Awakened Perception: Perception as Participation

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Abstract: Perception has been called into questions by eastern traditions and western scholars for millennia. In a few "secret" places in Zen, Chan and r-Dzogchen Buddhism, the ultimate valid truth is said to be directly perceived. I propose a modern methodology called *integral phenomenology* that integrates deep phenomenal examination with contemporary research on perception (from both eastern contemplative science and western empirical science), to reclaim the notion of direct perception as *adequate participation*. In doing so, I develop an ecological model of perception, which includes "hybrid zones" where different perceptual states overlay each other, leading to non-ordinary experience, state transitions, and eventually, self-liberating insight and non-dual wisdom. This modern methodology must pass the critical examination of the highest Buddhist authority on direct perception—the Gelukba Sautrantika school. This is a critical challenge, and yet, if successful, shares the Sautrantika's schools optimism that liberating wisdom can be gained by starting with everyday ordinary experience—which is a key principle of the integral phenomenological method.

Keywords: Direct perception, kensho, integral phenomenology, participation.

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Author's Preface

What you have below is my thesis for a Masters of Arts in Consciousness Studies at The Graduate Institute in Bethany, CT. The editors who reviewed it and I all sensed that as such, it could benefit from a comprehensive reorganization, but none of us could actually envision what that would be. Instead they suggested I write a preface to help orient readers. Foremost, the reader should know that this thesis unfolds itself as it follows my own ongoing inquiry and discovery of research that is new and surprising and calls for a radical re-visioning of what it is to perceive. Although it has been a year since I submitted my thesis, I am still pondering its implications as well as finding a new sense of wonder in perceiving the natural world. Therefore, it would not surprise me if, at the end of the paper, you might feel you have just begun a similar exploration, hopefully now with a few more signposts to help you carry forward what has been started.

Guiding Inquiry

The hypothesis beneath this work is that a modern minimalist approach to awakening, can accelerate conscious transformation. In this approach, "awakening" is defined as *awakening to the nature of experience.* This paper focuses only on one of the four[2] key aspects of experience: perception.

My guiding question in this paper:

Can a model of perception based on participation pass the critical examination of the Buddhist traditions, complement neurophysiological research, and support meaning-making around first- person accounts of ordinary and non-ordinary perceptual experiences?

My guiding purpose in this work:

To develop modern approaches and heuristics to accelerate transformations of consciousness toward re-enchantment with the world, and to create conditions for people to flourish and the planet to thrive.

Methodology: Integral Phenomenology

The Wiley Blackwell Handbook of Transpersonal Psychology (Friedman & Hartelius, eds. 2015) includes a section on future directions for transpersonal research. In it, Rosemarie Anderson and William Braud (2015) highlight *three* approaches that are particularly suitable for transpersonal research: *intuitive inquiry, integral inquiry, and organic inquiry.* My approach, which I term *integral phenomenology* borrows from all three approaches in the following ways.

1. From intuitive inquiry
   a. reflecting on extant topical texts and developing the preliminary interpretive lenses
   b. transforming and refining interpretive lenses

[2] The other three are: affect, tacit knowing, and virtual perceptions (inner hearing, inner images, inner taste, inner smell, inner touch, and other simulations of perception).

2. From integral inquiry
   a. the goal of acquiring both knowledge and wisdom
   b. interest in transformative knowledge
   c. whole person involvement
   d. integrating a spectrum of modes of knowing: sensory impressions, words and thoughts, images, feelings, intuitions, realizations in altered states of consciousness, sensorimotor modes, and direct means (becoming the object of knowing)
   e. integrating sources of inspiration, including the natural sciences, psychology, sociology, anthropology, philosophy, literature, the arts; as well as spiritual wisdom and folk traditions; and personal and anecdotal evidence.
3. From organic inquiry
   a. focused on transformative validity, i.e., the thesis as
      i. an "evocative vehicle of feeling as well as thinking
      ii. presenting a diverse and intimate view of the topic
      iii. in order to engage the individual reader in a parallel process of transformative interpretation

In addition to the above, *integral phenomenology* relies on the research data from the field of neurophenomenology as a source of valid interpretation of direct, phenomenological inquiry. (Laughlin and Rock, 2015). As a methodology of research, *integral phenomenology* rests on four axes of validation: 1) adequate participation with the topic through direct, phenomenological inquiry, 2) corresponding or confirming evidence from the neurosciences, including neurophenomenological evidence, 3) an individual, collective, cultural or political transformative potential, and 4) purposeful action-inquiry toward *the good*. A rubric for addressing these four criteria is what I call the 4-A's (Forays):

1. Appeals to our deepest spiritual intuition
2. Available to scientific inquiry
3. Politically Actionable
4. Aesth-ethically beautiful

Part I: Discovery

Introduction

This paper is part of a larger project on what I call integral phenomenology. Integral phenomenology is a methodology for people to become aware of the nature of experience. This approach examines the micro-states, micro-stages, and micro-genesis of experience along four foci of inquiry: affect, perception, tacit knowing, and inner perceptions. It provides a foundation for embodied, contemplative practice as an inquiry into the nature of thinking, turning metaphysics into a direct examination of the architecture of thought itself. Integral phenomenology combines a direct examination of lived experience in contemplation and vipassana meditation, with contemporary neuro-cognitive science and neuro-affective science. Its larger, "big picture" interpretive framework includes the three narrative sciences of development, anthropology and evolution. The ultimate goal of integral phenomenology is for individuals to shift from the passive modes of experience, to their active, enlightened modes. When the modes of experience remain

passive, highly conditioned and habituated, the person expresses socially conventional, self-referential, neurotic forms of behavior, that are primarily driven by unconscious impulses and reactive tendencies. Awakened modes of experience provide the basis for enlightened action in the world, which is post-conventional, other-referential, compassionate, and open to more degrees of freedom, in awareness, intention and choice. Activating the modes of experience means shifting affect to intuition, perception to insight, tacit knowing to open participation, and inner perceptions to creative imagination.

First, by disentangling the modes from the knot of phenomena and stimuli that constitute conventional experience, we can begin to examine their underlying dynamic patterns and processes. This can be done by integrating phenomenological methods of inquiry, with scientific, philosophic, and narrative works associated with them. By going back and forth, from reading about a specific experiential mode to direct inquiry of that specific mode, through phenomenal examination of ordinary experience, integral phenomenology builds a greater understanding of and deeper capacity for directly observing phenomena at finer and finer details. Together, these accelerate personal transformation.

The focus of this paper is on perception-- its micro-state, micro-stages, and micro-genesis. I will explore how perception can shift from its conventional, passive role to a more awakened, active role called insight. I will explore the notion of direct perception as a sustained open awareness of one's lived experience as direct participation. This direct participation includes interactions among the multi-modal perceptual organs within the body-brain-mind of the person, as well as interactions between the person and the living world. In enlightened states of perception, we have the insight that the perceptual organs and the living world are not two, but one larger ecology, in which myriad phenomena emerge through dynamic participation, eventually giving rise to innumerable subject-object definitions at the terminal end-states of experience.

Perception has been called into question by scholars, philosophers, and scientists, and by spiritual traditions for more than 2500 years. This has led to paradoxical conclusions. On the one hand, everything we can know about the world relies on some mode of perception. And yet, we are all familiar with many ways in which perception succumbs to error and illusion. We delight in perceptual illusions of all sorts, and are dumbfounded by experiments like the Gorilla, who saunters across the basketball court, hidden in plain sight[3]. Science has the tools to prove perception wrong, but every one of its tools ultimately relies on some mode of perception to get to that proof. Whether we use the scientific method to correct and revise, or question and replace ordinary sensory information, we must concede the fact that in the process we are also *simultaneously confirming our confidence in our own ordinary senses*, since all empirical science ultimately rests on ordinary sensory observation – whether that is a blip on a computer screen, sounds from a recorder, or colors on a photographic plate.

Time and again we are reminded of the failures of the eyes to directly see and the ears to directly hear what is actually happening in the real world. And yet, athletes are capable of extraordinary feats that would be impossible if the senses were not operating perfectly in tune with reality. We are told that perception biases the self, and yet, it is in certain states of flow, or when under extreme

[3] See the *Invisible Gorilla* at http://www.theinvisiblegorilla.com/gorilla_experiment.html

conditions and outrageous challenges, when the sense of self is absent, that perception performs in optimal ways.

Spiritual adepts of the east tell us that all we can perceive is but an illusion or a dream, but their behavior tell us otherwise, since they all performed as if the perceived attributes of experience were real. In the western philosophical tradition, we see more of the same. David Hume, for example, declared that there was no reason to believe the perception that it was preferable to walk out a building on the first floor rather than from the third. And yet, he never walked out of the third floor window.

Kant said that perception had to be overcome by the use of cognitive faculties that transcended the phenomena, and the postmodernists have argued that all perception linguistically and culturally mediated (de Zengotita, 2008); while Johnson and Lakoff (Johnson 19787; Lakoff and Johnson 1999; Lakoff and Nunez 2001) have argued that all cognitive and linguistic faculties, including logic and mathematics, ultimately derive their meaning from embodied modes of perception.

In this paper I hope to resolve these paradoxes through the notion of perception as different configurations of participation. In each experience we can ask ourselves "What are we participating with?" In some cases, the participation will involve memories, fantasies, worries, cognitive and culturally conditioned biases. In some cases, the participation may be pared down to raw data streams interacting with neural cells, as for example, light exciting retinal cells. In between there is a huge spectrum of variation, depending upon what levels of experience are "in play" and which are absent, determined by what aspects of perception are "online" and which are "offline."

Here the notions of hyper-trophy or amplification and hypo-trophy or attenuation of perceptual streams are important considerations. They are associated with the neuroscience of perception which demonstrates that perceptual experience is determined by complex global dynamics that emerge from excitatory and inhibitory feedback processes in the brain. This dual relationship, between excitation and inhibition explains the complex causal relationship between perceptual experience and non-ordinary states in meditation practices and scientific exercises designed to elicit them.

For example, exciting some areas of the brain inhibits the activity in other regions, but these other regions may themselves have inhibitory effects on different areas, which has a net effect of *exciting them*.

We shall also see that each perceptual organ (defined as the sensory organ and its associated body-brain networks) interacts in multiple complex ways with others to produce variations of perceptual experience. Furthermore, every perceptual experience is associated with a discrete "subject" or "sense-of-self" that is partially determined by what aspects of perception are amplified, attenuated, or absent. This sense-of-self constitutes the phenomenon that cross the threshold above the unconscious perceptual processes. These three correlations: 1) the aspects of perception that are “in play” at any given moment 2) the excitatory and inhibitory feedback interactions among them, and 3) where the threshold of self-consciousness happens, can be shown to delineate as different states of consciousness that have been described by spiritual traditions,

and identified by neuroscience as discrete brain states. This will enable us to derive a *definition* of *direct perception*, or more accurately, of *sensory clarity*. I will argue that sensory clarity is *awakened perception*, and that it is a key credential to any claim of enlightened awareness.

Sections of this paper describe my own journey towards a better, more robust understanding of unconventional, non-ordinary perceptual states that I have experienced at different times in my life. I interweave my own stories with accounts that appear in the literature resources I have incorporated into my research. In the final section of the paper I subject my work to a critical examination to the framework of direct perception developed by the Sautrantika scholastics of the Gelukba tradition, considered one of the most advanced examinations of perception.

A Brief History of Perception

Countless arguments have been made calling perception into question. Some of us are aware of the eastern religious traditions which claim that all perceptual phenomena are illusory. The Sanskrit term "Maya" involves a rich and complex history of meaning around the illusory nature of experience, warning us that reality does not exist as it appears, that perception is peppered by error, confusion and ignorance, that the mind veils, the emotions cloud, and thought obstructs perception in ways that deliver a false impression of reality. In the eastern traditions, this false impression is blamed for the human condition of *dukkha*, our ordinary state of suffering which is called *samsara*. *Samsara* is contrasted with *nirvana*, the enlightened condition associated with the cessation of suffering. In the enlightened state a person is said to be able to *directly perceive the true nature of reality*. Still, what is revealed *as reality's true nature* differs quite dramatically among the traditions. Some traditions, such as Hinduism and certain "mind-only" schools of Buddhism describe the true nature of reality mostly in mystical, metaphysical or idealist terms.

In contrast, other traditions, such as Daoism, Hua-Yen or Chan Buddhism in China, and Zen Buddhism, seem to describe reality in ways that remind us, as western readers, more of what we commonly think of as *nature* – that part of reality that involves mind to some extent, but exists, and carries on by itself. On the one hand we are told that the nature of reality is the nature of *enlightened mind*; but on the other hand, we are told that reality is *that which originates and evolves minds*, some of which happen to be in enlightened states.

Although we typically think of western culture in terms of scientific materialism, western philosophy has also been firmly steeped in idealist positions for more than 2500 years. Consider Plato's *Allegory of the Cave* which describes a world where perceptions are mere shadows projected on the walls of a cave, and like prisoners who cannot break free of their chains and escape the cave, most of us never break free of illusion and escape into the light of reality. Here, in this light, we would discover the Pure Ideas and True Forms of a higher, more real, reality, that are accessible not through perception, but through enlightened Reason.

The modern enlightenment produced a philosophy of Reason that laid the foundations for scientific materialism. Ironically, however, this same philosophy, primarily based on the work of Kant, maintained a skeptical attitude toward perception. This attitude still afforded the mind and its faculties of reason, a *more direct route to reality* than the body and its faculties of perception. Kant built an impenetrable wall between *phenomena* which is given in and as our experience, and

noumena which is what is really real. Ever since, *ontology* – the study of reality itself, and *epistemology* – the study of how we know reality, have bent fractured domains of philosophical inquiry. Kant argued that we can never actually perceive the real, we could only investigate it through various methods. This led to a kind of correspondence theory of reality in which certain tools of logic, mathematics and reasoning, when used according to certain rigorous methods, could be trusted to *map directly* onto the noumena. The best we could achieve would be an accurate *map* of reality. Science was understood to be the practice of continuously improving and updating the map. As a result, science would go on to undermine the common- sense perceptions of ordinary experience, while offering fantastic notions from relativity and quantum mechanics as ontologically real.

The post-modern critique completely debunked any lasting notion of naïve perception and replaced it by firmly establishing the social, cultural and linguistically *constructed* nature of experience. It highlighted the complex processes of social, cultural and linguistic *conditioning* that over-determine the outcome of perceptual experiences. Post-modern variations of Buddhist traditions highlighted the problematic self-reflective and self-referential properties of the ego, and its infinite regress into conceptual abstractions. The wall that Kant had built between experience and reality, was reinforced with self-confirming loops of social media to such an extent that problematized not only perception, but also of any hope of "authentic, unmediated *raw* experience." In this world, there would never be the possibility of a "seeing the clouds for the first time" or "experiencing your first kiss" because all "first impressions" were always already mediated impressions, always already primed by the ubiquitous media and fashioned into existence first in the mind, and etched into lasting existence in inescapable memories (de Zengotita, 2008). It seemed that perceptual moments had become obsolete. Or had they?

Perfecting Perception

If perception proved not to be trustworthy *in the mind of philosophers* it would prove to be *more than trustworthy* in the bodies of extreme athletes who had trained to be able to give up thinking when it mattered most.

> *When he went to strap on his chute, he noticed the canopy was wet. It should have been the end of his plans. A wet chute is unevenly weighted. When deployed, parts will inflate, others will not. Potter, not thinking clearly, decided the water was evenly dispersed and wouldn't be a problem.*
>
> *And it wasn't a problem – at least not for the first five seconds of the jump. "When I leaped," he says, it was right into the zone. Immediately my senses started peaking. I was moving at ninety miles per hour but could see in credible detail – minute fissures in the rock, tiny patches of lichen, bat guano. At the six-second mark, roughly 500 feet from the ground Potter deployed his chute. It opened asymmetrically. The wet sections collapsed, the dry ones inflated. Instantly, with the air currents unevenly distributed, Potter started spinning. From above, his friends started shouting "Avoid the walls!" Important safety tip, except with his guidelines twisted, there was no way to steer.*

Then the miraculous intervened: the guidelines began to untwist. Potter seized the moment, yanking his toggles. He knew the better move was to reverse his direction-- which would have sent him backward and out into open space – but for reasons he still cannot fathom he turned left instead. He was now heading directly toward the cave wall. Worse, the moment he turned, his chute collapsed, draping itself completely over his head.

But Potter's senses were peaking. In the fleeting instant before his vision vanished, he caught a glimpse of orange. "We were filing the jumps," he recounts, "so we'd hung a rope about 400 feet off the deck for the camera man. It was glowing orange. And that was what I saw: a flash of glowing orange."

He reacted immediately, grabbing for the rope, catching it too. But there was no way to tighten his grip. Potter was less than 300 feet from the ground and closing in on terminal velocity. His hands were already burning from the friction. When he tried to clamp down on the rope, his flesh flayed, then instantly cauterized. The pain was unbelievable.

… Potter did manage to stop himself for a moment – but couldn't hold it.

Again he started plummeting. Again he clamped down. Again he managed to stop. Not a moment too soon. With the chute still covering his eyes, he had no way of knowing, but Potter had halted himself merely six feet above the ground.

His friends shouted down "Just let go!"

Potter landed in a heap on the cave floor. His hands were destroyed, other parts as well.
(Kotler 2014, pp. 51-52)

Dean Potter is one of the elite extreme athletes who are pushing human performance beyond all previous measures and expectations. Cliff jumping and wing suit flying may depend uopn technologies that open up new performance ventures, but in these situations, technology is not the limiting factor – human potential is. Within our human potential, we are pushing beyond not so much the limits of the body (that's where technology steps in to give us wings and reinforce our outer protective shell) – but we are experimenting with the upper limits of human consciousness. In particular, these upper limits are associated with intentional-motivational and attentional capacities. These capacities are associated with processes that follow discrete neuro- chemical pathways in the embodied brain-mind.

In addition to physical skill and endurance training, extreme sports require athletes to train their consciousness to access not only higher *degrees* of ordinary potential, but also *higher human potentials*. new potentials are essential to perform in these domains, where successful performance means surviving. Intentional states need to be *clean*, i.e. clear of emotional distractions. Attention needs to be sharp and fine-grained to relevant targets (that are usually moving and changing at the same time). Performance at this level requires keen sensory acuity (what Potter refers to as "his senses peaking") and enhanced proprioception – a more-than-ordinary awareness of the body's own position, orientation, and angular momentum in space operating at levels beyond the normal human capacity to deal with accelerated change.

There is something even more exceptional happening here that separates the elite athletes from the rest of the field: space-time dilating and the dissolution of the self-complex. In extreme cases, these athletes have the ability to dilate the experience of space and time. As time slows down, the action slows down, enabling them to perceive crucial details and process more options. As time slows down, space seems to expand, enabling them to see between fast moving objects and intervene between them.

In most cases, these elite athletes are accessing states of "flow" where the self-complex, the "I-me-mine" mind that ordinarily governs our action, is absent entirely, leaving them the feeling of self-less-ness, where the body knows what it is doing, but the mind has not been invited to the event.

These six key features of enhanced potential in extreme sports: clean intention, tuned attention, sensory acuity, enhanced proprioception, time-space dilation and self-less-ness, can only be attained by techniques specifically designed to take advantage of the neural plasticity of the *embodied body-mind-brain,* the *EBMB*.[4] These techniques first disrupt the habitual, default patterns of the human operating system, and then secondly, train them to handle novel action potentials. It turns out that these are exactly the kinds of disruptions to the EBMB that advanced meditation training (especially Zen practices) are designed to do.

The physics of baseball (Adair, 2002) prove that the fielder must start running *before* he hears the crack of the bat, and that when he catches the ball over his shoulder, it had been impossible for him to see it first. His EBMB was processing an enormous amount of information in order to deliver his glove to where the ball was headed, just at the right time. For this to happen, the EBMB must be *perfectly* aligned with *how the world really is.* The same extraordinary levels of performance characterized the career of quarterback Joe Montana. But Montana reports that the entire time he played football "unconsciously." There are coaches of trainers all over the world, training people how to perform better by "getting the self out of the way" (Gallwey, 2010). In these non-ordinary states of performance, the EBMB is more attuned to the world as it really is.

So what goes wrong with everyday ordinary perception? And why are we so concerned that we don't actually perceive the world *how it really is?*

> *In the summer of 1978 I was living in Berkeley California as a first-year graduate student. One night, two friends took me up to the observatory high up in the northern hills of the city. From there you could look out over the bay to the beautiful nightscape of San Francisco. When you get to the observatory, you park on one side of a pedestrian bridge and walk onto a huge terrace courtyard on the other side. The courtyard is surrounded by a 4'H stone wall. Because the way it is built, at night you don't realize you are several stories high. The short wall gives you the impression that you are standing on a courtyard at ground level. This turned out to be almost a tragic illusion that one night. We brought with us a frisbee and took up positions at the periphery of the courtyard, the three of us like points along an*

[4] The term EBMB represents the continuum of perception (or continuous flow of perceptual streams) from world (hence *embodied*) to the holistic perceptual processes of the *body-mind* to particularized functions localized in the *brain*. This continuum is bi-directional, with afferent streams running "upwards" from world to brain, and efferent stream flowing "downwards" from brain to mind-body, to world.

equilateral triangle. We lost ourselves in the warm and sweet scents of the Berkeley hills, the wafting breeze and the flow of the game.

