Contents of Volume I

Essays on ***Satprarupana***

Representation and Quality of Perception

I-1. What Is Of Interest?

Representation of the experienced reality to enhance quality of perception is not transcendence of the physical, with spiritual or mystical. Reality can be reasoned because it is consistent and coherent, and never contradictory. Search for tangible behaviors therefore requires consilience of actions with thoughts and words. Use of shared knowledge requires transcendence between the probabilistic and deterministic realms of experience. Hallmark of a compassionate and educated mind is the ability to see of many in the plights of individuals.

An examined life is savored with contemplation that requires patience with oneself. Beyond that the first step (#A1 in the next chapter) is to recognize and acknowledge contributions and accomplishments from the past. Beyond this concept manipulation with inputs (#A2-23) is required in virtually all spheres of life. Reasoning is ability to ask generic questions rooted in tangible reality (Nay) of the matrix of the content and the context of the experience. An understanding is facilitated if the evaluation criteria are also rooted in reality. Curiosity drives observer-observed interactions. Perceptions modulated by evidence encourage structured thought where a more general search-matrix helps in exploring implications and alternatives (***vikalp***). In effect, perceptions, guided by empirical thought and reason, are the bases to realize potential of real world experience.

Contemplation for personal growth builds on significance of established relations of inputs for meaning in the life-time of activities (experience). With such measures we develop skills to understand what *it is* and what it may become. And then as T. S.

Elliot observed:

And the end of all our exploring
Will be to arrive where we started;
And to know the place for the first time.

I-2. What Is Being About?

Even the most familiar and fundamental percepts are based on assumptions about perception and reality. Not many of these can be proven. Only ideologies give such guarantees.

Behaviors are motivated by thoughts and cognition guided by representations, language and nurture. Since all inputs, actions and responses have consequences, realization of potential begins with action. Rational behaviors consistent with reality increase the chances of desired outcome. Real-world and real-time decisions for such purposes represented (*satprarupana*) and developed in three steps (A#1-8 below). In this analytical search (*anugam*) interpretations are also subject to quality of perceptions (*itthi*) of the interpreter (A#9-23). Rationality lies in choosing a path that is free of contradiction and not inconsistent with facts of reality. Moreover, all real-time inputs are necessarily incomplete and future consequences are always in doubt. Room for doubt further facilitates consequence evaluation and midcourse corrections to chart a coherent trajectory consistent with reality.

Understanding builds on the body available knowledge (facts, experiments, observation, data) to provide direction for the future. The purpose of reasoning is not to get entangled in the past but to chart an unencumbered way towards the future. Also relying on a generalization does not mean loosing sight of particulars, as in *looking at the woods without loosing sight of trees*. The matrix (A1-23) outlines (abstract) dissonances and resonances of perceptions that influence decision-making and behaviors. It is a road map, table of content and key terms, and a guide to formulate thought processes through which shared knowledge is perceived, conceived, evaluated and developed. The first step of

this matrix acknowledges all those who bring the prior knowledge. The next 22 steps outline three independent sets of considerations: The observed properties (*margana*) are evaluated by reality based criteria (*aniyogdwar*). Its validity depends on the quality of the observer-observed interaction (*gunasthan*). This disciplined matrix of observations, criteria, and perceptions facilitates questions and search for answers, identifies anomalies to deal with doubts, and encourages individuals to find and invent meaning that make sensory inputs intelligible for sense of self and develop identity (*atm*).

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Acknowledgement

णमो अरिहंताणं, णमो सिद्धाणं, णमो आइरियाणं ।
णमो उवज्झायाणं, णमो लोए सव्व-साहूणं ॥ १ ॥

अरिहंतोंको नमस्कार हो, सिद्धोंको नमस्कार हो, आचार्योंको नमस्कार हो, उपाध्यायोंको नमस्कार हो, और लोकमें सर्व साधुओंको नमस्कार हो ॥ १ ॥

#A1. I bow to all the *arihant*, *siddh*, *aacharya*, *upadhyay*, and *sadhu* of the world.

Note: This has come to be known as the Namokar. It serves as everything from acknowledgement of the tradition to a medium of devotion. (also See Chapter I-5).

The *anugam* process in #A2-23 invokes a balance (*sammag*, *samyaktv*) for reasoning to guide behaviors. Assumption is that as the particulars of sensory inputs (information) cohere, rational perception (*itthi*) evolves through consistency of thoughts with words and actions for consequence evaluation.

Properties of the observed (#A2-5)

एत्तो इमेसिं चोद्दसण्हं जीव-समासाणं मग्गणट्ठदाए तत्थ इमाणि चोद्दस चेव ट्ठाणाणि णायव्वाणि भवंति ॥ २ ॥

इस द्रव्यश्रुत और भावश्रुतरूप प्रमाणसे इन चौदह गुणस्थानोंके अन्वेषणरूप प्रयोजनके होने पर ये चौदह ही मार्गणास्थान जानने योग्य हैं ॥ २ ॥

#A2. The way (***margana***) to discovery (***samasana***) is facilitated by results of observation, search, inquiry, and investigation reconciled with defined criteria applied to both the particulars and generalizations (**#2-8**). For example animate beings (***jeev***) are represented by fourteen characteristics.

Insight: Animate beings show certain responses (features, attributes, qualities, abilities, skills, response, behaviors, properties). Such characteristics are not observed with inanimate materials (*ajeev pudgal*). Such characteristics are useful parts (***anugam***) to represent (***satprarupana***) real-world models to facilitate further considerations.

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तं जहा ॥ ३ ॥

गइ इंदिए काए जोगे वेदे कसाए णाणे संजमे दंसणे लेस्सा भविय सम्मत्त सण्णि आहारए चेदि ॥ ४ ॥

वे चौदह मार्गणास्थान कौनसे हैं ? ॥ ३ ॥

गति, इन्द्रिय, काय, योग, वेद, कषाय, ज्ञान, संयम, दर्शन, लेश्या, भव्यत्व, सम्यक्त्व, संज्ञी और आहार ये चौदह मार्गणाएं हैं और इनमें जीव खोजे जाते हैं ॥ ४ ॥

#A3. What are such characteristics of animate beings?

#A4. These include:

- discernible category (***gati***)
- physical senses (***indiye***)
- form (***kaye***)
- ability to move and communicate (***joge***)
- pain and pleasure response (***vede***) in relation to the trends
- passion, notion, bias, likes and dislikes (***kasaye***)
- ability to know as in comprehend and cognize (***nane***)
- ability to restrain and constrain behavior (***sanjame***)
- ability to recognize patterns (***dansane***)
- motive, intention and objective (***lessa***)

- potential and opportunity for growth (***bhaviye***)
- ability for rational balance and consistency (***sammat***)
- ability to discern and reconcile (***sanni***)
- ability to internalize and assimilate (***aharaye***).

Hierarchy in the first seven responses builds on the interdependence of the form and function in living organisms that facilitates interaction with the external world. The next seven distinguish an individual from the class to facilitate interaction of individual with his own experience. Here discipline and restraints are the basis of individual's ability to internalize cognized information. Note that ad hoc like *atma* (soul or spirit), omniscience or god is not invoked.

Beyond curiosity. Tangibility of the observed and experienced is abstracted in stages. Active observer-observed interaction is required to move beyond mere denotation or knowing by name and sound-bites.

Why do we have senses? Have you ever wondered why we need multiple sense organs (***indiye***) to cognize and communicate with the external world (*pratyackh* or in-front-of -the eyes)? Sense inputs are complementary. Together they provide a real-time snap-shot of the real-world. Even without impaired senses, the mind (*parockh*, behind-the-eyes) compensates for partial inputs to integrate and grasp the meaning of the sense experience.

Sense experience is not enough. Both cognized and un-cognized awareness of the sense experience contribute to perceptions (*itthi*) to explore the meaning and significance of inputs for self. Instinctive and reflex responses suggest processing of all inputs by mind (*parokch* or behind-the-eyes).

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Criteria for evaluation of the properties (#A6-8)

एदेसिं चेव चोद्दसण्हं जीवसमासाणं परूवणट्ठदाए तत्थ इमाणि अट्ठ अणियोगद्दाराणि णायव्वाणि भवंति ॥ ५ ॥

तं जहा ॥ ६ ॥

संतपरूवणा दव्वपमाणाणुगमो खेत्ताणुगमो फोसणाणुगमो कालाणुगमो अंतराणुगमो भावाणुगमो अप्पाबहुगाणुगमो चेदि ॥७॥

इन ही चौदह जीवसमासोंके (गुणस्थानोंके) निरूपण करने रूप प्रयोजनके होनेपर यहां आगे कहे जानेवाले ये आठ अनुयोगद्वार समझना चाहिये ॥ ५ ॥

वे आठ अधिकार कौनसे हैं ॥ ६ ॥

सत्प्ररूपणा, द्रव्यप्रमाणानुगम, क्षेत्रानुगम, स्पर्शनानुगम, कालानुगम, अन्तरानुगम, भावानुगम और अल्पबहुत्वानुगम ये आठ अनुयोगद्वार होते हैं ॥ ७ ॥

#A5. Verified properties and attributes are (for example) evaluated in terms of the following eight criteria (***aniyogdwar***, "doors or devices").

#A6. What are these criteria?

#A7. These are:

- representation (***satprarupana***) as entity (what)
- its material count (*davvpaman-*) (how many)
- occupancy in space (*khettanugam-*) (shape)
- distribution in space and time (*fosnaanugam-*) (where)
- change in relation to time (*kaalanugam-*) (when),
- difference in comparison (*antaranugam-*) (relations),
- tendencies and trends (*bhavanugam-*),
- less (*app-*) and more (*bahuanugam-*).

Insight: All modes of curiosity driven inquiry begins with a concern about a change that is characterized with what, when, where, and how questions. Such information about identified events and entities is evaluated on the basis of criteria. Information about space time relations discern order, trends, and cycles that are useful to identify and address concerns about the change.

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संतपरूवणदाए दुविहो णिद्देसो ओघेण आदेसेण य ॥ ८॥

सत्प्ररूपणामें ओघ अर्थात् सामान्यकी अपेक्षासे और आदेश अर्थात् विशेषकी अपेक्षासे इसतरह दो प्रकारका कथन है ॥ ८ ॥

#A8. A representation (***Satprarupana***) is evaluated both by the criteria (***niddes***) for the particulars (***adeshen***) as well as the generalization (***oghen***) for the class.

Interaction of Reality with Perceptions

Examination of the attributes of the observed and experienced in terms of defined criteria (#A1-8) calls for perceiving the forest as well as the trees of the underlying reality. The search begins with the realization that humans can understand and evaluate what is to their advantage. After that the facts of particulars of the observed and experienced are reconciled to represent the findings. Such representations project and augment the relevance of reality on perceptions. The purpose of inquiry and reasoning along the way is to infer and explore implications.

Insight: All entities are represented in an infinite and boundless unoccupied space (*akash)* or "the medium of infinite nothing". By the same reasoning beginning and end of events is represented in the continuous medium of time (***kal***) without a beginning or an end (***anadi-anant***). Just as the space occupied by an entity is called a place, an event has a beginning and an end. The abstract concept of represented reality against a limitless (infinite) continuum of "nothing" as the medium applies not only to space and time but also to language and information. Thus *shoonya* is not just a lack of something that is often contrived as zero in the numbering system or the (Aristotelian) binary. In the decimal numbering system zero is a "digit between 1 and -1, and it also has a place based value as in 01 versus 10. But "the nothingness in the logic space" serves as a node for all manners of orthogonal representations - real and imaginary. Such nothingness

(*shoonyata*) serves as the medium of representation that does not contribute to the representation. All representations of omniscience (The God, Supreme, Universal, or *Brahm*) fall in this category of self-referential nothingness.

Insight: Generalizations are built on attributes that are common to all members of a set. The members of the set may also have particular attributes. If simplified as a generalization, the potential of such particulars is lost.

Insight: Generalizations (abstractions, universal, essence, theory, symbols, idols, ideals, ideologies) are the relations from a selected set of particulars of world-readings that we wish to engage. A theory makes data appear intelligible, and the data keeps the theory grounded in reality. Like chicken and egg both abstractions and particulars make up the disciplinary matrix of the knowledge for reasoning. Perceived and verified anomaly in the abstracted particulars calls for reexamination of the matrix of the abstractions. It is the genesis of logical doubt and uncertainty.

Perception: A dialog of the Self with Non-self to manage expectations.

[In Sanskrit or Hindi, there is no suitable word for perception (see Jeevatthan II-11 to 15). Prakrit word itthi later evolved into ditthi. It has been mis-interpreted in Sanskrit and derived literature as drishti (point-of-view), darshan (philosophy or vision), or gyan (cognized information). Some translators have equated pratyakch (direct evidence based on sense inputs) to perception.]

Ethos of life is built on interactions between the self and the rest (non-self). Thus the observed world (*pratyakch*) motivates perceptions (*parokch*). The push and pull of perception (*itthi*) is part of the feelings, instincts, desires, thoughts, and expectations that influence actions and behaviors. Behaviors (sustained actions) are modulated by perceived consequences. Thus the

parokch of an individual is the basis of its quality of being (gunasthan).

Perceptions distort the quality and meaning of experience. All choices, decisions, and actions are guided by perception. Neither perception nor reasoning are infallible but for different reasons. Experience may have the baggage of demons and evils of make-believe. Since eye can see only what the mind knows, perception is the momentary window at the time of decision-making. Window of senses have vantage points and shades. Their inputs are fragmented and augmented by wishful rationalizations. Even under the best of conditions, decisions and searches speak in stages as we find and invent meaning. Steps #A9-23 are stages of qualitative change in perceptions that create incremental value towards a vision that turns wishes and desires into ideas and actions that are likely to be more successful. As we entertain doubt, pragmatism requires that we do not dwell in states that lead to alienation and inaction propelled by the feeling that the world is a mighty maze.

All inferences are tentative for action rather than for conclusions. Definite actions are necessary to deal with the conundrum of life that is about conflict between self and non-self made worse by the morass of misperception and ill-defined issues. The emphasis of the first seven states (#9 to 15) is on restraints necessary to formulate the problem at hand. The next seven (#16-22) offer solutions in terms that make the world accessible to mind. The general thrust of successive states (*sthan*) is to improve the quality (*gun*) of the interaction with the extent reality. The quality of effort depends of the perceptions that guide interactions.

#A9-12. States of contradiction and disorder

ओघेण अत्थि मिच्छाइट्ठी ॥ ९ ॥

सासणसम्माइट्ठी ॥ १० ॥

सम्मामिच्छाइट्ठी ॥ ११ ॥

असंजदसम्माइट्ठी ॥ १२ ॥

सामान्यसे गुणस्थानकी अपेक्षा मिथ्यादृष्टि जीव हैं ॥ ९ ॥

सामान्यसे सासादनसम्यग्दृष्टि जीव हैं ॥ १० ॥

सामान्यसे सम्यग्मिथ्यादृष्टि जीव हैं ॥ ११ ॥

सामान्यसे असंयतसम्यग्दृष्टि जीव होते हैं ॥ १२ ॥

The states of perception (***itthi***) in general are:

#A9. ***State I***. Mis-perception (***miccha-itthi***): irrational and contradictory.

#A10. ***State II***. Afflicted perception (***sasan-samma-itthi***).

#A11. ***State III***. Perception affected by ignorance or inability to discriminate or discern (***samma-miccha-itthi***).

#A12. ***State IV***. Perception dominated by indifference and lack of restraints (**a-*sanjada-samma-itthi***).

Mis-perceptions (See II-11, III-11, III-28 to 33): Ignorance is **Not knowing that one does not know, and it is also not knowing that others know that you do not know**. Such *mithya* states lead to contradictory perceptions that rationalize arguments that are one-sided (*ekant*), inconsistent (v*ipreet*), dubious (*sanshay*), incomplete (*agyan*), or invoke the non-existent (*asat*). The *mith* root has conceptual affinity to myth (in English). Also note the *nay* suffix in rationalizations based on misplaced faith (*vi-nay*) and disregard for reason (*ku-nay*) that distract from reasoning (*Nay*).

Inability to formulate, communicate and resolve concerns may be a human condition. Ignorance is not human destiny but the state of mind. If nothing else, during the last few hundred years humans have devised effective ways to reduce ignorance if

one wishes to do so. Reasoning about the world of our concerns with words is not about mind reading. The process is derailed, and the world remains dark and scary, if we seek salvation from ignorance through irrational and non-existent (such as the Grace or Omniscience). A critical first step to modify perceptions is to recognize the **attributes of all that is irrational or contradictory**. Such influences can derail a search even before it started.

