

TOWARD A GENERAL THEORY OF ENACTION: BIOLOGICAL, TRANSPERSONAL, AND PHENOMENOLOGICAL DIMENSIONS

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ABSTRACT: This paper explores the world-constituting dynamics of enaction as articulated by the enactive approach in cognitive science and the participatory approach in transpersonal studies. Husserl's phenomenology is then introduced in order to (a) investigate Husserl's presentation of world-constitution and (b) to anchor the enactive and participatory approaches in the living field of human subjectivity. Each approach is examined with specific attention paid to the dynamics of world-constitution that emerge therein. Through this analysis the terms *biological*, *participatory*, and *transcendental enaction* provide the ground for the primary aim of this paper: a movement towards a general theory of enaction.

Enaction has become a key concept in contemporary academic circles. Generally confined to the domain of cognitive science this term has made its way into arenas as diverse as education (Masciotra, Roth, & Morel, 2007), transpersonal psychology (Ferrer, 2002; Wilber, 1995) and religious studies (Ferrer & Sherman, 2008a). Enaction, in its most basic sense, denotes a movement or action made manifest in the world. In the context of this paper enaction suggests a dynamic process of world-constitution that is always intimately linked to a particular bodily identity and situated within a greater field of interpenetrating relationships. In this article I examine the world-constituting dynamics of enaction as they arise in the *enactive approach* of cognitive science (Varela, Thompson, & Rosch, 1991), the *participatory approach* of transpersonal studies (Ferrer, 2002) and the *transcendental phenomenology* of Edmund Husserl (1954/1970). Through the exploration of these seemingly divergent domains I attempt to reveal their common branches by demonstrating how each of these perspectives, biological, transpersonal, and phenomenological, rejects dualistic and reductionistic accounts of human nature as well as shares an enactive vision of world-constitution. From their common epistemological foundations these approaches provide the ground for a novel vision of world-constitution wherein the scientific, spiritual, and philosophical dimensions of human experience are stripped of their conflictual wrappings and invited to shine from the transcendental depths of embodied life.

ENACTION

“Caminante, son tus huellas el camino, y nada más; No hay camino, se hace camino al andar.”

[“Wanderer, the road is your footsteps, nothing else; There is no road, you lay it down in walking”]

— Antonio Machado (1983, p. 94)

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As the path of the wanderer is laid down it is enacted, it is brought into being step by step. It is in this sense of carrying out embodied action, as portrayed by the Spanish poet Machado, that Varela was inspired to use the term *enaction* to characterize a new approach within the field of cognitive science. Originally presented in the book, *The Embodied Mind* (Varela, Thompson, & Rosch, 1991), the enactive approach – calling upon studies in cognitive science, phenomenology, and Buddhism – sought to bridge the dualism of mind and matter.¹ It stands as an alternative within the field of cognitive science to the branches of *cognitivism*, which holds a computer model of the mind, and *connectionism*, which views the mind as a neural network. The goal of cognitive science is to make explicit the principles and mechanisms of cognition yet the enactive approach critiques these two branches of cognitive science for failing to do so. From the perspective of the enactive approach, both cognitivism and connectionism are viewed as the result of a process of disembodied abstraction. In contrast, the enactive approach embraces a contemporary branch of cognitive science known as *embodied dynamicism* (Thompson, 2007). From this perspective the mind is viewed as an embodied dynamic system in the world.² In contrast to the mechanistic abstractions of cognitivism and connectionism, where the mind is split from embodied experience and considered only knowable through empirical study, embodied dynamicism holds that “cognitive processes emerge from the non-linear and circular causality of continuous sensorimotor interactions involving brain, body, and environment” (Thompson, 2007, p. 11). The mind is seen as embedded in embodied action and the multiplicity of interpenetrating relationships between the organism and its environment. From this perspective a deep continuity between life and mind is proposed.

Yet to clarify the thesis that mind and life are deeply continuous, a claim which is central to Thompson’s *Mind in Life* (2007), I would like to draw attention, not to the contemporary research being done in cognitive and brain science, but instead, to the core features of the biological theory upon which the enactive approach has developed. This section is thus concerned with enaction in its biological context, which provides the ground for the enactive approaches research in the field of cognitive science.

Perhaps the central feature of the enactive approach, and a feature that is foundational for the world-constituting dynamics of enaction, the focus of this inquiry, is the theory of autopoiesis. It provides a theoretical framework for the simultaneous emergence of self, world, and the cognitive faculties through which that self mediates its world. Thus to understand what is meant by enaction, as held by the enactive approach, I first examine the theory of autopoiesis, both its dynamics and its role as an exemplary theoretical model characteristic of all life on Earth.³ Second, I examine the concept of *world* that emerges from an autopoietical perspective in which the world is viewed as a relational domain enacted by the autonomous agency of the organism and its coupling with the environment. In this view a world is born through the dynamic co-emergence of self and world. Following a presentation of autopoiesis and world I return to examine the nature of cognition from an enactive perspective.

Autopoiesis

Autopoiesis is a theory that refers to the self-producing dynamics of any living system. Originally presented in Spanish by Maturana and Varela (1973) the theory of autopoiesis has since had significant impact on modern scientific discourse (Bitbol & Luisi, 2005; Boden, 2000; Bourguine & Stewart, 2004; Di Paolo, 2005). The term was created from the Greek *αυτό*, self; and *ποίησις*, creation or production. It is thus literally defined as self-creation or self-production. Yet before turning to the theory of autopoiesis a few points must be made about general systems theory.

First, in systems theory a system is broadly conceived as a collection of related entities or processes that stand out from a background as a single whole. These systems range from single cellular life forms to galaxies, from automobile engines to digital circuitry. Second, any system is either *autonomous*, meaning literally self-governed, or *heteronomous*, other-governed. Autonomous systems are self-determining and are thus governed by endogenous, self-organizing, and self-controlling dynamics. In contrast, a heteronomous system is determined from the outside and is thus governed by externally imposed inputation. Autonomous systems are comprised of a nexus of processes not, as is the case of heteronomous systems, static entities. An example of comparison between an autonomous system and a heteronomous system would be to consider the difference between an ant colony and a pinball machine. Whereas the ant colony is governed by endogenous self-organizing dynamics the pinball machine requires external support for continued functioning.

An autopoietic system is an autonomous system that is restricted to the biochemical domain, the domain of chemical substances and vital processes that occur in living systems. Such a system is exemplified by every living being, the paradigm of which is a living cell.

Two major concepts characterize the minimal requirements for the emergence of an autopoietic system. The first is that the system demonstrates *operational closure*. Operational closure indicates that the system stands out as a unity. This unity is defined by the functional boundary that is produced, regulated, and maintained by the internal topology of the system. The internal topology is in turn maintained by the continued existence of the functional boundary. A circular and recursive dynamic is thus in play between the internal and external dynamics of the system. For example, the epidermal layer of human skin is produced by internal metabolic dynamics, yet those same dynamics are dependent upon the boundary of the skin for continued functioning.

