

# The Self-Organizing Bioregion: Commoning knowledge in a pluriversal, ‘already-shared’ reality

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## Abstract

Human societies seduced by Western thought and (mis)guided by reductive science, continue to exhibit and perpetuate a limited capacity to interpret reality. This is having an increasingly impoverishing effect on Life: the unraveling of the extraordinary complexity of the living web, from which everything we know as human has emerged, of which we are an integral strand, and in which we have an essential role. This research’s aim is that Humanity might concretely operationalize self-organization in our knowledge systems and in our bioregions, enabling communities to better care for what we have in common.

Our point of departure is located in the notion that we, as makers of worlds, co-create our own reality: that, how we know what we know about the workings of our world, directly informs how we create it, over and again. This paper introduces a meta-narrative which reintegrates the human as a wholly essential element in the continued regeneration of Life. Here we animate the concept of pluriverse, to set it in relation and put in motion with related concepts. We examine Edgar Morin’s principles on complex organization of reality, explore the potential of applying the principle of self-organization vis-a-vis Christopher Alexander’s Theory of Centers, and seek a significant upgrade to Hess & Ostrom’s conceptualization of knowledge as commons by introducing a living systems approach to commoning. The author’s lived experience provides the connective tissue to integrate theories and concepts and lend concreteness to otherwise abstract notions.

## Orientation

The pluriverse can be imaged as a polycentric meshwork of extraordinarily-diverse, infinitely-nested and messily-arranged self-organizing totalities, whose vague or uncertain boundaries overlap and bleed into one another. Conversely, there’s a dominant historical pattern of Human organization guided by a very different image, one produced by a dominant *paradigm of simplification* championed by Western science—a reductive and disjunctive understanding of reality—and, a *pathology of separation* that systematically isolates, manipulates, and mutilates aspects of fragmented reality (Morin 1977).

Context: The reductionist approach seems incapable of describing pluriversal complexity. It artificially encloses limited portions of pluriverse within externally-imposed, impermeable boundaries; isolating these from each other, from worlds they are nested within. In effect,

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reducing the pluriverse to a ‘one-world world’<sup>2</sup> of isolated fragments. The fragmentation expresses itself at every level of complexity: biosphere, ecosystems, societies, communities, individuals. This simultaneously diminishing our prospect for a habitable planet, and, undermining possibilities for *commoning*<sup>3</sup>—the collective caring for what we hold in common.

Question: For decades, there’s been an exploration of the concept of bioregion<sup>4</sup>, as an optimal scale for ‘re-inhabiting’ the commons (Berry, T. 1988; Glotfelty & Quesnel 2015; Mumford 1938; Sale 2017; Yanez 2004, 2006). Their significant benefits are not disputed here. However, as with all living systems whose boundaries are elusive at best, the question stands: *Who gets to decide where and how a bioregion is bounded, who is included/excluded?* This research proposes that nobody has to, or, better yet, that everyone can. Hence the focus on self-organization.

Terms: The term *bioregion*, is used broadly as place-holder for the often neglected or missing geographic mesoscale—as-of-yet uncontested space somewhere between local and global. The phrase *already-shared reality* is adopted to express overlapping human/more-than-human worlds, an existing, albeit mostly virtual space awaiting to be reinhabited. And, *regenerative* is used in various contexts to refer to a living-systems paradigm: principles/thinking applied towards effecting greater wholeness and aliveness across an already-shared reality.

The “I” in this paper is an unconventional scholar-practitioner, unconditioned by any ‘right way’ of doing research. My entry point into scholarship is through insights gained via lived-experience, which align with the regenerative paradigm. I am embedded in the dominant paradigms of Western culture, from which I am in the life-long process of releasing myself. I am studying general complexity<sup>5</sup>, grounded in emerging knowledge of myself as a hyper-complex human (aliveness of my animal body, wholeness of my microcosmic being). I am a fractal of the very process, structure and texture of a universe-of-complexity<sup>6</sup> striving to know itself. The *we* in this paper is a nested *we* that shifts levels according to context of usage: a local *we*, audiences reading this paper; a proximate *we*, the field of social-solidarity/commons<sup>7</sup>, to whom this paper is being addressed; and, the greater *we*, humanity.

<sup>2</sup> A phrase from the pluriversal literature akin to Vandana Shiva’s phrasing ‘monoculture of mind’, a world where a dominant paradigm reigns supreme.

<sup>3</sup> We will make deeper sense of this phrase later, but it is too vital not to plant a seed upfront.

<sup>4</sup> Bioregions can be functionally defined as eco-cultural territories that coincide loosely with watersheds or biosheds.

<sup>5</sup> General complexity is applicable to all of Life across all formalized disciplines, and all the spaces in between. It is distinct form, but inclusive of, restricted complexity. See Morin (2006).

<sup>6</sup> We utilize hyphenation throughout in order to richly communicate concepts composed of a relation of inseparable yet distinct terms. The term and the practice is expounded in Part 1. The field of social-solidarity and the commons, has its own ontology, which is employed herein, as a way to connect more deeply with that audience. It is an ontology originating from the Zapatistas of Oaxaca, who describe a vision of a pluriverse (a universe of plurality) where many worlds fit.

Approach: This research does not employ a methodology from the outset, which might limit its search<sup>8</sup>. It embraces a deeper notion implied in the Greek word *methodos*<sup>9</sup>, a research in search of a method, which aims to legitimize inquiry enabled to meet uncertainty and ambiguity in a Universe-of-complexity, on its own terms. The format purposely deviates from a typical academic paper: allowing for a sense of discovery for readers that parallels the author's lived experience.

Instead of enclosing otherwise fragmented terms (self-organizing, commoning, bioregion, pluriverse) within a definition at the outset, we allow them to differentiate within a context: the author's lived experience which serves to concretize them. By unfolding a meta-narrative comprehensive enough to encompass these concepts, and a foundation fertile enough to root, nourish and animate them (with support of thick description), we hold them in relation to each other. Robust use of Appendices offers the reader the option to follow various tangents which enrich the discovery experience. In some instances, linked, in-line references will appear throughout the text, ex. [B1], to indicate an optional deeper description.

This approach finds a comprehensive rationality in that:

*Even as of now our universe is... a pluriverse. ... The knowledge gained about irreversibility is irreversible. The knowledge gained about complexity is unsimplifiable, [the] One universe, then, is dead... this new version of the world gives rise to mystery at its very heart. It opens upon the unknown, the unfathomable... For the first time, a vision of the world does not close in on itself in an explicatory self-sufficiency. This change of world will take us much farther than the change of an "image" of the world. It will have to entail a change in the world of our concepts and once again put in question the master-concepts with which we used to consider and imprison the world. (Morin 1977:64)*

*It will be impossible for us, as we shall see, to isolate a master-word, to hierarchize a primary notion, a primary truth. Order, disorder, organizing potentiality must be thought of together... in a sort of moving loop. ... In order to conceive this... A revolution of principle and of method are called for. The question of the genesis of the cosmos is, therefore, at the same time, the key question of the genesis of method. (ibid:41)*

<sup>8</sup> Non-method method, or one that unfolds with the research, is well-documented in Morin's *Method* (1977-2006) as most appropriate for inquiry of any complex phenomena.

<sup>9</sup> *Methodos* means a transit, path (Hands 2015).

Inspired by Morin, the research takes its point of departure from the premise that ecosocial<sup>10</sup> systems are living systems with deep cosmic roots, whose degree of aliveness<sup>11</sup> stem from their unhindered capacity to self-organize, a capacity that is enabled, as we shall see, by paying attention to what we have in common. Our destination: a meta-narrative complex enough for *all worlds* to fit.

## **Part 1. Cosmic Solidarity, or, What we have in Common**

I have dedicated a decade and half of my Life's work (2003-2018) invoking self-organization in my home bioregion, the Greater Everglades. Living on a peninsula, surrounded by water on three sides and once dominated by a still present ecosystem, it was hardly necessary to draw boundaries around the larger scale of what we had in common. And yet, the key question serving to organize this paper was working within me even then, since there were as many potential versions of bioregion as there were overlapping distinct eco-cultural worlds.

Early in my work-life, towards the end of the first decade of less-than-meaningful employment, I suffered a deep crisis—a period of profound questioning of who I was and what work-in-the-world was uniquely mine to do. Around the time of my daughter's birth (1999), an intuition took root and grew inside me, that the 'one-world world' (albeit without that language) I was participating in was unbearably insufficient, immensely deficient. I committed myself to a pathway of exploration and learning, which marked a first evolution: a first encounter (2003) with Universe Story<sup>12</sup>—an emergent meta-narrative unfolding around the notion of an already shared world—which opened me to pluriversally coherent ways of worlding<sup>13</sup>—including introducing me to the concept of bioregion, which would relentlessly possess my being for some time to come. And, as I began to uncover my own calling, I was also awakening to the radical notion that humans had an essential role in bringing about a wholly-different reality.

The scholarly work I have been involved with thus far, either teaching or publishing, in one way or another addresses these topics. I recognize the same yearning for deeper grounding insights arrived at, intuitively, via my lived experience (re)generating the will in me to engage in doctoral work at this advanced stage in my life. The seed of this was planted in that first encounter 2003 with an overpowering meta-narrative, which propelled me forward dumb-struck in my inability to express through words, the immensity of what I had experienced. This

<sup>10</sup> The term ecosocial is a more-elegant, re-concatenated version of socio-ecological, that gives the priority to the ecological.

<sup>11</sup> *Degree of aliveness* is a term introduced by Alexander (2002a), to denote a quality of aliveness present, to some degree, in everything.

<sup>12</sup> Universe Story, known more broadly, as the New Cosmology, centered mainly around the work of Thomas Berry, Bryan Swimme, and others. It represents an elegant convergence of ecology, spirituality, quantum physics, indigenous and eastern philosophy, etc.

