

*Chapter 1*

# CONVERGENCE OF SUBJECTIVE AND OBJECTIVE METHODOLOGIES IN CONSCIOUSNESS RESEARCH

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## ABSTRACT

The synergism of integrating phenomenological and empirical methodologies is employed to explore ego sensory image transformations of primary and secondary consciousness. Ego plasticity in dreams and hallucinations is analyzed in the context of biochemical and physiological research. The formative mechanism of ego plasticity is interpreted within Protoconsciousness Theory. Combining subjective and objective methodologies offers new insight into the emerging mental health model of psycho-neuro-phenomenology.

**Keywords:** Sensory image transformations, ego plasticity, neuro plasticity, psychogenic pathogenesis, self-hypnosis, psycho-neuro-phenomenology, primary and secondary consciousness, protoconsciousness theory, empirical and subjective research

## INTRODUCTION

### Background

Allan Hobson's protoconsciousness theory provides the organizational context for this discussion of integration of phenomenological and empirical research (Hobson, 2009a;

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Hobson & Friston, 2012; Hobson, 2014b). The emergence of fetal self-consciousness is conceptualized as a phenomenal entity that is firmly grounded in the brain's neural networks. Starting with fetal development, I will review empirical research that supports protoconsciousness theory. Ego sensory imaging can be both top-down or bottom-up. Bi-directional primary and secondary image transformations are dramatically observed in lucid observations across states of consciousness (Just, 2009, 2012).

The theoretical model of consciousness presented in this discussion addresses a number of fundamental questions of the *what* and *how* of ego's phenomenal plasticity, secondary and primary image transformations of all sensory experience across states of consciousness, and ego image transformations that underlie psycho-pathogenesis. Protoconsciousness Theory as presented is grounded in Allan Hobson's decades-long research on the biochemistry and physiology of dreaming (Hobson & McCarley, 1977; Hobson, 1988, 1994, 1999a, 2001, 2009a). I initiated dream control and altered state self-experiments in the late 1950s (Just, 2009).

I contend that a marriage of subjective and objective research methodologies is necessary for a holistic understanding of ego mechanisms and consciousness that is critical to a reconceptualization of mental illness. Ego and behavioral plasticity is interpreted as the other side of neuronal plasticity. Combining research methodologies informs a more complete view of the psycho-neuro-phenomenology of mental health suggested by Panksepp and Biven in *The Archaeology of Mind* (2012), and Allan Hobson's Psychodynamic Neurology (2014b).

## **Phenomenological Method**

I've pioneered the use of self-hypnosis to explore intra-psychic phenomena across states of consciousness since the late 1950s (Just, 2009). To my knowledge, there is no corollary of controlled observations across states of consciousness on the part of philosophers of phenomenology like Immanuel Kant, Edmund Husserl or Martin Heidegger; existentialist such as Maurice Merleau-Ponty and Jean-Paul Sartre, or phenomenological psychologists such as Amedeo Giorgi (2007).

Husserl's systematic study and analysis of the structures of consciousness is extended in this discussion by careful comparative analysis across states of consciousness. Heidegger's focus on "mode of being," or what he called Dasein, includes nonconscious aspects of being as well as conscious aspects. Heideggerian unconsciousness, so to speak, can be observed in Freud's philosophical speculations about the unconscious. However, Freud's separation of ego from its neuronal anchoring promoted dualism, which I do not support. The philosophical history of phenomenology will not be reviewed; however, the basic assumptions germane to this history are set forth and taken into account.

Contemporary exposition of the subjectivity of self is extensively developed by Thomas Metzinger in *The Ego Tunnel* and *Being No One: The Self-Model Theory of Subjectivity*. The interpretation of self and consciousness follows Metzinger in a number of assumptions: 1) the self and consciousness are tightly linked together, 2) the self is contained in a world of its own construction, and 3) the self's phenomenal experience is a separate ontological reality from the bio-neuro-substrate from which it emerges, and is always a part of.

As a partial divergence from Metzinger, I assign greater autonomy to self as a meta-cognitive agent. Metzinger's notion of self-observations in dreaming is extended by

demonstrating that self not only observes in lucid dreaming but is capable of constructing whatever content it chooses. This last point of consciousness construction is critical to my analysis of psychogenesis.

In this discussion, I will integrate the phenomenology of cross-state analysis with personal examples that connect phenomenal observations to scientific research. Kant, Husserl and Heidegger as fathers of philosophical phenomenology are most significant to the perspective that is presented. The careful observations and methods of William James and Jean Piaget, as phenomenological psychologists, have had major influences on my thinking in terms of careful long-term and systematic observations of subjective phenomena. I have briefly referenced philosophers and psychologists of the phenomenology school in order to ground the discussion historically and to emphasize the complexity of the subjective world of consciousness and self.

Espousing phenomenological analysis using controlled, lucid observation across states of consciousness requires clear statement of assumptions. I make the following assumptions: 1) In contrast to traditional phenomenology objective research is not rejected. Instead, objective and subjective methods are considered to be equal partners in consciousness investigations. 2) Long-term systematic observation of the contents of altered states of consciousness is necessary for the exploration of ego sensory image transformations. 3) First-person observational data in altered states of consciousness has no counterpart in objective, third-person empirical research, but is critical to a holistic analysis of self and secondary consciousness. 4) The phenomenal content of consciousness is a necessary but not sufficient data source to empirical, third-person research when viewed from a dynamic, holistic organizational framework. 5) Phenomenology's discovery orientation is greatly enhanced and validated when objective-subjective research methodologies have been integrated. 6) Cross-states of consciousness analyses are anti-reductionistic—phenomenal states that must be studied as a separate, but co-contributing data base. 7) Standard models of consciousness formulation of behaviorism (no autonomous ego), the Freudian unconscious, and ego as illusion are rejected. 8) It is suggested that by integrating subjective and objective research methodologies, concepts such as intuition, memory, empathy, inter-subjectivity, and consciousness itself can be grounded empirically. The concepts of intuition, empathy, and inter-subjectivity are not grounded in this discussion per se.

## **Protoconsciousness Theory**

Allan Hobson's protoconsciousness theory (2009a, 2012) is still under construction; nevertheless, the theory's basic assumptions that I focus on in this discussion are clear. They are: 1) Fetal learning begins around 30 weeks of gestation. 2) Brain architecture (neural networks) is being shaped in areas of language, music, and taste before birth. 3) The phenomenal-self begins to experience, feel, and think before birth. 4) REM sleep may constitute a protoconsciousness state, which provides a virtual reality model of the world that is of functional use to the development and maintenance of waking consciousness. 5) Fetal REM is fine tuning the mechanism that is becoming our virtual reality generator (VRG). The VRG emerges from the genome as neuronal tissue and takes on the functions associated with protoconsciousness. 6) Thus, in a general sense, consciousness in its most basic form is a state of tissue excitation that brings about differential responses to one's environment.

Protoconsciousness theory . . . “suggests that the development and maintenance of waking consciousness and other higher-order brain functions depend on brain activation during sleep. It is also suggested that the brain states underlying waking and dreaming cooperate and that their functional interplay is crucial to the optimal function of both” (Hobson, 2009a). For a more complete analysis of protoconsciousness theory see Hobson and Friston’s citations, especially Hobson’s *Psychodynamic Neurology*. Employing proto-consciousness theory, I focus on ego as a virtual entity that emerges from and is always supported by its genetic inheritance.

I use the terms ego and self interchangeably.

In his use of protoconsciousness theory, Allan Hobson is critical of divergent paths taken by Husserl and Heidegger away from Kant’s earlier work (Hobson, 2014b). Personally, I find individual contributions by Kant, Husserl, and Heidegger helpful in my analysis; thus, I’ve set forth the above listed assumptions. Nevertheless, I strongly support Allan Hobson’s interpretation of Kant’s ego.

Hobson succinctly sums up his view of Kant’s ego:

Immanuel Kant was the first thinker to posit a knowing self that preceded all environmental, empirical experience. Kant thought that something like a transcendental ego must exist to explain the coherence and directed focus of adult human consciousness. The idea of the ego that I advance here corresponds closely to Kant’s *a priori* postulate. My use of the term “transcendental” combines the Kantian notion of *apriority* with the notion that the ego is not only the knower but also the dreamer, the artist, and the religionist in all of us (Hobson, 2014b, 114).

The idea that the brain as a blank slate at birth was not only erroneous, but is viewed nowadays as having been detrimental to subsequent research direction for fetal, infant, and child development through much of the 20<sup>th</sup> Century.

