# Mutuality

## Part 1 of 2

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# STEP

Each of us is born, spend our life "navigating" through Existence (to the best of our abilities), and then we die. We do this both individually and collectively. To perform this feat of Existential Navigation, we construct, maintain, and utilize an internalized Map of Existence (Weltanshauung, $POV_{global}$, etc.). We utilize our imaginations to translate our experiences into such a symbolic Map (Analogy, POV, etc.). The STEP disciplines provide a coherent, integrated, empirical curriculum for learning how to develop these capabilities to the fullest extent.

STEP constitutes a "social" analog of the STEM disciplines.

STEP Analogy of STEM

| | | |
|---|---|---|
| Science | | Systems |
| Technology | | Truth |
| Engineering | | Ethics |
| Math | | Pedagogy |

The traditional Social Sciences can be viewed as being roughly 20% empirical/80% philosophical. The STEM disciplines can be viewed as being roughly 80% empirical/20% philosophical. The goal of STEP is to aim for a similar 80% empirical/20% philosophical basis, but exclusively within the "social" domain. An ideal curriculum for human mental development would combine both STEP and STEM disciplines into a full spectrum of knowledge. A quintessential project for STEM is Space Colonization, and a quintessential project for STEP is Existential Love and bilateral rationality.

Throughout Book I and II the following definitions are utilized.

**Systems** (Games, Plays, Narratives, etc.): ordered structures/dynamics of human/social relationships and interactions. This work is focused exclusively on the social domain of systems. The antithesis (opposite) of Systems is "Chaos".

**Truth**: this work utilizes a specific definition of "truth", as detailed in a subsequent chapter. The antithesis of Truth is "Lies".

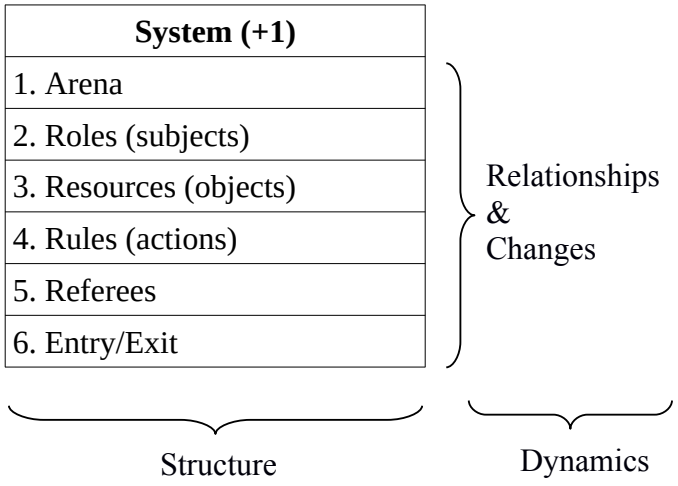
**Ethics** (Morality): historically, ethics have been philosophically based. In this work "ethics" is codified into an empirical model, as detailed in the subsequent chapter. The antithesis of Ethics is "Impulses".

**Pedagogy**: in this work, this term refers to the meta-domain of "knowledge about knowledge" (understanding how we understand), and it's practical applications. The antithesis of Pedagogy is "Futility" (ignorance about ignorance).

## Systems (Games)

Systems are simply formalized Games. Almost everyone is familiar with Games from their childhood. We learn to play games at a very early age. All Systems (Games) posses the same common elements. An elementary understanding of Game Theory, Complexity, and Analogy (Metaphors, etc.) can be helpful for fully understanding System dynamics and structures.

Universal System Elements




A System (social) is an ordered set comprised of 6 (+1) universal elements (and their interrelated dynamics) composed in a holistic form (AKA Game, Narrative, Play, etc.). These elements may be actual or implicit (imbued by observer).

A full understanding of this model and its constituent elements is essential for understanding Systems (social) and their pathology.

The ultimate test of any System is based upon an analysis of the Interdependent Consequences (Mutuality) that it produces.

A concrete analysis of interdependent consequences can be found in the white paper “Universal Agent Archetypes”.

## Truth

An elementary understanding of logical fallacies, fear/desire/apathy, and self-deception can be helpful for fully understanding Truth. Truth is often an elusive thing to define concretely, so a specific definition is used throughout Book I and II.

Truth Equivalence

TRUTH $\Longleftrightarrow$ [Complete/Accurate/Relevant (Simple)]

Truth: the most CAR(S) human interpretation of Reality available.

CAR(S): Complete, Accurate, Relevant, Simple.

Complete: all relevant information is known.

Accurate: information matches actual circumstances.

Relevant: all necessary and interrelated information is included.

Simple: the most condensed (succinct) analogy, that doesn't loose necessary meaning.

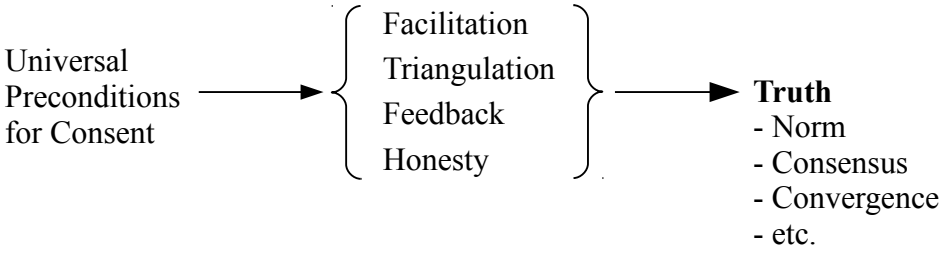
CAR(S): Complete, Accurate, Relevant, Simple.

In the quest for Truth, a common dysfunction of information sharing is the Deadlock | Echo Chamber dynamic. These two effects can be viewed as complementary opposites.

| **Deadlock \| Echo Chamber Dichotomy** | | |
|---|---|---|
| Form | Deadlock | Echo Chamber |
| Basis | Threat | Temptation |
| Ethic | Nihilistic | Narcissistic |

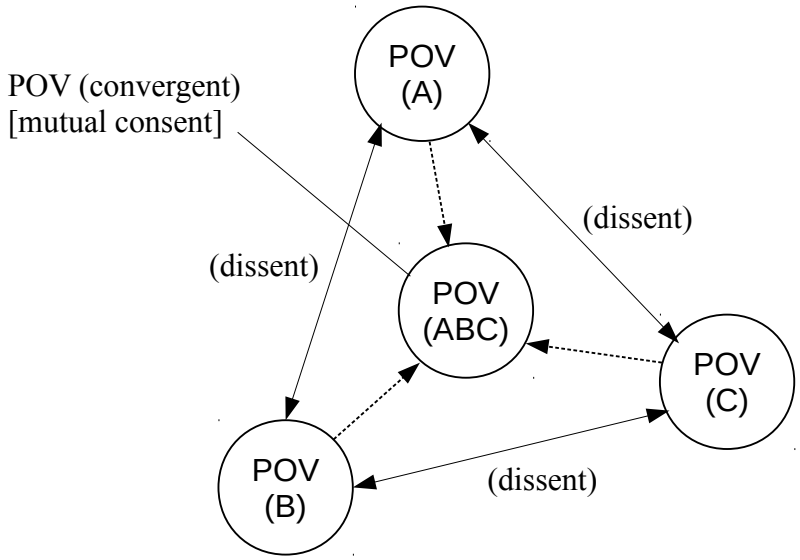
The Chain of Truth is a dynamic that defines the conditions necessary for identifying the Truth (norm, etc.). It requires Triangulation, Facilitation, Feedback, and Honesty in addition to meeting the 3 universal preconditions for legitimate consent.

Chain of Truth




Triangulation is a critical element in the Chain of Truth. It is superior to a dialog (2 POVs only) for establishing Truth, as it avoids the common Deadlock and Echo Chamber dysfunctions. Dialog generally provides more of a "dead reckoning" methodology.

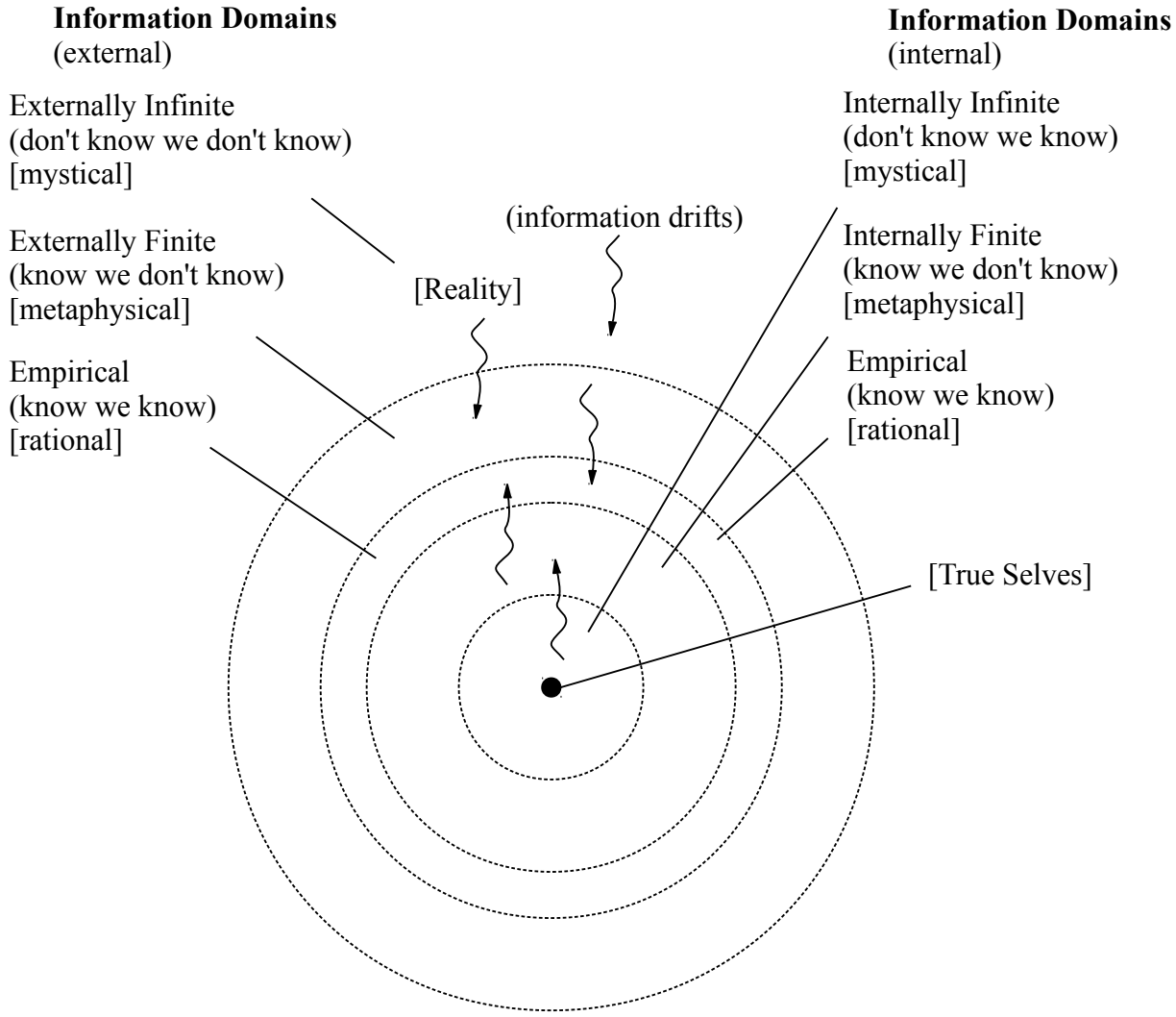
Triangulation
(3 or more POVs)




