states, “We came to sense the artificial system-ization of affects, the restricted personality formation, that is the autocratic “I-persona”...This is the impaction and stress recognized as ditention in contrast to the organism’s total pattern of behavior, or cotention.”⁷⁶ As Burrow illustrates, cotention utilizes coherence while ditention utilizes interference. This mirrors the chiropractic concepts of cotention, “functional symmetry” and “tone” with their ditentive complement, subluxation. When subluxation is re-positioned into a social context, the process of ditention offers many parallels.

Ditentive States and Interference

Burrow termed “affect” as an “artificial linkage between feeling and symbol.” When considering subluxation in this regard, the notion of “autosuggestion” must be considered. Similar to ditention, autosuggestion can serve or hinder the functioning organism. Autosuggestion can be taken literally as, Barge quotes, according to Webster, autosuggestion is “an influencing of one’s own attitudes, behavior, or physical condition by mental processes other than conscious thought.”⁷⁷ The same holds true for ditention. As Burrow stated when considering the patterns of cotention and ditention registering around the eyes, “Between these two types of visual reaction there exists no essential conflict — not anymore than the movements performed by the tongue or lower jaw in speech interfere or conflict with their function in the process of digestion.”⁷⁸

The chiropractic concept of the disruption of the “mental

impulse”⁷⁹ is what differentiates autosuggestion and ditiontion. However, since subluxation is being considered as a “socially-shared” phenomenon, to understand the nature of “interference” as both a constructive (innate) and destructive (universal) process it is necessary to consider Pribram’s work on holonomic brain theory.

Recalling the earlier discussion on pattern recognition, Pribram elaborates, “Pattern recognition is a complex process in which feature analysis and the formation of a central representation of input are steps. In man, given the neural hologram, these steps lead to image construction.”⁸⁰ When taken as distinct neurophysiological states, cotention and ditiontion appear to function divergently.⁸¹ However, when considered from the neural holographic viewpoint, these terms can be thought of as complementary.

By analogy, as in physical holograms, a coherent source (usually a laser beam) is projected through a beam-splitting prism. This is performed so part of the beam serves as a reference for the coherent source and part of it is reflected off the object being photographed. When reunited in an optical filter, a virtual image or “ghost”-like projection of the original object is received. In a similar way, when “cotentive” capacity is combined with “ditentive” ability a phylobiological level of “attention” is achieved. This represents a holographic embodiment, or “virtual adjustment.”

The neurophysiological research regarding the nature of this cerebro-ocular epiphenomenon by both Pribram and Burrow, provides an experiential outlet to cultivate this ecosomatic awareness, which is individually (ontosomatic) and collectively (phylosomatic). Burrow sets out with these helpful markers to develop techniques to allow his group analysis participants to shift from a ditentive affect to a cotentive state. He emphasizes that instrumentation was not the proving ground for this work. Instead, he pointed at the internal perception of the organism’s overall behavioral pattern, at a phylobiological level. Cotention was explored as a group process that was best received in an openly supportive atmosphere that Burrow called “Social Self Inquiry.”

Chiropractic talks of the body being “self-healing” and the nervous system being “self-regulated.” In Burrow’s wording, these processes are equated to ontosomatically; varying from person to person. A closer examination of the concept of self from a phylobiological viewpoint reveals some parallels to the ideas expressed by Wolf, “...self is a reflection of a conscious spirit (soul) in an unconscious but existing in space matrix (matter)...Since it consists of conscious and unconscious modes of reflection, ...self is in part conscious and in part unconscious. Self constantly aligns with the bodymind, that part of the physical world that minds or governs the body.”⁸²

In order to embrace the notion of a “non-local” social self, it is useful to deconstruct Burrow’s model from a perspective of linguistics. In this author’s opinion, upon entering a cotentive state, visual representations are represented kinesthetically, registering a sense of tension released around the orbital area as the bodymind enters a stillpoint of focus. When a ditentive state is entered, the visual representations are interpreted linguistically as an “internal dialogue.”