Insight: Intentional disregard for contradictions can hardly be cured. Inability to judge due to somatic, psychological, or attitudinal handicaps can be identified and addressed with suitable means. Behaviors that handicap learning and reasoning include inability to listen (pay attention to what one hears), hyperactivity, or to focus beyond sound bites. Indifference is suggested if behaviors are dominated by ego, sexual drive, mimicry, peers, and virtual models as in stories (*katha*) and epics (*puran*), or the modern soap-operas. Such myths obviate the need for individual choices to define the 'self.' Myths are dynamic and democratic processes. Yet interpretations of myth are subject to constraints relevant to individual decision making. These virtual models hardly ever improve upon the *mithya* state of *not knowing what one does not know* or of *not knowing that others know that you do not know*.

Insight: Restlessness and lack of attention span increases if the listener is not uninterested or distracted by the contradictory, conflicting, augmented, and virtual model. The mental chatter is a normal state of mind as it tries to deal with ill defined inputs from sound bites, trivia, humor, anecdotes, bantering, propaganda, memes, buzzwords, political pronouncements and marketing. Such devices of pop-culture rely on and exploit short attention span by grabbing attention during the flicker of that proverbial five-second-attention-span. The same applies to all behaviors that

put blinders of being possessed or obsessed. Such memes transmit cultural artifacts without deeper understanding. Whether the media and politicians pray on it, or the peers cater to it, is a moot issue.

Insight: As we learn to deal with the mental chatter, disorder and chaos, we also create value by balancing choices with fairness (*samma sanjad*). Directed and sustained effort with conscious motivation seeks out the relevant. Restrained, planned and deliberate actions also reduce chatter, curtail disorder in actions, and slowly eliminate the inconsistencies of actions. Such constraints also reduce the level of stress. The goal of exercise, yoga, meditation, and forms of relaxation is to develop the flicker of coherence to rational consistency (States V-VII below).

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#A13-15. ***States of chaotic perceptions***

संजदासंजदा ॥ १३ ॥
पमत्तसंजदा ॥ १४ ॥
अप्पमत्तसंजदा ॥ १५ ॥

सामान्यसे संयतासंयत जीव होते हैं ॥ १३ ॥
सामान्यसे प्रमत्तसंयत जीव होते हैं ॥ १४ ॥
सामान्यसे अप्रमत्तसंयत जीव होते हैं ॥ १५ ॥

#A13. State V. Occasional (chaotic) restraint.
#A14. State VI. Motivated to exercise restraint.
#A15. State VII. Always restrained.

Do not talk a talk if you cannot walk a walk, so goes a Vermont saying. One begins by looking at the world with a sense of reverence not driven by fear, awe, or duty. The premise of the States V-VII is to build on the promise of can-do and will-do to facilitate a chaotic walk to deliberate to rational consistency in the spirit of:

Do it.

Do it right.

Do it right first time.

It is not done until it is done.

In many societies behaviors associated with "yes, right away" are not much different than 'for another day' (*manyana*). Often doing better than the best is needed to change a habit. Undoing the mistakes also takes effort that is not just a matter of opening the door and timing the effort.

Actions speak louder than words. A job done well gives a sense of purpose to being. In search of meaning through action, directed effort is about being in touch with reality by correcting character faults, desire to take responsibility for ones own actions, and not having to say "sorry." In this concept space are boundaries of words like admit, acknowledge, identify, restraint, negation, chaos, balance, convergence, goal, potential, indulgence, willingness, exercise, control, choice, consilience, *tap(as)*, *yoga*, meditation, obsession, priorities, and responsibility for ones own actions.

Opportunities are lost by not trying. A qualitative change begins with the realization that the world is accessible by trying. It begins with a deliberate decision. Active decisions begin by stopping the slide by negating the contradictory, inconsistent, and inconsequential. Such obsessions are inherent in the excesses, excuses, denial s, and ego trips. The aim is to divert coherence of thoughts and words to actions and goals. Organized thought and communication skills also ward against unreasonable expectations and behavior that lead to unexpected outcomes.

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#A16-18. ***States of commitment***

अपुव्वकरण-पविट्ठ-सुद्धि-संजदेसु अत्थि उवसमा खवा ॥ १६ ॥

अणियट्टि-बादर-सांपराइय-पविट्ठ-सुद्धि-संजदेसु अत्थि उवसमा खवा ॥ १७ ॥

सुहुम-सांपराइय-पविट्ठ-सुद्धि-संजदेसु अत्थि उवसमा खवा ॥१८॥

अपूर्वकरण-प्रविष्ट-शुद्धि संयतोंमें सामान्यसे उपशमक और क्षपक ये दोनों प्रकारके जीव होते हैं ॥ १६ ॥

अनिवृत्ति-बादर-सांपरायिक-प्रविष्ट-शुद्धि संयतोंमें उपशमक भी होते हैं और क्षपक भी होते हैं ॥ १७ ॥

सूक्ष्म-सांपराय-प्रविष्ट-शुद्धि-संयतोंमें उपशमक और क्षपक दोनों होते हैं ॥ १८ ॥

Commitment (**uvsamak, uvsama**) and dedication (***khava*** or ***chapak***) requires:

#A16. State VIII. Taking care of prior obligations.

#A17. State IX. Taking responsibility for the big picture.

#A18. State X. Understanding details and subtleties.

These states identify limitations of the existing order to modify the past commitments (*uvsama* root for *upasak* - a committed or devoted individual), or to renounce the past approaches that did not work) and to start fresh (*khava* root for *chapak* or monk).

Devotion and submission are neither commitment nor dedication. Perceptions crystallize by taking charge and responsibility with rational consistency to improve the chances of success towards a goal. Completing prior obligations minimized distractions. Through consistency one seeks conceptual tools necessary to invoke, evaluate and verify realistic possibilities. Such tools of conciliation come from "commitment" to the existing order, and if necessary a more active "dedicated" approach through other alternatives.

Problem-solving strategy. Consider the states of perceptions in the context of solving a problem. Random trial and error (states I-IV) offer little chance of success towards a defined goal. Irrespective of the path one takes, skills for nonrandom (***akachit***) action are acquired by overcoming such imitations. Elimination (V, VI) of certain possibilities, and honing in other others (VII),

can avoid falling in infinite regress or vicious circle. Chances of success (through states VIII-X) increase by reducing biases and prejudices of acculturation.

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#A19-20. ***States of objective ease and celerity***

उवसंत-कसाय-वीयराय-छदुमत्था ॥ १९ ॥

खीण-कसाय-वीयराय-छदुमत्था ॥ २० ॥

सामान्यसे उपशान्त-कषाय-वीतराग-छद्मस्थ जीव होते हैं ॥ १९ ॥

सामान्यसे क्षीण-कषायां-वीतराग-छद्मस्थ जीव होते हैं ॥ २० ॥

Liabilities in perception from commitment and dedication are reduced by:

State XI. Reducing subdued passions and biases dormant in one's own point of view,

State XII. and ultimately eliminating all biases.

#A21-22. States of consistency and validity

सजोगकेवली ॥ २१ ॥

अजोगकेवली ॥ २२ ॥

सामान्यसे सयोगकेवली जीव होते हैं ॥ २१ ॥

सामान्यसे अयोगकेवली जीव होते हैं ॥ २२ ॥

Irrespective of the task at hand, an active approach to develop and evaluate the valid perception requires:

State XIII. Evaluation of the validity in relation to all available evidence,

State XIV. and then by seeking independent evidence for validity that lies beyond the consistency and coherence of thought, words and actions, yet within the bounds of the reality.

Insight: The last two states of un-augmented, complete and valid perception (i.e. *kevali* or ability to *know* and *name the only valid conclusion*) are in the context of human existence. In this sense the

common usage as *keval-gyan* is conceptually different.

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The established state

सिद्धि चेदि ॥ २३ ॥

सामान्यसे सिद्ध जीव होते हैं ॥ २३ ॥

#A23. The state of established validity (***Siddhi***) is beyond the fourteen human accessible states mentioned above.

Insight. The Siddhi (established) state is beyond the limited context of individual human perception. It has been interpreted as the eternal, "proven beyond doubt" or the state of unconditional validity. However the scope of Siddhi is in what is established as viable rather than in the sense of the 'proof of the pudding in eating.' Here the concept of established addresses the ever present concern of the *vangmay* (shared knowledge): *How would you know when you have discovered the truth?* An operational conclusion (III-32) is strengthened by elimination its potential liabilities. An established concept remains relevant for all times in the personal and social contexts as it creates value by solving problems.

Note: Text of the Jeevatthan (the Khand I of Shat Khandagam) continues in Chapter A through H. Summary of entire Shatkhandagam in Hindi is in Chapter I. Jeev Samas gatha (Chapter J) may be the ancient form of this material.

Shared Knowledge enhances reasoning

As a basis for the practice-based conduct and morality, Gandhi wrote: "**I want to find God, and because I want to find God, I want to find God along with other people. I don't believe I can find God alone. If I did, I would be running to the Himalayas to find God in some cave there. But since I believe that nobody can find God alone, I have to work with people. I have to take them with me. Alone I can't come to Him**."

Is it how Gandhi understood the idea of ***sammag*** or rational balance communicated to him by Rai Chand Mehta (III-8). Rational balance is inherent in all empirical practice based efforts to change and improve upon human condition. Use of cognitive skills (stages I-IV) and exercise of restraints (Stages V-VII) are required to identify goals.

Beyond that it is up to the individual. Knowledge-based perception of self in relation to the other is the goal of all searches. Here the ideal is that more honest we are with our understanding we can be more effective as individuals. Shared knowledge is built from the solutions that include all that makes worlds accessible to understanding. Lasting understanding does not come from detail oriented tedium, cause-oriented mission, winning or loosing, or making a point based on facts. Knowledge is not sought for its own sake as 'seen' by Plato or Aquinas in the Greek (Hellenic or Hellenistic) traditions.

We make images that shape us

Representation of perceptions is inherent in the principles, ideals, idols, dogma, taboos and other images in which man styles himself. Idols and ideals crumble as such universals become asymmetrical by limitless augmentation that interferes with the evaluation of reality. If knowledge is quality of self, theory determines what you see and perceive. If the reality is grand, the grandiose of universals is unreal.

An ancient text (*Panchastikay Sar*, ca. 400 CE) warns: **"The thinker and the object thought are nothing apart from each other. They are twain and yet one. The object is only object for the subject, but the subject is also the object for the object. Taken individually such subject or object has no meaning or existence. In their union they are not two separate things stuck together but two that have lost or dissolved their duality in a higher unity."**

Valid perception is certainly not about divine insight, or the grace from the omniscience or the ad hoc a priori. Such two-world syndrome is created by invoking faith that prevents entertaining doubt in any search to explore reality. On the other hand, tradition of shared knowledge relies on the continuing inputs and refinements by each and every organism. It follows that humans develop knowledge for their use. Others may emulate successful behaviors and evaluate their validity through practice. It is with the hope that the outcomes prove useful to all and forever. Intellectual honesty also demands awareness necessary to look for increasing validity.

In this context, the subtle distinctions between the last three states (A#21-23) are profound. These can be described and delineated as: The states I-XIV lie within the limits of human existence. Focus of ***Sajogkevali*** is on certain goals. It raises the

concern such the perceptions are augmented in a particular context, and that others may remain unresolved. Such concerns are removed in the ***Ajogkevali*** state. But ultimate validity of such perceptions is established (**S*iddh*)** only in the long run that beyond experience of an individual. These are not the states of material reality or eternal bliss. Neither the **A*jogkevali*** nor the ***Siddh*** ever return to tell us what it is like out there! The one-way transition from human to an idealized perfection guards against the trappings of omniscience achieved by living individuals. It is also an effective defense against the human claims of being in an idealized state, or being in communication with one.

The strategy of spelling out such distinction between the real and ideal has profound implication: **If the proven validity lies in the future, rationality lies in making room for doubt along the way**.

Reality-based Choices and Decisions

Reason (*nay*) guides behaviors (actions, words and thought) rooted in reality. Ad hoc *(nishchay*) thought and pure reason are mere ideology. Potential of real world behaviors may be abstracted from hypothetical scenarios only if such constructs do not contradict reality, and are not inconsistent with practice. Personal growth with ethical and intellectual development follows from conduct validated by practice. Not all knowledge for such purpose is created equal. Quality of perceptions (*gunasthan*) for personal growth is in the quality of being, and not determined by absolutes of true-false, moral-immoral, or legal-illegal.

Nay reasoning is about search for boundaries of a viable basis for rules of behavior and codes of conduct. It is not to be confused with fundamentalism of religion, creed, or forms of principle-based-conduct (***nishchay*** that literally mean no-choice, predetermined). Prescribed goals along a defined path do not resolve *(apvarg)* individual concerns and conflicts. What lies beyond can only be imagined as a state beyond all conflicts. The word Siddh (#A1) is for such a state. Siddh in the Hindu tradition refers to those with higher level of awareness, often accomplished through yog(a) meditation and penance.

I-3. Critical Contemplation

A matrix of information and criteria to evaluate questions and concerns permits active and systematic exploration of the underlying reality. Validity of the interpretation and inference depends on the quality of perception of the observer.

Jeevatthan encourages critical scrutiny of sense inputs to represent tangibility of the experience. Matrix of the thought process in Jeevatthan is fundamental. It has enduring relevance to guide behaviors (*Dharma*) to improve quality of perceptions (*gunasthan*). It is neither anecdotal nor aphoristic wisdom.

Hearing to listen and looking to see. How often we hear but not listen, or see and not look? Active interaction of the observer with the observed is required to share experiences of deeper connectivity of what is front of eyes (*pratyakch*) with what is behind (*parokch*). Diversity of human experiences, behaviors and responses arise from such interactions even when *we may be on the same page*. Shared knowledge thrives on such honest differences of opinion rooted in mind under the pre and post-natal influences of nature, nurture, culture, genes and whatever else.

When to quit: Dynamics of observer-observed interactions lie deep in human psyche. Sense inputs may provide real time information, but it takes much more to look at objects and listen to concerns. Even if we know what is being said, do we really understand well enough to share experience to evaluate the consequences? We may make meaningful decisions based on what we hear, listen, know and understand however does it assure successful behaviors for where we want to be? When all is said and done what seems to matter most is the search path.

Many give up even before trying. While playing with my four year old grandchild who was responding to my quiz on counting the body parts he suddenly gave up when I asked him a question that required putting together information that we had separately teased out few minutes earlier. His response was that it is not a part of the game. Game-players often give up because something does not fall in the way they interpreted the rules. Playfulness of behaviors (thoughts, words and actions) is a key to discovery. Boundaries of what one does not understand lies outside the rules of the game. In such cases lack of curiosity and or not to tackle the challenge promotes defeatist attitude.

What is profound? Profound does not mean incomprehensible. Learning to comprehend the simple is a profound ability. Simplicity and consistency encourages sharing. Shared knowledge is a product of human mind for human use, and therefore comprehensible to humans.

On the other side: *There is enough mystery in the content (represented and abstract) so as not to create mystery of semantics* (Joseph Berger, 1988). Ideas are nourished by observer-observed interactions. It is in the way we ask questions and the way we represent evolving perceptions. Consistency facilitates the dialog, both in the way ideas are presented with emphasis on rational consistency and consistent rationality. A matrix for systematic approach is appealing for an innate sense of world of our experience without being distracted by rhetoric, semantics, prevailing beliefs, and the forces of personality.

Learning as a matrix of thought. All cultures place emphasis on systematic search with the given pieces. Farmers plow their field in regular furrows. We teach our young geometrical forms as in basket-making, pottery, weaving, geometry or elaborate

mathematical proofs. Use of a small number of building blocks to represent complex patterns is also at work in the use of languages and means of cyer communication. It is also the hallmark of effective reasoning that builds on the consistency of the information with the experience and established knowledge. Rule based consistency facilitates exploration of concerns with identified parts of worlds and beliefs. In fact virtually all creative processes rely on variations on theme as the way to identify and explore the unknown.

There is little in any seminal work that cannot be grasped because such ideas are part of the sense experience of shared reality. Challenge is to manipulate such ideas for personal relevance. Grasp of the thought process requires a grasp of language as the basis of human understanding. Healthy skepticism is also helpful for the understanding, whereas preconceived notions, devotion or blind faith can mislead.

Reasoning creates value if guided by identified and cognized basis of the entire awareness (*pratyabhigyan*). It requires contemplation to identify experiences that influence a narrative, and thus offer a way to peer into own mind and thought processes. Titillations may keep a reader interested and possibly sustain curiosity, but such distractions hardly engage thought to track reason.

Interesting may not be entertaining. Occasionally, one comes across a work that defies common wisdom and is interesting but not entertaining. Its appeal lies in the curiosity-driven uncommon sense of scrutinizing the world of experience with simple usable and testable concepts. One such example is the abstract (A#1-23) of Jeevatthan. It does not resort to sermons and preaching, nor does it evoke fear or prey on ignorance. There is little here that is ready-made, or could be served fast food.