The evolution of the human interpretation of Reality flows in a unique dynamic, as defined in the Reality/Virtuality model. Virtuality is often defined as human "collective consciousness", which does not exist without humans.

Mutuality

Reality | Virtuality



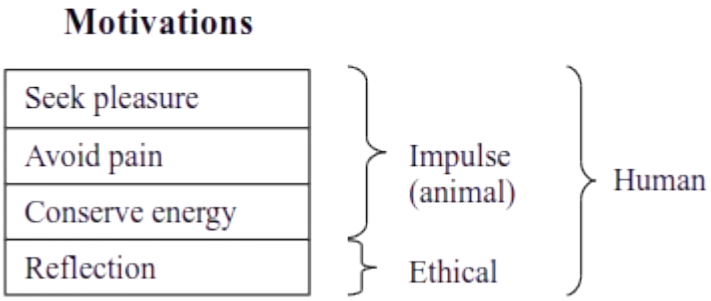

In ideal circumstances, the Thesis and Antithesis for each POV is included in the triangulation process.

Any specific POV is generally an instance of 1 of the 3 standard analog metaclasses, Mystical, Metaphysical, Empirical.

## Ethics (Morality)

Ethics provides the guiding basis for individual and collective actions. Ethics emerge from the general dynamic of human valuation (prioritization). An elementary understanding of human thinking/feeling, and interdependent consequences can be helpful for fully understanding Ethics.

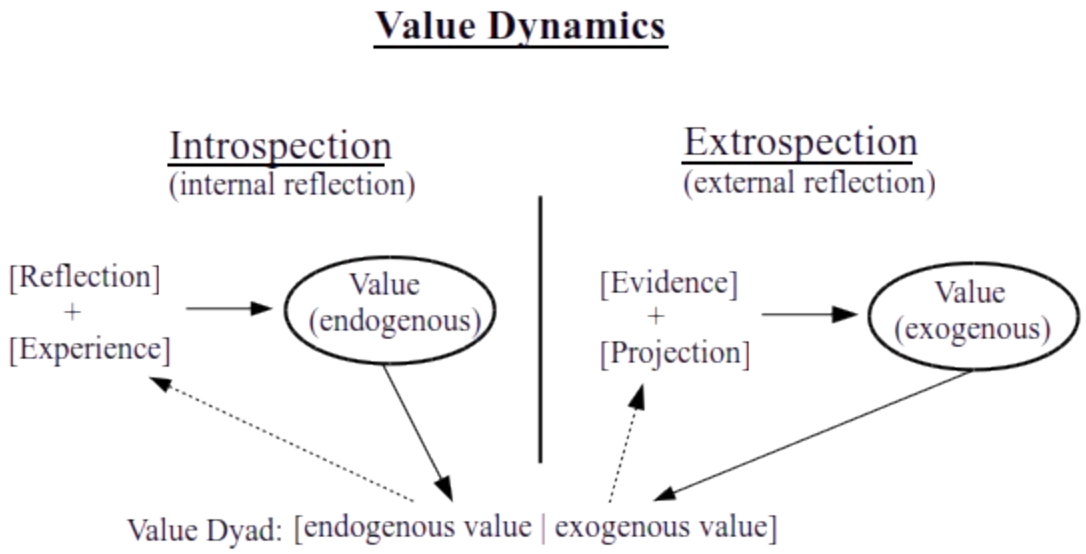
### Motivation Taxonomy




Given the lessons learned from a basic understanding of Mutuality, the optimum ethical basis for human/social systems can be simply encoded into a Mutualist Ethic.

| | Mutualist Ethic | | |
|---|---|---|---|
| | **Principle** | **Basis** | **Social Means** |
| Love (existential) [emotional precursor] | First | Do No Harm (net, actual) | Equality + Totality (optimum) |
| | Second | Fairness (Justice) | Fair Games (Just Systems) |

The universal structure and dynamics of “value” provides a simple means for understanding the actual preferences, and therefore the Actions, of individuals.




Every Entity (Agent, Subject, etc.) in a System (Game) has an ethical code that falls within one of the following 4 Meta-Classes.

| **Entity Taxonomy** | | | | | | |
|---|---|---|---|---|---|---|
| **Class** | **Preference** | | **Rationality** | **Social Ethic** | **Strict Entry** | **Motive** |
| | **utility$_{self}$** | **utility$_{other}$** | | | | |
| Mutualist | Optimum | Optimum | Bilateral | Stewardship | Yes | Reflection |
| Narcissist | Optimum | Indifferent (or not optimum) | Unilateral (self) | Sovereignty | No | Impulse |
| Conformist | Indifferent (or not optimum) | Optimum | Unilateral (other) | Servitude | No | Impulse |
| Nihilist | Indifferent (or not optimum) | Indifferent (or not optimum) | Irrational | Relativism | No | Alienation |

A detailed justification for this model is provided in the white paper “Universal Agent Archetypes”, by this Author. That paper utilizes a Game Theoretic (Mechanism Design Theory) format to analyze the relevant factors that produce this model of interdependent consequences.

This Mutuality matrix may provide evidence for the key to human evolution, given that Reflection is the defining attribute of homo sapiens. We often struggle with the Mutualist ethic, but this may be the key to unlocking our full potential. It might even produce a new bifurcation in our evolutionary chain,

leading to a distinct new species. A logical term for the next step in our evolution could be “homo mutualis”. This notional table shows some potential delineating factors.

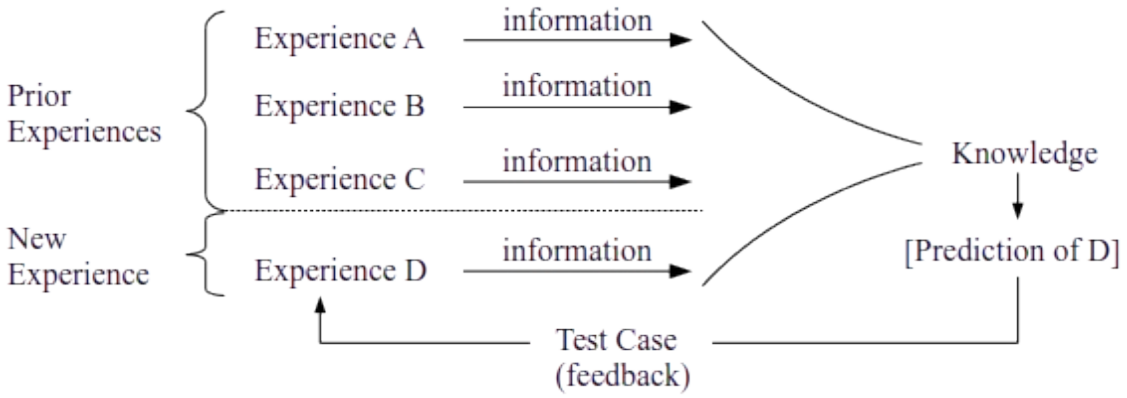
| **Homo Sapiens vs Homo Mutualis** | |
|---|---|
| Homo Sapiens | Homo Mutualis |
| Mixed Rationality | Bilateral Rationality |
| Heterogeneous associations | Homogeneous associations |
| Systemic suboptimization | Systemic optimization |

# Pedagogy

Pedagogy begins with an understanding of how we understand (learn and teach). In a STEP curriculum, participants learn why such an understanding and application of knowledge is useful throughout life. Pedagogy is often considered a specialty skill for those who pursue a profession of academic "faculty" in a formal institution. In STEP, it's considered a domain of continuous teaching/learning in practice and application, for everyone. An elementary understanding of information, cognitive development, knowledge, and POVs can be helpful for fully understanding Pedagogy.

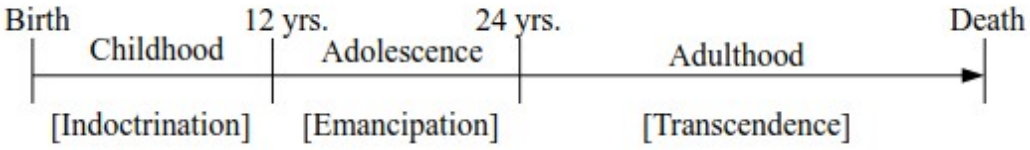
Information provides the initial inputs for knowledge in a simple dynamic. Knowledge is achieved through a distillation of information inputs into their essence (principles).