As long as this occurs ecosomatically the cotentive focus remains in the orbital area. However, when the two processes

uncouple, a destructive type of ditiontion occurs and stress markers which Burrow enumerated cascade through the bodymind, encoding a fragmented experience. The more familiar this state becomes, the more autosuggestion entrains the nervous system. Now subluxation is employed by innate intelligence to adapt to its “socially-shared” phylobiological experience. In order to achieve a more coherent collective neurological state, a novel signal must be sent into the collective awareness which provides a global sense of “stochastic resonance.”

Theoretical Basis for a “Virtual Adjustment”

Exchanging Identity for the Self-Similarity of Symbiosis

The initial area to focus on when considering how to resolve the proposed “socially-shared” subluxation goes to the heart of the ditentive state; the “I-persona.” Consider Burrow’s comments on the nature of an individual, “The individual is himself a whole, just as the species of which he is an outgrowth is an integrated whole. As individuals we are fundamentally not separate, we are integral wholes within an integral whole. This is the conception we need somehow to transmute into a physiological pattern of behavior and incorporate biologically within ourselves as a species or phylum.”⁸³

The challenge faced through migration from a preverbal infant level of cotention to a verbal adult level is to name or label everything experienced, which is not possible to accomplish. This seems to drive ditiontion beyond its ecosomatic boundary giving precedence to what Burrow called the “partitive identity.”⁸⁴ This instills in each individual a sense of separateness associated with affect-projections generated from an internalized, unbalanced ditentive state. In chiropractic terms, this occurs when educated intelligence operates antagonistically with its source, innate intelligence.

The next step to take in this transition involves getting to the root of the linguistic interference patterns embedded in ditiontion involving symbols. When symbols are viewed cotentively as dynamic images and not encoded static objects, they operate constructively and resolution is achieved. This process has been described in various forms, however, for present purposes, its relevance is considered regarding the dilemma of self-reference. Butz offers the term “symbiosis” which is to “make a clear distinction about biology, mind and emotions. It was designed to describe the symbolic self-referential process that makes up self-organization in existence...The capacity for growth psychologically and biologically is symbiotically tied to one’s relationship with the environment, meaning that to enact the self-referential process of producing a symbol, it is necessary to encounter novelty.”⁸⁵

This process effectively exchanges the redundancy of the partitive identity with a chaotically self-organized symbiosis.⁸⁶ With this ecosomatic relationship, symbolic representation (language) can now be utilized constructively. As Tarlow concluded from the work of Schwalbe, “Internalized speech may bring a grammar that disciplines the flow of imagery through consciousness, allowing for language-governed awareness necessary for a fully formed sense of self.”⁸⁷ To access that level of neural integrity, existential patterns must be utilized by exchanging the obvious, ditentive experience for a subtle, cotentive order.