<sup>13</sup> The term worlding is used as shorthand for the process of producing an image of the workings of the world from which one then shapes reality.

may explain why I am drawn to and have a propensity for thick description, samples of which you will find throughout, but particularly in Appendices, which attempts to express in words the ineffable qualities of what can only be felt or imaged.

It took two decades of intuitively-sourced interventions and learning grounded in body and bioregion, and of rapid-cycling through various evolutions of praxis, for me to begin to identify these qualities. As a whole-systems designer observing and interacting with a wild diversity of elements and energies in a wide variety of places, I am trained to recognize patterns, and see clearly that these (and we) are all different aspects of the same unfolding reality. I resonate strongly with the pluriverse discourse that emphasizes the exquisite diversity often overshadowed by narratives of a 'one-world world', the fact that it seems to leave to chance the implicit unity behind the diversity, doesn't sit well with me. Spiritual and indigenous perspectives offer a compellingly unitive narrative, and yet somehow, there is a power in reclaiming this narrative through an expanded notion of scientific inquiry, the very vehicle that brought about the fragmentation being addressed. In Bohmian ontology (Bohm, 1980), what we *can* see and explain—the extraordinary diversity of visible forms that we call pluriverse—is the explicate order; what remains unseen and unexplainable, underneath or behind the seen, is the implicate.

What I am working towards, here, is a metaepistemology-based notion of complex organization, that by its very nature, reconciles the extraordinary pluriversal diversity with the underlying unity of which it is a manifestation. It is with this in mind, that I introduce a complexified notion of wholeness that is dimensionalized, textured, everywhere differentiated.

### **Enfolding the Pluriverse into a Universe-of-Complexity**

Western science is beginning to confirm what many traditional cultures have long intuited: that we live in a universe-of-complexity.

The hyphenated term presents a relation, a meta-concept that is simultaneously *universe*—a totality of interrelatedness in every direction, where it is impossible to tease out even the simplest thread of causality without unraveling the delicate web of relation; where anything can hold true in its proper context or from a certain perspective; and, where uncertainty and ambiguity are universal—and *complexity*—the extraordinary pluriverse entanglements of phenomenological beings in interrelation are found at every nested scale, from the cosmic to the microscopic. Unity-in-diversity is actively produced from its constituent parts-in-relation (Morin, 1977)<sup>14</sup>. Henceforth, we will strive to hold complex terms in relation, conjoined by hyphens, acknowledging that every level of universe-of-complexity, enfolds a

<sup>14</sup> The inverse also holds true.

dimensionalized notion of pluriverse: a world where *all* our words, and the worlds they make, fit together<sup>15</sup>.

Growing a pluriverse requires new foundations (Kothari et al. 2019) for how all worlds might fit together, not another epistemology/ontology/cosmology, but a meta-epistemology that produces a living soil capable of holding all existing ones in relation, inter(retro)acting in a multiplicity of 'ways of worlding,' (ibid:xxxiv). So, as we delve into grasping our Universe-of-complexity, we aspire to be rigorous (not rigid) about preserving complex relations as they emerge, no matter how contradictory, in order that we may enact a whole pluriverse that far-exceeds the Zapatista vision.

The notion that pluriversal worlds unfold from, and eventually enfold back into, undivided wholeness gives shape to everything we observe must without-a-doubt impact how we approach inquiry that substitutes analysis of "relatively autonomous parts" for a shift in emphasis on undivided wholeness (Bohm 1986; 1980). I propose that the new foundation we will be laying for pluriverse, begins here, with undivided wholeness.

We can picture a universe-of-complexity as it continuously unfolds into pluriversal worlds, each in turn rendering a different perspective of the universe-of-complexity. Unbroken wholeness is a 'non-local field,' where all worlds interpenetrate and enfold all other worlds, and only upon observation, do unique worlds appear as objective, localized realities, where worlds are not static things, but continually-regenerated unfoldments popping in-and-out of existence (Ravn 1989).

Part 1 suggests that a meta-narrative of the most extraordinary universe possible, one that requires humanity to stretch towards its highest-order potential, is key to enacting an embedded notion of pluriverse. For a vivid example, I turn to the work of Edgar Morin, whose complex reorganization of knowledge/knowing can serve Humanity as epistemic fabric with the capacity to enfold within it, the multiplicity of divergent, fragmentary and divisive ideas scattered throughout Western culture. See Appendix A for the author's version of a Morinian-inspired meta-narrative which opens up the problematic of Humanity's role within an unfolding universe-of-complexity.

### **Radical Participation: Essential Role of the Human**

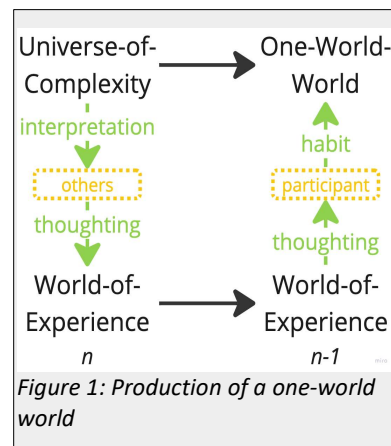
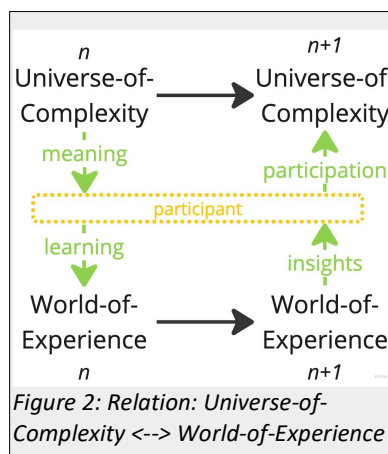
Where does this leave us Humans, who in these early stages of humanization, have become the source of 'uncertain planetary agony' (Manghi 2006) by enacting limited narratives of who we are? We have a mind of our own (simultaneously omnipotent and vulnerable), whose

<sup>15</sup> My take on the well-known proclamation from the Zapatistas of Chiapas, with one significant change, substituting the word 'many' for the word 'all.' All words and worlds, no matter how contradictory/antagonistic, must by definition, be included in a universe-of-complexity. Otherwise, someone still has to decide what is included and/or excluded.

conscious self-awareness, we have yet to master. It is no wonder, we have taken our gift of conscious self-awareness to an extreme: we've stepped out of the ecosystems we were previously bound to, and are testing planetary limits. It is that same gift, deepened, complexified, that Morin hopes will serve to root us in commoning from what we share in common: "We are in that moment of the planetary age that allows us to find the common origin again," (2001:328).

Morin (1977) testifies to how reductive Western thinking (sciences and humanities alike), all but erases the human from having an active role as subject immersed in world-making. Subjectivity requires continually "... re-build[ing of] whole, vast worlds of meaning, whole, vast ecological and social networks..." (Manghi 2006:75). Since both capacities (worlding and choice) define us as humans, we must be capable of producing a wholly-different kind of worlding, if we choose to.

We can think of worlding as an act of continually (re)generating a world-of-experience, in which we draw meaning from an unfolding universe-of-complexity, which in turn shapes how we participate in that universe<sup>16</sup>. Far too often, we do not consciously participate in generating our world-of-experience. Bohm (1992) distinguishes between a mechanical repetition of unquestioned thoughts and creative insight that actively generates meaning. A fragmented mind, incapacitated by thoughting, only sees the explicate and therefore, continually produces a fragmented world (Bohm 1981; 1994); allowing other's world-of-experience to shape our human-social-world<sup>17</sup>.



Ravn (1989): Meaning arises via active organizing process of interpretation, which extracts meaning from the flow of undivided wholeness and embodies in explicate vortices or forms (terms, concepts, categories) in order that we may "constructs a stable world for the human mind to inhabit," (ibid:11). The web of meaning we generate can not be reduced to any element or teased apart from our existence. This web of meaning constitutes a 'unity of becoming' or Life-world (Husserl), "finite provinces of meaning" (Schutz), phenomenal fields (Rogers), or simply a world in the making in pluriverse terms. The principle we arrive at here is that: "we act not on the world as it 'is,' but as we perceive or experience it to be," (ibid:83). Regenerative thinking, on-the-other hand, is able to distinguish parts of a whole while holding them in relation.

Our premise, complexified, would read: a diminished world-of-experience automatically defaults to habitually unfolding a one-world world, a human-social-world characterized by the external imposition of social order<sup>18</sup>; one whose suppression of pluriversal expression invites social disorder and struggle for power over an increasingly fragmented, objectified, de-humanized human-social-world. And, our point is, it doesn't have to be that way. We can choose a participatory universe (Abram 2011; McGilchrist 2009, 2019; Wheeler, J.A. 1984), where both humans and universe complete each other. Indeed we are related to every other body we encounter; the enfolding biosphere has shaped us, the animate world brought forth via our eyes/senses our world-of-experience [See [B1/B2](#)].

Here, we land squarely on the conclusion that the role of the human in a universe-of-complexity is that of *radical participation*. I have chosen this term for multiple reasons. First, to signify that our participation is *rooted* in undivided wholeness through a series of transformations: from permanent organization to conscious self-awareness (see Appendix A). Second, to suggest a necessary next step in human evolution: *radically-conscious* participation. Third, to express the notion of *radically-authentic* participation, that requires each of us to fully-inhabit, and, claim authorship over each of our worlds-of-experience and the narratives we unfold; enabling us to locate ourselves within and participate fully in an already-shared reality. We shall see in Part 2, why this is essential.

