Fundamental Principles

I. Energy cannot be Created nor Destroyed, only Transferred.

II. There are three (3) forms of Energy.
1. Active Energy
2. Reactive Energy
3. Passive Energy

Energy	Active	Reactive	Passive
Physics	Potential	Dissipative	Kinetic
	Pressure	Impedance	Flux
	Capacitance	Resistance	Conductance
	Aggregation	Compression	Transmission
Metaphysics	Thesis	Antithesis	Synthesis
	Creation	Duration	Continuation
	Action	Reaction	Solution
	Pathos	Logos	Ethos
	Past	Present	Future
	Body	Mind	Soul

III. There are two (2) observable Elements.
1. Sources
2. Fields

IV. Sources produce Fields.

V. Sources interact with Fields and experience Forces.

VI. There are two (2) modes of Observation.
1. Static (Position/Direction/Magnitude)
2. Dynamic (Time/Speed/Frequency)

VII. Direction is more important than Speed.

VIII. There are two (2) optimal Questions.
1. How much? (Magnitude)
2. How often? (Frequency)

IX. The ability to accurately determine Magnitude diminishes the ability to accurately determine Frequency, and vice versa. Or "the probability of having an accurate Static Observation would diminish the probability of having an accurate Dynamic Observation, and vice versa."
1. Heisenberg's "Unsharpness" Principle
2. "One cannot have their cake and eat it too."

X. There are two (2) unequal opposing Forces within every Human: Freedom and Order.
1. There cannot be complete Freedom nor complete Order.
2. We all want the Freedom to Order ourselves.
3. "You see, boys. Everybody thinks they want Freedom, but what they really want is Order." - Valin Hess
4. "Until you make the unconscious conscious, it will direct your life and you will call it fate." - Carl Jung

I. Introduction

Building upon the physical analogies previously discussed here, we wish to develop a set of Fundamental Principles that can be considered both physical and metaphysical, based on Sources of Energy and Fields of Energy. Understanding that energy cannot be created nor destroyed, only converted, we then discuss how one might perceive this energy and its conversion - for understanding the movement of this energy is vital to the understanding of one's own experience; be it physical (electrical, mechanical), economical, sociopolitical, emotional, even spiritual. The first to be developed (and most immediately tangible) will be physical, which starts by discussing conversion/conservation of energy.

I.1 Energy

Energy cannot be created nor destroyed, only transferred, being converted into other forms of energy.

There are three (3) forms of Energy.
Active Energy (Activity)
Reactive Energy (Reactivity)
Passive Energy (Continuity)

These forms comprise Energy Transfer. Any energy system, be it electromagnetic, gravitational, economical, etc., and the energy transfer within these systems can be described using the three forms. The first principle, following from the Law of Conservation of Energy, states that energy cannot be created nor destroyed, only transferred. This means that in any system, the total energy must remain the same over time. The total energy in a system can be identified as three separate forms of energy.

Active Energy represents ...

Reactive Energy is ...

Passive Energy describes ...

Physical Energy Systems

Given the description of Energy Transfer, we can now discuss how such energies behave/propagate in various Systems. Just as there are three forms/modes of Energy, there are three forms of Components that govern such Systems, which are based on the ideal passive components in electronics and mechanics.

The first components, corresponding to Active Energy (Potential), are the capacitor and the spring. These components represent an ability to possess/withstand/supply Energy, though it is important to mention that these devices do not "store" energy, as they would very much like to release it. It might be more correct to say that they "retain" energy, so long as they are not over-saturated and pushed beyond their restoration ability (a more detailed explanation will surely follow).

The second set of components, corresponding to Reactive Energy (Dissipative), are the resistor and the dashpot. These components represent an ability to dissipate Energy. In the resistor, heat is the means of dissipation. In the dashpot, friction.

The third set, corresponding to Passive Energy (Kinetic), are the inductor and the flywheel. When charges flow through an inductor as current, a magnetic field is produced which has energy and acts to oppose changes in current. Similarly, a mechanical flywheel generates momentum which resists changes in speed. These components represent an ability to retain/maintain Energy. From these paralleled component relations, we can expand the analogy to describe similar components in other Energy Systems.

Gravitation

In the classic textbook physics example of a ball being dropped from a height, while neglecting air resistance, the initial Potential Energy "gained" by a ball at rest raised to some arbitrary height is, upon being released from rest, converted completely into Kinetic Energy as the ball begins to accelerate via influence of a gravitational field. When air resistance is considered, a Dissipative Energy is revealed, which completes the description of Energy Conversion. As the ball falls through the air, the ball experiences friction and a small (sometimes negligible) fraction of the initial Potential Energy is lost as heat, a Dissipative Energy. This reduces the amount of Energy converted to Kinetic Energy, thus reduces the speed the ball would be capable of achieving in a vacuum.

In fact, the friction of moving through air (or any fluid) has a force of resistance known as the drag force. For the example of the ball falling through air, if the ball falls (accelerates) long enough, the drag force (which depends on velocity) will eventually equal the force of gravity and the net force on the ball is zero, thus the ball is no longer accelerating and so will continue to fall with the same speed, known as the terminal velocity.