1. Explicate Form
2. Implicative Formative Relational
3. Pre-Implicate Causal
4. Insight-Intelligence

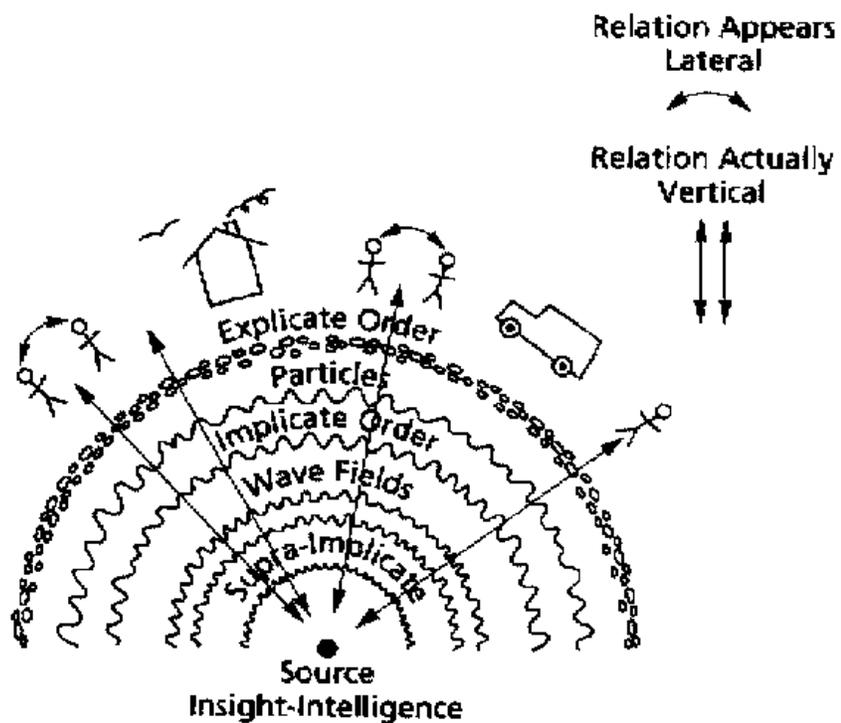


Figure 2: A Cross-Section of “Chiropractic’s Above-Down-Inside-Out” World View (Reprinted with permission of Harper Collins Publishers © 1992)

Accessing an Implicate Order

In order to recreate an ecosomatic state a mathematical pattern is required. Pearce noted, an “implicate order” of energy as a formative power, which has “implied” within it all our physical experience. Experience is “explication,” making explicit that which is implicit, so our perceived world is the “explicate order,” the expression of the implicate order.”⁸⁸

This parallels chiropractic’s model of an innate intelligence (implicate order) recursively interacting with an educated intelligence (explicate order). That model works ontosomatically. To crossover to a cotentive phybiological level, Bohm’s model needs to be considered. Again, Chilton-Pearse offer a workable translation, “According to Bohm, the implicate order, in turn, in the product of a vastly more powerful ‘supra-implicate order’, which “represents information that ‘guides’ or organizes the self-active movement of the field. The supra-implicate order is causal and determines the nature of the implicate order, which is its median, the link between causality and the explicate order...Each level of energy is discontinuous, like the proverbial ‘quantum leap’, yet each leads to the other.”⁸⁹ This mirrors the relationship between chiropractic’s concepts of universal, innate, and educated intelligence and how they work in cotention. Finally, a point is reached, embedded within this supra-implicate order where vibration attains a “standing wave,” essentially achieving stochastic resonance.

Chilton-Pearse sums up this aspect of Bohm’s model, “A threshold is reached when the potential wave reduces to so fine a vibration that, further reduced, the interval between peak and trough disappears. Then no wave-pulse exists and all movement

stops. This non-moving state of energy we call pure consciousness, and it is ‘the realm of insight-intelligence’, to use a later phrase of David Bohm’s, the still point from which the holomovement springs.”⁹⁰ This arrangement (Figure 2) allows us to further understand chiropractic’s vitalistic philosophy from a clinical perspective

Chilton-Pearse offers a disclaimer for those tending toward a ditentive interpretation. “Choose your metaphoric mode, however, and you choose the nature of your lived experience... The frame of reference through which we attempt to understand function determines the nature of what that function is for us.”⁹¹ So whether Bohm’s terms or Burrow’s or DD Palmer’s are selected, a collective unity exists in the ecosomatic diversity. To access a cotentive receptivity for the implicate order, Bohm speaks of “non-locality.” Dossey states, “The non-local view suggests that the mind cannot be limited to specific points in space (brains or bodies) or in time (the present moment), but is infinite in space and time; thus the mind is omnipresent, eternal and immortal. If minds are indeed non-local, this means that in principle they cannot be walled off and separated from one another: at some level they are unified and are one”⁹²

However, consider Chilton-Pearse’s statement, “For many years now scientists have wrestled with the problem of ‘non-locality’ found in Bell’s Theorem — the fact that the wave aspect of the wave-particle complement doesn’t ‘exist’ as does its particle....What has been found however, is that the bonding force between particles is the wave function that gives rise to those particles....to jump to the payoff and assume that all our thoughts are really one, that our separateness is just delusion is nonsense.”

This author continues, “there are levels on which thoughts

can, under very special conditions, interchange, and there are levels where they cannot.”⁹³ This illustrates the jagged, stochastic relationship between the implicate and explicate. To organize a cotentive “signal”, ditentive “noise” is required. When the ratio between them is harmonized, we can achieve the state of non-local attention Burrow speaks of as phylobiological.