For now, we'll give Morin the final word:

*We can foresee that a science which brings about possibilities of self-knowledge, which opens up on cosmic solidarity, which does not disintegrate the face of beings and of existents, which recognizes the mystery in all things, could propose a principle of action which does not order but organizes, does not manipulate but communicates, does not direct but animates. (1977:397)*

## **Part 2. Invoking Self-Organization: Unfolding aliveness**

In my process of praxis-forming, I have experienced many instances of the mystery of self-organizing universe-of-complexity many times over. One instance stands out most forcefully, the dynamics of which I now have the ability to recognize and the language to better describe. As I recount this instance, I will integrate the language that has been emerging in order to expand our possibility of communicating otherwise ephemeral qualities.

I had been attempting all sorts of interventions in the Greater Everglades over the course of seven years in order to awaken a sense of place, with marginal success. In the course of

Social construction of reality is described in Berger and Luckmann's (1966) notion of social construction of reality, where some subset of worlds-of-experience become more or less permanently inscribed into habits, roles, social forms, institutions, structuring the 'backbone of society.'



interactions amongst various distinct circles, I began to feel a *readying* that I had never felt before.

Readying is a process where organisms prepare to respond in new ways that make consequent change possible. Forcing a singular outcome is the opposite of readying. Unready change is violent, because it cuts short the learning needed for differentiation. Here we are abandoning the idea of change, instead focussing on the unseen flexibility that produces readiness for change. [see [B4](#) for further description]

The idea of local food seemed to be emerging in one too many conversations. By this time (2009), I had been farming for over 12 years plus, and felt all too well the lack of a local food system. I had what I can only describe as a thick, felt sense of the *unseen coalescence*—as if I had my finger on the pulse of my bioregion.

Evolution pivots on flexibility capable of reaching outside the familiar: “... the new ways of being [that] are bubbling between and under, and to the side and out of reach of the organisms' habituated perceptions,” (Bateson 2022:992). Indeed, change or learning<sup>19</sup> may be distributed across a system in unseen ways<sup>20</sup>, what Bateson calls ‘unseen coalescence’ whose uniduality of movement is both a maintenance of coherent form, and, a process of transforming.

And, as it turns out I wasn't alone. My colleagues felt it too. Together we organized an event—the Greater Everglades Community Food Summit—which was nothing short of magical. Over 120 of the right people came from all over the bioregion. It invoked self-organizing like no other intervention I have been involved with before or since. Its unfolding can still be witnessed today. It took on a life of its own, because we were calling forth *living structure*.

The process for generating living structure, is one that unfolds organically in time, and is never fabricated. Alexander (2002b) offers an illustrative example, summarized here:

The human embryo is generated from a single cell (a fertilized egg) which doubles 50 times over. Each doubling has the opportunity at each step to adapt to possible errors that arise. In the entire process, there are a thousand trillion possible mistakes, and as many chances to adapt. Fabrication of an embryo, in the same manner, would simply not be feasible.

Successful adaptation occurs at every scale via a ‘subtle fine-tuning,’ generating “meaningful relationships in every direction,” (Alexander 2002b:188). “The subtlety of these relationships, and the connective tissue which they form, is a large part of the life in any living structure.” (ibid:189)

<sup>19</sup> Both terms, change and learning here are understood as interchangeable.

<sup>20</sup> Unseen because they are neither linear, nor quantifiable, as she reminds, these are “... epistemological habit[s] of the industrial world,” (ibid:995).

Although the intervention to invoke self-organization was extraordinarily powerful, I'd be remiss if I let anyone conclude that it was solely responsible for what came next. I can only describe it as a system-wide, polycentric unleashing of will to enact fooding in all sorts of differentiated ways in the most unexpected corners of the bioregion. And next, we will proceed to deepen our understanding around the working of self-organizational processes.

### **Self-organization: Wholeness comes Alive**

Since we became aware of our awareness, the search for ultimate truths has been a guiding force for human development. Many schools of thought locate the source of ultimate truths beyond our reach. A few, find it in what is alive all around us, within us, in our relation with a more-than-human world. They believe that living systems principles can serve to orient how we live as humans.

As any organization organizes itself, from undifferentiated wholeness to nested wholes, it takes on self, acquires some *degree of aliveness*. The pluriverse is nothing, if not aliveness at every turn. And yet, we (re)produce a less-than-human-social-world that directly challenges the biospheric capacity for aliveness. We could go down this road, however, our path is in a different direction.

All space and matter, organic or inorganic, has some degree of life in it. All matter/space has some degree of "self" in it. Matter/space is more or less alive according to its structure and arrangement. We do not have a useful, precise, or adequate definition of Life. We are after one pattern of Life, which includes the so-called living organisms and the so-called dead matter into a single living system. It is the life of the individual organism which gives us the basis of aliveness, what we define as Life. Life is a quality which inheres in space itself, and applies to every physical structure of any kind at all, that appears. Each thing has its life.

Our aim in Part 2, is to enliven the soil (theoretical foundation) we are building by reaching a dynamic understanding of self-organization that can be operationalized within the human-social-world. For this we take a deep dive into Christopher Alexander's<sup>21</sup> theory of *centers*.

All space is made up of centers that are alive to some degree. Centers are the building blocks of wholeness. Life springs from wholeness, is wholeness. Wholeness in any part of space is defined by all the coherent entities that exist in that part of space, the way they nest and overlap. Centers attain greater degrees of aliveness via greater differentiation. Highly differentiating centers in space begin to define an emergent

<sup>21</sup> Alexander is a scholar-practitioner in the field of architecture who demonstrates how we can bring higher degrees of aliveness to the human-social-world via our built environment. In his epic, 4-volume work, *The Nature of Order*, he lays out a set of premises, of how everything in our universe-of-complexity is a center with some degree of life, whereby, thicker densities of overlapping nestedness, acquire higher degrees of aliveness.

whole. The more nested, overlapping centers acquire a higher degree of complexity and aliveness. A center is a role entities play within the self-organization of a larger pattern. Visible centers form nested living structures.

What is relevant for our attempt to understand self-organization, is that whole and parts-in-relation arise simultaneously—they are already-shared. There are no privileged parts. Centers differ only qualitatively, by degrees. According to Alexander, self-organization is perceived by the degree of life of any center, and strongly differentiated centers grow in wholeness-aliveness by attracting and integrating less-differentiated centers. Self-organization, therefore, requires developing what is radically-authentic within every center: what Gregory Bateson so aptly phrased, “the difference that makes a difference.”

Development, as is any isolated idea, not grounded in an unfolding universe-of-complexity, can/has too often become weaponized (Kothari et al. 2019). Alexander’s theory of centers holds potential for us to formulate a wholly-different take on development that turns our diminished conception of it on its head. Truly-developmental development is about *deep individuation*. It pivots on the notion that every center’s differentiation contributes nodally to the differentiation of a larger whole, of which its differentiation depends—a retroacting loop.

Deep individuation has been at the core of one school in particular, the Fourth Way school, that has been for some time engaged in elucidating living systems principles<sup>22</sup> and testing them through lived experience within the human-social-world. Their work is centered on the mastery of living systems thinking as a source for regenerative mode of human development.

We can say that, what *worlds* together in explicate reality does so, because it is the most authentic expression of the implicate possible in that moment in space-time. Indeed, the movement towards nested wholeness described in this process of differentiation implicates an entire pluriversal universe-of-complexity. It is the emergent uniqueness of each center that enables relation with other unique centers in a similar process of constellated differentiation [see [B3](#) for further description], and for radical participation in a larger solidary, already-shared reality. This holds true in all my lived experiences of transformative change.

Looking back, prior to the unleashing event, we had been slowly-but-surely building a meta-narrative. In the first few years that followed, via our complex interactions (antagonistic-convergent-complimentary), we had been formalizing or confirming the *constitutive rules* (local first, organic when possible, perennial best) that emerged from our bioregional fooding

Seven First Principles embody the dynamic of a differentiation-based development, we can sum them up as follows. Every being is a whole, whose source is undivided wholeness, endowed with a wholly unique essence, and with the potential higher-order development via further differentiation of that unique essence. This development pivots on the notion that every being is a nested whole, whose differentiation is simultaneously, dependent on the differentiation of larger wholes and, contributes nodally to the differentiation of those larger wholes.

meta-narrative that celebrated both the uniqueness of our bioregion but also of each place within, as it all collectively differentiated and relations thickened.

From a social perspective, what is key to invoking self-organization are the ‘rules of the game’ that guide relatively autonomous interactions of generative processes (Alexander 2002b). These are known as constitutive rules, without which there is no game. [To read further see [B6/B7](#).]

In the Food Summit example, given above, living structure arose organically and held together for some time. And, for all its successes, and perhaps due to our ignorance of how to support further self-organizing, the initial energy that held it all together seems to have dissipated. By definition, self-organization can never be forced. So what can be done?

Here, we take the opportunity to introduce the notion of invoking—calling into being, something that is already yearning to be brought forth. An invitation to, and setting the conditions for self-organizing to unfold towards greater aliveness. When hyphenated as invocation, the term awakens a yet unexpressed sense of calling, collective vocation, in a potential constellation of centers, the notion of readying referred to above. It is the nested density of relation amongst constellating centers that allow them to remain flexibly-attuned to unseen change as these unfold into living structure.

And, the emergence of living structure does not necessarily have to be left to chance. Alexander (2002b) explains that for a constellated system of centers to arise, they must be generated by a certain sequence, hence the appropriateness of the term unfolding. Unfolding enables one to derive each next level of structure from the previously established one. The next, called forth from within the previous, where it is enfolded, and from which it flows: explicate from implicate. This way the ‘density of relation’ can materialize. What is vital here is that it is that differentiation of the whole, which brings the parts-in-relation into existence. And, each differentiation creates more interdependence among differentiating centers. [See [B5](#) for further description.] Beyond the interplay of nested wholes imbuing purpose and parts-in-relation imparting meaning, what is most significant for our exploration is that generating living structure requires the radical participation of beings in their fullest relational capacities to discern/gauge/perceive the degree of wholeness-aliveness at each differentiating step of self-organization.