The last frisbee throw of the night got away from me. It soared above the short periphery wall into the complete darkness of night. There were no lights illuminating the distances below. Spontaneously I jumped over the wall like I had jumped over many stone walls that line the pastured fields all across my home state of Connecticut.

The next sequences of events are clearly etched into my memory like years in a storyline. Yet they must have happened in less than 2 seconds:

As I leapt, and while still on the rise of my jump, my ears tuned into a familiar set of sounds – the HVAC equipment that was running outside the main building, some 4 stories below. Instantly, this perception triggered up with some episodic memory in my mind – matching perfectly with the sounds of the HVAC that I heard for two years outside my 4th floor dorm room back in college. Somehow, all in an instant of time, my EBMB processed this information, realized I was not 4 feet but 4 stories above ground level, turned myself around, got hold of the outer edge of the wall, and pulled myself up, over and back onto the terrace floor.

Stunned, my friends hadn't even time to move from their positions.

Had perception both failed me and saved me at the same time? What part of my perception was sleeping when I jumped over the wall? What had awakened my perception of the actual reality? Notice I say "my ears heard" not "I heard" the sound of the HVAC below. When the EBMB "takes control" of the situation, in this case out of necessity, it is as if the first person subjective "I" gets brushed aside, and this third-person objective "organism" chooses how to act. This organism scans the environment and chooses the course of action in a nano-instant. Like a reflex, except that there is a whole lot more information loading up and matching up. One door of perception is closed – the intersubjective "I" who is playing frisbee, and the other door of perception is thrown wide open. The "I" discovers itself to have been separated from reality, distracted by the intersubjective and social themes that were playing out between friends. The organism always reaches toward reality, always responds as an act-uality, which is to "act in accordance with reality."

When performing together, extreme athletes must learn how to emancipate perception from the social self, and stay with the organism, the EBMB. In other words, they are training themselves to enter into zones of peak performance, simultaneously. If time-space dilation is happening, it must be perfectly synchronized. If split second decisions must be made, they must activate in the body-minds of each of them at the same time. If each is a self-less organism, then they must entrain themselves to the same patterns and rhythms of action.

Steven Kotler (2014) talks about the new science of ultimate human performance as learning to hack flow states from both a body and a mind perspective, and by integrating both psychological and neuroscientific approaches. Flow states are associated with neurochemical systems that function as performance enhancers as well as mood-boosters. The neurotransmitters most involved are *dopamine* which creates engagement and increases attention; *norepinephrine* which directs

focus and locks attention on target, as well as increasing arousal without spiking emotional imbalance; *endorphins* which alleviate any potential pain signals and keep them from delaying action or reducing endurance; *anandamide*, which is a psychoactive chemical that elevates mood, amplifies lateral thinking, and inhibits fear response; and *serotonin* which enhances coping and endurance capacities. Kotler (2014) writes:

> These five chemicals are flow's mighty cocktail. *Alone, each packs a punch, together a wallop. Consider the chain of events that takes us from pattern recognition through future prediction. Norepinephrine tightens focus (data acquisition); dopamine jacks pattern recognition (data processing); anandamide accelerates lateral thinking (widens the database searched by the pattern recognition system).* (p. 68)

As I mentioned above, this chain of events, unfolds in the *time-dilated* state of flow. "We" are allowed to witness, to observe intently, but not to interrupt or insert an agenda that is meaningful only in the context the intersubjective "I."

Josh Watizkin (2007) interprets the experience of time slowing down as the same as opening up the space in which we can act. Reflecting on a push- hands match he won to earn a world champion Tai-Chi title, Waitzkin writes:

> *Now think of me, Josh, competing against a less refined martial artist. Let's say I am in the process of instigating a throw that involves six technical steps. My opponent will experience an indecipherable flurry of action, while for me the six eternal steps of the throw are just the outer rim of a huge network of chunks. Our realities are different. I am "seeing" much more than he is seeing. (pp. 143-144) … The slightest variations in the way my opponent responds to my first push will lead to numerous options in the way I will trigger into the throw. My pull on his right wrist will involve twenty or thirty subtle details with which I will vary my action based on his nuanced micro-responses. As I sit back on the ground and trip his right foot, my perception of the moment might involve thirty or forty variations.* (p. 145-146)

These are, Waitzkin explains, the space-time dilation of flow states is a kind of sensory precision that is gained through intense focus on simple perceptual details.

> *Now my unconscious navigates a huge network of subtly programmed technical information, and my conscious mind is free to focus on certain essential details that, because of their simplicity, I can see with tremendous precision, as if the blink in my opponent's eyes takes many seconds.*

The key to this process is understanding that the conscious mind, for all its magnificence, can only take in and work with a certain limited amount of information in a unit of time – envision that capacity as one page on your computer screen If it is presented with a large amount of information, then the font will have to be very small in order to fit it all on the page. You will not be able to see the details of the letters. But if that same tool (the conscious mind) is used for a much smaller amount of information in the same amount of time, then we can see every detail of every letter. Now time feels slowed down. (p. 146)

It was the summer of 1977. I was a junior in college, working at Princeton University on a National Science Foundation grant for a lab that was researching the neurophysiology of learning. My role there was to prepare the research subjects – species Limax maximus – the common garden snail – by vivisecting the nervous system wholly intact from the body, and set micro- electrodes into key neural nuclei so the electrical patterns could be visualized on an oscilloscope. My instruments were tiny micro-fiber glass filaments attached to scalpel handles. I had to work with my arms secured by the wrists in stirrups to stabilize my movements. Precision required all work to be done under a microscope. The first day I watched as the microfiber blades hopelessly flailed under the microscope from the otherwise imperceptible trembling of my hands. This meant I had to give up all sugar and caffeine for the summer. Still, I found it impossible to work with required precision, and ruined specimen after specimen. I just couldn't imagine how I might make the precise, micro-level movements that were needed, with my macro-level hands and fingers. The coordinates just wouldn't compute. How could I have control over my hands at a level I couldn't perceive?

Then one day I had an idea. I looked through the micro-scope and transported myself into the micro-world that existed there. I imagined my fingers to be telephone poles, and the spaces between my hands to be entire football fields. I drew imaginary yard-lines in between and envisioned how I and an entire team of football players could run around in between. In this imaginary world, the micro-fiber blades were the size of kitchen knives, and the specimens were the size of whole salmon. Still a difficult task to fillet out all the bones – but no longer an impossible one. In this virtual world the space to act had been opened, and with it came the slowing down of time. Each specimen prep took 4-6 hours of uninterrupted work, not unlike the demands placed on a surgeon facing a long procedure. Yet before I had a chance to be distracted by the thought "I wonder what time it is," the requisite hours had passed and the work was done. Soon I was depended upon to do all the specimen preparations for everyone in the lab.

What is clear from these accounts, is that perception can be emancipated from the concerns of the social self, from the numerous distractions of the intersubjective "I"; from the compression of time and compaction of space, from worry and fear and rigid adherence to a single-minded ego-centric frame of reference, into a time-space dilation in which perception functions with speed, precision and efficacy. Furthermore, this emancipation is associated with the experience of being "in the zone" or in an extraordinarily pleasant state of "flow." We know that flow states depend upon discrete neurochemical pathways that rely mostly upon five neurochemical transmitters. These flow states are also related to experiences of time-space dilation brought on by demands for extreme perceptual acuity and achieved through intense focus, and/or the ability to tap into time-space dilation through imaginative exercises.

Perception by the Numbers

Some Definitions

Neuroscience has calculated the way information flows through our sensory organs and how that information is (or is not) exchanged with the brain and the conscious mind. In order to make sense of this, I want to precisely define "sensory organs," "brain," and "conscious mind." They

are all functions within what we have previously termed the EBMB – the *embodied body-mind-brain.* We can say that the sensory organs are mainly "part of the body," while the terms "brain" and "conscious mind" refer to the *mind-brain* of the EBMB. The word "embodied" in EBMB seems redundant, but in this case *embodied* means *more than the body* as conventionally understood as built upon a skeletal frame and outlined by our skin. In this case *embodied* refers to an ongoing interaction with the world, of other sentient and non-sentient participants.

Embodiment is fundamentally *participation.*

The phrase "sensory organs" refers to the conventional ways we point to our eyes, ears, skin, tongue, nose, as the "instruments of perception" but includes more than them. The phrase "sensory organs" includes both the afferent and efferent electro-chemical neural networks through which information flows and is processed at specific sites along discrete pathways, through the body, to and from the brain and other organs such as the gut, heart, and lungs. The term "brain" here specifies those regions of the neural networks that are confined to the anatomical region of the brain – the organ in your skull. The brain has been extensively mapped into specialized regions, and its electrical activity has been extensively studied to give us a pretty good idea of the brain's unique roles in perception.

Finally, the term "conscious mind" refers to that part of perceptual information that we have conscious access to at any given time. It refers to the perceptual information that the subjective "I" perceives consciously. Consider, as an example, the Buddhist story of the man who mistakes a rope for a snake. Assuming his sensory organs and brain are normal, we would say that the sensory organs are perceiving the qualities of the rope, in the context of the light, angle, sounds, how much of the rope is exposed, etc. Some of this information reaches the conscious mind-brain, and some of it does not. *In addition,* the mind-brain is processing memories and thoughts, and incorporating imaginative "leaps" while attempting to integrate these into the sensory information to get a "full understanding" of the situation. Now remember, *embodiment* means participation. As all these elements of the embodied experience come together, some aspects will become *more conscious* to the "I" and some will be "deselected" from the conscious experience. The *conscious mind* that emerges, depends upon what information is selected and what is deselected. The conscious "I" therefore, ends up participating with an incomplete set of information. If the information that is "served up" to the "I" is heavily biased by memories of being bitten by a snake, or by warnings that primed the imagination to see a snake, then we would say the "mind" is participating with the idea of a snake, rather than the perception of a rope.

This notion of selection and deselection is a very important aspect of perceptual experience, and suggests something like an *evolutionary-adaptive fitness landscape.* As Jason Brown (2005) surmises: "Is speciation in the process of evolution analogous to specification in an act of cognition?" The point here is that not everything the sensory organs are participating with, *gets through to the conscious I.* In fact, *not much actually gets through!*

The fact is that every single second, millions of bits of information flood in through our senses. But our consciousness processes only perhaps forty bits a second – at most. Millions and millions of bits are condensed to a conscious experience that contains practically no information at all. Every single second, every one of us discards millions of bits in order to arrive at the special state

known as consciousness. But in itself, consciousness has very little to do with information. Consciousness involves information that is not present; information that has disappeared along the way (Norretranders, 1991 pg. 125).

"The numbers are vast," writes Tor Norretranders (1991).

> The eye sends at least ten million bits to the brain every second. The skin sends a million bits a second, the ear one hundred thousand, our smell sensors a further one hundred thousand bits a second, our taste buds perhaps a thousand bits a second. … All in all, over eleven million bits a second from the world to our sensory mechanisms. We consciously perceive about forty bits a second – and that figure is probably exaggerated. (p. 126)[5]

"That is to say," Norretranders (1991) emphasizes, "only one millionth of what our eyes see, our ears hear, and our other senses inform us about appears in our consciousness."[6] The neuroscientist Jason Brown (2005, 2002,) says that this singular conscious perception, is a terminal outcome of a global *microgenetic process* which follows a branching, evolutionary-tree-like pattern. This microgenetic process includes several pre-conscious stages that progressively unfold the perception of a space-time world of objects. His microgenetic process model includes the sensory organs, but does not begin there. According to his theory of microgenesis, experience begins in deeper regions of primordial awareness associated with the neuro-affective pathways of the EBMB. In a previous article (Roy 2015) I have also described the microgeney of perception as a tree-like architecture:

> Perceptions, although primed by affect, are not guided by them. Rather, perceptions are guided by what we might call the 'appetitive drive of the senses.' The senses are not passive organs that function like windows opened up onto the world. The senses are more like open roads – they are designed to go somewhere. This is something that Goethe knew – our senses are not passive receptors but they are dynamic and creative actors that enact perception. The sequence from affect to perception, from feeling into the world to reaching toward the world is a process called 'perceptogenesis.'
>
> It is a process that can be described as having a tree-like architecture, where the roots represent the affect channels, which are immersed in and draw from the given-ness of the world, and the branches that reach toward the sky are the sensory organs. The affect channels provide the energy, the intentional-motivational state that vitalizes both the penetration into the world through the sympathetic drives of feeling, and the thrust out toward the world through the appetitive drive of the senses. The two movements prescribe an arc of transformation, where affect and perception objectify as image in the mind of a self. (p. 52)

The image of a tree helps us understand the way the sensory apparatus "sculpts" information content into sizable "chunks" for the conscious mind. "The primary activity of mind is to chunk experience into public and private events," writes Jason Brown (2005); where we would substitute his term mind with "body-brain" and the notion of public and private events to conscious mind and unconscious process. "The price of this chunking," Brown (2005) goes on to say, "is a loss of

[5] Norretranders suspects the correct figure to be between 16 and 40 bps.
[6] Norretranders later says the more correct figure is 16 bits a second.

relations and a delimitation and focality of the events of interest." We are hard-wired at birth for perceptual processes to sculpt information in ways that evolved for us as a species. Microgenetic theory (Brown 2002) adds to this notion of sculpting, a sense of evolutionary "survival" of the perceptual objects that make it through to conscious mind, by surviving the sculpting processes of progressive specification (speciation) of the perceptual objects. For this Brown (2002) requires making the distinction between *sensation* – which is an earlier stage in the microgenetic process, and *perception* which is the final stage that is actualized in the conscious mind.

> Sensation enters into the microgeny at successive points. … a deep preobject is gradually sculpted by sensation to a final object. … The object is what survives a transit through this sequence. It is whatever happens to actualize. Depending on the moment in the object structure that predominates, one has a dream, an image, or an object perception. (Brown 2002, p. 8)

People tapping into states of peak performance, have learned to make these unconscious processes *conscious* so they can be tuned to different advantages. It is possible to train the EBMB to sculpt perfectly tuned patterns which embed an enormous amount of information relative to, let's say a game like chess, and packaged in the right sized "bits" for the conscious mind to access and bring to conscious perception on demand. The world Tai-Chi champion Josh Waitzkin introduced above, is also a world chess champion. He now heads an educational organization devoted to his "Art of Learning" program, where just this kind of "enhanced perceptual training" is being developed. "The clearest way to approach this [topic]," Waitzkin (2007) writes, is with the imagery of *chunking* and *carved neural pathways.*

> Chunking relates to the mind's ability to assimilate large amounts of information into a cluster that is bound together by certain patterns or principles particular to a given discipline. The initial studies on this topic were … performed on chess players who were considered to be the clearest example of sophisticated unconscious pattern integration. (p. 138)

Evolution has already given us a default setting on how our neural pathway are carved, limiting most of the perceptual information to unconscious processing, so as not to overwhelm the conscious mind. The next section explains the bio-neurology of these pathways, with their various gates of entry, as discrete regions whose functional anatomy have been shaped by evolution. It will detail from a neurophysiological perspective, why Brown's microgenesis model, Roy's tree metaphor, and Waitzkin's analogy are all correct: that the mind has "the ability to take lots of information, find a harmonizing/logically consistent strain, and put it together into one mental file that can be assessed as if it were a single piece of information." (Waitzkin 2007, p. 139)

While it is true that these neural pathways are *developmentally conditioned* during one's lifetime, they are *not developmentally fixed*. In other words, they can also be *developmentally repatterned.* Old pathways can be made flexible, and new pathways can be carved into new sensory flows that dramatically enhance the ultimate perceptual experience. *Understanding* this, we will find that it is possible to turn what looks like a deficit (the lack of information reaching conscious mind) to an asset (training and tuning the *more powerful* unconscious processes toward a conscious focus).

For now, we can translate these different ways of talking about the content of perception into the terms I am using in this paper, namely EBMB, sensory organs, body, brain and mind, in the following way:

The EBMB is a participant in the world actively engaging and exchanging millions of bits of information back in multiple directions. The body as a holistic organism, cognizes all this information in specific dynamic patterns that have evolved as the species evolves. The sensory organs are *active* participants in the world – they scan and probe, seek and hunt for those relationships in the world for which they have specifically been tuned by evolution. The sensory organs also participate with the brain through discrete neural pathways that lead to and from the brain. These neural pathways are not simple, open highways – they comprise a complex network of "gates" which select and deselect information, route and re-route the direction of information, and chunk information into manageable portions that can serve as conscious perceptions in the mind. This has the net effect of "sculpting" a conscious perception consisting of a tiny fraction of the global sensory information from world to the "I" of the mind. Note, however, that the "I" of the mind itself participates with more than just sensory information. The mind also participates with virtual information arising as thoughts and mental images, memories, fantasies and dreams. Virtual information is associated with different regions and different dynamics of the brain. The mind has to integrate sensory information with this virtual information. Yet something very important is still left out – the information that is "perceived and processed" by/in the body itself – the rich and complex proprioceptive operations, which by far outnumber all the other information flowing through the EBMB. The body itself is a perceptual organ, that "cognizes the lived experience into the background of all perceptual experience.

Part II: Background

The Phenomenology of the Background

Until recently, Western scientists and philosophers have missed the role the body plays in constituting the "background field" of perception. Typically, perception has been viewed as a cognitive function of the brain and mind. Studies were limited to the brain's neural processing of sensory information and the mind's conceptual framing of it.

When we think of the body, we usually think in terms of *sensations* rather than perceptions. We relate to bodily sensations as "feelings" – both physiological and emotional. We are able to make these feelings conscious, to hold them into awareness, without conceptualizing or naming them. In fact, the philosopher Eugene Gendlin (1962) has shown that the bodily felt-sense is *more precise* than language. There are many ways we try to describe our feelings beyond merely labelling them with a word. And although language often proves itself inadequate for this purpose, we usually don't become skeptical about whether we are really feeling a particular sensation. In other words, we can *foreground the bodily felt-sense in our consciousness without naming or conceptualizing it.*

The *percepts* of the body, on the other hand, are embedded in the deepest unconscious processes that are responsible for the most primordial levels of experience. These body-percepts are deeper even than the felt-sense, because they are the background information that enables us to locate the

felt-sense *in our own body.* Only in rare, non-ordinary states do these percepts rise above the threshold of conscious experience, so it is more accurate to say they are processes of proto-experience. They are the processes of the "background." The proprio-percepts of the body enable us to experience the sense of the body as occupying space, as well as enable us to have the sense of space surrounding us in multiple dimensions. When the proprioceptive organs work along with the other senses, the body "cognizes" its own action in the world, making it possible, for example, for the outfielder to run to where the ball will fly, before they hear the crack of the bat; or for the batter to start their swing before the release of the ball, in order to have time to hit it.

Searching for the Background

> The deeper "layers" of the psyche lose their individual uniqueness as they retreat farther and farther into darkness. "Lower down," that is to say as they approach the autonomous functional systems, they become increasingly collective until they are universalized and extinguished in the body's materiality, i.e., in chemical substances. The body's carbon is simply carbon. Hence "at bottom" the psyche is simply "world."
>
> ~ C.G. Jung, "The Psychology of the Child Archetype" (1940), In CW, Vol. 9, Part I: The Archetypes and the Collective Unconscious, p. 291

Trying to "find" sub-threshold percepts is like the fish trying to find the water it swims in. On the one hand, it is everywhere, and pre-constitutes or is the precondition of being-in-the-world. On the other hand, it must, in some way, be also hidden in plain sight. For this reason, scholastics in the east and philosophers in the west and have been searching for "the phenomenon of the background" ever since the axial age (Bellah and Joas, 2012) when consciousness leaped into its modern, theoretic-rational structure. Prior to the axial age, humans were not capable of reflective consciousness – they could not use their minds to "turn around" to search inside their consciousness. When we did, we discovered divergent ways to think of the background – as something transcendent or as something transcendental.

In the east, the move was toward the transcendent—that the "background" that composed or pre- constituted human awareness, was a transcendent consciousness that existed independent of the material world. This consciousness (Big Mind, Brahman, storehouse consciousness) is often conceived as having different layers or levels of ever-more subtlety. These levels are often simplified to the terms gross, subtle and causal levels of consciousness. In the east, "searching for the background" is a *vertical and additive process* of awakening, in which we are trained to dis-embed our attention from gross or coarse appearances, and expanding one's personal awareness into more subtle levels of consciousness. It is a *vertical process* because the more subtle realms of awareness are construed to be accessed by "higher levels" of consciousness. It is an *additive process* because each higher level *transcends and enfold* the lower levels so as to be both higher and more inclusive (see Roy, 2014).

Following the enlightenment, western philosophers rejected mystical explanations of the background phenomena, and turned instead to meta-physical/ meta-cognitive explanations. This resulted in the positing of *transcendental* causes that were construed as *pre-given mental events* that were accessible to the human mind through laws of logic and reason. Like eastern transcendents, these transcedentals were outside the realm of phenomenal experience, which

involves appearances and sensory perceptions. But unlike the eastern explanations, transcendentals were properties that existed *because of human minds* not beyond them.

Transcendentals existed *because human minds could reason through the phenomena to them.* These were the *noumena* that could never be experienced, because they were necessary pre-requirements or *apriori* in order for experience to happen. The Kantian transcendentals include logic and mathematics, and the apperception of space and time. Western enlightenment therefore was *vertical* but not *additive*—it required higher capacities of reasoning, to get at *deeper, more fundamental truths*, such as laws of logic and science. Science and the academic disciplines thereafter supplied the additive practices – augmenting the fundamental laws of nature with more and more empirical descriptions.