The second characteristic, and a function of operational closure, is that autopoietic organization entails a *structural coupling* with the environment. Structural coupling is the functional relationship between organism and environment that emerges from, and is inherent within, the organic structure of the organism. This relationship demands that the functional boundary of the organism is always semi-permeable. A semi-permeable boundary, maintained by the recursive dynamics of operational closure, enables a functional

relationship between organism and environment, a structural coupling, for it entails a capacity for thermodynamic exchange with the environment. The structure of any organism is embedded in a functional relationship with its environment. Thus operational closure and structural coupling present us with a bound system defined by a functional boundary that is at the same time thermodynamically open. Minimal autopoiesis, the most basic requirements needed for a system to be considered autopoietic, necessitates an operationally closed and thermodynamically open system whose semi-permeable boundary exists in interdependent recursive relations both with the internal topology of that system, and with the world in which that system is immersed.

Minimal autopoiesis and its constitutive features, operational closure and structural coupling, introduces a case for the most basic requirements of any system to be considered a living system. In the words of Maturana and Varela (1980) “autopoiesis in the physical space is necessary and sufficient to characterize a system as a living system” (p. 112). Thus the theory of autopoiesis is a theory of life. It is a depiction of the dynamic processes and requirements necessary to regard a being as a *living* being.

World

With autopoiesis we have the emergence of the most minimal sense of selfhood. Self is here understood as a self-organizing unity that emerges from a background and is structurally coupled to its environment. From an autopoietic perspective both self and world dynamically co-emerge. World is thus uniquely defined in an autopoietical context as that which emerges and is constituted or disclosed by the functional demands of the organism. This enactment of world, which in this context I would like to term *biological enaction* to distinguish it from the other forms of enaction addressed below, entails a reciprocal (nonlinear) relationship between self and world. Like the reciprocal relations between the functional boundary and internal topology of an organism, there exists a recursive codependence between self and world whereby the world provides the possibility for the continued existence of the organism and the organism provides the possibility for the continued existence of its biological world. This is not to say that there is not a world that exists independently of the existence of the organism, as in philosophical idealism, but that the world exists as a world *for* the organism such that it is structurally coupled and intimately linked to the world in which it finds itself.⁴

The world, in the autopoietical sense, emerges through the structure of the organism. This world is a relational nexus of interactions wherein the environment is responded to by the specific demands of the organism. The sensorimotor repertoire of the organism constitutes this sensorimotor world. The notion of such a world was originally presented by von Uexküll's (1934/1957) use of the term *Umwelt*, a “sensorimotor world” unique to the sensorimotor capacities of the organism. Signs and symbols of significance within the *Umwelt* motivate these capacities. It is the biological and sensorimotor world of the organism. For example, von Uexküll proposed

that the *Umwelt* of a tick was predominated by three main (biosemiotic) features of significance; the odor of butyric acid, which emanates from all mammals, the temperature of 98.6 degrees Fahrenheit, which corresponds to the blood of all mammals, and the hairy typology of mammals. He depicts the *Umwelt* of the tick as follows,

The eyeless tick is directed to this watchtower (the tip of a twig on some bush) by a general photosensitivity of her skin. The approaching prey is revealed to the blind and deaf highway woman by her sense of smell. The odor of butyric acid, that emanates from the skin glands of all mammals, acts on the tick as a signal to leave her watchtower and hurl herself downwards. If, in so doing, she lands on something warm – a fine sense of temperature betrays this to her – she has reached her prey, the warm-blooded creature. It only remains for her to find this hairless spot. There she burrows deep into the skin of her prey, and slowly pumps herself full of warm blood. (p. 8)

The world is constituted biologically by the life that emerges to meet it. This world reflects the sensorimotor capacities of the organism. The time and space of that world are thereby constituted by those capacities. Specific relationships of meaning are also constituted. The features of the world that support survival will be of special importance. A “hairy topology” is part of a tick’s world. The types of landscapes, shelter, and food unique to the sensorimotor capacities of the organism will color the shape of its world.

The emergence of an autopoietic system entails the emergence of a living organism. The organism dynamically co-emerges with its world, which in turn entails relationships of meaning that are uniquely linked to the structural dynamics of the autopoietic system.

World co-emerges with self. Each is intimately intertwined with the other and participates in dynamic mutually informing relations. This biological world is enacted or brought forth through the autonomous agency and structural coupling of an autopoietic system. The sensorimotor world of the cell and the redwood are not the same world. The self-organizing dynamics of each manifest distinct functional relationships constituted by distinct relationships of meaning.⁵

Cognition

By beginning to examine the deep continuity of life and mind, as presented by the enactive approach, the basic qualifications of living being have been featured as a minimal autopoietic system. Such a demonstration of minimal self-organizing and self-producing dynamics within the biochemical domain displays, from an enactive perspective, *life-like* characteristics. The next step in presenting a convincing argument for the deep continuity of life and mind is to show how these life-like characteristics are also *mind-like*.⁶

In the enactive approach cognition, or mind, is defined broadly as the activity required of any autopoietic system necessary for its continued existence. In

order for any organism to continue functioning it must engage in the process of acquiring knowledge about the world in which it finds itself. It must begin to make sense of its world. Varela terms this basic mode of activity *sense-making* (Varela, 1997). Sense-making is thus also world-making, for it requires that the organism enact a world of significance sufficient for its continued existence. The dynamic co-emergence of self and world necessitates the capacity of the organism to actively make sense of its world. Consider the case of the motile bacteria, a single celled microorganism, swimming uphill in a food gradient of sugar:

The cells tumble about until they hit upon an orientation that increases their exposure to sugar, at which point they swim forward, up-gradient, toward the zone of greatest sugar concentration. This behavior occurs because the bacteria are able to sense chemically the concentration of sugar in their local environment through molecular receptors in their membranes. They are able to move forward by rotating their flagella in coordination like a propeller. (Thompson, 2007, p. 157)

The emergence of the bacteria entails the emergence of a world (where sugar becomes “food”), which in turn entails the bacteria’s capacity to make sense of that world. This activity of sense-making enacts or brings forth a world of significance. Biological enaction thus involves a process of embodied cognition whereby a sensorimotor world is brought into being.

To be alive is to make sense of the environment, and thereby to enact a world of significance that is uniquely coupled to the organism through continuous reciprocal relations. And while one might quickly concede that without life there can be no cognition or mind, the enactive approach also asserts that without mind there can be no life. Mind and life, from an enactive perspective, are inseparable, coeval, and coextensive.