As we conclude a deep dive into the richness of self-organization of living systems, we are exposed to a complexified understanding of how we might invoke these into being within the human-social-world. Next we look at how we can actualize everything we have been discussing until now.

### **Part 3. Regenerating Commoning: Pathways to Self-Organization**

As I reflect back it still baffles me, how I knew where to intervene, and how can this be somehow systematized to support the larger paradigm-shifting, self-organizing that needs to occur? This is the question I am currently wrestling with.

### **Knowledge Commoning as Praxis**

It is becoming evident to me that knowledge commoning plays a pivotal role in commoning [see Appendix C: The Art of Commoning], one of translating the information generated via the reiterative learning processes into knowledge. In the remainder of Part 3, we briefly examine one approach to doing so.

In the process of developing our approach to knowledge commoning, three properties emerged as essential capacities: The first, *open-modeling*, allows knowledge to self-organize by unfolding its own living structure. Secondly, living structure gains capacity for *noetic twinning*<sup>23</sup>—forming an analog of potentially-transformative activity in the human-social-world, enabling self-knowledge by mirroring, in situ, the participatory process of world-making. See Appendix D, where the notion of bioregion is further differentiated to allow for self-organizing, all but invisible in the actual world, to become highly visible in the virtual world. It opens up the possibility for self-reflection and learning based on a rapid cycling between the virtual and actual worlds unfolding together in a dialogical relation—the spiraling, retroacting loop, now recognizable pattern. Lastly, a capacity for *mediating ecology* emerges, where thickly-constellated entities become informational mediator beings, with a self-organizing life of their own, generating new co-creative interventions in the actual world. Appendix E steps through the approach’s development in order to understand the thinking behind it.

Knowledge commoning opens the possibility for wholeness-aliveness to unfold regeneratively in a more-than-human-social-world. Indeed, we can say it is regenerative in multiple, complex ways: self-knowledge (re)generates thickness of entities-in-relation; knowledge is (re)generated about commoning in an already-shared reality; and the will for collectively caring for regenerative knowledge is (re)generated.

Appendix F looks at the design of a working prototype, the Regenerative Knowledge Commons, in order to demonstrate the role of knowledge commoning, where we can put the living soil we’ve arduously built, to work via a concrete example.

### **Implications**

<sup>23</sup> This term is inspired by the more common term, digital twin, which in this case unfolds both in the noosphere, as well as, online.

We are all that: undivided wholeness permanently reorganizing, blossoming into regenerating whirling worlds, a pluriverse growing conscious of itself. The fruit of self-knowing that which holds, the hopeless fall, the meaningless abyss, the existential gamble, also holds the potential, the seed, the promise of radical participation in an already shared world. In the unfolding meta-narrative where humans have an essential role, we discover our fullest selves. We discover that caring for all we are, is our inheritance from a universe-of-complexity.

Stepping back into the wholeness of all we are implies a radical de-centering. We've faced this before as humans: sacrificed earthly for heliocentric, heavenly for egocentric, can we let go of our own centrality for the sake of all Life?

The meta-narrative of nested wholeness takes on a further dimension: aliveness—a pluriverse of aliveness at every step in an unending process. Our de-centering is not a relinquishing of control of something external, it is a letting go of the illusion that there is anything external at all. Radically participating in self-organization implies (re)organizing ourselves, a (re)polycentering, which requires locating our own radically-authentic centers, so that we can safely let go of the boundaries we so adamantly defend. In so doing, we find our boundless<sup>24</sup>, permeable selves melding into a vast, messy, many-centered thickness of relation.

As the meta-narrative unfolds, we discover selves capable of opening up into unnoticed, uncontested spaces, where new pluriversal worlds within worlds can be conceived and birthed into reality. These are still imaginal, virtual, liminal and therefore ungoverned spaces, outside of heavily-guarded, bounded contexts we currently inhabit. What do we bring with us? What do we leave behind?

As we enter as-of-yet uncontested spaces, we notice they are also soilless. And, we have so much shit that doesn't serve us, serve life in its ongoing regeneration, except as compost. In this way, no world gets left behind. We realize we need all of it to build new soil here. The boundless wisdom Edgar Morin seems to have tapped into upon discovering RE, not as a prefix but as a paradigm, is mind-bogglingly ironic. We are discovering that we are RE. HeRE we aRE. Being RE, implies that the pluriversal soil we are building cannot just be theoretical, if we really want a pluriverse as our shared REality (sorry can't REstrain myself).

It begs the question: What is a pluriversal world worth to us? Are we willing to lay it all down? To let go of everything we hold so rigidly? To let what is no longer alive, die so that nested, relational aliveness of Life may grow in its place. This is the ultimate commoning. The degenerative, all-consuming, less-than-human, one-world world, relentlessly-invasive colonizer of fragmented minds has no place to root in a soil impregnated with wholeness-

Boundless only in the non-local, nontemporal, undivided wholeness field - bounded as embodied organisms embedded in ecosystems on a finite planet.

aliveness. A wholeness-aliveness at the very core of who we are, that recognizes itself at every step as we REplace ourselves.

As we engage in a struggle to regain our own wholeness-aliveness, we can savor what is wanting to emerge: a pent up universe-of-complexity raring to pour forth and express itself in the genius loci of each place, through each of us, no matter how heavily disturbed. The fabricated, one-world, less-than-human-social-world (physical and psychical) is impeding the flow of undivided wholeness, it is uncondusive to what wants to continue. Our work in this sense is one of planetary acupuncture, intervening to remove the blockages of what no longer serves an already-shared reality.

The aspiration of collective caring, as fully-humanized dimension of an already-shared reality, has given us license to construct a wildly-comprehensive meta-narrative, that as it unfolds, brings greater clarity, greater differentiation, greater capacity to know where, when and how to intervene nodally. From the start, we posited the notion of self-organization as grounded in a bioregion as place-holder for commoning. As we immerse ourselves in this virtual journey, we moved through several ripples of transformation: first, the promise of radical participation, a human-social-world widening into the latent potential of self-organizing in a more-than-human-social-world, whose further widening opens to the possibility of regenerative commoning deeply rooted in place.

We are arriving someplace just beyond the tragic paradox that as creators of the idea of nature, we become destroyers of what that idea represents. Perhaps it is in the very act of representing that we become, what Fernando Pessoa calls 'parts without a whole.' Virginia Woolf once said "words belong to each other" and we can now say, worlds, too, belong to each other. As we struggle to liberate ourselves from paradigms that no longer serve, a capacity to deepen, animate, complexify, articulate living structure as common ground a living, thriving human-social-world, is arising out of, and integral to, an already-shared reality. What we've experienced together here through this paper, is just one attempt to do just that. I hope it inspires more.

## Appendix A

### Articulating a Meta-narrative: The Self-Organizing Universe-of-Complexity

“The human adventure had long been imagined as a kind of island in the sea of nature” and no one has done more than Morin<sup>25</sup> to recast it as a ‘peninsular’ adventure (Manghi 2006:61). Here we explore how Morin’s principle of complex organization forms a connective tissue bridging continents of knowledge about what is human to everything else otherwise disjointed by Western science.

Framing. *Physis-Bios-Anthropos*<sup>26</sup> is Morin’s meta-framing for navigating undivided wholeness in a Universe-of-complexity (1977). It orders reality into successive emergences of irreducible originality—worlds—each simultaneously identifiable with, yet differentiated from, the previous originality that unfolded it. Rather than competing on the same plane, every successive world opens itself to own uncontested space to develop and differentiate. This layering produces worlds of worlds of worlds, each with their irreducible originality, weaving themselves into a deeply nested Universe-of-complexity.

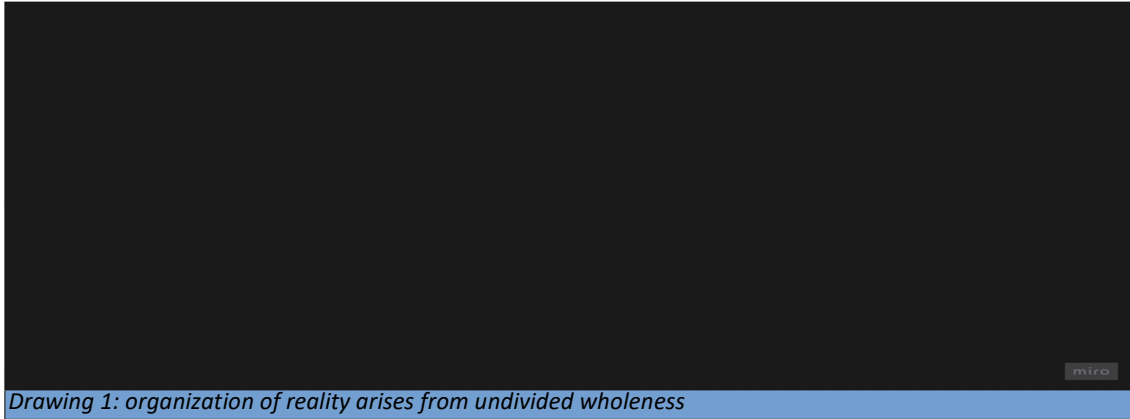
From an ocean of wild energies, two improbable and unsuspecting currents cross each other just so and swirl into one whirling world of contrary motions wrapped into each other: one motion, we can call it the solitary, expanding outward, unfolding in what would be an otherwise unfettered dispersion; the other, the solidary, looping back, enfolding and retroacting on itself, countering the first as it bends towards a probable center. Nearby particles foaming into existence just then are drawn into the vortex and thrown into contact with each other, into the heat of agitation. Almost all particles repel and move on, a select few stay, eventually two hold together. This first self-organizing interrelation—what we know as hydrogen—the first of many that set into motion the nature of how our Universe-of-Complexity would continue to unfold.