To get inside the noise, new mathematical patterns that can incorporate the intricacies of ditention, with the simplicity of cotention are required. Bohm suggests “solitons.” Unlike linear waves that function independently and disperse, soliton waves are linked nonlinearly at a critical threshold and display a dynamic stability, a cotentive capacity to retain coherence. This returns us to Bohm’s concept of “insight-intelligence” that is recognized as a standing wave.

The initial neurological implications established at the Cambridge laboratory by Huxley lead to the mathematics of the Hodgkin-Huxley theory, which helped explain the dormancy displayed by nerve fibers. As Briggs and Peat summarize, “The propagation and interaction of neural solitons also involves a ‘memory.’ The neuron retains a sensitivity to messages it has passed earlier... A whole new area of study has now developed to investigate how solitons collide, pass over irregularities in the nerve fiber, and interact at junctions. Some theoreticians have called the nerve soliton the ‘elementary particle of thought.’”⁹⁴ While solitons resolve the spatial barrier to moving cotention through ditention, the temporal domain requires additional work.

The importance derived from the study of solitons was concealed in their non-linearity. In order to access the implicate order, the linearity of time must be exchanged for the timeless loops of iterative systems. Although appearing simple and orderly, these non-linear phenomena possess a capacity for “bifurcation.” This allows living systems to attain what Prigogine called “dissipative structure,” balancing equilibrium and self-organization.⁹⁵

This relates to Burrow’s concept of phylobiological adaptation through an underlying functional unity. As the system reacts and develops a cotentive relationship with its environment, bifurcation within the non-linear systems allow the utilization of the exponential qualities of period doubling and coupling to expand or contract their “degree of freedom.”

To relate this process to the physical body, one must consider the vibrational level of communication. A discussion of mental impulses and how they relate to the uncoupling of our ontosomatic cotentive and ditentive states, fragmenting attention and triggering subluxation has occurred. Now it is important to focus on the physical coupling between heart and brain in terms of the construction of acoustical standing waves within the brain and body.

The model proposed by Bentov discusses the effects of long-term yoga practice on the autonomic nervous system. Gerber summarizes those findings as follows, “Utilizing a special electrical measuring device known as a ballistocardiograph, Bentov found that there were unique changes that occurred in heart and brain activity during deep states of meditation. Bentov discovered an unusual internal feedback loop between the aortic bifurcation and the heart which, during deep meditation, regulated the cycles of pumping activity, as well as the rhythmic activity of breathing... When the timing of the pressure pulses traveling down the aorta coincides or is in phase with the reflected pressure pulses, a standing wave is achieved. This wave activity coincides with a fre-

CREATION OF THE NEURAL STIMULUS LOOP

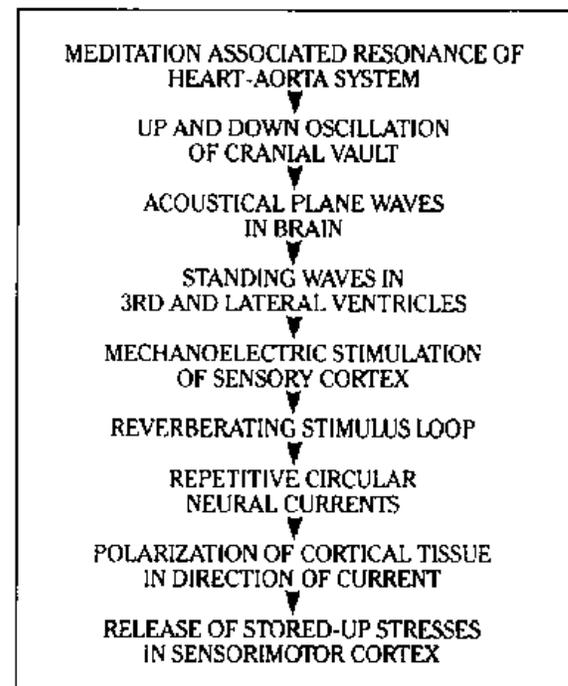


Figure 3: Anatomical Reference Points for Ontosomatic Cotention (Reprinted with permission of Bear and Company © 1988)

quency of about seven Hertz (cycles per second).⁹⁶

Bentov correlated a series of oscillators within the cranial vault that led to this conclusion, “When an individual achieves a deep state of meditation, breathing becomes slow and shallow and heart activity becomes synchronized so as to create a resonant vibrational link between the heart and the brain. The oscillating electrical circuit within the brain becomes established only after grey matter along the sensory cortex has become completely polarized in a circular stimulus loop.”⁹⁷ What this illustrates is that cotention can be embodied through resonance of physical as well as mental impulses. This indicates that neural solitons can effect brain function electrophysiologically and acoustically (Figure 3).