Certainly, it offers substantial food for thought to be prepared to own liking.

Itthivay is about the empirical thought process through which we "internalize" experience for future use. Its approach is timeless, engaging, enduring, and relevant. The hallmark of personal experience is to find a way to identify concern and develop arguments to arrive at a resolution. It builds on basic human curiosity uncorrupted by faith. Reasoning relies on willingness to keep open mind to create own matrix of thought to address a concern. Each re-visit provides newer insights. In short, answers follow questions - just as past comes before the present. Magic bag of oracle may give answers before a question is asked.

I-4. Representation and Abstraction

Materials are indifferent. The way we put their parts together is not a matter of indifference.

- *Epictetus* (100 CE)

Most are not true to methods or their outcomes

Imagine a cry for help. Desire to do something about it depends on the situation: Is it from somebody you know, or is it war-cry from a politician (III-30). People are far less discriminating in matters of faith and lottery to take risk with *just in case*. Such random acts and schizophrenic decision-choices do not assure desirable outcomes.

Non-real is fiction of nothing, yet non-fiction is not necessarily a fact based reality. Mental constructs of our idols and icons take forms as words, deities, literature, sciences, and other cultural artifacts. All manners of representations have imaginary sympathy with aspect of reality as well as with memory. This is why we often mix reality with paradoxes and illusions. Representations rooted in shared experiences have instrumental and consequential utility for transition from knowing to reason, if it can distinguish contradictions, impossible, and un-decidable.

Through representations we extract, touch, and share reality of experiences. It can take many forms. Actuality is how we actualize (shape, represent, imagine, think) the particular. Potential is realized the realistic and pragmatic assessment of the reality. The virtual, attenuated and augmented lead to and draw from the abstractions (generalization, universal). Three critical assumptions are inherent in reality-based representations.

(a) Multiple properties of an entity are expression of the quality of the underlying content (or matter) and its relationship to the context (environment in that space and time).
(b) Two entities do not occupy the same space at the same time.
(c) An entity does not appear from nothing, nor does it disappear into nothing. In other words, "either it exists ***or*** it does not exit," but it cannot "exist ***and*** not-exist" at the same time. It follows that an entity cannot spontaneously disappear into nothing, nor appear from nothing.

Such inherence keeps perceptions rooted in reality. It is the foundation of the reality-based reasoning that facilitates the transition between parts and the whole. The first assumption makes it clear that the state of matter is the operational basis for the representation of entities. Within this paradigm only one entity can occupy a given space at a given time. The second assumption emphasizes that the sequential characteristics of an entity are the expressions of the entity attributed to the context. The third assumption extends the first two to root reason in reality.

These assumptions also form the tangible basis for reasoning about all assertions. Anything that contradicts these assumptions is unreasonable. A particular entity and the space it occupies is the basis for the assertion that "it exists" as an entity. If the observed space does not have the entity in question, a valid assertion would be "it does not exist" in that space. An empty space does not say anything about an entity that is not there, and at the same time lack of an entity does not attest for the existence of a non-entity. The third assumption above makes it possible to use the **or** operator to build a compound assertion such as "*it exits, or it does not exist.*" However, a compound assertion with **and** operator, as in "*it exists **and** it does not exist,*" is not valid because it contradicts reality of an entity and the space it occupies.

Appreciation of assumptions behind a representation is critical for its conception and also for reasoning with the concept. Also a set of entities may share some but not all characteristics. We speak of one mango or two oranges to assert 3 pieces of fruits. Such distinctions of the assigned class come into play as we deal with reverse implication where 3 pieces of fruit do not necessarily imply which fruit or what combinations of fruits. Thus the natural numbers as well as the words of all languages (including the electronic signals) are abstractions useful for the representation of the particulars of a class. With suitable units for classes of entities the real numbers can represent the observed universe in a manageable form infringing upon the underlying reality (See also I-7, III-5).

Zero is not a particular but an abstraction for representation. Europeans of 13th century thought that Zero is an entity of sophistry. Since then in this tradition (mathematical) zero is ontologically perceived as a point between +1 and -1 that amounts to +1-1 = -1+1 = 0. The symmetry around the node of zero holds for all numbers. In the 0 and 1 binary Aristotelian or Boolean worlds zero is 0 and everything else is 1. The logical conundrum of *is not* or zero is all the more difficult to capture. A parable tries to capture the essence.

A frog lived in an old well where he was born, grew up, and continued to live out his old age. Suddenly one day, another frog from the direction of a lake leaped by and accidentally fell into the well.
Old frog initiated the conversation: Where did you come from?
Visitor: I came from the lake.
Old frog: Is the lake smaller or larger than this well?
Visitor: There is no comparison.
Old frog: That is impossible. There is no place bigger and wider than this well.

To the philosophers of Ganga valley zero is not just a node. Epistemological significance of the nothingness is in the empty and non-interactive medium for representation and also beyond: It is the space in which entities exist, and it also represents all the space beyond the world (frame) of the represented entities. Thus a non-existent may be in the context of the world where there is nothing, or in the context of the whole universe where *This being, that comes to be; from the arising of this, that arises; this not being, that ceases; from the ceasing of this, that ceases*. As a paradox of representation: Non-existent form is not different from emptiness and emptiness is not different from a form that does not exit (Samyukt-Nikay). Put another way: If the existence of omniscience can not be demonstrated in the first place, its truth too becomes clouded with the non-existence and empty space.

Nothingness includes not only all that is non-existent but also that is existence-less. In other words, all that that can not be represented by criteria of tangibility is also non-existent. Significance of nothingness lies well beyond the world of *what is, is, and what is not, is not*.

For another perspective imagine a binary world where as mango (a particular) is framed with empty space. Beyond this represented space also lies the universe that may contain other worlds or nothing else. If nothing else lies outside the frame the emptiness around the mango would be indistinguishable from the boundless and virtually infinite emptiness beyond the represented space. On the other hand the "emptiness" around the mango acquires representational meaning if there are other entities whether or not we represent these in the frame. Artists capture such influences through conventions of light and mood.

A lack of appreciation of the conception of limitless space led to the Greek dilemma where the cosmic universe was

represented as an inverted bowl that made the space as a place within the bowl. Similar argument is inherent in the binary conception or god-or-nothing. If so, in this universe there will be room for the reality of one or the other but not both. On the other who have invented and contemplated the reality of nothingness as the boundless emptiness of the representational space offer a realistic world-view in terms of finite entities in multidimensional and boundless representational universe. It empowers by providing viable alternatives. Contrast the conception of multidimensional with the Tao of Te Ching "The Tao that can be expressed is not the true Tao" and with the view of Socratics "one could perceive reality by logic alone."

Nothingness, non-existence, unknown and logical doubt

Logical doubt (*syad*) follows from evidence-based affirmation and negation of possibilities (*anekant*) within the represented space. Here independent evidence sets the bounds of what is known to exist, and also for what is known not to exist. Beyond that lie the possibility that on the basis of the observed behaviors an entity may exist but one may not know what it is. This tripartite world view of existence was well developed at the time of Mahaveer in 570 BCE that is about 300 years before Aristotle. In response to the Vedic views, Mahaveer surmised that the lack of the behavior consequences of omniscience suggest that it does not exist, which is further affirmed by contradictory and paradoxical constructs used to represent such an entity. Thus not only the non-existence of such an entity is not in doubt, but it is also beyond the reality based-criteria for reasoning.

Logic alone does not do it! Recall that the goal of reasoning is to arrive at usable constructs about reality. Such constructs abstract generalizations while keeping focus on the particulars and parts

rooted in the reality. Thus the knowledge that it exists or does not exist is usable. Also the knowledge of an unknown that exists makes us aware of the need to search for additional inputs. #A8 is a key precaution against making unwarranted generalizations beyond such bounds of definitions, assumptions, concepts, theory, ideals, or idols. A reminder: **The fact that you can say something, even many times over individually or collectively, does not necessarily confer a reality or validity. The attributes of an entity have to meet certain criteria before we can begin to reason in search of rational consistency**.

The word ***syad*** is rooted in the Prakrit word ***sia*** for the sense of perhaps or may be. In Jeevatthan *sia* is used to describe sustainability or independent existence of the beings of the *neraiya* (#A79) and *dev* (#A94-97) categories in terms of the attributes for *pajatta*. Humans are endowed with the six attributes (#A33): food, body, sense organs, awareness of the environment, language and sensibility to put it all together and make suitable choices for independent existence and sustainability (Chapter I-13). The animal beings have two to six of these attributes. By these criteria the dev and neraiya being of imaginary world do not have independent sustainable existence.

In short, the concept of syad relates to the logical state of an assertion where evidence can only support indeterminacy as in "on the basis of available evidence and criteria the entity may exist **or** may not exist." On the other hand, the assertion that "an entity exists **and** it does not exist" is contradictory. While indeterminacy calls for further examination of additional evidence, a contradiction calls for reexamination of the assertion or the evidence on which it is based.

From Nay reasoning also come the caution "**indications follow from the objective**." The advice against the introduction of ad hoc, arbitrary, untested, unwarranted or unverifiable applies not only to the features, attributes and criteria, but also to the assumptions behind the validity of the tools (including the people, institutions, evidence) used for the assertion, interpretation and abstraction. For example, untested assumptions are often introduced into the representation through generalizations built into the concept (***oghen***), operational definition or axiom (***vaden***), or the particulars (***adeshen***). The warning about the built in assumptions is in stark contrast to the ad hoc assumptions introduced though the universals as the "self-evident truths" or "the divine authority." Such practices have dominated the Platonic, Judeo-Christian-Islamic, as well as other strands of the Western thought.

Thus two fundamentally different strands of world-views are at odds in "knowing that what you know ***is so***" versus "believing that what you know ***is truth.***" The gap can hardly be filled unless the "truth" of the believers can be defined on the basis of independent measures.

Prakrit terms for concept manipulation

Aalap: recapitulation: a generic term for explanations and elaborations by way of summary.

Nimitt: to connote causality. Usually it verges on coincidence, but it could also be interpreted as synchronicity.

Nisseso (niddeso, nirdesh): indication in the sense of inference, implication, suggestion, or hypothesis.

Niyam: a regular predictable sequence, schedule, rules of

mathematics and grammar. Until recently, it was rarely applied for arbitrary rules of conduct or behavior.

Suffix **-desh** relates to realm or neighborhood.

Deshen connotes approximation.

Adesh connotes a dictum.

Anudesh connotes a specific instruction, or a point of detail.

Uddesh connotes goal or objective.

I-5 Why Look Back?

Reality is represented within the bounds of time and space continuum. The potential (*bhavitavya*) of future promise and joy is built on the past. What we know about such future is that we will look back at the integrity and veracity of the past actions.

Consider two ancient riddles: *He who understands the past, controls the future, and he who lives the present, controls the past and future.* Also *If poor sort of memory only works backwards, sly wisdom bears no fruit. Auguries of astrologers and seers have no practical value because everything is likely to happen, but we do not know exactly when.*

A Buddhist parable to illustrate the point goes like this: A person is looking for something under a streetlight. A friend walks by and asked "What are you looking for." After hearing the reply he also begins to look for the lost keys. After few minutes of looking around, the friend asks again "Where did you loose the keys?" The reply was, "Oh, over there, about 100 yards away." The friend asked again, "So why are you looking for them here?" The answer was, "that is where the light is."

There are many variations of such searches in virtually all area of human experience. This parable is widely used by modern scientists as an appeal to appreciate the limitations of the prior knowledge (the light). Obviously, if you are looking for something that you do not know, it is futile to look into what you know. Temptation of looking at the world only though the prior knowledge is always strong. It has held its sway for millennia even when it is clear that there is no light there. Fortunately it is not always the case.

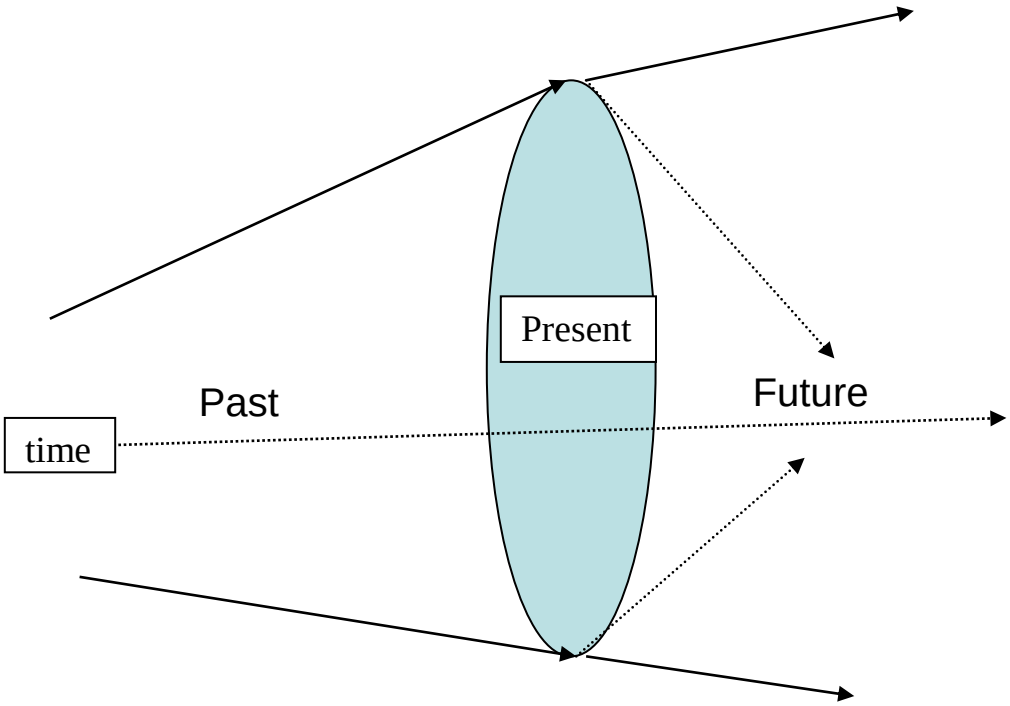


***Figure I-1**. Certainty around the present is the maximum. The tapering cones of the past and the future meet at the present which has least uncertainty. The space outside the tapering cones includes all forms of uncertainties which we may or may not know about. Bother the past and the future are less certain than the present, and uncertainty increases with time. Also note that whereas little can be done about the past, the potential for the future can be greater than the present.*

The parable is deeper. There are two ways to look at the uncertainty related to time. With the cones of uncertainty in Figure I-1 the present is the point where the two cones meet and it is least uncertain:

One way is to walk through the present with your face towards the past. The future will be behind your back. Walking "backwards" into the future may give you a more clear perception

of the light from the past. This view of dwelling in the past comes from the traditions of the Persia, Greece, and the Middle East. It has come to dominate much of the thinking of the major religions of the world. It dominates the academic traditions of analysis after the fact. Children are taught the "tried" that is often confused with the "true." In the historical sense of happenings all learning is about *where the light was* and not where it will be. The past is often *justified* as true but that is only in the sense that it happened. We hardly ever know what happened and how it happened. With past as the guide one tends to place greater reliance on the generalization of the past that come to use through artifacts. It is also misplaces emphasis on the belief that there is little that was not known in the past.

For another view of time imagine walking into the unknown of the future. I believe this is the focus of the itthivay-nay approach where decisions are made in real time based on real evidence relevant to the future. By augmenting the perceptions, the past guides only so much as to provide a road map of yesterday, or a snapshot (in the rear-view mirror) of what happened. On the way to the future where you stand now determines the starting point. Little can be done to change this starting point as well as the past. On the other hand concerns about the future can be addressed by doing certain things. Here the wisdom is that once we are suitably grounded and oriented all we need to do is to make use of what comes along while avoiding detours of contradictions and inconsistencies. Rationality lies in directing efforts to ensure a smoother transition into the unknown of the future.

Why Acknowledge the Past (as in A#1)?

For several reasons #A1 is a succinct but powerful statement about how the shared knowledge from the past is created, transferred, and ultimately brought to the present. It is an integral part of the individual and social evolution. Whether we appreciate it or not, transfer of past experience as knowledge has been at work forever (*anadi*) and many (*anant*) have contributed at all levels identified in A#1 in generic terms.

Insight: The form is simple. Its thrust is on the relationship of the verb "bow" to the class and groups, rather than a particular individual, that are not contemporaries or followers of each other.

Insight: The verb bow is used here in the sense of salutation as in *my hat is off to you*, or bowing or covering your head out of respect in other cultures. It is the sense in which Isaac Newton acknowledged the privilege of being able to "stand on the shoulder of the giants." It is not worship, or prayer for grace or enlightenment. It is an expression of appreciation for the role of humans in knowledge transfer.