Stepping through the framing gives a sense for how deep the roots of commoning run.

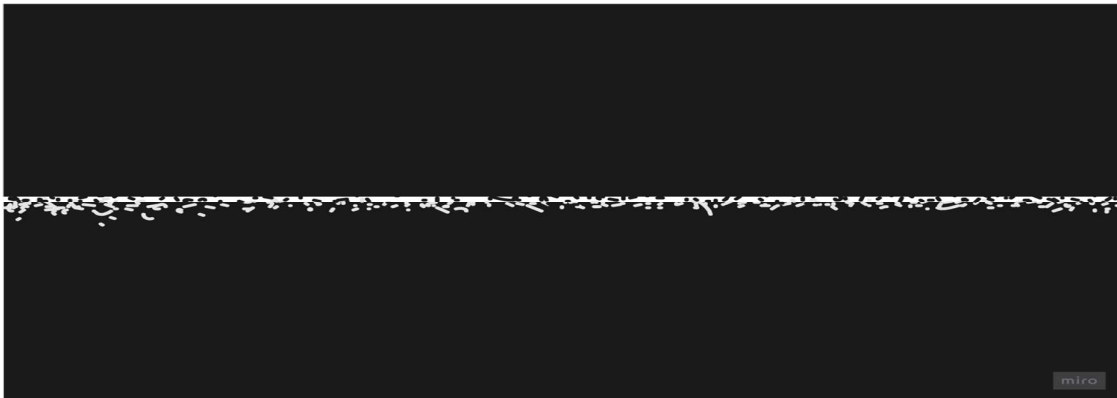
<sup>25</sup> Referring first to *Paradigma Perdido* (Paradigm Lost) and subsequently with Method.

<sup>26</sup> Morin uses Greek terms here as container for complexified, deeper meanings inferred from their roots and enhanced with current insights.

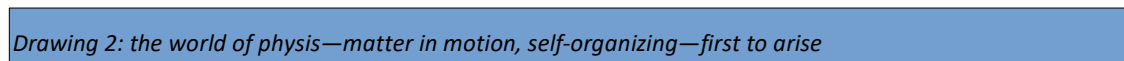




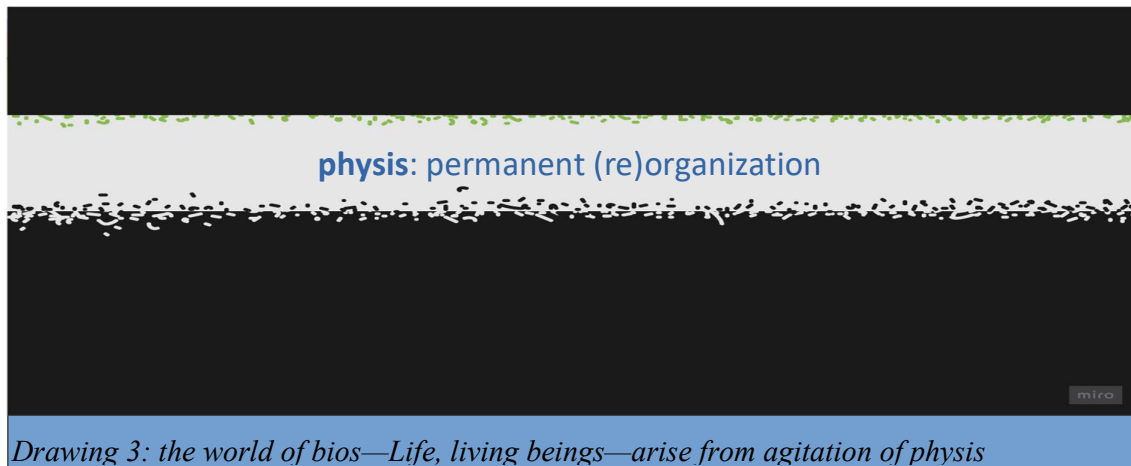
Physis<sup>27</sup>. The Cosmos, the most “original” originality we know of, emerges from an undifferentiated ground of undivided wholeness. This now-differentiated, ephemeral being—the wild vortex of order-disorder—establishes the primordial pattern of organization, Physis, guided by a defining spiraling movement we encounter repeatedly at every succeeding scale of organization. From this world, every succeeding world receives the gift of permanent reorganization.



Permanent reorganization of Physis continues incessantly to produce beings: at the level of galaxies producing suns and swirls of solar systems and at the level of solar systems producing swirls of planets. Spiraling patterns of fire, wind, water shaped the surfaces of planets. On one planet, at least, elements forged from our Sun organized into the swirling motion of molecules, that in the agitation of worlding, made the improbable leap.



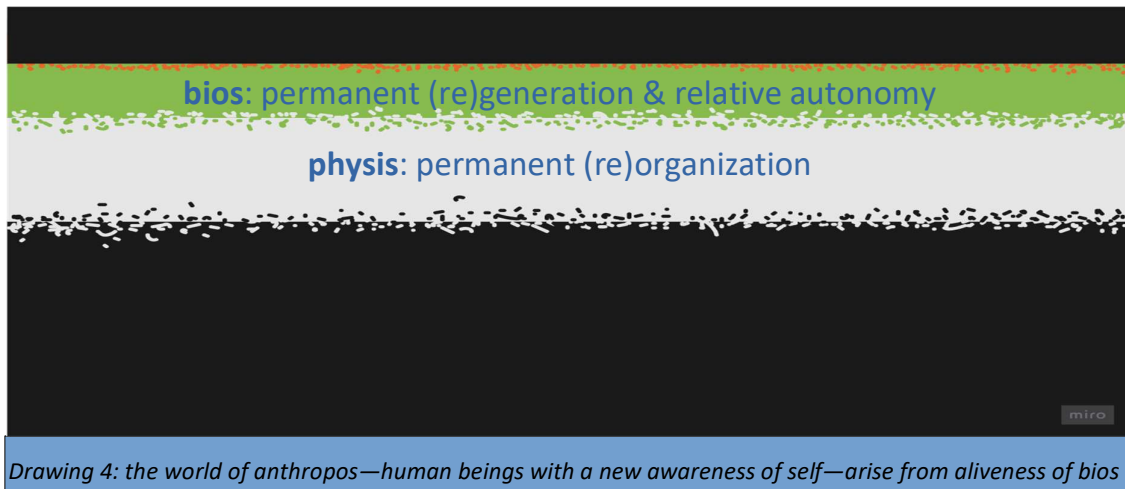
<sup>27</sup> From the Greek, meaning matter-in-motion, infused with Life energy.



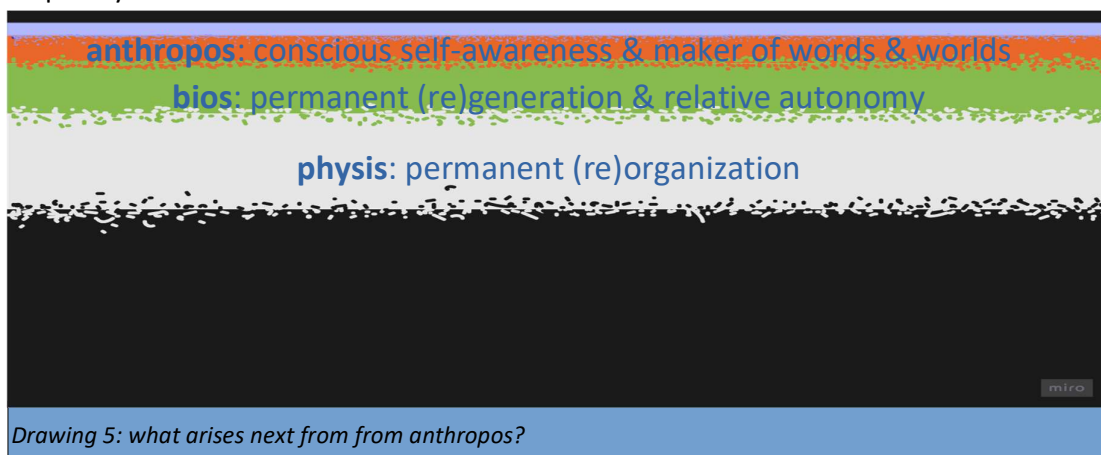
*Bios.* Morin (1980) recounts how Life emerges as a new originality of a Physis in permanent reorganization. The continued interplay of order-disorder already in motion continues in Bios, but now as a more nuanced whirl of opposing currents: genos-phenos, the genetic and the phenomic. Genos, transforms the gift of permanent reorganization into permanent regeneration—Life learns how to continue itself indefinitely: immortality. It develops the capacity for memory encoded in language that enables it to produce itself, via reproduction an extraordinary myriad of being-forms at every scale within its range. Life also learns to restrain itself from indefinite growth: mortality of its phenomic beings. Phenos produces a being, whose increasing degrees of autonomy are tempered by increasing dependency on its larger whole: every being must work to draw energy and information from their ecosystems or perish. The price of Life is an individual life (and death), so that Life at the next level up, and on the whole, may continue.

Life introduces the capacity for commoning—where the collective care of the whole, is the all-encompassing purpose of the parts-in-relation (author's interpretation). The essence of Life's ability for commoning is found in the scalar complexity of nested relations<sup>28</sup>. Here too, in Bios, from agitation of autonomous phenomic beings caught up in existence, from the profusion of complex relation required for commoning, Life makes yet another improbable leap: Life becomes aware of its own awareness (Morin 1980).

<sup>28</sup> The same relation that is antagonistic at one level (predator-prey dynamic), is concurrent at next (species self-selection) and complimentary at another (ecosystem). Commoning is also communing and strategies abound: from unicellulars to nested-cellulars (procaryotes) to multicellulars (organisms) to multi-multicellulars (societies), every evolutionary jump in complexity is a jump in commoning and a corresponding jump in the capacity for awareness of self (individual subjectivity, interiority) and of others (alterity, exteriority) required for it.