To summarize, the enactive approach presents a vision of living being as a nexus of interpenetrating world-constituting relationships. The biological world or *Umwelt* of any living being is actively enacted and brought into being as a domain rich with meaning and significance. World is not preexistent or predetermined, but continually enacted through the embodied activity of the organism as a path laid down in walking. Mind is not distinct from matter and cannot be reduced to specific brain regions, but is coextensive with the relational bodily dynamics of the organism and its world. At a primordial and essential level a sharp distinction between organism and environment, mind and life, is neither useful nor accurate for depicting the active dynamics of living being. This analysis of the enactive approach has revealed what I have termed biological enaction, the process whereby the emergence of an autopoietic system entails the simultaneous co-emergence of a sensorimotor world. This world is saturated with meaning through the total intertwinement of the bodily life of the organism and its capacity to make sense of its environment.

PARTICIPATION

Scholars of transpersonal studies have incorporated the insights of the enactive approach into their investigation of the epistemology of spiritual experience (Ferrer, 2002; Ferrer & Sherman, 2008a; Wilber, 1995, 1996). My focus here will be upon the participatory approach that emerged from the work of Jorge N. Ferrer (2002). While the enactive approach presents enaction as primarily associated with the sensorimotor world of the organism, the participatory approach, as Ferrer and Sherman (2008b) argue, has adapted and expanded enaction to include not only the dynamic emergence of a sensorimotor word, but also the emergence of ontologically rich spiritual worlds.⁷ Thus this inquiry moves from the biocognitive to the transpersonal, and into the participatory approach.

Participatory Spirituality

The participatory approach argues that human spirituality emerges from a cocreative communion with a generative force of life and/or spirit. Ferrer (2002) first formerly introduced a participatory vision of spirituality in his book *Revisioning Transpersonal Theory*. In it he presents a detailed critique of a number of entrenched assumptions within the field of transpersonal studies. As a constructive alternative to such assumptions he suggests a need for a *participatory turn* that, like the impact of the linguistic turn in philosophy (Rorty, 1967), would open the field of transpersonal studies to a new way of conceiving spiritual phenomena.⁸ To this end Ferrer constructed a transpersonal epistemology founded upon the principle of *participatory enaction*. To better understand what is implied by participatory enaction, and its relationship to the enactive approach, I first briefly present Ferrer's revisioning of transpersonal studies by examining the main thrust of his critique and his novel contributions.

Revisioning Transpersonal Theory

The field of transpersonal studies is broadly characterized by its focus upon the spiritual dimension of human experience (Daniels, 2005).⁹ Specifically, it is distinguished "by its conviction that a comprehensive understanding of human beings and the cosmos requires the inclusion of spiritual phenomena" (Ferrer, 2002, p. 8). In *Revisioning Transpersonal Theory* (2002) Ferrer identifies three major obstacles to understanding spiritual phenomena within transpersonal studies. While each of these barriers initially emerged out of the genuine desire of transpersonal thinkers to comprehend spiritual phenomena, Ferrer suggests that they have in fact become outdated restraints that restrict the field as a whole. I will examine Ferrer's critique of each obstacle and then present Ferrer's proposed alternative to each.

The first Ferrer termed *experientialism*, which he defined as the view within transpersonal studies that spiritual phenomena should be regarded as

individual *inner* experiences. Ferrer's critique is not to deny that such phenomena do contain an inner experiential dimension, a feeling that they occur "within" oneself, but to point out that a one-sided emphasis on inner experiences is both "distorting and reductionistic" in regards to the phenomenological reality of spiritual phenomena (Ferrer, p. 2). He suggests that such an emphasis leaves room for the implicit assumption that spiritual phenomena, being merely inner experiences, are readily reducible to brain functioning and/or contained within an encapsulated subjectivity. Secondly, Ferrer critiques what Weber (1986) termed *inner empiricism*, which is the attempt within transpersonal studies to validate spiritual knowledge claims through the use of empiricist standards and criteria in which spiritual knowledge is tested through replication and intersubjective verification or falsification.¹⁰ Such inner empiricism is strongly critiqued by Ferrer as a projection of positivistic science onto human spirituality that perpetuates the "instrumental colonization of value" and upholds a reductive vision of "what counts as valid knowledge" (Ferrer, 2002, p. 70). This scientific colonization of truth denies the veridicality of spiritual phenomena that are outside the bounds of the scientific method. Third, Ferrer presents a critique of *perennialism*. Popularized by Aldous Huxley's book *The Perennial Philosophy* (1945), perennialism holds that all religious and spiritual phenomena — experiences, traditions, and spiritual ultimates — are expressions of a universal and pre-given ultimate source. This source is predetermined and defined by specific characteristics (e.g., all encompassing, eternal, etc.). In Ferrer's view, perennialism, while often well intentioned, nevertheless supports dogmatism and ideology by justifying the doctrinal ranking of religious and spiritual traditions and phenomena, wherein some traditions and phenomena are held as higher or closer to the truth than others. In addition, perennialism supports objectivist ideological truth claims — i.e., of knowing "things as they really are" (Ferrer, 2002, p. 9).

Contra experientialism, inner empiricism, and perennialism Ferrer proposes a participatory vision of human spirituality. In place of perennialism Ferrer proposes a metaphysic rooted in the apophatic mystical tradition. This embrace of *apophasis*, literally "un-saying," allows him to avoid the problematic reification of the transcendent, and embrace a metaphysical position that continually transcends our attempts to definitively define the ultimate as God, Brahman, Nondual, Dual, etc.¹¹ In this apophatic context Ferrer, drawing upon an ancient philosophical trope, posits a metaphysical dialectic between the One and the Many. The One, as a "shared spiritual ground," is referred to most commonly as the "indeterminate mystery" or "generative power/force of life" that "cannot be adequately depicted through any univocal positive attribute" (Ferrer, 2008, p. 156). The Many is implicitly posited as the totality of differentiated manifestations, both the physical and nonphysical realms of human experience, and is characterized by a radical plurality, a multiplicity, of both human beings and "visionary worlds and spiritual realities" (Ferrer, p. 156). Couched within an apophatic epistemology Ferrer (2008) presents his position in the following passage,

Newer and more embracing universalist and pluralistic visions will continue to emerge, but the everlasting dialectical movement between the One and the

Many in the self-disclosing of the mystery makes any abstract or absolute hierarchical arrangement between them misleading. If we accept the generative power of the dialectical relationship between the One and the Many, then to reify either of the two poles as the Truth cannot but hinder the natural unfolding of the mystery's creative urges. (p. 157)

Ferrer notes that his vision presents a form of spiritual universalism. Yet he insists that it is distinct from the problems of perennialism, for it does not posit a predetermined or pre-given spiritual ultimate. Also, it should be emphasized that Ferrer embraces this position as a way to revision transpersonal scholarship, not as an ontological claim to be held contra other ontological assertions about the nature of spirit. Ferrer's intention is to craft a linguistically nuanced position that allows scholars to meet each tradition on its own terms.