Knowledge Dynamics

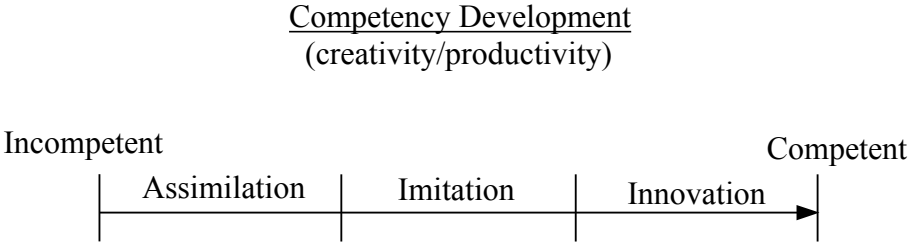



The human capacity for mental development goes through specific stages. At each stage, some new capability emerges.

Mental Development Time-Line

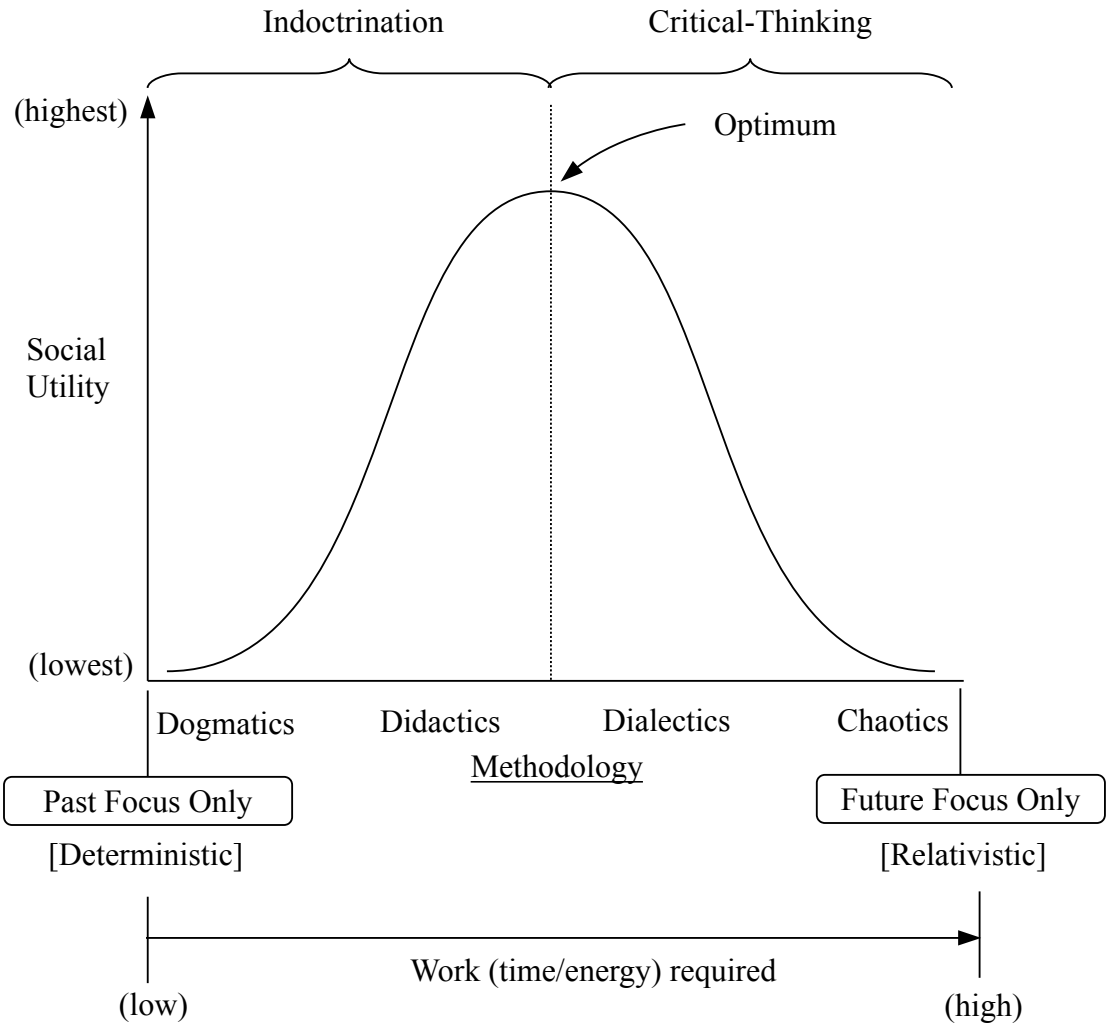


The general cycle of competence follows a specific sequence of development. It can take a significant amount of work to progress through these stages.




Integration of both didactic (rhetoric, debate, etc.) and dialectic tools provides the foundation for the ID methodology. The higher levels of energy (work) required for dialectic thinking (questioning) makes it more challenging than didactic communicating. The following is a simple model of the principles at work when constructing collective consent (shared knowledge).

[Teaching | Learning] Dynamics
(Sharing Reality)



## Legitimacy

The legitimacy of a System is generally based upon some theory of Fairness (Justice, Jurisprudence, etc.). Such theories can be classified generally as either philosophical (80% metaphysical/20% empirical) or scientific (80% empirical/20% metaphysical). Historically, theories of Fairness (Justice) have taken a primarily philosophical approach. Mutuality provides an attempt at a more empirical codification of Justice. Such a Mapping must, by definition, be universally applicable to all social systems (Legal, Political, Economic, Cultural, Religious, etc.). Therefore, two critical metrics for constructing a Scientific Mapping of Human Dynamics are - how well it codifies Actual Reality, and how well it codifies the prevailing social consensus (mutual, normal, etc.).

Philosophical Justice (positive) relies mostly upon social consensus (explicit or implicit) as its basis for legitimacy. This is a useful, but insufficient condition for universal applicability. It has historically resulted in a wide array of divergent interpretations (local echo chambers), that may or may not coincide with Reality (actual). An empirical approach (to the norm) can provide the means to resolve such conflicts and standardize the application of Justice under all social circumstances.

This process begins with the question, “who owns Reality”? More specifically, who has the ultimate authority (power) over the human interpretation of Reality (both individually and collectively)? The most common answer to this question is either “no one”, or the exact opposite, “everyone”. And yet both of these answers are simply two different sides of the same coin. They both imply that no single entity (real or fictitious) can legitimately claim universal authority to monopolize the human interpretation of Reality (actual). If so, every individual has the Natural Right to construct and maintain an independent (autonomous) interpretation of Reality (actual). The social legitimacy of such interpretations can best be evaluated through an analysis of the interdependent consequences they produce.

For practical purposes, the concept of Reality can be divided into its two distinct domains. The first is Actual Reality (Nature, Existence, etc.), which is independent of any interpretation by humans (individually or collectively). The second is Human Reality, which is the unique “Map of Existence” each individual human constructs/maintains in their own mind. There is only one Actual Reality, but there can be an almost unlimited number of “Maps” (interpretations).

A personal Map (Worldview, Point Of View, Weltanschauung, Cognitive map, etc.) is simply an analogy (interpretation) of Actual Reality, and not Actual Reality itself. It's important to always keep in mind that “the map is not the territory”. A personal Worldview is an internalized interpretation of Actual Reality, based upon experiences (direct or narrative), that an individual utilizes to navigate Actual Reality. This personal interpretation is entirely fictional (imagined), is independent of all other Worldviews, and may or may not be True.

When two (or more) people share (communicate) their personal Worldviews, it creates an opportunity to teach/learn from each other. This instinctive sharing of Worldviews provides an opportunity to negotiate for a Common Worldview (Social Reality, Cultural Norm, Social System, Collective

Narrative, etc.) within a given context. A Common Worldview can be helpful for coordinating the actions of multiple participants and for optimizing both collective and individual goals.

The highest overall utility for any Worldview (personal or common) is realized when it optimizes the two most critical defining variables:

1. Wants satisfaction: How well it can be utilized to Navigate Reality (actual)
2. Truth: How well it aligns (coincides) with Reality (actual).

Human Reality (personal or common) can be partly or completely True (aligned with Actual Reality), or not. Integrating both of these variables (metrics) produces the following precedence valuation matrix for Worldviews.

Worldview Classes
(with optimization precedence)

| | | Wants Satisfaction | |
|---|---|---|---|
| | | max | min |
| Truth | max | 1 | 2 |
| | min | 3 | 4 |

A Class 1 Worldview (precedence = 1) constitutes the highest level of optimization, with Class 4 being the lowest.

A concrete definition of “Truth” is an essential consideration for all social systems. The following definition of Truth frames its critical attributes.

Truth: the most Complete, Accurate, Relevant, and Simple human interpretation of Actual Reality available. A useful mnemonic for this definition is “CAR(S)”.

A clear definition of Truth is necessary because our Worldview generally determines our actions, and therefore the resulting consequences they produce. Our actions produce consequences that impact ourselves, others, and the ecosystems in which we exist. Because of this, our Worldviews (personal and common) are at an optimum when they coincide with Actual Reality as closely as possible. Otherwise, we are at risk of existential failure as individuals and as a species.

The existence of interdependent consequences as described above reveals the significant potential for conflict (dissent), both individually and collectively. Such intrinsic conflict can lead to significant harm (net, actual). Mutuality provides a simple, empirical, pragmatic methodology for analyzing and resolving such conflicts (individual and collective). It's intended to provide the guiding principles necessary for Convergence to a common, optimum, True interpretation of Reality (actual) under any circumstances.

## Convergence

When two (or more) Worldviews (personal or common) contradict each other with regards to a specific topic (issue), it can create arguments and conflict (dissent). There is a natural impulse to hijack the Norm from others in order to accomplish a false Convergence (in self-interest). Such contradictions can manifest as Warfare over which of the interpretations of reality comes closest to the truth, or which action would be the most beneficial (net positive consequences). Sharing (communication) the alignments (and contradictions) of our Worldviews with each other enables us to construct optimum interpretations (mutual consent).

