

# **NURTURANCE SPACES: TWELVE PLACES TO INTERCEDE IN APITHOLOGY SYSTEMS**

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## **ABSTRACT**

One of the most powerful contributions to the systems discourse has been the concept of systemic leverage points. These places of counter-intuitive focus enable opportunities for change in situations where significant change might otherwise not be possible. The identification of systemic leverage points provides the means for small interventions to trigger larger-scale transitions in complex systems. On rare occasions this can result in the emergence of entirely new paradigmatic structures.

In counterpoint, the discipline of apithology is used to provide a systems analysis of generative systems, where new emergences are the norm, instead of the exception. Rather than places of resistance, the systemic features of primary interest are the sources of contributions. These are the specific locations of causal effects that provide generative functions for whole of system well-being. These features are not usually identified (or identifiable) by other epistemological inquiries. The discipline of apithology examines, not for the pathology of loss, but for the presences of the necessities of sufficiency in systems of generativity. This acknowledgement of a distinct difference in emphasis presents the question: what is the equivalent concept to ‘leverage points’ in apithological systems theory?

To examine this question, a wider inquiry was made into the causal relations of systemic dysfunctions in macro-scale sustainability transitions. Various causal loops were identified in a multi-tiered system of pathological conflicts and disjunctions. From this analysis, a map of causal relations was developed to examine, at a higher-order of abstraction, the relationships of apithological contributances. This analysis was specifically done within the discourse of apithology theory, which looks at the humanity-level impacts of causal relations in systems of conceptions. This provides a general systems approach to the ecological relations in the ontonomic domains of human conceptions. That process generated twelve distinctive and inter-related junctures of significance.

In this paper the twelve primary junctures identified for complex apithology systems are explained in more detail. First, the specific definition within apithology theory for each juncture is distinguished from the common usage of those descriptive terms. Second, the significance of each juncture is contextualized by the causal relationships of its adjacent junctures. Third, pre-existing contradictory assumptions are qualified with reference to the work of relevant systems theorists. Lastly, the implications of the inclusion and omission from consideration of the twelve junctures are described in an apithological systems inquiry.

The result of this paper is the portrayal of a landscape of systemic relations for whole-of-system health. It discloses the complementarities and contingencies in a generative ecology of contributive intentions. The unexpected finding is that, unlike leverage points, the ‘spaces for intercession’ are actually numerous. The closing reflection is how valuable contributions to systemic health might be found possibly, less in levers of change, and more in the contributive nurturances of new systemic becomings.

Keywords: general systems, apithology, leverage-points, sustainability, thriving

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#### **Introduction**

The inspiration for this paper is attributed to Donella Meadows' (Meadows, 1997, 1999) hallmark paper on '*Leverage Points: Places to intervene in a systems*' (and her life's work, contribution and inquiry). Like many sustainability practitioners and theorists, I found in Dana Meadow's provocative, expansive and confronting work a profound invitation and personal confirmation for the reasons for deep humanitarian caring (Meadows, 1990). The *Limits to Growth* studies (Meadows & Meadows, 2007; Meadows, Meadows, & Randers, 1992; Meadows, Meadows, Randers, & Behrens, 1972; Meadows, Randers, & Meadows, 2004) not only portrayed humanity-levels sustainability systems in a new light, they also examined the essential operating parameters of a 'world-system'. This led to the prospect of world-models for a global equilibrium in contrast to (what appeared to be) runaway scenarios of exponential growth (and decline). From this base, the inspired analysis by other multi-disciplinary visionary contributors, such as Ernst Schumacher (1974, 1977, 1979, 1997), the Erlichs (Erlich & Erlich, 1970), Buckminster Fuller (1969) and David Suzuki (Suzuki & Taylor, 2009) has led to the emergence of a modern, informed, passionate global sustainability discourse.

At the time of writing *Limits to Growth* the cultural resistance to change must have been immense (Meadows & Meadows, 2007). Following an era of rigid social structures, big changes were needed and small interventions were proposed. The resulting effect to be celebrated now is that, rather than a few small interventions being necessary to shift static political paradigms of perverse degradation, there is a global movement of multiple actions and contributions of expanding effectiveness. Many of these new and transitional emergences will be profound and far reaching in their effect, whether in technology (Brown, 2006, 2008, 2009), economics (Hawken, Lovins, & Lovins, 1999), social theory (Westley, Zimmerman, & Patton, 2007) or social philanthropy (Hawken, 2008). To extend on Dana Meadows turn of phrase, many shifts in many things might now 'produce big changes in (almost) everything'.

The effect of this increase in the scale and diversity of systemic change activity provides an almost 'ecological' complexity to the present interventions for sustainability. The significance of leverage points, to lever a system resistant to change, into different phases of perturbation might now possibly wane, as the global world-system is already in a state of continual perturbations. We might also wonder if in the future, rather than being focused on the revolution of paradigms, we might move more towards the harmonization of revolving paradigmatic contributions. In an ecology of contributive ways of knowing, for different structures, in the conflicting strata of humanity level systems, one proposition is that a more 'ontonomic' approach, to use Raimon Panikkar's (Panikkar, 1973, 1995) term, might be needed to nurture the health of the whole. The central premise of this paper examines the possibility for an extension of the lineage of systems sustainability into a contemporary 21<sup>st</sup> century discourse reflecting a possible changing of the paradigms of sustainability change.

#### **Lineage Leaders**

In Meadows' iconic and clear exposition of systemic leverage points she credits Jay Forrester's (Forrester, 1969, 1971) sophistication in noting that a counter-intuitive systems understanding is required for the effective analysis (and resolution) of presenting problems. Essentially, the finding was that leverage points (as opposed to points of fixation, focus or dysfunction) are often not where we think they should be. Also, the level of intervention needed might not be as we imagine

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it. To work effectively with systems interventions a more complex and profound understanding is required. This understanding is informed by more preliminary systems inquiry practices. In recognition of this wider lineage of contributions, to understand the 12 places to intervene in systems (Meadows, 1997) one might also need to appreciate; 11 levels of theoretical discourse (Boulding, 1956), 4 levels of learning (Bateson, 1973), 5 dimensions of organizations (Vickers, 1983), 8 levels of human existence (Graves, 1970, 2002) and 20 forms of living sub-systems (Miller, 1965, 1978) (to name a few). The point is that the informed intervention of the (skilled) systems intervenor requires more than (mere) intuition.

From this platform, the 21<sup>st</sup> century requirement of systems practice is perhaps more now the intuition of a 'systems of systems' composition (Commons, Richards, & Kuhn, 1982). This involves the structuring of dynamic relations between general systems depictions. As an example, Miller distinguishes the distinct forms living systems occupy in levels. Boulding provides the skeletal distinction of the levels of this organization in the process of observation. Meadows leverages changes in paradigmatic preferences to change levels of understanding. Bateson opens inquiry to the inter-relations between levels of learning as a form of evolution. Graves identifies the forms of existence humans occupy in the evolution of meaning. Vickers examines the appreciations needed to truly appreciate appreciative human systems. The combination of these theorist's theories does something quite powerful and remarkable. In following within this lineage of contributions, this paper examines the capacity for systems theory to link the co-contributive contributions of all theorists in enabling the thrivability of a living world-system.