In place of inner empiricism, and the search for the scientific validation of spiritual truth claims, Ferrer insists upon the need for normative evaluation. Anchored in the pragmatic tradition Ferrer asserts that the authentic possibility of making qualitative distinctions among traditions lies, not in the realm of abstracted values and theoretical constructs, but in the immanent ground of embodied human experience and its practical consequences. He proposes three possible tests to determine the relative merit of any tradition, individual, or theory. Each test can be engaged individually, yet they are ideally carried out within a community of peers. Regardless of how they are carried out it would seem that a critical self-awareness and receptivity to the perceptions of others are essential tools for the implementation of each. First, the egocentrism test attempts to discern the degree to which one is "free from gross and subtle forms of narcissism and self-centeredness" (2008, p. 153). Second, the dissociation test looks to what degree all levels of the person (somatic, sexual, emotional, mental, etc.) are freely invited to participate in the process of spiritual development and the elaboration of spiritual knowledge. The final test proposed, the retrospective test, acknowledges that in some cases the apparent difficulties associated with the first two tests may be necessary steps in one's path toward "a genuinely integrated selflessness" (2008, p. 167). In other words, it may be necessary to live through narcissism and dissociation to know when one is not under the influence of one of these states. Ferrer's normative evaluation of narcissism, dissociation, and where one is in their life path leads him to envision the potential emergence of a global ethics pragmatically rooted in intersubjective participation and dialogue. In his words, "The new spiritual bottom line, in contrast, will be the degree into which each spiritual path fosters both an overcoming of self-centeredness and a fully embodied integration that make us not only more sensitive to the needs of others, nature, and the world, but also more effective cultural and planetary agents in whatever contexts and measure life or spirit calls us to be (2009, p. 146; italics omitted)." Spiritual truth is, in this sense, not a matter of empirical verification, but reflective of humane and creative relations.

Finally, Ferrer counters the presuppositions of experientialism by emphasizing the *participatory* nature of his vision. Instead of spiritual phenomena being thought of as occurring solely within an individual he expands upon their

inherent participatory nature by offering three characteristics of what is implied by participation. The first, following closely to the apophatic metaphysic outlined above, speaks to the inherent ontological primacy of participation as the presupposed foundation of human existence. In Ferrer's words, "human beings are—whether they know it or not—always participating in the self-disclosure of the mystery out of which everything arises" (2008, p. 137). In other words, it is not simply that spirit is within us, but that it is also flows through and around us, permeating our daily lives from birth to death. Secondly, Ferrer emphasizes that his vision is participatory in the sense that spiritual knowing is not objective, neutral, or restricted to mental faculties. On the contrary, such knowing is dynamic and multifaceted involving the potential whole participation of all dimensions of one's being including the "the body, vital energies, the heart, and subtle forms of consciousness" (Ferrer, p. 137). For Ferrer, spiritual knowledge emerges through our embodied relations with the world. Here a commonality between the enactive and participatory approaches is revealed. Cognition is bodily wisdom and our relationship to the spiritual dimension is also mediated through that wisdom. This is a radical break from the traditional view of cognition, which locates cognitive processes within the brain, as well as with conventional religionist accounts that situate spiritual, knowing in disembodied states of being. Our embodied relations with the world, and the living dynamics of our organism that make sense of that world also, from a participatory perspective, entail a multilayered and multidimensional spiritual relationship that stems from the core of our living embodiment. Contra to experientialism's one-sided emphasis on inner experience Ferrer asserts that authentic spiritual knowledge emerges in embodied relationship.

The third and final point is that the term participatory emphasizes the "epistemic role" that our engagement with transpersonal or spiritual phenomena entails as a relation of "communion and cocreative participation" (Ferrer, p. 137). To help clarify the term *cocreative participation* as an essential feature of Ferrer's transpersonal epistemology he expands upon the enactive approach of cognitive science by presenting what he calls *participatory enaction*.

Participatory Enaction

Ferrer (2008) defines participatory enaction as an active process involving "the participation of all levels of the person in the bringing forth of ontologically rich religious worlds" (p. 137). It is the process through which embodied cocreative participation enacts new domains of spiritual being.

Presumably, because Ferrer's audience consists of religious and transpersonal scholars he does not go to great lengths to define exactly what he means by spiritual world or domain. And perhaps, due to the great diversity of such worlds and the plurality of possible meanings that one might attribute to them, they evade our attempts to define them as concretely as the concept of a sensorimotor world. Whatever the case, this clarification is lacking in Ferrer's account. Yet while a clearer definition awaits articulation, Ferrer does propose

a number of primary characteristics that broadly define the main features of religious or spiritual worlds. I have chosen to focus upon four of them.

The first is that these worlds are *ontologically rich*. They are not mere phantasms or imaginings but actual existent realities. Spiritual worlds exist and it is a distorting move to reduce or reject our experience of them. Secondly, they exist in great number. Ferrer (2008) quotes the editor of the *World Christian Encyclopedia* David B. Barret to support this point. Barret, when asked what he had learned of religious change over the decades, responded: “We have identified nine thousand and nine hundred distinct and separate religions in the world, increasing by two or three every day” (p. 135). This vast plurality of religious worlds leads Ferrer to propose that there is potentially no limit to the number of new worlds that can be enacted.

A third characteristic is that these worlds are largely culturally conditioned. Ferrer cites Hollenback (1996), a scholar of mysticism who notes that “the particular objects, symbols, and images that mystics see, the sensations that they feel, the words that they hear, the particular moods, activities, and orientations of the will that experience evokes — all these things derive from those particular existential preoccupations that mystics consciously and unconsciously receive from their religio-historical environment” (p. 131). Thus social and historical conditions deeply impact the very substance of any spiritual world. Two important qualifications should be made around the nature of spiritual worlds as culturally conditioned: First, both Ferrer and Hollenback acknowledge that there are exceptions to the mediation of spiritual worlds by cultural conditioning. For Hollenback (1996), these exceptions are rare and involve specific types of clairvoyant, telepathic, and precognitive states of consciousness (see especially pp. 231-300, p. 607). In contrast, Ferrer (2008) argues against the idea that such exceptions are a rare occurrence. Instead, he critiques this constructivist stance, notes the many historical cases of novel spiritual insights and heresies, and asserts that novel spiritual knowledge is always possible by virtue of human participation in the generative power of life or spirit. Secondly, and I believe more crucially, we cannot think of spiritual worlds as mere products of cultural conditions, as though there was a causal relationship between cultural norms and spiritual worlds, any more than we can say that our behavior is the cause of DNA. This reductive move is averted when we recognize that the culture from which those conditions are born is itself the result of a vast multiplicity of cosmically embedded recursive relationships that cannot be reduced to a singular cause. In other words, the dynamic relationships among cosmically situated entities, both human and nonhuman, constitute dynamic spiritual worlds that are, for the most part, manifest through the cultural conditions of a particular individual or community and yet, at the same time, cannot be reduced to those conditions. In this case one might even expand the more constrictive concept of cultural conditions towards a notion of *cosmic conditions* that takes a cosmically situated network of relationships into account.