## **PART I. PLASTICITY OF THE PHENOMENAL-SELF— FROM FETUS AND INFANT TO OLD AGE**

### **Fetal and Infant Memory**

The infant enters this world with memories that are already under construction. Fetal brains at birth show awareness of their mother’s voice, music preferences, and tastes (DeCasper & Fifer, 1980; Kisilevsky, et.al, 2003, 2004; Baars and Gage, 2010, 476). An infant is not born with a blank mind; it is born with a brain that is already proto-consciously preparing to learn about its new, soon-to-be-experienced world (Friederici, 2005). The infant also has sensitivity to gravity, and this awareness may possibly be acquired or inherited; whatever the case, the epigenetic component of fetal protoconsciousness can account for the new born infant’s fear of falling.

Infant memory in the first two years of life has been a controversial issue. A variety of therapists and counselors working with developmentally traumatized children and adults, including myself, rather routinely encounter reports of infant memories. P. J. Bauer and S.

S.Wewerka (1995) and Bauer (2005) report infant declarative memory. T. J. Gaensbauer (2002) notes infant recall of events before they can talk. C. Rovee Collier documents infant memory from the first few years of life (1997, 1999). A concise summary of early infant memory can be found in Doidge (2007), Chapter 9.

A growing body of infant and toddler research supports selective recall that is similar to my reported experiences (Just, 2009). Infants as young as 14 months have semantic contextual knowledge (Baars & Gage, 2010, 493; Friederici, 2005). Infant semantic processing is observed with their ability to correctly use sign language before they are capable of verbally expressing themselves.

### **Protoconsciousness: Fetal and Infant Memory**

Fetal memory research supports protoconsciousness assumptions (1) and (2) of pre-birth memory storage and the emergence of its supporting architecture. And assumption (3): The proto-self is beginning to experience and feel before birth. Experience and feeling are the fundamental elements of primary consciousness upon which semantic processing is enabled. Assumption (4): REM sleep that emerges in a fetus's last trimester is dominant at birth. REM sleep is empirically correlated with memory integration and consolidation (Tononi & Cirelli, 2013, 2014; Hobson, 2009a).

Between 28-30 weeks the fetus spends 50 percent of its time in REM and this amount of REM sleep is continued after birth. The cyclic structure of REM falls from 50 percent at 3 months to 33 percent at 8 months (Hobson, 1989, 76). REM continues to decrease as percentage of sleep and occupies about one-quarter of the adult's sleep time. Thus, in agreement with Hobson, REM sleep is presented as the formative mechanism that supports creation of the phenomenal-self and a virtual reality model of the world that is of functional use to the development and maintenance of waking consciousness.

### **Interpreting Glen Just's Infant Out-of-Body (OBE) Experience**

My DOB is 28 March 1936. I was hospitalized in the hottest part of summer the following year. My brother Elwood (DOB: 2 April 1930) describes the scene: My mother was scalding butchered chickens for processing over a wooden cook-stove. I began "flopping around like a fish out of water" according to my brother. I do not recall any of this setting. My first recall is of the hospital scene where I observe the hospital room, nurse, doctor, father, and a vague figure at a distance from my bed. I'm pronounced dead, journey off to "Heaven" in a typical tunnel vision of NDE; reject "Heaven" and return to a position between my father and the nurse observing my dead body. I decide not to be dead and reenter my body (Just, 2009).

Selective recall of similar memory elements, as reported, is now substantiated. On the other hand, early memory recall is controversial because retroactive attribution of meaning to prior memories can be easily documented.

Susan Blackmore suggests that OBEs occur when our brains are cut off from external sensory input (Blackmore, 1982). She further suggests that the viewing perspective in OBEs is from an upright position from which we are looking down. My infant OBE squares with

Blackmore's observations. But also note that in the case of an infant's perspective, my view is from a perch, a "bird's-eye-view" where I'm being carried by an adult. In agreement with Metzinger's work, it is noted that one's phenomenal body image is functionally oriented in space.

Incorporating Gerald Edelman's, "*The Out-Of-Body Experience*" in this analysis (Edelman, 2009, 82-98), "OBEs are a well-known class of states in which one undergoes the highly realistic illusion of leaving one's physical body, usually in the form of an etheric double, and moving outside of it (Ibid, 82-83).

Traumatic memories of infants and children appear to be biochemically "burned" into the neural networks of the developing brain (Gaensbauer, 2002). REM sleep is a time when memories are downloaded into the hippocampus and become available for later recall (Stickgold, Hobson & Fosse, 2001). Hence, REM sleep helps us consolidate and integrate learning—a process of neural plasticity.

## **Brain Architecture and World Modeling**

Hobson and Friston proposed that "REM sleep and dreaming lays the foundation for waking perception (Hobson, 2009; Hobson & Friston, 2012)." In this view, the brain is equipped with the capacity to generate a model of the world (Ibid). The model of the world is continually updated and entrained by sensory prediction errors in wakefulness, but not in dreaming (Hobson & Friston, 2012). Thus, Hobson and Friston theorize that ". . . an innate, a priori virtual reality generator [VRG] . . . produces a predictive model of the world (Hobson and Friston, 2014). This model, which is most clearly revealed in REM sleep dreaming, provides the theatre for conscious experience (Ibid)."

Hobson and McCarley's seminal research on dreaming and REM heuristically encouraged exploration of post-natal REM states with fetal REM. Following fetal REM into infancy and across the lifespan encourages exploration of brain development that is dependent on self-organizing neural networks. Focus on the relationship between fetal and infant brain development and stimulation continues to produce new information important to parents, psychologists, neuroscientists, and child development specialists.

Doctor Betty Vohr from the Warren Alpert Medical School of Brown University and Women and Infants Hospital in Providence, Rhode Island has been concerned about language development with premature babies (Reuters Health). Vohr and colleagues research shows a direct correlation between premature infant language development and how many words they hear while in neonatal intensive care (NICU). Specifically, fetal language stimulation is directly related to later language development.

Vohr's research meshes nicely with fetal learning in that both types of research are supportive of protoconsciousness theory. Significantly, fetal and infant research on memory and language development provides specific examples of sensory conditioning and development of the dynamic unconscious.

Exemplifying the significance of incorporating first-person, subjective observation with "hard" science recognizes that analysis of phenomenal states is essential to a holistic understanding of consciousness. Material third-person science can observe neural network patterns, and even the activity of single neurons, but subjective meaning (semantics) requires first-person observation and reporting. Brain imaging technology observes blood flow and

neuronal electrical activity; however, technology alone cannot determine what this means to the individual. To correlate neural networks with semantics, imaging technology must first triangulate individual thoughts with activity in select neurons or neural networks.

Protoconsciousness theory assumes that consciousness and proto-self are emerging with the development of fetal brain architecture. Infant recognition of the mother's sounds and tastes supports these sensory images coming online in fetal development, and analysis of children's eidetic memories adds substance to this interpretation.

Thomas Metzinger adds support to protoconsciousness theory by noting that about seven percent of children are eidetic imagers. He states:

[We] . . . consciously experience eidetic images of nonexistent, but full-blown visual scenes, including full color, saturation, and brightness. Interestingly, such eidetic images can be scanned and are typically consciously experienced as being outside the head, in the external environment (Metzinger, 2003, 45).

Eidetic imagery suggests the richness of proto-image carryover from the fetus, and the online activation of these imaging processes throughout life. Metzinger states, "Rigorous philosophy, [meaning empirically-based philosophy], must take altered state images seriously (Ibid, 47)." In agreement with Metzinger, it is suggested that a holistic view of the phenomenal-self and consciousness must incorporate first-person data.

One more quote from Metzinger:

The phenomenal states of eidetic children . . . and dreamers provide an excellent example of the enormous richness and complexity of conscious experience. No simplistic conceptual schematism will ever be able to do justice to complex landscapes of this target domain (Metzinger, 2003, 45).

Recent research (2014) by Whitney at UC Berkeley and Fischer at MIT provides empirical support for image prediction in terms of ongoing, waking statistical image averaging. According to these researchers, the brain averages visual sensory input over a period of about 15 seconds. It is significant that visual averaging reduces what would otherwise be neuronal chaos. In other words, as individuals we interact with our environment in averaged subjective time. Integrating Whitney and Fischer's research with Hobson and Friston's work (2014) heuristically supports the emergence of a virtual reality generator that operates lifelong. Therefore, ego must be projecting behavioral executions into the future not as a one-step linear process, but as a multi-stage dynamic endeavor (Adams, et al., 2012).

In section summary, there is a mechanism in our brains that emerges with the fetus, and continues to operate lifelong. This mechanism literally creates actual sensory images before the person experiences them. In the statistical averaging sense, the phenomenal-self experiences its world as a composite of what is, what has been, and what may be. Further, it is suggested that the fetal protoconsciousness mechanism, as the virtual reality generator, can potentially explain the "natural" generation of imagery in dreams and hallucination. In other words, the VRG is always on in any state of consciousness. Thus, it is assumed that imaging that begins to emerge in the womb is literally preparing the brain to predict sensory images that will be experienced after birth when we are awake. Conceptually, protoconsciousness theory can integrate consciousness processes across waking, sleeping, and dreaming 24/7.