The purpose of the approach described in this paper is to extend on from Meadows' (1999) explicit invitation, which closes her description of effective systemic intervention places:

Magical leverage points are not easily accessible, even if we know where they are and which direction to push on them. There are no cheap tickets to mastery. You have to work at it, whether that means rigorously analyzing a system or rigorously casting off your own paradigms and throwing yourself into the humility of Not Knowing. In the end, it seems that power has less to do with pushing leverage points than it does with strategically, profoundly, madly letting go. (p. 21)

This invited approach, of not pushing on leverage points as places of systemic weakness or vulnerability, but instead to inquire into the potential for the enablement of systemic generativity with paradigmatic freedom, is the express focus of apithology systems theory.

### **Apithology Systems**

The research field of apithology was formed to promote the study of the systemic causes and effects of generativity and growth in living systems (Varey, 2008). As the counterpart discipline to the field of pathology (which examines the systemic causes and effects of dissipation and decline in degenerative systems) apithological systems theory has as its focus the dynamics of generativity and enrichment. The contribution of this paper is to extend the consideration of models of systems interventions to such dynamic systems of growth and development.

Being the study of emergent systems of living potentials, some specific considerations apply in an apithology analysis. Specifically, this field concerns systems that have generative dynamics as their defining feature of interest. Such systems include the germination of a seed, the growth of a child, the development of a society, and the maturation of humanity. Being generative, the observer is in the uncomfortable position of not knowing what the system will become. The theoretical premises of complex apithology systems require the release of static paradigmatic

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assumptions. In one way, the inquiry into apithology systems begins at the point of leverage where Meadows' twelve interventions have already become regular assumptions and techniques for skilful enactment.

As an example, in *Limits to Growth* (Meadows, et al., 1972) it is proposed that the antidote to exponential growth beyond global carrying capacities is the attainment of a new equilibrium. This is defined as 'a state of balance or equality between opposing forces' (p. 171) (i.e. primarily the increase and decrease of population and capital stocks). The additional contribution to the question of the balance between these stocks is the duration of the equilibrium state possible. They consider 70 years (representing the lifetime of a child born tomorrow) as a limit of how far our societal horizons might be 'sustained'. Importantly, in this balancing of the three-fold forces of growth, depletion and duration it is clear that the aim is not one of human stagnation (Randers & Meadows, 1972). Rather than a transition from 'bad growth' to 'no growth' or 'good growth', something different is required in our conceptualization of what it means to be growing-well (Meadows, 1994). It is noted that the equilibrium of no growth in population and the strict management of capital stocks might, at the same time, still enable significant human benefits:

In particular, those pursuits that many people would list as the most desirable and satisfying activities of man - education, art, music, religion, basic scientific research, athletics, and social interactions - could flourish. (Meadows, et al., 1972, p. 175)

It is to this attentiveness on the potential for flourishing that a realist apithology analysis is directed. Meadows et al. (1972) recognize that 'the most elusive and important information' in the limits to growth discussion actually relates to human values. When a society recognizes that it cannot maximize everything for everyone, what choices must it then make? The complexity of the operating values structures (at humanity-level scales) and the capacity for ontonomic choice at smaller scales is one of the primary contributions of the field of apithology. The assumptions of one world, one culture, and one solution can neglect the intricacies of human (and humanity-level) motivations. The brutal reality of finite planetary resources does not eliminate the practicality of working within our psycho-social diversity, as this is what it means to be truly human (at humanity-level scales). It is perhaps a naivety of this one fact (that equity may not involve equality in all human priorities) that is the ultimate limitation of a one-world discourse and its framing of interventions (Ward & Dubos, 1972). This leads to the consideration of how might flourishing be enabled in a dynamic equilibrium that actively enables change and evolution in complementary ways for many human conceptions. It asks the explicit question what is the level of intervention that allows for continuous paradigmatic transformation? It is at the level of analysis of this question that an apithology analysis provides its most distinctive contribution.

### **Apithological Causal Systems Analysis (a<sup>^</sup>CSA)**

To make a contribution in this direction this paper examines a specific situation within one discipline of inquiry for a defined purpose. This situation is to examine the relationship between different spaces for intervention as they contribute to the health of the whole of humanity. Its focus, therefore, is on the thrivability of the human system, as seen in the totality of its coactions. This was done within the apithology systems discipline. This paper is written to facilitate discourse and detailed study specifically within that discipline. The defined purpose of this analysis is to illuminate the inter-relationships between junctures of significance, and more importantly, the implications of their presence and absence.

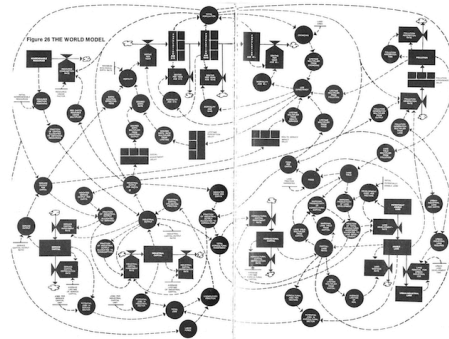
For clarity in the difference in this approach, an apithology inquiry is not descriptive, prescriptive or predictive – rather it is inquisitive. Instead of examining for problems, it models for potentials.

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While an apithology inquiry is not commenced with the premise of the paucity in existing limitations, it is not naïve to the stark realism of the functional operating parameters of a global society. In the ecology of humanity as system of complexity it specifically investigates the *quality* of resultant forms that can be enacted as enduring contributions. The fact of the many ‘growing’ problems is readily apparent. What is of primary interest in an apithology analysis is ‘how’ our growing might be contributive to a collective becoming. Rather than the ‘limits to growth’, this modeling considered the ‘*potentials for growing*’. This involves an evaluation of the health in the growing whole and in each growing part.

Extending on the original *Limits to Growth* analysis, a similar process of mapping causal relations between systemic dysfunctions and contributions was undertaken. In the original analysis by Meadows et al. (1972) (see Fig. 1.1) the focus was placed on the limitations of population, pollution, non-renewable resources, service capital, industrial capital, agricultural land, arable land and the delays in the symptoms of shortages between these systems of pathological exponential growth.