The fourth and final characteristic is that spiritual worlds are enacted by intentional or spontaneous cocreative participation. In other words, these

worlds are not static or ultimately distinct from human agency. Instead, both human and divine exist in reciprocal cocreative relations. One does not determine the other. They are co-creatively bound and inseparably co-emergent. As Ferrer shows, this is not exactly a new idea. He presents a number of traditions — Theurgic and Christian mysticism, Sufism, Kabbalah, indigenous spiritualities, Shaivism, Vajrayana Buddhism — where the human is taken to have the capacity to impact the inner dynamics of divinity. Intentional cocreative participation involves the intentional action of an individual or community to evoke a relationship with a spiritual domain, whether through prayer, meditation, or ritual gathering. Spontaneous participation occurs when the relationship is somehow mitigated from the spiritual domain, whether through invoking a heightened sense of spiritual communion, a spiritual breakthrough, or a direct visitation by a specific spiritual entity. Both spontaneous and intentional cocreative participation involve varying degrees of relationship that may be either more expansive or even restrictive in scope, yet, from a participatory perspective, the mutually specifying dance of human and divine, self and world, exists at the heart of each.

To summarize, the participatory approach presents a vision of human spirituality in which spiritual worlds are actively brought into being through the cocreative participation of all dimensions of the human being. Unlike the entrenched presuppositions identified within transpersonal studies, experientialism, inner empiricism, and perennialism, Ferrer presents a holistic vision of participation that affirms the relational, embodied, and apophatic dimensions of spiritual experience. The participatory enactment of ontologically rich spiritual worlds involves many layers and strands of relationship that move from and through the multidimensional cognition of human embodiment. Like the embodied cognition of the enactive approach, this *participatory sense-making* enacts meaningful relationships with the spiritual domain and thereby constitutes the unique features of our spiritual world(s).¹² While no rigid boundaries can be set upon what defines a spiritual world, given the differing contexts in which and to whom such worlds arise, their enactment must necessarily emerge with, in, and through the environmentally situated relationships of our sensorimotor world. Once enacted our spiritual world(s) must exist simultaneously with our sensorimotor world(s) such that a dynamic and fluid relationship exists between these two dimensions of our experience. Our participation with one may bring us unexpectedly into a deep and intimate relationship with the other. This can be seen in the “compassion for all things” that emerges after extensive meditative practice, or in the subtle feelings of numinous ecstasy that can emerge while watching the setting sun. In any case, it should be clear that the participatory approach calls us to reflect upon the way in which the spiritual dimensions of our experience overlap and intertwine with the biology of our sensuous environment and bodily identities.

PHENOMENOLOGY

The aim of this section is to demonstrate the value of phenomenology as a ground or bridge for the cognitive and participatory accounts of enaction. To

this end the phenomenological concepts of subjectivity, lifeworld, and constitution will be briefly clarified. Phenomenology brings us into our lived experience and thus into our experience as biological and spiritual identities.¹³

Husserl's Phenomenology

Phenomenology is the philosophical school of thought that was developed by Edmund Husserl (1859–1938) at the turn of the twentieth century. Its aim is the investigation and articulation of experience as it is immediately given. Husserl developed phenomenology as a response to the prevailing dogma of positivistic science. Namely, the doctrines of *scientism*, the idea that only the quantifiable data of science are of relevance to our attempts to understand the nature of the world, and *objectivism*, the idea that there is a reality absolutely independent of subjectivity.¹⁴

Husserl rejected both of these doctrines by acknowledging the constitutional role of human subjectivity; the relative, unique, and perspectival feature of consciousness that links the field of experience to the locus of a particular bodily identity. Through the reign of positivism the subjective dimension had been banished from reputable science. It was thus Husserl's aim to highlight the fallacious nature of this move and bring subjectivity back into scientific investigation. He developed phenomenology as a branch of knowledge dedicated to the investigation of the first person perspective, the perspective of subjective experience, of how the world appears from my perspective.

Phenomenology views both scientism and objectivism as naively abstracted from the living ground of human subjectivity. A closer examination of experience reveals the fact that all so-called objectivity, and thus the objective claims of science, are in fact founded upon the subjectivities of the very people who are making objective claims. Objectivity is thus subjectively constituted. It can only become objective in our experience. Yet experience for Husserl is not relegated to an isolated subjectivity, even if many have critiqued Husserl for making just this claim. Recent scholarship has shown that a different analysis refutes this critique as a misreading of his work (Welton, 2000, 2003; Zahavi, 2003, 2005). This new analysis involves highlighting Husserl's concept of *inter-subjectivity* and his assertion that all "objectivity" is in fact inter-subjectively constituted.

With inter-subjectivity Husserl demonstrates that it is a community of historically situated subjectivities that inter-subjectively constitute subjectivity itself. Our perspectives as individual subjectivities are the result of a dynamic web of interrelated subjectivities that together constitute our very identities as human beings. The language that we use, our gestures, and even our most basic sense of self and world are dependent upon this web of relationship.

Lifeworld

The *lifeworld* is a concept Husserl (1954/1970) used in his later writings. Its exact definition remains somewhat ambiguous, and yet a number of primary

features are readily discerned. In general, it is held as the realm or world of experience as it is immediately given to a particular subject. It is the living world of streaming experience, the world as it is sensuously, intuitively, and concretely given as opposed to the world as it is abstractly reflected upon, named, or categorized (Zahavi, 2003, p. 126). It is the pre-scientific and pre-theoretical world that remains the ontological ground into which science and theory must eventually sink. This sinking, what Husserl termed *sedimentation*, modifies the lifeworld through the sediment that it leaves behind. For example, after being exposed to the stellar pattern of the astronomical constellation Taurus I reach a point when I can look to the heavens and see Taurus without having to reflexively contemplate what I have learned. Taurus has become a part of my lifeworld. It has “sunk down” into the nonconceptual dimension of my subjectivity. This nonconceptual and nonself-referential domain is what Husserl termed *transcendental subjectivity*, that feature of our experience that is constitutive of experience itself.

This transformation of the lifeworld reveals one of its primary features. Namely, that it is a process of perpetual change. It is the result of a dynamic web of relations whose very dynamicism calls for a language other than the static definitions of positivistic science. As Zahavi (2003) notes, “If we seek to impose on the phenomenon of the lifeworld the exactness and precision that we find in, say geometry, we violate them” (p.130). The lifeworld challenges our desire for clear distinctions. This continual transformation of the lifeworld moves us to the second primary feature; its essential vagueness. No definite or exact characterization of it can be given. Such an attempt would involve a distorting reduction of the fluid and dynamic nature of the lifeworld, which continually transcends our attempts to sharply delineate its features. Husserl makes this clear in his comparison of a mathematician and a natural scientist: “The most perfect geometry and the most perfect practical mastery of it cannot enable the descriptive natural scientist to express (in exact geometrical concepts) what he expresses in such a simple, understandable, and completely appropriate manner by the words ‘notched,’ ‘scalloped,’ ‘lens-shaped,’ ‘umbelliform,’ and the like – all to them concepts which are *essentially, rather than accidentally, inexact and consequently* also non-mathematical” (Husserl 1976/1982, p. 155).