## **PART II: THE PHENOMENOLOGICAL MECHANISMS OF EGO IMAGE TRANSFORMATIONS**

In this section, the phenomenological method of analysis across states of consciousness is demonstrated with my first-person observations using control of sensory image generation with suggestion. Image transformations by ego are demonstrated and the subjective nature of ego image construction is employed to shed light on the subjective nature of reality. Here I continue to employ protoconsciousness theory to interpret image transformations critical to the maintenance of the phenomenal-self.

### **Sensory Image Construction Using Suggestion**

Lucidity employed in dreams can be used with hallucinations (Hobson & Just, 2013) and across all states of consciousness (Just, 2009, 2012). Empirical research on lucid dreaming by LaBerge (1985) and LaBerge and Rheingold (1990) helped set the stage for its formal analysis. Lucid dreaming has gradually moved from being a mystified and misunderstood brain state to that of empirical fact (Hobson, 2009b; Voss, et al., 2009).

Krakow and Neidhardt (1992) discuss techniques related to “Guided Imagery” and cognitive-behavioral therapy. These therapists are a helpful source as how to use one’s own beliefs to influence and shape cognitive-behavioral outcomes. Lucidity in dreams can employ guided imagery to instantly create the desired image (Ibid). It’s important that researchers and therapists understand that dreamers have the potential power to control their own dream content (Just, 2009; Voss, et al., 2012). Using self-hypnosis in 1958, I pre-programmed entire dreams as a means to control nightmares (Just, 2009). Auto-suggestion with or without hypnosis can be employed automatically by ego to stop nightmares whenever these traumatic dreams arise spontaneously. Although rarely used, self-controlled dream substitutions can be an effective therapeutic means for the control of nightmares associated with Post Traumatic Stress Disorder (PTSD). Self-control of dreams and hallucinations focuses attention on the autonomy of ego and the bi-directionality of the brain’s image transformations.

### **Ego Image Transformations**

We humans possess secondary consciousness—the ability that permits us to be aware of being aware. Primary consciousness is a process that converts phenomena in the physical and chemical worlds into sensations that support organismic survival: The brain turns light into colors, air vibrations into sound, and pressure on the skin becomes touch. These image transformations start with simple life forms such as bacteria seeking a sugar gradient. In mammals, additional sensory channels are added phylogenetically until multi-sensory integration occurs. The relationship between primary and secondary sensory processing in the human brain has been an historical conundrum. Lucid, long-term analysis of dreams and hallucinations appears to be the only method in which primary and secondary image transformations can be observed (Just, 2009, 2012).

Joint analysis of dream forms and content sheds light on ego image transformations at both primary and secondary levels. The following examples help clarify top-down (secondary) and bottom-up (primary) image transformations. First, I will use my Japanese submarine nightmare to demonstrate top-down concept transformation into specific percepts. Next, examples of percept transformations in dreams will exemplify how primary percepts are transformed into working concepts.

### **Glen Just's Japanese Nightmare**

I was five-years-old and living in the Everett, Washington Area when the Japanese bombed Pearl Harbor. In this nightmare I am captured and taken to their submarine. The submariners begin drilling a hole in my back to make me into a flag stand. At the point where my spine is about to break, I escape and, using my ability to fly, enter a hole in their submarine. (My mother told me that if he ever hit water in the submarine's hole I would die). Remembering my mother's caution, I concentrate hard, suspend myself in the submarine's hole, and subjectively experience falling asleep. The next morning I would wake up in my own bed. This nightmare was frequently repeated until I stopped it with dream control in 1958.

As a verbally challenged five-year-old, the *hold* in the nightmare submarine was semantically conceptualized as a *hole*. Nevertheless, my ego lucidly generated a hole, which my dreaming-self experienced as being veridical (Just, 2009). I suggest that the brain's (VRG) is always active during any state of consciousness, and at the secondary level imagery is generated according to ego's subjective meaning. Combining protoconsciousness theory and the sensory "smoothing" research of Whitney and Fischer, I can account for the semantics of predictive imaging by a five-year-old. Recall that Whitney and Fischer empirically documented that visual images are smoothed over a 15 second time frame.

In dreams, we draw most imagery from memory, and what is imaged depends on our individual attributed meanings. Whitney and Fischer's image prediction research, combined with memory generating processes in dreams, can account for dream percept construction. Awake, we smooth our visual world—a smoothing process that suggests a primary imaging mechanism hypothesized by protoconsciousness theory. The Japanese nightmare is a common dream example of top-down brain image transformations (Just, 2009). Protoconsciousness theory hypothesizes that the VRG mechanism emerges with fetal development and remains active in any state of consciousness lifelong. It is noteworthy that a five-year-old brain has matured to a level capable of creating complex semantic imagery.

### **Primary Image Transformations**

Dream interpretations from Aristotle to Freud (Brill, 1938) and modern dream research are riddled with somatic bottom-up image transformations. Percepts changed into concepts during dreaming are so pervasive that I will just list a number of examples and summarize the phenomena that can be lucidly observed. The examples are taken from my dream history (Just, 2009; 2012). Note, however, that lucid control across states of consciousness permits observations of phenomenal reality construction from many different angles. And that

comparative phenomenological methodology across states of consciousness suggests a major step in the formalization of subjective research.

As a somatic dream instigator, sweating during sleep activates percept to concept image transformations of a great variety of watery scenes—from walking through ponds formed by rain, to wading in rivers, lakes, or ocean shores. The self is always the central actor in somatic dreams as ego involvement in my experience requires personification in secondary consciousness. Personification in these examples of watery scenes means that ego and its sensory experiences are entered as content into consciousness. Sudden loud noises in the dreamer's household can be transformed into gunshots, or any manner of dream scenarios with explosive sound. The emotional state of the dreamer carried into sleep, along with day residue, activates associated memories and determines the narrative structure of these somatic dreams. Furthermore, image transformations observed in dreams can represent any of an individual's primary senses; even though visual expression is most dominant.

### **Ego Construction of Subjective Reality**

Subjective reality is generated by the meaning of words derived from cultural definitions, and these definitions are directly turned into dream imagery. If we believe angels have wings, we image angels with wings. If we believe the “hold” of a ship is a “hole” we image a hole. Our VRG operates automatically across states of consciousness. However, without environmental feedback from waking, there are no image reality corrections. The Japanese nightmare represents a pattern of image transformation activation that is top-down, or what Kosslyn calls “backward projection” (1994).

Dreaming or hallucinating our brains image subjective reality—we actually image what our belief system tells us is real, such as happened in the submarine *hole* example. Transformative imaging, to various degrees, applies across all of our senses. Thus, in dreams and hallucinations we see, hear, smell, taste, and feel the virtual creations of our subjective beliefs. Subjective image transformation in dreams is a serious challenge to universal dream content interpretations by individuals such as Freud. Critically, Freud's assumptions of disguise and censorship are turned on their heads by observed image transformations in dreams (Freud, 1997; Brill, 1938, 181-549).

### **Hypnagogic Imagery Manipulation: Glen Just's Flower Exploration**

The following account of hypnagogic imagery manipulation is from my visit to Allan Hobson's in Brookline, MA (July 2012):

After a full day of discussion with Allan, I realized I had paid little attention to hypnagogic imagery and wondered if I could manipulate pre-sleep imagery the way I control dream content. That night, the first pre-sleep image that appeared was a long-stemmed red flower. I focused on this single flower and thought of a bouquet. Pow! A bouquet was born. I then noted that there was no background environment. Pow! The bouquet was surrounded by a larger setting. I thought to myself, “Wow! This is fun.” (Again, note Kosslyn's backward imaging).

Also, note the dynamic role that ego plays in image construction during altered states of consciousness. It is of significance that these processes can occur at a conscious or non-conscious level. A little extrapolation of the brain's image transformations in dreams sheds light on daytime hallucinations. The automatic image transformations of the brain's dynamic core can break through momentarily with a single item, as is the case when a physical object on the street is mistaken for a predator. Singular or narrative hallucinations can break through consciousness with waking psychosis.

Protoconsciousness theory assumes the emergence of a fetal brain architecture that increases its imaging capacity in our early weeks and months of life. Stages of increasing dream complexity from three years through puberty and into late adolescence correlate with behavioral and social sophistication. The three-year-old draws stick pictures, five-year-olds report narrative dream compositions, at puberty dreams express more complex social relationships, and in late adolescence we plateau with mature adult forms of dreaming.

The Japanese submarine example supports a five-year-old stage of brain and ego development where our virtual reality generator is fully capable of simple narrative imaging and ego is capable of re-directing dream content.

