

Affirmative Reasoning **Affirmative Reasoning**

Nay, The Jain Nyay(a)

Mahendra Kumar Jain

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Key assumptions of Vacch-Nay or Reasoning with word constructs are summarized below (and developed further in the Nay Section on this site):

Premise: The difference between the living and dead follows from the fact that only one can make assertion such as *I am, I exist, I will, It is so.*

- By examining the content and context of such aspirations and assertions it should be possible to get insight into the nature of the “I” the individual (*atm*).
- Evidence from sense inputs and their constructs have a role in validation of assertions to infer their significance. Unlike other sense inputs, both the content and context of the word constructs of assertions is influence by intentions and prior experience of a person. Therefore special care is necessary to reason with such constructs.
- Sense inputs from unchangeable reality are captured through the language of conventions, so also the changeable complexity and inputs from mind.
- Such influences pose challenge of evaluation of word constructs as evidence.

With varying degrees of emphasis on the validity of what one knows and how it is perceived by others it is possible to evaluate validity of word constructs.

Key assumptions of Vacch-Nay or Reasoning with word constructs are

summarized below (and developed further in the Nay Section on this site):

Premise: A key difference between a healthy living body versus the dead is that only one asserts *I am, I exist, I will, It is so.*

- By examining the content and context of such aspirations and assertions it should be possible to get insight into the nature of the “I” (*atm*).
- Mind has tendency to hijack words. Refrain is a necessary part of validation of assertions.
- Evidence from sense inputs and their word constructs play are part of assertions, their validation, and use of inference. Significance and relevance do not validate but provide insights.
- The content and the context of a word construct are influenced by intentionality. The quality of interaction of the content and context of a word construct depends on the perceptions of the listener. Caution and care is also necessary to reason with word constructs, or to arrive at a better construct that is consistent with external evidence as well as cognized experience.
- Sense inputs from unchangeable reality are captured through the language of conventions, so also the changeable complexity and inputs from mind.
- Such influences also pose challenge of evaluation of word constructs as evidence. With varying degrees of emphasis on the validity of what one knows and how it is perceived by others it is possible to evaluate validity of word constructs.
- Constructs based on numbers are rooted in reality. Such constructs are logical because they obey the logic operators. Thus mathematics is *tark-nay* (or deductive logic).
- Zero and infinity do not obey all the rules of logic operators. Zero can be forced to do so only within certain conventions.
- Word constructs that do not obey such real world behaviors are likely to self-referential or contradictory.

Additional concerns of *vacch-nay* include:

1. Assertions are validated by the external reality. It may be complex but it always obeys rules, is not self referential or contradictory.
2. Real and imagined are expressed by words. As such word constructs do not have reality of their own, not do they identify contradictions and inconsistencies, nor do they confer validity.
3. Independent evidence and discourse facilitates validation if the word constructs bring about the awareness of the underlying reality.
4. Somewhat less reliable methods to rationalize assertions include intuition (*anubhav*), guess-estimate (*anuman*), analogy (*upman*), testimony (*shabd*), ad hoc assertions (*arthpatti*), and lack of suitable counter example (*ababhav*).
5. Evidence based inference provides a basis to explore other worlds because the invariance and concomitance relationship between the evidence and inference may persist in such worlds.

Strategy of Vacch-Nay

- All concerns about a subject are formulated with orthogonal overlapping or independent assertions, each of which can be affirmed by independent evidence.
- Inference from each of the affirmed assertions is used to reconstruct the concern as a valid concern.
- Liabilities inherent in any of these steps introduce limitations and liabilities in the final construct.