Insight: In this hierarchy: *Arihants* make new in-roads in the interpretation of the extent reality; *siddh* establish validity of the approach, *aacharya* develop the precepts; *upadhayay* explain the precepts to the layman; and *sadhu* test the validity of through practice. In this hierarch of knowledge transfer no distinction is made whether these are different persons or different stages for the same person.

Insight. Namo has ancient origins. A stone inscription from the Kharvel Empire (ca. 400 BCE) in Orissa reads: ***Namo Ar(i)hantanam, Namo Sabb Sigghanam. Namo Jinanam*** appears to have been in use before Mahaveer. The term *arihant* is different than *arhat* of Vedic origin that invokes worship and miracle. A related term also referrs to a group of monks in ancient

Mesopotamia. In the Aryan tradition the term "arhat" refers to the capable, respectable and the distinguished. This sense is also conveyed by other characterizations that have been associated with the pre-Mahaveer jin monks: *nath* (master), *iser* or *ishvar* (worthy of worship), *dev* (deity) and *bhagvan* (god).

Insight: For some this acknowledgement has also come to represent a deeper meaning. Around 800 CE it has been characterized as ***mantr***(a), as a "device (tool) for thought" or "instruction for mind," that is a Sanskrit but not Prakrit word. Those cognizant of subtleties of words and aficionado of language usage will note the conceptual continuity of the motive-devices such as: ***sutr(a),*** linear context dependent device; ***stotr(a)***, device for contemplation and emulation; ***tantr(a)***, bodily device (for yoga, illusion, deception and magic); ***yantr(a)***, physical device such as a tool or machine; ***gatr(a)***, by bodily motion; ***gayatr(a),*** melody. Such a relationship may be an overstretch for *pitr(a)*, paternal; *ma*tr(a), maternal; *bhratr(a)*, fraternal; *bhadr(a)*, driven by common curtsey. Such devices often helps in discerning the content (concept space and the word boundaries) from the cloud of rhetoric and semantic.

Note. #A1-23 steps of Jeevatthan give a flavor of what is to follow in terms of the style and economy of words in the rest of the text (Chapters A-H). It is said that around 37AD Pushpadant developed this abstract (#A1-23). This concept template was developed by Bhutbali over the next 50 years to complete five other parts what is known know as the Shatkhandagam (Chapter J).

Uses of the past. **O**ne does not reinvent the wheel every day, nor does everything repeats itself. Even if we have such feelings we cannot predict which part of the past is going to repeat and when.

Of course, seers and oracles have said everything about the future. At some time or the other, and somewhere or elsewhere, it will all come true if we care to pick and choose. Is it helpful?

Reliance on the past comes from the perceptions, and not even from the wisdom of hindsight. Humans inherited and continue to refine tools and technologies, including the agricultural and communication technologies. This is because not that we have is good for everybody and at all times. There is no point in using the same wheel or cart if it does not do the job. If you think otherwise, ask around how many people want to go back to the life of 100 years ago. Our genetic makeup is not mean to start from the scratch. We mimic and learn from the experiences of our own and hopefully of the others to nurture desirable and undesirable transitions permitted by the nature.

We also know more about what does not work. Ability to do harm has also increased. Whether we admit it or not collective experience of the past has made us wary of many things. Ready flow of information also identifies the broader concerns as we get a better grasp of usable facts of reality such as "One does not create something out of nothing." With such realization most people have done away with the idea of perpetual motion machines including omniscience of sorts embedded in ideas of infinite energy, knowledge, wisdom, or information. Have it changed beliefs, attitudes and behaviors? Do people relent to the obvious or even to the established facts? My answer is qualified yes. We may not have the tyranny of omniscience, but it does crop up from time to time in many garbs.

Rational behavior with explicit attention to the tools of the thought and reason is a relatively recent development in most cultures. It requires use of conceptual tools to make real time choices and decision to deal with present and to forge the future. We have made progress in access to information. It does not

mean that predicting the future is around the corner. We can not avoid unpleasant happenings, but we have increased ability to deal with the consequences. Methods of forecasting, planning and game theory rely on such tools to offer solutions in the form of education, public services, health care, insurance, and other forms of help when and if needed. Such solutions do not necessarily ward off the reptilian instincts that lead to wars, aggression, environmental degradation, and over-consumption. At this level the significance of the ancient negations (on violence, lying, illicit behaviors, and possessions) is still in place.

In short, the value system behind irrational impulses need be examined carefully. Beyond that rationality of coexistence lies in coherence of thoughts, words and actions towards common concerns and goals. In this sense empirical approaches of the past continue to be relevant if adopted suitably. Their conceptual basis remains relevant as long as our instincts and concerns prevail.

One sometimes finds what one is not looking for

The information content of perfect disorder is minimal. Even armed with perfect knowledge we should know what we really want and evaluate consequences of our choices. However, there is something to be said about empirical searches in which *luck favors the prepared*. Another version attributed to Luis Pasteur is: "Chance and coincidences favor prepared minds." Consider account of coincidences in the life of another microbiologist.

Alexander Fleming was born as the seventh of eight children of a farm helper in Scotland. Alec, as he was called, "unconsciously learned a great deal from nature." Alec's father had once saved life of his Master. In gratitude, the Master paid for the education of Alec's elder brother, Tom. When their father died, Tom was opening a medical practice in London. He

encouraged Alec to enter business, where he did not do well. Then he joined the Army and again did not do well. After Alec inherited 250 pounds from his uncle, he took the qualifying examination for medical school. He topped. He chose St. Mary's Hospital because he had played water polo against them. In 1905, for random reasons he specialized as a surgeon, and then found out that he did not like surgery. Alec came to bacteriology because the captain of St. Mary's rifle club, a bacteriologist, wanted a good shot for his team. He knew about Alec's shooting skills from the Army days.

Fleming stayed at St. Mary's for the rest of his career. During his wartime services Fleming recognized a need to control wound infection. In WWI more people had died of wound infection than with gunshots. The only available treatment was crushed garlic. In the 1920s, Fleming found that lysozyme, an enzyme occurring in egg white and body fluids, such as saliva, tears and urine, had a weak antibacterial effect.

His lab was often in disordered state. On one of the cleaning days, he noticed "something funny": One of the dishes infected with a mold has killed the *Staphylococcus* bacteria. He later identified the mould as *Penicillium notatum*. This mould strain was being studied a floor below. It had entered Fleming's lab through windows left open in both the labs during a warm August day, when Flaming was on holidays. His report published in 1929 attracted little attention. He later purified a small amount of penicillin from the mould. That too attracted little attention. His studies were delayed when his coworkers relocated or died. During WWII Howard Florey and Ernst Chain picked up on the earlier findings to isolate penicillin. In recognition for their contributions, Alexander Fleming (1881-1955), Chain and Florey were awarded the Nobel Prize in 1945.

Could anybody have planned the course of this

development? Since this beginning by chance hundred of antibiotics have saved millions of lives, and have protected many more from debilitating infections. One of the first patients to benefit from penicillin was the son of the master whose life was saved by Alec's father about 50 years before. Ironically, the over-reliance on antibiotics in hospitals and feedlots for animals and poultry has also created major health hazards. New strains of bacteria resistant to multiple antibiotics have appeared at a rapid rate in the environment where antibiotics are excessively used.

I-6. An Ancient View of Being

Be yourself, but change if is does not work out.

Need to reduce disorder from perceptions motivate desire to reduce disorder and chaos of choices and actions towards rational consistency. The idea of rationality based on consistency is not idealization, nor an ad hoc assumption. Empirical search for consistency validated by practice is the basis for shared knowledge. Enhanced awareness of consistency from the practice provides restraints against random acts, and directs actions that make the world manageable. It is like going from the darkness towards the light.

Matrix for thought. Shared knowledge requires tools for representation of reality and also for abstraction. Common properties and features of entities (#A3-5) form the basis of representation. It facilitates abstraction or generalization through evaluation of the represented features (Chapter A) in terms of defined criteria. Seven such criteria form the basis of the next seven (B through H) chapters. In each of the chapters the relationship of the properties to a particular criterion is explored in relation to the quality of perception.

On the whole, the text of Jeevatthan constitutes a three-dimensional matrix of 14 properties evaluated in terms of eight criteria, and each of these is evaluated in relation to animate beings in the 14 states of perception. Thus the matrix has a total of 14x8x14 = 1568 elements, which is not too far from about 1800 steps in the eight chapters.

An effective use of mathematical analogs is apparent throughout this text. A tradition of systematic thought in dealing

with the unknown, and of creating an order through defined criteria, seems to follow from the idea of rational numbers. In the Ganga valley such ideas were in widespread use well before 1500 BCE (Volume II). Order evolves from the ability to systematically manipulate the disorder into a pattern as the way to usable perception. For example a representation of the number of entities as their count can be carried out with the help of rational numbers based on the ten digits from 0 to 9. With these ten represented symbols one begins to count, and with that count one takes a measure and account for the realities of the universe with which one has interacted. As pointed out elsewhere in this volume (I-2, I-3, I-10), mathematical technique of coordinates and matrices are useful for the representation of orthogonal reality and the imaginary worlds.

I-7. Processing Reality

I needed a criterion for figuring out not just those things that appear to be filled with wonder, but those things that appear to be filled with wonder and are real.

- Ted Schultz on his fascination with biology

There is no force without matter. There is no matter without force.

- Ludwig Buchner

Representation is as much about the potential as about the content. There has been much philosophical debate about the nature of the representational and abstract reality. We will not enter into it. However, it is worth speculating about how we empirically process the observed and experienced. For example, we are often startled when we hear thunder. Presumably it is from the perception of being struck by lightening although most of us have has no such experience. Two simple facts of reality are important here to develop a rational perception: Sound travels slower than the lightening; and lightening associated with most thunders does not ever reach the ground. What are the practical consequences of these two facts?

First and foremost, if you are not already hit by lightening, thunder is unlikely to hurt you. On the other hand, thunder and lightening are the warning signs of what may be happening and could happen. This brings in a third fact. The thunder-lightening events come in chaotic spurts. By noticing one event we can be reasonably sure, but never 100%, that more is to follow. Yet we do not know when and where will it strike. Are these considerations part of in-born instincts, or just the part of nurtured perceptions.

Here is another look at generalization. On an outing with

a friend he spotted a green leaf popping out of decaying winter leaves. He said here is a colony of this particular rare orchid. I asked how can you say there is a colony if you see only one leaf. He did not say much. We kept looking within half an hour we found 30 plants spread over an area of several hundred square meters. Where I had seen only one, based on prior knowledge of the habits of the plant my friend expected many more of its kind.

Understanding is a measurement problem

Representation is measured and evaluated (#A2-7) through evidence (*paman*). All that can be represented on the basis of criteria or can also be understood by others, examined and validate. A representation does not validate itself. The same holds for imaginary constructs that do not adhere to the real world criteria.

Independent evidence for validation is gathered through tools, measures, standards and other means of verification. Assertions, inference and generalizations take a measure of the overall understanding. Such generalizations are often built into the representation as we grasp the unobservable by peering "behind the door" of what is built into definition, axiom, assertion, common notion, premise and assumptions. Often we know of the open doors. Sometimes we even come across closed doors. However, human potential (*bhaviye*) to access and understand the real world lies in knowing and in opening the doors that exist but we do not yet know.

Related questions

What is at Issue? Secret of right and wrong has puzzled philosophers, baffled all the men of business, and ruined most of the artists. Scientists continue to struggle with the distinction between the "is" of their results and "ought" of their wishes.

What is potential? In about a million years humans have evolved from the use of stone-age tools to the cyber age. Ironically, both the technologies rely on silica, the same basic ingredient found in sand and rocks! Forms of silica are also the bases of glass, porcelain, and ceramic technologies, as well as the silicone for the breast implants. Detailed understanding of the forms of silica as well as carbon (charcoal, graphite and diamond) is the result of knowledge based on verified evidence.

What is Proof? Proof builds on the observations and experiments. Its practitioners avoid getting side-tracked by their own cleverness and believing things to be true because humans would like them to be so.

Proliferation of words: We explore and share the universe through word representations. Proliferation of words to represent an idea is a natural consequence of the fact that its concept space and boundaries have to be constantly readjusted. Human progress of the last 8000 years is essentially based on the proliferation of such tools, devices, and technologies.

Potential of two cows in global market place (*an exercise*)

Opportunities for the realization of potential lie in the way reality is perceived. It is generally recognized that social and cultural factors influence perceptions and therefore the choices one makes. As an exercise in appreciation of relevant alternatives (***Anekant***) consider the choices while faced with a decision of the sort "if you have two cows and still do not know what to do with the cows:" Choices in Globalized world will depend on where you are as below:

Great Britain: Buy meat from Argentina to sell in the European Union. With the hope of putting back the "Great" sell your mad-cows: one to Singapore and the other to Nigeria. Do not leave any

evidence, do not admit, and if caught red-handed with stiff upper lip deny culpability. Send agent 007 to cover up the mess and blame it on the natives.

Peoples Republic of China: Hire 300 people to milk two cows. This will increase production and nobody will be unemployed. Jail the reporter who divulged the secret of this great-leap-forward.

Cuba: Don't worry, cows belong to Fidel.

France: Stop traffic to ask the government to give you a third cow.

Germany: Re-engineer them as butter-cow to increase the fat content of French cheese.

India: Adore your two cows and hope for calves.

Israel: The chosen-cows are critical for the preservation of your people and their cultural identity. Sell bonds in New York and give back the tax loss in depreciated currency.

Japan: Sell the cow and produce Walkman.

Netherlands. Use that mountain of butter as foreign aid to those who will also take away the droppings of cows and pigs.

Russia: Count your cows: One with one eye and then one with the other: you have 11 cows. Now count again: both with one eye and then both with the other eye. Now you have 22 cows. Count again you have two cows. Open another bottle of Vodka before counting again.

Saudi Arabia and Middle-East: Trade your two cows for four wives who can work in the field, or for one blond who can take care of your foreign account. Anyway, who can afford cows in the desert?

Spain: Sell your cows because there is no tomorrow. Go to a *tasca* and enjoy.

Switzerland: Sell your cows. Take care of the other 5000 ill-gotten cows and charge a fee.

Venezuela: Put your cows with the chicken on the rooftop of your corporate headquarters in Caracas. Your private jet can be claimed as a business expense to take care of the hacienda in the pasture land 3000 miles away. If the Government has already taken away your farm, ask for the subsidy for your apartment in Miami.

USA: First read the following disclaimer (fine-print). It is not for those who are smart enough not to have read this far.

[***Disclosure***: *The following advice is only for those who do not have two green American cows, or at least have two-bits worth of wits about them. If you do not have any of this, there are other choices: If you are at least 6'10" and weigh 280 pounds and your brain does not hurt if rocked around you have a future in the spectator sports. If you can be productive by having a baby or two, go on welfare. If you cannot even do that, do something that will make you a guest of the state without parole. If you do not have any such attributes, you do not deserve to live your un-examined and un-scrutinized life in the land of capitalism with, free enterprise and opportunities.*]

If you have two green American cows here the options:

USA-1. According to the original model of Western capitalism: If you are a rustler on the public lands, on your next visit to the town shoot the Sheriff first. In the ensuing chaos steal some of the cows from the town and sell them as soon as you can. This way cows headed for the slaughterhouse multiply fast.

USA-2. If you dropped out of high school with big dreams and believed in the Adam Smith version of Western capitalism taught in the eighth grade. Sell one cow. Use the money to buy semen of a good bull and propagate your herd on public lands for two-cents a year.

USA-3. If you can also afford a lawyer patent the use of BS (another name for cow droppings) as your intellectual property.

You and your lawyer can make a killing if you can package BS attractively for the pronouncements by the Government departments, corporations, lobbying groups. Politicians use their own.

USA-4. Be creative if you also have your college degree in accounting: taking loans from a bank. Fly checks between accounts; talk your uncle to buy into your success; rent your cows to a farmer for a fee

USA-5. If you also got your Harvard MBA, you own a dairy farm. With smoke-and-mirror nobody will know that the dairy-farm has only two cows. Get a big loan to start a corporation with some hair-brained idea. The concept does not have to have a product and certainly not a profit. Do not involve your uncle. He will see through your ploy.

USA-6. If you also have two bits of silver to pay for a congressional candidate and your "horse" wins, you have an International Farm as a model that has to be subsidized by the State Department as a show-case for the visiting dignitaries.

