

Rational Analytic Model / Cartesian / Enlightenment seventeenth-century

Mind-body Dualism / Relative / Coordinate Space and Mechanical Model or System

Extensive / Physicalism / Determinism / Reductionism / Mechanism / Pure Materialism / Static Coordinate Points / Quantitative

Closed System / Reversible / Predictable / Eternal Laws / Immutable Laws / Cause and Effect / “Mechanical Clockwork Universe” / Parts relating to other parts / Living things as “automata or moving machines” / Physical and mental (experiential) realms are separate

Experience reduced to physical causes alone / “For every action there is an equal and opposite reaction” / Linear development of time / Being = Transcendence / “Science of quantities”

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Experience / Experiential Realm / Immanent / Process / Becoming / Change / Dynamism / Embodiment / Instinct / Intuition / Open systems / Matter-energy flow / Energy-rich matter / Dissipation

System functions as network / “The whole is more than the sum of its parts” / Intensive parts / Change in the whole comes from interaction between the parts / Interaction = Qualitative / Feedback loops enable systems to regulate, correct errors and organize themselves /

Networks are nonlinear (web like nonlinearity) / Goes in all directions / Connections are multiple / “Multiple unity of duration” / Lived Duration / Lived Experience / Systems give rise to networks / Too complex to predict / “The process is its own shortest description” /

Mutualism / Cooperation / Integration / “Emergent Properties” / The whole system shares an intelligence that the parts themselves do not share / The whole gains a level of “swarm intelligence” that the individuals themselves do not / Emergent properties cannot be reduced to the parts / Emergence is the interaction between parts / Not all self-organizing systems create emergent properties / Randomness gives rise to order through connectivity /

Self-organization / Self-making / Self-replicating / Self-sustaining / Autopoiesis (Self-Making) / Regeneration / Novelty and Creativity / Expression / Local level activity giving rise to global level activity without guidance from the top / No

“command and control” center / Parallel Processing / Distributed network / Change and Stability / Bottom-up approach / Life emerged whole and remains whole / Spontaneous order / Not guided by an outside force

“Creation of new structures and new modes of behavior in the self-organizing process” / Learning and evolution / “Open systems operating far from equilibrium” / “Nonlinear interconnectedness of the system’s components” /

Pattern of organization / Pattern recognition / Fractals / Complexity / Chaos / Systems theory / Systemic properties / “Science of qualities”

Common pattern in all living systems? / Network pattern / Morphogenesis / Form, Expression and Pattern / Visible changes in quality! / Matter reaches a certain level of complexity to spring into life! (Kauffman) / Metabolic networks arise on their own due to a certain level of complexity or interaction of different kinds of molecules / “Order for free” / Truly spontaneous / Epigenetic / A self-sustaining network of reactions or autocatalytic metabolism

“Life emerged not simple but complex and whole” / Formed by “dead molecules” into an organization by which each molecule’s formation is catalyzed by some other molecule in the organization (Kauffman) / The roots are deeper than DNA / “collective catalytic closure” / Based in chemistry itself /

Life: Complex, Whole and Emergent