The main concern of *vacch-nay*, that later emerged as Nyay (III-23) is to facilitate evaluation of assertions as word constructs. Key assumptions are summarized below. :

1. Assertions are validated by the external reality. It may be complex but it always obeys rules, is not self referential or contradictory.
2. It is a limitation of words that both real and imagined can be expressed by words. As such word constructs do not have reality of their own, not do they identify contradictions and inconsistencies, nor do they confer validity. Consistency with the rules of logic does not necessarily validate a construct, but an illogical construct is invalid.
3. Independent evidence and discourse facilitates validation if the word construct brings out the awareness of the same content and context.
4. Other methods to identify inconsistencies and rationalize assertions include intuition (*anubhav*), guess-estimate (*anuman*), analogy (*upman*), testimony (*shabd*), ad hoc assertions (*arthpatti*), and lack of suitable counter example (*ababhav*).
5. An inference validated by evidence provides a basis to explore other concerns if the same invariance and concomitance exists.

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(1979)

Series Preface

Reasoning builds on incomplete information, whereas logical deduction deals with the known pieces. Emphasis of Nay is on **inference** and other methods. The smoke-fire syllogism (**GN1A-32 to 41**) and other methods for evidence based validation and entertaining doubt. Their elaboration is the continuing theme of this series where the ancient works are from 550 BC to 800AD.

Is there fire where there is smoke?

[Note that the inference syllogism outlined below is fundamentally different than the three-step Aristotelian (of Western logic) syllogism for deduction that is based on axiomatic 'truths'.]

Inference syllogism for Nay reasoning is for a concern that can not be directly ascertained by sense-evidence. It addresses an assertion in five steps:

1. **The hill is on fire** (*Pratigya*: A definite concern about potential danger).
2. **Because it is covered with smoke** (Relevance (*hetu*) of the content (smoke) and context (hill) is the means (*sadhan*) to address the concern).
3. **Where ever there is smoke there is fire, as in a wood stove** (*udaharan*: This analog relates the means to the to address the concern. The basis of the inference is in the *avinabhav* or inherence, invariance and concomitance of the means to the concern.
4. **Since there is smoke on the hill** (*upnay*: reassertion of the means for an).
5. **Therefore, this hill is on fire** (*nigman*: inference as evidence-based conclusion).

The inference is to be scrutinized for identifiable liabilities (GIA-35 and 37). Bhadrabahu (ca 350 BCE) formally introduced as the next five steps. The steps below rule out the possibility that the smoke is not fog.

6. **The hill is covered with fog** (as an alternative to smoke).
7. **Because the rock (a land-mark) is not visible.**
8. **It is too late on a summer day,**
9. **When fog does not arrive until the early hours of the morning.**
10. **Therefore the hill is not covered with fog.**

The ten step syllogism gives an appreciation of the strengths and liabilities built in an inference. It identifies not only the inputs behind the concern but also the assumptions behind the use of *avinabhav* (concomitant invariance) as the basis for the inference. The second part emphasizes the need for continuing search for other possibilities. Thus an inference should not only be consistent with the evidence-based positive inference in step 5, but it should not be consistent with the alternatives (*Anekant*) that may invalidate the inference. This is the basis for the Syad Nay developed later in this series and elsewhere on this site.

Intelligence as a human attribute

Humans learn, explore, reason, make decision and respond. It is a Nay belief that world is knowable and understandable without 'external' grace.

Nay methods of reasoning address an identified concern. Reasoning begins with the external evidence (*pratyakch*) to identify the content, context and relations of the concern. Reasoning is the search for tools to address assertions about the concerns. Reasoning about a concern is essentially an internal process that builds on wide ranging attribute. The internal (*parokch*) contributions to the search come from the awareness, cognition, and perception of the external inputs augmented by memory and recall of the past experience. Concerns and reasoning communicated through language form the basis of shared knowledge that is useful to predict future behaviors and to make better tools to address other concerns. This social and personal compass helps us perceive fairness and evaluate consistency of behaviors that form the basis for organized society.

Reasoning is the habit of mind. Reason empowers words that can be engaging in conversation, show empathy in discourse, and act as weapon in the debates. Even the best chosen words are mere fire works unless they are true and meaningful to the content in the relevant context.

Ignorance is the state of mind without content. Unless articulated in terms of suitable content our concerns remain dark and scary as in:

Not knowing that one does not know.

It is also not-knowing that others know that you do not know.