USA-7. If you also have two bits of gold to pay for a Presidential candidate and your "horse" wins, your herd is critical for the national security. This may require bombing all other cows. Just the idea will raise the price of your cows, or at least depress the price of other. Make a pitch for "healthy" (read weight, cholesterol, obesity mental retardation) red-meat for your compatriots. With connections in the Commerce Department supply the minced Mc-Cow to Mc-Globe chains established in countries run by oligarchs. State department can put pressure on other for your expansion plans by listing other countries as human-rights violators.

USA-8. If you also have two wits about you, start incorporating other farms. Hire a Vice President to juggle the numbers to show paper profit. Sell your options and declare bankruptcy after you

have moved your capital offshore.

USA-9. Study the MCI-WorldCom models for the end-run (or is it *Enron*) capitalism. Sell two cows, and buy three cows. With the profit start a corporation. Make promises to the overseas believers in Free-markets to give you the capital. Some arm-twisting from the State Department local government would also relent or at least look other way. With the proceeds buy five cows, and option for one more. Take the internal company public, buy nine cows to show 50% growth rate. Give options to CEO and CFO. They will show 50% growth for another two or three years while all your friends cash in. Sell your high-flier to some stodgy company that does not know what to do their cash reserves. With the proceeds CEO will be elected as the Vice-President. CFO can retire in Switzerland. If caught, take the "fifth" (some people call it amendment, but it is really a good-ol-Whisky or Bourbon. A 140 proof moonshine works better for dealing with your own doings. Deny culpability as long as you can pay your lawyers to drag the case in the civil courts. In the worse case you will get 2 years. It is almost like a long-due vacation from the all that hard work. It could even be pleasant if your girl-friend can still bring you the weekly package of your favorites. That is not bad deal for two cows.

I-8. What Is In An Abstract?

Received wisdom and knowledge differs from the shared knowledge that come to you as an abstract, an outline, or a snapshot. The difference lies in how it tickles your mind, when does it begin to mirror your own thinking, and when does the experience become a matrix for thought process.

The device of succinct (abstract, outline, snapshot) presentation says some things fundamental. The form in #A1-23 is remarkably analogous to the modern usage of the abstract in scientific literature. It is as much about the content as about the style. It is about the key elements of the approach and assumptions. It is also about the roots and purpose of the work. It provides a link to the tools for learning that are developed later (Chapters A-H). It is not just a summary or conclusion. It is a matrix for the thought process that facilitates representation and abstraction.

What did you read?

One of the most remarkable things that I learnt was at the age of 9. In my school when you went to return the borrowed book, the librarian would always ask what did you read? In less than 2 minutes you were supposed to give a summary of what you read and thought. Based on your input he would recommend the level of books based on your interest, otherwise you were asked to the same book read again. The school gave me a special award for reading 279 books in one year. What I cherish most is the habit of focusing on the content, theme, message, and relevance as I interact linearly with books, people and the world.

Jeevatthan text in Chapters A through H is about representation and reconciliation of the diversity of animate beings. The term *jeev* refers to all animate beings: not just the living beings but all the real and imagined animate beings of psychosomatic and cultural origins. They share some common properties. But the distinctions, and not the mere differences, are the attributes evaluated in terms of defined criteria. For example the observed reality of celestial shining objects is acknowledged as *jyotish-dev* (the celestial shining objects) or the *kalp-dev* (imagined objects). Such moving or animate beings, including those of the under world, are represented to facilitate their observed behaviors.

Tools and devices for representation are about the way of thinking. It is useful to appreciate the purpose of the tools that facilitate flow of ideas, information, and knowledge. An analogy will be helpful here. If you wanted to cross a river (an idea), information is like looking for a way to take a single ride in a rented boat, and knowledge is like having your own boat. Knowledge of the methods and devices is like having the tools and blue print to make a boat. The concept revisits as you feel a need for a better boat. For such purposes consider the efficacy of *Gatha*, *sutr*, *mantr*, aphorisms and of the concepts based on your experience.

Jeevatthan text is for self-learning. It develops in steps as a dialog with simple, short and terse sentences with a focus on the content. Hardly anything is negated. What is said is positive and critical for the appreciation of the content, and nothing is superfluous or rhetorical. Implications of what is said, which can be profound, are left for the reader. In this sense the text in a matrix form is **a statement of principles and processes for the**

reconciliation of the animate world perceived by humans. Here an apt analogy would be the role of the constitution of a country, or even a charter or a bill of rights as perceived by the citizens. In all such cases, details and subtleties emerge through continuous interaction.

Economy of words places a special burden on the reader, who must provide an appropriate context rooted in experience. Recall that this material relies on the *anugam* process that is analytical but not critical. It starts with curiosity and explores the significance of the context and content that lies in logic-space. A matrix of properties and attributes generated by the observer is explored in relation to defined criteria. Therefore, the quality of the observer-observed interaction is critical for appreciating what attenuates and augments individual perceptions. Operational generalizations are built from representations (definitions and assumptions), rather than from some arbitrary universal.

Reality-based empiricism

The empiricism built into Jeevatthan and Nay works makes it unique. Certainly it is ahead by several millennia compared to the trends that perpetuate the futile searches for the omniscience. Modern science is also beginning to come to grips with the depth of it. As shown by Godel's incompleteness theorem: "you cannot prove anything that is not already built into the starting definitions, assumptions, and axioms."

Understanding of perception is hallmark of the 12th *Ang*, which is appropriately called ***itthi-vay*** (II-11). For explanation, interpretation, and elaboration it relies heavily on the conceptual and logical interaction with one's own experiences, shared knowledge and available evidence. The it seeks a deeper understanding of ones own perceptions in search of consistency, coherence, and context. Appreciation of the content and implicit

emerges as the trends (*bhav*) of the observed reality unfold in stages. Then it is by more formal means (the *Syad-Anekant* ***Nay*** Volume III) one builds reason and thought in to the matrix of relations that make up the shared-knowledge.

Step-wise elaboration. The approach of stepwise elaboration is an essential part of linear language communication. The matrix approach also emphasizes a structure for reasoning to build thought. Therefore, for the conceptual grasp of the multi-dimension world on a real-time basis reasoning is guided by a matrix of tangible attributes and criteria. Thus relations are built and elaborated by algorithmic iterations and successive approximations. May be a similar process is also at work to attenuate, augment and process our perceptions.

The approach of step-wise elaboration of a matrix is remarkably effective for self-learning and teaching. To be engaged the reader or the pupil must provide the relevant context. It can be applies in a variety of ways because an stepwise approach gives operational and analytical tools for problem solving and decision-making. Such tools of reasoning search for relations that make one aware of the practical (*vyavhar*) limits to the use of language and observations for the representation of complex situations. In short, the matrix approach provides for a graded transition from the observed and experienced to the representational and abstract.

I-9. What Is in a Word?

Word representations facilitate experience. The dynamics of word usage animates language because a word evokes wide-ranging emotions modulated by its context as in: *You are stupid; Are you stupid? Keep it simple, stupid; It is economy, stupid; I am stupid; I am so stupid; I may be stupid but not dumb; when does stupid become dumb*. As we evaluate the resulting perceptions words also help in the evaluation of its conceptual potential.

We are prisoners of words. 'Tusk. Tusk. Words mean what I mean' decried the Queen in the Wonderland. We focus by naming names. At times a word, for example god or its cousins, gets out of the originally intended boundaries. In the Nay tradition, by the act of naming we are bound to the actions of the word that evolve through its usage. Words are not about just keeping the promise, although that is how we commit to a part of the observed and experienced reality. Use of words for communication is about the deeper levels intrinsic in the ways we share and use words to build perceptions. Often experiences, as well as insights and ideas, cohere around a word. As the analytical device to focus on the particulars in relation to the universals the word boundaries define parts of the explored concept space.

Representation is the first step in defining perceptions to be validated. For the development of shared knowledge we name entities as class in addition to their individual identities. Word representations communicate parts of the observed and experienced, yet a word does not necessarily confer or communicate reality. Words may be about figment of

imagination which may or may not lead to ant awareness or the truth-value of the entity. Many words in the public domain are mere cliché, and boundary of even the commonly used concept words is lost in the rubble of the history. In short, as tool and device for communication words work on the principle of *garbage in garbage out*.

Conceptual tools, bits and pieces: Word communication works within the limitations of a boxed-in mind. At a very simple level, we name things to communicate what we see or experience, and others also see and experience in the same way. This is the first step in sharing the experience with others to thrash out the real from other that can not be shared and communicated. Words that communicate concept are also rooted in the physical and psychological reality. We construct the future from such bits and pieces that have an affinity for our minds. Often we also scramble to seek help of words loaded with our own perceptions. Strategy of breaking the observable into parts to conceptualize is like the divide-and-conquer difficult tasks, or refinement through trial and error. It also acknowledges the limitation of the human ability to see and communicate the "whole." Success of this strategy is clear from the widespread use of tools, alphabets, words, numbers and relations. Conceptualization is a critical step in the evolution of knowledge, and only the concepts rooted in shared reality can be shared.

Rearranging bits and pieces creates order, chaos, and disorder. This is also the case with words. In order to avoid confusion we seek words that provide a better grasp of experience. Appropriate and timely word constructs offer ways for systematic exploration. Even the intuitively obvious can only be communicated only with defined word boundaries.

The Prakrit term *anugam* characterizes the ways in which

human develop and apply knowledge. The *anu-* prefix refers to microscopic constituents, parts, tools, devices, ingredients, and later also for the components right up to the smallest components of matter. The *-gam* suffix refers to the conceptual drive for reasoning towards a purpose or goal. It related to reasoning through parts that includes reasoning in and about the parts. Thus anugam is the analytic approach based on the understanding of the parts (entities, criteria and relations). As a device for validation it is bi-directional, that is from the whole to the parts, and also from parts to the whole. Anugam is not after the fact analysis or post-mortem.

In the ancient Indian context, the after the fact approaches have been called (see II-4 and the Nay part): *tatpurvakam* by Gautam for in accordance with what has happened; *tark* or *tarki* for deduction by the Buddhist scholars; *vakyovakyam* in Upnishad; *aanvikhi* or *anuman* (estimate or guess) by the main branch of the later day Nyay scholars. Such attempts to "look back" (for example at the Vedic a priori) were widely used. They were denounced by the faithful as their own analyses of what happened in the distant past tended to degenerate into rationalizations. It was clearly recognized that such methods were inadequate for arriving at the knowledge of the present, and certainly of little use for diving into the future. In contrast, by acknowledging the human origins of the prior knowledge, the focus of the anugam approach always remains on the criteria-based practice to construct viable models.

What is the smallest part that can represent the whole? Looking for the smallest in the observed reality has created paradoxes of the infinite divisibility and also of infinite regress. In the anugam tradition the smallest is the unit that still represents the class in terms of the criteria for the representation of the class. For

example, a grain (a unit) of wheat is the representative of a heap of wheat, no matter what its size. We can divide the heap in parts until we are left with a grain. However, to retain the integrity of the unit of representation, validity of the division reaches a critical limit when the 'heap' of two grains is equally divided. At this point individual grains can not be characterized as a heap, but only as an entity. Also a further subdivision *(**ardhacched**)* would also destroy the identity of the entity. It is also unacceptable because a broken grain does not represent the entity of our concern. Of course, if one chooses to do so the concern would shift to the next level of hierarchy as the powdered grain. In short, a class can not be represented by only one entity, and if such a singular entity is postulated it is likely to be unreal and paradoxical.

Looking into the viable parts. Dissection of reality through the medium of language is a form of reductionism. However a word string communicates the message that is lost as soon as the string is altered. Of course, common languages have built in redundancy. For example, a herd of cows can be divided until only one cow remains, however to say the least it is also the end of its genetic future. Also a cow can not be viewed as mere sum of its parts. Reconstruction of the viable whole from the identified parts necessarily requires more than a sum of the parts. It also requires bringing together the parts in a definite order and relations. To reconstruct a step in the hierarchy of part it is necessary to invoke synthesis. An understanding of how parts come together in the whole is critical for ascertaining the viability and validity of the entity. Until then it is prudent to entertain the possibility that we may not have all the necessary information about all the parts, or the conception of the way in which the whole is put together from the parts. Until the dawn of the

genetic engineering we did not know how to get a viable seed of wheat from the flour.

The paradox of parts and whole is well captured in:

"The parts alone stand out, located thus an so,
But no part-less owner of them is understood at all."

In short, reasoning (*Nay*) is an analytical (*anugam*) guide for thought to discern viable parts of reality (*Satprarupana*) from the world of our concerns. Such interactions with parts also relate to the underlying order, relations, and relevance. For an appreciation of the intent and reach of the analytical processes consider the concept space of other terms with ***anu*** (micro) prefix:

Anubhag: a component part

Anubhav: experience or observed based on a part of the past happening or event.

Anugam: analytical and criteria based approach.

Anugrah: insistence or to make one feel at home.

Anukampa: empathy (not sympathy or pity) resulting from deeper understanding of the feelings behind an incidence or experience.

Anukaran: mimicry, ritual, doing the way it was done before

Anuman: Measure based on a valid part. (Inference based on evidence; estimate or educated guess based on measure of parts). The *ma* root is for measure as intrinsic in the words like *pariman* (outcome of intention) and *praman* (evidence).

Anumati: concurrence or agreement about a part of the plan.

Anupama: Appropriately measured (balanced) analogy or analog.

Anupat: Ratio and fraction (in relation to the whole).

Anuprekcha: Contemplation, or consideration of parts to arrive at a unified and valid conclusion.

Anurup: Relevant to the form (goal, object, means, device).

Anusar: In detailed accord.

Anushashan: Discipline through the parts (organization)
Anuvad: Paraphrased on the basis of the parts, from the basics, operationally.
Anuyog: device, relation.
Anveshan: probing into or through parts, investigation, research, and exploration.
Anuvrat: Minor restraints on potentially harmful behaviors
Anuvriti: quirks of habit, tendencies that shape behavior.
Anuyogdwar: (aniyogdwar in #A5) criterion, consideration, or conceptual tool to "open doors."
Anviksiki: Rationalization in terms of scriptures (such as Vedas and other narratives, hymns, parables and dialogs) as evidence. Also Hindu Nyaya evolved to rationalize validity of scriptures. .

The modern Hindi terms for atom *(param-anu)* and molecules *(anu)* have come out of the same concept root that relates to the analytic theme of going back to or coming from the basics or the parts. In the later Jain works the idea of atomic aggregates is developed as *skandh*.

The idea of compound words to convey more than just parts is clear from the range of anu-based words. A systematic construction of key words that relate to the analytic thought process is critical to convey conceptual meaning and nuances that is not always possible even with glossaries and standard encyclopedia.

The part-based or analytic approach appeals to the parts and rations that may not necessarily be independently viable entities and concepts. Also the approach may not necessarily lead to the identifiable unit of ultimate reality. The 'an(u)' root stands for the parts as in the elemental, basic, or microscopic component that has the distinguishing feature of the class. It is certainly not the one of the kind ultimate reality in the tradition of the supreme

or omniscient. Also it is not the ultimately reality of the ideas in the Buddhist tradition. Also it can not be argued, as the ancients did, that anu can not exist because such a part-less entity could not stack with other anu. While invoking the idea of polarity to stabilize the conjoined, this argument clearly confuses the idea of spatial asymmetry with the asymmetry of the parts. In short, individual acts add up to an action where a verb comes into play with reality.

Politics of Parts

In August 1624 by the French Parliamentary order Etienne de Clave was arrested and convicted for proposing a non-Aristotelian theory of elements. It was not about science or the nature of the universe. By invoking that the whole could be broken into parts, those who were in power felt that the idea could be applied to analyze and scrutinize all forms of higher order. So the conviction was about preserving the status-quo of the ideas that empower the authorities. It was not a struggle for "truth" but about the dogmatism of the omniscience to limit the latitudes of human thought.

A critical conceptual insight emerges from the technique of systematic search from the roots, basics and parts. It follows from the curiosity to inquire whether the whole is sum of the parts as such, or if there is an emergent relationship through a hierarchy. Insight lies in the fact that additional properties and behaviors emerge when parts are rearranged and made to work together. This is the idea behind the tools of languages, thoughts, theories of modern science, and machine tools.

Anugam versus Agam. *Anugam* is a directed search for the parts and relations that make up the whole. There is tendency to

confuse *anugam* with agam. A tradition (*purv* or *puvva*) may precede anugam, and a*gam* may follow from the anugam. Agam may have the historical continuity, but anugam is about continuity of thought. The distinction is important for contemplation of how integrity of the though processes is necessary to realize the potential of the prior knowledge. Take a simple example. If you show a pencil to somebody, with prior (*agam*) knowledge of such an object, this person may immediately recognize it as a pencil. However, this person may not know how to use a pencil, or to use it effectively, or to use it in the most appropriate way to realize its maximum utility as a tool for writing and drawing. A person with knowledge may lack skills to use its tools, criteria, and devices. The problem goes deeper:

(1) Utilitarian criteria for practice of knowledge are critical for its viability and evolution. We may not know that the pencil is useful for writing and drawing on a variety of surfaces, or may not know that there may be other objects that do the job better. Also a pencil could be used for other purposes. Chinese use pencil like objects are sued as chop-sticks to eat. Japanese use pins for hair-do. Such uses do not follow or evolve from repetitive (ritualized) practice.