### **Integrating Protoconsciousness Theory and Transformative Imagery**

As noted, image transformations occur at two levels in the brain—primary and secondary. Initial sensory image transformations such as light into color or air vibrations into sound have traditionally been called qualia in philosophy. Secondary image transformations occur further downstream in the brain and are organized around subjective (semantic) meaning (Neisser, 1967, 299). What we perceive (percepts) are primary images and what we construct with secondary image transformations are typically referred to as concepts. Protoconsciousness theory recognizes that the fetal brain must be forming neuronal templates around primary sensory experiences in order for sound and taste to be recognized by the infant.

Secondary image transformations observed in dreams and hallucinations specifically tie percepts to concepts and concepts to percepts imaging transformations into a bi-directional loop. These processes are dynamic and not linear. Transformative imaging (TI) is not only fundamental to the interpretation of dreams and hallucinations, but of critical importance for analysis of psychogenic illnesses. Observed, bi-directional imaging in dreams empirically resonates with Whitney and Fischer's research.

I'm attempting to demonstrate that the subjective nature of dream imaging content requires consideration of processes taking place in both our higher cortical centers and the brain's core dynamics. Further, that suggestion and belief can activate both conscious and non-conscious transformative imaging processes (Just, 2009, 2012).

In the past 15 years, brain plasticity has become empirical fact (Doidge, 2007). Following Donald Hebb's seminal work in 1949, which demonstrated neural plasticity, the role of dreams integrating and consolidating memories is fairly well established (Clark, 1986; Stickgold, et al., 1999, 2001; Walker, et al., 2002; Tononi & Cirelli, 2014). I'm viewing the neuronal plasticity hypothesized by protoconsciousness theory as the primary mechanism underlying behavioral plasticity. Neural circuits and networks are formed epigenetically from experience and modified lifelong. Memories are formed and re-formed by dynamic neuronal

processes; thus, memories are always subject to change as they are integrated, consolidated, and pruned daily.

Triangulation of memory content across states of consciousness is the phenomenologist's method of translating dream image transformations into systematic observations of scientific quality. Triangulation of memory content underlies discovery of ego semantics such as the "hole-hold" example.

### **PART III: EGO IMAGE TRANSFORMATIONS ACROSS STATES OF CONSCIOUSNESS**

#### **Trance Enactment**

Protoconsciousness theory can account for fetal sensory experience with infant awareness of mother's voice, music exposure, and food tastes. Fetal memory carried into infancy must be instantiated on the brain's most basic neuronal configurations. As set forth, protoconsciousness theory assumes that proto-self is a co-emergent of these fundamental processes. These are epigenetic processes that occur before the infant acquires waking awareness. Fetal learning without waking conscious awareness underlies the formation of a dynamic unconscious, which must be biochemically imprinted on non-conscious primary sensory neuronal networks.

It is noteworthy that neuronal networks at any stage of development from infancy through old age are dumb processors. Attempts on the part of naturalist to find consciousness at this basic level of brain architecture, in effect, supports a dualistic conception of self. The model that is being developed is monistic. Allan Hobson calls this conception of self, dual-aspect monism. Thus, self is viewed as a supervening, autonomous process of consciousness that is never independent of its physiology.

Fetal and infant memory research identifies neuronal plasticity that supports behavioral plasticity. Neuronal plasticity permits acquisition of any language and adherence to an endless variety of cultural beliefs, which come to fruition with mature secondary consciousness. Of primary consideration is a growing body of research in neuroscience that documents 95-98 percent of human learning being stored in the brain's dynamic core—in what Lakoff and Johnson call the cognitive unconscious, (1999). In therapeutic terms, the cognitive unconscious is the dynamic unconscious.

Hypnotist-subject trance enactment gives the subject's ego control to the hypnotist and makes memories stored in the subject's dynamic core available to the hypnotist. Ego as the supervening component of consciousness conceptually establishes its autonomy. Most importantly, however, ego grounded fully in its biological architecture can and does act independently of dumb core brain processors. Ability to enter hypnotic states helps clarify the modular-process relationship between core brain dynamics and autonomous ego. Shortly, I will provide additional examples of the brain's core-self imaging process to further solidify this argument.

When removed from trance, the subject can be primed to act out specific routines such as barking like a dog. When asked why he/she barked, the subject doesn't know. It is suggested that this phenomenon helps clarify the autonomous role of ego when it is the primary

interface with its own core dynamics. Of major import is the realization that ego routinely sets unconscious neural networks into action at both the conscious and unconscious levels. The autonomy of ego and the automaticity of core brain dynamics can be viewed as the functional organismic efficiency of evolution.

The use of self-hypnosis that retains ego lucidity in trance informs us in a manner not possible with objective research alone. Individually it is quite obvious that we have the ability to perform complex behavioral routines without awareness. In following sections, I will analyze complex non-conscious behavioral routines and controlled narrative hallucinations to demonstrate various capacities of the dynamic unconscious.

Learning to dream lucidly is now a known and fairly easily mastered state of consciousness. Control in lucid hallucinations is less well understood (Just, 2009; Hobson & Just, 2013). I have over 50-years of experience using self-hypnosis to control altered states of consciousness (Just, 2009), and demonstrates the use of the self-hypnotic method to control and program entire dreams (Ibid).

Traditional Freudian psychotherapy assumed that direct control over the brain's core dynamics with hypnosis would compound neuroses. Talk therapy using anamnesis was the preferred method by which the therapist brought about a cure. This was an unfortunate 20<sup>th</sup> Century therapeutic posture that delayed more effective incorporation of hypnosis into therapeutic strategies. I have used self-hypnosis for decades without any negative, but substantial positive effects (Ibid).

Protoconsciousness theory supports ego being an epigenetic co-emergent process with consciousness; a complex process that is supported by the brain's entire sensorium. As a virtual meta-sensory process, the phenomenal-self continues to exist with the partial loss of sensory inputs such as sight or sound. This picture of ego as dispersed neural networks that are integrated developmentally from fetus through childhood and into our elderly years builds on Gerald Edelman's theoretical conception of Neural Darwinism (Edelman, 1987). Edelman's view is dynamically holistic and assumes that evolution selects neuronal groups over time, much as genes are differentially selected.

Hypnotist-subject, non-lucidity, or subject-only lucid self-hypnosis acknowledges the autonomy of ego as a separate epigenetic entity. The hypnotist's ego replaces that of the subject's with externally induced trance. With self-hypnosis, lucidity permits one's ego to remain active, thus, capable of observing and directing sensory image transformations at either the primary or secondary level. Developmentally, we each construct our ego through direct environmental and social interaction.

We construct a phenomenal-self-model (PSM) that creates the illusion that we are in direct contact with the world (Metzinger, 2003, 2009). However, we do not experience living in a subjective model of self, we have a sense of experiencing the world directly; thus, the self-model remains hidden from waking consciousness. I'm arguing that Metzinger's existential model of self is the only reality we know. Further, how well we come to grips with objective reality, what actually exists in the world, is a learning process dependent on science and education.

We can each learn to manipulate our virtual ego and PSM. Once constructed, the PSM is treated by ego as an objective fact. The difference between subjective and objective fact with one's PSM is noted with anorexics who feel fat even as they waste into near-death states. The subjective reality of ego differs between dreaming and waking states. But dreaming or

waking, ego is in a “now” state of subjective reality. Again, note that my treatment of the PSM is very compatible with Metzinger’s theoretical formulations (2003, 2009).

Tibetan Buddhists are famous for their ability to create an image during meditation, hold the image mentally, and through mental manipulation transform the image. In programmed dreams, entire movie-length scenarios are created and controlled through lucidity. In shamanic totemic exercises the shaman substitutes the persona of a totem for his phenomenal-self (Just, 2009, 2011). Thus, across cultures, religious orientations, and studies of dream lucidity, we have numerous examples of PSM manipulation and control by ego. Cross-cultural analysis of phenomenal state manipulation is usually ignored by those hard-core naturalists who debunk phenomenology out-of-hand.

The reader might be tempted to interpret ego manipulating its phenomenal-self-model as a form of dualism. A little reflection on the empirical research that is provided suggests that ego should be viewed as a monistic entity that is always firmly supported by the brain’s cellular biology. The phenomenal self-model represents the current instantiation of self-elements that reside in one’s plastic memory, and are drawn upon moment-to-moment by ego. Thus, theoretically, I remain grounded in neuronal networks with any discussion of ego or PSM.

Ability to manipulate the phenomenal-self provides support for the protoconsciousness interpretation of self as a virtual emergent from the brain’s neuronal architecture. Ego plasticity is most poignantly observed with PSM manipulation. The synergistic discoveries that result from the integration of phenomenological and empirical methods, I contend, are not available to objective research methods alone. Alone, objective research methods view ego or self as illusion. I’m arguing that the integration of objective and subjective methodologies can bridge the unintentional support for dualism of some naturalists and most Freudians through systematic integration of the research strategies presented.