Since there is only one Reality (actual), but many possible interpretations, there ought to be a simple way to converge (reach consensus) onto the underlying Truth (principles, essence, etc.) by sharing the initial interpretations. A given Convergence may or may not be a True Convergence (optimum). An association of individuals may Converge through collective consent, even when the resulting Common Worldview produced is not True. To be True, a Convergence requires application of the most inclusive and most diverse set of competent Worldviews available. This comprehensive and diversified set of Worldviews must then be unified and integrated (Convergence) to construct universal principles.

One of the most powerful means for achieving a True Convergence is the Integrated Dialectic (ID) technique. It provides practical tools and methods for converging on the Truth (optimum answer/action) utilizing consensus (empirical), for a given topic (issue). The ID method is based on the theory that any collection of varied (contradictory) Worldviews can be logically guided (facilitated) to converge on the essential principles at the core of a topic (issue). This generally requires facilitation by at least one person skilled in the methodology of Convergence (mutual consent).

The ID method can consistently produce Convergence to the optimum (map of reality) on any topic. The more diverse and competent the initial Worldviews, the higher the certainty that the final model of reality will be close to the truth (Actual Reality).

The ID methodology can be effectively applied in 3 distinct scenarios:

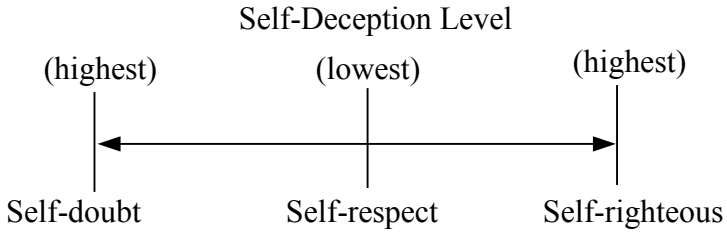
1. To facilitate an immediate consensus (Convergence).
2. To construct/encode a useful model for a future Convergence.
3. To brainstorm innovations.

An experienced facilitator can readily identify the universal principles that emerge from conducting sufficient workshops (surveys). The final models that emerge can be recorded and then reused to make future workshops regarding the same topic (issue) more efficient and effective. The ID methodology is based upon practical application of the principles encoded into the [Teaching | Learning] Dynamics model. It fully integrates both the didactic (rhetoric, debate, etc.) and dialectic tools necessary for successful Convergence under all social circumstances (interdependent consequences).

A skilled facilitator learns how to suspend their own certainty (Worldview), through temporarily imposed self-doubt regarding any previously constructed models. When conducting ID workshops, this

ensures facilitators are receptive to any previously excluded Worldviews that might emerge during a workshop. It also helps the facilitator to avoid imposing biased control over the Convergence dynamics.

Self-Deception Spectrum



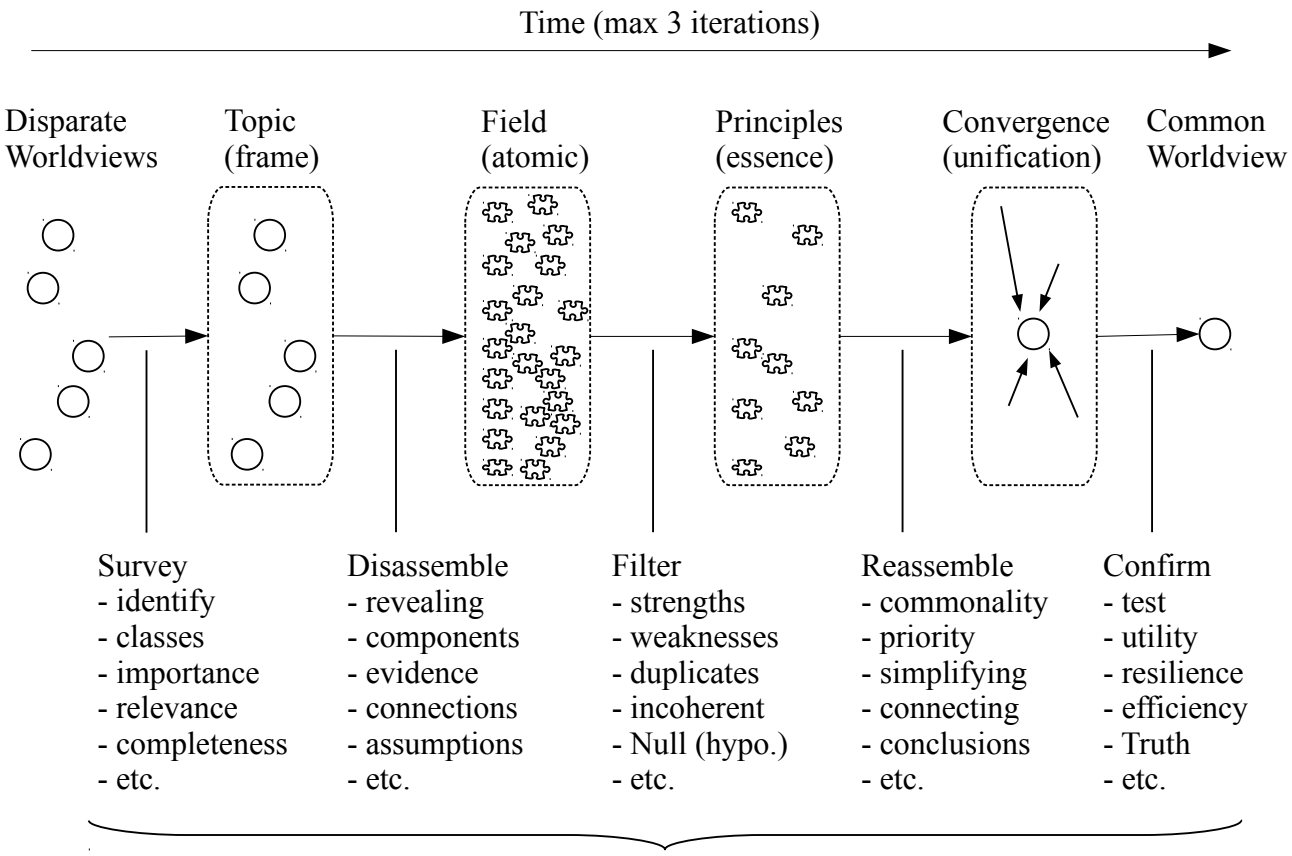

The steps involved in a Convergence rely upon a special form of questioning that can guide a complete analysis and design of a common consensus. The methodology relies upon heuristics and domain experience. Questions generally focus on revealing the thinking of the participants, analysis, and then rebuilding a common consensus. A formal process is useful for managing such a complex dynamic.

Although Convergence is focused on producing an intellectual meeting of the minds, there is also an emotional precondition that must be satisfied. This book is primarily focused on the intellectual dynamics and structures of Convergence. A universal precondition for intellectual Convergence is an emotional Convergence. Unless there is a unanimous emotional motivation for Convergence among the participants, it's nearly impossible to produce a legitimate intellectual Convergence.

## Convergence Process

Facilitating consensus, designing models, and brainstorming innovations all follow the same basic process at the localized level. The Convergence (Model) produced can also be recorded and utilized to help increase the productivity of future ID groups. Such models can help avoid "reinventing the wheel" syndrome by providing a useful reference. To do so, the following steps are conducted in sequential order and iterate until an acceptable conclusion (Convergence) is reached.

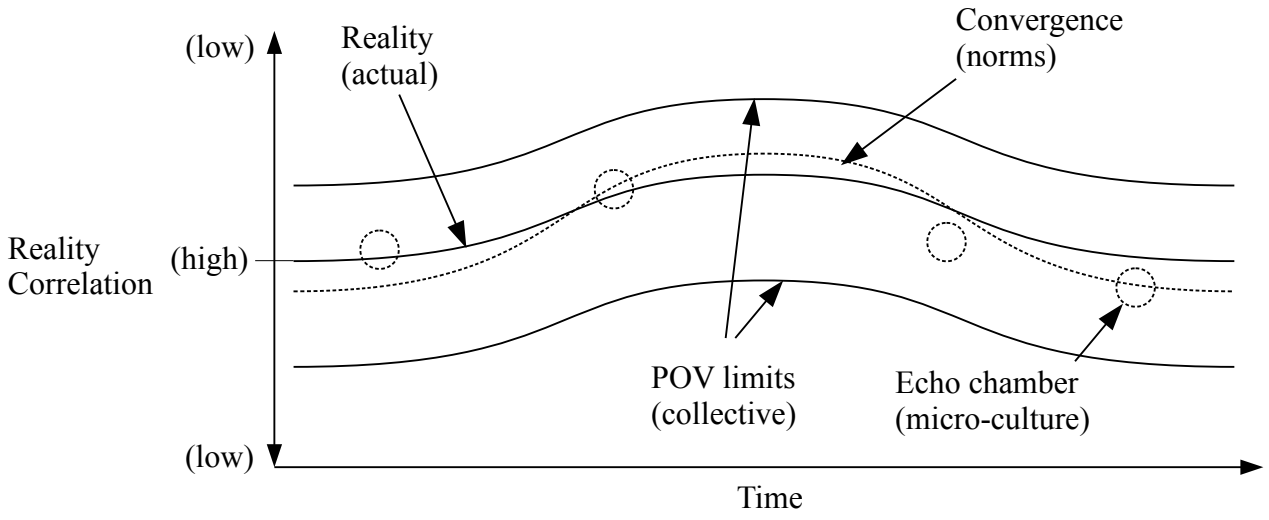
Convergence Process




This process progresses from one state to the next through the application of ID questioning. Each disparate Worldview is disassembled to reveal the underlying experience and logic that has produced the initial interpretation.

At the macro level, cultural/societal norms are in a continuous state of fluctuation from tracking the flow of actual Reality.