(2) We often explain away things by mindlessly repeating words. Naming and attribution of functions or parts is not enough. Do we know more about a flower if we regurgitate its botanical name or recall names of its parts? Prior knowledge often comes to us in such linear reduced and consolidated forms. For its deeper understand we have to reconstitute it for our own use.

(3) A tradition of scholarship is important. However, to break new ground it has to break away from mere book-keeping or a prescribed path. Incremental improvements come from search along a grid of possibilities as well as from the out-of-box thinking. Ability to break the glass-ceiling (that keeps mind

within a grid) comes from a jump in the understanding demanded by practice. For example, an understanding (measure) of quality through classification can be used to develop criteria for specifications to assure the quality.

Take another example to consolidate the argument. It is correct to say that all the living beings are made up of a certain number of molecules (genes) that are genetically predetermined. It is an established prior knowledge (*agam*) taught in high-schools. We are beginning to genetically tailor living beings. With all the available information we still are far from putting together a living being from the physical parts. What we lack are conceptual parts about what is desirable in a tailored or reconstituted organism. The record of humans is not very good in making such choices. At the present these choices are being made by the market place. I am not sure if we can even agree on what traits make an apple desirable, let alone a human being. It was too late by the time Midas found it out after being turned in gold. In short, we have evolved to change our focus when if necessitated by chance.

Historical uses of the term Jain

The term Jain is clearly mentioned in Sad Darshan Samucchay (ca 500 CE, available on this site) as one of the six prevailing philosophical view points. A book of mathematics (Ganit Saar Sangrah by Mahaveerachary, ca 830 CE) contains many examples and problems of practical interest. In one of the examples it refers to the practitioner of the anugam of Jin as "*jin-anugam-ami*." According to the Sanskrit grammar it can be shortened as *jin-anu-gami*. I believe this is a proper term that goes to the root of the process. ***Anugam*** is not about belief or faith, but about the practice of the process to find ones own way through shared knowledge. In 1045 CE Jinbhadr used the term Jain for the "followers" of the

Jinver monks that carried the tradition from Parshvnath (ca. 850 BCE) to Mahaveer and thereafter.

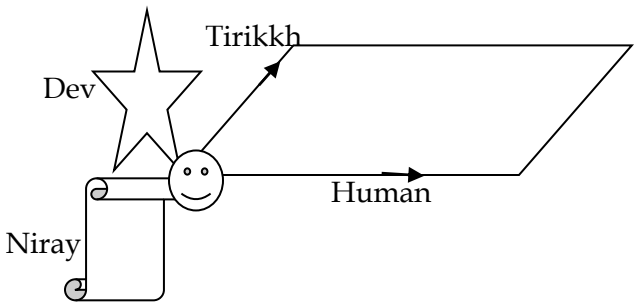
Other terms have also been used which reflect views and beliefs of others. The Vedic hymns call the followers as Arhat. The Aryan migrants called them *nigganth* or without the book. Plurality of the Hindu thought treats Jains as the jin-anuyayi or the "followers of the code proffered by jin." After the integration of Islam in the Indian culture, the preferred term became *jin-mat-ablambi*, the adherents of the opinion of jin. With the Christian world-view of the British Raj, the Western scholars have turned the *anugam* process into an ism or "religion." Thus the term Jainism invokes the dogma-based code of conduct. Other terms with external influences that have crept into the usage to refer to the Jin monks (jinver) are *nath, prabhu, basudev, tirth, siddh, mukt, and buddh.*

Connotation of religion, omniscience or dogma distracts from the *anugam* process. A*nugam* is not about half-full glass (agam). It is about realizing the (unrealized) potential by finding ways to fill that glass. Put another way, *anugam* is neither *agam* nor *anukaran*, nor is it the *anukaran* of the *agam*. Considering the genesis of the thought and approach it is a misnomer to call "Jainism" a religion. Certainly, it is not a church or theistic.

I-10. Defining Coordinates

Real world concerns intermingled with the wishful are transferred through legends and stories. Poetry maintains intimate connection of subject-object (or observer-observed) as in dream and metaphors. Such tools help us fix the essence of being as the reference points – as in the human or devil.

There is no better place to start (A#24) than by assessing one's own place (as an entity) among the animate beoings. For such purposes we set the universe in matrices and coordinates. How do we do it? Look around. While keeping focus on the big picture, ask yourself who you are in relation to other beings. Humans interact with and depend on other beings, and like to think that we stand out. No individual or class of beings is ever truly independent. We depend on *tirikkh* - the animals, crawlers, plants, and numerous macro- and microforms. All benefit from such interdependence. Some of our interactions are more desirable than the others, so also our perceptions.



In the figure above our concerns are simplified as a three-dimensional representation in four categories of real and perceived beings. In this universe, humans share the (horizontal) plane of reality with tirikkh. Above this plane lie the hopes and concerns represented as the (celestial) dev, and below the plane

(underworld) thrive the niray beings of our concerns. If one wishes the imaginary worlds of our concerns are also cohabited by the cast of characters celebrated through literature and the arts: UFOs, aliens, Santa Claus, monsters fairies, omniscient, ghosts, and omnipotent. We often end up dealing with the "beings" that "exist" in these imaginary worlds that are real to people with such experiences.

Beings of our fears, concerns, dreams and desires do not have the same reality as humans and *tirikkh*. Now find your coordinates by locating where you stand as a being or an entity on the horizontal plane. Where would you like to be? You have rest of your life to contemplate how to get from here to there. You are likely to get there only if the desired state is on the plane of reality. You are likely to remain there only if not distracted by demons and gods. Dissection of real from the wishful is what much of the inspirational literature and arts about.

The *dev* and *niray* are represented as *a-pajjata* or incapable of an independent existence and survival, an apt description for figments of imagination. *Niray* (noun) comes from the verb *nirat* for losing control or falling down. Like the Sun and stars Dev have more wishful attributes as the celestial shining objects, including those imagined (*kalp*-) and beyond-imagination (*kalp-atit*). They represent the eternal hope for the external grace. Except for a few celestial beings, they are even less predictable and restrained than most animals. Such entities do not change their behaviors whether it is predictable or not predictable. One learns to appreciate the realities of human grasp through juxtaposition of such attributes. Such augmented and imagined devices for dealing with our concerns, juxtaposed against the attributes of reality, are remarkably powerful learning tools to consider and distinguish the real from the imagined alternatives.

There is more to this representation of the orthogonal

worlds. Based on the characteristics of the *niray* and *dev*, an effective argument can be made that these are the categories of perceived internal (below the surface, underworld) concerns (*niray*). By the same reasoning the external (celestial, alien, hope, imagination) intervention is invoked through *dev*. At times many of us seem to have such "experiences" even though these can not be shared with others. Clearly, the existence of such entities cannot be denied, at least not for the person with such experiences. Rather than taking a position on the issue, it is often prudent to examine and scrutinize the experiences.

As mentioned before, a representation does not necessarily confer reality. It is only a necessary first step towards evaluation of concerns and potential of the observed reality. Through such entities from orthogonal worlds we acknowledge, express, and represent the darker and wishful sides of the human experiences (psychosomatic and cultural), including the unusual, unpredictable, irrational, fantastic, incomprehensible and much more. This is the appeal of the virtual reality of science fiction and movies.

The four orthogonal categories permit examination of the experiences and behaviors where real can not be dissected from the virtual. Consideration and reasoning about the doubtful states (*syad nay*), including the concerns about repeated psychosomatic and chance events, is not dismissed nor denied outright. Room for doubt is necessary for further inquiry if the attributes and distinguishing features can be identified. For example, one can make a prudent choice about *dev* and *niray* because they do not have independent physical existence and they are not predictable. The psychosomatic experiences are assigned operational "existence" before they can be explored. This is how we acknowledge what we may not know, and at the same time address the concerns in individual experiences. This

approach is not much different than that recognized and used by the modern psychiatrists who also do not to deny the reality of the individual experience. However it is not valid to substitute these with the reality of others through dogma, inquisition, mental asylum, electric shock, or drug-induced vegetative states.

A reality is to be abstracted from the shadows of the implicit rather than the representation itself. An individual has to be convinced of the reality even if it involves making excursions into other worlds from where we look back on our own world. To get around the problem of myopic views, we often rely upon other views. Concerns and imagination engage us to construct a mental plan of the experiences. Clearly, it is far more preferable to explore and deal with the undesirable on the imaginary plane. Certainly we do not want the real experience of the undesirable.

I-11. What Is Sensibility?

S*anni* refers to the *sensibility to interpret sensory inputs for purposeful action*. It is not the direct function of the senses. In #A29 ***sanni*** is an attribute of animate being that is best approximated as the ability of an organism to use ***man*** to suitably process sense inputs and relevant information (prior knowledge) for rational behavior. *Man* is pronounced as in last syllable in the word woman. Although it is not a sensory ability, *man* follows (shadows) and integrates the functions of the sense organs to interpret and respond. The attribute of *sanni* is entirely within the reality of physical existence. M*an* is nothing, and never anything else, but an attribute of the body. Certainly, ***man*** does not carry the baggage and connotations associated with the use of word "mind" in the Western cultures where it is invoked as a conduit to omniscience (see below).

Sanni is an attribute necessary to realize ones potential. It is not possible unless one learns to deal with real and imagined contradictions and distractions. Such limitations of the chatter of disorder and chaos are not overcome just by negating the distractions. S*anni* propels towards overt, latent and potential decisions. Restraints can reduce chatter and bring a coherence of a broad spectrum of reason and rationality of thoughts, words and actions. Sensibility guided by *man* allows us to discriminate and make choices for the longer term. The decision to act or not to act is as important as a commitment towards a goal.

Sanni has another feature. Actions based on individual decisions are motivated by sensibility that confers individual identity that may lie above and beyond the group identity. This is how an individual rises above the natural instincts (Chapter A-17) and group behaviors. *Dev*, *niray* as well as most *tirikkh* do not have sanni for individual identities, nor can they exercise

restraints unless under duress. In this sense sanni is the instinct that helps us rise above the herd behavior.

What is and is not of *man* and mind?

It is useful to understand the baggage behind the usage of the term "mind" in the Western tradition. In a movie Roman Polanski articulated the fallacy of this conception as: After a man cuts off his head, should he say “me and my body” or “me and my head.”

The concept of mind has long been lost in the conception of an external entity that controls humans through the mind. Until quite recently, mind was generally considered to be separate from sense organs, and also out side the realm of body or brain. Along these lines mind has been varyingly seen as "free will," or the guiding hand of omniscience. Mind was invoked to justify the claim that "man is created in the image of God" and that "woman was created from a rib of Adam." Symbolism aside, the historical record of this line of thinking is nothing to be proud of.

Right from the beginning such connotations have not corrupted the terms *man* or *sangii*, and possibly the Hindu conception of soul.

I-12. Independence for Survival

Independence is about sustainability of an entity as an individual as well as the class to which it belongs. It depends on the individual and social health assured by the environment for sustainable growth, development and evolution. Starting from the functions of sense organs sustainability is the sum total of the interplay of the internal abilities, genetic attributes, environment, and the forces of the external world.

The term *pajatta* (#A34-100) relates to the survival needs addressed by responses to sense inputs to retain one's own identity as an entity as well as the group. The range of necessary and sufficient criteria and conditions is covered by the six attributes for independence for food, body, sense organs, awareness of the environment (***aanpan***), language and *man* or sensibility to put it all together and make suitable choices for independent existence. By negation these become the attributes for dependence. In the Euro-centric context such ideas have been celebrated piece-meal as freedom from want and freedom of choice.

Independence and Interdependence

Pajjata is part of interdependence of all the survival needs for a sustainable existence. It is not fully appreciated even in the enlightened social and political contexts. It is worth reviewing some of the implications of #A34-100 in order to develop the argument further. Concept of independence and interdependence is intertwined with responsibility for the consequences of actions (*karm*). It is not a matter of direct causality: All those who are capable of being independent bear responsibility for the chain of

consequences. And certainly it is not *niyati* (fate or destiny).

Can you one have independence without interdependence? When do goals become rights? What do you get from other living beings and what do you get in return? Such concerns motivate our interactions. These are all the more important for sustainable existence. Interdependence also holds for the more immediate pajjata criteria for food, health, safety and shelter, environment and movement, communication and decision-making.

What is needed for independence? The necessary and sufficient condition(s) for independence depends on what criteria are used. Clearly, basic needs for the body and food are shared by all beings. Safe habitat with freedom of movement comes next. These are interpreted as "freedom from want and hunger" and sufficiency from "all the four sides."

Independence is relative in the hierarchy of the interdependence of living beings. With the view of ***live, let live, and thrive*** consider the attribute of sensibility for sustainability. It is not just another dictate, but a reality-based paradigm for sustainability. Dependence of an organism on its own kind is obvious for the reproductive purposes and to provide diversity of the gene pool. Development of shared knowledge also benefits from the diversity of experiences. Plurality of inputs also increases the chances of successful decisions.

The attribute of language relates to the freedom of information, communication and expression. It is the major if not the only way in which we share and transfer knowledge through generations. It is for the evolution and development of social institutions that guard against encroachments. It is not a coincidence that virtually all modes of subjugations, ranging from missionary to colonial and dictatorial, target, attack, and

undermine the language communication. Also, virtually all movements towards independence of nations try to undo such damage by reverting to the language of the common people. Modern biology is beginning to realize the importance of language communication among the birds, insects, and mammals. Survival value of communication through chemical senses of bees, ants and other insects is also beginning to be appreciated.

Beyond the naturally endowed abilities to communicate, humans also rely on ***sanni*** (Chapter I-11) or the ability "to put it all together." As an integral part of behavior, the domain of *sangii* is within the bounds of existence to survive and thrive.

Ability to nurture sensibility is an attribute for survival that provides the drive for the accomplishments of civilizations and cultures. Sustainable independence is built on the action and consequence evaluation of behaviors. With a defined trajectory of acts, actions cohere into desirable outcome including shared knowledge for individuals and groups. It places a greater emphasis on making choices through which value is created and a greater number of beings realize their potential.

I-13. Is It Sustainable?

Pajatta is for sustainability in terms of the needs for the survival of an individual as well as the group. These are the needs of the body, food, sensory exploration of the environment, communication, and ability to make sensible decisions.

Sustainability is a lasting concern for virtually all organisms, especially those who depend on organized societies. These concerns go beyond the survival needs. Need for food and safe habitat are widely recognized. But there are more subtle forces for extinction such as the use of DDT that threatened survival of many species. Also transfer of diseases by Europeans to the New World virtually wiped out the native populations (Chapter III-15). Since we all share a very similar biochemical metabolic system the poisons and diseases can easily jump across the species boundaries. Ability to change the environment introduces special demands and responsibilities for successful interactions in an interdependent environment. Concerns for survival also include cultures. Needless to say cultural diversity is disappearing in the globalized world.

Are we becoming more dependent? The dependent (*apajatta*) beings that can not make choices include:

(a) Some microscopic organisms are dependent. For example parasites exist only in relation to the host.

(b) Psychosomatic origins of *niray* make them dependent on human for their expression.

(c) Virtually all *dev*, whether celestial or imagined depend on our wishes and desires.

(d) An important distinction is drawn for the five-sensed *tirikkh*

with sensibility. Through chaotic restraint (State V) they make occasional rational choices, and to that extent they are independent.

(e) Possessed and obsessed (*labdh-paryay*) humans are dependent on the psychosomatic and social factors.

(f) Humans hired to say or do things are dependent. They do not have choice of restraint.

The idea of independence revolves around the survival needs where freedom from want gives freedom to choose. The drive to realize potential comes from the independence of being and choices offered by the independence of the sensibility and mind. Responsibility for the choices and decisions also requires restraint that is also part of the feedback for the validation of the experience. This is not gratification or Pavlonian response. Restraints are learnt from feedback, and other abilities and skills follow. As we see in Chapter G the transition from disorder to chaos to order comes from restraints, and this transition is necessary for personal and intellectual growth, and ethical development. Learning from feedback has other implications for bring about a change. The main consideration is to make choices, sustain effort and live with the consequences.