### **Trance Enactment in Dreams: Glen Just’s Classroom Furniture Manipulations (14 November 2013)**

The night preceding the following dream account, I had reviewed Thomas Metzinger’s ideas about self and consciousness. Cogitation over Metzinger’s ideas is clearly evident in the following dream. This is a good example of how waking experiences are carried into and influence dreaming, and how ego can remain meta-cognitively active 24/7. Without lucid dreaming one would be unaware of ego cogitations during the sleep sequence. The phenomenological method is indispensable to these discovery processes. Freud, limited by the neuroscience of his time and eagerness to create a special clinical method of analysis, substituted free association for the type of phenomenological discovery being expounded.

Dream scene: I’m in a large classroom setting with a group of unspecified people discussing states of consciousness. The problem I’m confronted with is whether I can exit the classroom in a straight line. However, in order to do so requires me to pass through numerous rows of desks and chairs. The presenting problem in this dream does not permit me to move over the tops of the chairs and desks. (Notice how directly my dreaming ego is meta-cognitively reflecting on this induction process and the previous day’s reading of Metzinger).

As I concentrate hard on the predicament, the desks and chairs begin to dissolve. A passage opens up, one that would enable me to walk in a straight line to the door. I can now

walk across the area that was full of furniture just moments before. I tell myself, “You are still able to enter ‘trance’ while dreaming.”

I wake up and look at the clock; it is 5:30 a.m. I’ve slept soundly though the night and feel relaxed. I contemplate the dream for 30 minutes, until 6:00 a.m. and realize that I’ve performed this trance induction many times in dreams, but have never fully analyzed what it means. As noted, this is a form of image control used by some Buddhist adepts; it is not to be confused with occult mysticism. The induction that is subjectively experienced while dreaming feels the same as it does when I’m awake.

Once this dream-trance state has been enacted, I can lucidly manipulate any of the visual content I choose. Thus, I dissolved chairs and desks and instantly moved in a straight line, I did not walk, directly to the exit door. Rather, I moved directly to the door by passing through the space previously occupied by desks and chairs that was now empty. Dream movement that brings one from point A to point B instantly is common. It also demonstrates the difference between how the phenomenal-self transforms imagery and moves in dreams versus waking states. Most significantly, movement in dreams speaks loudly to the virtual existence of the phenomenal-self.

In my experience, ego treats self-generated, virtual space of the phenomenal-self as though it were behavioral space. This observation is highly compatible with Blackmore’s theory that in out-of-body experiences, ego treats virtual space as behavioral space (Blackmore, 1982). It appears that Blackmore’s theory applies to PSM manipulations in any lucid state of consciousness.

Hebbian learning is often summarized as “neurons that fire together wire together,” and “neurons out of sync fail to link.” This is a folk culture way of saying that neurons are plastic and change over time and that the process revolves around active learning. Phenomenological analysis of skills exhibited during dreaming—skills that have not been acquired when we are awake—sheds additional light on the virtual structure of ego processes.

### **The Unconscious at Work: Glen Just’s Music Ability in Dreams**

During my early years as a university professor, I regularly listened to my favorite violin and piano recordings. I was pleasantly surprised to find that I could perform some of my favorite pieces in my dreams—although I never studied either instrument. I’m greatly moved by classical piano and violin and find it difficult to sit still during live performances. Unobtrusively, I routinely move my hands and feet, and energize much of my body. When I sit down at my dream keyboard, I’m aware that I’m an illiterate piano player; nevertheless, when I place my hands on the keyboard, they move automatically and the piano rendition fills my senses.

This dream-state ability is a poignant example of the dynamic unconscious at work. Non-consciously embedding musical notes in neural networks is no more mysterious than the acquisition of obsessive-compulsive disorders. The process is one of acquiring unconscious memories—Hebbian-learning is reflected in the bulk of one’s behavioral repertoire that occurs automatically in the dynamic unconscious. I’m suggesting that the music dream example of Hebbian-learning is another nail in the coffin of Freud’s concepts of disguise, censorship, and his version of the unconscious.

## **The Holism of Dream Movement**

Without knowledge of the phenomenal-self, movement in dreams initially seems amazing. How can I levitate or fly? How can I leave my body and observe it at the same time as an etheric double? How can I pass through solid objects such as the ceiling of my bedroom? Individuals who experience similar movements in dreams or hallucinations can be perplexed or exhilarated. I was both perplexed and amazed by these movement examples from childhood through my early adult years (Just, 2009). Lucid observation of movement in dreams and hallucinations provokes our curiosity and one's ego demands an explanation.

Awake we forget that movement occurs with automatic, habituated linkages between the body and the brain's core dynamics. In dreams and hallucinations we are very conscious that the phenomenal-self moves in behavioral space of its own creation (Metzinger, 2003, 2009). Gravity is a ubiquitous subjective reality from the days of the fetus and throughout the lifespan. Yet, in altered states it is routinely violated. The phenomenological method of discovery that I employ can be used to experiment with the PSM in endless ways, as there are innumerable elements to explore across states of consciousness.

Support for protoconsciousness theory is most evident with the controlled manipulation of the phenomenal-self-model. The human brain does not interact directly with its environment; and sensory image transformations intervene at both the primary and secondary levels. And at the secondary level, we experience, move, and use the autonomy of ego to navigate our world. Protoconsciousness theory says these processes begin to emerge with fetal life and remain life-long.

## **Controlled Trance States and Phantom Limbs**

Psychiatry and the *Diagnostic and Statistical Manuals* (DSMs) have pathologized trance and hallucinatory states with focus on symptoms. Consequently, a sizeable "New Age" movement occurred in North America in the 20<sup>th</sup> Century that was associated with occultism and mysticism. Generally, this movement left systematic phenomenological and scientific analysis of altered states of consciousness to those who interpreted PSM actions as being associated with the nether world. Gerald Edelman, Thomas Metzinger, and Allan Hobson as philosopher-researchers have attempted to return subjective research to a more holistic scientific integration. Following the leads provided by these philosopher-researchers in the rest of this discussion, I continue to explore the autonomy of the phenomenal-self and the automaticity of core brain dynamics by analyzing specific examples of controlled trance and spontaneous hallucinations. The following examples have also been taken from my personal history (Just, 2009).

## **Zen Driving**

Zen driving shares the automaticity of the brain's core dynamics with automatic writing, glossolalia, driving in a back-out, and phantom limbs. In Zen driving, the body is subjectively fused with the car and ego experiences the fusion as its own body (Just, 2009). Long-term driving embeds extensive behavioral routines in the brain's neural networks, which are

automatically activated in Zen. Most long-term drivers experience a variation of this phenomenon when they become overly tired driving long distances, and don't remember driving the last one or two hundred miles.

In Zen driving, core brain dynamics take over and ego relaxes and enjoys the ride. Alcoholics and drug addicts know this phenomenon first-hand after they've driven hundreds of miles in a blackout and have no recall of how they got to their destination. Usually in a waking state, ego observes and has a sense of having made driving corrections moment to moment. However, in subjective reality, the mature driver's waking brain's core dynamics does 99 percent of the work with ego only making corrections as necessary. In Zen driving, ego has the subjective experience of the brain's core dynamics doing 100 percent of the driving. From personal experience, driving in a Zen state of consciousness does not produce normal tiredness (Ibid).

### **Controlled Narrative Hallucinations: Glen Just's Genesis Journey**

We can use auto-suggestion or self-hypnosis to program and control narrative dreams. Once one learns to remain lucid in a programmed dream, we can introduce new elements at will while the dream is unfolding. Manipulating the contents and storyline of a controlled dream establishes ego as the master of its phenomenal world, so to speak. Meta-consciously, once ego becomes aware of its ability to manipulate phenomenal space, this capacity can be transferred to other altered states of consciousness. The following narrative hallucination is a first-hand account:

It was a quiet, very cold afternoon in Minnesota. I was reading a popular physics book about the Big Bang, superluminal travel, and quantum action at a distance. I decided it would be fun to subjectively experience the early universe.

I put down my book, concentrated briefly, and left my body. I quickly moved out of Earth's orbit, shot past the sun, observed the Milky Way, and then engaged hyper speeds as clusters of galaxies and voids passed by rapidly. I physically hit the plasma wall of the early universe and came to a sudden stop (Just, 2009).

I'm skipping most details of my trance-like journey, but note that the emotional impact of similar experiences are totally realistic and subjectively overwhelming to ego. Even though I orchestrated the trance experience and remained in lucid control, the emotional impact stayed with me for days. Lucidly controlling trance in this manner helps us appreciate the subjective impact phenomenal space and time manipulation has for individuals like Joan of Arc, or a shaman sitting on the moon.