Convergence Macro-Dynamics
(macro level view)



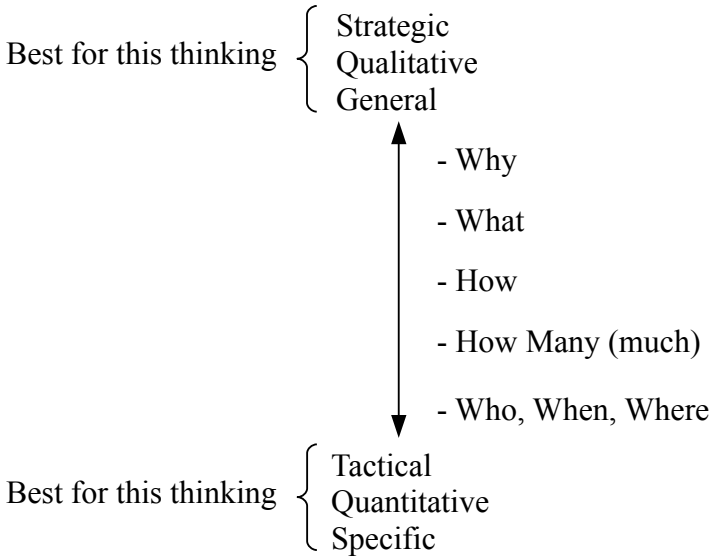

The macro-culture of collective human interpretations of actual Reality provide the common basis (norms) for the full spectrum of human Worldviews. Local Echo Chamber (micro-culture) Convergences can occur based upon framing fallacies that misalign with actual Reality and the macro-culture (norms). A universal remedy for sub-optimal collective convergence is to implement a Devil's Advocate function (null hypothesis, skeptic, contradictor, antithesis, etc.).

## **Integrated Dialectic** (Questioning)

The quality of a decision (answer, conclusion, resolution, etc.) is generally determined by the quality of the question. The quality of a question is determined by two factors. The first is the strategic level (scale) of the question. The second is the discovery level (scope) of the question.

The strategic level of a question determines the specificity (granularity) of the answer. More strategic questions reveal meta-thinking. More tactical questions reveal component (element) thinking. The hierarchy of questions is universal and provides guidance for all question formulations. The following is a simple model of the hierarchy.

Question Hierarchy



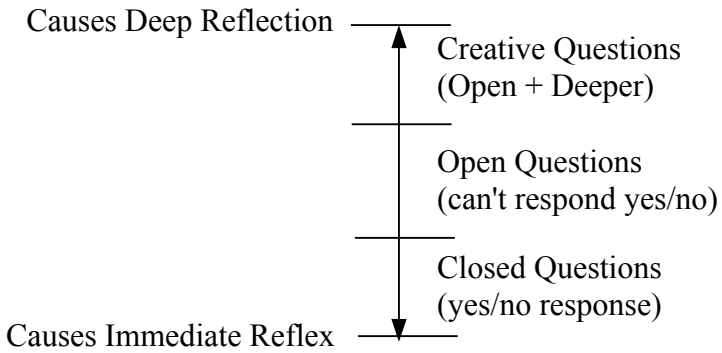

Conflicts (dissent) often occur due to an implicit assumption of Consent at a higher strategic level of thinking. This can easily be remedied by asking a more strategic question, and then guiding convergence at that higher level of thinking before returning to the more tactical level. In a shared communication, the question “Asker” generally has more power and control over the process than the “Askee”. Therefore the Asker incurs an obligation of Stewardship.

Efficiently facilitating a group generally requires beginning at the most strategic level of questions for the chosen topic and then stepping down through the hierarchy to the most tactical level. Questions must be resolved at each level before proceeding to the next step. This helps to avoid a premature attempt at optimization of the answer (conclusion).

In addition to the hierarchy of questions there is a universal continuum for the discovery (revealing)

power of a question. Revealing another persons thinking provides the information necessary to build consensus. The more revealing the question is, the more complete the answer will be. The following is a simple model of the discovery level for questions.

Question Types




Closed Question Examples:

- Do you want to eat lunch now?
- Is this the right form to fill out?
- Can I have this last donut?

Open Question Examples:

- What time do you want to meet for lunch?
- Who broke this glass?
- Why didn't you wait for me?

Creative Question Examples:

- What is the best decision you've made in your life?
- Why do humans lie?
- What is the most important thing you want to accomplish in the remaining years of your life?

Closed questions can generally be answered with a “yes” or “no”. The legitimate purpose in most cases is to confirm/deny any assumptions or conclusions made by the questioner. They can also be utilized in an adversarial way (rhetoric), which has no value in the ID method.

A powerful and unique format for questioning utilizes the “If (A), then (B)” formulation. Once the fact of (A) has been mutually established, it can provide a useful foundation for questioning about (B). An example of this would be, “If (people act in their own self-interest), then (how do we explain altruism)? The formulation of Creative (deep) questions generally requires practice. It's especially challenging to

do so on  the fly, as an improvisational skill.

Basically, the ID methodology provides a means to facilitate the reverse engineering (deconstruction) of conclusions (thinking). This allows a facilitator to assist participants in alleviating their own psychological “anchors” (biases, framing fallacies, etc.). Doing so enables a more fluid and adaptive thinking and learning process.

## Collective Consent

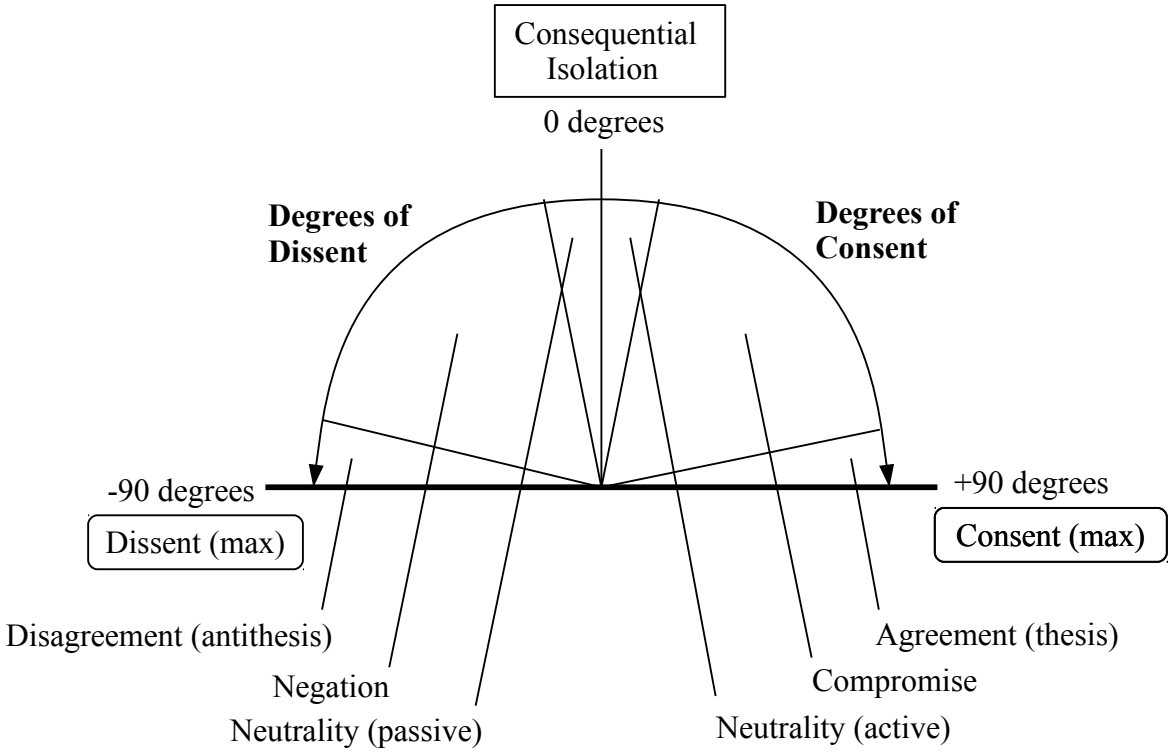
Through the skilled use of Question Construction a facilitator guides a group towards a common conclusion, to which all participants will consent. Collective consent is simply the convergence of each individual Worldview (POV) to a Common Worldview, for which all participants mutually consent.

Legitimate consent demands that certain preconditions be satisfied. The following model details the universal conditions necessary.

| **Universal Preconditions for Legitimate Consent/Contract** | |
|---|---|
| Precondition | Basis |
| 1. **Competence** | A. Fully functional mind (intellectually and emotionally) |
| | B. CAR(S) information regarding thesis (issue) [symmetrical] |
| 2. **Autonomy** | A. Self-directed power, control, and freedom |
| | B. Not currently exceeding suffering threshold (+/- wants) |
| 3. **Options** | A. 1 (or more) equally viable options available |
| | B. 1 of the options must be “none of the above” (systemic dissent) |

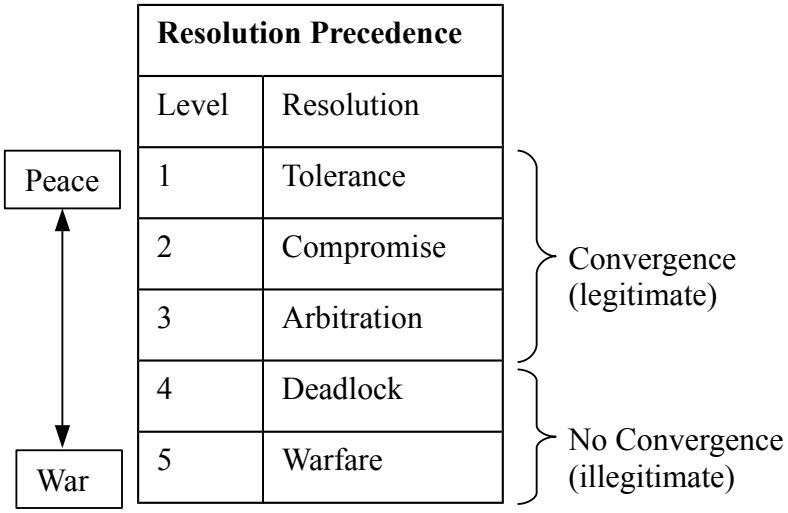
Consent (and Dissent) occurs in a spectrum of degrees. The highest level of consent is generally classified as “agreement”. The highest level of dissent is classified as “disagreement”. Convergence is achieved by facilitating the entire group to convert their own thinking from dissent to consent. The facilitator guides the group through the degrees of consent utilizing the appropriate ID questioning construction. The following is a simple model for the degrees of consent possible.