Environment goes well beyond air, water and food. We are beginning to recognize that we may be able to forage, but only if we are not choked off in other ways. Our own foot-prints on the workings of the planet are beginning to haunt us. Many of the current practices were encouraged by misconceptions of competition for survival, and other mis-measures of fitness for survival in terms of the law of jungle. The same holds for the depletion of the resources and other environmental changes. Such threats to sustainability are far more difficult to deal with because we do not have sufficient knowledge and experience. Even in the case where we have sufficient knowledge, we do not

have political will. Actions and decisions that have consequences for the long term well-bring and survival also have unintended consequences. Death from smoking does not come announced, or does it?

It is not trivial to think of a starting point if the causality can not be established. Situation is analogous to the spread of the plague in Europe during the Middle Ages. It often followed wars, but the connection to the life cycles of rats-fleas-bacteria, that spread through deserted homes and fields, did not become clear for several centuries. The current challenge to the global depletion of resources is equally insidious. It comes from the forces that lie in the commons far beyond the "village boundaries." Human activities and consumption patterns in distant lands have an almost instantaneous economic effect even on those who do not benefit from the resource utilization. Yet the innocent pay a heavy toll for the economic upheavals, dislocations and depletions set in motion by the consumption patterns. The mind-set of assuring one's own short-term survival does not necessarily assure the same outcome for the others. Where does the responsibility lie?

Living beings render service to one another (*Paraspar upahgraho jivanam*). This quote (From Tattvartha Sutr by Umasawati, ca 400AD) positively epitomizes the call for responsibility for the shared space and environment. A rational basis for sustainable existence and conflict resolution can follow from desire to curtail irreversible actions in personal and social behaviors. What are the secular assumptions necessary to arrive at the concept to evaluate actions with lasting consequences?

Consider the connection between *syad* and the code for nonviolent conduct. Consideration of less than a complete knowledge obligatorily calls for non-violence as the basis for

successful behavior. It is prudent to avoid irreversible actions like violence. Several recent cases from the USA illustrate the point: On re-examination by the students of the North Western University law school, 16 out of the 24 inmates on death row in Illinois were found to be convicted of crimes that they had never committed. Later this turned out to be so for virtually all the states in the country. The DNA finger printing exonerated many!

Importance of nonviolence to assert rights of individuals and nations has become a universal principle but only during the last century. Time magazine recognized Mahatma Gandhi as one of the three most influential persons of the twentieth century. Mahaveer is also considered to be one of the 100 most influential persons of all time [Hart, 1992]. The socio-biological truths of "live, let live, and thrive" are intricately associated with ideas of survival instinct with conservation and eco-preservation. By such measures even the violence against ideas and feelings is to be avoided because such actions one may unwittingly discard useful possibilities and alternatives. *Aparigrah* (not being possessed by possessions) is an alternative to over-consumption and encumbrance of *parigrah* (stuff, cargo, clutter, hoarding, treasure, junk, knick-knacks, baggage, garbage).

Mahatma Gandhi acknowledged that in his teen years occasional contact with Jain monks introduced to him the ideas of nonviolence and aprigrah. In his autobiography, Gandhi also acknowledged that in his search for truth, "three moderns have left a deep impression on my life and captivate me: Rai Chand by his living contact, Tolstoy by his book *The Kingdom of God is Within You*, and Ruskin by his book *Unto the Last*." After his return from London in 1891, Raichand Mehta (Johari) reaffirmed Gandhi's insights in nonviolence with a more activist interpretation that strikes a deeper chord: "Violence begets violence" but it requires great insight to recognize that "an eye for

an eye leaves the whole world blind."

I-14. Ascertaining Nature's Veracity

[Quarterly Review of Biology, vol. 74, 47-49 (1999). Commentary on*: Consilience: The Unity of Knowledge* by Edward O. Wilson. New York: Alfred A. Knof, 332 pp. 1998.]

For an individual being purpose lies in chance, but the purpose of being as a group does not rely on chance.

Consilience is a strategy for successful behavior and sustainability of groups and societies. Consilience of scientific reasoning is the propensity for deriving conclusions by altogether different means. Distinguishing between more distinct inferences and probable premises (*a priori* or true opinion) forms the basis for establishing knowledge. Through such inquiry one endeavors to find not only the structure behind observations, but also to rationalize the worldviews connoted by the words that describe them. But Menno's question comes in the way of this inquiry: "How will you look for it, Socrates, when you do not know at all what it is?" Numerous solutions have been offered to the various incarnations of the how-do-you-know question, ranging from "anything goes" to game theory and Turing computational procedures.

By way of defining the problem in a 'solvable' way, analytical approaches necessarily build objectives into the starting assumptions. This approach is remarkably useful for tasks ranging from programming artificial intelligence into a computer to understand the intelligence of ants. Grand successes of the analytical worldview championed by physics have established the physical limits of reality. It has come with the conviction that all reality can be sensed, perceived, and interpreted ultimately in energetic terms related to the structure and motion of atoms and molecules. These insights have fundamentally changed the

dogmatic and axiomatic view of Truth. On the other hand, enormous material progress unleashed by physical insights has also led to the glorification of excesses. Narrow interpretations of the analytical approaches gave us bombs to incinerate the globe, misconstrued the survival strategy, and promoted a greed-and-grab mind-set that continues to perpetuate exploitation and war. The battles fought with arms, competition, dogma and *a priori* truths rarely resolve a conflict, let alone provide long-term solutions. The march of this flank of science has left much, if not most, of humanity drowning in information, yet starving for usable wisdom.

In a perverse way, the value of the analytic world-view is that it is value free. This has raised a call for holism and synthesis. Can rational insights and wisdom be obtained within the paradigm of biological reality with which we share some common goals? At a very basic level, evolutionary and survival paradigms connect us. Although the hierarchy and connectivity is based on chemical and molecular processes, it emerges into vast complexity evident in the evolutionary connections of flora and fauna, Gala of the ecological interdependencies, gestalt of Self and Mind, and of course the social, political and economic relations. It is a given, yet can we understand this complexity by starting with the fact that all the necessary information about an organism is in its DNA, and that all its functions are controlled by the gene products?

Having established the physical basis of biology in genes, one may ask how epigamic variables control this apparently chaotic diversity. Since not a single organism can be described satisfactorily as a protein computer, biological complexity poses a challenge for analytical methods of interpretation; the number of possible variables is apparently too large, and there are too many is energetic states to chose a few as a guide. At a very simplistic

level, the difficulty is illustrated by frustrated attempts to predict the structure of a protein from knowledge of its sequence. We know that all the information necessary for the higher-order structure of a protein is intrinsic in the primary sequence of the gene product. Yet we are not able to predict the structure, let alone the function. This is often attributed to a lack of defined criteria for distinguishing the isoenergetic states. In such situations, a response to small perturbations leads to chaotic behaviors that cannot be easily averaged by a single criterion. Mathematics and algorithms describing such states are beginning to emerge, as they mimic certain events or functions, but their predictive power and ability to provide insights into the underlying processes is far from satisfactory.

In this book, Edward O. Wilson guides us through his perception of unity in biological diversity. Since the diversity has emerged from a universal genetic code, the theme of the book is synthesis of an enormous range of human activities determined by epigamic variables. The arguments, although not based on belief and faith, appeal to understanding. A reader not too familiar with the material may get mired in what is said, rather than moving along with what is being said. One may be left with the impression that the search for analytical principles and laws is futile, yet the attempt is really to bridge the chasm between cultures of analytic and synthetic minds. The approach may not be convincing to an analytically inclined reader who seeks prediction and proof, which by necessity require constraining the variables. Yet patience can be rewarding, like a walk in the Delaware marshes, for its variety that imposes a Zen-like continuity. At times, one does get a feeling of communing with "Alef" of Borges, examining the "grain of sand" of William Blake, and peering into "*Indr*'s reflective beads" for imaginings that reflect everything else in the self, and the self in everything else. It

is an understanding of the continuity that brings us together in our enterprises and survival interests, and it guides us beyond predatory individualism.

Evolutionary and historical continuity in Wilson's arguments are certainly worth pondering. The philosophical premise of the book is that the knowledge of the inquiring self lies in the genetic reality of the physical self in the broader epigenic context. By musing about a broad range of knowledge-related activities the discussion wanders into issues of the human condition with glimpses of the intellectual endeavors and achievements of the last several millennia. The criteria for success of the various methods adopted in this search lies in the sustainability of the results and products. Thus written language, grammar, discourses, logic, mathematics, and physical sciences had their day in the hierarchy of knowledge. Although not necessarily genetic in their origin, such epigenic traces of human activities have orthogonal influences on human behavior. Now the on-going revolution in biology is an integral part of the technological revolution, and its influence on our collective behavior and conduct is an integral part of social discourse.

The challenge of integration of new insights and technological changes makes us ponder our basic precepts and assumptions about the human condition. The underlying process is probably primordial. Individuals, as well as the society at large, must elaborate implications to reconcile the changes until they are ingrained in the collective conscience as the epigenic behavioral trace. By emphasizing a need for consilience of a broad range of human activities, one hopes that, as we learn to live with new knowledge and antecedent technologies, the very biological collective instinct of survival-for-all will prevail. Wilson has also brought back the question of integrating the shifting boundaries of the knowledge base with a call for use of

biological wisdom in the use of integrated knowledge. I am sure many deeper issues raised in this book will continue to stimulate discussion well into the next century.

I-15. What Is in a Name?

What's in a name? That which we call a rose
By any other word would smell as sweet.
- in Romeo and Juliet:

Possibly yes. But words are not mere conventions. Words connote a lot more than an object, act or event. Often representation (#A2-5) of a class includes not just what is common to the class but also the range of behaviors. The world of flowers includes bees and birds. A bee, and for that matter any bee, does not look for a particular flower nor for a flower by name. By all indications bees look for something in a flower with which its own existence is intricately associated - nourishment to thrive (#A4). Success of bees rests on the fact that they forage on a large variety of flowers, even though some insects are highly specialized to feed on few plants. Generalization of the strategy of a bee lies in the variety and numbers of flowers it forages on. It suits the plants as well for reasons not unlike in spirit to those echoed by Tennyson (*Flower in the Crannied Wall*)

Little flower - but if I could understand
What you are, root and all, and all in all,
I should know what God and man is.

*

A word connotes not just certain qualities but the entity in its entirety of form, function and all. Whether or not coined with such a purpose, enduring words come to represent such a concept space. For many words such understanding is lost in their evolutionary history (etymology). However, an appreciation of word boundaries is indispensable for guiding and enriching the observer-observed interactions. Words are coined to carve out a part of the universe. Once let go, with use the word boundary

takes on its own course where meanings are shaped and connotations are chiseled. A consensus emerges about the experience of reality communicated by the word representation. Lasting words become modules of shared experience and the basis for communication of shared knowledge (III-32).

*

Words invoke the reality to evoke the essence for a shared consideration. What is unusual in the *anugam* approach for the evaluation of reality is an explicit acknowledgement that those who interact with representations have wide-ranging purposes and perceptions shaped by the web of motives and background. This is a critical consideration if the experience is to be accessible to all for real-time use without reliance on the experts and agents-of-insights including variations of family, educational, church, political and scientific enterprises where the decision-making power is wrested upon experts and "those who know best."

Real-time decision-making requires real-time interactions. It is useful to be aware of the limits imposed by attenuated and augmented perceptions implicit in all hierarchies. The past can be a guide but it is not a substitute for the present or the future. It is critical to consider relevance of what one understands and how it translates into action. Common experience of this type of real-time decision-making is part of the problem solving where one learns the art and strategy of mid-course correction. The quality of the observer-observed interactions often lies beyond word, yet such representations do facilitate realization of the real world potential.

I-16. Human Natures

Book Review of *Human Natures: Genes, Cultures, and the Human Prospect* by Paul R. Ehrlich. Quarterly Review of Biology 76: 345-346 (2001)

Recent technological progress among the people of European descent has led to the examination of what constitutes progress, how it relates to human evolution and nature, and what it foretells about the future. The thrust of the arguments has shifted in the postcolonial world. No one anymore argues that the agricultural and industrial revolutions were "the result of a sudden evolutionary restructuring of our brains. After all, while the Arabs were inventing numbers … , the inhabitants of the British Isles were still living a quite primitive existence. Nonetheless, … English learned to read, write, .. and gain political and Military advantage over the Arabs and … "

So the issue is: Does human nature change? If human nature is defined as "the rational use of power over the environment," then certainly human nature does not change as evidenced by the bombing for the control of petroleum. The list is obviously long and includes profligate use of resources and the invented "theories" for the exercise of controls in human societies. So what is the range of human natures? Why such diversity emerges in very different contexts? Obviously, it is many things to many people. Even if humans evolve slowly, even slower than all other organisms, one may wonder if the epigenetic technological changes are changing the behavior pattern. Yes, compared to all other animals. Relative to post-ice age history, our species has come to represent many things to many people: the bumbling toolmaker has depersonalized war; the glorified chimp is in a constant power struggle; the babbling ape has substituted gossip for grooming; and the loss of estrus has

emerged as cryptic copulation as genes and environments create the follies of mind.

Humans have coevolved with disease-causing bacteria. One can be inoculated and develop resistance to bacteria. However, these same bacteria can bring misfortune to aliens just as the wrath of God, dive-bombers, and bureaucracy strike the innocents. In this use of power, the markets and opinion makers have taken the role of educating the masses to change human perception, learning and consciousness, which are also part of human nature. We are constantly bombarded with such subtle and often insidious influences, and they certainly change human behavior, presumably by influencing the perceptions. Do they change human nature? Certainly such influences do bring out the devil. Broader constraints are quite well articulated in *Woman* by Natalie Angier:

"We are old-fashioned monkeys and futuristic apes. We are sympathetic, canny, crude, and dazzling. We are profoundly aggressive, and we have many loci of control over that aggression. We feel our way to the narthex of love and think our way down its nave. We are like nothing else that has even appeared on this threshing blue planet, and we will become, in the next few centuries, like nothing we can fathom now. And we will do it wearing our same old Stone Age genes."

The purpose of dialectic is to examine the consequences of the newly emerging insight that there is a vast epigenetic world with which humans have to deal as individuals and as social beings on a small planet with a thin layer of hospitable environment. Against this backdrop the Tao of Genes is not going to make us any wiser than the Tao of Physics did.

I-17. Contradiction Violates Reality

Most people can spot contradictions, inconsistencies, and lean to discount half-truths. Yet very few realize that omniscience is a contradiction to reality. In the popular belief omniscience transcends reality. For many inconsistency and randomness is the 'will' of omniscience. Such word-play also appeals to irrational fears sustained by 'just in case' it is there. The *Prakrit* term for contradiction is *bhabiachar*, roughly translated as undifferentiated thoughts and actions. In *Sanskrit bvabhichar* connotes a sense of illicit and bastardized behavior.

Table I-1. Why do we need so many words to express doubt or what we do not know?

Acausal, agony, alibi, alienation, allegory, alter-ego, always, ambiguity, analogy, annihilation, annoyance, anomaly, a priori, apple-pie, approximation, arbitrary, artistic-liberty, assumption, asymmetry, attenuated, attitude, augury, augmented, authority, average, awareness, axiom,

Ballpark, banter, bastard, battle, Bayesian, bedazzled, believable, betwixt, bizarre, boundary condition,

Cart-before-the-horse, causality, certitude, chameleon, chance, chaos, chatter, chew fat, clarity, cliché, clue, cognizant, coherence, coincidence, collision of ideas, conceit, concurrence, consciousness, consistent, constraints, contingent, contradictory, convention, convergence, converse, conviction, correlation, cosmetic, counterpoint, craft, crazy, creation, creative, credible, creditable, criteria, culpability, curiosity, cutting edge, cynicism

Deception, debate, defeatist, defect, deferred, deja vu, derisive, deterministic, devil, devious, diabolical, diatribe, dilemma, disability, discrepancy, disorientation, divine inspiration, dogged,

dogma, dormant, dotted-line, doubt, dream, duality, dubious, dumb-down,

Emotional, end-game, enigma, ephemeral, epithet, error, essence, estimate, extreme, evidence, evoked, exactitude

Fairy tale, faith, falsity, fantastic, fashion, feel-lucky, fib, fluctuations, fractal, frown,

Game, ghost, gnawing, gods and God, grunt, guess, guesstimate

Half-truths, hidden, historical, hit-the-wall, Hmm! Holy-smoke, horn-of-dilemma, hornet's nest, hyperbole

I Ching, ideal, ignorance, image, imaginative sympathy, imperative, implication, impossible, impugn, inability, inaccuracy, incompatible, incomplete, incongruous, indecisions, indefensible, indifference, indiscretion, indiscriminate, imminent, inevitable, inspiration, instincts (reptilian and otherwise), intelligent, intelligent life, interesting, interpretation, intrigue, intrusion, intuition, inverted,

Judgment call, judicious

Kafkaesque, key, Kissingerian, kudos

Labyrinth, latent, latest, latitude, leap, legend, liberator, limbo, limits, loose-cannon, lost, lull, lying (intentional)

Machiavellian, madness, magical, make-believe, market-value, mask-of-theory, maybe (perhaps), maze, meaning, message-control, metaphor, mind, miracle, miscommunication, mistake, model, mystery, mythical

Never-say-never, news, non-certain, normal, notion, not-too-unreasonable,

Objective, Occam's razor, official line, operational, optimism, ornamented, out-of-sight-out-of-mind, outline, oxymoron, Palaver, paradox, parsimony, pandemonium, perplexity, phantom, platitude, Platonic, plausible, poll, possible, potshot, Power-Point presentation, precision, predicament, pre-maturity, probable, problem, promise, prove it, provisional, proverbial,

prudence, pseudo-science, puzzle,
Queasy, quick-sand
Reality, reassurance, rectitude, reduction, reservation, restriction, revival, revolution, riddle, romantic, rumor,
Sacrosanct, Santa Claus, scheming, self-evident, senior moments, sensible, serendipity, shell (as in shell game), show me, simplistic, skepticism, sly, solipsist, sophistry, Spam, spirit, standard, stargazing, statistical, stealth, story, stupor, subjective, subside, subversive, superstition, surreal, surreptitious, suspense, synchronicity,
Tabloid-truth, tangible, Tao, tea leaves, teleology, tentative, test, time tested, time for, transient, trap, trepidation, tried-and-true, trite, trivia, tongue-in-cheek,
UFO, *umm*, uncertainty, un-decidable, un-explained, universal images, unreliable, unscientific,
Validity, variation, veridical, verisimilitude, violation, virtual
Wary, wise, wisdom, wishful, wit, WMD (words of mass deception, weapons of mass deception, weapons of mass destruction. Interestingly they all emerged as one in the US attack on Iraq in 2003).
XYZ, let-there-be-X
Yellow journalism, yoke
Zebra-stripes (leopard-spots, means of camouflage and display), Zen.