The third and final feature of the lifeworld that I would like to focus on here, drawing on Zahavi (2003), is “the fact that every lifeworld is correlated to a *functioning body*” (p. 132). The functioning body is a term Husserl uses to elicit the “unthematic pre-reflective lived bodily awareness that accompanies and conditions every spatial experience” (Zahavi, p. 101). This original bodily awareness and its accompanying kinesthetic corporality contribute to the constitution of perceptual reality yet, as Husserl points out, this constitution involves a reciprocal codependency wherein the spatial objects of perceptual reality constitute the very spatial identity of the body. This is demonstrated through the double-sensations that transpire in sensorial relationship.¹⁵ As my body touches it is simultaneously touched. Through this dynamic interchange I touch the world and it is sensuously enacted, it is born for me as a world. Simultaneously, in my touching I am touched by the world and thereby the world reveals myself to me. In touching I come to know myself as an embodied

being that is part of, and inseparable from, a sensuous and spatially thick world. This codependent relationship presents the ultimate interdependence and inseparability of body and world. My subjectivity is grounded in my body, in the world, and thus my bodily awareness is held as a primary referent and foundational ground for the dynamic unfolding of the lifeworld.¹⁶

Constitution

The dynamics of the lifeworld have been presented as the world of transcendental (inter)subjectivity. Yet what is the mechanism through which the lifeworld is brought into being? In other words, how is it enacted? This article has explored how the dynamic emergence of an autopoietic system involves the dynamic coemergence, the biological enaction, of a sensorimotor world, as well as how the cocreative participation of human multidimensional cognition invokes the dynamic coparticipation and manifestation, the participatory enaction, of ontologically rich spiritual worlds. Is there a concept in phenomenology that articulates the enaction of the lifeworld, the dynamic and evanescent domain of transcendental subjectivity? The key lies in Husserl's concept of *constitution*, a linguistic synonym and thus sister locution to enaction. Here I briefly examine this term and in so doing explore Husserl's depiction of the manifestation of the lifeworld.

How is the world of our experience brought into being? Without attempting to present the full scope of what Husserl implied by the term constitution, for it stands at the core of the whole of his philosophy, there are a number of basic features upon which I would like to focus.¹⁷ First, it is a process, a dynamic unfolding that obfuscates any attempt to depict it as static or fixed. One might say that the dynamic state of the lifeworld, its character of perpetual change, is rooted upon the dynamic state of the process of constitution. Second, because constitution is itself a dynamic process of unfoldment, it is noncausal and nondeterministic. The constituting does not cause the constituted. Instead, and this is the third feature I wish to highlight, constitution *allows* for manifestation and thus brings that which is constituted into appearance.¹⁸ The constituting and the constituted are together coconstituted in the process of constitution. In other words, constitution simultaneously brings the world before the subject and the subject before itself. The fourth and final point is that it is a process that involves several intertwined and inseparable elements. The dynamic combination and interpenetration of these elements gives birth to the streaming flow of experience that we have defined above, the lifeworld. Those elements are *subjectivity*, the locus of an experiencing identity, *intersubjectivity*, the reality of relationship among identities, and *world*, the common field of experience among which and within which identities find themselves to be.

This tripartite structure, *subjectivity-intersubjectivity-world*, forms the basic phenomenological relationship that comprises the concept of constitution. Each of these three elements is, according to Husserl, codependent and inseparable from the others. Any one element can be taken as a starting point

for an investigation of the others. Instead of the subject enacting the constitutive performance, as in the traditional interpretation of Husserl as a subjective idealist, “the constituting subject is itself constituted in the very process of constitution” (Zahavi, 2003, p. 74). Our relationship to the world shapes the world, which in turn simultaneously shapes our very identity, which is also simultaneously shaped by our relationships with identities in the world. This continuous process involves the simultaneous becoming of self, world, and other(s), and, per the intention of this section, the enactment of the lifeworld.

A concrete example can be readily seen in the act of eating, for instance, a banana for the first time. As I bite into the banana a world of texture, flavor, and scent is revealed to me. Through the act of eating not only is the banana as other disclosed as a novel object in the world, but my very identity (my affective stance towards the banana of like or dislike, my nutritional repertoire of potential food choices, etc.) is transformed. Self, world, and other are simultaneously and inexorably altered. This example points to the radical shifts that novel encounters entail yet the alteration of the lifeworld, while more greatly impacted by certain events than others, does not depend upon such a novel encounter. Constitution is itself the dynamic flux of existence upon which the lifeworld is temporally unfolded. Just as the road of the wanderer is enacted through the process of walking, as in the Machado quote above, it is the shared journey of self, world, and other(s) through time that reveals the creative dynamics of constitution’s evolving nature. Certain events will necessarily impact this journey more significantly than others, but change is foundational. The rising and falling of the breath, subtle modifications in posture, changes of affect, and alterations of environmental stimuli are all part of the continually transpiring kinesthetic streams of the lifeworld that constitution enacts. Constitution, what for the purposes of this inquiry I would here term *transcendental enaction*, allows for the living flow of subjective life, for the transcendental experience of human existence.

Phenomenology brings us to our subjectivity and to the co-emergent domain of the lifeworld, the dynamic world of lived experience. Phenomenology is a philosophy of the first person perspective, a perspective that is always intimately situated in relationship to my bodily dimension. Transcendental subjectivity is the perspectival and nonconceptual mode of consciousness from which all conceptual and theoretical claims are subsequently articulated. Both the enactive and participatory approaches are articulated from the primordial givenness of transcendental subjectivity and thus, I would contend, the notions of sensorimotor and spiritual worlds are necessarily linked to the first person perspective in a primordial way. As Zahavi (2005) notes, “any convincing theory of consciousness has to account for the first personal givenness of our conscious states” (p. 28). The further we move from the lifeworld in our theorizing the more fragmented our domains of knowledge risk becoming. From the shared transcendental ground of our embodied experiencing we stand before the potential of opening ourselves to the biological and spiritual dimensions of our human identities.