It has been discussed how cotention and ditention combine to yield a phylobiological attention on both a mathematical (soliton) and existential (implicate-explicate order) level of patterning. One experiential way to access these combinations to impact both physical and mental impulses (deeply relaxed meditation) has been discussed. What hasn’t been discussed is a way to coherently bring these concepts back into the linguistic patterns that drive ditention and therefore the I-persona.

Dossey has discussed “autogenic psycho-physical rehearsal” as a means of coalescing these concepts by using a blend of guided exercises, visualizations and creative meditations.⁹⁸ This approach has been suggested as a means to trigger awareness of the non-local nature of the coherent, cotentive realm of thought. Because of its self-referential nature, “autogenic psycho-physical rehearsal” allows an individual to ontosomatically access the implicate through the archetypal realm of symbols. This reverts back to the process of symbiosis.

As in Burrow's process of social self-inquiry, the hallmark lies within the subjective states changes (bifurcations) with the awareness of the individual's felt-sense. Frumker, states, "This level of applied active meditation opens opportunities for you to complete exciting and powerful circuits of self-empowerment at any time, in any place, limited only by your desires and imagination."⁹⁹ As the ingredients of a virtual adjustment are assembled, the impact of how this cotentive uses of symbols "crystalizes" the process, will emerge.

Linguistic patterns are constructed from two distinct orientations, one being more literal and sensory-specific and the other being more figurative and perceptual. This dynamic gives rise to "embedded spatiotemporal geometrical symbol manipulation." As Johnson discusses, the role of metaphor in experiential grounding ponders how language ascribes value to what it describes, "Consider the common goal of getting to a particular location...In such cases we have a purpose — being in that location — that is satisfied by moving our bodies from a starting point A, through an intermediate sequence of spatial locations, to end point B...Thus, there is a correlation in our experience, in which the intentional domain is paired with structure in the physical domain. This is what is meant by saying that a correspondence in experience serves as the basis for a metaphor. What we have here is a case where an abstract domain, the domain of purpose in general, is understood via metaphor."¹⁰⁰ That subtle connection between the implicate and explicate order is what Terrence and Dennis McKenna call "the invisible landscape." Their research into the alchemical nature of hallucinogenic states of consciousness revealed that linguistic patterns contain the raw materials to allow cotention to travel from individual to individual, crossing over from ontosomatic to phylosomatic in the process. They speculate, "If the physical brain is analogous to a holographic plate, can sounds in certain ranges penetrate the skull in such a way as to make audible holograms (visual images) appear in 3D space or in the mind-brain of another organism? This matter stands completely unresearched, although audibly induced wave interference patterns have been illuminated to produce hologrammatic images."¹⁰¹ This idea runs parallel to the internal cotention achieved during deep relaxed meditation, where the vibration between heart and brain structures creates acoustic standing waves in the brain's ventricles. It also gives credibility to euphemisms like letting an idea "sink in", or to "get it through one's thick skull" or asking if one "gets the picture."

Accessing the implicate through linguistic patterns is concerned primarily with deriving symbolic meaning from experience. The McKenna's write, "Language is the embodiment of meaning. Meaning signifies organization, and there is no organization without purpose. What is the purpose of organization? Is it perhaps to retard entropy? In such a case, the meaning of meaning for that which apprehends meaning is the necessity to purposefully create and maintain order."¹⁰² The whole notion of self-organization goes right to the heart of both chiropractic and phylobiology's approach.