Half-truth is dispensed in products and services, but it is more common in ideas that influence the way of life. It is challenging to identify the half-truths, or to figure out which half is not true. The other half is rarely marketed in a recognizable, because the half-truths are marketed as the other-half. Consider the choices you have available for taking care of your health and survival needs. How often we accept situations for being better of the two

evils without considering the possibility that both may be unacceptable? Have you ever wondered why all tomatoes in the supermarket taste the same? Services, products and ideas advertised with half-truths are meant to create a feeling of confidence. Augmented perceptions take over as soon as you let your guards down. No wonder the young have picked up on aspects of market culture where the common denominator for acceptability is that sounds believable.

Know why of 'let the buyer beware.' Diversions distract from the context and meaning in half-truth. Most people learn it the hard way that even the best of these choices in the market place of ideas are not desirable. You do not have to buy into any of it. For one reason or another we do that for material possessions, yet very few are careful about cluttering their mind. How to spot a truth? Ask if it makes sense. Look consistency with all the relevant criteria at your disposal. If not satisfied stand back. It may require changing the emphasis from faith and belief to reconfigure the augment the universals that keep you from seeing the particulars.

Information and ideas are often intertwined. Large repository of information is now accessible from a suitably wired computer. More than most libraries of the printed books, the search engines on internet have placed vast amount of information at our finger tips at little cost. Most of it is free and easy to get. Having information calls for making judgment calls to evaluate relevance and establish its usefulness if not validity. It is of great interest to many: What do we choose and how do we choose? It appears that such choices are often driven by perceptions that have little to do with objective reality. In this cyber wonderland, are the decisions for the choices available to drones or just made by the queen? Do you have even the choice of not playing? What are the alternatives?

Enduring lessons: Simple and forward-looking ones are:

Avoid contradictions and wishful (miccha)

Acts change to actions through rational consistency

Do not do what you can not undo (*Ahimsa*).

Know what you do not know (*syad*).

When in doubt, do, undo, and redo (*Nay*).

I hear – I forget, I read - I remember, I do – I understand.

Veetrag can not dispense favors, grace, and judgment.

Know-all of any kind is contradiction

The One-of-a-Kind is not viable

I-18. Rationality of Self-Interest

Human rationality is as much about the methods as about the goals towards realizing the potential of reality. While individual initiative is widely celebrated, viable social institutions also compensate for individual shortcomings. All beings show concern for others. However, instead of relying on the conduct-based ethics some groups have encouraged moral-based conduct.

It is a fact that often we fail to realize what we seek because we shirk active inquiry into our own values. Consider what do you do when your bicycle breaks down? Or the bathroom faucet leaks? How many of such apparently minor annoyances or chaotic events can you take? What does it take before you take action? Or change your ways? Erratic ways of viewing the worlds with attitudes of love and hate persist in personal relationships as well as in interactions with institutions including of knowledge and technology.

Traditional cultures may have been impoverished by ignorance. This condition is also inherent in being tone-deaf by training or choice, or being "proud of ignorance." Denying the world one lives in is the syndrome of two-cultures. It is made worse by the media and popular buzz that intermingle real and imagined fears about weight, sex, drugs, meltdown, toxic dumps, and whatever else comes along on the radar. Much of it is concocted in the spirit of the popular myths where death and destruction is supposed to be followed by the second-coming. Many go for toys and tool to get away from the trivia of life. Does it have to be so mindless?

On the way from here to there: States of emptiness with self-denial and self-doubt are aptly represented by attitudes of will-

not, can-not, do-not and need-not. Other characterizations are: boxed-in, closed-mind, hostile, disabled, unable, and not-interested. Such attitudes make it difficult to internalize one's own experience, let alone build on shared experience. Behavioral manifestations of such attitudes include reactive and aggressive (*anudayik*), deliberate (*pramanik*), subdued and changeable (*vedag*) with unsubstantiated and unbridled confidence. In such states the ongoing theme is of disordered perceptions dominated by contradictions, disabilities, inability to discriminate, and indifference. Add to these the states resulting from the limitations of physical disabilities, delusions, inability to discriminate, ignorance, misconceptions, temptations, fads, distortions, illusions, paradoxes, chance events, random acts, mood swings, misplaced goals, lack of commitment, and reliance on unsubstantiated evidence. Interspersed with these are the contradictions and distractions that follow from blind faith in grace and judgment of ad hoc omniscience.

To appreciate the extent to which we deal with such limitations of states and processes consider the verbs, adjectives and adverbs used to express the states whose truth value can not be ascertained (See Table IV-1 in volume IV). The concept space and boundaries of these words are explored though out these volumes. No wonder we need so many words! Clearly, there are far too many disordered states, and only a few desirable ordered states. By acknowledging ignorance one makes a good start towards order and getting out of such states of disorder.
In effect, mindless skeptics have given bad name to devil. Being devil's advocate is about search of the truth value. It requires words to dissect information about the states that can not be unequivocally affirmed. Such states are explored through orthogonal and independent assertions. It is not just semantic or rhetoric. As the doubt emerges in stages and the partial truth

values are ascertained in appropriate contexts, representation identifiably different doubtful states helps us focus on meaningful differences and similarities

Caught in the flow? Rationality lies in continuing effort without making it a struggle. We are bound by thoughts, words and actions. Starting with the assumption that virtually all humans can learn from experience, no matter where one stands, rationality lies in activation of the desire to do something about the present situation. A good start is to represent and evaluate the present. Realization of where one stands comes by avoiding traps of faith in random events and of reliance on chance happenings. The desire to do something about the present usually calls for multi-dimensional approach and active negation of obsessions and blinders to stop the slide. Beyond this lies effort to open one's mind to potentialities in the present. Even if the overall task may appear daunting, the strategy is to identify the limitations and divide it into parts - each to be conquered individually. Feedback is a habit of mind to learn from experience to direct the future.

Is there anything there? Ignoring what we do not know, the chasm between what we comprehend and what we know (and accessible to us) is part of being human. It calls for doing something about it. Active effort is required to deal with the incomprehensible. Active choices are required to integrate the apparently irreconcilable ways of the world. An individual can stop the slide by negating obsessions with addiction or blinders of faith that interfere with other more desirable actions. Not choosing certain things is a real option in entertaining doubt: It is neither self-denial nor denial of the self.

Beyond this lies the need to identify a locus for deliberate change, such as restraint against making excuses. Restraints are about exercising choices on the basis defined criteria. Controlled ego is directed through disciplined efforts to drive discovery. It is

self-motivated and it emerges with harmonized thoughts, words and actions. Significant changes are often incremental (boring?) and not of the break-through kind. Choices create order from chaos, and chaos from disorder, as we make and implement decisions: Level of commitment and behavior modification amounts to discovering new horizons. If restraints allow self-discovery, through communication we learn how others do it. On the path to discovery one does not reinvent fire and wheel every day. That is also the wisdom of discovery of a path.

Practice-based conduct: Values emerge through practice. It is the way to make and implement decisions concerned with creating order from chaos and disorder. Along the way, ethical restraints are about exercising choices on the basis of defined criteria. Through restraints we discover ourselves and through communication we learn how others do it. Desired behavior modifications set priorities in relation to the surroundings as well as our own goals. Desirable outcome is more likely with increased level of commitment towards a goal. If you take two servings of food and throw away one, taking only one is a step towards behavior modification by curtailing the choice.

Just as we are born with craving for foods that provide necessary nutrients, our bodies also rejects spoiled and poisonous food. Similar revulsion is not uncommon towards violence, unfairness, and over-consumption. Negation of obsessions takes hold in stages. As one learns from the experiences of others, personal choices and conduct are about focus on the task at hand, decisions to deal with distractions, quirks of habit and behaviors, and relevance of the existing order.

Contemplation versus Meditation: Dead-ends are built into contradictions and in the pursuit of what cannot be proven or falsified. Pragmatism requires not digging dry wells. Actions based on unformulated models interfere with the perception of

reality behind the awareness. In the absence of a reasonable model, restraints are required for reconciliation. It is the hallmark of *anupreksha* contemplation to arrive at a workable representation from the available parts. *Anupreksha* contemplation is not the same as the various forms of meditation (translated from *tapas* or *tap*) although some provide for a start.

In the Patanjali (ca. 450 BCE) tradition, articulated as *yoga chitra vritti nirodh*, the focus of meditation remains on ways of avoiding distractions to awareness. This is also the basis for the popular versions of yoga. In effect contemplation and meditation represent two ends of the spectrum with different goals. Contemplation is an active interaction with the ongoing process to seek reconciliation at all levels. Through *anugam* one seeks consilience between the parts of the observed as a way to the coherence of thoughts, words, and actions. On the other hand, the yogic (meditation) exercises are often ritualistic ways of putting a distance between you and the task at hand. Dedicated meditation (*tap*) may seek insight towards a specific objective.

Test for the validity of outcome is possibly the most critical difference between the meditation and contemplation. It is difficult to test the validity of deep personal insights sought through meditation. Their integration into shared knowledge occurs at random basis. On the other hand, the strategy of incremental exploration of possibilities through defined criteria appears to be a more efficient way to test the validity of possible options. Through contemplation one seeks consistency with established knowledge and thus it is more likely to be rooted in reality.

I-19. Tools for Representation

A tool extends or substitutes for the motions of the sources of power. For such motives we rely on tools of language to elaborate meaning of observation for exploration. If being human is about ability to use tools for viable constructs, the other side of the coin is the quality of resulting perceptions for the practice-based conduct (behaviors) that articulates and integrates thoughts, words and actions.

Jeevatthan introduces terms and relationships to represent and assign entity-hood to animate beings. It is a useful strategy wherever one has to know what one is talking about. It facilitates transaction (discourse) of knowledge as in learning, teaching, research or decision-making.

Insights on Representation

- As a basis for knowledge and theory the logic of reality binds all explorations of represented reality. Verified properties of an entity are analyzed in terms of defined criteria. Representation (*satprarupana*) has three roots: *sat* refers to *astitv* or *asti* for exists, *pra-* for in relation to the evidence, and *rupana* for presentation in a form. Near equivalent of *sat* is *satv* (Sanskrit; not *saty*) or tangible (English).
- Appeal to the parts is not on finding order among the parts but on finding the order (quality) that distinguishes the part.
- An entity is represented by a name. It is conceptually identified as a class and category in relation to classes of other entities, and also to distinguish it from the rest of the world.

- Depending on the purpose, a representation can be more majestic than the reality. The purpose of representation is to peel off the "unwanted" layers to define a manageable sliver of reality. Examples include equations, theories, art, photo, fiction, advertisements, public relation pronouncements, conceptions of aliens and gods.
- The goal and essential quality of representation of reality is not "truth." From "Let there be X" does not necessarily lead to "there is X." In Richard Avodon's words "There is no such thing as inaccuracy. All photographs are accurate. None of them is truth."

I-20. Satprarupana

Times have changed, or the world has changed?

The break-though to bring the ancient Prakrit text of Jeevatthan in a modern form was first developed in an article by Heera Lal Jain Shastri (Kakka) (Jain 1938). This article published in Jain Siddhant Bhaskar (Vol. 4, 216-224, 1938) is reprinted below. These ideas based on a decade of work were presented in the Itarsi convention of Jain Vidvat Parishad in 1934. The final version of the article was completed in April 1936. Events leading to the publication of this material in the book form as Satprarupana (Chapter A) in November 1939 are developed in Volume II. Note that when Kakka joined this publication effort in December 1938, he had already organized virtually all the steps that make up the Chapters A through D.

The strategy outlined in this scholarly article sets the intellectual and conceptual foundation for virtually all the modern work on the interpretation of the ancient Prakrit works of this genera. It brings out coherence of thought by tracing the terms and concepts scattered in the derived literature. Linguistic and conceptual continuity in the context of the #A1-23 matrix provides a criteria for ascertaining the meaning of the ancient terms. Except for the two steps the sequence of the 175 steps in this article are reproduced later in Chapter A. These 175 steps from sarvarthsiddhi of Pujypad (ca. 400 AD) are apparently the Sankrit translation Satprarupana of Jeevatthan in Prakrit. In this work not only some of the lines are missing but the meaning and intention of key Prakrit words is lost for ever (I-9, II-10, II-11).

As outlined in the appended article such concerns are key to restoring the thought process. It requires paying careful attention to the meaning and intention of written words which

can be done most effectively by pursuing the continuity of thought.

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A few words about the tradition and content of hand written manuscripts (*pandulipi*) may be useful to set a broader context. Importance of writing down the knowledge transmitted through oral tradition was clearly recognized by Dharsen (Chapter II-18). As a result Pushpdant and Bhutbali completed writing of Jeevatthan in about 50 AD. In the process, apparently they also adopted the content of the poetic and fluid Gatha form (Chapter II-26) to the written medium. The step-wise matrix form in Jeevatthan, in which content is arranged, facilitates teaching and self-learning. As is apparent from many other Nay constructs, the stepwise matrix form was traditionally used for the interpretation and the reconstruction of the thought and reasoning from the gatha form that was used for transmission of the original thought. Clearly the step wise form facilitates learning and develops reasoning ability. This is the purpose of Nay methods.

Success of any learning method depends on retaining the integrity of the content. This may not be obvious to the learner but the responsibility of retaining the integrity lies with the teacher and commentator. Thus in subsequent works of the Jain tradition the ancient gathas are often retained intact, with a possible change in the changing linguistic style. This tradition is also apparent in the Davala commentary (Chapters II-19 and II-20). This is apparent even to this day in *vachanika* where the original is clearly delineated from the interpretations and opinions of the commentator.

Such precautions are significantly compromised in translations to other languages. As discussed in Chapter in II-11, such an unfortunate change occurred in the translation of *itthi* (in

Prakrit) to *drashti* (in Sanskrit) by Pujyapad. These two words have very different meanings: itthi is perception based on sum-total of the subjective and objective considerations of individuals; at least now Drashti is used in a much narrower sense for response to visual input to point of view. The key difference comes from the subjective considerations that are integral part of the fourteen *guansthan.* Subsequent works also suffer from such departures.

In spite of their differences the currently available hand written manuscripts (pandulipis) are the only source for the reconstruction of the thought from the past. My estimate is that the number of Jain pandulipis in the various holdings are somewhere between 100,000 to 1000,000. Less than 10% of these are catalogued. It is not clear how many of these are near-complete works.

Most of the pandulipis are copies of copies of copies with occasional commentaries. It is estimated that about 1000 works may be represented by these manuscripts. Less than 100 of these are probably the original works that trace their origins prior to the 12th century AD. The rest are commentaries with noticeable and significant fragments of the earlier works. This is a very crude estimate based on conversation with well over 50 scholars who deal with such matters. Clearly, one can say little if we do not know what is out there. The only thing that is certain is that there is material from the past in need of preservation. Its loss will be the loss of the link in the 5000 year old tradition.