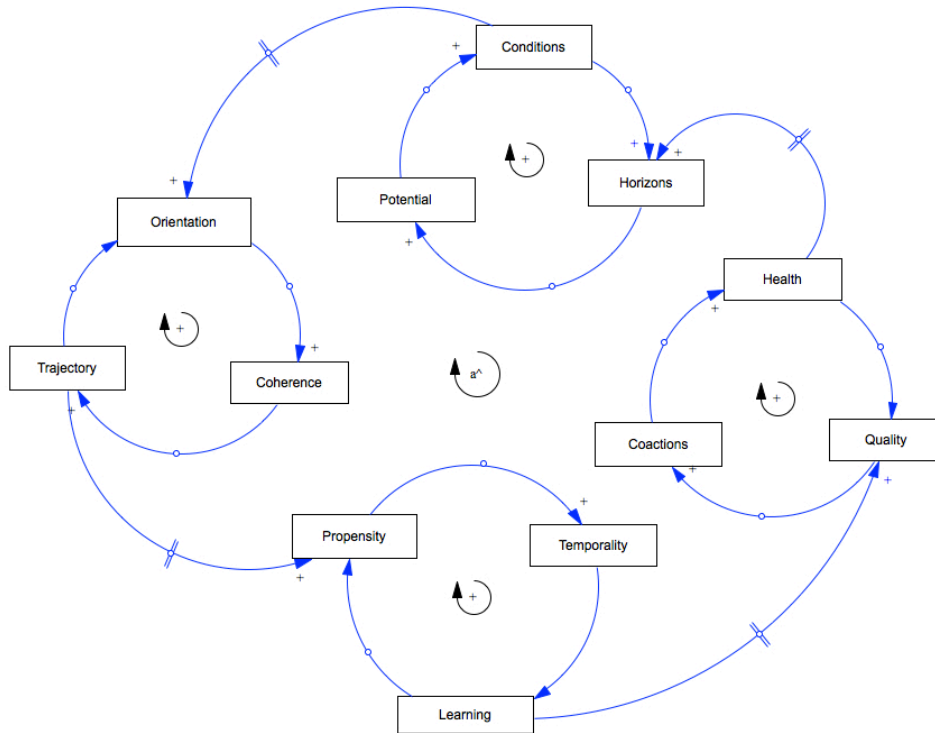
**Figure 1.1: The (Pathology) World Model**



Source: (Meadows, et al., 1972, pp.102-103) (Fig. 26)

In an apithology analysis, the emphasis is placed on the potentials for contribution, creation, connectivity, productivity, philanthropy, innovation and learning plus the benefits of enhancements between the junctures of apithological generativity. Both the pathological and apithological systems depictions have a similar level of complexity. Given the recognition of the systemic dependencies, the more significant question becomes where are the places for effective interventions for humanity-level flourishing? To portray the answer to this question from a different paradigm of inquiry, a simplified depiction has been provided (see Fig. 1.2). Each of the junctures and their inter-relationships are defined and explained in the following sections. This simplified map provides a simple means to navigate the minimal set of these relevant distinctions.

Figure 1.2: The (Apithology) World Model



### Limits to Paradigms

The depicted result of this particular inquiry is the identification, from a further synthesis at a higher level of abstraction, of twelve critical junctures in a systemic description of human generativity. This depiction is applicable specifically (and only) to apithological systems theory. An inquiry into the dynamics of apithology systems is a slightly different (and demanding) systems practice. To access this paradigm some (subtle) paradigmatic shifts are required. Accordingly, some understanding of those principles of practice and its assumptions are necessary.

For example, usually the examination (and remediation) of system pathology involves the reification and classification of problems. The outcomes and resolutions are specifically defined by the resulting absence of an existing state, effect or condition. In apithology systems the premise is slightly different. Instead of the reification of problems, the attention of the observer is placed on the appreciation of the formation of potentials. To do this, a softer gaze is required. The outcome, not being focused on a specific absence, is less prescriptive. The resolution of an apithological question is not to fix a problem by leveraging a change dynamic, rather it is to enable future systemic potentials by altering the conditions of relations. Rather than outcomes being ‘made’, they *flow*. The resulting effect is identified by the continuing and ongoing (i.e. self-generative) presence of an enduring beneficial contributive dynamic.

For this unique inquiry, two specific shifts are identified. The first relates to the concept of ‘limits’. In apithology systems, instead of setting a time limit for the maintenance of the system in decline, the outcome is open-ended. During periods of transition an enduring potentiation continues which actively enhances system stocks generatively. This enables subsequent inquiries

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into new changes of direction which become available at points preceding the emergence of further new systems. For this reason, the limitation of stocks is not seen as a prohibition to new emergences. For such remarkable outcomes to occur there are some precise and significant systemic understandings required. These ‘necessary and (more than) sufficient’ conditions are described in apithology as the ‘presence of presences’. Presences are primarily relevant at the ‘junctures’ of possibilities. The combination of these junctures (in sequence) has a contributive effect. As each is gained, the journey continues, and potential expands. Their omission (or overstepping) involves an interruption (and a discontinuation). The proposition is while each is valuable, their combination enables the invaluable. The concept of ‘limits’ is correspondingly also thought about differently.

There is also a second conceptual shift needed. The nature of the specific type of system depictions used in apithology requires different assumptions about the nature of an ‘intervention’. When intervening within living systems, which have their own natural logics, systemic change often involves alignment with patterns of naturally occurring adjustments. The transformation of apithological systems does require some systemic levers, but mostly systemic *enablements*. These are the spaces created *into* which natural stocks generated might flow. The paradigmatic shift needed is from the preservation of scarcity, to the allocation of abundances. In applying this principle, the primary finding of this paper is that instead of the ‘place to intervene’, what is actually required is ‘*spaces to intercede*’. This novel concept of ‘interceding’ suggests that a more conducive mode of change might be a ‘mediation between’ dynamics, rather than a placing of pressure upon points of leverage. For example, an intervention is often defined as an ‘interruption’ that is intended to ‘disturb from outside’ so as to prevent a continuance. The verb ‘intercede’ (on the other hand) is defined as to ‘intervene on behalf of another’. In apithological systems theory, this other is humanity. In this paradigm, our collective continuance *is* considered desirable. Accordingly, apithology discourse specifically invites inquiry into distinctly humanitarian outcomes. In apithology theory effective systems are, by definition, humane systems. Consequently, an alternative is then offered to the previous premise of the need for ‘interventions’ by imposing ‘limits’ on the human and generative.

### Twelve Places to Intercede

Using these two concepts, being the ‘junctures of contribution’ and the ‘places of intercession’, an explanation of the apithological dynamics for whole-of-system health is outlined. This paper merely provides an overview of this analysis. It offers a summary tour, not a comprehensive explanation. Accordingly, only an introductory description is attempted. The twelve *junctures* identified are:

1. Horizon
2. Potential
3. Conditions
4. Orientation
5. Coherence
6. Trajectory
7. Propensity
8. Temporality
9. Learning
10. Quality
11. Coactions
12. Health

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This concept of ‘juncture’ can be thought of as the bends in a river, or the curves through time, by which a naturally generative system (e.g. a watercourse) moves through a complex landscape of contingencies. These ‘junctures’ are reference markers in a wider flow. The many places between junctures represent slightly different inflection points, ‘spaces of intercession’, that mediate that flow. Reading the following summary descriptions as causal linkages, rather than points of leverage, will assist in the ease of their interpretation and recognition. If in doubt, ‘follow the flow’, while remaining within the paradigmatic premise of the description.

