Using Troncale's System of System's Processes to Assess Wilber's Integral Theory

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Integral Theory

IT is concerned with the mapping all "basic waves" of human existence mentally, physically, emotionally, and spiritually in self, culture, and nature.

Theorist: Ken Wilber is a philosopher whose book *A Theory of Everything* summarizes his "integral theory" developed in previously published books.

Worldview: Human-centered, anthropomorphic; subjective/objective, religion/science in one model

Methodology: Gathered hierarchies from hundreds of researchers who observed levels of phenomena; constructed 4 quadrants for categorizing the hierarchies

Figure 3-1. Some Examples of the Four Quadrants in Humans
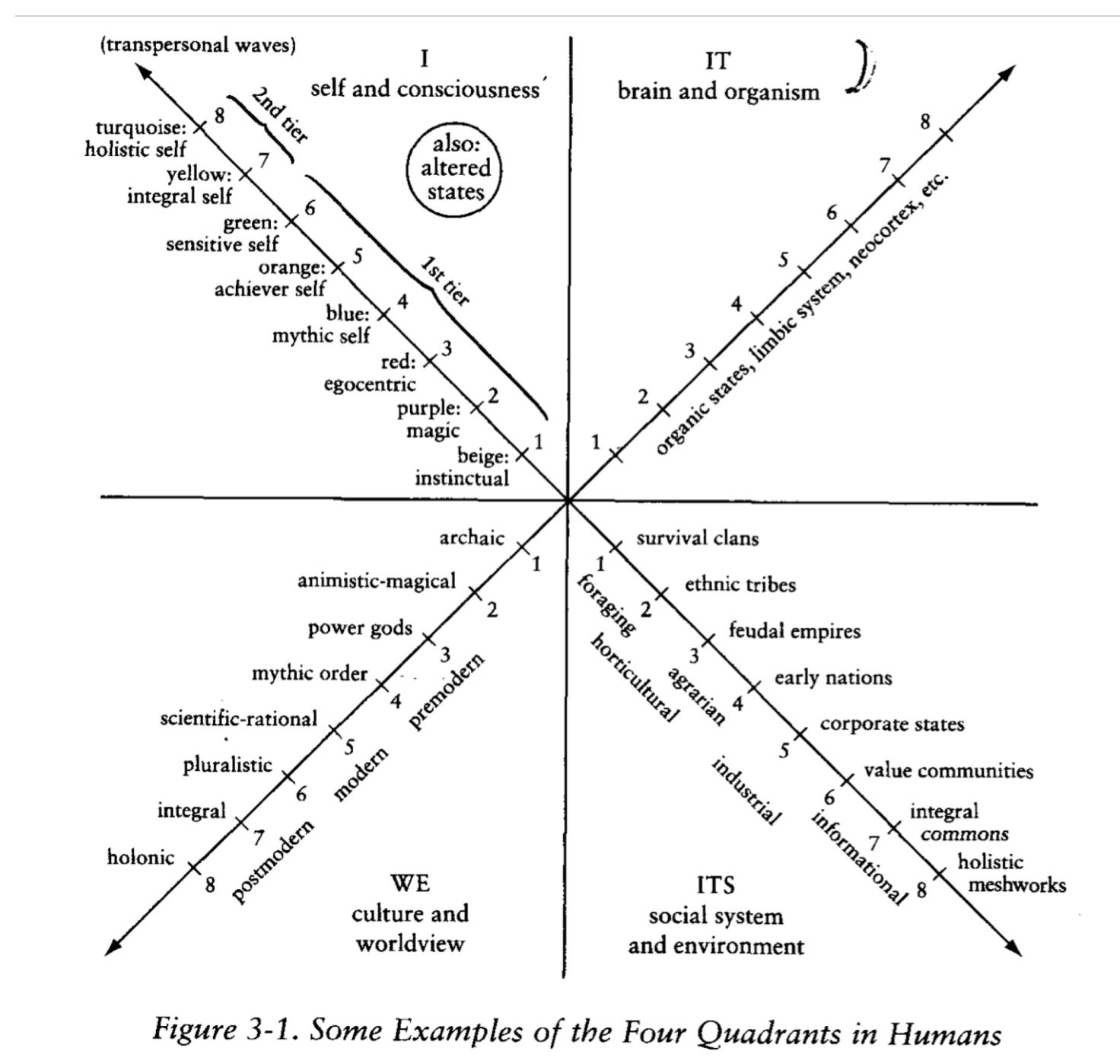
Hierarchy as form: Hierarchies consist of nested levels; levels emergent from lower levels; "waves," "flows," and "streams" as metaphorical descriptions of spiritual, cultural, and social experience; also calls each level a nested holon that forms a holarchy

Model of human systems: The growth and development of mind, culture, and social order are all a series of unfolding stages or waves. The basic stage of development can be seen in any activity.