Autopoesis and Autosuggestion

When autopoesis (self-organization) is combined with autosuggestion (self-proposal) in an ecosomatic manner, a new

respect for the process of sublaxation develops as it becomes apparent how fragile access to a cotentive state in a "social-shared" experience can be.

Biological systems display a capacity to function recursively in their growth patterns. Varela and Maturana describe creatures that display this quality as being autopoetic, possessing self-similarity.^{103,104} Yet, once again, due to linguistic patterning and affinity for symbols, humans distinguish themselves as socially-oriented organisms. Butz states how self-similarity on a social scale can lead to coherent patterns (phylosomatic cotention), "Coherence, or lack thereof, is responsible for the different change processes social systems go through. From the notion of sustaining tension, it appears that the more coherent social structures are able to tolerate chaotic transformation whereas less coherent social structures must settle for complexity."¹⁰⁵ The major distinction between chaotic transforming systems and ones relegated to complexity brings us back to the discussion of solitons. Systems which adapt through chaos undergo bifurcations utilizing the flexible integrity of a dissipative structure. Complex systems stay at the edge of chaos, but undergo their transformations using less energy. Due to their conservative investment of energy, they tend to drift back to their previous steady state as a way of generating a novel level of organization.¹⁰⁶

It appears that chaotic transformation involves "changing" and complex transformation involves "rearranging." When considering the nature of social systems, complexity offers a less turbulent, but more convoluted route to phylobiological cotention. The limitations of these mathematical patterns in terms of their "share-ability" goes back to the nature of ditention — where isolated models operate apart from the integrated wholeness to suit a physically-identifiable metaphor. Norretranders concludes after examining the work of Varela and Maturana's closed system model of autopoesis, "Maturana and Varela's point of view may be correct, but in a sense it is not particularly important."¹⁰⁷ It's as if the model created excludes the I-persona that is believed to exist only in regard to survival-guided processing.¹⁰⁸ In a way a cotentive tonality has been touched on where only unity is experienced, although from a strictly biological level of organization.

When one considers the irresolute nature of linguistic patterns, capable of bending toward cotentive symbiosis or ditentive abstraction according to the degree of ecosomatic harmony, it becomes easy to forget that the "bandwidth of language" is relatively narrow. Norretranders observes, "... — the capacity for transmitting bits per second — is very low: about 50 bits per second or less.... This figure is incredibly small compared to the volume of information we take in through our senses, about eleven million bits per second. The conscious experience constitutes a very small portion of the information constantly admitted to our senses... Human consciousness possesses a high degree of complexity. It is a phenomenon of considerable depth. A great deal of information is discarded in its making. Characteristic of consciousness is its high complexity but low information content."¹⁰⁹

This reflects the nature of incoherent social systems that must opt for the "edge of chaos" rearranging of complexity instead of the transformative change of chaos. Burrow, Prigogine, the McKenna's, and Norretranders bring to light the burden of carrying a "socially-shared" sublaxation on our experience, language and existence. Conversely, the same list has

provided clues of how to reverse this process and develop a virtual adjustment to share. Varela states, "It is evident that 80 per cent of what any LGN (lateral geniculate nucleus) listens to comes not from the retina but from the dense interconnectedness of other regions of the brain... Thus the behavior of the whole system resembles a cocktail party much more than a chain of command. So whatever the brain looks at is really about 20% signals from the outside world and 80% of pre-existing filters, memories and beliefs. Varela notes that this phenomenon is a uniform principle throughout the brain."¹¹⁰ This 80/20 STN ratio presents an explanation as to why social complexity (ditentive rearranging) is sustained by chaotic biology (cotentive transformation).

Stochastic Resonance

The transfer of coherent energy from one person to another, on any level, provides inroads as to how a virtual adjustment can arise within and between individuals. As described in the research by Bentov, the heart and the brain can create a physical cotentive state within an individual during deep relaxed meditation. How can that process occur on a social level between individuals?