Anthropos. All the mysteries of the universe-of-complexity seem to gather in us. We are a pluriverse of limitless diversity and possibility. Montaigne recognized that each human being carries in them, the entire archetype of the human condition. Morin (2001) explores that vast complexity of what makes us human.



We are physis (physical and metaphysical), bios (living and animal), and anthropos (meta-biological). We are a trinity of trinities: individual-social-species; brain-culture-mind, reason-affect-impulse. We are one, within our shared human experience, and we are multiple, in diverse ways. We are objectively singular subject and subjectively multiple, both the internal ecology of personalities, and the continuous 'I' and discontinuous 'me'. We are mind that stretches the limitless human spirit well beyond brain, but rests in its extraordinary capacity. We are the dual nature of homo sapiens-demens—the dance of order-disorder manifested as wisdom-madness swirling within each of us—at the core of our being. And beyond our duality, the: “affective, ludic, imaginary, poetic, prosaic, ... [the] hysterical animal, possessed by his dreams and at the same time capable of objectivity, calculation, rationality, it is that he is homo complexus.” (ibid:158).

And, he would say, we are more than this.

We are deeply social in that we carry: our archaic nature where everything we share as human emerged, the extraordinary breadth of culture, expansive dominant presence of the 'social megamachine', and an unleashing of ten thousands years of history in fits of progression-regression. We are now comprehensively planetary, a force of nature to be reckoned with. We are both how we conform to our reality and invasive makers of worlds, inextricably intertwined with what is to unfold.

## **Appendix B**

### **Thick Descriptions: Going Deeper into the Workings of the World**

This appendix serves to deepen our images of the workings of the world above. They can be read straight through, but make more sense when followed as links as an extension of the flow of the main narrative.

#### **B1. Already-Shared-World-of-Experience**

I suggest that a human-social-world capable of commoning arises only when we experience and participate with universe-of-complexity as it is—an already-shared reality. The universe-of-complexity, filtered through the prism of a world-of-experience, is what brings forth some version of the explicate human-social-world. Therefore, the relation applied consciously can serve humanity in the ongoing process of bringing a different kind of world into existence. Morin admits as much:

“What is going to interest me is not the "novel" of the Universe (even though the Universe, in becoming a story of chance with suspense, has henceforth its incontestable imaginative dimension); it is the conceptual, theoretical, even logical and paradigmatic choices which, after the collapse of our world, are going to permit us to conceive a new one.” (1977:42)

#### **B2. Radical Participation**

Here, I summarize Abram’s thick description, inserting the language we’ve developed this far where applicable.

Each thing expresses undivided wholeness in its own unique way. Existence requires continual reorganization. Being is doing, no thing is utterly passive. All things, regardless of their degree of noticeable animation, participate in the ongoing emergence of reality. Speaking of things as animate, opens the potential of interaction on equal terms, allows for explicit continuity, situates and realigns the human within the sensuous enfolding biosphere.

“We are bodily creatures that must die in order for others to flourish [commoning]... But it is this that we cannot bear. ... [the] utter dependence upon a world that can eat us... modern humanity is crippled by a fear of its own animality [relative autonomy], and of the animate earth that sustains us.” (Abram 2011:79).

Our artificially-induced, fear-based pathology of separation formalized via “detached stance proper to science is itself dependent upon a more visceral reciprocity between the human organism and its world,” (ibid:83).

### **B3. Constellated Differentiation**

We can image wholeness, as a movement working from outside-in, revealing purpose via its nested identity as a part-in-relation within a larger whole. Similarly, we can image aliveness as a movement working from “inside, out” from an essential core, where a patterning of web-like relation imparts meaning. What emerges is a centeredness where purpose and meaning inter(retro)act on/with each other toward emergent potential. Likewise, we can image differentiation as a constellated phenomena, one that is at work within a center, but also amongst a constellation of individuating centers drawn to each other for a shared purpose: transformative change. A collective process that begins with self-actualization, but fails to effect a change in the system, without a constellation that is likewise differentiating into a larger whole. This constellation working to transform itself into a new version of an even larger whole, becomes the transformation sought: system actualization.

In a participatory universe, what doesn't differentiate at any particular scale of complexity is made redundant, is blocked from belonging or radically participating. Sound familiar? We can also the paradigm of simplification at work to produce a global sameness of an externally imposed order that squelches diversity in favor of uniformity. Disorder, then tends to be reactive and conforming to order, instead of existing on its own terms. We image this in order to generate the will to understand how to make room for a polycentric, pluriversal self-organization to unfold into being.

### **B4. Readyng**

Theories of change are often inscribed with a ‘tautology of the familiar’, the habitualization, that in the name of change perpetuates the same prior conditions that required the change. In her words: “the whirlpool of spinning epistemological repeat... tautological bondage... the knowing that prefers what is known.” (Bateson 2022:992). “What if, instead thinking of a theory of change ... the focus instead was placed on the way in which a system becomes ready for undetermined change? Can unforeseen ready-ness be nourished?” (ibid:990) Unforeseen change is “a saturation of mutual learning between organisms through which pathways of possibility are produced.” (ibid p.990) As Gregory Bateson observed: evolution climaxes when there is a “... ecological saturation of all the possibilities of differentiation.” (Bateson 2002:45).

### **B5. Living Process**

The following is a summary sourced from Alexander (2002b).

A living process generates living structure, adaptively step by step, via structure-preserving transformations. They are structure-preserving because they maintain the wholeness of what was before, while calling forth something new, from what is already there, just not yet seen or manifest. A new coherence, a solidary-ness, is generated from the old. Each next step

forward in a living process, is structure-enhancing, which further differentiates one center and opens new points of relation to other emerging centers.

A phased process, moving forward in small increments, with adaptation possible at each step, that is always governed by the whole, even if only in the shaping of parts-in-relation. The process is governed, guided and advances via the formation of living centers in ultimately collaborative ways, and, always take place in a certain sequence, and whose resulting coherence depends on the accuracy of the sequence. All repetition is based on differentiation parts-in-relation adapting within the whole; all parts that emerge must become locally unique. The formation of centers (along with the sequence) is guided by generic patterns (like genes). Each step and the whole living process is congruent with and governed by feeling: degree of wholeness-aliveness.

### **B6. Constitutive Rules**

In our Universe-of-complexity there are, as far as we know, four basic or constitutive ‘rules of the game’<sup>29</sup>, that guide all interactions and interrelation of how everything will self-organize, become solidary, unfold. We can think of these more so as habits or tendencies that govern the developmental processes that generate living structure (Sheldrake 2010). North American Indigenous traditions refer to these as the ‘original instructions’ for all beings to live by. Constitutive rules serve as a restraining force that funnels potential as it emerges from the undivided flow of wholeness, in order to actualize—perhaps even squeeze—that potential into explicate form. In other words, there are nth potential next steps to be taken in a living process, but only one next step that can come into being. Constitutive rules narrow down the choices as Morin would say, from the generally improbable to the locally possible.

### **B7. Constitutive rules for market economies**

Adam Smith was right to think of the market as a complex self-organizing system, but it is man-made self-organizing system with a historical pathway that could have been different. The neoclassical model of the market is both Newtonian, in the sense that is regulated from the outside via regulatory rules, but is also a living system, with man-made constitutive rules, which guide the self-organization of interrelations and emergence of forms. Constitutive rules are those rules without which there could be no socially-constructed system or game. In a ‘natural’ self-organizing system, constitutive rules are recursive inter(retro)active loops. For human-social-world, these can unfold any number of pathways, producing many vastly different outcomes.

Bjorkman (2016) concludes that humans have a ‘systemic freedom’ in shaping self-organization through constitutive rules and these must be grounded in ‘a bigger common framework’ that generates meaning and purpose in order for all Life may thrive and flourish.

<sup>29</sup> Gravitational, electromagnetic, strong and weak interactions.

In a very real sense, this paper is unfolding a meta-narrative, that both sheds light on the workings of meta-narratives, and can potentially serve to ground constitutive rules that enable self-organization of the human-social-world. Once again, and more explicitly, the aim is for a relational human-social-world to gain the flexibility needed to operate fluidly within an already-shared reality.



## Appendix C

### The Art of Commoning

With this Appendix and the next, we finalize the theoretical soil-building process, with some composting of old concepts of commons, and the adaptive fine-tuning of the notion of commoning in an already-shared reality, one that requires knowledge that is animated and self-organizing.

From Commons to Commoning: Bresnihan (1995+), organizes the thinking around commons into two opposing perspectives—institutional (Ostrom et al.) and social-immaterial. One perspective on the commons is the *institutional, or asocial* perspective, developed by Ostrom and others focused on collectively managing 'Common-Pool Resources' that challenges power of certain dominant metaphors and seeks an alternative to the powerful and reductive narratives of liberal economics, but has failed to transcend key aspects of liberal paradigm, principally the need for external regulation. A second, the *social-immaterial, or anatural* perspective, which steers away from the natural commons and emphasizes social capacity in socio-economic, political, technical and epistemic realms.

Both myopic approaches further deepen a pathology of separation between human and more-than-human social-worlds. We encounter a third reconciling perspective, which serves to pull the first two into an organizing spiral: commoning, where radical participation reemerges as collective caring. Commoning has no singular focus on land, knowledge, or rules but is concerned with how these are cared for collectively. Its domain is partially overlapping worlds of humans and more-than-humans as inseparable and irreducible relations, hence the continuous verb 'commoning.' Commoning encompasses various emergent and abundant fields of empirical and theoretical inquiry that shift their attention towards relata, the relations that constitute our world in order to disrupt human-centric world-making. The notion of relata is embedded in the roots of the word commons—'com' (together) and 'munis' (vocation)—signifying a call to radically participate in 'thick' trans-specie social ecologies of 'entangled subjectivity' that requires the "messy, necessarily incomplete, give-and-take that inheres wherever humans and non-humans (partially) rely on each other." (Bresnihan 2015+:7).