CONCLUSION

I have examined three basic modes of world constitution: biological, participatory, and transcendental enaction. The integration of these three modes points to the possibility of articulating a general theory of enaction. To summarize, I have shown how phenomenology offers the ground of transcendental enaction, that tripartite process of constitution whereby subjectivity-intersubjectivity-world coemerge and together constitute the primordial flow of our existing. Through this prethematic and nonconceptual emergence of our conscious experiencing the lifeworld is born. The sensuous streaming of this world confronts us with our bodily identity, the locus through which the spatio-temporal structure of our world and our most basic sense of self is constituted. Yet this bodily identity is also an autopoietic system, structurally coupled to, and in continuous energetic exchange with, the environment in which it is embedded. Through reciprocal relationships of meaningful sensorial participation the *Umwelt* is born, it is biologically enacted. This sensorimotor world, which dynamically coemerges with our basic sense of identity and agency, is engaged through the embodied cognition of our organic system. Yet this bodily cognition has many dimensions, many modes of engagement, through which we find ourselves intimately embedded within a generative and mysterious force of life, and thus in relationship to the spiritual nature of our being. Through this participatory engagement spiritual worlds of profound significance can be enacted. These mysterious worlds of existential significance are at once an integral part of both the stream of experiencing, the lifeworld, and the embedded matrix of environmental relationships, the *Umwelt*.

This integral account of the dynamics of each of these three modes of world-constitution, biological, participatory, and transcendental, opens a number of potential avenues for further inquiry. On the one hand, it gives us a more general account of enaction, and on the other, it opens a number of specific potentials that the interrelationship of these three dimensions of enaction suggest. To conclude I will first begin with the more general account, then move towards an articulation of a planetary understanding of enaction, and end with a few thoughts related to potential avenues of further inquiry.

Put in more general terms, enaction suggests the emergence of a basic world of experience that is organically linked to the vital dynamics of any bodily organism. This basic world is brought into being through the vital pulse of life that sustains the existence of every organism. This world *both* exists as a seamless whole *and* is comprised of a multiplicity of differing dimensions and features (worlds). These dimensions, once enacted, always involve a blending or intertwining of their nature. In this sense, our identity as a living being and our relation to the generative force of that living cannot be easily discriminated. Thus in a fundamental sense, the continuous enaction of this basic world acts as a fountain of generativity, embedded within the greater generative force of spirit, through which existence itself is brought into being. Like a path laid down in walking, life is unfolded from the perpetual stream of this fountainhead, a fountain that pulses with the rhythm of mortal life. Through life coming into being the experience of that life is enacted. Enaction

is, in this sense, a creative act. It is the creativity of life itself, a creativity born from the great mystery of being. Thus the constitution of any world is an emergence of novelty, born through a unique matrix of interpenetrating recursive relationships. Worlds emerge creatively and become themselves through the context of their multiple relations. In this coemergence of self and world(s) any identity is creatively affected by the dynamics of the worlds in which they find themselves, while simultaneously affecting the very constitution of those worlds.

This general account of enaction leads towards an expanded vision of enaction that moves from the dynamics of world-constitution for a particular subjectivity, and into those same dynamics for a global or planetary intersubjectivity. In Husserl's later writings he noted that intersubjectivity could not be thought of as simply the constitutive web of existing relations for a particular subjectivity; i.e., developmental and social conditions, friendships and so forth. He insisted that it also involved what he called the "we" of the historical past, the collective dynamics of human evolution, emerging from and through each individual. This historical web of relations, which continuously emerges into the present through our existing, Husserl termed *the life of world-consciousness (Weltbewußtseinleben)* (Zahavi, 2003, p. 74). With this concept we can expand our vision of enaction from the intersubjective life of a particular identity, by recognizing that any enaction of world cannot simply be reduced to a particular agent and its present relations. Instead, world-constitution must also be attributed to the life of a vast communal consciousness that is in turn comprised of a multiplicity of individual consciousnesses.

The intersubjective life of world-consciousness illuminates the global dimensions of our participation both as a biological and spiritual identity. As an autopoietic entity we find ourselves embedded in relation to a historically situated global species and interspecies community, a living planetary system dynamically evolving through time. As spiritual beings, existing in relation to intentionally or spontaneously enacted spiritual worlds, we find ourselves in dynamic participatory relationship to a planetary matrix of spiritual worlds that are themselves cocreatively evolving and shifting within a global movement of spiritual consciousness. This expanded vision of enaction rests upon the fact that we are born into a vast matrix of historically embedded intersubjective relations. The life of world-consciousness and its historical progression allows for the refinement of novel world structures, from technological advance to enhanced complexity and interrelationship among spiritual traditions.

A final piece has been added to this investigation of world-constitution: the planetary dynamics of an intersubjectively constituted and historically situated global consciousness. Returning to the fountain metaphor, articulated in my general account of enaction above, one can see how the generative fountain of each bodily identity is but a stream amongst the immense flow of an unfathomable number of streams. Together, the interwoven currents of the all-flow of world-consciousness are dynamically enacted in one massive spring of primordial generativity.

A myriad of other possibilities await articulation that are beyond the scope of this article. Here I will name two that are ripe for further research. One involves deepening the relationship between biological and transcendental enaction. The fruits of this exchange point towards an autopoietic account of subjectivity. The enactive approaches broad understanding of cognition as the embodied activity of an autopoietic system has many implications when partnered with the bodily emergent subjectivity of Husserl's lifeworld. This autopoietic account of subjectivity could potentially reveal a new understanding of the mutually specifying dynamics of bodily cognition and conscious experience.

A second potential avenue entails deepening the relationship between the three accounts by first exploring a phenomenology of spiritual experience. Such an exploration could reveal an understanding of spirit, not as a metaphysically loaded term that implies a particular theological conviction, but as a particular quality of experience itself. Held in this experiential sense (e.g., a quality of sacredness, peace, selflessness, etc.) it might be interesting to explore the role that spirituality plays in the autopoietic unfolding of the human being. In this way compelling links between biological and spiritual *telos* emerge. What are the existential implications that a fusion of such ends might imply?

The maturation of these fruits awaits further inquiry. It has been the aim of this article to show how three differing conceptualizations of enaction — biological, participatory, and transcendental — can offer complementary perspectives towards a general theory of enaction. My interest in moving towards a general theory of enaction has been to situate the potential of an enactive vision of living being outside the confines of a few specific domains of inquiry. Through a synthesis of these domains, I have attempted to suggest a broader philosophical account of human nature. The pragmatic implications of such an account lie principally in an expanded understanding of the dynamics of living being. This paper is itself a creative enactment of world. It contributes to a new understanding of life, and in so doing, transforms the life that understands it. Yet aside from this hermeneutic effect, a general theory of enaction could also serve as a practical pathway towards living the organic unity of our spiritual and biological natures. The key to the potential realization of this synthesis lies in the shared bodily ground of human experience. Through attention to the dynamics of these seemingly oppositional domains, a general theory of enaction might invite us to embrace our common biological and spiritual origins, and thus open the potential to foster a global community that lives in conscious relationship to the fountain of dynamic generativity that constitutes our very nature.

NOTES

¹ For a contemporary overview of the momentum that the enactive approach has stimulated, see Stewart, Gapenne, and Di Paolo's edited volume, *Enaction: Toward a new paradigm for cognitive science* (2010).