It may be part of human condition but ignorance is not human destiny. We can look for ways to reduce ignorance only if we realize the state of ignorance. Misplaced faith (*vi-nay*) and disregard for reason (*ku-nay*) distract from reasoning (*Nay*). Reason is derailed if we seek salvation from ignorance through grace of the Unknown, Non-existent, or Omniscient and other incarnations of ignorance.

Concerns surface at the threshold of all brave new worlds where inputs are often incomplete, complex, and deemed insufficient or not relevant. Addressing a concern calls for ways to identify parts of reality. Such constructs facilitate identifying the concern that can be explored further to identify what we know for sure from what we do not know and what may not exist. An inference from such explorations is consistent with all relevant inputs, and not in-consistent or contradictory to real worlds. Such an inference is useful to make choices and decisions about future behaviors.

Non-threatening communication is a rational way to share thought. A well formulated concern can be communicated by words, and shared for further action. Validation of thought and inference is a shared process that begins with constructs that are not self-referential, not contradictory, and not inconsistent with other established

constructs. Effective use of languages also requires conventions for defining the problem and to communicate the content, meaning, intention, and inherence. Thus context, syntax and other attributes of language communicate and predicate a definite relationship between the subject, object, and verb. Language constructs are integral parts of the thought process that seeks harmony of the internal knowledge with what is predicated by the external world happenings. There lies the rational basis for shared exploration of the resources inherent in experience, information, and knowledge. Human condition is about understanding and communicating what we mean individually and collectively. Often humans have difficulty in communicating what they mean to the extent that humans are often misunderstood by other humans. In the same vein, understanding animal intelligence remains limited because of the limitations of human intelligence.

Humans have learnt to program machine that do not have attributes of mind. Machines are good at doing repetitive tasks. They tirelessly do what they are told to do. Prowess of computers has come to the point that one hears that computers do not make mistakes. Only humans make mistakes! Attempts are being made to program machines to think and make decisions. It is doable unless we ask machines to interpret what we mean. Individuality of a mind is in the way it reads and infers what others mean and think, rather than what ones says!

Mahendra Kumar Jain,

November 4, 2007

Affirmative Nay Reasoning

Reasoning applies to what is evidenced by the content and context. *Tark* (logical deduction) is useful for deductions based on the known pieces of information. However an inference (*anuman*) based on information (content and context) builds on the evidence to create value. An inference is likely to be valid if its converse is also valid. Reasoning with tangible (*sat*) evidence (*paman* or *praman*) also entertains *syad* or doubt about what is known, about what is not known, and to identify what may not exist. Such uncertainties are always present in real time decisions about the future. Nay reasoning tends to be predictive, and just not reactive for posterior analysis.

The converse applies for the meaningless and senseless. Just as unrealistic expectations are unreasonable, speculative imagination and skepticism costs nothing and also delivers little. Eternal hope and infinite wisdom built into faiths and beliefs is beyond reason because the content and context of such self-referential constructs is not bound by reality.

Evidence based reasoning guides thought and behaviors towards success. The purpose and business of living is to respond on the real time basis to the observable and testable (*Pratyakch*) evidence (*Praman*) in association with the perceptions. The sense organs play a role in identifying not only the source of the inputs, but also its position and context. Cognition of the sense experience is a shared search that also builds on the past experience. Hare language communication plays a role in the shared validation as well as the personal interpretation of cognized inputs. Thus reasoning guided by independent evidence ward off contradictory and inconsistent perceptions.

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.

Nay formulation of a problem by developing pro and con arguments wards off the entire class of self-referential constructs that include the wishful and paradoxical omniscience, omnipotence, multitudes of Gods, Universal, and Supreme. Often self-referential constructs are without content and context. They do not elicit a definite awareness on which one can build cognitive understanding to facilitate reasoning. On the whole such constructs do not satisfy the basic criteria for representation.