A third approach in searching for the background, is neither vertical nor additive. Rather it is pursued through deeper-descending and subtracting practices. Husserl's *introspection* for example, entailed a process of "bracketing" out the world (the subtracting phase) and tuning in to the primordial phenomenological apperceptions underlying conscious experience (the deeper-descending phase). Gallagher & Zahavy (2008) Varela & Shear (2002). Husserl was especially interested in the phenomenology of time consciousness. Husserl described three overlapping yet successive phases of consciousness: *protention-primal impression- retention.* Pro-tention is basically a pre-conscious orienting phase, of "pure intention" or "intention without an object" which overlaps and gives way to the primal impression of phenomenal objects, which in turn overlap and give way to a retention or subtle memory of the object. This last phase then giving way (and overlapping) the successive protention phase of the incoming "next moment."

By bracketing experience and focusing down onto a core component of consciousness, namely the presentational present, Husserl not only revealed the phenomenal nature of time-consciousness, but also excavated a new transcendental explanation of the background phenomenon as the "stream of experience" occasioned by the succession of intentional states.

Gallagher and Zahavi (2008) point out how Husserl's analysis of the structure of inner time-consciousness serves a double purpose for western phenomenologist in the tradition of introspection: "It is not only meant to explain how we can be aware of objects with temporal extension, but also how we can be aware of our own stream of experiences. (p. 88)

> There are thus two important aspects to this [Husserl's] retentional continuity. The first, the 'longitudinal intentionality' … provides for the intentional unification of consciousness itself, since retention is the retention of previous phases of consciousness. Second, since the prior phases of consciousness contain their respective primal impressions of the experienced object, the continuity of that experienced object is also established. (p. 88)

Husserl's *presentational time* serves as an *invariant structure that makes possible* the flow of consciousness as we experience it. They are structures not given in experience, but invariant structures that are independent and prior to experience. Unlike Kant's transcendentals, however, they do not exist on some metaphysical plane, but are structures of mental states associated with intention, and as such, can be made explicit as phenomenological processes in introspection.

Husserl's temporal structure brought the notion of the background back from the noumenal to the phenomenal – that of the processural structures beneath experience. Still for the most part, this background was thought of as comprised of mental events. Husserl called these mental states "validities" (Dreyfus 2012) that "make up the 'unnoticed,' 'concealed,' *background* [emphasis mine].

Heidegger led the way for a new kind of *existential phenomenology* whose adherents rejected the idea that mental events, such as intentional states, could relate subjects to objects. (Dreyfus 2012) Instead, they said that all mental events, including intentional states, depended on a background that could never be made explicit, because the background was part of the phenomenon of world. Heidegger described this "world-bearing" aspect of being as "absorption." "[His] existential phenomenology discloses the holistic, preconceptual, preintentional background into which we are already absorbed. Heidegger thought of the background "as an atmosphere" (i.e. like water to a fish) and as an atmosphere the background is precisely not the aggregate of mental states that Husserl from his detached phenomenological point of view mistakenly assumes.

It is in this sense of absorption, that the background *withdraws* from phenomenological examination, *in order to be the background*. The background is in a sense a "performance of the world" that enables the absorbed subject to pre-figure phenomenal objects in consciousness.

Over the course of the 20th century, "the notion of the background has progressively moved into the foreground of philosophical discussion" (Shusterman, 2012, p. 206).

> Over the past century, philosophers have increasingly recognized that the mental life of which we are conscious and through which we act to realize our intention cannot adequately function without relying on a background of which we are not properly conscious but which guides and structures our conscious thought and action. (Shusterman, 2012 p. 206)

It was generally agreed that the background would not only be *pre*-conceptual and *pre*-representational, but also *pre*-intentional. Over the course of few centuries, the background had "moved" in the imagination of scholastics and philosophers, both east and west, from the highest domains of the mystical and metaphysical, to the realm of the mental and intentional. Now it was generally agreed that the background was to be found elsewhere, *even further down* in proto-realms of experience.

A Theory of the Body

> The theory of the body is already a theory of perception. ~ Merleau-Ponty

It was Merleau-Ponty (1964) who first claimed the primacy of perception as the ground of experience: "The *perceived world* is always the presupposed foundation of all rationality, all value and all existence" (p. 13).

> By these word, the "primacy of perception," we mean that the experience of perception is our presence at the moment when things, truths, values are constituted for us; that perception

> is a nascent *logos*; that it teaches us, outside all dogmatism, the true conditions of objectivity itself. (p. 25)

Making perception primary, was and remains a radical philosophical position. It implies that perception is *prior* to experience and is pre-requisite to experience itself.

His claim runs straight against Kant's transcendental idealism and Husserl's transcendental intentionality. In fact, Merleau-Ponty argues that perception has been called into question, because whenever you make the transcendental the priority, you already have a contradiction of thought, that "turns perception into mere appearance." Although he accepts the Kantian doctrine that "all our experience of the world is through a tissue of concepts that lead to irreducible contradictions," he argues that the consequences of this even Kant failed to grasp. Here he echoed the American pragmatists, whom he alluded to as "the realist philosophers of America," who helped him distinguish between the "universe of perception" and its "intellectual reconstructions. As early as 1900 William James, writing about "The Abuse of Concepts," (James, 1977) in philosophical inquiry, rather casually implicates the perceptual order as the prior ground of experience: "

> The intellectual life of man consists almost wholly in his substitution of a conceptual order for the perceptual order in which his experience originally comes. (p. 234)

> "The great difference between percepts and concepts" James writes, "is that percepts are continuous and concepts are discrete." Concepts "make cuts" in the unbroken flow of perception, that are "purely ideal."

> If my reader can succeed in abstracting from all conceptual interpretation and lapse back into his immediate sensible life at this very moment, he will find it to be what someone has called a big blooming buzzing confusion, as free from contradiction in its 'much-at-onceness' as it is all alive and evidently there. (p. 233)

Note that James was already intuiting the "sculpting and carving" functions we talked about in previous sections. The contradictions of conceptual interpretation result from the "cutting up" of the ongoing-continuity of the perceptual processes. "Conceptual knowledge is forever inadequate to the fullness of reality to be known," writes James (1977). "Reality exists of existential particulars … and of existential particulars we become aware only in perceptual flux" (p. 245).

James warns us that concepts are secondary and inadequate that "falsify as well as omit, and make the [perceptual] flux impossible to understand." He explains why intellectual examination of perceptual experience creates the impression that perceptions are mere appearance, writing that "Conceptual treatment of perceptual reality makes it seem paradoxical and incomprehensible; and when radically and consistently carried out, it leads to the opinion that perceptual experience is not reality at all, but an appearance or illusion." (pp. 245-6). Why this is so, James summarizes in the following way:

> Briefly this is a consequence of two facts: First, that when we substitute concepts for percepts, we substitute their relations also. But since the relations of concepts are of static comparison only, it is impossible to substitute them for the dynamic relations with which the perceptual flux is filled. Secondly, the conceptual scheme, consisting as it does of

> discontinuous terms, can only cover the perceptual flux in spots and incompletely. The one is no full measure of the other, essential features of the flux escaping whenever we put concepts in its place. (p. 246)

A century later, Merleau-Ponty took this line of reasoning further, into the search for the "background phenomenon" by identifying "bodily space" as the "silent, structuring, concealed background. In his book *Phenomenology of Perception*, Merleau-Ponty (1962) attempts to redefine the "body" beyond its interoceptivity and proprioceptivity, and associated changes in the body's posture and gestures and their associations with images and significance via a perceptual translation into visual and articulate language, which as such pinpointed the body as the center of classical perceptual experience. "And yet," Merleau-Ponty writes, "the body schema clearly overflows this associationist definition." (p. 101)

> Rather, these associations must be constantly submitted to a unique law, the spatiality of the body must descend from the whole to the parts, my left hand and its position must be implicated in an overall body *plan* and must have their origin there… (p. 101)

The emphasis here is away from body-as-schema and toward *spatiality* as *given* through the body. Remember, spatiality had been, for both Kant and Husserl, a transcendental category of experience. Merleau-Ponty is pointing to the body as the "perceptual organ of spatiality." With latitude, we might say that the body "casts" spatiality, a field of continuous flux and flow which is simultaneously both body *and* world *in participation*. The body is expanded to mean, in a very real sense, an *emanation of the space of participation*.

The emphasis here is on perception as *direct participation* of the body's spatiality, which is to say of *direct involvement* in a "field" of body-and-world. The emphasis is on its direct or unmediated nature, "that there is no intermediary (image or representation) between perceiver and object perceived." This cuts strongly against the grain of classical, representational theories of perception:

> According to one classical formulation of this representational view, our mind cannot on its own reach all the way to the objects themselves, and the typical claim has therefore been that we need to introduce some kind of interface between the mind and the world if we are to understand and explain perception. Our cognitive access to the world must be mediated by some kind of mental representations relating to the everyday objects we ordinarily claim to perceive, as inner effects to external causes. [According to this view, then] to perceive the world is to generate a representational structure within the mind – something like a picture or map that represents external reality. (Gallagher & Zahavi, 2012 p. 101)

Merleau-Ponty opened up the possibility that the background is not the *pre*-perceptual ground, but the *perceptual-as-ground itself.* It suggests that there are perceptual processes that are pre-intentional, pre-representational, and pre-conceptual. These would mean that the background was the pre-intentional pre-representational, and pre-conceptual *perceptual processing of the world*.

> Bodily space can be distinguished from external space and it can envelope its parts rather than laying them out side by side because it is the darkness of the theatre required for the clarity of performance, the foundation of sleep or the vague reserve of power against which

> the gesture and its goal stand out, and the zone of non-being *in front of which* precise beings, figures, forms can appear. (Merleau-Ponty 1997, p. 102)

It would be a *participation* where world and body meet in the very fine-grained, finely attuned places where the distinction between "world" and "body" became too fuzzy to conceptualize. This field would be pre-ordered, open potentiality, where proto-perceptions emerge from the adaptive coupling of body and world, in active mutual participation.

"The world is experienced, not as a fully formed presence, but as a set of possibilities determined by an on-going dynamic interplay of environmental opportunities and sensorimotor abilities" (Gallagher & Zahavi, 2012 p. 111).

These proto-perceptions would then go onto different phases of "sculpting and carving" at different mind-brain "stations" along perceptual organ pathways, neural networks, and cognitive streams of consciousness. Some of this sculpting and carving would be done in primordial, pre-intentional stages, while some would be guided by intentional states and attentional needs, as well as eidetic phases involving memory and mental image-making while further cuts would be made through meaning-making processes of the social self. The whole gestalt would eventually, in imaginative and synthetic parts of the mind, be polished by symbolic, narrative, linguistic and conceptual elaborations of many kinds.

Neurodynamics of the Background

> *The body cognizes itself through its own body-consciousness, namely that of touch, which is "self-othering. The eye cannot see itself, the ear cannot hear itself, the tongue cannot taste itself, the scent organs cannot smell themselves. Neither can the self cognize itself; rather it is the outcome of a cognized moment. Only the body can cognize itself through its own body-consciousness, namely that of touch, which like one's own two hands embracing, is simultaneously self-othering. In this very same way, the body's aspect consciousness, its kinesthetic awareness, simultaneously self-others the world. This is the definition of unmediated cognition – the primary anchoring of perception in the world with and as the world, in participation.*
>
> ~ Bonnitta Roy

In this section I want to introduce the notion that the "body cognizes itself." What I mean by this is that the perceptual processes associated with the EBMB create a holistic "knowing" of the body's relation-in-the-world. This *tacit knowing* emerges through continuous participation with the world, down to finer and finer graininess where the boundary between body and world becomes "fuzzy" for the categorizing, conceptual mind. Consider for example, tasting food. The molecules of the food come into contact with my tongue. At this level of detail, the food is part of the world and the tongue is part of my body. At a finer level of detail, the molecules of the food come into contact with the molecules of my taste receptors. From there on, it's all chemistry, which is the same "kind of chemistry" we find in the world. Chemistry is itself a participation at a fine level of detail.

The body "cognizes" by integrating three parallel-processing streams: *interoceptive*, and *proprioceptive*, and *exterioceptive.* These parallel streams are sub-systems that semi-independently integrate perceptual information (sight, sound, taste, smell, touch, kinaesthetic and vestibular organs) according to three different referents: 1) *Interoception* processes the body's position in space, mainly by referencing the head and its movements. 2) *Proprioception* cognizes the body's own position, mainly by referencing its center of balance. 3) *Exterioception* cognizes the body's position in the world, mainly through referencing relative positions of other objects. It's truly extraordinary how much information the body must work with simultaneously: processing six perceptual data streams through three parallel processes, into a holistically cognized tacit knowledge of its worldly participation. In this case, "to cognize" means to realize *itself as both body and world.* These are the processes of the "background" that Merleau-Ponty described.

This background is a holistic continuous inter-integration of body and world. It does not "appear" because it is not a thing, nor does it come to rest as a terminal point in a perceptual stream.

Rather, as background, "the body" performs a "cognizing purpose" through continuous participation at the rhizomatous interface of body and world. *The background is hylozoic*[7] *participation.*

James H. Austin (1999) describes the perceptual spaces of the body as "the normally hidden capacity for sensate inferences." It allows us to maneuver in 360 degree (i.e. circumspatial) space through a holistic integration of position, balance, movement, and enormous processing of incoming perceptual information. Unlike ordinary, conscious perception, which references experience to the body as a single point location and the world in front of our eyes – or even unlike inner mental images and thoughts that do the same – the body's perceptual space includes the ever-expanding and unfolding continuum of space in all directions. Hence, the athlete's space becomes an enlarged skill-filled volume of possibility. The outfielder runs in concert with the ball before the crack of the bat, negotiating body and ball through vast, circumspatial trajectories, just as we "know without thinking" to "reach without looking" behind us for our scissors or beneath us for our keys.

> In contrast, [to normal frontal-local perception] our hidden awareness is *un*conscious and *circum*spatial. It may seem to start out with that property which we refer to by calling it our ordinary "sense of place." But psychological tests suggest that our usual sense of place is already relatively large, and that it does not restrict itself to that limited zone which ordinary frontal vision perceives out in *front* of us. No, our true sense of *space* goes on to encompass a cycloramic field of no less than 360 degrees. Indeed, as our large visual brain goes on to represent this huge space, its scope extends *in back* to encompass a whole "visual world behind the head." (Austin 1999 pg. 488)

These background processes explain why, after higher level processing, we can parse the neurology of visio-spatial awareness into *egocentric* and *allocentric* frames of awareness. fMRI identifies these as discrete neural pathways through the temporal lobe, the one progressing upward in a dorsal stream, the other pursuing a downward course through a ventral stream. (Austin 1999).

[7] Hylozoism is a philosophical point of view in which matter is in some sense alive, or that matter and life are inseparable.

The egocentric mode references objects to points along the midline axis of our head and body. It takes the form of an object as it *appears to me, the viewer*. Its, purpose is design for action. It is hard-wired into our nervous system along with the dorsal-ventral body plan in utero:

> How did we develop this capacity to be aware, so unconsciously, of the spatial envelope around us? In utero, as yet unborn, our brain stem had no context for the richness of adult three-dimensional space, let alone for the extra dimensions it could reach during the alternate states of maturity. This tiny stem was still largely unconditioned. Yet the brain stem of a new-born baby is no table-rasa, no blank floppy disk on a computer. It is already channeling stimuli into certain designated regions. These will serve its primitive needs to localize. In this sense, the stem is a floppy disk already formatted. (Austin, 1999 p. 490)

Allocentric perceptual modes, by contrast, are more like GPS systems. They are tuned to detached, objective spatial information. This perspective develops later in children between the ages of 3 and 5 years. (Austin, 2009 p. 55). It is fundamentally world-referenced. It coordinates objects in the world in relation to *each other* and *their environment 'out there.'* The Allocentric mode takes the form of an object as 1) an independent entity, 2) with its own intrinsic center, 3) occupying a position in the environment relative to other objects, and 4) is independent of our presence. It is only in the unconscious levels of perceptual processing that these two modes operate independently, because by the time they are *once again further passed along and integrated into manageable chunks for the conscious I,* they have been integrated into a holistic baseline perception, in normal, ordinary awareness:

> Normally, this second, other-centered version will go on silently to join our first self-centerd frame of spatial reference in a merger as complementary as yin and yang. In this ongoing synaptic alchemy, a mosaic of interactions blends two parallel physiologies into a joint working partnership. (Austin, 2009 p. 57)

These two modes of perception are *normally* merged in conscious experience. But they can sometimes become unhinged, and therefore experimentally detected. Take for example an ingenious experiment designed to elicit selective deficits of egocentric or allocentric processing in patients with temporal damage to different temporal lobe areas. The experiment involved subjects looking at two groupings of (images of) apples – four on their left field of vision, and four on their right. Patients with parietal lesions associated with deficits in egocentric processing. failed to report the four apples, exclusively on one side or the other, depending on the side of the

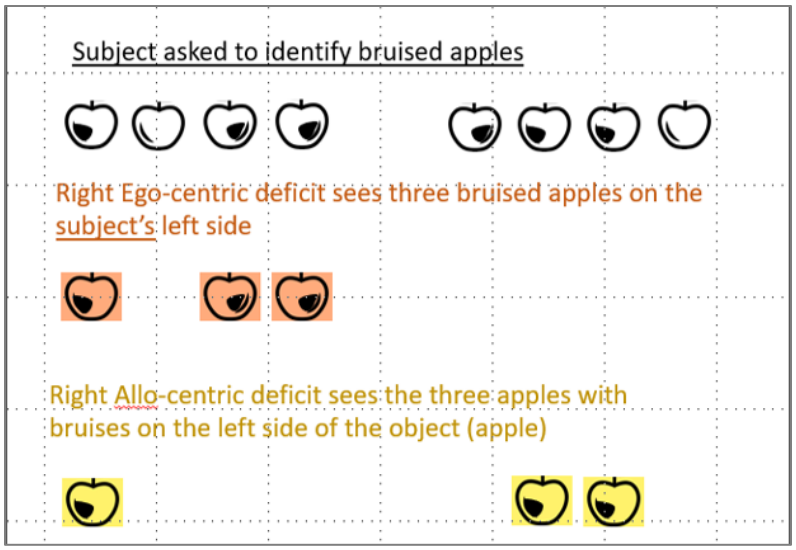

Figure 1. Parietal lesion test.

parietal lobe damage. Patients with parietal lesions associated with deficits in allocentric processing were also shown apples in two groupings (left and right); but in this case six of the eight apples had a black "spoiled" marking either on *the apple's* left or right side. There were three "left spoiled" marked apples, and three "right-spoiled" marked apples and two unmarked apples. The apple images were arranged in the following grouping

Patients with allocentric deficits identified only the apples with *markings* on the opposite side of the patient's dysfunction, *regardless of the side of the visual field the apples themselves were placed.* These experiments confirm that the "hidden background" of spatial processing operates along two discrete phenomenological streams of perception. For one of these streams the primary anchor of reference is the ego-body. For the other, the primary reference is distributed throughout "objective" relational space among the objects themselves. Along with the interoceptive, proprioceptive and exteroceptive cognizing functions, these two "streams of spatial reference) constitute the manifold of "bodily (world)-space" – the primordial, perceptual background of experience.

Neural Gates

> We look at much more than we "see." Each second, by gross estimates, somewhere between 10^7 and 10^11 bits of afferent information smite our various sensory end organs. To shelter us from this barrage, the normal brain engages in an enormous filtering operation. Only the rare stimulus, murmuring the right password, manages to pass through. As a result, consciousness finally registers and perceives only a mere sixteen to twenty bits of information each second. (Austin 1997 p. 278)

The neurodynamics of the EBMB are mind-boggling in their complexity. The holistic performance of the perceptual system depends on dynamics of feedback, feedforward, timing delays, excitatory and inhibitory responses, serial and parallel processing, and whole-part relationships. The key layers of this complex architecture are (from bottom up):

1. Hylozoic zone
    a. Level 1 – Participatory interface with world
2. Level 2 – Bodily Space (the background is "cognized" through a manifold serial processing system)
    a. interoception (primary purpose: well being
    b. proprioception (primary purpose: balance and skill
    c. exterioception (primary purpose: action)
3. Object-Space (referential processes of figure-grounding)
    a. Allocentric modes
    b. Egocentric modes
4. Mind-Space (deselection through serial processing)
    a. Carving and chunking through serial processing of information
5. I-me-mine Self Complex
    a. Accommodating and assimilating perceptual dynamics with virtual components of mind, i.e. memories, mental models, narratives, linguistic, conceptual and abstract thinking, imagination, dream and fantasy.

We can use a heuristic to illustrate the various levels as a simple illustration of these levels of consciousness. (see appendix A). In this heuristic, the world and the cognizing body start at the bottom, and more "refined" perceptual information moves toward the top, toward the final self-complex. The bottom sections comprise the "EB" of our "Embodied-Body-Mind-Brain" model. The top sector represents the "M" mind, and the pinnacle is the Self-structure, which includes more than just the EBMB. (We might say that, when we add the self, we are working with the EBMB-S) The "B" brain would be the hard-wiring that is diagramed in the illustration. The horizonal dashed lines represent where we would expect to find discrete "neural gates" which selectively allows certain information to pass "up" while confining most of the perceptual information to deeper levels. These "neural gates, would be the reason we have different layers of "accessibility" – from the pre-conscious (world) to the fully conscious self.[8] The deepest levels are completely unavailable to what we ordinarily think of as "consciousness" and yet they constitute the profound consciousness of the embodied body which "cognizes the hylozoic realm." Introspective practices can reveal the complex knot of thoughts, stories, memories, expectations and fears that constitute the subconscious layering of the Self-complex.