### **Glosolalia: Subjective Perception and Core-Self Dynamics**

Speaking-in-tongues (glosolalia) is practiced by different fundamental religious movements. From my personal experience, we enter a trance-like state, disengage ego, and activate vocal processes (Just, 2009). Fundamental religions interpret glosolalia as communication with the spirit world, God, or Jesus himself. The emotional state is ecstatic and can even lead to orgasm, which then comes to be defined as mystical union with the perceived spirit (Just, 2011).

From my personal experience with fundamentalist churches, most speakers-in-tongues experience total Immersion in trance and do not practice lucidity. Belief and cultural expectations prime the practitioner to believe that they are in nether world communication. This practice has been part of Christianity since the time of Jesus (Ibid).

I am not attempting a comprehensive exploration of the phenomenology of altered states of consciousness. Note, however, that any aspect of our senses can be explored phenomenally—sight, sound, taste, as well as ego’s relationship to gravity, body image, ego autonomy, and touch.

### **Phantom Limbs**

V. S. Ramachandran has demonstrated the relationship between the expectations of waking consciousness and the subjective orientation of the brain’s core dynamics (Ramachandran & Blakeslee, 1998). In Ramachandran’s cure for phantom limbs, it is noted that subjective reality of core brain dynamics supervenes over that of waking consciousness. War and accident victims who lose a limb often complain that the missing limb remains painful or is stuck in an uncomfortable position. Incremental removal of the severed stump still leaves the virtual limb with all its pain and discomfort. Psychoanalysis alone cannot remove virtual limbs, or do away with associated pain or discomfort.

Ramachandran’s cure was simple. He took a plain cardboard box, placed a mirror in the box such that the subject’s remaining hand was reflected and created the illusion of two working hands. The subject was then asked to move his good arm while focusing on his phantom limb. Magically, the brain subjectively imaged the phantom moving. Subjectively the patient was relieved of his pain. Object lesson:—subjective reality supervenes over objective reality. In terms of protoconsciousness theory, phantom limbs exist as phenomenal entities, neuronal patterns burned into the brain that persist after the limb has been severed. Ramachandran’s cure works by manipulating this virtual entity to ego’s satisfaction. This sensory image interpretation by ego is a stark reminder of how the phenomenal-self is subjectively created and maintained. What, then, is the relationship between phantom limbs and trance states of altered consciousness?

### **General Principles: Suggestion, Belief, and Image Transformation**

Neuroscience informs us of the extent of brain plasticity and how dreams help integrate, consolidate, and modify the brain’s memories. Medical practitioners like V. S. Ramachandran use subjective reality for effective cures. As an example of modern day Catholic clergy, Pope Francis was observed curing a believer supposedly possessed by four “demons” at a large Vatican ceremony in 2013. Historically, shamans have routinely incorporated the persona of totems as substitutes for their phenomenal-spirit and body. In common, all of these practices of phenomenal-self and phenomenal-space manipulations support ego as a virtual creation that can be manipulated through ritual, belief, and/or acquired self-controls. From the previous discussion of ego image transformations in altered states of consciousness, and how subjective reality supervenes on objective consciousness, the following phenomenological principles are derived.

- 1) Hebbian learning that supports the phenomenal-self is subjectively organized at the brain's core dynamic level according to belief. Genomic memory is considered to be the source of instruction for the brain's self-organization of protoconsciousness processes.
- 2) Auto-or third-person suggestion, based on belief, is used by ego to create and modify sensory images in all states of consciousness.
- 3) Subjective reality of the phenomenal-self supervenes over objective reality.
- 4) Sensory images in all altered states of consciousness reflect both top-down and bottom-up image transformations.
- 5) Psycho-pathogenesis emerges from phenomenal sensory image transformations that ego experiences as being veridical.
- 6) Image transformations of the phenomenal-self may be under ego's control or non-consciously enacted by the brain's dynamic core.
- 7) Memory routines embedded in the dynamic unconscious are expressed according to individual belief and cultural conditioning.
- 8) Direct intervention in the psycho-pathogenesis of mental illness is preferred over indirect treatment methods because top-down subjective meaning derived from cultural belief helps organize neural networks in the brain's dynamic unconscious.
- 9) Protoconsciousness theory offers an organizational framework to re-conceptualize the autonomy of ego and ego's active role in the therapist-client diad. (I will not develop this principle in this discussion).

#### **PART IV: SECONDARY SENSORY IMAGE TRANSFORMATIONS AND PSYCHO-PATHOGENESIS**

V. S. Ramachandran's subjective intervention with phantom limbs exemplifies therapeutic creativity when we set aside the unnecessarily limited biases of objective research. Western psychology and neuroscience with its emphasis on Freudian psychiatry—a behaviorism that excluded functional ego autonomy—and emphasis on cellular and biochemical processes in the brain that were supposedly unaffected by ego, failed to produce simple cures of the Ramachandran type. Failure to incorporate self as a virtual but functional phenomenal process placed effective self-help strategies of yoga, meditation, and dream programming in the mystic's realm. Even the positive use of acupuncture to control pain was sidelined.

In the following presentation I will focus on applications of the combined objective-subjective methodologies to help rethink components of a psycho-neuro-phenomenology of mental health (Panksepp & Biven, 2012). The term mental health is emphasized in order to shift focus away from the disease model of psycho-pathogenesis.

Setting aside popular philosophical and psychological interpretations of self as an illusion is the first step to the exploration and control of all states of consciousness, altered or not. I continue to explore additional examples of secondary image transformations in dreams, hallucinations, paranoia (possession), and trance in order to promote rethinking of the emerging psycho-neuro-phenomenology of mental health. Theoretical focus remains on the relationship between the automaticity of core brain dynamics and the autonomy of ego.

## **Dream Illusions**

Freud had a contrived interpretation of the unconscious (Brill, 1938) that required use of his analytical talk therapy. Freud's therapeutic use of Id, Ego, and Superego focused on how the interrelationships between these hypothesized structures were used to repress memories. The use of anamnesis therapy was preferred as the method by which the contents of the unconscious could be revealed. Freud's interpretation of dreams was central to his attempts to reveal neurotic elements of the unconscious. Free association in talk therapy that revealed contents of the dynamic unconscious was his method of effecting psychoanalytic cures. The direct manipulation of core brain dynamics that I used for decades in self-therapy was forbidden by the Freudian model.

I suffered a broken ankle December 29, 2012. The following account of dream image transformations belies Freudian disguise and censorship while it exemplifies direct expression of sensory image transformations observed in dream content.

## **Dream Image Transformation: Glen Just's Broken Ankle Dream**

The ankle cast was removed at the end of the sixth week. I stopped using pain killers at the end of the third week. Once the cast was removed, any pressure on the partially healed ankle was uncomfortable and painful. The following narrative is one of many similar dreams over a period of about two weeks. In these dreams, I am subject to foul play. Dastardly types abuse my ankle to the point of torture. I would wake up from the pain only to discover that heavy blankets had bunched over my ankle, and the added weight had confined my foot to an uncomfortable and painful angle.

From earlier discussions of "somatic dreams," I noted the direct image transformations such as those of turning loud household sounds into dream gunshots, or sweating being imaged as a series of watery dream scenes. In the broken ankle dream pain at the level of primary consciousness is reimaged at the secondary level as personified torture. Ankle pain in this dream is given an author by our VRG. Note that ego as dream author requires personification in order to be socially active in secondary consciousness.

Readers who are familiar with Freud's hypotheses will note the differences between his explanations of disguise and censorship and my proposed image transformation interpretation. As previously stated, ego image transformations can be bottom-up like those of the broken ankle example, or image transformations can be top-down like those of the submarine *hole-hold* example. Setting aside Freud's imposed theoretical restrictions permits consideration of direct therapeutic intervention and furthers exploration of a wide variety of psychological, neurological, and chemical therapies.

## **Hallucinations: Controlled and Spontaneous**

The example of a controlled narrative hallucination (e.g., my Genesis Journey) helps clarify ego as an autonomous, functional component of consciousness. Controlled narrative hallucinations in turn help clarify the plasticity of the phenomenal-self, and holistically we gain insight into the subjective reality of secondary consciousness. Awareness derived from

phenomenological analysis of altered states supports direct intervention in the modification of the brain's neural networks, as envisioned.

Spontaneous hallucinations are common, but are usually confined to simple elements; for example, when a person's tired mind perceives a hat rack to be an intruder. Spontaneous narrative hallucinations are more commonly associated with psychosis in the Western world. In that we can learn to enact narrative hallucinations naturally, through ritual, or as uncontrolled expressions of drug-soaked brains, we gradually come to grips with the bi-directional image transformations subject to ego's control. Joan of Arc is a well-known example of a person who hallucinates spontaneously. Historical mysticism common to world cultures has viewed these narrative hallucinations as visions. I propose that learning to enact similar narrative hallucinations on demand or through rituals calls mystical interpretations into question.