Because of the vastness of the scope, this paper also uses the precision of repetition, where subtle differences between junctures are highlighted by close comparison. For each juncture: i) a definition is provided; ii) its significance is outlined; iii) an assumption is distinguished; and iv) the implications of omission are considered. A summary table (Appendix A) is also provided for ease of reference.

### 1. Horizons

The beginning point of this inquiry is the juncture of ‘Horizon’. This is merely a convenient place to commence. It has no particular primacy or significance, for as we will see, all twelve junctures are mere placeholders on a more flowing pathway of connectivity. The juncture of Horizon has become a convention in apithology theory as a place of commencement simply because this is one of the primary distinctions that the discipline contributes to the systems discourse. In this context, Horizon has a specialist meaning distinguished from its common meaning. In apithological systems theory the specialist term ‘Horizon’ refers to the liminal space, the line of demarcation, between the *abnormal*, the *normal*, and the *adnormal* (Varey, 2008). The Horizon of the system marks the commencement of movements towards pathology and apithology respectively as alternative potentials. Traditionally, ‘health’ is the ultimate condition that can be gained from the remediation (or elimination) of a pathology. This is represented by the restoration of normalcy. In apithology, the Horizon of an inquiry begins with a different assumption. Essentially, the absence of pathology is the state assumed to exist at the commencement and so is not the end destination. From the boundary of Horizon, the actuation of latent potential actually commences.

The significance of this juncture of Horizon is understood by the way it mediates between Health as a system condition and Potential as the resulting actuation. We often associate ‘health’ with a situation of normalcy in the temporary absence of a pathology. In complex dynamical systems of evolutionary potential, Health is, by definition, linked with the concept of Potential. The capacity of a system to actuate that potential is its Horizon of Health. More brutally, a ‘sick’ system is one that kills the potential of future becomings. The concept of Horizon in this context highlights how the Health of a system is connected with the Potential possible. This marks a significant paradigmatic shift in the analysis of generative system dynamics at the commencement of an apithology inquiry.

The assumption challenged by the inclusion of this juncture is that everything that needs to be done must first arise as a problem to be fixed. Many of our fixations are the constructions of our perceptions from a particular value-biased position. Their resolution does not always provide a solution, instead simply masking the higher-order questions. The skillfulness in an apithology inquiry is to initially find that liminal space between the specific and the general, the presenting and the possible, for each specific level of inquiry. This is described best by Kenneth E. Boulding (1956) in noting: “Somewhere however between the specific that has no meaning and the general that has no content there must be, for each purpose and at each level of abstraction, an optimum degree of generality.” (p. 303-304)



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The implication of the inclusion of the juncture of Horizon in an apithology systems analysis is that it establishes, from the outset, a premise of evolutionary change, alteration and difference. Its inclusion marks a different level of *appreciation*. The absence of this inquiry means that the absence of pathology, as an isolated reification, is both the informing ambition and the ultimate potential of all intended actions. This omission results in a *constriction* of the question. The juncture of Horizon sets the premise for a consideration of a wider range in the possible systems of potentials.

### 2. Potential

The juncture of Potential represents considerations of the ontogenic pattern of development of a system in natural unfoldment. While natural systems all release, morph and change into many forms, there is also a notional (and natural) potential that may eventuate for each phase of development. This juncture is simply the concept that things have the potential inherent in their form, which includes their future changes in form. In apithology, the term Potential also has a specific connotation, as many apithology systems are newly emergent. This requires an inquiry into the pattern of that which 'has never been'. For some systems (e.g. social media) these resultant forms may be surprising and appear seemingly unbounded. In others, their presently existing dormant forms might not indicate the resulting inflorescences and their full durations (e.g. a flower blooming, a generation learning). Accordingly, Potential is less what we say it is and is more an empathy with what the system naturally wants to become.

The significance of the juncture of Potential is in linking the Horizon of health at the time of commencement and the Conditions necessary for fulfillment of the possible that is present. Providing more to something, that cannot be more, might be foolish (e.g. agriculture or industry subsidies). Similarly, withholding something, from that which can be more might (in terms of the effect on the actuation of full potential) be seen as unconscionable. For apithological systems, the inquiry into Potential frames the knowing of what is needed in the longer term for effective nurturance.

The assumption that is questioned by the consideration of Potential is that it is always sufficient to simply meet present sufficiency needs. The apithological perspective instead attempts to see the needs of each form, in each circumstance, within a wider ethic of intergenerational caring. In reducing wants to 'meet needs', the needs for nourishment and opportunity also become necessary considerations. In the words of humanistic psychologist, Abraham Maslow (1968): 'That is, general-illness of the personality is seen as any falling short of growth, or of self-actualization, or of full humanness. And the main illness is seen as the frustration of basic needs... and of the tendency of the person to grow in his own style and at his own pace' (p. 215).

The implication of the inclusion of Potential in apithological systems analysis is it necessitates a future orientation to *actuation* seen from the position of present possibilities. It prompts primary questions about the realism of expectations. The absence of this inquiry results in a discourse focused on *limitation*, promoting what should not be done and what people cannot do, rather than all that they might. The contribution the juncture of Potential provides is to highlight how future possibility is causally related with the conditions that are presently (and fundamentally) necessary.

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### 3. Conditions

The juncture of Conditions in apithology theory refers to more than the status of the surrounding environment. This prompts an inquiry into the physical, social and psychological correlates of generative necessities for the actuation of particular potentials. While we might often state that conditions are not yet right, or are presently unfavorable, in an apithology inquiry there is a level of precision regarding the Conditions actually conducive for the actuation of potential. There is, for each Potential, a premise of sufficiency represented by the conditions that are necessary.

The significance of the juncture of Conditions is in its relationship between Potential as a possibility and Orientation in terms of actual pathways chosen. We appreciate that in the absence of nurturing conditions, Potential may not be achieved in the immediate situation. In a discourse of scarcity no-one can have everything they want (or, perhaps, even ‘need’) all of the time. The consideration of Conditions, in apithology theory, examines the effects of absences on the conceptualization of future possibilities. In perfect conditions living systems thrive. In adverse conditions, attention is rarely on the potential, being more often on simple survival. The concept of Conditions expands the systems considerations to include the present effects, of both giving and withholding, on future states of actuation.

The assumption that is challenged by this distinction is found in the popular narrative of how people can thrive despite insurmountable adversity. A remarkable feature of human nature is how we find new hope and ways of making meaning and developing, even in the most difficult or confronting circumstances (Frankl, 1984). However, the recognition in apithology theory is that the exception does not make the rule. In fact, most people thrive *because* of the presence of conducive Conditions, not despite their absence. This is described topologically by systems psychologist, Kurt Lewin (1936) as: ‘The following proposition seems to confirm a fundamental principle: the dynamic unity of the whole depends not only on the relation of the parts of the whole to each other, but no less the relation of the whole to its environment.’ (p. 185).