Contemplative practices and focusing-attention practices such as chess and Tai-Chi enable people like Josh Waitzkin to become consciously aware of the normally pre-attentive dimensions of mind. While we have seen that the allocentric and egocentric modes of perceptual processing were proved to be discrete by neuroanatomical and neuropathological experiments on patients in whom they stopped functioning holistically, it is possible, through advanced meditative practices, to tease them apart and to experience their subtle nuanced natures. It is also possible, in rare meditative states, to experience some of the deepest of the background processes, including the spatial dimensioning of reality that the body performs in the hylozoic zone.

Usually, though as consciousness descends deeper into the bodily domain, the threshold of consciousness is rarely breached, and the body "steps into the flow and performs in the zone" – as we see with extreme sports and exceptional athletes.

Background processes, not ordinarily available to conscious awareness, can become conscious perceptual experiences, when the "neural gates" reverse themselves. This "reversal" wherein the background processes come forward, entails the absence of ordinary perceptual features such as sense of self, a relatively "bland" external world of static objects, the body's positional orientation in object-space, and a normal sense of time duration. Every night we go through processes where the action along these neural gates changes. No longer are outside percepts allowed through. No longer are the body's percept allowed through. No longer is the information selected and integrated into a waking sense of I-me-mine. Instead, am explosion of virtual scenes are activated, including a dream-self and her imaginary worlds.

Opening the Gates of Perception

During a 13-day period of radical transformation, I didn't fall asleep at all. Instead, I would lie down and fall into deep relaxation. Soon I would witness my body going into sleep

[8] This paper stops with the fully conscious, but pre-reflective self. The self-state system becomes extended through self-conscious, reflection, and then further toward social, collective and transpersonal states. These latter are outside the scope of this paper.

paralysis. I could "look for" my limbs, my head, my pelvis, but could not "find them" in any part of my awareness. As the feeling of the physical body disappeared, consciousness seemed free floating. Keeping my eyes open, I was immersed in deep blackness, which I could not determine was the darkness inside the room, or the blackness behind my eyes. Either way, the blackness was strange, because usually some faint light can be seen through the windows, or some virtual imagery is active behind one's eyes. By contrast, this was complete darkness, very still. This void eventually would become more and more spacious, and tiny little specks of "light particles" were flickering. I would say though, that only about 1 -2 percent of the area was occupied by these tiny particles – most of the "space" was a dark void.

The greatest impression of this void is that it was 360 degree dimensional. And expanding into ever-increasing dimensional space. There were no objects that could be used as referents to this dimensionality. The impression of dimensionality was given by this "movement" of expansion into spherical space. My consciousness seemed to expand with it. It was as if I were a particle of light that I could not, of course see. A tiny speck of awareness flickering in a great sea of expanding void. Most of the experiences were affectively neutral. But one evening, this expansion into the infinite void was accompanied by an increasing feeling of bliss. Of freedom. The further my awareness expanded, the more bliss, the more freedom. "Going out to forever" became a subtle goal, a probable destination. Then the body called me back. I heard a very faint, child-like voice, way back down from "where I had come" calling me to re-occupy the physical body, so "she"(the body-child) would not die. I experienced this as profound spiritual choice – absolute freedom and bliss on the one side, and guaranteed suffering on the other. I realized the Bodhisattva commitment to embodiment, for the benefit of all sentience. And so, I returned. This was the 13th and final evening of my most radical transformative journey. I had come back "for good."

My experience shows how the "background phenomenon" can be experienced as a non-ordinary state of consciousness. This was not a dream – as I had full waking consciousness, which included the ability to witness and record the progression of experiential events. The background phenomenon constitutes the "spatial dimension" we create in our dreams. This one evening, however I was not dreaming, and my sensory perceptions were "gated out" through the phases of deepening sleep. And yet, "I" remained awake to witness as the background phenomenon predominated my experience. This process is described as the "downward passage" (Bradford, 2008) "which follows an orderly sequence characterized by "loss of [perceptual]objects" as they "degrade in a predictable fashion," as aims dissolve and motoricity ceases through relaxation practices (associated, in my case with the on-coming of sleep paralysis).

> In pursuing the downward passage, the mystic is buffeted by feelings embodied previously in objects of desire, affection, and fear. Ideation likewise runs forward with increasing independence of conscious intention. Inner- speech may surface in conscious awareness as auditory hallucination. (p. 57)

The end-state of such "downward passages" is an outcome of what goes off-line, and what remains on-line. In many cases, described by Brown, the downward passage "opens the gates of eidetic and archetypal images to flood through, as temporary substitutes for lost objects.

> The many forms of imagery, dreams, memory and thought images, hallucinations and illusion, eidetic and afterimages are markers of successive phases in the object-development … dreams, hallucinations, and imaginal images, followed by memory and thought images; then illusions, eidetic and after-imagery and finally the physical objects whose veridical perception entails the conviction of their being real. (Bradford, 2008, p. 59)

Of course, what is meant by "lost objects" in this paper, is not merely a phase in a microgenetic process. In this paper "loss of objects" also refers to an interruption of the body's *participation in the hylozoic* zone, that result from sleep paralysis, and neural gating of perceptual information that occurs during sleep processes. In my case, there was at first absolutely *no eidetic* content, with only the background and a few tiny specks of light, which were most probably effects of baseline retinal activity—and only in the final stages followed by the auditory hallucination and a "return to the body." Similar states occur during normal sleep phases—processes that are highly dependent upon "neural gating" at reticular nuclei junctions in the thalamus. Austin (1999) describes the role of this neural gate in *desynchronized sleep* (D-sleep) which 'enables our brain (a) to reactivate itself during otherwise drugged stupor of slow-wave sleep, but (b) to accomplish this so gently that we're not sent all the way up to the waking state.

> During our waking hours, stimuli from the outside shape consciousness. But during D-sleep the field of awareness can turn inward.[9] Now it can pursue directions other than those dictated by new sensory stimuli entering from the outside. In many other respects, D-sleep and wakefulness seem to be "fundamentally equivalent brains states." (p. 316)

Traditional meditation rituals are designed to take advantage of key triggers associated with "the passage downward" to root, background experiences. (Austin 1999) These include sleep-wake cycles timed to circadian rhythms that are most likely to express D-sleep. Depending upon the "spiritual pedagogy and doctrine" that accompanies students throughout their training, these state experiences can be seen for what they actually are – revealing the innate background processes of human consciousness – or for what we wish or imagine them to be – astral, divine or transcendent phenomena. Nature-based traditions such as Zen (Japanese) and Chan (Chinese) Buddhism tend to select the former, while the theistic tendencies of the Indo-European cultures, tend to elevate these experiences to transpersonal and divine domains.

Zen *does*, however have a term for such events: *internal absorption.* It arises as a paradoxical result of being both *intensely awake* and *perceptually asleep*. Its main characteristic is *how much drops offline from experience* while the *sense of self remains strongly online.* (Contrast this to normal dream states where exterior sensations drop offline, but virtual perceptions – images, stories, entire dream worlds and a virtual self – come online; while the waking self is completely absent. In states of internal absorption

> The person's mental field lacks sensations of vision, hearing and touch. Something stops them from entering from outside the world. Absent too are the subtler proprioceptive sense arising from inside the physical self. All that remains is clear awareness expanded to the nth degree throughout a vacuum plenum. (Austin, 1999 p. 476)

[9] Where "turning inward" means 1) participation exits the hylozoic zone and 2) allocentric processes are interrupted.

(Re)Directed Perception

Most of the EBMB's consciousness-processing happens below the threshold of our conscious awareness. Perceptual information is directed along multiple subsystems that integrate multi-modal information in various ways to create discrete layers of awareness. In addition, what comes "online" and what remains "offline", changes through ordinary sleep-wake cycles each day. The background processes are ever-present and constitute some of the most subtle of meditative experiences. These experiences "reveal the water to the fish" as it were; in moments of profound insight about the nature of the hylozoic zone and the non-separation of self and world. Some of what we know about the background comes from patients who suffer unusual perceptual disorders. Consider for example, the phenomenon known as *Blindsight.* Ordinary sight involves *two* visual systems. The higher-order system (the "first system") is the one that crosses the threshold of conscious experience. It processes in the lateral geniculate regions of the visual cortex in the (B) brain. Here is where the data from the retina is translated into a high- resolution image of the object so that it can become a *conscious* visual percept in the (M) mind. The second visual system is gated below the threshold of (M) mind by the superior colliculus to pulvinar processing stations in the posterior parietal lobe of the (B) brain. This second system is the "background operating system" of the visual perceptual organ, but is not limited to sight.

Like other "background operations" it is an integrated polymodal processor, which *wholly unconsciously* "constructs an orderly visual envelope of space enlivened by our hearing, touch, and other sensory modalities. (Austin, 1999) How can it do all this?

> Because its single, so-called visual cells are not exclusively visual. Many of them also respond to the auditory *and* somatic sensory stimuli which enter from that very same region of space. They are *polymodal*, synesthetic. (pp. 242)

So, in the colliculus, hearing, feeling, and seeing come together. Through selective amplification and (de-selective) attenuation of vast amounts of stimuli, the system "promotes less to become more."

> Suppose its cells receive a single sensory stimulus, and they make only a relatively weak initial response. The colliculus then "turns up the gain." Its circuits amplify the interactions among incoming stimuli. The result is to *multiply*, not merely to add, the physiological impact from each successive stimulus. In this manner, collicular nerve cells boost their responses enormously. (p. 242)

In patients who suffer from *blindsight*, the first visual system is temporarily or permanently "off- line" leaving only the second, background system. For these patients, their visual system seems to work "intuitively" since the fact they can point to and correctly manipulate target objects *without consciously seeing them*, suggests that there is a deeper, intuitive intelligence at work.

Blindsight unveils the performance of the deeper, synesthetic visual system. In normal sighted persons, the perceptual information is "passed up" through a series of both hierarchical and horizontal processing. Complex negative (inhibitory) and positive (excitatory) feedback mechanisms sharpen, refine and complexify, through visual association processes, a sophisticated

perception of the object. "Currently, thirty or more cortical regions function as visual association areas," Austin (1999):

> When anatomists try to plot out their intricate interconnections, their diagrams resemble the map of the Tokyo subway system. Some areas function more as feature detectors, while others go on to process representations of images. Out of this mosaic emerges that grand perceptual synthesis we so casually take for granted: the miracle of vision. (p. 243)

Similarly, in special meditative cases and "happy" accidents, the egocentric spatial-referencing system may drop offline, leaving only the allocentric system operating in the background.

Apparently, this is what happened to Douglas Harding, when, as a young architect trekking in the Himalayas, he was struck with a peculiar absence of localized space. Instead, he experienced the global awareness of space-surround, "utterly free of me." "I had lost a head and gained a world. Lighter than air, clearer than glass, altogether released from myself, I was nowhere around." (Austin 1999).

Just how intricate, effective and *independent of I-consciousness* these background processes are is mind-boggling and ego-humbling. The Daoists have a term for it: Wu-Wei which means doing by not-doing. It is spontaneous effective action guided by *direct participation*.

> *One night, in the middle of my 13 days of radical transformation, I received a call from the person who took care of my horse at her barn. The horse, a big thoroughbred named Remington, had a history of very bad stomach ulcers, and seemed to be in so much pain that he might die. Since I was in a permanent state of awake witnessing, I drove to the farm in the middle of the night to be with him. I walked into his stall, and sat down on the floor. He thrashed about in pain for several minutes, then collapsed with his head upon my thigh. Normally, I would have been very emotional through this; but since I was in this altered state of witnessing, I was filled with a sense of charged clarity. It was not a calm state, but a state of intensified energy and awareness. It was as if his energy body suffused with mine, and expanded out into the universe. Only the body was perishing. His eyes rolled back into his head, and his tongue crawled out of his mouth and onto my thigh. There was nothing but intensified silence and a huge expansion of energy. He died. I did nothing. I was nothing more significant at that moment, then a simple prop to keep his head from falling into the manure. Then the energy aroused itself, and he stood up, gently as not to hurt me. He shook his head and got on with eating his hay. I returned to my truck. It was an early winter evening, a moonless night with a soft snow falling. I drove the unlighted curvy backroads to my home. I remember being mesmerized by the way the headlight illuminated the treeline of the country roads. Suddenly, I was transported into a space that seemed 3000 feet above the road, like when you are in an airplane, taking off or landing. My conscious self occupied the background space of expanded awareness, while my body-self continued to navigate the truck on the journey home. I remember wondering to myself "who is driving that truck?" I brought my "self" back down and into my body by intentionally "feeling for" the steering wheel. The first perceptual inputs were auditory – the sound of the tires and engine humming along the road. Then when I could feel my hands on the wheel, the entire scene recomposed itself.*

There are two exceptional things happening in this event: 1) the "location of the self" and 2) the independence of the action-oriented body. The sense of self comes to be located in the "expanding disembodied space" of the background phenomena, absent any perceptual information, while the body itself navigates perfectly, guided by sensory processing. From the view of the self, there is what is called in Zen, the experience of *internal absorption*, (Austin, 1999) which is characterized by

> (1) no spontaneous thought; (2) an intensified, fixed, internalized awareness; (3) an expansion of especially clear awareness into ambient space; 4) the disappearance of the bodily self; (5) a distinctive closing off of all sight and sound; (6) a deep, blissful serenity; and (7) a marked slowing or cessation of respiration. (p. 475)

What remains most amazing to me, is not so much this "apparently transcendent" experience, which can be ascribed to discrete changes taking place in the "neural gates" of the hippocampus labelled by neuroscientist as CA1 and CA3 cells (Austin, 1999).

> What would happen if a person stopped that stream of messages which normally flows from CA3 cells on to CA1 cells? As part of his theory, Mandell postulates that such a deficit of messages might cause the comparator functions of the hippocampus to fail. As a result, the theory goes on to propose that … a "transcendent" consciousness would arise. (p. 184)

Rather, what is *most* striking to me is that the EBMB carried on perfectly well "without me;" while "I" dallied about, happily discombobulated in ambient space!

Part III: Mind

The Perceptual Brain

So far, we have discussed the embodied, body, and mind components of the EBMB. The "embodied" aspect pertains to the hylozoic zone and the interparticipation of body and world; "body" pertains to the full spectrum of "bodily space": the exterioceptive, proprioceptive, and interoceptive perceptual organs, as well as the allocentric and egocentric orientations. "Mind" refers to the serial processes that create "chunking" of information, as well as the functions that integrate the virtual perceptions, associations and memory into the I-Me-Mine self-complex.

This section focuses on the "B" brain aspect of perception. We can think of "B" representing the "wiring diagram" of the illustrations in the Appendix. In other words, "B" represents the neurological relationships and anatomical structuration that are responsible for perception. The neurophysiology of perception is excruciatingly complex, and researchers feel they have just begun to identify some of the key dynamics and relationships. This paper addresses just a few aspects that are key to our understanding of the perceptual pathways from world to self. These pathways can be thought of as having "neural gates" that stratify information processing into deeper, polymodal subsystems that process a huge amount of information through parallel processes; and "higher" order systems that are themselves stratified across the three thresholds of consciousness—subconscious, conscious, and self-conscious.

From a neuro*anatomical* perspective, the stratification primarily occurs in two discrete regions: the deep mid-brain centers such as the thalamus, superior colliculus, and central gray, and 2) specific nucleated sites along the dorsal-ventral pathways of the temporal lobe. From a neuro*dynamic* perspective, electrochemical pulses, "neural firing dynamics" up to speeds of 350 times per second, are responsible for bursts that can last or as long as 1.5 seconds. (Austin, 1999) In certain regions, such as the reticular nucleus of the thalamus, when these bursts fire, they "close the gate" within the thalamus and block sensate messages from passing further up the perceptual brain. Typically, after a burst, there is a pause, which can last up to 3 or 4 seconds. This produces an overall effect of rhythmic, wave-like activity, that flows across key neuroanatomical features.

> The conventional belief is that the reticular nucleus does not actually… "slam" the sensory gate within the thalamus. Rather, it helps the brain generate complex, rhythmic oscillations. First, these shift in the direction of *hy*perpolarization. Next, they rebound toward greater degrees of *de*polarization, that tendency toward excitation which is its functional opposite. As these oscillations shimmer in thalamocortical circuits, their waves take the form of rhythmic spindle activity in the EEG. (Austin, 1999, p. 267-8)

Cycles of excitation and inhibition also operate in a top-down fashion, such that increased activity in the evolutionarily newer parts of the cerebral cortex, excites GABA cells downstream in the reticular nucleus, which in turn activates the inhibitory bursts that attenuate sensate processing up the perceptual brain. (Austin, 1999) In this way, higher-order attention processes in the mind can and do shunt away sensate information arising from the lower-order background.

These higher-order attentional processes, associated with manipulating concepts and other virtual objects in thought (such as planning seating arrangement for a wedding in your head) has long been known to create "absent minded-ness" with regards to perceptions in the concrete world. Fortunately, the background processes most often "catch ourselves" being oblivious of things like oncoming cars. We are beginning to understand how to hack these processes in reverse, by quieting the symbolic, representational, and incessant worrying activities in our prefrontal cortex, in order to slip into the stream of peak perception required of exceptional performance – a condition that is often termed "hypofrontality." Hypofrontality with heightened sensory awareness enables extreme athletes to achieve remarkable feats. However, due to the excitatory-inhibitory cycles of the nervous system, once the task is done, the sensory gates crash and close out all perceptual information. Absent both higher order processes *and* the sensory stream coming in from the sensory organs themselves, these athletes slip into deep unity-absorption states associated with the ambient, circumspatial "vacuum plenum" of the background. Whatever perceptual information is left – the vast expanse of space, the towering mountain, or a dying bird – everything, including the sense of self, collapses into it, creating an incomparable experience of one-ness.

Later on that fateful day of errors described earlier in this paper (Kotler, 2014).

> *When Dean Potter (see above) finally got that parachute off his head, he found himself sitting on the floor of the Cellar of Swallows. Above him, his friends were running around, trying to facilitate his rescue. He paid them little mind. His body was pretty destroyed – again he didn't notice. Instead, his focus was entirely on the ground beside him, where a small swift with a broken wing lay dying. Instinctively, Potter picked up the bird, cradling it in his*

> *shredded palms. The connection was immediate. As soon as their flesh touched, he felt a powerful psychic union, as if his consciousness had merged with the bird's consciousness. In that instant, they were no longer two wounded creatures: they had become one…*
>
> *Potter ended up in this place of unity-consciousness: "I know it's hard to believe," he's recorded saying, "but the experience was so powerful, the connection so true. I just sat there with that bird, holding it while it died. When it died, I died with it. And I don't mean that metaphorically, I mean I became that dying bird.* (p. 55)

From a phenomenological perspective, the stratified perceptual brain can be understood in several ways: 1) what sensate information is "online" and what is "offline"; 2) what threshold of consciousness has the information crossed; 3) what aspects of experience are *hyper*active, and which are *hypo*active; 4) what sensations are amplified, and which are attenuated; 5) what is foregrounded and what is backgrounded; 6) where (if any) is the inside-outside boundary and 7) which (if any) self-state arises.

Research that integrates neurology and phenomenological reports from meditators trained primarily in Zen traditions, suggests that when meditators sustain global awareness or maintain single-pointed concentration, they are training the perceptual brain in ways that uncouple the recurring cycles of the brain's neural gates into more highly flexible and variable configurations. From this standpoint, Zen meditation training can result in notable effects: 1) Allow for persistent attention through wake-dream-sleep phases; 2) lower the threshold for conscious awareness into deeper layers of perceptual streams; 3) flood the conscious mind with vastly more perceptual information; 4) open the background processes to perceptual experience by, for example, consciously toggling between egocentric and allocentric modalities, which would disrupt the interior-exterior boundary of experience; 4) merging with the open, spatial modality of the background processes; and 5) awakening to the (nondual experience) of participation in the hylozoic zone. These effects are considered desirable to the extent that they dampen symbolically-conditioned and ego-centered modes of perception and amplify allocentric modes. This expands both the range of awareness into more inclusive domains of compassion and care.

The Primacy of Participation

As you read this paper, take a moment to reflect on the question:

What are you participating with?

There is not a lot of perceptual information in the grayscale marks on the page – and yet they provide stimuli for all kinds of activities in your mind. The phonetic alphabets enable simple marks on the page to be modulated from exterior perceptual data (the markings) into interior, aural perceptions as speech inside your head. Speech in turn invites mental images, and associative memories and feelings that participate in chunking the information into packages of salient meaning. The message I am trying to convey is translated into meaning you are attempting to make. The meaning is always a variant of the message. Participation is *never* replication. It *always* creates emergent novelty.