This series presents interpretive translation of the seminal Nay works in English. The Nay approach has a history of well over three millennia. Yet Nay is little known outside a small group of scholars of ancient Jain tradition, possibly because much of the work is still in the Prakrit language. *Nay* is reasoning affirmed by evidence (*Pratyakch*). Unlike faith *Nay* does not rely on the a priori or ad hoc assumptions. Boundaries of *Nay* extend beyond logic (*tark*) or deduction consistent with the known and established pieces of information. *Nyay* has evolved as an off-shoot of *Vacch-Nay* for deliberation and decision making. In the later stages, assumptions based on insights (*Darshan*) were also included as part of the non-Jain *Nyaya*. We present the seminal works of Gautam

(Volume II), Siddhsen Divakar (III), Akalank (IV, V and VI) and Manikyanandi (VII). Work of Gunaratn (Gunaratana) will be included in VIII. Volume IX is a modern mathematical formulation of Syad Nay by Professor Ramachandran.

Gautam (607 to 515 BCE) compiled and organized the earlier Nay practices for deliberation and discourse. He is credited as the originator of Nyay(a) who formulated the syllogism to infer fire from the sight of smoke. Neither the term Nyay nor the syllogism is found in his work. Siddhsen (ca. 500AD) extended the reach of Nyay by resuscitating the ancient Nay condition that reasoning is not possible without explicitly identifying the content and context of the concern that is to be deliberated. Akalank (620-680 ACE) elaborated the approach to demonstrate limitations of some of the newly emerging insights of faith that were beginning to apply Nyay (Nyaya). Akalank pointed out that the Buddhist construct of 'nothingness' (*Shoonyata*), or the Brahminical constructs based on the variations of omniscience and Cosmic Consciousness (*Param Brahm*) are not affirmed by direct evidence. Also such insights (*Darshan*, philosophies) are without content and context, and not supported by the criteria of tangibility of sense-awareness, evidence and representation. Akalank concluded that such philosophical constructs are self-referential and justified only by circular reasoning.

Siddhsen Divakar mentions Gautam in Sammai Sutt (III-A, B, C) where he elaborated the fundamental of Nay as the reasoning about the content and context of a concern. Nyay-Avtar or The Nyay-Incarnation (III-D) alludes to Nyay as an incarnation. Akalank does not use the term Nyay yet he is celebrated for his debates with the Nyay scholars of all stripes. Akalank uses the term Nay is in the context of algorithms and syllogisms for evidence-based affirmative reasoning for validation for representation. Both Siddhsen and Akalank refer to the affinity of Nay to Jeetthan presumably because perceptions are validated by making room for doubt (*syad*), and also by entertaining the alternatives (*anekant*) relevant to the content and context under consideration. Akalank clearly distinguishes logic (*tark*) as a method of deduction based on defined and known parts whose relations are known.

In my opinion, Vatsyayan (ca 400 AD) introduced the term Nyay in the title of his commentary. Unfortunately, almost since its inception the Nyay was used to rationalize insights and assumptions on the basis and authority of ad hoc assumptions.

Nyay has also been interpreted as philosophy, (Indian) Logic, evidence-based decision making, justice and fair play. It has even been used for Matsya-nyay or the logic and justice of big fish eating the smaller ones.

The term Nay does not appear in Gautam's Nyay Sutr. Some of the derived terms are prominent, such as *up-nay* for secondary device; *nigaman (nay-gaman)* for the result of reasoning based on the use of a particular consideration; or *nir-nay* for a decision based on reasoning consistent with evidence. These terms suggest that Nay (methods, devices, strategies) is inherent in the formulation of a concern as an assertion, and also in the scrutiny to arrive at an inference through evidence, analogy and comparison. Thus the generic term like Nay is not defined because it is an over-arching aspect of reasoning about the content and context through evidence predicated by language communication. For example, in practice we do not use the term grammar when we talk about the content, context, syntax, assumptions, or evidence behind a word construct. Nonetheless it is understood.