The implication of the inclusion of Conditions as a consideration, is that what is truly necessary for Potential is dependent on the individual contexts. For each instant that sufficient Conditions are not present, Potential diminishes accordingly. This invites an apithological assessment of the system dynamics of the actual *situation*. When this juncture is omitted from an inquiry, instead of the appreciation of what is required, there is often a *negation* of necessity and ‘needs’ are redefined accordingly. In pathological adversity this is taken as simply something to accept, even if this is unacceptable. The effect of the inclusion of the juncture of Conditions involves a consideration of future needs. This comes from an appreciation of the problem of inflexible orientations which may then continue even in the face of changing conditions.

### 4. Orientation

The juncture of Orientation is a novel contribution of apithology theory. This technical term refers specifically to the proclivity to focus attention on different aspects of otherwise neutral environments. Being different to mood, motivation, optimism, pessimism, states or traits, in apithology systems theory Orientation represents a phasic analysis of where attentiveness is directed in systems of conceptions. For simplicity, in general inquiries a primary distinction is made between four primary aspects, being: pathology (p.), anti-pathology (p+), apathology (a\_) and apithology (a^). Each of these primary Orientations has a different content of focus and resultant outcomes of that focus, irrespective of similarities in the context or situation presented. A simple example is, in the confrontations of the fact of changing climate patterns there are

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seemingly divergent orientations to the approaches needed in response to the reality and necessity of impending actions. In apithology theory, Orientations that appear irreconcilable, are actually considered quite natural.

The significance of the juncture of Orientation is seen by the relationship of the perception of present Conditions and the resulting formation of Coherences in interpretation and meaning. When favorable conditions are provided the Orientation, as represented by a motivating focus, might shift towards actuating the optimal potential available. In severely adverse conditions, the responsiveness in Orientation may be to recognize the need for a different focus, marking a different phase of existence, to resist threat and insecurity from adverse change. Just as natural systems have cycles of change, so too can the cycles of human systems be reflected in the different phases (and certainty) of distinctive Orientations. Different potentials then play out accordingly.

The assumption challenged by the inclusion of this juncture is that human attentiveness is either consciously mindful (and can be quickly re-directed) or is mostly whimsical (and is frequently deflected). The observation in apithology theory is that conceptual systems, by virtue of their formative Conditions, have distinctive Orientations, privileging certain facts and information of significance over others selectively. This is as described by Humberto Maturana (1999) in noting: ‘All of the states that an autopoietic system can adopt are states in autopoiesis, and are necessarily determined by its organization and structure, not by the perturbation arising in the medium in which it exists.’ (p. 159).

The implication of the inclusion of Orientation in an apithology inquiry is to appreciate that a change in Conditions may not trigger a change in priorities or signification. Importantly, asserted inevitable changes may be merely the ‘perceived’ changes necessary, as different Orientations relate quite differently to otherwise neutral phenomenon. This triggers a necessary inquiry into the *configuration* of all the systemic perceptions, to know how such foci might change (or not) when conditions alter. In the absence of this assessment, the system will experience *perturbations* and the seemingly significant changes as having no dramatic effects, resulting in a failure to alter foreseeable outcomes. The significance of the juncture of Orientation leads to the real appreciation of the moment of its formation (and reformation) in coherence.

### 5. Coherence

The juncture of Coherence in apithology theory refers specifically to the phases of formation of an emergent system’s structure and organization. Specifically, the unique consideration of Coherence relates to the dynamics of formation of conceptions of reality and also their deformation as ontological reliance is deconstructed and released. Importantly, the juncture of Coherence is not attributed as a characteristic by an observer, but rather is an autopoietic quality defined by the actual capacities of the conception in-and-of-itself. There is a level of technical precision required in the assertion of Coherence in apithology theory. Essentially, it involves an inquiry into the different phases of the formation of meaning and resulting perceptual capacity.

The significance of the juncture of Coherence is in its relationship to Orientation as a system of pre-perception and Trajectory as the likely direction of outcome. Unlike attributions of dogmatism, rigidity or inflexibility, the juncture of Coherence is seen as necessary for the healthy functioning of belief, certainty and positive reliance. When a shift in Orientation occurs there the possibility for the re-examination and reconstruction of composition that leads to new Coherence. The relevant stage of Coherence formation (and its robustness) then suggests a Trajectory

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between doubt and certainty. In a desire for the transformation of existing paradigms, and in the establishment of new beliefs, the appreciation of the juncture of Coherence becomes vital.

The assumption questioned by the inclusion of this juncture is that beliefs and opinions are always flexible and may be changed rationally by the imposition of new information. The resistance or refusal to admit new information, to pay attention to anomalies, or reverse assumptions is, however, an inherent feature of healthy systems. These systems often have evolved a form of Coherence so as to survive in the historical patterns of their familiar interactions. This provides a benefit in the form of reliance and anticipation, as is described by living systems theorist, Robert Rosen (1985) when saying: ‘Hence there is always at least one property P which is stabilized by the presence of a predictive model in an anticipatory system. And if there is one such property, there will always be many others; namely, those which are in an obvious sense *linked* to P.’ (p. 345)

The implication from the recognition and inclusion of the juncture of Coherence is that healthy systems naturally have a systemic structure of *anticipation* of future events that can be relied on as confirmable phenomena. In the absence of Coherence, there is *consternation*, where fundamental assumptions and perceptions become actively deconstructed. This occurs equally in both established and tentatively emerging systems of conceptions. Rather than Coherence being always desirable or undesirable, the appreciation of its stages of formation reveals what might become possible by a continuation within a given trajectory of potentials.

### 6. Trajectory

The juncture of Trajectory in apithology theory represents the ‘curve through time’ that generative growth cycles seemingly follow. Rather than being a direction of intention to a set destination, natural systems proceed in less orderly patterns. The apithological inquiry into Trajectory looks for the nuances of this patterning in an overall systemic ordering. Importantly, the concept of Trajectory is not an expectation of what will occur, rather it involves an openness to changing anticipations. This juncture recognizes explicitly the influences of changing Conditions and Orientations and of the complex processes of meaning formation (and reformulation) in Coherences.

The significance of the juncture of Trajectory is its relationship to Coherence as a form of structural continuity and Propensity as a pre-existing natural tendency. In the formation and deformation of Coherence there is an altering of the anticipatory expectations of the system. The discernment of Trajectory is then governed less by the immediately preceding pathway and more by the system’s inherent selection in the direction of change. The resilience of a system to return to a previous state, or the tendency for random alterations and experimentation, impacts the prediction of system states accordingly.

The assumption that is questioned by the inclusion of this juncture is that what has happened in the past will continue to happen. We might see a pattern of the past, within a condition of Coherence, and assume because that it previously served the system and its purposes, that direction will continue. An appreciation of Trajectory in apithological systems theory instead recognizes how changes in direction are ‘processes’ during which a certain level of tension must be held. Change then can occur with a shift in direction that appears as a gradual curve, rather than a sudden shock. This natural process of transition is described by Geoffrey Vickers (1983) in policy decisions: ‘We are the architects of our children’s opportunities, if not of our own. This temporal process is twofold. Those who are engaged in a course of decision-making soon become

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aware that each decision is conditioned not only by the concrete situation in which is taken but also by the sequence of past decisions; and that their new decisions in their turn will influence future decisions' (p. 15).