The Zen notion of *direct perception* was never meant to suggest that we can see the world *as it is.* It is more correct to say that the awakened state sees *the perception for what it is.* Perception is a matter of *degrees of constraints* in an infinite field of participation. The first, obvious constraint, is our human species biology. A second constraint involves our individual physiology – whether the perceptual organs are fully developed and healthy; as well their degree of skill, i.e. degree of attunement, refinement and acuity. A third constraint is state-specific and concerns a person's thresholds for conscious awareness – our ability to be "aware of" if not "fully conscious of" for example, the saccadic movements of my eyes, the perspectival constraints of my language, or even the normally pre-attentive ground of perceptual experience. While it is not possible to break through the first two constraints, *direct perception* in the Zen sense of *Kensho-awareness*, deepens and expands awareness such that it lowers the threshold of consciousness, such that even the background composition enters into the perceptual experience. Still, amongst these rare experience that qualify as *Kensho*, there are different degrees of perceptual awareness. The full spectrum of the perceptual experience might not come into conscious awareness all at once. There are often initial phases of absorption in the spatial ground, followed by an intensely vivid, and polymodal synesthetic "surround sound" phase whose panoramic vistas may (or may not) be accompanied by a subtle egocentric reference.

Sensory Clarity

Over the last 10 years I have worked with many groups and individuals both in the context of cooperative inquiry. When groups come together for transformative practice, they go through stages wherein they dis-embed from the limited role of their social self, and move into deeper, more authentic engagement with each other. (See Roy, 2016). There is a key indicator that the group is shifting from inauthentic modes of relating to open, participatory complex processes of relating that are creative, insightful and generative of collective healing. The key is when individuals begin to fall into a state I call *sensory clarity*. They realize, *as if for the first time*, that there is just a group of people sitting in a room together. This realization comes after a tortuous experience where people debate, challenge, attack, disassociate, pontificate, politick for power, complain, agonize – a full spectrum of neurotic behaviors set into motion by the projections, fears, defenses, and narratives stored up in the false persona of the social self. Once all this is dropped, and only when all that is dropped, do the senses actually come "on line" and people see each other as they really are, perceive the "scene" as it really is, in its simple, ordinary concrete reality. The experience is both remarkable and humbling at the same time. Remarkable, because as the senses come online, the colors, textures, and scents become vivid and crisp; and the heightened sense of touch can activate the sexual libido (kundalini) of the body (lower chakra). It is humbling in its complete ordinariness: absent the incessant internal dialogue, social strategizing, and psychic warfare that we are always otherwise participating with, the simple fact of our ordinary humanity comes to the foreground of our perception.

Sensory clarity, I believe is the pre-requisite for authentic human relating. We have to get to square one before we can build a shared or collective understanding – what Martin Buber[10] called I-Thou -ness. Understanding perception therefore, becomes a matter of importance in the realm of

[10] http://teacherrenewal.wiki.westga.edu/file/view/I+and+Thou+1958.pdf

human relationship. Too often we facilitate group process by mitigating emotion, whereas too little attention is spared for the senses. It all comes down to *What are you participating with?*

If sensory clarity is a marker of the possibility for relational depth, I began to wonder if activating and alivening perception could be a portal to *generating* relational depth and intimacy. Too often we associate intimacy with affective modes of being – with feelings and emotions. I began to think of the many ways people have always added color and jewelry to themselves as part of their courting behaviors – effectively making the perceptual experience more intense. I also began to think of the role of music and song, and the way that being in the rich perceptual environment of nature or a museum, makes a great first date! Not to mention the deeply sensory experience of two people touching. I began to think of perception as the *out-pouring energy* toward the object that is desired or loved; whereas affect was the *flooding-in* energy of relationship. I wrote (Roy, 2015) "perceptions are guided by what we might call the 'appetitive drive of the senses.'"

> The senses are not passive organs that function like windows opened up onto the world. The senses are more like *open roads* – they are designed to go somewhere. This is something that Goethe knew – our senses are not passive receptors but they are dynamic and creative actors that *enact perception*. (p. 52)

Equine Assisted Therapy

For over 15 years I have partnered with my horses to create equine facilitated transformative practices for adults. For the first 10 years, the practices involved mostly working with affective dimensions of human experience.

Horses are especially good at stripping away our monkey minds and social narratives and allowing us to drop into our bodily sensations. Most people go about their ordinary lives with something like "locked-in" syndrome – they are participating only with thoughts, mental models, narratives, expectations, associations, etc… in their mind. Over time, however, I noticed that people involved in certain spiritual communities who seemed to be able to quiet their monkey mind, were often less successful in engaging the horses beyond passive accompaniment. The horses wouldn't bond, follow, joke around, or engage.

Eventually I discovered that there was another kind of locked-in syndrome in which the person is fully absorbed in their body, and incapable of experiencing the outer world. They were in a very real sense, perceptually dead. I actually had to train people to use their everyday senses – like their eyes and ears and hands – to experience the horse in a sensory way. This was a real shock to me, and it continues to boggle my mind today. No wonder people don't have any clarity around their experiences in the world! Can it be true that most of us are dissociated from our bodies and disengaged from the world? If so, we are only left with the coarse-grained linguistic categories with which to relate – leaving us misunderstood and isolated in the process.

From Self to World

The perceptual organs are in direct participation with the world. But the ordinary, everyday self withdraws into a simulated world of virtual perceptions, memories and thoughts that create and maintain the I-me-mine complex. This is the "house that monkey builds" (Trungpa 1987), the illusory fantasy world of ignorance (Austin, 1998) that splits us off and trap us inside. This creates an existential condition I call "Locked-in Syndrome" and leads to the errors and confusions that call perception into question. We can think of "locked-in syndrome" as the ego's frame of reference. From this particular frame of reference, visual perception is deceptive, because it does not correct for refraction of light in water. However, if a person uses their body to throw a spear at a fish, the perceptual EBMB *as a holistic participation* **does** the "calculation" through adequate participation: experienced spear fishers throw with precision. Locked-in syndrome makes us think that vision operates like a camera, rather than understanding perception as a holistic participation with the world. Experiments in visual perception exacerbate the locked-in frame of reference, as subjects' heads are literally held in place in front of displays. As it turns out, saccadic eye movements, subtle movements of the head, and the body's proprioceptions of angular rotation, play essential roles in perceptual acumen. (Clark, 2011). When we are locked-into our monkey mind, mistaking the simulated world for the world that arises from direct participation, our science degrades into linguistic recursion. For example, we know that the color blue was distinguished as its own color much later in human history than the other primary colors. From the point-of-view of the ego, obsessed with the virtualized world of language and thought, the reason why must be because there was no word for the color – that the *word* invented the perception, rather than the other way around.

Recent research (https://www.dunnedwards.com/colors/specs/posts/the-history-and-science-behind-the-color-blue) suggests a more embodied reason—that colors become lexically distinguished when people develop distinct *uses* for them. Just think about how significant this explanation depends upon embodied participation. Whether the color "exists or does not exist" in the environment is not the question. The question becomes "whether there is adequate participation" for the color to emerge as a distinct perception. This brings us to the notion of correct perception as *adequate* participation; and perceptual errors as a consequence of *lack* of adequate participation. This solves the perennial parable of the snake that is mistaken for a rope.

As I have described (Roy, 2014) before:

> *Let's go back to the story of the rope that is mistaken for a snake. The senses perceive "what is." If all of the reality enters in as context, then the person will experience the rope as a rope. If, however, the context is limited to a memory of a snake that once bit a dog, then the person is most likely to experience the rope as a snake. When the villagers hear her story, even though their senses perceive the words directly, if the context is limited to this story, then their experience will be one of limited participation, and they too will mistake the rope for a snake.*

Adequate participation *perfects science* as it leads us to a "good" theory which "orients us toward a correct view," which is to say, away from the separate, privatized view of the ego complex, and toward a view with more degrees of freedom. The ideal view, therefore, would be

one with the requisite degrees of freedom to perceive that slice of reality of interest.[9] Participation, therefore, is the way our own EBMB activity *enacts or brings forth new systemic wholes* (Varela, 1991) which in turn creates new potentials for participation. Furthermore, the notions of adequate participation, informs the enactive and embodied aspect of skillful action and ethical wisdom in the world (Varela, 1992).

Recent studies in enactive neuroscience (Clark 2016, 2011; Gallagher 2008, 2005; Gibson, 2015; Noe, 2004) stretch the focus of enactive participation further into the dimensions of the "body-mind" (the "EBM" in the EBMB). In these approaches, the BM itself doesn't sit inside the brain, the mind or the body, but is fully extensive with "world" through the body's gestures.

The complexity of our human activities, they reason, are such that they cannot possibly be encoded and stored representationally in our separate bodies. Rather the body "stores the activity codes" for the kinds of participation that will *retrieve* the relevant information or *compute* the relevant data. We all know how we learn to count using our fingers. Clark (2011) tells us that gesture goes far deeper than that. He shows how gestures alone, or motor acts in general, "somehow shifts or reduces aspects of the overall neural cognitive load" in an "organismically extended process of thought." Consider writing as an example. Clark's view suggests that it is not that the paper serves merely as a medium in which to store our thoughts, rather, the participation is a bi- directional and emergent one where "the paper provides a medium in which… via some kind of coupled neural-scribbling-reading-unfolding, we are enabled to explore ways of thinking that might otherwise be unavailable to us. (p. 126) Physical materials, as Vygotsky (1986) understood them to be, *are carriers of cognitive effects*. According to McNeill (2005), then, this implies "that the gesture, *the actual motion of the gesture itself,* is a dimension of thinking." (p. 98) Echoing McNiell, Clark (2011) writes: "Our free (i.e. spontaneous, nonconventional) gestures are not… merely expressions of or representations of our fully achieved inner thoughts, but are themselves "thinking in one of its many forms"[11] (p. 127).

Ordinarily, we think of painting as depicting an eidetic image in the mind of the artist. A theory of action in perception (Noe, 2004) considers painting to be a deictic act, wherein the artist is not depicting, but reaching and pointing through polymodal bodily actions, involving the hand, the head, the eyes and more. "Instead of plotting a course through an internal map, you act on what you look at, and you let the fact that what interests you is there in front of you place a guiding function." (p. 24)

> Seeing, on the enactive view, is like painting. … The painter looks to the world, then back to the canvas, then back to the world, then back to the canvas. Eye, head, canvas, paint, world are brought into play in the process of constructing the picture. Seeing, like painting, involves the temporally extended process of reaching out and probing the scene. (p. 223)

Andy Clark (2011) calls Noe's model of perception "SSM" – a strong sensory-motor model. SSM's extend perception into the world through the activity of the body. Clark identifies a possible model that push the EBMB even further with his Hypothesis of Extended Cognition (HEC). The HEC predicts that whenever and wherever possible, cognitive information is exported onto the

[11] The astute reader will recognize this as a version of the law of requisite variety in cybernetics: see http://pespmc1.vub.ac.be/REQVAR.html

physical world in ways that create "affordances" for continued skillful action. Writing down a note to pick up a friend on the way to work, and placing it on the seat of my car is one example. Perception and cognition thus become not a matter of perceiving and knowing a world, but of reaching toward and building a world of affordances through gestures.

Neural correlates suggest that this "dual-stream" hypothesis is correct – i.e., that there is a perceptual system that is EBMB-based, and one that is further removed from the realm of direct sensorimotor engagement. (Clark, 2011) According to this research, the visual processing system has two streams – a ventral stream geared toward "enduring objects, explicit recognition, and semantic recall" associated with more eidetic types of perceptual cognition. This stream operates whenever real-world objects are unavailable for employing as external instruments of perception. When such real-world affordance are available, another, semi-autonomous dorsal stream, operates in the here and now, to guide motor action in the world, without the mediation of eidetic representation. Like so many other recent discoveries, these distinct streams were "teased apart" by studying patients with deficits in one but not the other visual processing stream (Clark, 2011).[12] The discovering of "dual-streaming" processors lead Clark to suggest a new hypothesis of embodied perception and cognition: HOC (Hypothesis of Organism-Centered Cognition) which states

> Human cognitive processing (sometimes) literally extends into the environment surrounding the organism. But the organism (and within the organism, the brain/CNS) remains the core and currently the most active element. Cognition is organism centered even when it is not organism bound. (p. 139)

Some of the hypothetical territory here depends on how far are we willing to go with our conceptual categories. Consider again, for example, how we maintain our balance (part of the proprioceptive functions). Inside the inner ear a grain of calcium rocks on a kind of "saddle" that is lined with tiny hairs that sense its movements. As the head moves relative to the center of the earth's gravity, the tiny hairs perceive the movement and position of the calcium. Now imagine being in a row boat, with a saddle for a seat. In your imagination, place a smooth and rounded stone in that saddle, and think of how you could use it to keep your balance as you stand in the boat. What if you had a serious ear infection, and your internal balance system went offline?

Would you be willing to *extend the category of perceptual organ out of the EBMB and into the boat?* Switching to the notion of correct perception as *adequate participation*, resolves the problem in one fell swoop. Perception is not a static architecture bounded within a conceptual category of one's choosing. It is an active operation involving organism and world, that both extends and contract, reaches and retracts, to optimize participation.

[12] Note, previously we described the ego-centric and allocentric pathways that correlated with the ventral and dorsal subsystems of bodily space, which is consistent with the ventral-dorsal properties of visual processing described by Clark.

The Role of the Imagination

In ordinary experience, the imagination is tightly woven into the fabric of perception at various layers. There is the imaginary part that is intentional – for example, when we allow ourselves to imagine faces and animals in the morphing shapes of clouds. There are pernicious types of imaginary components that lurk beneath our consciousness, such as when we overlay bias and prejudice in creating false memories in reporting on crimes and mishaps. Direct perception, in the purest sense, is perception *absent the participation of imagination*. We can also think of direct perception, as *degrees of awareness* of the role of the virtual and imaginary in our experience. The greater degree of awareness, the greater choice we have to intentionally add in or subtract out the components of experience that are extraneous to the objects of perception. The integration of awareness and intention, consciousness and choice, is spiritual wisdom.

Perception and imagination begin to interweave deep in the (ordinarily) preattentive, subthreshold levels of experience. Because of this, the early phenomenologists (Crowell 2001; Gallagher & Zahavi, 2008; Kockelmans 1967; Welton, 1999;) argued that the imaginal, eidetic properties could never be perceived, because the perceptual properties of experience were themselves, products of imaginal operations. Only recently has western neurophenomenology and neuroscience begun to unravel their relationships in deeper layers of the EBMB.

Consider, for example, how we ordinarily perceive "first person perspective." We look from "here" to "there." We are unaware of the perceptual processing deep in the EBMB which subtle image-mind the shape of your body into this "picture" of reality. If you watch *this video* of a squirrel running up a tree, you will have what I call "go-pro" perspective. Because the movements are unfamiliar, the "body" your imagination ordinarily supplies as the "background" doesn't match up with the perceptual experience. Of course, there is a little bit of both "go-pro" and "first person" perspective in your experience. The point is, meditative practices can train the mind to decouple the imaginal or eidetic component of perception from the experience, creating a more naïve, more direct perception. Thereafter, the imaginal functions of the virtual-simulation operations of the mind, could reconfigure themselves in a kind of retroactive fashion, and offer you an imaginal body to go along with the video experience. You would be able to *become squirrel*. It is precisely this kind of "shape-shifting" that fascinated the Daoists sages and Shamans, who noticed that energy conspires with form to create perceptual experience. (Angle, Hall and Ames 1998; 2009; Hansen, 1992; Kjellberg and Ivanhoe 1996; Mair, 1983).

This imputing of a subtle mental model of the body onto "first person perspective" has led philosophers and phenomenologists to assume that the imaginative aspect of experience must be *prior* to the bodily spatiality of the world, and hence must somehow "taint" or "indirect" this aspect of experience. This has led to the idea of "the body in the mind." (Brown 2002, 2005; Heron 1992, 1996). For Brown (2002), the affect-laden intentional states preconstitute the subjective ground of experience. His theory of microgenesis places the "image" stage as a prior and requisite stage for the "body" to appear, and as a result exists for the subject as an object among other objects in the world. In similar fashion, Heron (1992) describes the basic life-cycle of the ego as moving from emotion to imagery, then conception and finally action. "the imaginal mind [is] at work in perception … it is a shaping and moulding process; perceptual imagery is being *made* by the psyche…

> I am not aware of my imaginal mind busy with the generation of perceptual imagery whether through seeing or hearing or touching. I turn what is a continuous process, a transaction, into something out there that I am looking at. I am aware of the image, the product of the process, but not of the imaging itself. (p. 145)

While it is correct to say that first person perspective already includes eidetic elements, it is incorrect to conclude that perceptual experience begins at first person perspective. Gendlin (2009) was already aware of this distinction when writing about the *implicit understanding* in the body:

> The first person process is not a 'perspective' First person process has been widely misunderstood as being inside an externally-observed body. I have tried to show that first person process is bodily-implied environment interaction. Our conceptual systems are explications developed from within environmental interaction, and then tested in it. In the usual view there is an unbridgeable gap between first and third person 'perspectives'. But only the third person is a perspective, a view (the 'view from nowhere', the observed without the observer). The word 'perspective' assumes that the environment is something merely viewed, not interacted with and behaved in. First person process is not a perspective. If first person process is understood from first person process, we can explicate how it is bodily, implicitly conscious, far exceeding the objects of attention (of viewing), always an implicit understanding, needing no added observer. (p. 349)

Thompson (2005) uses the term "sensorimotor subjectivity" as the "zero point," the "null point of orientation," or absolute indexical "here" prior to subjective being in relation to which things appear perspectivally: "The lived body manifests itself in perceptual experience, not primarily as an intentional object but as an implicit and practical "I can" of movement and motor intentionality" (p. 249).

The question is not *whether we can* virtualize the body using internal images and representational simulations. Rather, the debate involves whether virtual imagery is necessary for perceptual experience to occur. A third option is to suppose that the virtualization of visual perception is necessary but not sufficient for conjuring up mental imagery; and that in order to do so, requires the facilitation of on-going sensorimotor processes. The distinction between body *schema* and body *image*, described by Gallagher (2005) can help us better understand these options. For Gallagher, the deeper proprioceptive layers of the body are responsible for maintaining a coherent *schema* that locates and coordinates body movements. Body *image* on the other hand, involves higher-order processes that rely on mental framing at or above thresholds of conscious attending. Gallagher compares patients who suffer from two dramatically different types of deficit in their body awareness. Personal neglect" resulting from brain injury, involves the loss of "ownership" over movements in parts of the body. Arms and hands may manipulate objects successfully (as in dressing or undressing oneself) but the person is not aware of the intention or the act. According to his terminology, in cases of neglect, the deficit involves the *imaging* functions of the EBMB. In very rare cases, the body fails to locate or coordinate itself *by itself* and instead *requires* the patient to continually reference their body image and attend to their body as object, in order to make any movement at all. In the first case of neglect, Gallagher argues, the body schema is intact, but parts of the virtual body are lost.

In the second case, the body schema is lost, and the body image operates as the compensatory function. In some instances, for example with a patient named Ian, needs to see not only the target object, but also his hand in order to successfully reach out for objects. In other instances, Ian relies on cognitive control under the guidance of virtual body imaging, to articulate basic movement such as walking. This results in movement that is less fluid than normal – movement which looks more like a result of robotic "decision-path" calculation, rather than organic, embodied activity. The kind of movement that people ordinarily make when learning a complex dance sequence for the first time. For Ian, "imagined movement," Gallagher says, "lowers the threshold for continuous action."

> In place of the missing body schema processes, we might say that Ian has substituted a virtual body schema – a set of cognitively driven motor processes. The virtual schema seem to function only within the framework of a body image that is consciously and continually maintained. If he is denied access to a visual awareness of his body's position in the perceptual field, or denied the ability to think about his body, then, without the framework of the body image, the virtual body schema ceases to function – it cannot stand on its own. (p. 53)

Ian's condition shows us that in normal experience "there is no phenomenal difference between motor space, proprioceptive space and perceptual space." Yet it also brings up a kind of chicken-and-egg question, as to which is more fundamental. Gallagher surmises that it is only because Ian's vestibular and proprioceptive functions of his *head and neck* remain intact, that the visual-imaginary mapping successfully links the body to action (p. 63). Further research is warranted to determine the minimum viable structures and relationships required for different sensorimotor functions and associated actions. In any case, Gallagher anticipates that what will be found is something like an "ecological circle" between afferent signals coming from the body schema pathways, and efferent signals relaying back from the body image network. This of course, is the same kind of "circle" responsible for neuropathies such as phantom limb (Doidge, 2007).

This notion of an ecological circle in the EBMB is useful in other ways (see Appendix C). We can think of the body schema as located in the hylozoic zone – the ecological overlay of the body and the world. We can think of the body image as the ecological overlay of the body and the virtual mind. In this way we can calibrate the continuity of world and image, body and mind.

States of Mind

The imagination plays a preeminent role in the emergence of non-ordinary states of consciousness. The notion of "ecological overlay" is helpful in understanding how perceptual experience organizes as different state experiences, without disrupting the continuity of the EBMB. Thompson (2015) identifies what he terms "altered embodiment" along this ecological spectrum. These experiences are associated with specific neural correlates that overlap with those that specify first-person and third-person perspectives. I have already described how even in conventional first-person perspective, there is a subtle imaginative overlay of some third- person perspectival content. It is not difficult, therefore, to think of how amplifying one or the other, or combining elements of both, would result in non-ordinary experiences of world spaces and body spaces, and the location of the self.