² For a recent overview of the field see Shapiro's *Embodied Cognition* (2010); see also Clark's *Supersizing the Mind* (2008) for a detailed account of extended cognition, a complementary, yet critical perspective on enactivism, that depicts the way in which our cognition extends beyond the confines of brain processes.

³ Autopoiesis is presented in such a way that it need not be limited in scope to the emergence of Earth-bound life. In searching for the minimal qualifications of what is to be considered life "minimal life is not identified with any particular molecular structure, such as RNA/DNA, but rather with a bounded, self-producing concatenation of processes, which can in principle be structurally realized in different ways" (Thompson, 2007, p. 118; see also pp. 101-102).

⁴ Space does not allow me here to undergo a more detailed discussion of philosophical idealism and realism. For a contemporary presentation of the debate see Meillassoux (2008), especially pp. 1–27.

⁵ It is important to note that such distinctness does not imply lack of relationship. An intimate interdependence exists between their worlds such that a reciprocal relationship between the trillions of cellular worlds, and the world of the redwood tree that they together comprise, is essentially present. A further exposition of this relationship, and the dynamics of worlds enfolded within worlds, is beyond the scope of this paper.

⁶ My inquiry here follows Thompson's (2007) presentation closely, see pp. 128–165.

⁷ For additional accounts linking the spiritual and biological domains see especially Fuller (2008) and Vasquez (2010).

⁸ A number of contemporary authors align themselves with the participatory turn, see especially Tarnas (1991), Heron (2006), and the contributing authors of *The Participatory Turn* (Ferrer & Sherman, 2008a). For an overview of its scope and impact see Ferrer (2011). For a history of the term *participation* and its evolution in the West see Sherman (2008).

⁹ William James is the first known person to have used the term *transpersonal* as he delivered the Gifford Lectures at the University of Edinburgh in 1901 (Vich, 1988). The continued growth of transpersonal studies developed largely in response to the widespread dominance of positivism in the humanities. Positivism, which emerged from the thinking of the French social philosopher August Comte (1798–1857), holds that any veridical assertion must be supported by scientific evidence.

¹⁰ For an account of Ferrer's position in relation to Dennett's Heterophenomenology, an empirical research methodology, see the dialogue between Freeman (2006), Adams (2006), and Hartelius (2006).

¹¹ Sells (1994) distinguishes between apophatic theory (Ferrer's use of apophasis) and apophatic discourse. In his words: "apophatic theory affirms the ultimate ineffability of the transcendent; but as opposed to apophatic discourse, it affirms ineffability without turning back upon the naming used in its own affirmation of ineffability. A purely apophatic language would be an abstract and mechanical turning back on each reference as it is posed" (p. 3). He presents an example of apophatic discourse from the Mahayana Buddhist *Vimalakirti Sutra*: "all constructs are empty," thus "the construct that all constructs are empty are empty," and "the construct that the construct that the constructs are empty is empty is empty" (p. 4).

¹² For an altogether different use of *participatory sense-making* in an enactive context see Di Paolo, Rohde, & De Jaheger's (2010) use of the term as an extension of sense-making into the domain of social cognition.

¹³ It is important here to note that there exists a growing body of literature on the relationship between phenomenology and cognitive science. For the main accounts see Gallagher and Zahavi (2008), Petitot, Varela, Pachoud, & Roy (1999), Rowlands (2010), Schmicking and Gallagher (2009), and Thompson (2007). In addition, research has investigated the relationship between phenomenology and spirituality; see especially Steinbock (2007), and Candler and Cunningham (2008). The novelty of my account lies in the fact that connections have not been made (a) between these three domains nor (b) in specific relation to the world-constituting dynamics of enaction. It is in these novel contributions that the fruits of this paper lie.

¹⁴ My analysis in this section draws from the concise presentation of Husserl's phenomenology by the Norwegian phenomenologist Dan Zahavi (2003).

¹⁵ It is worth noting that, while this insight is commonly associated with Merleau-Ponty's *Phenomenology of Perception* (1946/1962), it was from Merleau-Ponty's close reading of Husserl that he developed his philosophy of the lived body.

¹⁶ For other readings on the lifeworld see especially Held (1986/2003) and Steinbock (1995).

¹⁷ For more about Husserl's concept of constitution see Zahavi (2003) especially pp. 72–77, 115–120.

¹⁸ The assertion of the noncausal nature of constitution may appear misleading. It is noncausal in that it is not limited to linear causation; constitution is not a discrete and definable entity that can be pointed to as a specific and narrowly determined causal factor. Thus its *allowance* for the manifestation of appearance is not causal in the traditional sense of causation. Yet in such allowing constitution can readily be seen as powerfully causal, for it is the active force that gives rise to experience itself. It can thus be said to be *holistically and primordially causal* if understood in this new light.

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Indeed, the general theory developed here occurred to the authors as a result of the study of the admissibility of such a passage in a relatively involved theorem in homology theory (Eilenberg and MacLane, Group extensions and homology, Ann. of Math, vol. 43 (1942)pp. 757-831, especially, p. 777 and p. 815). (6) H. Freudenthal, Entwicklung von Räumen und ihren Gruppen, Compositio Math. vol. 4. (1937)pp. 145-234. License or copyright restrictions may apply to redistribution; see <https://www.ams.org/journal-terms-of-use>. 1945]. General theory of natural equivalences. Participatory spirituality and transpersonal theory: a ten-year retrospective. Jorge N. Ferrer. Sociology. Toward a general theory of enaction: biological, transpersonal, and phenomenological dimensions. S. A. Malkemus. Psychology. Toward a general theory of enaction: biological, transpersonal, and phenomenological dimensions. Article. Full-text available. Dennett and the Revisioning of Transpersonal Theory' in the last issue of this journal (Freeman, 2006), outlines the current state of transpersonal psychology, noting theoretical problems, and speculating on how Dennett's heterophenomenology might help in understanding the transpersonal. The reader who is not well acquainted with transpersonal psychology, however, may come away from this article with the feeling that the field is rife with inherent contradictions and is making no progress. Toward a general theory of enaction: biological, transpersonal, and phenomenological dimensions. Article. Full-text available. This paper explores the world-constituting dynamics of enaction as articulated by the enactive approach in cognitive science and the participatory approach in transpersonal studies. Husserl's phenomenology is then introduced in order to (a) investigate Husserl's presentation of world-constitution and (b) to anchor the enactive and participatory app... Phenomenology (from Greek *phainomenon* "that which appears" and *lógos* "study") is the philosophical study of the structures of experience and consciousness. As a philosophical movement it was founded in the early years of the 20th century by Edmund Husserl and was later expanded upon by a circle of his followers at the universities of Göttingen and Munich in Germany. It then spread to France, the United States, and elsewhere, often in contexts far removed from Husserl's early work.