Through this simple example, and without involving any mathematics or problem solving (though these are necessary skills), we can assess what "motivates" the ball to change its state from being at rest to being in motion. We could proceed to discuss what might bring the ball to a stop, but will likely be done later on. While the ball was at "rest", it was being held in place (by a hand, a table, a rope, it does not matter). A particular Pressure was applied on the ball to achieve this stability, or stasis. A state of being Static. While Static, the ball has two equal and opposite Forces acting on its center. One force is that of the supporting force, which acts perfectly opposite to the

gravitational force. The supporting force is a reaction to the action force caused by the ball existing in a gravitational Field.

1.
2.
3. There are two (2) observable Elements.
    1. Sources (Mass/Charge)
    2. Fields (Momentum/Current)
4. Sources produce Fields.
5. Sources in (external) Fields experience Forces.

The Source in this first example is a ball with Mass. From *On Physical Analogies*, Sources of Mass produce Gravitational Fields, and a Source in a Field experiences a Force and thus an Acceleration. As is done classically in Electromagnetism, a Source is said to not interact with its own Field, whereas a Source in an externally produced Field will experience a Force. The source of the gravitational Field is Earth. Before the ball is released, it does not "experience" a force - it is in equilibrium. The same can be said while the ball is in free-fall (terminal velocity/steady-state).

It is not until the "instant" the ball is released, through whatever mechanism, that the ball experiences a Force via the Gravitational Field and is set in Motion, as the Energy "obtained" in the Potential mode (due to Displacement in the Field) begins to Dissipate while being converted to Kinetic Energy. Although the means through which the ball obtained Potential Energy is "rather unintelligible", in the words of Oliver Heaviside, we will simply say that is does, and that is does so proportional to the Displacement in the Field, such that the larger the Displacement, the larger the Potential. This Potential Energy is the maximum Energy available to the ball (or to any such system) as it is Perturbed from a Static into a Dynamic state, where Forces are not in Equilibrium. Such is with the ball; when the reactive support force is removed, the active field force dominates and the ball falls. As the ball approaches the ground, it collides with a force proportional to the momentum obtained from successfully converted Kinetic Energy, discounting whatever losses via Dissipative Energy.

As stated previously, we could delve further into the analogy and describe precisely how much Dissipative Energy is lost and how much Kinetic Energy is successfully converted, from which we could infer collision speed, time of flight, etc,. We will consider the mathematics later. In the meantime, it should be worthwhile to continue developing the analogies.

Fluids

When considering a Fluid system, these same concepts can be applied. Much like the ball experiencing the force of the gravitational field as it falls to the ground, fluids can also experience a force, or more appropriately, a Pressure. Pressure can induce a Flux proportional to Impedance. Analogously, Potential Energy can induce Kinetic Energy proportional to Dissipative Energy.

Electromagnetism

Another physical example of this Energy Conversion mechanism is in Electromagnetism. The three ideal passive components in electronic circuits are the capacitor, resistor, and inductor, which represent the three forms of Energy. The capacitor "stores" charge (while in a closed circuit with a source of an electric field) and has Capacity/Capacitance for Potential Energy. The resistor...

~~Economics~~

To be added at a later date.

Increasing Human Energy (from Nikola Tesla)

In *The Problem of Increasing Human Energy*, Nikola Tesla resolves the problem to three methods:

I. Increase Mass
II. Reduce Retarding Forces
III. Increase Impelling Forces

From a look at Newton's Second Law, we can understand these results more fully:

$F = ma$

where F is the total resultant Force, m is the Mass, a is the Acceleration.

Energy is Force through Space and Time.

To increase F would require two things - an increase in Mass while Acceleration remains the same (constant), or an increase in Acceleration while Mass remains constant.

Perturbation Theory

To determine how reactive a system is, it must be perturbed. A force is required to displace the system from equilibrium. The ability (or inability) of the system to restore itself to equilibrium determines the reactivity.

Control Theory

Applying Systems Analysis from Control Theory, we can describe methods of modulating these Energy Systems. System Stability is dependent on Feedback. There are three modes of Stability:

1. Stable - Positive Feedback < Negative Feedback
2. Semi-Stable - Positive Feedback = Negative Feedback
3. Unstable - Positive Feedback > Negative Feedback

Metaphysical Energy Systems

Expanding the analogy through the three forms of Energy, we obtain the following

1. There are three (3) forms/modes of Metaphysical Energy.
    - Potential Energy (Thesis/Creation/Disruption/Past/Pathos/Body)
    - Dissipative Energy (Antithesis/Duration/Reaction/Present/Logos/Mind)
    - Kinetic Energy (Synthesis/Destruction/Solution/Future/Ethos/Soul)

Rather than "experiencing" (or lack thereof) two equal and opposite forces (for that would constitute a Static/Dead system as opposed to a Dynamic/Living system), there exists two unequal (and often unconscious) Forces within every Human. These Forces are Freedom and Order.

Freedom	Order
i. Euphoria	i. Suffering
ii. Natural	ii. Artificial
iii. Growth	iii. Construction
iv. Decay	iv. Deconstruction
v. Asymmetry	v. Symmetry
vi. Discord	vi. Harmony

vii. Chaos	vii. Control
viii. Uniqueness	viii. Conformity
ix. Fear	ix. Desire
x. War	x. Peace
xi. Ignorance	xi. Strength
xii. Liberty	xii. Security
xiii. Individualism	xiii. Collectivism
xiv. Libertarianism	xiv. Authoritarianism
xv. Decentralization	xv. Centralization
xvi. Atheism	xvi. Religion
xvii. Indulgence	xvii. Discipline
xviii. Choice	xviii. Mandate