Derivation of the above listed 9-principles is the product of triangulating objective and subjective research methodologies. What has been called Eastern religious mysticism, and therefore neglected by the Western scientific community until recently, has been the world's repository of phenomenological methodology. Long-term manipulation of phenomenal states, when triangulated with contemporary neuroscience, synergistically reunites Eastern and Western world views. Thus, I'm attempting to integrate the holistic phenomenism of Eastern worldviews with Western empiricism.

Integration of objective and subjective methodologies has more than esoteric value. Combined research methodologies speak to the potential contributions that this integration can make to the identification of the mechanisms that generate psycho-pathogenic illness. I call attention to the 8<sup>th</sup> phenomenological principle:

- 10) Direct intervention in the psycho-pathogenesis of mental illness is preferred over indirect treatment methods because top-down subjective meaning that is derived from cultural belief helps organize the neural networks in the brain's dynamic unconscious.

The dynamic interaction observed in lucid dreaming between ego and primary consciousness addresses three major psychogenic processes.

- 1) The dynamic unconscious is partially organized through direct ego semantic interpretations derived from cultural beliefs. As dream examples exemplify, this dynamic organization involves bi-directional image transformations at both the primary and secondary levels. Of critical therapeutic value is the realization that ego plays a significant role in the semantic content organization of the brain's core dynamics. Thus, directly accessing the content of the brain's core dynamics with hypnosis, or on target dream analysis that identifies the nightmare's cause can relieve symptoms and eliminate long-standing, repetitive nightmares. I give personal examples in my autobiography.
- 2) The dynamic unconscious is also shaped by Hebbian conditioning of its neural networks, as is the case with obsessive-compulsive disorders. Thus, unconscious learning of the Hebbian-variety that leads to obsessive-compulsive behavior can be effectively controlled with direct cognitive-behavioral intervention. In agreement with Allan Hobson, Freud's idea that overlearned behaviors called obsessive-

compulsive are caused by repressed aggressive impulses is rejected (Hobson, 2014b). I also give a personal example of obsessive-compulsive behavioral elimination as an 11-year-old in my autobiography (Just, 2009).

- 3) Once established, both conscious and unconscious components of the dynamic unconscious are expressed automatically. Thus, I assume that the unconscious and automatic interpretation of how the phenomenal-self observes and reacts in Ramachandran's phantom hand cure is a product of psychogenic mechanisms 1, 2, and 3.

Viewing the development of neuronal networks in the brain's dynamic core as a bi-directional process between ego and the brain's dumb core processors is of significance for both clinicians and students of consciousness. The proposed semantic contribution to core brain dynamic structures by ego supports direct therapeutic intervention strategies and rejects traditional Freudian-based psychoanalysis.

Protoconsciousness theory and phenomenological methods help articulate the cellular and biochemical nature of memory with the autonomy of ego formation and functionality. Memory formation, integration, and modification are now fairly well-known processes that empirically challenge Freud's diagnostic black box of the unconscious. Consequently, as the therapeutic community and neuroscience jointly approached the 21<sup>st</sup> Century, a substantial variety of direct therapeutic interventions emerged such as the refinements of cognitive-behavioral therapies (CBT), eye movement desensitization and reprocessing (EMDR), neuro-feedback; and yoga and meditation—the latter two examples emphasize self-regulation. For an insightful overview of current therapeutic trends see Bessel van der Kolk's *The Body Keeps the Score*. For a contemporary view of affective neuroscience and affective behavioral therapies (ABT), I suggest Jaak Panksepp's Chapter 12 in *The Archaeology of Mind*.

## Secondary Image Transformations

My example of hypnagogic flower image transformations stressed the autonomous role of ego image manipulations. My dream programming examples demonstrate direct substitution of pleasant for traumatic dreams. Gaining ego autonomy over the brain's dynamic core processes with self-hypnosis, automatic imaging by our VRG, demonstrates a direct method of suppressing and controlling nightmares (Just, 2009, 2012). Dream programming offers a quick and effective method of treating trauma victims suffering from PTSD. I suggest that clinical trials comparing dream programming using hypnosis along with contemporary neuro-feedback and desensitization strategies is in order. I would predict that a combination of strategies will have the most lasting positive effects.

In the example of ego personifying pain, as in my broken ankle dream, proprioceptive stimuli are transformed into bad guys torturing ego's eidetic double, so to speak. Consciousness is a subjective state of being. Remove any of our primary senses from the brain's global sensorium and global consciousness is diminished. Remove sight, sound, touch, taste, and smell and the individual ceases to be. Ego in the sense of Gerald Edelman's theory of "neuronal group selection" co-emerges with consciousness and is expressed from bounded sensory stimuli.

In the course of Alzheimer damage, the gradual diminution of ego occurs with the demise of related sensory structures. In terms of the phenomenal-self model that I'm supporting, the slow demise of sensory structures means the gradual elimination of transformative imagery, which underlies the creation and maintenance of ego itself. Thus, in agreement with protoconsciousness theory, image transformations of the VRG are viewed as the primary mechanism that creates and sustains ego.

Individually, we experience pain as occurring in the respective body part, not in the brain where it is actually composed. Lucid observation in the broken ankle dream calls attention to the dual states of consciousness under discussion—self observing self. Observing lucid ego image transformations in dreams suggests the ubiquitous nature of the mature phenomenal-self attempting to maintain a waking cause and effect relationship. However, without waking corrections to sensory input in dreams, image transformations appear bizarre to waking ego.

Proprioceptively and interoceptively ego creates a phenomenal-other in a complex transformative process similar to the virtual creation of pain or the color red. Our VRG must always be on—in any state of consciousness—or the primary transformations of images cannot occur. In my theoretical formulations of image transformations, secondary consciousness requires personification of pain in dreams if ego is to have a social presence.

The phenomenal-self does not deal in hyperbole (Freudian mentalisms) it personifies. In like fashion, gravity is not an abstraction that has objective meaning to the body—gravity for the body is balance, falling, and a sense of something out there that is exerting physical force. In waking consciousness gravity like pain is a subjective experience. Automatic image transformations at both the primary and secondary levels occur below the radar screen of consciousness. As the philosopher says, "They are invisible."

Pain is simply another fictive creation, but pain is experienced by ego as being substantive. As a fictive creation, pain can subjectively appear to originate from an affected or injured body part—as in the case of my broken ankle. Subjective image transformations of stimuli are how we humans grow and survive as we transform all sensory input into substantive meaning. Motor navigation of our physical world is predicated on invisible sensory image transformations that sustain consciousness itself.

## **Altered States and Subjective Reality**

I've given examples of controlled altered states of consciousness by referencing Buddhist meditator's ability to manipulate mental images, trance enactment in dreams, dream programming, and phantom limb cures. This background was provided to establish the phenomenal-self as a functional autonomous agent, to demonstrate the relationship between neuronal and behavioral plasticity, and to set the stage for reconsideration of a psycho-neuro-phenomenal model of mental health.

Ursula Voss and colleagues have empirically established the physiology of dual brain states with quantitative EEG imaging. Thus, lucid dreaming as a physiological state has moved from the mystic's box to empirical reality. I use Voss and colleague's example to clarify a point with self-hypnosis. I used self-hypnosis starting in 1958 to control nightmares. Discussions of nightmare control with direct use of self-hypnosis or hypnotist directed hypnosis was forbidden by the Freudian psychiatry of that time. Consequently, I experimented with self-hypnosis to control dreams and other altered states as the isolated son

of experimental phenomenology. I predict that self-hypnosis will support a dual state of consciousness that parallels the physiological findings of Voss and colleagues with lucid dreaming.

### **Trance and Self-Hypnosis as Dual States of Consciousness**

Multi-disciplinary comparison of terminology across states of consciousness is confusing. Confusion of meaning occurs when pre-sleep, hypnagogic, dual states of consciousness are referred to as trance. Trance is a descriptive term associated with hypnosis and mystical states of consciousness. In this discussion, I've set trance definitions aside by recognizing that we can individually be in two states of consciousness simultaneously (Voss, et al., 2009, 2012; Hobson, 2014b). I've also demonstrated with Zen driving and phantom limbs that the brain's core dynamics can direct behavior and perception without ego's direct involvement. Although, I quickly add that ego sets Zen driving in motion and follows the process moment-to-moment.

The automaticity of core brain dynamics can be expressed under ego self-control or that of the hypnotist. A similar state of consciousness also exists in the morning when we partially wake up in a dual state that is labeled hypnopompic. As previously noted, technical imaging of the brain reveals dual states of consciousness as an empirical brain state (Voss, et al., 2009).