Bresnihan (1995+) exploring this notion of caring as the underlying ethos of commoning, implied at the intersect of human and more-than-human worlds. He cites a purposefully ample definition of caring as:

*... everything that we do to maintain, continue and repair 'our world' so that we can live in it as well as possible. That world includes our bodies, ourselves, and our environment, all that we seek to interweave in a complex, life sustaining web. (ibid:8)*

He emphasizes that this implies an ongoing negotiation, which requires continual knowledge-making as key to unfolding relational interactions.

Knowledge-as-Commoning. Knowledge-making—our capacity for articulating the less-than-articulable-world of unpredictable, complex interactions—is essential to commoning. A more-than-human world is simply inaccessible to technical knowledge. Amassing fragments of encyclopedic knowledge, just won't do, unless we intend to habitually reproduce a fragmented world with a minimal degree of aliveness. Knowledge-as-commoning unfolds with the emergent character of practical engagements that bind beings together within an enmeshed mutualism of an already-shared reality (ibid). What is being called for is relational knowledge of a continuous world, where apparent discontinuities mask underlying processes of renewal and regeneration<sup>30</sup>. To get a taste of this, we return to the thinking of Edgar Morin.

Regenerative Knowledges. According to Morin (1977), we can understand knowledge as a product of psychical order produced by an observer as they make sense of order-disorder from the physical world. Any gain in psychical order, allows one to 'complete, enrich, indeed complexify' one's world-of-experience.

"While the observer measures the real, the real reveals the measure of the observer's mind," (ibid:359). What is significant here, is that there is principle of physical-psychic equivalence in which ideas are 'informational mediator beings' that have a central role in:

communication and translation from physis and psyche and inversely; as with everything which is translation, ideological operations are subject to error; certain even are nothing but errors... But noological beings are as indispensable to our minds as the bacteria of our intestines are necessary to the transformation of nourishment... (ibid:361).

Ideas are a co-creation between reality and minds, whose informational character limits us to knowing reality only indirectly via the interpretation of a 'universe of messages,' a process prone to extreme error. Morin observes that an "exhaustive observation, requires infinite information... [but] Knowledge carried to the absolute is self-destructive," (ibid:363-4). The key to address noise in our interpretation and organization of reality comes not from the encyclopedic accumulation of static information, but from what I am referring to here as a regenerative knowledge generated by an active relation between information with social praxis.

Morin unleashes latent power trapped within the term *en-cyclo-pedia*, setting ideas as mediating beings into motion: *cyclo* emerges as rapid, recursive cycling of theory-praxis; revolving, sifting, agitating enabling idea beings to world together in solidary relation while errors, fall through, eliminate themselves organically; and, *pedia*, unfolds as forward-moving

<sup>30</sup> This is consistent the work of thinkers such as Sophie Strand on interstitial intelligence and Nora Bateson's work on transcontextuality of warm data, who advocate for a regenerative knowledge one that unfolds at the margins between overlapping worlds-of-experience.

insight, reflection, learning, evolving. This realization is a game-changer for our approach to knowledge commoning.

## Appendix D

### Differentiating Bioregion as Transformative Ecosystem

In our effort to put into praxis knowledge commoning, we find it necessary to enrich—further differentiate—the concept of bioregion. To do so, we introduce the term *transformative ecosystem*, a liminal space where *communities-of-place* and *communities-of-practice* (terms explained below), two distinct entities on par with each other, can inter(retro)act<sup>31</sup> for the purpose of commoning. Although this language was non-existent then, it is an outgrowth from the more general idea of bioregionalism, born of converging movements of conscious awareness (e.g, indigenoussness, environmentalism, deep ecology, back to the land) that surfaced during countercultural revolution of the 1960-70's in North America. The following captures the essence of the thinking from Peter Berg, one of the founders of bioregionalism, as reflected in Glotfelty & Quesnel (2015).

A bioregion extends from, and reimagines, the ecological concept of habitat, a place where humans fit into, became a part of, evolved along with the aliveness of complex ecological web of a given place. The aim of bioregional paradigm was/is to counter colonial and industrial mass dismantling of ecosystems and displacement of traditional cultures by providing a basis for an ecological identity at the center of what it means to be human. Contiguous with this ecological identity, is the responsibility to ignore strict and arbitrary political boundaries imposed and enforced by “power-hungry entities that make decisions in faraway places.” (ibid:69)

Bioregioning. Bioregionalism reawakens self-organizing of the human-social-world into places whose boundaries are alive, permeable, “fluid, dynamic... negotiable to diverse groups of local people ... enact[ing] their imaginaries,” (Lockyer & Veteto 2013:9). Bioregioning provides “... a language for organizing processes that will unite people in enacting [it].” (ibid:10-11). This becomes evident through the work of Thomas Berry (1988), who further develops the notion of bioregion as the context for the unfoldment of an already-shared reality.

... for us as humans to join the earth community as participating members, that we foster the progress and prosperity of the bioregional communities to which we belong. ... the ever-renewing processes of nature ... [and] full diversity of life functions [are] carried out ... as a community that includes the physical as well as the organic components of the region. Such a bioregional community is self-propagating, self-nourishing, self-educating, self-governing, self-healing and self-fulfilling. (Berry 1988:2)

In this context, the role of the human becomes ‘conscious celebration’ of the unique qualities of the universe-of-complexity wanting to continue unfolding from each Life-place, which due

<sup>31</sup> Inter(retro)act is a term introduced by Morin (1977) to indicate a recursive loop, where distinct yet inseparable terms produce each other; for example: order-disorder. These are not closed cycles, but emergent spirals.

to their overwhelming intersection with the human-social-world, can no longer do so without our collective caring.

Place-sourced Commoning. Here, we take the opportunity of formalizing the concept of communities-of-place. The term transcends locality by referring to the potentially-transformative activity of geographically-proximate centers, differentiating together for the purpose of commoning (Maida 2019). These can exist at multiple scales, intersect, overlap freely, and morph according to the density of interrelations that make them solidary at any moment/point in space-time. In every *here*, place becomes a local stand-in for an unfolding universe-of-complexity. These more-than-human 'networks of emplacement that make life locally possible' (De la Cadena quoted in Bresnihan 2015+:13) where commoning must emerge, if it is to be *place-sourced*<sup>32</sup>. Communities-of-place can serve to collectively embody the essence of their places, feel into what brings further wholeness-aliveness at each self-organizing step in an unfolding living process.

Transformative Ecosystem. The potentially-transformative activity in Communities-of-place would likely dissipate, if they could not draw new energy and information from the outside world. Communities-of-practice, via their role of caring for what works well in varying contexts in a specific field of practice cultivated by respective practitioners, serve as conduits for translocal learning. These become counter-references to each other in every dimension of Life consistent with "world making that cultivate[s] 'power with' ... the more-than-human world," (Puig de la Bellacasa quoted in *ibid*:14). When each entity is aware of their relative role, function, and place within the ecosystem, they can constellate together co-creatively to have an intentional effect on the system they are seeking to transform.

We might refer to this praxis-based learning as the *world-of-forms*, precisely because it abstracts patterns from the world-of-experience, in order to transcend the inherent uniqueness of diverse communities-of-place. It is precisely the rapid cycling interactions between place-sourced worlds-of-experience and abstracted world-of-forms, that lead us to the propose that transformative ecosystems can indeed lead to self-organizing transformations in human-social-worlds favorable for commoning.

<sup>32</sup> Place-sourced is a principle guiding concept found in the work of regenerative development practice as found in Mang et al. (2016).

## **Appendix E**

### **Case Study: Development of the Regenerative Knowledge Commons**

This Appendix describes, in parallel, both the process of design and development of the Regenerative Knowledge Commons (RKC), as well as, the features that emerged in the process.

#### **Open-Modeling a Pluriverse**

In my experience, most models are static representation, the better ones consist of dynamic simulations, none were remotely adequate for imaging a polycentric, meshwork of extraordinarily-diverse, infinitely-nested and messily-arranged self-organizing totalities, whose vague or uncertain boundaries overlap and bleed into one another. My research was requiring of me a wholly-different approach to ‘modeling,’ one that could come to Life, to a universe-of-complexity, on its own terms.

This demanded at the very least, that whatever approach was capable of integrating the Seven First Principles<sup>33</sup>, which are key to intervening regeneratively with living systems. This was a tall order: it had to work with wholes, each with their unique essence and potential, allowing wholes to be nested and radically participate in larger wholes, to relate to themselves and each other as they differentiate (individually and collectively), all within the larger process of system transformation. An approach that would require minimal constitutive rules at the outset, and invoke maximal self-organization as it came to Life. In other words, what my research was demanding of me was an ‘open’ approach to modeling, one that would allow for living structure to unfold and self-organize in unexpected ways. Needless to say, I found nothing like this approach, I had begun referring to as open-modeling, existed.

As Life would have it, myself and colleagues were tasked, in the context of two related EU projects<sup>34</sup> we were partnering in, with designing a system for participatory action research and mapping of potentially-transformative activity in bioregions, which we translated to mean knowledge commoning via an open-modeling approach. The open-modeling is now being tested by participants using the RKC prototype (see Appendix F).

#### **Noetic Twinning**

Building on the approach of open-modeling, what emerged from our design efforts was a virtual environment for knowledge commoning with the capacity to function as a noetic twin

<sup>33</sup> Seven First Principles, guiding principles of the Fourth Way School, embody the dynamic of a differentiation-based development, we can sum them up as follows. Every being is a whole, whose source is undivided wholeness, endowed with a wholly unique essence, and with the potential higher-order development via further differentiation of that unique essence. This development pivots on the notion that every being is a nested whole, whose differentiation is simultaneously, dependent on the differentiation of larger wholes and, contributes nodally to the differentiation of those larger wholes.