Description of two (of eight) levels of consciousness from upper right quadrant (Wilber, 2000, pp 10-13):

Level 5. Orange: Scientific Achievement: .. .the self…seeks truth and meaning in individualistic terms—Hypothetico-deductive, experimental, objective, mechanistic, operational—"scientific" in the typical sense. The world is a rational and well-oiled machine with natural laws that can be learned, mastered, and manipulated for one's own purposes…The laws of science rule politics, the economy, and human events.

Level 7. Yellow: Integrative. Life is a kaleidoscop of natural hierarchies (holarchies), systems, and forms. Flexibility, spontaneity, and functionality have the highest priority. Differences and pluralities can be integrted into interdependent, natural flows. ..The prevailing world order is the result of the existence of different levels of reality (memes) and the inevitable patterns of movement up and down the dynamic spiral. Good governance facilitates the emergence of entities thorugh the levels of increasing complexity (nested hierarchy).

Applications:

1. "An 'all-level, all-quadrant' practice means exercising physical, emotional, mental and spiritual waves in self, culture, and nation." Higher levels reached by meditation and the experience of altered states and temporary peak experience that "help people disidentify" with current level.

2. In politics, medicine, education, business, and governance, apply perspectives from each quadrant for effective practice. For example, in health care, the importance of not just treating the body (upper right quadrant), but to also consider the person's internal frame of reference for the disease personally and culturally, and then consider the environmental causes and social support.

3. When dealing with people at different levels, consider the strengths of each level and the inherent limitations at each level. For example, appreciate the strengths and importance of and, at the same time, the limitations of tribal life and the consciousness that comes from that life.
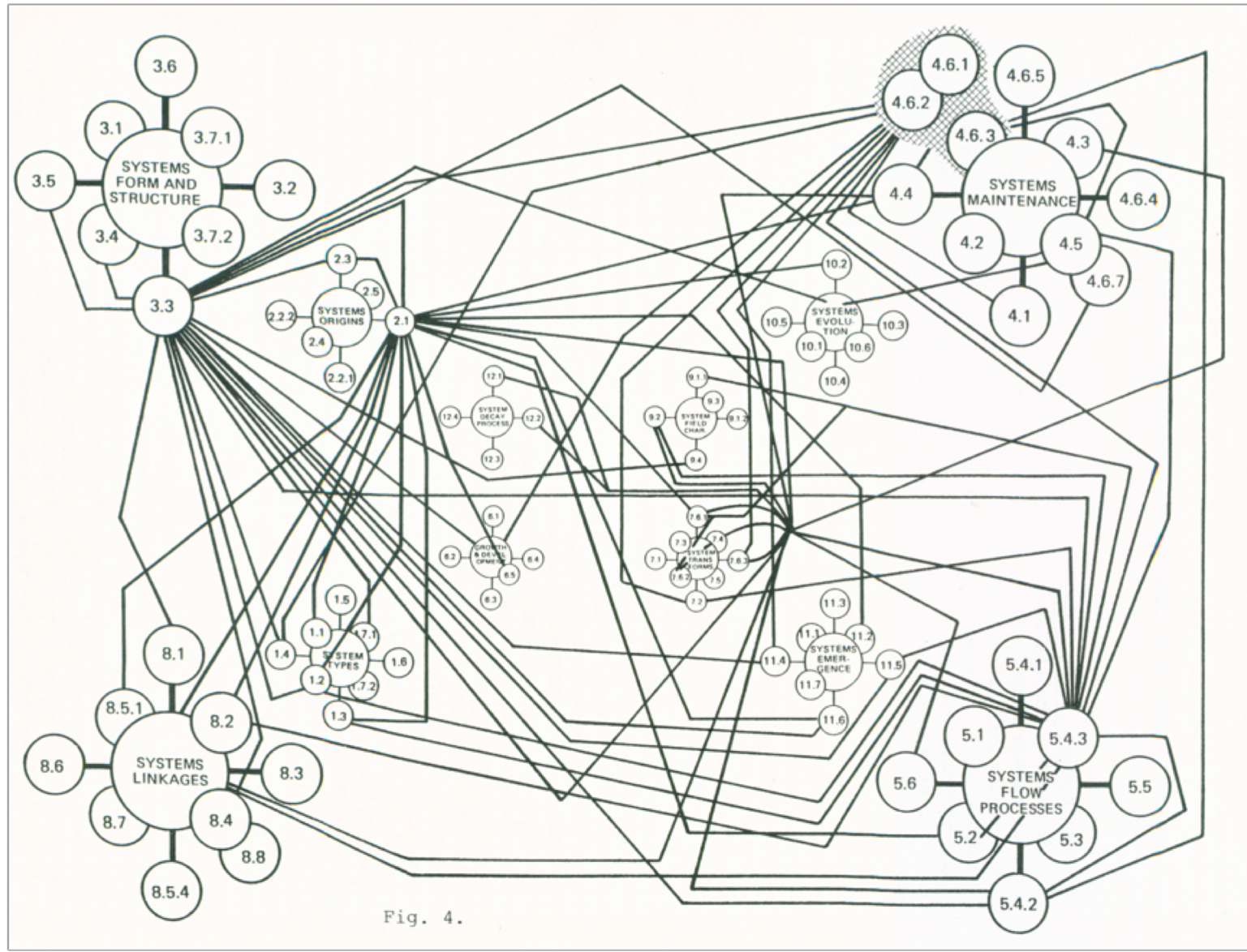
A System of System's Processes