The implication from the inclusion of the juncture of Trajectory is that the indications of the possibility for system change need to be monitored continuously and responded to proactively. The recognition of Trajectory leads to *proaction* where the anticipation of events (both fortunate and devastating) can be planned for. The absence of considerations of Trajectory leads to a pathological equivalent, where unexpected changes involve a *reaction*, often in adversity and with the compounding effects of desperation and dependency. The likely Trajectory the triggering will take is not unexpected if past patterns have first been considered as indications of propensities.

### 7. Propensity

The juncture of Propensity in apithological systems theory reflects the pathways that systems naturally follow given the specific situations and conditions presently operating. Rather than an attribution of traits or past performance tending to paths of least difference, these may involve (strangely enough) patterns of repeating opposition in great resistance. The inquiry into Propensity examines specifically the dynamics of the patterning of choices. Propensity relates to how first choice leads to subsequent selection in a pattern of enaction. It describes how each system that is responsive (i.e. living or generative) has the feature of 'laying down a path while walking' (Thompson, 2007; Varela, Thompson, & Rosch, 1993). The nature of the footfalls on that path is the result of Propensity.

The significance of the juncture of Propensity is in its relationship to the Trajectory of development and the Temporality of the patterns repeated. The direction that a system develops into is influenced by the preference for alternatives available to it as guided by the gradients of its potentials. The recurrence of choices within those gradients creates a patterning in history. Over time this is reflected in a temporal pattern of becoming unique to that emerging and developing system. To be ultimately successful, interventions must be enacted with an appreciation for this preferencing and patterning. The effect is to act more so as to 'align with' rather than 'push against'.

The assumption that is questioned by this juncture is that living systems can be coerced, influenced and altered with impunity, or that there is a waiting 'blank slate' receptive to the desires and intentions of the interveners. For those acting on complex human systems, whether in organizational development or sustainability change, such assumptions are naïve at best and (in apithology ethics) are ostensibly a form of unethical violence. The correction of this assumption is succinctly stated by Francisco Varela et al. (1993), in saying: 'Finally, we saw that these various forms of groundlessness are really one: organism and environment enfold into each other and unfold from one another in the fundamental circularity that is life itself.' (p. 217).

The implication from the appreciation of the juncture of Propensity in an apithology analysis is that the curvature of development is really proscribed by a pattern of the paths not taken. In a pattern of preference there is evidence of the presence of *enaction* as conscious cognition. The absence of the consideration of this juncture in the enablement of generative systems means, without acknowledging which choices are preferred, there is usually the pathology of *perpetuation* in often undesired directions. To fully appreciate the implications of choice, one

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then needs to have cognizance of the past, present and future history of the system as a unique embodied temporality.

### 8. Temporality

The juncture of Temporality is one of the novel idiosyncrasies of apithology theory, being that time is considered atemporally. The term itself contains a complex premise in epistemological and ontological constructivism (Varey, 2009). In simple terms, an apithological systems inquiry does not privilege linear assumptions of time. Rather, time is seen as an enfoldment between the past, present, and future possibles. The interpretation of the past, is governed by the appreciations of the present, which are altered by the uncoverings of the future. This is not such a radical concept. We know how what seems like ‘a good idea at the time’ can (in an instant), later be regretted and seen as unfortunate, or simply rationalized into a wider self-affirming narrative. The concept of Temporality in apithology reflects not just the changing nature of this narrative, but rather the active act of narration, in the context of continuously changing situations (e.g. the overshoot of multiple limits to growth).

The significance of the juncture of Temporality is seen in its relationship to Propensity as a pattern of past choice and Learning as the prospect of new directions. In appreciating the pattern of past time projected forward from present moments, the injunction of intercessions becomes more fluid in its forms of intervention. The insight gained is how Propensity writes parts of a history, into the future, in each moment of present choice. The punctuation of that choice in time, specifically by moments of learning, potentially alters the future set out. It also has the potential to alter ‘future futures’. The recognition of Temporality as a system dynamic offers a more ‘fluid temporal’ modeling and provides the opportunity for reconsiderations of predictability. Essentially, we learn ‘when’ to jump in. This is reflected in the changing outcomes determined by the exact ‘moment’ of action or inaction in complex scenario modeling (Meadows, et al., 2004). For apithological systems, this recognition dramatically changes the possible futures available and what is also potentially possible.

The assumption questioned by the inclusion of this juncture is that past occurrences have no future relevance once the rigidity of existing presumptions have been overcome. What has occurred informs only what was and the future is open to be remade in each moment. The reality, in apithology systems, is the evolutionary turn is actually occurring in the moment that is presently presented. The curatorship of such moments, with import, effect and effectiveness, is what enables novel futures. Rather than be ignored, the temporal pattern deeply informs. This is as described by communications cyberneticist, Gordon Pask (1968): ‘As observers we expect the environment to change and try to describe those features that remain unchanged with the passage of time.’ (p. 18).

The implication of the inclusion of the juncture of Temporality in an inquiry into apithology systems is to see present moments by their future impact and to recognize the past patterning in their enablements. The presence of this inquiry leads to an appreciation of the *perception* that is possible. The presence of its absence as a necessary consideration often means that the *rejection* of a new proposition is almost inevitable. This three-fold recognition of intercession moments held in time, leads to the appreciation of the significance of those moments of reflection, as both the governors of past behavior and as markers for future discoveries by new learning.

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### 9. Learning

The juncture of Learning is perhaps the most exciting and central of the junctures of apithology theory. This is due to the profound appreciation of how levels of learning, that are beyond mere repetitive reactive experiencing, set the potential for generative potentials. This consideration has given rise to the field of ‘apithagogy’, which focuses its attention on the pedagogical development of humanity-level systemic learning. In apithology theory, the juncture of ‘Learning’ also has a particular meaning involving the relationship between multiple abstractive levels of development, as seen in multiple ontogenic (and phylogenic) timeframes (Bateson, 1973).

The significance of the juncture of Learning in apithology systems theory is seen in its relationship to Temporality as the progress of development over time and the Quality in the learning outcomes that actually occur. This concept of multi-scaled (and multi-temporal) generative learning has a different emphasis to the mere recurrence of experiencing. The three-fold history of temporality suggests the means for ongoing change of the potential of apithological systems is enabled by the forms of different Learning experiences. The intercession of astute Learning interventions potentially changes a history of continuance pre-emptively. It does this by the enablement of choice, sometimes by providing new pathways and sometimes by even providing new horizons of experiencings.