<sup>34</sup> Community Climate Coaches and iACT (Activating Collective Transformation)

of potentially-transformative activity in the human-social-world. We aspired to create a recursive process, one that would enable entire change-maker ecosystems to see themselves, as is, in the messy process of relating, learning, developing, transforming. And, to enable the transformative ecosystems to be seen. This was critical to us, because in all of our prior experience working with would-be change-maker initiatives, the fact that most, if not all, the self-organization consisted of unseen processes (relating, learning, developing, transforming), meant that these processes and their effects would evaporate almost as soon as they came into being. Unless, they could be harvested and translated into continually regenerating knowledge (see Regenerative Knowledges in Appendix C).

### **Mediating Ecology**

In its most basic form, knowledge commoning requires a meta-narrative (e.g. self-organization of ideas in the noosphere); a virtual space for it to unfold (e.g. wiki); and, a minimally-viable set of unique types of centers set in relation to each other (e.g. thinkers, ideas, works), inter(retro)acting according to a set of constitutive rules (e.g. thinkers express ideas via works). The initial constitutive rules are derived from inherent properties and capacities of each type of center. And, new constitutive rules might emerge (e.g. ideas from works influence thinkers to have new ideas) in the process. As relations between specific instances of centers—call these entities—become visible, an ever-changing living structure emerges. The living structure is alive and in-formation, so long as entities are engaged to some degree, in a process of differentiation. The ones that are differentiating in a similar direction and at a similar rate, find each other, coalesce, prepare for change, for their own constellated, nested, and therefore, systemic transformation.

## Appendix F

### Prototyping Regenerative Knowledge Commoning

Appendix F provides a more technical summary of the Regenerative Knowledge Commons (RKC).

RKC Meta-Narrative. RKC is an open-source, living system for knowledge commoning, to be cared for collectively and shared freely. RKC is intended as an active space for practitioners to regenerate themselves, their thinking and practices, to cultivate relations with fellow participants and collectively inhabit the systems they intend to transform and evolve. Indeed, to the extent they intend to transform the larger contexts they are a part of, will generate both value for themselves and others via their active participation.

The RKC is designed to make visible and tangible the constellations of individuals and collectives engaged in transforming their ecosocial systems guided by a regenerative<sup>35</sup> (i.e. living systems) paradigm. These self-organizing constellations occur both locally as Communities-of-Place caring for regenerating a place in all its interrelated dimensions and translocally as Communities-of-Practice (Wenger 1998) caring for specific fields of practice. And, where the local and translocal intersect they form transformative ecosystems. Supporting the emergence, growth, visibility and potency of such transformative ecosystems as they self-organize is the key purpose of the RKC. This depends upon the dynamic, mutually-beneficial interactions of all who participate.

RKC Entity Types. For mutually-beneficial interactions to take place, there must be initial points of differentiation. This is what we call entity types. For the purposes of RKC, we have established six entity types: person, initiative, community-of-place, community-of-practice, intervention, and pattern. The following table describes the essence and emergent properties that differentiate these entities from each other and enable them to relate in various ways.

entity type	description (essence)	main properties (wholeness)	relational capacities (aliveness)
<u>person</u>	an individual human being	represent most basic or primary level of wholeness; can participate with relative autonomy;	can <i>associate</i> to an <u>initiative</u> ; can <i>participate</i> in <u>community-of-place</u> by generating <u>interventions</u> ; can <i>participate</i> in <u>community-of-practice</u> by generalizing <u>patterns</u> ;
<u>initiative</u>	a collective of <u>persons</u> centered around some shared purpose that can take	represent most basic or secondary level of wholeness;	can <i>relate</i> to another <u>initiative</u> ; can <i>participate</i> in <u>community-of-place</u> by generating <u>interventions</u> ;

<sup>35</sup> There are many divergent conceptualizations of what the term regenerative means—each valid within its particular context. There is as of yet no shared understanding. Our intention here is that, via RKC, we are able to co-create shared meaning of what it means to be regenerative over time.



	any form	can participate with relative autonomy once at least one person is associated;	can <i>participate</i> in <u>community-of-practice</u> by generalizing <u>patterns</u> ;
<u>community-of-place</u>	a constellation of persons and/or initiatives tending to transformative change, locally, in a place, in constellation of places, bioregionally	can be nested within other <u>communities-of-place</u> ; agency limited collective caring;	can <i>care</i> for <u>interventions</u> generated from radical participation of members within a world-of-experience
<u>community-of-practice</u>	a constellation of <u>persons</u> and/or <u>initiatives</u> tending to transformative change, translocally via a shared field of practice	can be nested within and complementary to other <u>communities-of-practice</u> ; agency limited collective caring;	can <i>care</i> for <u>patterns</u> generalized learning from radical participation with a world-of-forms
<u>intervention</u>	any potentially-transformative activity intended to bring about greater wholeness-aliveness within a <u>community-of-place</u>	has no agency beyond being a vehicle for co-learning;	belong to <u>communities-of-place</u> ; must be <i>assigned</i> to a <u>pattern</u> to generate collective learning of what works in a particular <u>community-of-place</u> and what patterns cared for by <u>communities-of-practice</u> are at work there;
<u>pattern</u>	any recognizable, identifiably repeating form, representative of how we intervene to bring about greater wholeness-aliveness	can be nested within other <u>patterns</u> ; has no agency beyond being a vehicle for co-learning;	belong to <u>communities-of-practice</u> ; will have <u>interventions</u> <i>assigned</i> to it in order to generalize collective learning of what works in a field of praxis across various <u>communities-of-place</u> ;

Entity types are general starting points or templates for specific entities, whose unidual purpose is to differentiate as they inter(retro)act with each other, which as we've been pointing out throughout this paper are two opposing movements within the same relational spiral. Their self-organizing is guided by the capacity of relation inherent to each entity type, or what we've been referring to constitutive rules.

RKC Capacity for Relation. RKC is alive because it is an ecosystem, in the truest definition of the word—a set of relations amongst living entities. The very general framework of constitutive rules that guide the interactions within this complex of relations amongst RKC entities are as follows:

- Persons can contribute to Initiatives;
- Initiatives can support Persons;
- Patterns can shape Interventions;
- Interventions can be used to abstract Patterns;

- Communities-of-Place can share learning about Interventions with Communities-of-Practice;
- Communities-of-Practice can share Patterns with Communities-of-Place.

It is really that simple as a starting position, the complexity comes through layered and overlapping pluriversal worlds of living structures that are unfolding and self-organizing at any given moment. RKC's entities types and their predefined relations (constitutive rules) constitute minimally-viable structures—think genetic coding—that, as in living processes, determine the universe of interactions possible, but not the interactions themselves.

Constellations that constitute transformative ecosystems have no pre-defined boundaries, but are defined by their thickly-centered relations of member entities. This is precisely how the formerly invisible coalescing becomes visible, and moves into being potentially transformational: an ecosystems can see itself taking new form together. In my unfolding story of my bioregional intervention, I believe this noetic aspect, the knowledge commoning, was the missing ingredient in our bioregional capacity to regenerate the conditions for self-organizing to continue with the same degree of aliveness in which it originated.

RKC as Virtual Ecosystem. In line with how we spoke earlier about the virtuality of knowledge commoning, RKC has both a noetic and a technical aspect. The RKC is very much a noetic ecosystem that comes to Life when its constituent entities interact as informational mediator beings, engaged in noetic twinning of their own relevant world-of-experience as would be change-makers. RKC participants make an active choice to participate and to what degree they will participate at any given point in time. They are enabled with the capacity to tend to or care for emerging self-knowledge and their own process of differentiation as change-makers, tend to their relations as radically-authentic participants in transformative ecosystems, and collectively care for the potential learning generated via their conscious interventions.

The RKC is very much also a technical ecosystem in that it runs in a virtual, online space made possible through the use of relational, wiki-based, technology. RKC's operating system is currently built specifically on MediaWiki—the technology behind Wikipedia. This means that each instance of entity is a wiki page that can be cared for and whose content (self-knowledge) can deepen over time. Each entity page is inscribed with relations to other entity pages according to the constitutive rules above. These relations can be navigated internally, as well as, eventually displayed on a network graph. Here change-makers can locate themselves and find each other embedded within the systems they are readying for change. It is very much an open system, because content in each entity page can be linked to externally extant knowledge. And, RKC can be set up to work as a wiki farm, meaning multiple RKC-like wikis can interoperate.

RKC was designed to require minimal intervention and maintenance. Although, RKC can take on a life of its own only if it is co-produced, co-governed and co-utilized to varying degrees by commoners commoning. And, since it is itself a commons, it needs to be collectively cared for by a circle of stewards guiding its growth and evolution as an ecosocial system that strives to reach its potential over time.

RKC as Ecosocial Ecosystem. RKC, above all, operates as a human-social ecosystem; one that exists in so far as it is an enabler for regenerative commoning. We can describe regenerative commoning as the act of reshaping (or in some cases composting) of worlds built exclusively to serve dominant degenerative paradigms, so that they can gracefully reinhabit a much more comprehensive, already-shared reality guided by a living systems paradigm. This is the work of transformative ecosystems in particular, who learn via the rapid-cycling, at RKC's core, enables commoning-as-knowledge between communities-of-place generating worlds-of-experience and communities-of-practice generalizing worlds-of-forms.

RKC ecosystem can be found at <http://regenerative.wiki>.

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<sup>36</sup> '+' symbol is to indicate this work was published after 2015; exact year unknown. I am working from a draft copy of a chapter published in 2015, however it makes references to works after 2015.

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