"The SSP is the detailed identification, representation, encoding, and simulation of the vast number of interactions that occur between 'systems mechanisms' to achieve key systems functions. Each systems mechanism is a process alleged to be isomorphic across many disciplines and real systems."

Theorist: Len Troncale is a professor of biological sciences and systems scientist who applies empirical evidence from "real systems" across disciplines to his model of systems.

Worldview: A universal model; processes seen in systems throughout nature and across disciplines applied to particular systems.

Methodology: Systems seen throughout nature can be modeled and described using processes. Processes seen in all systems are called isomorphies, *iso-* for "same," *-morph* for "form."

The processes are the nodes whose interactions with other processes (described as "linkage propositions") form a network. These processes clump into 12 major functions that form the life cycle of any mature system.

Physical states evolved into biological states and biological states evolved into mental states. Because all systems organized throughout the universe exhibit isomorphies, it can be assumed that mental states are also potentially expressible using isomorphies.

Fig. 4.

Hierarchy as process: Hierarchy as an isomorphy, a process seen in systems throughout nature with identifying features and functions. (In the SSP structure is slow process and process is fast structure.)

Some identifying features of hierarchy:
  * the tendency of entities to cluster
  * levels, sets of ordered levels
  * levels are separated by logarithmic scales (the opposite of spectra)
  * gaps between levels, unstable, disordered
  * interactions between levels are less frequent than within levels
  * constraint fields from above and below (SSP Troncale vs. Weisss and Allen who say constraint is top down)
  * bonding energies are stronger within levels and weaker among levels
  * each level is within a range of embodied energy

Some identifying functions of hierarchy:
  * allows systems to evolve more quickly
  * much faster to put the parts together
  * much faster breakdown of wholes to parts
  * allows for stronger bonding energies and weaker bonding energies
  * allows for increased complexity/an organizing function of parts
  * its modularity allows for increased possibilities for combinations
  * provides more than one pathway to get to the same result (equifinality) within hierarchies of a system (weaker than networks)
  * provides efficient search strategies and file organization in complex systems/minimum paths for speed and access
  * provides a transcendence/emergence function that solves problems at a former levels

Model of human systems: Networks are transforms of hierarchies. Hierarchies are transforms of networks. The frequency and intensity of information flow between nodes creates bonds. Clustering results in hierarchy. The tendency to cluster results in the hierarchy of living systems described by Miller: cells, organs, organisms, groups, organizations, societies, supranational systems

Human systems, whether individuals or nations
  •have relatively open or closed boundaries
  •are relatively open or closed to inputs and outputs of information and matter/energy
  •have simple vs. complex structures
  •are non-adapting, adapting, or coevolving
  •are regulated by feedback.
  •are highly structured for control and containment of information and matter/energy flows or allow for the free flow of information and matter/energy.
  •are constrained by and constrain the systems in which they are embedded.

Description of levels of human systems: Banathy (2000) described types of human systems in terms of their boundary conditions, the complexity of their structures and functions, and the scope of their relationships to their environments.