Normally, the perspective of the self includes 1) feeling of ownership of the body, 2) sense of agency over its actions, 3) being anchored to or located in the body and 4) referencing the world to the body and 5) referencing affects (emotional tones) to the self. Any and all of these can be amplified or attenuated in non-ordinary states of mind. (Thompson 2015) *Autoscopy* is a phenomenon wherein the person perceives their body from an outside, third-person perspective, *while otherwise fully awake.* "Fully awake" here means you are simultaneously perceiving yourself located inside your actual body, for which you assume ownership and agency; while *in addition*, you perceive a duplicate body which arises as object of a third-person perception which you neither "occupy" nor "move." A slightly different phenomenon, where the sense of the "I" that owns and controls, and to whom the world appears, alternates back and forth between the first-person and third-person body image. For brief moments, the two perspectives can be combined, a state experience called "bi-location."

> *As I walked down the rows of corn growing in the valley, my sense of relative size became fluid. As a grew smaller and smaller, the corn rose higher and higher, until it seemed like I was looking up at the sky from the bottom of a deep canyon. The sun caught me at my throat and split me in two—a tiny self at the bottom of that canyon, and an expansive self who was floating above in the sky, witnessing its disappearance into nothingness*.

"The world of out-of-body experiences," concludes Thompson (2015) "seems to be the world of the imagination."

> In my view, the impression of seeing things in an out-of-body experience is like the impression of seeing things in a dream; in both cases, what's happening isn't perception, but the mental simulation of perception. (p. 224)

Perhaps it is helpful to say that an OOBE, is a particular ecological overlay between the perceptual body and the imaginal mind. Perhaps it is too rigid to assert that a given experience is "one kind of experience" and not another. If experience is an ecology of participation, then states of mind should be expected to be fluid and transitory between a spectrum of varieties of experience. In other words, because of the deep continuity of world, body, and mind, *all* experiential states are inclusive of world, body and mind – all the time. The differences Thompson has been describing all involve the degree to which the body schema operates and the degree of the body-image(ined) overlays. We might say that the "overlay" can be transparent in ways that complement the body schema, or, as the overlay becomes more opaque, the image- minded, virtual bodies, conflict with and eventually displace the embodied body schema. Falling asleep is an ordinary phase transition in this process of attenuation of the body and amplification of the imaginal mind.

First our ordinary perceptions quiet down, and the body sensations cease. We lose contact with our senses, and control over our bodies. The imaginal mind creates the dream world out of the overlays of perception, perspective, memories, fantasies, and narrative scenes and stories. Like film clippings on the floor of the editing room, snippets of reality can be spliced apart and spliced together in an infinite number of ways. One of the best ways to explore what imaginal overlays are operating in the background of waking life, is to learn how to be lucidly aware of the dreams you make.

An Ecological Theory of Perception

Using this notion of overlay, we can extend the scope of continuity of experience beyond conventional waking states and into other states of mind, such as the dream and sleeping states, and also including the mind's dying process and excursions into non-ordinary states of consciousness. Perception is a kind of multi-layered ecology of participation, where figure and ground, agent and environment, content and context can filter themselves in or out. I am thinking of the slider tool in a photo imaging app, where the transparency of objects can be set from 0 to 100 percent. Similarly, the overlays of perception, operate in a continuously shifting modes of transparency, creating different reveals, revealing new worlds. It should be noted that these "transparency settings" are not reserved to visual objects, but involve what we are calling all the "perceptual overlays" that make our experience complex, dynamic, and richly textured.

In the Appendices C-H I try to illustrate this idea of an ecological overlay of perceptual experience. Appendix C illustrates where the hylozoic zone is created by the overlay of the world and the body. This composes what we have been describing as the bodily space or background, (Merleau Ponty 2012, 1964), body schema (Gallagher 2005), first person *process* (Gendlin 2009), and the zone of sensori-motoricity that Thompson (2007) refers to as the "null zone" or "zero point." The shorthand I have used in this paper is simply EB, *embodied body.* In contrast, the body image, (Gallagher 2005) participates in the overlay between the body and the virtual functions of the mind – what we commonly refer to as the imagination or liminal space, and what I have labelled as the BM, *body-mind.* Appendix F is a way to illustrate where the ecological overlay of the many *virtual bodies* described above by Thompson (2015) would appear and disappear, phasing in and out of transparency, moving back and forth between the realms of possibilities and actualities (Whitehead 1978). Perception "rescues from vagueness", wrote Whitehead (1978) and warned us of "reducing perceptions to consciousness of impressions on the mind."

Affordances

In our ecology of perception, we identify the hylozoic zone as the world-body overlay; and the body image as the overlay of body-mind. What I construe to be the overlay between world-mind? I call this overlay "brain" since "brain" is the physical, or worldly aspect of mind. More significantly, "brain" represents what has evolved through the world as *world.* This is the MB, *mind-brain* at the end of our EBMB (embodied-body-mind-brain). This is the region labelled "affordances" in Appendix E. It is the region where the world accommodates the brain *and* where the brain accommodates the world. Brain and world constitute a continuum, in the same way as body and world – through complex, dynamic processes of relating. This dynamic "structural coupling" (Thompson, 2007; Varela, Thompson and Rosch, 1991) of brain and world is the basis of the notion that the world offers up novel possibilities, or "affordances" (Gibson, 2015; Masciotra, 2007) for the world and brain to co-create novel ways to participate.

A good example of affordance is the how we invent new uses for old items, when we don't have the right tool to do the job. Objects, lying around in the world, "afford" possibilities that the mind doesn't always see, until it sees it in a new light. We scan the room and go through the drawers, "looking" to find something we are not sure what we are looking for – until we find it. Then, brain and object, mind and world become one in the action made to solve the functional

problem. Objects take on new meaning, the world grows richer. A blade of grass becomes a reed in a whistle, a whistle becomes a straw, the straw a handle to hold a nail in a tight spot. Every object in nature *affords* some possibility in the mind of a person. Affordance is a result of tight evolutionary fit between the organism and environment, which allows the organism to "dynamically steer" in the direction of the "good;" which is a satisfaction of a "search drive" in an adaptive landscape. Perception, as an ecology of overlay, can be construed as a continual dialing in and out of available features "afforded by the world" until it satisfies the conditions for a needed or desired action. A convenient analogy would be tuning a radio to a station that satisfies a threshold of fidelity. The imagination may or may not play a significant role in the final configuration. Regardless, the continuum from world to mind, is never broken.

This is a dance of "dynamic co-emergence" (Thompson, 2007): "all that a subject perceives becomes his perceptual world and all that he does, his effector world" (p. 59) This way of talking about affordances is subtly biased toward the subjective or organismic pole. The complete set of couplings between world and mind, constitute what von Uexkŭll Barbieri, 2008; Buchanan, 2008) called the *Umwelt,* or the world that is disclosed through participation of the organism and their world. The emphasis here is on the world-building or world-disclosing activities (Heidegger, 1962). We can think of two agents participating in an overlapping Umwelt, where worlds and minds collide. This extension of perception *extended as world,* is illustrated in Appendix E. The intimate connection between the natural objects and the perceptual organs of man, was something that Goethe (1988) recognized: "The human beings knows himself only insofar as he knows the world; he perceives the world only in himself, and himself only in the world. Every new object, clearly seen, opens up a new organ of perception in us."

Goethe is saying that every new connection extends the organs of perception further *as world,* and generates self-knowledge. This very closely parallels the notion that perception, when awakened, gives rise to insight-wisdom in the Buddhist tradition (see following section). This underscores the fact that the perceptual organs are not merely passive instruments or message bearers, but they are actively engaged in the creation of a significant environment." (Buchannan, 2008). Furthermore, the mind is not required to interpret meaning from this engagement, because the significance is entailed in the environment-organism coupling, which acts as a "storehouse of meaning" that is accessible through iterative process of probing and participation. Pick up an old baseball bat, and you will re-live the significance of the hit; slip on a baseball glove, and you will recapture the significance of the game. "The creation of the *Umwelt* occurs through the *interpretive work of the organism"* [emphasis mine], writes Buchanan (2008):

> the interpretive process remains a biological relation that occurs between an organism and its other, where neither is reducible to a cause-effect scenario. They both give and receive the sign of the others, and it is in the *convergence of these signs* that an interpretive process takes place. [emphasis mine] (p. 33)

Goethe wrote: *If the eye were not sun-like It could never behold the sun*
to which von Uexkull replies *If the sun were not eye-like It could not shine in any sky*
(Buchanan 2008, p. 33)

In other words, there is something about the sun that *affords seeing*. This is not a trivial statement. *That* the world *affords* significance points to its inexhaustible richness and generativity. This is the basis of how perception gathers the world-disclosing information that generates insight-wisdom.

Gibson's (2015) own ecological theory of visual perception describes in detail the key aspects of the animal-planetary overlay that generates perceptual information. These aspects are the invariant constants that have been present throughout the evolution of animal life. We might think of them as the *way that the planet has extended itself into animal life*. The fundamental affordances of animal life are (1) The Medium: water, earth or air; (2) The Substance: water, earth or air; (3) The Surfaces: where media meet and create an interface. Note, according to Gibson's taxonomy of affordances, water is a medium for aquatic animals, but a substance for land dwellers (whose medium is air). The *affordances* of the environment, are what it *offers*, *provides*, or *furnishes*, either for good or ill. Like vonUxekull's *Umwelt*, and Thompson and Varela's notion of structural coupling, *affordances*, for Gibson, imply the "complementarity of the animal and the environment." Gibson offers a radical hypothesis of perception, which says that *to perceive is to reveal what the world affords*. Its radical implication is that to perceive is already an act of evaluation and meaning-signifying. This would explain the deep purposiveness interwoven into the very fabric of existence. As I have noted elsewhere (Roy, 2006), our fundamental values are laid down in the very primary micro-stages of moment-to-moment awareness. She writes

> I look out over a springtime meadow, taking in all the colors and textures and aromas. My eye settles on a daisy – not just any daisy, but just this particular one. My mind relaxes in the joyful play of this daisy and I. These are inherently valuable existents which exteriorize for me over the duration of the cognitive moments. For the bee, bird, and butterfly, there are a set of different values… (p. 145)

Changing values changes the way we participate in perceiving the world. This reveals different affordances. Think of the way we might scan though a bookshelf at a bookstore, without looking for something in particular. What catches our eye, depends upon some subtle ways our intentional-motivational state primes our behavior. We move along, picking up information—clues where to move next. We may be irritated in the self-help section, and get pleasantly lost in the biographies. A book of images, photographs or artwork draws our attention, and we move as our values move. We move, in a very real sense, guided by the appetitive drive of our senses. This is the same way that we move in and among the worldly significance. We interact with the world, and change it. Change affords new affordances, new significance, new ways of participating. "For all we know," writes Gibson, "there may be many offerings ... that have *not* been taken advantage of…" (p. 121)

To perceive directly, for Gibson, is to participate as the world affords. There is complementarity, but no intermediary. Take light, for an example. We ordinarily consider it a medium of transfer of information, between the world of objects and our perceptual organs. But, Gibson argues, we don't see light itself. Light in the environment is *ambient array*. It is an aspect of the medium (atmosphere or water, for land or aquatic animals) which, along with other aspects of the environment, i.e. substances and surfaces, interacts to create information. We in turn perceive this information *directly*. We see the green leaf because we receive this information: "the leaf is reflecting green and absorbing red." Perception is the *direct receipt of information in the*

environment. As such it needs no interpretation. In a structureless environment, the ambient light itself would carry no information, and hence, *could not be seen*. Seeing is gathering information about the real world. It is direct participation with information that is structured in the environment. We not only perceive the world directly, but we *directly perceive the structure of phenomena*. This allows us to understand what they are and how they operate, a process McCabe (2014) calls *perceptual learning.* It is an intimate process, in which the world *enters us:*

> It adds that we resonate to and incorporate the information that specifies those phenomena directly into the neural networks that our perceptual systems activate. *This process changes us*… we are no longer our old self that has simply added another item to our archive of retrievable information. By incorporating new structural information directly into our appropriate neural network, we become a new, reorganized self… (p. 39)

The above discussion shows how a theory of affordances dissolves the crisp boundary between world and self, object and subject, in the same way that our theory of the hylozoic zone dissolved the sharp categories of world and body. Appendix G illustrates a third "fuzzy boundary" – the zone that overlays world and mind. We can think of this zone of extended mind, in terms of what Masciotra (2007) calls the *network of virtual actions* and *spielraum* (room to maneuver). The mind, in this case, constitutes the network of virtual actions; and the world of affordances constitutes the *spielraum*. We often think of creative insight as an activity of mind. The mind's virtuality and ability to simulate novel experiences, is only one key component of creativity. It might be secondary to how we participate with, and what affordances are provided by, the environment. "It is easier to enhance creativity by changing conditions in the environment than by trying to make people think more creatively" (Csikszentmihalyi, 1996, p. 1).

The *spielraum* represents the conditions in the environment that set both the constraints on and possibilities for creative excavation of affordances that have not been previously seen. This is perception as insight – bringing into reveal, the structures of the world, such that they align with creative ways of acting. A *spielraum* is not constituted merely by the objects in the environment, but by the objects as they relate to actions the body is capable of performing. Consider, for example, two climbers facing a rock wall. Their perceptual organs "see" the same wall; but the more experienced climber will see more "holds" for climbing. The more experienced climber will be able to virtualize more possibilities for a route up the wall, and then exercise these possibilities in real actions. For the expert, there are more affordances in their spielraum, including more potentials through which they can search in the virtual possibility space. The expert can translate these potentials into training exercises for the amateur, which will then, above a certain threshold of experience, become part of their real-world-actionable spielraum.

All agency is born of this suitable fit between the network of virtual potentials in the mind of the actor, and the set of affordances provided in the space in which the actor maneuvers. We might say that, in this zone where the mind and the perceptual world overlap, the mind provides the possibility space, the perceptual organs provide the search engine, and the world supplies the affordances.

Where then, might we ask, is perceptual information stored? Is it in the virtual simulations of the mind? In the perceptual pathways of the EBMB, or in the world? From the enactive view

described here, the information is not stored any *where* but it is stored in the *number of possible functional relations between mind, perceptual body, and world.* In this sense, information is more of a result of being able to anticipate and respond; to be able to *search and retrieve* affordances as needed, then the ability to store some *thing* some *where* and subsequently to access *it from there.* Rather, what Clark is describing is an active, in-the-present-moment, dynamic, living participation. This is the sense in which Any Clark (2011, 2016) alludes to when talking about cognitive extension and "supersizing the mind." Here intelligence is thought of as the ability to organize virtual networks, with affordances in the world that are always "ready at hand" (Heidegger, 1962).

Perceptual acuity, (direct perception, adequate participation) reveals what is "ready at hand." Clark see this as an economy of embodiment, such that whenever and wherever it is possible to export the cognitive load of information/retrieval/storage tasks *into the world*, organisms will always choose to do so. According to his hypothesis, the organism retains the sensorimotor action-patterns that will generate successful search and retrieve processes in response to anticipatory processes set in motion by perceptual flows and intentional states. His three threads and two hypotheses are significant enough to quote in their entirety, so I have included them in Appendix I. They explain why the storage, processing, and transformation of information is spread indiscriminately among the brain, body and world – hence the idea of an ecology of overlapping perceptual zones which self-organize the continuity of living body and dynamic world. Clark proposes a *Principle of Ecological Assembly* which states that "information-processing organizations are repeatedly soft assembled from a motley crew of neural, bodily and external resources" (p. 197).

Enhanced Perception

So far, I presented an overarching model of perception as an overlapping ecology of mind, world, and body. I named the *hylozoic zone* where world and body overlapped; *body image* where body and mind overlapped; and *affordances* where mind and world overlap. In addition, I discussed that each of these overlaps could be extended further, to explain phenomena such as virtual bodies, extended mind and enhanced perception. Appendix H illustrates the zone of enhanced perception, which is an extension of the hylozoic zone in the overlay of world and body. This extended overlay represents what perception might be like if the sub-threshold information came into vivid awareness. In Zen Buddhism the experience is called *kensho* and it considered to be the confirming experience of direct perception. The following four excerpts are first person accounts of this type of enhanced perceptual experience.

Peter Matthiessen *The Snow Leopard*

(In this short excerpt, Matthiessen gives us a sense of the preparatory space of kensho, which beings with a sense of reorganization, recognition, and the clearing away of mental and emotional obstructions.)

> *The search may begin with a restless feeling, as if one were being watched. One turns in all directions and sees nothing. Yet one senses that there is a source for this deep restlessness; and the path that leads there is not a path to a strange place, but the path home. . . The*

journey is hard, for the secret place where we have always been is overgrown with thorns and thickets of "ideas," of fears and defenses, prejudices and repressions.

~ Peter Matthiessen

Scott Russell Sanders *Staying Firm*

(In this passage, Sanders describes what I call "sensory clarity" something that on the one hand is ordinary, but, due to its perceptual vividness, becomes a sacred engagement."

I have spied that secret place from time to time, usually as through a glass darkly, but now and again with blazing clarity. One time it glowed from a red carnation, incandescent in a florist's window. Once it shimmered in drifting pollen, once in a sky needled with ice. I have seen it wound in a scarf of dust around a whirling pony. I have seen it glinting from a pebble on the slate bed of a creek. I have slipped into that secret place while watching hawks, while staring down the throat of a lily, while brushing my wife's hair. The experience is not a glimpse of realms beyond, nor of becoming someone new, but of acknowledging, briefly and utterly, who I am.

~ Scott Russell Sanders

Alfred Starrett, *Your Self, My Self & the Self of the Universe*

(In this longer excerpt, Starrett wonderfully describes the no-self/Universal self experience of kensho, and its profound allocentric qualities resulting in an intensely luminous "surround-around" spatiality of creation.)

In the year 1925 my family lived on a small farm in Danvers, Massachusetts. My father was chief engineer at the Salem Electric Light Company. He had neither the time nor the inclination to work the land, but the farm was a pleasant place for the children in the family – two older sisters and a younger brother besides myself. I was ten years old that summer and thoroughly enjoying my love affair with the world. One pleasant moonlit night I responded to the call of some inner urge for adventure by climbing out of my bedroom window to the roof of the porch just below. From there, as I knew from many past excursions, it was easy to cross over the top of a couple of intervening sheds and reach the edge of the roof of the big barn. Soon I was up on the ridgepole of that tall building and I sat down feeling that I was at the highest point in all creation. The old farmhouse and the outbuildings were at my back and before me stretched low rolling fields toward a distant stand of trees and then rising hills. The air was clear and still. Moonlight washed out most of the stars and illuminated the scene. Below me Grunt, our pet pig, was making snuffling noises in his pen. As I sat quietly there on the roof of the barn I began to notice a strange transformation coming over everything I could see. Things were becoming luminous before my eyes. They shone from within, flowing with light in a riot of colors that continuously increased in intensity. It was as if the grass of the fields, the brown fences, the red barn that belonged to our neighbor, the white walls and green roof of our own house when I turned to look back – as if they all were made of stained glass with sunlight shining through them. As this inner light grew brighter I noticed that it pulsed with a steady rhythm that appeared to me to be the beating of some gigantic heart, as if it were the life-throb of the Self of the World. The scene became a living, scintillating dance of glory – everything beautiful and everything

just right in relation to everything else. The very darkness of the distant trees and hills became shining purple and blue. Then something more strange happened.

While still retaining awareness as an individual, the sense of "me" at a fixed location in space and time expanded into less limited conscious perception. I can try to suggest what happened by saying there was a shift of identity from the self of an observer to all that was there to be observed. Instead of seeing that living light, I became the light. It was seeing without any specific person doing the seeing from any particular perspective. The whole circle of the horizon was before my eyes simultaneously. My personal life became universal life. The rhythm of the luminous pulse beat was the surging rhythm of my own vital processes which had become identical with inner shaping and sustaining power of all creation. I could feel directly the variant urges, strivings and relationships of the different forms of the one limitless life. I felt in a tree its love for the earth and air; the holding-on of fence posts; the grass reaching toward the light; all things gathered and held in the supporting embrace of earth. I was also sensitive to conflict among the various forms, where life struggled with life and one kind of existence was absorbed into another kind. But the opposing tensions were experienced as one hears dissonant chords in great music which add to the beauty as they are resolved in harmony. How long the experienced lasted I cannot say, but eventually the process reversed itself. My conscious awareness took up again the perspective of a particular location on the roof of the barn. The light of glory faded. My seeing became a natural human vision again and I had returned to the sensory limitations of a little 6 boy with an aching bottom from sitting for some unknown length of time on the ridgepole of the barn roof.

~ Alfred Starrett

In the fall of 2004 I had a radical shift in consciousness. I had this profound insight that there were *no sources or sinks* – that Love was not something stored over there, that could be moved to where it was needed; or that I could give or receive love. Rather, *Love was the ground and dynamic source of all that is*. I realized how all my life I had been running around trying to redistribute Love – from the perceived sources, to the perceived sinks, from those that could give to those in need. This included myself (give love to helpless animals, protect vulnerable people, look for someone to love, and for someone to love me). It was a kind of transactional kind of love, underscored by a sense of scarcity. In one fell swoop this final, underlying structure of my being was shattered. I entered in the dynamic continuum of love, a living flowing, dynamic stream of cosmic consciousness. I was going to the post office to pick up the mail. Boom!