Research at the Institute of HeartMath has shown that cardiac coherence can be transferred socially through touch or close proximity.¹¹¹ Non-linear stochastic resonance is proposed as the mechanism behind this exchange. The clinical implications of this model are described in the study, "We propose that through cellular signal averaging and non-linear stochastic resonance, a therapist's cardiac field, registered by the patient, may be amplified so as to produce significant effects. As a weak field signal becomes more coherent, the greater its capacity becomes to entrain ambient noise and thus to produce effects in biological tissue."¹¹² This again points out how biological cotention requires social ditention to undergo chaotic transformation. In the autonomic dysrhythmia of subluxation there exists embedded coherence that, when contacted through ontosomatic cotention, bifurcates and crosses over to phylosomatic cotention.

While HeartMath has contributed yet another mathematical-experiential-existential coupling, where does stochastic resonance take the symbolic linguistic self? The key to stochastic resonance involves optimized random noise. That environment induces greater receptivity to chaotic transformation. Rossi uses this model to create linguistic-experiential pattern links "out of 'noise', in the form of ambiguity, confusion, not-knowing, shocks, and surprises, injected by the therapist..."¹¹³

Much of the resistance in crossing-over from a ditentive to cotentive state speaks to what Carl Jung termed "facing the 'shadow,' the 'dark abyss,' and the 'horror of the unknown.'"¹¹⁴ Perhaps this reluctance is related to the ontosomatic orientation of autosuggestion. As the notion of subluxation is embraced, resolution of linguistic patterning will achieve a novel symbolic meaning, thus transforming human existence. The first step in that direction returns us to the paradox associated with fractals.

Confronting a Fractal Reality

The view of autopoiesis is decoded when one observes the mosaic emerging from superimposing the various mathemati-

cal, experiential, linguistic and existential patterns herein described. It can be argued that autopoiesis actually represents unity within life in general, not ontosomatic or phylosomatic unity. Wheatley offers this summary, "What we observe, in ourselves and as well in all living entities, are boundaries that preserve us from and connect us to the infinite complexity of the outside world. Autopoiesis, then, points to a different universe. Not the fragile, fragmented world we attempt to hold together, but a universe rich in processes that support growth and coherence, individuality and community."¹¹⁵ In order to bring this into a cotentive vision, mathematical patterns known as fractals are required. Like solitons, fractals possess a capacity for self-similar integrity. While recursion is the key word for autopoiesis, "scale" is the appropriate word to describe fractals.

These mathematical patterns embody the essence of natural beauty, intricate simplicity. By iterating a set of simple rules and allowing for a high degree of autonomy, fractal organization embraces the turbulence of chaos by resolving the dilemma of self-reference to access its "strange attractor," symbolic meaning. This mathematical pattern achieves phylosomatic cotention by communicating implicate order through explicate chaos, unknitting the ditentive orientation through novelty.

The utility of fractals extends into experiential and linguistic patterns due to their capacity to closely mimic the natural world. Most mathematical patterns reflect an abstract, idealistic impression of external reality. With the introduction of fractals to the cultural landscape, the cotentive combination of images, feelings, and symbols is achieved. Fractals make our physical and mental boundaries less rigid. Tarlow observes, "If psychological health resides at the edge of chaos, then our infinitely deep fractal core may be as much a source of renewal, inspiration, and creativity as a source of confusion and pathology."¹¹⁶ When subluxation resolution is considered as more of a process of surrendering to an inner reality far more vast than we're aware of, fractals may crossover to an existential patterning that provide phylosomatic orientation to their intrinsic, infinite complexity. Much like the discussion of stochastic resonance, fractals offer an optimized random noise that helps to amplify the cotentive state embedded within their design.

Fractals pull other-than-conscious biological cotention closer. Not only are they reflected in objects that can be observed, they are also involved in designing and developing the nervous system's most fundamental function: distinguishing internal from external. Lipton states the fractal angle on evolution clears up many long-held misgivings with the popular Darwinian model.¹¹⁷ His work on the fractal organization of integral membrane proteins, or IMP's, illustrates their potential as existential patterns. Briggs, comments, "Each of our bodies is a unique signature of chaos. Even in the folds and wrinkles in our faces when we enter the world and when we leave it, we are fractals."¹¹⁸ Fractals, therefore, take subluxation resolution to an autopoietic level.