Consent Spectrum
(Consent/Dissent Dichotomy)



Achieving collective consent generally requires skill in resolving contradictions and conflicts, in order to facilitate a successful Convergence. The following is a standard model for Conflict Resolution.

Conflict Resolution Ethic




A conflict begins at some level due to the prevailing circumstances. The resolution process consists of facilitating the participants to achieve consent at the highest level of resolution possible. Level 4 and Level 5 conflicts are universally illegitimate resolutions.

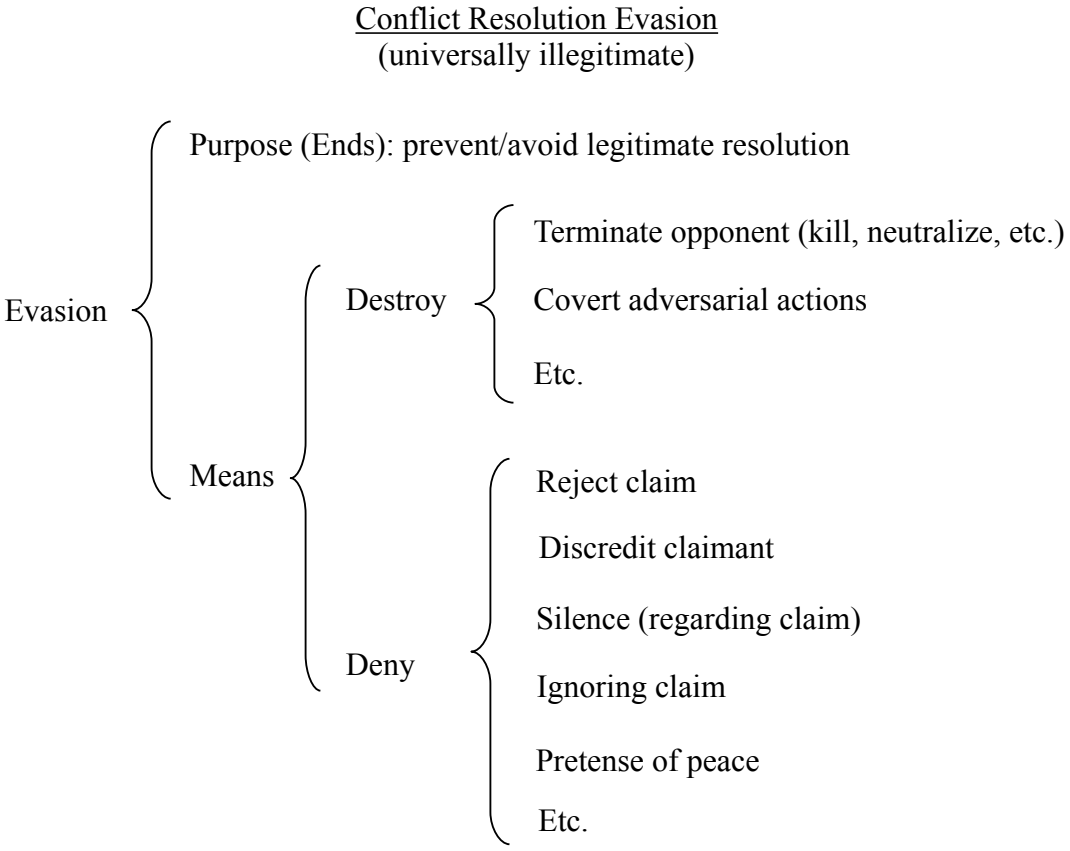
The default impulse when encountering a contradiction (argument) is to assume that our personal Worldview is right (True). This assumption requires the least energy (work), but has the lowest probability. The common dynamics of contradiction (argument) are contained in the following model.

| **Argument (Contradiction) Classes** | | |
|---|---|---|
| True (prob.) | False (prob.) | Class |
| Adversary A (1) | Adversary B (0) | 1a |
| Adversary B (1) | Adversary A (0) | 1b |
| Adversary A (x) | Adversary A (1-x) | 2a |
| Adversary B (y) | Adversary B (1-y) | 2b |

Absolutes [impulse]

Fractional [reflection]

Evading resolution is also a universally illegitimate action. The following defining characteristics provide the guidelines for identifying such evasion.



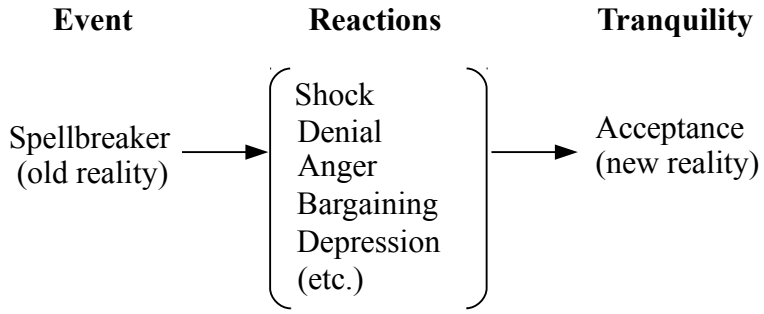

The means utilized for conflict resolution evasion all produce harmful (net) consequences.

## Emancipation

The ID method can also provide an ideal means for achieving universal human emancipation.

Workshop dynamics often remedy initial disbelief of participants. If the methodology is followed closely, the results are nearly always uccessful. This is a useful model of the process cycle.

Disbelief Cycle




If a true convergence is achieved, then universal emancipation for participants is possible.

Facilitating a Convergence requires a mix of heuristic and domain expertise. This can be achieved by guiding the participants to reveal/discover the following types of elements regarding the Topic.

Problem Domain (and desired resolution state)
Use Cases (primary examples)
Descriptive Nouns and Verbs
Nouns are objects/structures
Verbs are methods/dynamics
Complete “X is an instance of a Y” factoring (reduction)
Establish “null” values (or slots) as place holders for unknowns
Use decision tree flow process for causality

A skilled Facilitator can guide a group to achieve these tasks without the participants being aware of (distracted by) the process. Therefore, minimal prior skill in these tasks is required of the participants.

One skill that is very useful for all participants in a collaboration of any kind is Feedback (positive). The ability to provide helpful Feedback (constructive criticism, useful opinion, etc.) is beneficial on many levels. Skill in Feedback requires regular practice. It is helpful for avoiding the typical impulsive reactions (responses) that don’t contribute to unification (Convergence).

| **Feedback (process)** | |
|---|---|
| Attribute | Description |
| Permission | May be explicit or implicit (core requirement) |
| Positives first | Identify positive elements first |
| Concrete | Be specific |
| Future focused | Focus on future changes/opportunities |
| No harm to self-esteem | Be careful of emotions |
| Timely | Provide as soon as possible |

Feedback skill is required of participants in an ID workshop, to ensure a successful Convergence.

# Tools

This chapter provides some suggestions for Tools that can be useful for encoding (Mapping). This is only a sampling and other tools can be designed to meet any specific needs. A review of Book II provides a wide spectrum of such Tools as practical examples of their use.

Map Types

1. Global (holistic) – Worldview, $POV_{universe}$
2. Local (topical) – $POV_x$ (where x is a specific topic)

Map Domains

1. Mystical (Magical)
2. Metaphysical (Philosophical)
3. Empirical (Scientific)

As an example, Mutuality; Book II provides a Global, Empirical Projection (Existential).

Map Reverse Engineering (iterate until convergence)

Step 1. Start at the ending (conclusion, goal, etc.).
Step 2. Work backwards to the beginning (deconstruction, disassembly, etc.).
Step 3. Reverse the sequence (list in forward form).
Step 4. Repeat.

Some examples of reverse engineering plans include the Tower of Hanoi puzzle, and Mazes.

The following provide some Rule of Thumb ideas for model development (encoding).

Utilize mnemonics, acronyms, and rhymes wherever possible
Don't use more than 7 elements (factors, concepts, etc.) in a component, structure, or dynamic.
Graphical forms are generally better than word forms.
Condense (distill) all models down to their simplest form.
Make generous use of dichotomies (dialectics are more memorable than didactics).
Clearly encode the interconnections between models/components.

It can be very helpful to use standard graphical elements to express common relationships, interconnections, structures, and dynamics whenever possible.

For encoding Normal distributions a standard bell curve (Gaussian) Template has general applicability.

A matrix graphic is useful for backchaining to identify unknown antecedents of interdependencies

when they aren’t obvious.

Dreaming (day or night) can be a powerful resource for creating new models.

## **ID Workshop** (example)

Duration: 10 – 60 minutes
Participants: 2 – 12 (peers only)
Facilitator: 1 (minimum)
Preparation: Consent (including Universal Preconditions)
Location: Quiet, no external distractions/interruptions
Communications: Face-to-Face

In a typical workshop (2 – 12) participants meet to teach/learn a specific topic utilizing the ID methodology for Convergence. The facilitator will generally isolate themselves for about 10 minutes of private time before the beginning of the workshop, in order to mentally prepare. The participants are typically arranged in a semi-circle with the facilitator positioned at the focus of the circle.

The facilitator begins a workshop with some organizing information for the participants. This includes such things as comfort breaks, length of session, and other rules of the game (process). Some method (flip chart) can be utilized by the facilitator to record/organize the inputs of the group.