Everything grew crystal clear like something completely transparent, except with brilliant hues of color. A hundred thousand kinds of crystal light – indigo, crimson, gold, sapphire, verdant greens of all hues – shown with incredible vividness and brilliance, yet with the transparency of crystal. I could hear the "clank clank clank" of the flagpole being rung like a bell by the metal end of the rope, high up in the air and behind me. At the same time, I could hear the soft "swish swish swish" of the blades of grass, each distinctly, like a slow progression of brushes over an orchestra of cymbals. To my surprise the sound they made tasted sweet. I could feel the undulating clouds beneath me and the warm breath of the earth, rising up to kiss them. Every sense was heightened and expressed itself overall as a kind of surround-around spaciousness. I did not want to move, for it seemed that taking even a

single small step would be an impossible brutish act in an otherwise perfectly resonate energy field. No such disruption happened, for a long long time. But soon the ordinary way of seeing things, redeemed themselves from this spell of grace, and I made it into the lobby where the post-office boxes were lined up. At first, I couldn't remember which box was the one to open – and it felt strange, like a small amnesia. Which box? Which box? I had lost the memory in my body that knew which box it was. Then I reasoned – for the first time – that the number "30" in the address "30 South Main Street" identified the number on the box. It was like a grand puzzle was finally solved! The mind is useful, after-all.

Part IV: Awakened Perception

A Buddhist Examination

No paper on awakened perception would be complete without passing the test of a Buddhist examination of the notion of direct perception. The key question in this section is whether this model can withstand the scrutiny of a Buddhist examination of these topics. Does the model provide useful heuristics for disentangling the complex ways in which the traditions talk about them? If so, might there be a need for the model for a modern approach to consciousness studies based on integral phenomenology?

Of course, there are many different Buddhist schools, whose opinions, beliefs and scholastics differ significantly from each other, not unlike the many different ways that western neuroscientists, phenomenologists, cognitive scientists and psychologists hold different accounts of perception. In this paper I rely on Anne Klein's (1988) interpretation of the Gelukba Sautrantika system, considered to be the most advanced exegesis of the direct perception, its relationship to conceptual thought, and their complementarity. It is a version that offers ordinary people the very real possibility of non-dual self-knowledge—which is simultaneously knowledge of self and world, self as world, and world as self—and as such has much of the defining characteristics of the ecological overlay model. According to this tradition, the possibility for non-dual knowing is given by the interpenetrating mutuality of thought, perception, and world, which leads to liberating insight. Hence, the ecological overlap might be a model of this possibility of liberation through awakening perception.

The Gelukba's hold that conceptual thought can lead to direct perception and the non-conceptual realization of self-liberating insight. This possibility however depends on having a correct conceptual framework. There are several key tenets to the Gelukba's framework. The first tenet has to do with ultimate truths, which are non-conceptual and apprehended directly, and conventional truths, which rely on conceptual apprehension. The key characteristics of ultimate truths is that they apprehend what is called "specifically characterized, impermanent phenomena"; whereas conceptual truths apprehend "generally characterized phenomena."

William James (1977) also noticed this distinction between perceptual flux and flow, the "big blooming buzzing confusion," the "aboriginal sensible muchness" and the concept which "never varies" and "expresses eternal veritas." In the western mind, it was therefore the "staying power" of the concept, James noted, to "contrast the knowledge of universals and intelligibles as god- like, dignified, and honorable to the knower, with that of particulars and sensibles as something

relatively base which more allies us with the beasts. Hence these conceptual, intelligible universals were associated with ultimate truths in the western mind. "… by all rationalist authors the ultimate reality is supposed to be static also, while perceptual life fairly boils over with activity and change" (p. 247).

In the three highest Buddhist systems, Sautrantika, Cittamatra, and Madhyamaka, the opposite position was established, where only the impermanent, non-conceptual and specifically characterized were considered as ultimate truths (Klein, 1998). In line with the Buddhist schools, James understood that that to be conceptually known, "our flowing life must be cut into discrete bits and pinned upon a fixed relational scheme." James understood the problem with intellectualism, is the need to pin something down, as a fixed, permanent thing, and the farther we push it down the path of conceptual definition, the farther and farther removed it is from perceptual experience, which is movement, flux, variety, change – in other words, *impermanence.*

But intellectualism quickly breaks down. When we try to exhaust motion by conceiving it as a summation of parts *ad infinitum*, we find only insufficiency, Although, when you have a continuum given, you can make cuts and dots in it *ad libitum*, enumerating the dots and cuts will not give you your continuum back. The rationalist mind admits this; but instead of seeing that the fault is with the concepts, it blames the perceptual flux. (p. 247)

The Buddhist schools, on the other hand, understood impermanence, motion, flux, and change as *the first noble truth*; and the direct ascertainment of subtle impermanence as a sign of the highest instance of direct perception. In the Gelukba's framework, impermanent things fully appear to direct perception, and permanent things are apprehended by conceptual thought. (Klein 1998) Furthermore, what makes the things apprehended by conceptual thought, *permanent*, is not that they themselves are lasting and eternal, as thoughts come and go just like everything else in the phenomenal continuum. What makes them "permanent" is their ability to affix a single, *unchanging* generalized category, onto phenomena that are otherwise always undergoing continuous change – regardless whether that change is observable or imperceptible. Consider, for example, the category "chair." The conceptual mind is happy to stick with this term, regardless of whether the chair has three legs or four, undergoes multiple replacement parts, is constructed ad hoc by a convenient stump on the side of the road, or is displayed as an image on a screen.

Despite these dramatic differences, the word *chair* remains the same. The instances of all the "chair" themselves is never *specified*, but only *generally* characterized.

In the Gelukba's view, conceptions are valuable because they are essential tools for overcoming ignorance. And yet, our primary ignorance results from not recognizing the generalizing, categorizing, static and reifying nature of conceptual thought. *This too can be directly perceived*, through non-conceptual meditative awareness of the thought processes. By which faculties does the EBMB perceive the nature of its own mind? By lowering the threshold of consciousness such that one can follow the cutting, carving, chunking processes of thinking. Through meditative training, accessing flow states, and "happy accidents" awareness is able to access the deeper body-world interfaces where impermanent perceptions flow. That path to where knowledge is liberated from ignorance, requires that the subtle impermanence of even the most fundamental things, is cognized in a non-conceptual way.

In the Gelukba system, each perceptual organ is understood to be its own consciousness – eye consciousness, ear consciousness, taste consciousness, etc. These are said to be hampered by their lack of ascertainment. The mind also has its own consciousness, which is said to be "hampered by a lack of specificity." Yet, according to the Sautrantika view, each type of consciousness – sensory and mental – are ultimate consciousnesses when *directly perceived*.

To perceive directly means to "engage with the entire collection of features," in other words, to be aware of the ecological field of participation, from world to thought and back again. In doing so, we see that conceptual thought is not the omega point of conscious arising. Rather it is just another node in a continuous network of flow.

A conceptual thought, which is an object of mental consciousness, takes on the *appearance of standing in for the whole*, but the individual who perceives the experiential flow knows otherwise. Each thought is an iota, a grain of sand in an endless desert, whose shape constantly shifts in the eternal winds. An ultimately valid knowledge would be simultaneous awareness of the grain (the perceptual data) the desert (the generalized whole), and the shifting winds (the process of cognizing whole experiences).

An ultimately valid object – whether it be a thing, a feeling, a thought, a concept – would therefore be defined as a "set of direct perceptions that satisfy a duration of mind." The duration of mind might remain below the threshold where the hylozoic zone emerges from the world, and as such remain simply, world. The duration of mind might extend all the way through the formative processes of the fully articulated, self-reflective I-me-mine. The duration of mind might extend into the spaces that overlay the ecological field of participation, constituting novel states of experience. This notion of duration, is complementary to the Gelukba's emphasis on the process nature of consciousness (Klein 1998).

> Conceptual thought and direct perception can operate simultaneously, but they are not established or initiated simultaneously with respect to the same object.
>
> In the first moment of seeing an impermanent object such as a tree, direct perception – the eye consciousness – is active' then there is a moment of mental direct perception, which cannot be noticed by ordinary persons. Following this, conceptuality begins to operate. Thus, in the first period there is only direct, clear perception by the eye consciousness; once conceptuality begins, it operates simultaneously with subsequent moments of direct perception. This means that while the eye consciousness, for example, is apprehending the specific characteristics of its object, the thought derived from that eye consciousness superimposes a meaning generality onto that object. (p. 130)

"By understanding the profound compatibility between thought and insight," writes Klein (1998) one can have confidence that what begins as a mere echo of sound in the mind can progress to actual direct experience." The model of perception as ecological overlay, is offered to echo this sound, and to help build confidence. Integral phenomenology, as a method of unpacking experience through the examination of everyday ordinary affective, perceptual and conceptual phenomena, is offered as a "good enough" starting point, since, as Klein tells us, the Gelukbas

emphatically believed: "The starting point is precisely the ordinary type of conceptuality and direct perception one now has."

Part V: Concluding Remarks

Perception is a key domain of experience, yet it is hardly ever the focus of contemporary awakening practices, which have emphasized the affective and virtual domains (usually prioritizing the former, and prejudicing the latter)[13]. In both the eastern traditions and western science and philosophy, the emphasis has been on calling perception into question. In the process we have de-realized the world, and pushed it forever out of our reach. The core theme of this paper is that perception, as direct participation is perfectly attuned to the world, because it is something that the world does, in mutual participation with us. Error, confusion, deception and bias all result from a lack of adequate participation. Fully realized, authentic participation results in the experience of enhanced, direct perception of the rich, abundant, vivid display of reality, and a keen insight into our place in this sacred world. There is a sense of re-enchantment with the world. The philosopher Roy Bhaskar (2002) hoped that this kind of re-enchantment would set humans on a new course toward helping each other flourish and helping the planet to thrive. Our ability to perceive the deep continuity of body and mind, world and body, and mind and world are key to this journey away from destruction and toward regenerative practices.

In this paper I have introduced the notion of perception as an ecological overlay and a simple set of heuristics to illustrate them. The illustrations enable us to point to "What are we participating with" for any perceptual experience in different states of consciousness. Here the notion of what is hyper-active and hypo-trophied, what parts of perceptual experience are amplified, and which are attenuated, what is online in consciousness and what is offline, what is part of the I-me-mine self complex and what remains subthreshold to self consciousness – and how all these phrases ultimately point to complex neural processing systems, comprised of parallel subsystems, function as "neural gates" through feedback-feedforward, excitatory and inhibitory-dis-inhibitory relationships in the body-brain. I have introduced the notion of the EBMB, the embodied-body-mind-brain and the organs of perception as a useful way of conceptualizing the complex interactive and overlapping dynamics of perceptual experience.

This term "EBMB" underscores the overlapping of the world and body, hence "embodied body", the overlap of mind and brain, hence "body-mind", and the overlap of the mind and the physical brain, hence "mind-brain." The brain, being a physical organ, represents the physical world, and completes the ecological circle. The heuristic of ecological overlay enables us to use language that is more nuanced and reflects the subtle distinctions in perceptual experience, beyond the coarse categories "body," "mind," "world." In this way we are better able to talk about new areas of interest: how affordances are situated in the world and are revealed through insight; the distinction between body schema and body image; the hylozoic zone and bodily space; the allocentric and egocentric systems in object-space; among others. Furthermore, I have shown how

[13] Before writing this paper I had been exposed mostly to contemporary western spiritual communities who practiced a sort of "watered down Buddhism" with post-modern overtones. Recently I have been exposed to a handful of practioners who represent both modern approaches while adhering to traditional insight practices that focus on the core teachings around perception (sensations).

and where all these "hybrid dimensions" can be further extended into a larger and larger perceptual field. The heuristic gives us an easy way to map the kinds of phenomena that happen in these zones of extension, such as virtual bodies, extended mind and enhanced perception (*kensho*). These zones of extension can be helpful in mapping the territory of non-ordinary states of experience. An adequate theory of perception must accommodate all of them.

A "good" theory orients us toward the direction of a correct view, where direct perception arises with the experience of an adequate participation with reality. (Roy 2014) In this sense, we might consider the Gelukba Sautrantika system a "good" theory. Any new theory of awakened perception must pass its strict examination, and few western theories of perception have complied with its view. On the other hand, the Sautrantika system does not pass the test of our modern scientific understanding which continues to expand the field of our knowledge about perceptual participation. I hope that integral phenomenology, which integrates direct experience with a scientific curiosity, can help bridge these gaps.

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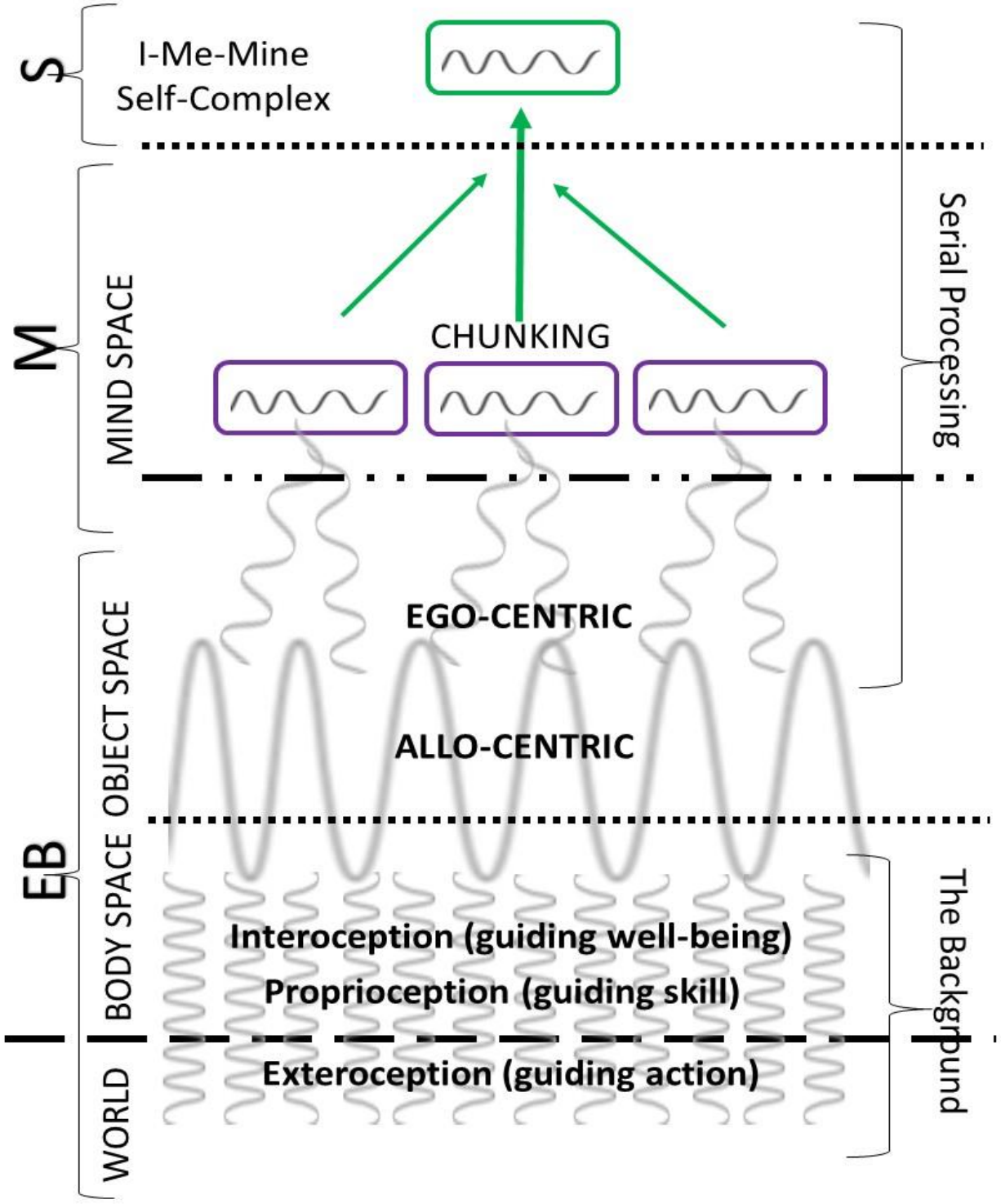
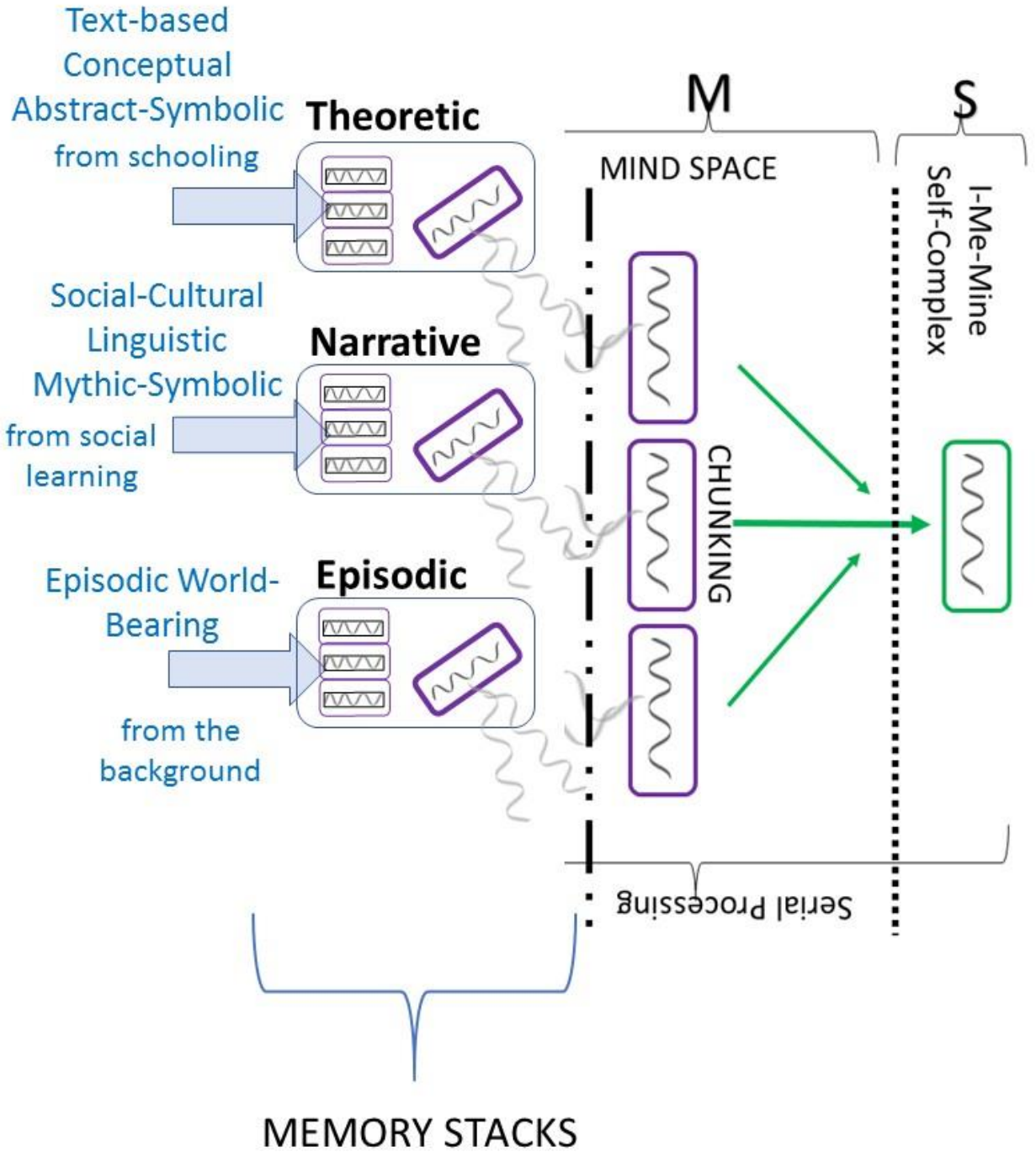
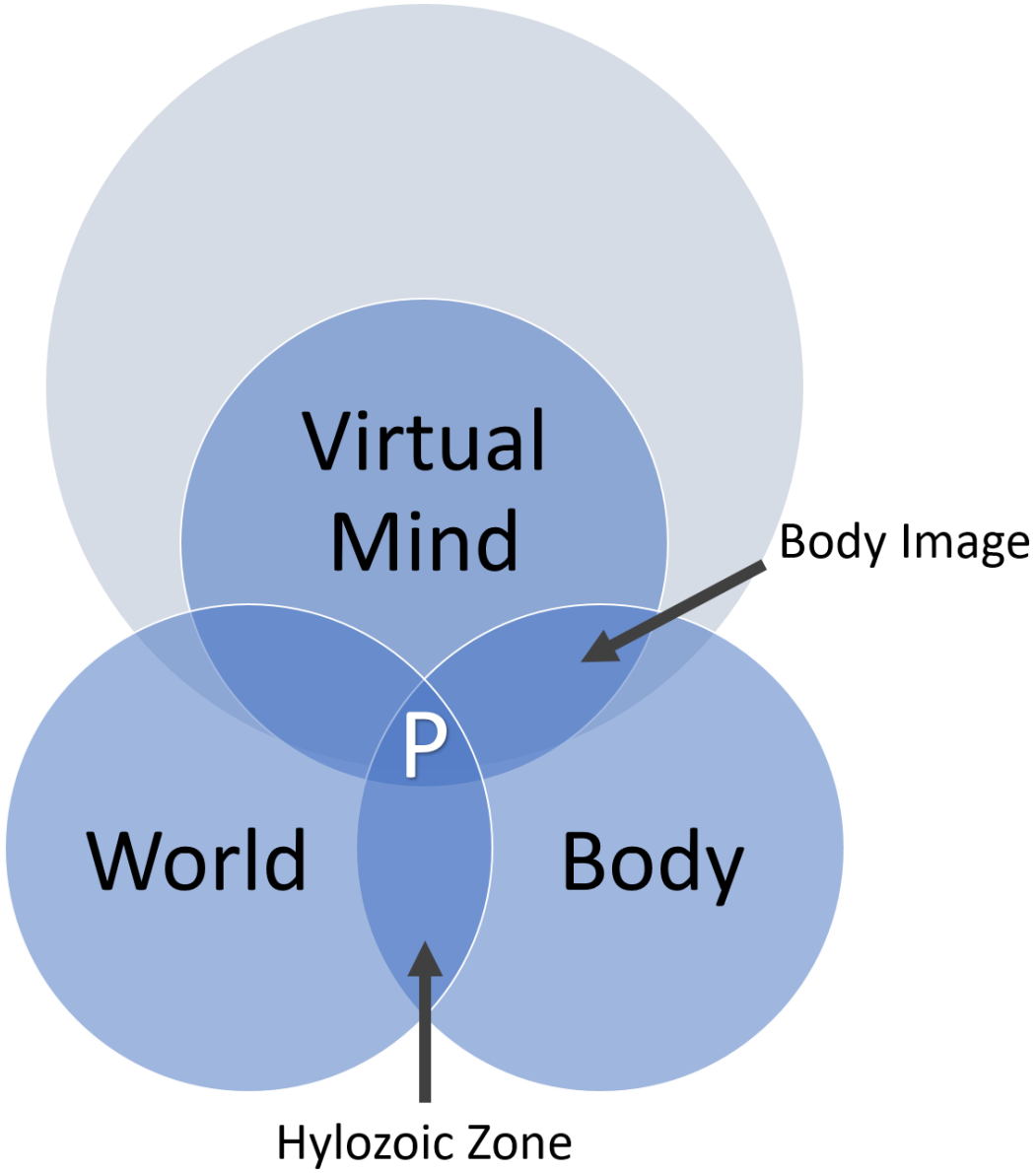
APPENDIX A