Emergence

This introduction to a non-local, chaotic view of subluxation as a "socially- shared" pattern of ditention is summarily expressed as "emergence."¹¹⁹ The awareness of the phylobiologi-

cal impact on collective and individual affect and the universal influence of autosuggestion, be it cotentively or ditentively oriented, reveals how experiential patterns shape symbolic constructs. That is, picture the phylosomatic landscape of subluxation as a dynamic stereogram, or as a holographic blur on the neural image of humanity.

As subluxation is resolved on an ontosomatic level, that coherence can be utilized to resolve the ditention operating without stochastic resonance standards. This allows the implicate order to shine through the explicate and deliver symbols that can chaotically transform human existence. This process is not limited to human development. The external environment undergoes a self-similar refinement at much softer vibrations. What emergence provides, in terms of a virtual adjustment, is exemplified by its wealth of experiential patterns. Emergence brings possibility and releases predictability. It involves iterations of very simple patterns; mathematical patterns like fractals and solitons, experiential patterns like autogenic psycho-physical rehearsal, symbolic linguistic patterns like Rossi's stochastic resonance model for Eriksonian hypnosis,¹²⁰ and social patterns like HeartMath's notion of cardiac coherence exchange.¹²¹

What begins as a basic process develops into an elaborate transformative event. A virtual adjustment mirrors an actual adjustment in that respect. Both offer a simple approach with ever-widening applications. Emergence offers chiropractic a new avenue to relate to and think about vitalistic principles. As nanotechnology reaches the awareness of the culture, a modern, more universal version of emergence will develop. Norretranders quotes from Bernd-Olaf Kuffers, "...the algorithmic approach allows a formal treatment of the problem of emergence....That 'the whole is more than the sum of its parts' is true for every structured system, independently of whether the system is living or inanimate."¹²² This extends vitalism from an innate level to a universal level.

Emergence also allows science to apply the principle of "non-allness."¹²³ Instead of working with cotention in a controlled environment, ditention is required in order to parallel the uncontrolled environment of the world beyond the laboratory. As the work with recurrence analysis of Webber and Zbilut clearly points out, "Independent of the number of degrees of freedom present, completely deterministic systems are simply fixed and rigid whether they be periodic or chaotic. Such dynamical structures are quite unprepared to exist, let alone succeed, in noisy environments extant in the real world."¹²⁴ This insight embraces the many paradoxes within the clinical realm of chiropractic care. As subluxation is viewed more from its phylobiological roots, the path that "emerges" for its resolution is not deterministic.

Conclusions

As both science and culture resolve the boundaries between mind, body and the nature of existence, the connotation of the word and experience of the process of subluxation will likely to undergo revision. In the past, the medical definition of subluxation dominated the culture's perception, and was viewed as an individualized body-based condition. It is literally defined as a partial dislocation. This incomplete viewpoint created a gap in

understanding of the relationship between chiropractic philosophy and the art of chiropractic care. By reintroducing the notion of the disruption of the "mental impulse" as the information-based 4th component of the vertebral subluxation model, the bridge between mind, body and nature can be crossed in their literal and figurative aspects.

Further examination of the interlocking cohesion between the common threads of human biology and culture were explored extensively by Trigant Burrow. His contribution of social self inquiry raised the issue of the role language plays in human growth and development. This ties in with many of the core principles of chiropractic that emphasize the physical personification of the mental impulse. The survival value of imitation of patterns in both non-verbal and linguistic communication introduces the concept of memes to the process of subluxation. The historical basis established by Burrow's investigation of ditentive and cotentive levels of attention further extend the immaterial nature of subluxation toward an ecology of information exchange at a collective level.

The worlds of physics and mathematics have made inroads toward the self-organizing aspect of nature with the introduction of concepts like autopoiesis, stochastic resonance and fractals. Investigation into the non-locality of thought and the mechanisms involved with human energy exchange, as well as verbalized nuances of quantum physics, such as space-time continuum, have provided the culture with a framework to develop an affinity toward addressing the subtle nature of intelligence. With this as a starting point, Part II of this article focuses on what has been uncovered in the collective search for a virtual adjustment. It also explores the impact of future applications on clinical research in chiropractic through the recognition of patterns at both the subjective and objective level.

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