The facilitator confirms the chosen topic and questions the participants for how they want to measure the success of the workshop. The facilitator records these expectations and posts them for the group to see at any time during the workshop. These are some examples of useful opening questions.

> What is the scope and scale of “the Topic”?
> Why is “the Topic” important (relatively)?
> What makes “the Topic” so challenging?
> What are the elements (components) of “the Topic”?
> How can we measure the value of “the Topic” and its elements?
> How does “the Topic” relate to other important Topics?

The facilitator then asks appropriate ID questions to guide the participants to consensus on each element/component of the topic. A facilitator must always avoid stating their own beliefs (opinions) during a workshop. This requires training and practice to achieve. A facilitator must have confidence that the models they use to guide the participants are based upon solid Models. If this doesn't appear to be true during the workshop, a skilled facilitator can always guide the group to a new, unpredicted consensus.

At the end of the workshop, the facilitator reviews the initial expectations for success recorded at the beginning of the workshop, making sure everyone's expectations have been met or exceeded. Any unmet expectations are facilitated to a successful conclusion.

A future workshop is often scheduled so that participants have enough time to practice applying their new knowledge in their everyday lives. This experience increases their competence for the next workshop, for which they should have developed their Worldviews.

## Summary

The Convergence Methodology is capable of producing the most useful (optimum) models of reality (Norms), immediate Convergence, and brainstorming of technical innovations. Models can be recorded and utilized to help guide future ID efforts at consensus and decision-making. Building collective consensus can provide a more orderly and peaceful social resolution for all participants. Without a well structure approach to consensus and peace, we are often left with “luck” as the primary basis for finding solutions to human conflict (dissent). The ID method provides a universal tool for achieving mutual understanding and social peace under any interdependent circumstances.

The companion volume, Mutuality; Book II provides a holistic set of encoded Models that can be utilized as a master reference at the strategic level (global). It's a comprehensive set of selected models available to support consistent application of Mutualist human/social dynamics. Book II only becomes fully useful for those who have first obtained basic skills in the ID methodology detailed within this book.

# Appendix

## Universal Agent Archetypes and the Laws of Sociodynamics


### Abstract

In the game-theory knowledge domain (Game Theory, Mechanism Design, Social Choice, etc.), Agents have generally been presumed to be instances (Types) of a single Archetype (Class). This pervasive presumption of a single Archetype can directly cause faulty conclusions. This paper puts forward the claim that every Agent can be classified by its "strategy" attribute into 1 of 4 distinct Archetypes. These 4 Archetypes (Mutualist, Nihilist, Conformist, Narcissist) are hereby explicitly defined in a structured Taxonomy. Agents of the same Archetype produce similar Outcome spaces, while Agents of different Archetypes produce different Outcome spaces. The Prisoner's Dilemma (PD) is utilized here to detail the specific effects of Archetypes in determining Outcomes. The PD analysis reveals that only a homogeneous population of Mutualist Agents consistently produce a Systemic Optimum as their dominant Strategy. This taxonomic Agent effect is invariant across all 2 x 2 Games. A Mutualist Optimum Outcome is therefore systemically optimal, and every Game contains at least 1 Mutualist Optimum.


**Keywords:** Agent, Archetype, Agent Class, Agent Taxonomy, Agent Archetype, Game Theory, Mechanism Design, Mutuality, Mutualist

### Introduction

In Game Theory, the defining elements can be designated as (N, O, Theta, A, M). "N" is the number of Agents. "O" is the set of Outcomes. "Theta" is the set of Types. "A" is the available Actions. And "M" is the Mapping of Actions to Outcomes over which Agents have a methodologically individual Utility.

The autonomous Agents are the causal antecedents of the interdependent consequences (Outcomes) produced within the context of a Game. Each one has its own private (independent) Type definition (information), which determines the Action an Agent will select. In a Game, the consequences of each Agent's Actions are dependent upon the Action's of other Agents. These interdependent consequences are the defining attribute of all social Games. An Agent can be considered "autonomous" if it possesses "Self-directed power, control (decision), and freedom (of Action)" as an attribute (methodological individuality).

Prior work in Game Theory has not yet settled upon a standard taxonomy of Agents by Class. Researchers and practitioners generally work under the assumption that there is only a single Class (archetype) for all Agents. Agent definitions are freely changed to reflect a new set of attributes whenever needed to modify the analysis/design. This lack of standardization can cause problems with

comparisons across game settings, and game-theoretic knowledge domains.

Even though every instance of an Agent has unique Type attributes (utility function, preferences, strategy, etc.), a closer examination reveals that each one can be categorized into 1 of 4 Archetypes (Class) based upon Outcomes produced. The Outcomes of a Game can be significantly altered if such attribute changes result in a change to their Class definition. The set of all Types is designated by Theta with no subscript. This set constitutes a Mob (heterogeneous population). The set of an Archetype (Class) is simply designated with a subscript. All instances of an Archetype constitute a homogeneous population.

An Agent's attributes are in direct correlation with the Outcomes produced by that Agent's individual attribute set. It's therefore important in all Game analysis/design to explicitly relate Agent Archetype to the Outcomes that Class will produce. To construct such a generally applicable tool requires development of a standardized taxonomy that encodes all possible Agent attributes based upon Outcomes. The proposed Agent Taxonomy provides such a standardized tool.

The only prior work in Game Theory to focus specifically on the categorization of Agents by their attributes and its impact on Outcomes was presented by Rapoport [1]. The primary difference is that Rapoport's proposed "Archetypes" were incomplete. They don't appear to be intended for general application, and the work wasn't pursued any further. The Agent Taxonomy proposed here is intended to provide a general standard for all Games.

**Results**

Given any Game with interdependent Outcomes and individual utility functions for each Agent, Table 1 provides a comprehensive taxonomy of autonomous Agents. In Table 1, "Rationality" refers specifically to decision-theoretic rationality.

| **Agent Taxonomy** | | | | | | |
|---|---|---|---|---|---|---|
| **Class** | **Preference** | | **Rationality** | **Social Ethic** | **Strict Entry** | **Motive** |
| | **$utility_{self}$** | **$utility_{other}$** | | | | |
| Mutualist | Optimum | Optimum | Bilateral | Stewardship | Yes | Reflection |
| Narcissist | Optimum | Indifferent (or not optimum) | Unilateral (self) | Sovereignty | No | Impulse |
| Conformist | Indifferent (or not optimum) | Optimum | Unilateral (other) | Servitude | No | Impulse |
| Nihilist | Indifferent (or not optimum) | Indifferent (or not optimum) | Irrational | Relativism | No | Alienation |

*Table 1: Agent Taxonomy by Utility*

The Narcissist Class has been well established in the Game Theory domain, while the other Classes are much less commonly evaluated. Each Class has unique characteristics that produce unique Outcomes by all instances of that Class.

The Mutualist Class provides the opportunity for innovations in Game Theory due to the unique Outcomes produced by the holistic bilateral preference. The utility function of a Mutualist is executed by first establishing the ordinals of the unilateral (Narcissist) preference tuple for each individual Agent. These are then utilized to determine the mutual utility (mutual preference) of each potential Outcome (cell) as determined by the following function in Table 2.

| **Mutualist Utility Function (narrative form):** |
|---|
| Optimize total aggregate utility while simultaneously optimizing equity (parity, equality, etc.) of utility. |
| **Mutualist Utility Function (2 x 2 ordinal form):** |
| $u=((x_i + y_i) + \|x_i - y_i\|)/2$ : where $x_i$ = Agent R utility ordinal (Narcissistic) and $y_i$ = Agent C utility ordinal (Narcissistic). |

*Table 2: Mutualist Utility Function Definition*

A review of all the possible Agent populations (by Class) provides a complete survey of the Outcome space produced, based upon the Prisoner's Dilemma (PD) scenario. The results can be seen in Table 3. The term "Iteration Stable" means Agent strategy will persist if the Game is repeated. The "?" symbol indicates an unpredictable (random, irrational, inconsistent, etc.) parameter.

| Outcomes Space (PD) | | | | |
|---|---|---|---|---|
| | Outcome Attributes | | | |
| | **Preference Satisfied** | **Optimum Outcome** | **Iteration Stable** | **Common Class** |
| **Game Population (heterogeneous)** | (R \| C) | (Systemic) | (Game) | |
| 1. R is Mutualist, C is Narcissist | | | | |
| R prefers Q1, gets Q3 \| C prefers Q3, gets Q3 | N \| Y | N | N | N |
| 2. R is Mutualist, C is Conformist | | | | |
| R prefers Q1, gets Q1 \| C prefers Q2, gets Q1 | Y \| N | Y | N | N |
| 3. R is Mutualist, C is Nihilist | | | | |
| R prefers Q1, gets Q3 \| C prefers ?, gets ? | ? \| ? | ? | ? | N |
| 4. R is Narcissist, C is Conformist | | | | |
| R prefers Q2, gets Q2 \| C prefers Q2, gets Q2 | Y \| Y | N | Y | N |
| 5. R is Narcissist, C is Nihilist | | | | |
| R prefers Q2, gets Q4 \| C prefers ?, gets ? | ? \| ? | ? | ? | N |
| 6. R is Conformist, C is Nihilist | | | | |
| R prefers Q3, gets Q3 \| C prefers ?, gets ? | ? \| ? | ? | ? | N |
| **Game Population (homogeneous)** | | | | |
| 7. R is Mutualist, C is Mutualist | | | | |
| R prefers Q1, gets Q1 \| C prefers Q1, gets Q1 | Y \| Y | Y | Y | Y |
| 8. R is Narcissist, C is Narcissist | | | | |
| R prefers Q2, gets Q4 \| C prefers Q3, gets Q4 | N \| N | N | N | Y |
| 9. R is Conformist, C is Conformist | | | | |
| R prefers Q3, gets Q1 \| R prefers Q2, gets Q1 | N \| N | Y | N | Y |
| 10. R is Nihilist, C is Nihilist | | | | |
| C prefers Q4, gets Q4 \| C prefers Q4, gets Q4 | ? \| ? | ? | ? | Y |

*Table 3: Outcomes Space for the Prisoner's Dilemma by Agent Class*

It can be seen in the table that Mutualist Agents are uniquely obligated to avoid (Not Enter, Exit, Opt Out, etc.) participation in any Game with non-Mutualist Agents. This is necessary in order to prevent a paradox (antithesis/contradiction) for the Mutualist Class definition. If forced (or accidentally engaged) into a Game with non-Mutualists, a Mutualist preferred Action is to Exit (opt out) as soon as possible.