The assumption that is questioned by this juncture is that somehow the gathering (or processing) of more information within the same sets of choices correlates with an increase in capacity. In apithology theory, the generative experience of learning is more than mere repetition, requiring on occasions the ‘metanoia’ of reconstruction (Senge, 1990; Varey, 2001). This is the learning that goes beyond ‘learning to learn’ requiring the reconstruction of identity that re-narrates past patterns of Temporality (and the inevitability of Propensity). While familiar in concept, this form of learning is rare in embodiment. For the paradigm shifts needed to preserve whole societies, such Learning is seemingly beyond our present capacities. This distinction in the level of Learning required was explained specifically by Gregory Bateson (1973) in stating: ‘But now we are asking about the contexts of these contexts of learning, i.e., about the larger sequences within which such paradigms are embedded.’ (p. 275).

The implication of inclusion of the juncture of Learning in an apithology systems analysis is to re-think the possibilities for change by the mere imposition of information. An approach in apithagogy considers the capacity for *reception* in the pedagogy of the instruction of the child, the consideration of the andragogy of the adult, in the paths of pandragogy of the lifelong learner, and the apithagogy of humanity’s unfoldment. The absence of this consideration, in levels, scales, and inter-level relations, relies stubbornly on *repetition*. From the appreciation of how Learning is vital for transformation and development comes the fact that recurrent learning itself will not be sufficient. The further additional step required is the consideration of the quality of the learning experience in the mind of the learners who are doing the experiencing.

### 10. Quality

The juncture of Quality has a technical meaning in apithology theory. It refers to the extent of contraction or receptivity in the formational dynamics of conceptions (within a system of conceptions). This inquiry into the systemic Quality of understanding is the specific ontological focus of apithology as a research discipline. It also represents its axiological bias, where the way systems engage in ‘reality-formation’ is appreciated based on their coherence, integration and orientation - and what this enables by way of future potentials. Essentially, rather than a

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consideration of the objective form of an experience (e.g. in new information, conversations or confrontations) the concept of Quality examines the capacity for ‘experiencing’.

The significance of this juncture of Quality is in its relationship between Learning as an opportunity for self-reconstruction and the surrounding effects of the Coactions that enable or disable that experience. It is recognized that Quality (i.e. openness or contractedness) is a function of the patterning of Learning as experiences received over time. New learning is influenced by the pre-conditioned responses from past learning experiences, and experimentation or challenge by interaction may be met with adverse reactions. In adversity, natural systems naturally seek mechanisms of surety. Where these defenses are perpetuated beyond the actual situations, there can be a perversity of perseverance. Accordingly, apithology theory seeks to look at Learning more closely.

The assumption that is questioned by the inclusion of this juncture is that all learning must be good learning and every experience expands capacity. It challenges the child-like simplicity that societal change is easily enacted by more education, specifically educating people into a world-view held by the educators. Essentially, in apithology ‘more is not more’, unless it enables greater future potential of a generative quality in the system’s capacity. Because of the significance of the punctuation of generative learning events on future decisions, the Quality of that learning is a profoundly important inquiry. This future effect was noted by systems psychologist, Milton Rokeach (1960) in observing: ‘[T]he more closed the belief-system, the more narrow is the time perspective and the less are the psychological past, present, and future adequately represented in one’s behavior’ (p. 366).

The implication of the inclusion of the juncture of Quality in an apithology systems analysis is how this reveals the capacity of systems for openness and to co-engage generatively. The presence of the inclusion of that evaluation leads to considerations of *contribution*. Here generative learning is engaged in conjunctively enabled by its participants’ own capacities. The absence of the inclusion of this juncture in an inquiry often sees a default to conflict and a reassertion of the known in the rejection of the unfamiliar, resulting in an overall *reduction* of the system’s capacity for reception. To reverse this aversion to new situations there is merit in the consideration of the relations of coactions.

### 11. Coactions

The juncture of Coactions in apithology theory advances the systemic frame considered to new levels of interactive dependency. This juncture looks at the ecology of mind in its full complexity. This inquiry commences by the consideration of the semantic-coupling of autopoietic entities and the reactions of their relationships in the patterns of co-enaction (Maturana, 2002; Varela, 1981). Ultimately, the consideration of existing, latent and potential capacities in an apithology inquiry does require an appreciation of the dynamics of health and learning for humanity in its entirety. The initial juncture to access this information is in the evaluation of relations of Coactions.

The significance of this juncture of Coactions is seen in its relationship between Learning as the punctuated change in capacity and Health as the desired resultant effect which is enacted. Many situations for learning are designed specifically for safe and curated spaces. In the application of that learning to real-world situations, what is often discovered is the harsh imposition of the existing system’s rigid conceptions. This is often experienced as a clash or crisis of worldviews. Rather than paradigmatic shifts, what might instead happen is mutual paradigmatic contractions (Meadows, 2000). In apithology theory, there is an appreciation of the effects of Coactions (i.e.



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the degree of mutual receptivity) and how this impacts on future interactions. The legacy of experience from such interactions is profound. For this reason, in apithology theory Learning events are not seen in isolation, and in generative systems, the potential of the future system is formed by the Quality of its Coactions.

The assumption that is questioned by the inclusion of this inquiry is that the learning experience is generally isolated and occurs individually. This question of coactive effect perplexes those who cannot consider what it is for an individual, a couple, a team, an organization, a community, a city region, a nation state, or a humanity to move towards different levels of maturity by means of interactivity. In preparing people for the workplace (or organizations for the market-place, or nations for the world-space) the risk is that we train for qualifications, not competence. The learned flexibility for the avoidance of adverse experiences allows for endless movement, but an absence of enduring contributances. The full impact of coercion effects are described by Edward Haskell (Haskell, Cassidy, Clark, & Jensen, 1972) in stating: ‘What we now need, in order to assemble them, is practical methods for spotting and finding many different parts, and putting them together into a viable whole. Success in doing this would make our culture itself “drop out” in an upward sense; ... if not it will drop *down*.’ (p. 139-140).

The implication of the inclusion of the juncture of Coactions in an apithology analysis alters the scope of each apithology inquiry from the isolated to the universal. The enablement of a system is usually seen systemically, within the boundaries of the system inquiry. The presence of an inquiry into Coactions examines the contributing dynamics of all contributors, seeing the *generation* of net positives or net negatives equally. The absence of this consideration instead holds the premise of active *dissipation*, where coactions are designed to grind down opposing views, leading ultimately to a reduction in collaborations. The effect, over time, is that ongoing learning is positioned defensively and individually as way of escaping from the surrounding society. This question, of whether interactions prompt a ‘way out’, or may provide the ‘way in’, leads to the importance of seeing the role of the health in the whole.

### 12. Health

The juncture of Health completes and begins an apithology inquiry. Due to the need for inclusion of the very many conceptions of health, the term ‘Health’ has a particular (and technical) meaning in apithology theory. In apithology, health as a concept is not restricted to the elimination of pathology, to the mitigation of dysfunction, to the maintenance of normalcy, or even the generation of thriving. The juncture of Health takes into account all of these different aspects and negotiates their generative relations. Being much more than the absence of disease, in apithology theory, the primary Health that is considered is the health of all healths as the expression of humanity (as a totality).