S
I-Me-Mine
Self-Complex
M
MIND SPACE
CHUNKING
Serial Processing
EGO-CENTRIC
ALLO-CENTRIC
OBJECT SPACE
EB
BODY SPACE
Interoception (guiding well-being)
Proprioception (guiding skill)
WORLD
Exteroception (guiding action)
The Background

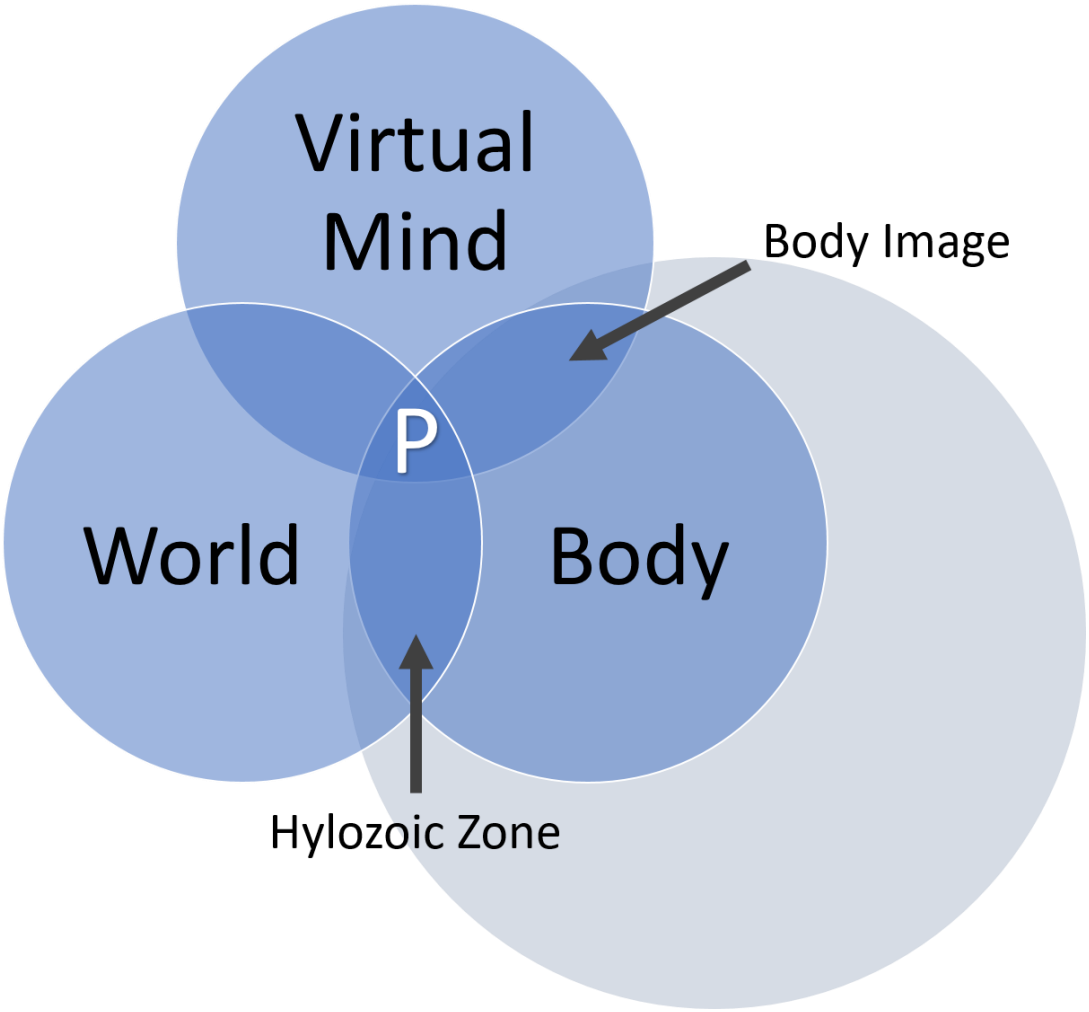
Appendix B


Text-based
Conceptual
Abstract-Symbolic
from schooling
Theoretic
Social-Cultural
Linguistic
Mythic-Symbolic
from social
learning
Narrative
Episodic World-
Bearing
from the
background
Episodic
M
S
MIND SPACE
I-Me-Mine
Self-Complex
CHUNKING
Serial Processing
MEMORY STACKS

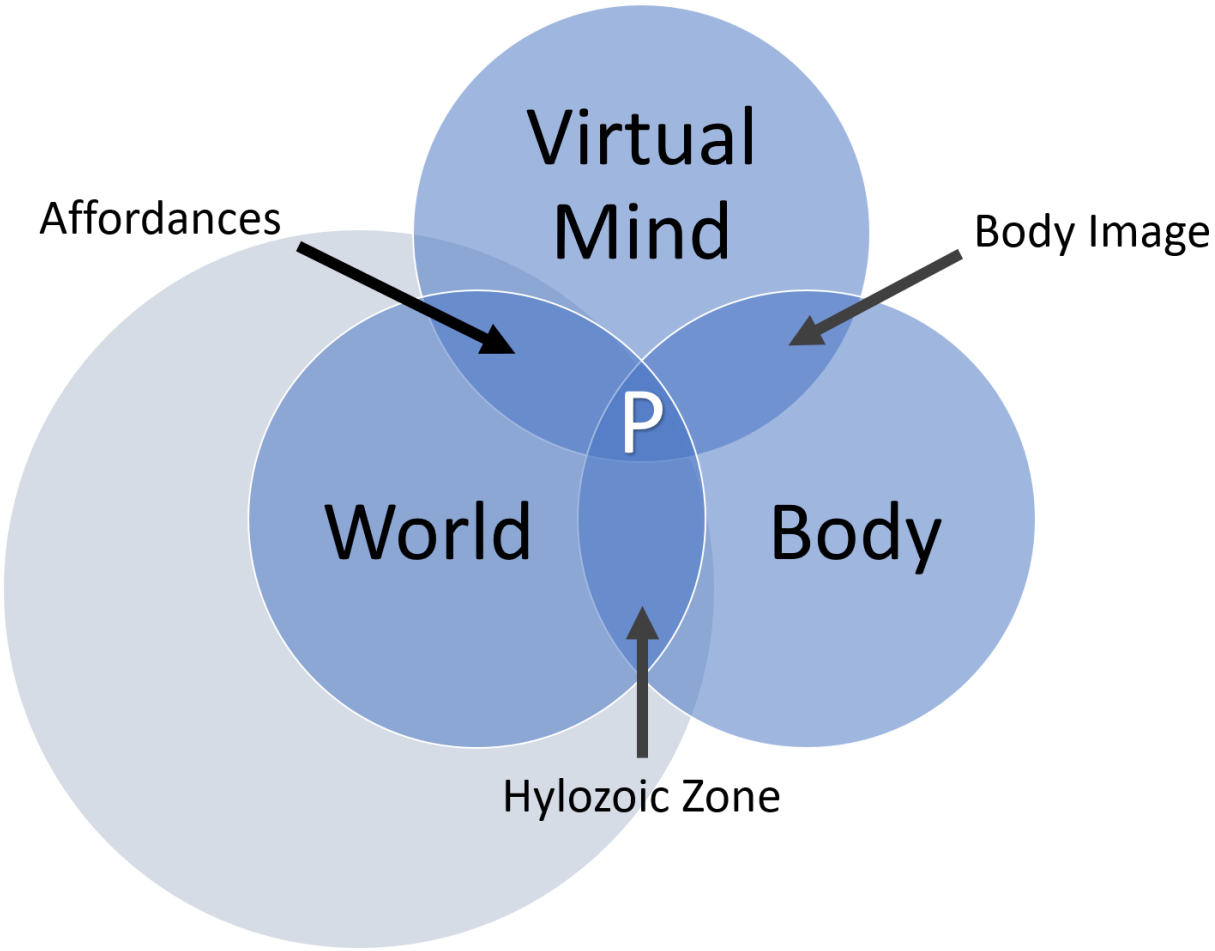
Appendix C



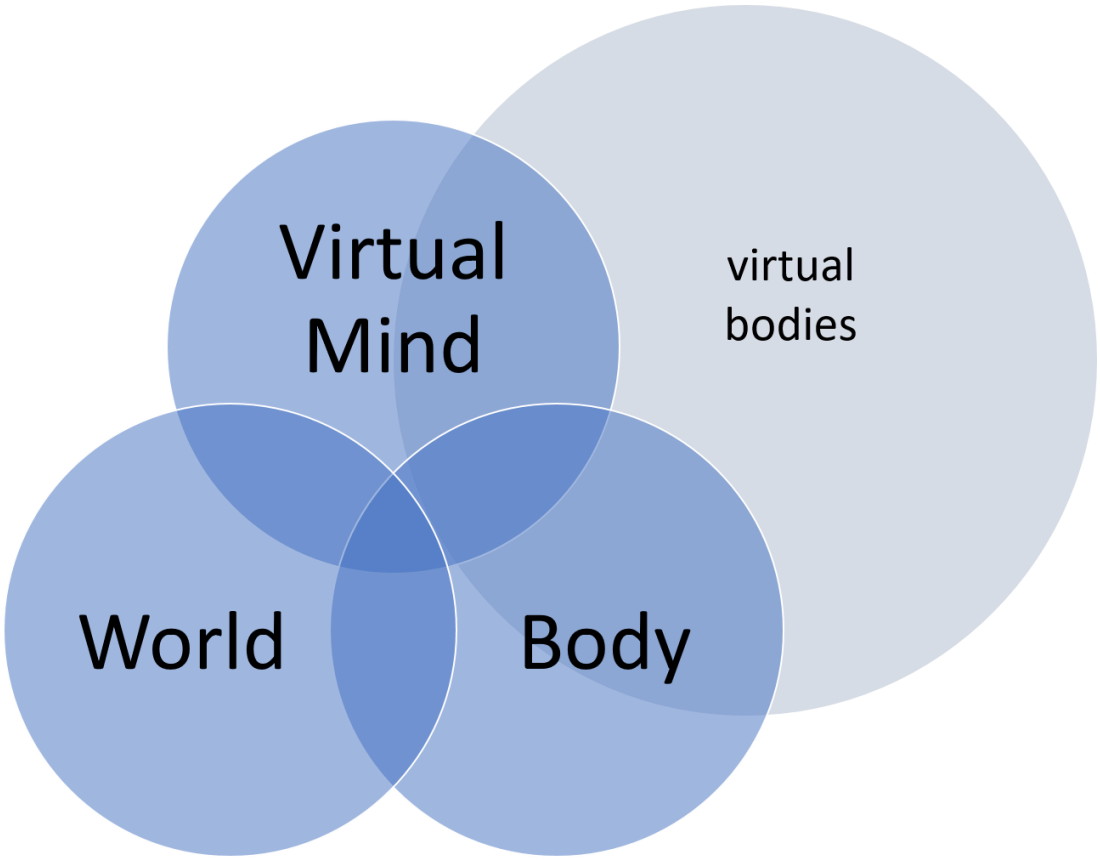
Appendix D



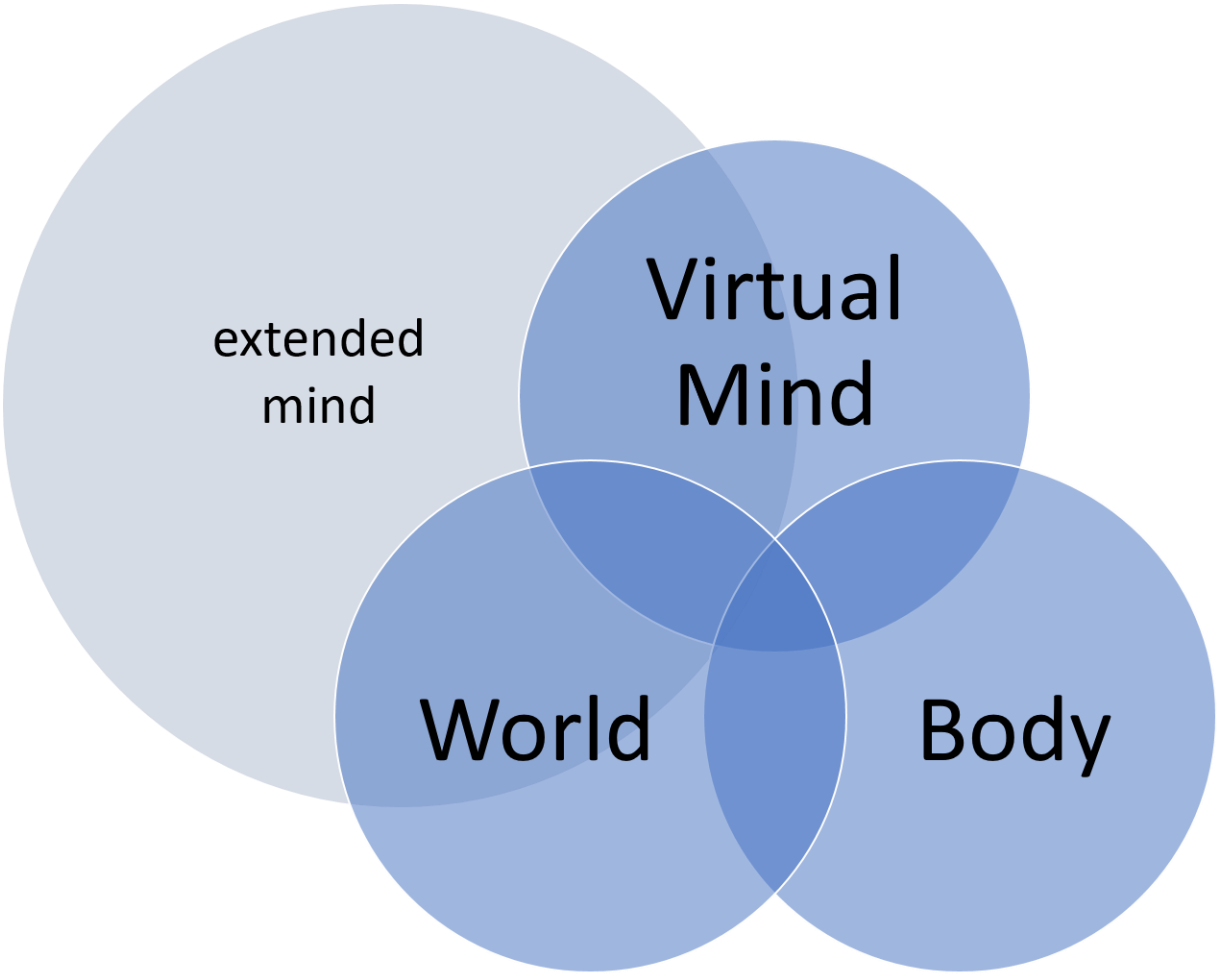
Appendix E


Virtual
Mind
Affordances
Body Image
P
World
Body
Hylozoic Zone

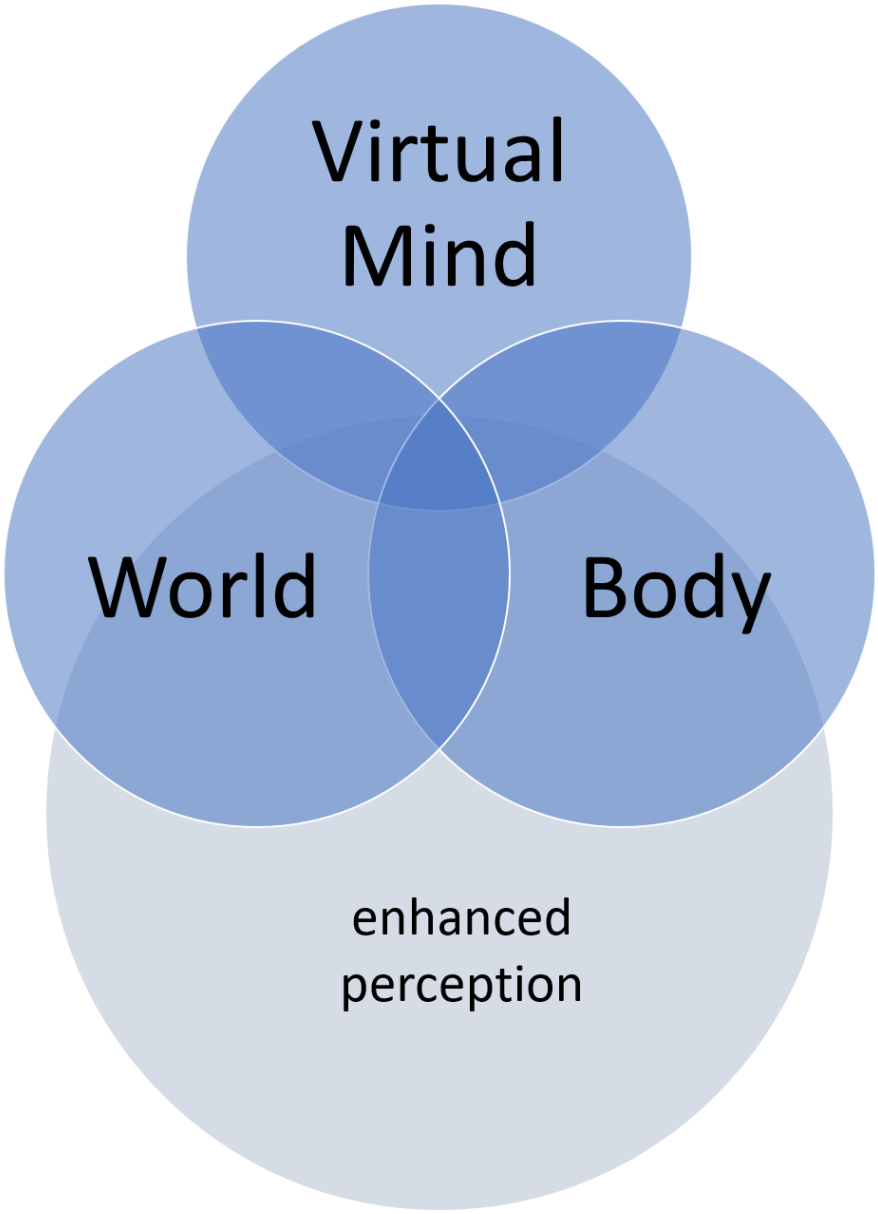
Appendix F



Appendix G



Appendix H



Appendix I

Andy Clark's Theory of Ecological Assembly

The Three Threads

1. **Spreading the Load.** The body and brain, thanks to evolution and learning, are adept at spreading the load. Bodily morphology, development, action and biomechanics, as well as environmental structure and interventions, can reconfigure a wide variety of control and learning problems in ways that promote fluid and efficient problem solving and adaptive response.
2. **Self-Structuring of Information.** The presence of an active, self-controlled, sensing body allows an agent to create or elicit appropriate inputs, generating good data (for herself and for others) by actively conjuring flows of multimodal, correlated, time-locked stimulation.
3. **Supporting Extended Cognition.** The presence of an active, self-controlled, sensing body (a) provides a resource that can *itself* act as part of the problem-solving economy and (b) allows for the *co-opting* of bioexternal resources into extended but deeply integrated cognitive and computational routines.

Hypothesis of Cognitive Impartiality

Our problem-solving performances take shape according to some cost function or functions that, in the typical course of events, accord no special status or privilege to specific types of operation (motoric, perceptual, introspective) or modes of encoding (in the head or in the world).

Hypothesis of Motor Deference

Online problem solving will tend to defer to perceptuomotor modes of information access. That is, we will often rely on information retrieved from the world even when relevant information is also neutrally represented.