Hypnosis or self-hypnosis can be used to gain control over consciousness states (Just, 2009, 2012). Once ego as the brain's meta-cognitive overseer acquires the ability to lucidly observe dreams, this capacity can be employed in other altered states. As I've attempted to demonstrate, phenomenal experimentation across states of consciousness facilitates discovery of related psychological processes. Critically, waking consciousness always involves both primary and secondary image transformations, with the exception of advanced dementia. Image transformations at both levels are invisible, but can be brought under control and observed with lucidity. Phenomenological methodology employed to engage and manipulate image transformations across states of consciousness suggests numerous Ramachandran-type approaches to the treatment of psycho-pathogenesis, which I also do not develop here.

### **Possession As Paranoia**

I earlier referenced a report of Pope Francis removing four "demons" from a poor soul in Vatican Square, 2013. Possession by "demons" has different meaning for the occultists and the scientific community. Science says "demons" are nonexistent; hence, they can simply be dismissed. Occultists say that "demons" cause great psychic pain and must be taken seriously. Confusion over the terms between differing world views leads to viewing "demonic possession" as either fiction or as psychic fact. Additional conflict results from historical folk psychology, which is often at variance with contemporary empiricism. Once I integrate the subjective reality of the phenomenal-self with empirical science, conflict and confusion of terms disappears. In the proposed phenomenal model of self, virtual "demons" are entered into consciousness and physically experienced as real entities; thus, as virtual creations of ego, "demons" require therapeutic intervention as much as phantom limbs do.

Learning to employ self-hypnosis is relatively easy for those attuned or sensitive to hypnotic trance. If we chose to learn self-hypnosis (Just, 2009), we practice a sequence of baby steps known in the world of science as cognitive-neuro-feedback. For example, one of the first steps in the acquisition of self-hypnotic skills is learning to let one's arms or legs rise without conscious efforts. To shorten a long explanation, ego learns that it can observe and control body actions without employing normal waking commands. One just thinks about changes in their phenomenal landscape or behavioral space, and unconscious transformative imaging can happen. Recall that we observed this process of image transformation in my pre-sleep (hypnagogic) flower transformation. Buddhist meditation and dream trance manipulation are similar examples of the final results of gaining direct control over core brain imaging dynamics.

Buddhist meditation and dream trance control informs the individual that the brain's phenomenal content is a virtual creation that can be manipulated by ego. I suggest that there is nothing mysterious about the neuronal mechanisms involved; what is mysterious is the mystification of neuronal patterns called trance. Psychogenic image transformative processes are at the heart of subjective reality, the only reality we humans know. As I've demonstrated in personal experience examples, anything can be entered or subtracted from the contents of our phenomenal-self model and phenomenal-space.

In the act of becoming possessed by a "demon," internalized cultural definitions drive image transformations of subjective reality. Anxiety from any source leaves somatic traces that the "demon"-to-be-victim experiences as coming from external sources. And like somatic image transformations in dreams, we experience the presence of the "demon," are unable to ward it off and, over time possession becomes a subjective reality. Removal of the demon requires a Ramachandran-type cure. Defining "demon" possession as nonsense leaves cure in the hands of those who practice historical shamanic rituals.

Examples of "demon" possession, phantom limbs, and trance-state controls demonstrate the virtual reality of phenomenal states of consciousness. These examples call attention to the variety of psycho-pathogenic illnesses of which we humans are subject. Rethinking the plasticity of self as a virtual process, and the relationship between primary and secondary consciousness in terms of image transformations supports further development of a psycho-neuro-phenomenology. In closing this discussion, first let me revisit protoconsciousness theory.

## **Protoconsciousness Theory Revisited**

Developmentally, neuronal templates or maps are being formed in the fetus's last trimester. The brain's neuronal templates are self-organizing and guided by genomic instructions. Primary fetal templates are experientially built on and modified lifelong. Behavioral plasticity is a reflection of neuronal plasticity. Direct control or modification of the brain's neural networks modifies how one perceives and acts. Psychogenic processes have real outcomes in terms of behavior, modification of neural networks themselves, as well as modifications in brain structures such as the amygdala and hippocampus (For multiple resources see Doidge, 2007).

Once we realize that neuronal plasticity is an empirical fact, we are led down the road of correlated realities. Brain networks change through the organism's experiences in

environment. Change environments and learning experiences and we change the brain neural networks. Modification of the brain's physical structures such as the amygdala or hippocampus through self-environment interaction is a stark reminder of the brain's structural plasticity. Brain plasticity subject to environmental pressures in turn focuses attention on all the myriad factors that can interfere with biochemical and cellular homeostasis. Thus, awareness gradually emerges that newly created homeostatic metrics associated with depression and anxiety can permanently alter the required biochemical and cellular basis for the maintenance of healthy psychogenic processes.

The heuristic value of the protoconsciousness theory is to seamlessly track fetal sensory imagery into infancy and through old age.

Protoconsciousness theory assumes that REM and dream imaging supports essential structural and functional elements that underlie all sensory organization. Protoconsciousness theory is supported by the ongoing image integration and modification that can be observed in lucid dreaming and by the sensory responses of infants after birth.

The implications of protoconsciousness theory are rather profound: Ego as a meta-cognitive entity emerges in the brain's higher cortical centers from all forms of sensory input. As a meta-cognitive emergent, I'm envisioning ego as a process of functional neural networks compatible with Edelman's theory of Neural Darwinism. The scope and robustness of ego depends on how the brain's neurons are stimulated and nurtured. Allan Hobson's new theory of protoconsciousness forms the foundation from which I've attempted to integrate physiology and phenomenology. In this integration, I have found much value in his research and theorizing.

The protoconsciousness model of neuronal development supports rethinking fetal and infant learning, child development and education, and the social structures that fail to adequately support millions of America's children. The protoconsciousness model rejects traditional Freudian-based psychoanalysis while it provides hard empirical evidence for a 21<sup>st</sup> Century psychodynamic neurology. Once again in agreement with Allan Hobson, I find little value in efforts by 21<sup>st</sup> Century neo-Freudians to resurrect the old wordsmith's speculative structures and processes.

Protoconsciousness analysis stresses the importance of healthy physical, emotional, and social support for the pregnant mother through birth, early infant development, and required steps to the formation of a healthy and robust self into maturity (Andrews, 2012). Trauma research on abused and neglected children resonates well with the dynamic model of protoconsciousness theory—how a healthy Ego comes to be.

Following Freud, psychoanalytic assumptions of ego deterministically emerging from the Id's primary instinctual impulses fails to gain either empirical or theoretical support. As envisioned, secondary consciousness depends on primary consciousness; nevertheless, in contrast to the Freudian model, ego development is viewed as a co-emergent of secondary consciousness.

In terms of protoconsciousness theory, proto-self begins to form in the fetus's last trimester with global consciousness, and matures after birth as a co-emergent with secondary consciousness. Heuristically, research and therapeutic value is derived from ego being interpreted as a distinct and separate entity that is capable of coordinating any of the sensory reimagining of primary sensory processes.

## Rethinking the Psycho-Neuro-Phenomenology of Mental Health

I have attempted to elucidate a meaningful sample of psychogenic mechanisms that are related to healthy infant and child development by integrating protoconsciousness theory and the phenomenological method of analysis across states of consciousness. I believe the synergism of combined objective-subjective methodologies offers a more realistic and holistic view of self, consciousness, and psycho-pathogenesis.

I've pointed out that Freud missed the bi-directionality of sensory image transformations between primary and secondary consciousness. His defined rather than grounded theoretical assumptions of Id, Ego, and Superego resulted in "mentalisms" that divorced psychogenic mechanisms from neurons and placed analysis in a contrived black box (an intermediate variable) called the unconscious. This discussion represents another small step in the reanalysis of traditional psychotherapy.

As presented, primary and secondary image transformations call the heart of Freudian psychoanalysis into question. Freud was astute recognizing unconscious processes in dreams, but he missed the bi-directionality of image transformations as I've discussed them. His desire to create a scientific psychology of mind can be applauded, but not his rather extravagant suppositions.

Modern neuroscience, cellular biology and biochemistry have all laid the groundwork for a scientific psychology, what Allan Hobson calls psychodynamic neurology. As research in a number of scientific endeavors contribute to the creation of a scientific psychology of the 21<sup>st</sup> Century, I look forward to the incorporation of phenomenological methodologies. I've set forth a limited argument that the missing component of a holistic scientific psychology is the integration of subjective and objective research. Furthermore, I've argued that the Integration of subjective and objective methodologies offers a necessary step in the development of a viable psycho-neuro-phenomenology of mental health.

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