The significance of this juncture of Health in an apithology inquiry is found in the relationship between the net effect of Coactions and a contributing effect on the operant Horizon as a resulting benefit. In a natural ecology of forms (i.e. an ecosystem) the diversity, integrity, resiliency and potency of the system is determined primarily by the nature of its Coactions. The aggregation of these system effects sets the Horizon for the landscape of potentials (e.g. be it a rainforest, coastal health or rangelands desert). Because the apithological concept of Health is not based on a fixed state of normalcy, the Horizon of Health (as a totality, or in a specific locality) can change generatively, thereby increasing the potential of the entire system accordingly. This assessment of transitions in generative potentials is the specific phenomenon that the discipline of apithology examines most closely.

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The assumption that is questioned by this juncture is when a normative state is assumed as the outcome. This state is then designed into the held presumptions even prior to the commencement of the necessary observations. In apithology theory, this challenge to pre-conceptions of what should or must result as being 'healthy' invites an entirely different category of investigations. Rather than predictions, there is an unfoldment of scenarios. Instead of inevitabilities, we are working with possibilities. To do this, an apithology inquiry works for the widest of humanitarian aims, yet with an increasing precision for practical enactment. To illustrate the extent of this vision, Dennis Meadows (Meadows, et al., 2004) describes the profound legacy of Dana Meadows own ambitions: 'Dana was the unceasing optimist. She was a caring, compassionate believer in humanity. She predicated her entire life's work on the assumption that if she put the right information in people's hands, they would ultimately go for the wise, farsighted, the humane solution...[She] spent her life working for this ideal.' (p. xvi).

The implication of the inclusion of the juncture of Health in an apithology systems analysis is that the purpose of the inquiry and the outcomes envisaged are clearly imagined. Its presence by way of inclusion in considerations is marked by the potential for *transformation*. In the apithological inquiry into the generative, the system, as stasis, is rarely privileged. The absence of this juncture as a consideration leads naturally to a focus on pathology and an ever increasing fixation on the arrestment of systemic *degradations*. This twelfth juncture perhaps prompts the recognition of the primary reason for the specificity of apithological systems theory.

This overview provides an invitation to pause in our ambitions for leveraging change, overcoming barriers and repairing dysfunctions, and asks: Is our aim to model the ongoing degrading by the isolation of problems, or to transform our living systems generatively by an inquiry into contributive solutions? Whichever pathway we might choose, we must rapidly become expert in our performing by way of collective responsiveness. For the outcome selected by either question will reflect accurately the totality of our combined reasons for being.

### Summary of Implications

The condensation of this vast field is not entirely possible in a short article. The conjunction of the sequence of the generative minds of inquiry briefly described is one discipline of practice within a growing systems praxis. One convention of apithology practice when portraying complex generative sequences is to counterpoint the combination of the 'presences of presences' with the description of the 'absence of absences' as systemic counterparts in multiple levels of inter-dependency. While dynamic, complex, emergent systems rarely are consistent in this idealized composition, their juxtaposition assists in understanding what it is we are actually seeking. It also enables us to appreciate, what we are enacting by our active avoiding.

A comparison of the reasons for inclusion (and the effects of omission) of all twelve junctures and the linking of their systemic inter-relations, is provided by this simplified depiction:

***Pathological Systems Intervention Points:*** A *constriction* of Horizons, leads to the *limitation* of Potentials, reinforced by the *negation* of necessary Conditions. The *perturbation* of Orientations, causes a *consternation* in Coherences, triggering a *reactive* change in Trajectories. The *perpetuation* of Propensity, leads to the *rejection* of patterns in Temporality, and *repetition* becomes the set response to Learning. This results in a *reduction* of Quality, with the *dissipation* effects from all Coactions, resulting in the *degeneration* of Health.

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*Apithological Systems Nurturance Spaces:* The *appreciation* of Horizon, enables the *actuation* of Potential, which leads to the *situation* of conducive Conditions. The *configuration* of Orientations, in *anticipation* of Coherences, allows for *proaction* in Trajectory changes. By *enactions* within present Propensity, involving a *perception* of Temporality, the possibility for the *reception* of Learning is enhanced beneficially. The *contribution* of Quality, by the *generation* of complementary Coactions, enables the potential for *transformations* in Healths.

### Conclusion

Unlike systemic leverage points, which are ‘rare’, ‘rigorous’ and ‘counterintuitive’ (Meadows, 1999), the spaces for intercession are numerous. The approach in apithology systems theory is to enable systemic vibrancy, rather than focus on the avoidance of systematic pathology. Ultimately, this promotes a more inclusionary and participatory narrative. Instead of an elite shifting the world through Archimedean-like levers from distant points of vantage, what is proposed is more the means to celebrate the mindful and unique contributions of many in a ‘systems aliveness’. This systems approach ‘invites’ more ecological questions of contribution, and involves less ‘pushing’ for transitions and transformations premised on unrealistic expectations.

What is seemingly required of the reflective apithology practitioner is the recognition of where their own unique contribution is most effective in the wider system of conjunctions. One person, no matter how great their leverage, can alone do what is needed for all. The profoundly humbling aspect of this inquiry is that, while there are many places to intercede, for the health of humanity the contribution of many, between all junctures, is needed. Our own role is to provide what we are able, doing so uniquely, while also (to the extent we can) being informed exquisitely.

While we know in our hearts that, despite all limits, potentials will be strived for, orientations will provide focus, teachers will teach, and coactions will enact multiple forms of health, this apithology inquiry asks for the Horizon of humanity: What are the outcomes which truly reflect what we collectively intended in equity, fairness and beauty? If only for each to receive the answer to proceed in confirmation with positive abandon, that brief moment of inquiry might be worth the investigation. In this conclusion, we might recognize gently that the primary space of intercession is, most often, in the trajectory of our own heartfelt moment-by-moment intentions.

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### Appendix A: Twelve Junctures of Apithological Intercessions (with descriptive effect of presences and absences)

Location	Juncture #1	Juncture #2	Apithology	Pathology	Highlighted Theorist
1.	<i>Horizon</i>	Potential	Appreciation	Constriction	Kenneth Boulding
2.	<i>Potential</i>	Conditions	Actuation	Limitation	Abraham Maslow
3.	<i>Conditions</i>	Orientation	Situation	Negation	Kurt Lewin
4.	<i>Orientation</i>	Coherence	Configuration	Perturbation	Humberto Maturana
5.	<i>Coherence</i>	Trajectory	Anticipation	Consternation	Robert Rosen
6.	<i>Trajectory</i>	Propensity	Proaction	Reaction	Geoffrey Vickers
7.	<i>Propensity</i>	Temporality	Enaction	Perpetuation	Francisco Varela
8.	<i>Temporality</i>	Learning	Perception	Rejection	Gordon Pask
9.	<i>Learning</i>	Quality	Reception	Repetition	Gregory Bateson
10.	<i>Quality</i>	Coaction	Contribution	Reduction	Milton Rokeach
11.	<i>Coaction</i>	Health	Generation	Dissipation	Edward Haskell
12.	<i>Health</i>	Horizon	Transformation	Degeneration	Donella Meadows

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