Rigidly controlled: relatively closed, limited freedom, few components, singleness of purpose; very little change

Deterministic: clearly defined goals, several levels of decision-making; some freedom in selecting means of operating; some adapting to environment

Purposive: have set goals but with the freedom to select operational objectives and methods; somewhat open and able to react to environmental change; often very complex

Heuristic: formulate goals under broad policy guidelines; open to changes and interact and coevolve with the environment; complex and systemic

Purpose-seeking: ideal-seeking, guided by future vision; open and coevolving with environment; complex, systemic, pluralistic; defines own policies and purposes; constantly seek new purposes and new niches

Applications:

Transcends the fragmented views of philosophy, psychology, religion, education, politics, etc. and leads to creative practice and design. Instead of trying to fix systems, we consider how to open them up. We consider how to increase the flow of information and matter/energy that will naturally increase our capacity for integration and health. We consider how to assure the free flow toward more open, more integrated, more interactive systems. We soon realize that pathology is a matter of blocked flows. The understanding of systems processes applies to all human endeavors and all of nature. The "real" nature of systems processes provide testable hypotheses and insights at every level.

Comparing IT with the SSP

Basis for theory

IT: Compares descriptions of entities that form hierarchical levels; integration of observed and tested data/phenomena from the "soft sciences"

SSP: Describes the features and functions of the processes that form all things, including hierarchical levels; empirically based

Worldview

IT: Puts the spiritual/cultural and subjective and the physical/behavioral and objective side by side; the measurement of interior, subjective spiritual "realities" from the upper left quadrant can be measured by EEGs from the upper right quadrant, unifying religion and science.

SSP: Disregards the fragmentation of the self and human systems that occurs in philosophy, psychology, religion, physiology, sociology, etc. Approaches all systems, including the self, groups, etc. as systems of processes.

Methodology

IT: Consciousness and self as philosophical and spiritual constructs that can only be explored through mind and thought. Consciousness studies should involve first-person phenomenal accounts, second-person intersubjective structures, and third-person scientific systems.

SSP: Consciousness and self as systems of processes with the potential to be empirically explored. Descriptions and models based on "real" flows, feedbacks, boundary conditions, complexity of structure, the capacity to adapt and coevolve, and more.

Hierarchies

IT: Theories of human development form nested hierarchies. The process of how people develop from one level to the next is not inherent in this model.

SSP: Hierarchies are found throughout nature and consist of and are formed by distinct processes. Features and functions of hierarchy offer insights to processes of all "mature" systems and how all "mature" systems function. The processes for the formation of levels is inherent in the model. Apply the functions of hierarchy to the levels of development/consciousness: Increasingly complex levels provide for efficient search strategies and file organization, minimum paths for speed and access, and the capacity to solve problems not solvable at lower levels.

Model of human systems

IT: The dynamics of self and consciousness are mysterious and spiritual, to be discovered through subjective exploration. Science is in a complementary quadrant. Religion/science, interior/exterior, physical/spiritual, subjective/objective,individual/collective form complementary hierarchies.
Levels are relatively fixed with metaphorical "waves, flows, and streams" as a description of the movement of the whole.Change is imposed on a model that describes levels as "things."

SSP: The model describes the dynamics of change and growth. More information and matter/energy --> formation of new networks (ex: neural nets, friendships/community --> emergence to a new level of more efficient functioning.

Description of levels of human systems

IT: Beautiful extensively researched hierarchical levels, but we get a sense of the "what" not the "how." Wilber has a sense of process without the conceptual framework for expressing it.

SSP: The description in terms of process naturally leads to greater understanding of how to grow from one level to the next-- increase opening, increase feedback, increase flow and we naturally self-organize to more complexity and greater capacity. Leads to consciously designing systems that do this, whether they are ourselves, our marriages, or our nations.

Applications: Practice

IT: Wilber suggests using meditation as a spiritual practice that results in altered states that challenge one's current level of consciousness and can result in development to the next level.

SSP: Meditation, prayer, martial arts, professional training, and even raising the mood of a conversation =
Opening boundaries that have closed in response to threat, increasing flow of information.
The natural result is an increased level of consciousness, increased neural nets, formation of more complex hierarchical mental structures, increased efficiency and capacity to process what hits us. What was once spiritual and mysterious becomes practical and useful.

Applications: Questions

IT: How can we utilize this expanded integral vision to improve healthcare, politics, and other systems? How can we expand integral practice and this integral vision? How can we teach others to utilize this practice?

SSP: How can we open ourselves and others to increased flows of information and matter/energy? How can I open myself to feedback to adjust and coevolve with my environment? How can I consciously design more open, free-flowing, complex, but efficient systems?

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Individual, subjective Interior Self and consciousness

Individual, objective exterior Physical, behavioral

Collective, subjective Interior Culture and worldview

Collective, objective Exterior Social system, environment

Religion, spirituality,consciousness

Science, objective observation