**Discussion**

It can be seen in the Outcomes Space for PD (Table 3) that the only Game design that will produce consistent optimum Outcomes is one in which there is a homogeneous population of Mutualist Agents.

A population of Mutualist Class Agents produces unique optimization Outcomes that none of the other Classes can produce. All Mutualist Optimums are Pareto Optimums, but all Pareto Optimums are not necessarily Mutualist Optimums. A homogenous population of Mutualist Agents intrinsically converge to a Mutual (Systemic) Optimum as the dominant Strategy in any Game. Table 4 provides a summary of the potential optimizations.

| **Mutualist Outcomes (optimality)** | |
|---|---|
| Form | Description |
| Mutual Optimum | Outcome that has a better (or equal) preference ordinal than all other Outcome ordinals. |
| Strict Mutual Optimum | Outcome that has a better (but not equal) preference ordinal than all other Outcome ordinals. |
| Ideal Mutual Optimum | Outcome that has a preference ordinal of “1”. |

*Table 4: Optimality for Homogeneous Mutualist Population*

It’s important to note that Mutualist utility always produces equal (twin) ordinals for both of the Agents in each Outcome pair, such that $x_i = y_i$ in every cell (quadrant). In this case there is a Strict Mutual Optimum dyad in the Outcome (2,2). This is one example where a Mutualist Agent in a homogenous PD Game consistently produces a Strict Mutual Optimum (a Pareto Optimum) as a strict dominant Strategy. Mutualists require knowledge of Other's Ordinal Preference Map in order to choose an Action (Strategy) accurate to their Class attributes.

A Mutual Optimum is one where everyone can’t be made better off without making one of the participants worse off. In Games where there is not a Strict Mutual Optimum, some form of cooperation is required to coordinate the Action to be selected from among the equivalent Mutual Optimums. If these Games are repeated, a Mutualist strategy requires sequential iteration over the equivalent options (round robin). Such a Game Setting requires “memory” and “message” mechanisms.

If this Archetype taxonomy proves to be sufficiently comprehensive, accurate, and internally consistent, then it provides an empirical nucleus for Social Science. This nucleus can provide a set of functions similar to those that Thermodynamics provides for Natural Science. Based upon a full integration of the principles revealed in the UAA paradigm, a simple model for the fundamental Laws of Sociodynamics is constructed as follows.

## The Laws of Sociodynamics

**First Law:** All consequences are interdependent with each other, to the extent of their circumstantial proximity [Sharing principle].

**Second Law:** Every autonomous Agent is an instance of 1, and only 1, of the 4 universal Archetypes:

Mutualist, Nihilist, Conformist, Narcissist [Agency principle].

**Third Law:** An ideal mutual outcome is impossible in a Zero Sum Game [Conflict principle].

**Fourth Law:** Justice (Fairness), is the realization of systemic optimization, and provides the exclusive basis for legitimacy [Optimization principle].

**Fifth Law:** Power that serves justice is universally legitimate, Power that does not serve justice is universally illegitimate [Social Power principle].

**Zeroth Law:** All beliefs are imaginary, but some are useful [Absurdity principle].

The First Law encodes the observation that all consequences (events, effects, outcomes, results, etc.) are dependent upon all other consequences, even if that reciprocal interaction is infinitesimally small. Past circumstances, remote circumstances, unknown circumstances, and other such state variables are all dependent upon each other (causal chaining). The circumstances of existential proximity generally determines the extent (magnitude) of that interdependence.

The Second Law encodes the observation that all agents are instances of 1 of the 4 metaclasses (Archetypes) of agent, based upon their core strategy (preferences, motivation, etc.) attributes. Traditionally, theories of Social Science have almost exclusively presumed Narcissistic Agents in their models (including tit-for-tat, etc.). The data table defining the full range of possible agent Archetypes provides the unique foundation for defining this Law.

The Third Law encodes the observation that a Zero Sum Game can never result in an outcome where all participating Agents achieve the highest collective preference (net). This is true because of the defining characteristics of such Games (Systems). Once a Zero Sum Game occurs (intentionally or unintentionally), there is no ideal, mutual, optimum outcome available to the participants. The highest level of conflict resolution that can be achieved in such Games is a mutual compromise (second best preference for both).

The Fourth Law encodes the observation that the fundamental means for serving Justice, is through systemic (holistic) optimization. The Rules (laws, policies, etc.) of such a system can most easily be realized through a homogeneous association of Mutualist Agents. The other Archetypes (and heterogeneous populations) eventually drive a system to sub-optimal outcomes. Agents may individually benefit in such heterogeneous Games, but participants will nearly always realize sub-optimal outcomes in such a system (except by random coincidence).

The Fifth Law encodes the observation that unless social Power is utilized to serve Justice, there is a high probability that its use will exclusively produce systemic harm (net). Any social use of Power that doesn't serve Justice is systemically sub-optimal. Therefore, a complete, accurate, relevant and simple definition of Justice (Fairness) is an essential precondition for establishing the legitimate use of Social Power. [A unified model of Justice can be found in Mutuality Book II, 2010 Edition; M. Urban].

The Zeroth Law encodes the observation that imagination is the basis for all human interpretations

(models, maps, viewpoints, theories, frameworks, paradigms, etc.) of Reality . We construct our internal interpretations of Reality through self-constructed analogies, along with their various components (symbols, etc.). It's important to remember that a map is not the territory, and that it only needs to provide a useful representation to be fully functional. Models of Reality are not actual Reality itself. This meta-Law encapsulates and informs all of the other Laws.

These Laws of Sociodynamics can provide a conceptual nucleus that unifies all of existing Social Science into a common discipline. They can provide an immutable, consistent, and ubiquitous utility for analyzing and managing social systems under any given circumstances.

**Methodology**

The following are the specifics for the results based upon the well known PD. All 2 x 2 Game transformations have been tested, but are not included here. Only the PD example is reconstructed here to analyze the effects of a homogeneous population of Mutualist Agents on the traditional PD Outcome.

In Game analysis, the ordinals of Narcissist utility for each Narcissist Agent are determined from their individual cardinal payoff preferences, as detailed for the PD in the following table.

| **Ordinal Map for Prisoner's Dilemma** ($unilateral_{self}$) | |
|---|---|
| **Payoff** (utility) | **Ordinal** (preference rank) |
| Jail time = 1 yr | 1 (best) |
| Jail time = 2 yr | 2 |
| Jail time = 3 yr | 3 |
| Jail time = 4 yr | 4 (worst) |

*Table 5: Mapping of Cardinal Utility to Ordinal Utility for PD*

Utilizing these ordinal utilities, a traditional PD Game (homogeneous Narcissist population) produces the following Outcomes (in ordinal form).

| **Game Matrix (ordinal form)** | | | |
|---|---|---|---|
| (Prisoner's Dilemma, 2 Narcissists) | | | |
| | | **Agent C** | |
| | | silent | confess |
| **Agent R** | silent | (2,2) | (1,4) |
| | confess | (4,1) | (3,3) |

*Table 6: Traditional PD Outcomes In The Ordinal Form*

| **The 4 Possible Outcomes by cell ($Q_i$)** |
|---|
| $Q_1$ = Pareto Optimum (best case) – (2,2) |
| $Q_2$ = Suboptimal and disparity (stratification) – (1,4) |
| $Q_3$ = Suboptimal and disparity (stratification) – (4,1) |
| $Q_4$ = Nash Equilibrium (race to the bottom) (3,3) |

*Table 7: Outcomes Analysis for PD*

In the standard PD, both Agents will select Action “confess”. It can be seen in this standard version of the PD Game that there are 2 Narcissistic prisoners equilibrated in a dominant strategy (Action) dilemma in which they both could be better off Acting otherwise. This produces the well known dilemma of such unilateral utility (preferences). The Optimum Outcome for both Agents is not dominant unless some other Game parameters or a utility function manipulation is introduced. The Agents victimize themselves in a race to the bottom (sub-optimum equilibrium) with each other.

If the 2 Narcissist Class Agents are replaced by 2 Mutualist Class Agents and the Game is played, the optimum (mutual) Outcome is intrinsically dominant and the dilemma is avoided. The following represents the Outcomes from the PD Game that result for a homogeneous Mutualist population.

| **Game Matrix (ordinal form)** | | | |
|---|---|---|---|
| (Prisoner's Dilemma, 2 Mutualists) | | | |
| | | **Agent C** | |
| | | silent | confess |
| **Agent R** | silent | (2,2) | (4,4) |
| | confess | (4,4) | (3,3) |

*Table 8: PD Outcomes, Homogeneous Mutualist Population*

## Conclusion

A standard taxonomy for all Agents can be a useful tool in Game Theory and it's related disciplines (Mechanism Design, Social Choice, Consumer Theory, etc.). No other standard taxonomy of Agents appears to be widely recognized at this time. Such a tool can unify work across knowledge domains.

Since the actual consequences (real Outcomes) of a Game are interdependent. And because Agent attributes determine Outcomes. It can be critical for complete Game analysis/design to consider all standard Agent Classes.

These 4 simple Class definitions encode the most critical elements for determining Outcomes that relevant Agents will produce. Within each Class, there can be a wide spectrum of specific attributes (utility functions, preferences, rationality, etc.) assigned to each Agent Type. There are no relevant Agent attribute sets based upon Utility (strategy) that fall outside of this Agent Taxonomy.

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