*

The content of this series is the affirmative reasoning in the Nay tradition. Even from the perspective of modern secular thought Nay reasoning is uniquely secular. The goal of reasoning is to build constructs affirmed by evidence, and not contradictory or inconsistent with other constructs based on independent evidence. Nay scrutiny of a concern begins with an assertion. Inference is built from the inherent concomitance of the verifiable positive evidence with the content and the context of the concern. Cognition and awareness elicited by a construct is further validated in stages. It is a shared enterprise where diverse methods, strategies, and evidence emerging along the way to support, refute or falsify the inference. This validation process is open ended. What emerges in the end is a perception based on the *keval* cognition validated by all the the available evidence. Even without a proof or absolute certainty such perceptions are useful guide for behaviors while the individual reasoning explores the internal dynamics of the awareness of the sense experience.

Nay reasoning relies on the cognitive abilities without prosletization. Contemplation is necessary because these ancient presentations lack redundancy, very few specific examples are given, there are no synonymous words, sentences do not have

superfluous words, text does not repeat statements, and even the key concepts are rarely revisited from the same perspective.

The English text is my interpretive translation. Although it is within the bounds of the ancient text, but the motive of the content is set in the context of the overall work. Readers are encouraged to examine their own mode of thought and reasoning in relation to the elements of their own thought process. Key elements of Nay reasoning in contemporary text and mathematical forms will be elaborated in essays to appear at a later date in Volume X of this series.

(Completed November 3, 2007)

Glossary of interpreted terms

In most ancient languages, and in particular in the Prakrits, words are operationally defined to convey motive with emphasis on the movement, action, or reasoning. Such lead to the underlying verb action (*kriya*) root or concept permit further search for the meaning in the local context. Unlike modern technical words often in the noun form, the action words are not as rigidly defined. However, the verbs have strong affinity to the context.

Aadarsh	Worth considering, a model,
Aalambh	With the help of, based on so far,
Abhas	False impression (appearance, dubious, paradoxical)
Abhav	Does not exist, is not so
Abhi-	Extension, extrapolation, develop further
Abhidhan	GNB17 elaborate??
Abhidhayak	Promulgate
Abhi-ghat	Incision, decisive attack
Abhigya	Beyond cognition, Insight or other means to perception
Abhilambh	Grasp of the total
Abhilasha	Desire
Abhiman	Evaluation with a standard
Abhinivesh	Carefully present
Abhipret	Desired
Abhyupety	GNIIA-59
Abhyupgam	Address the remaining concerns, develop further,
Adhi-	Above -
Adhigam	Reliable, know with authority/certainty
Adhyapanat	resolved with certainty or authority
Adhyavsay	Reconciliation, determined?
Agam	Shared tradition and beliefs (always prior?)
Akar	Shape
Alam	Sufficient or not necessary
An-ekant	Multiple states of an entity based on different relations
Anhilap	Elaboration
Anindriy	Extra-sensory such as through meditation (hallucination)
Anjsam	Awareness of the whole
Annyatha	otherwise, if not so,
Annye	The other (in the set theory sense) but still environment
Anu-	prefix relating what follows (see I-9)
Anu	Smallest part (atom is now called param-anu)
Anugam	Analysis or reasoning based on parts
Anugrahat	Grasping afterwards,
Anukaran	Based on a part, following a model
Anuman	Inference

Anumeay	Subject of inference
Anupatti	derived from the main conclusion (could also be a minor conclusion)
Anuplabdh	Not available for examination or consideration, not known
Anuplambh	Inaccessible or not-accessible even to conclude not-so
Anuppann	Unidentified, unidentifiable
Anuppatti	Multiple origins, possible alternatives
Anuvad	Summary
Anvay	Scrutiny of implications
Anvikchi	to see on the basis of reason, a priori
Ap-	Prefix for removed or separated
Apatti	Interpretation (see <i>arthapatti</i>)
Apoh	Consideration or scrutiny of parts to remove doubt
Aprasang	Out of context
Apvarg	Resolution (in the sense of final or total)
Arth	Meaning of the content in a context
Arthapatti	Arthat-apatti: interpretation of the meaning,
Asat	Non-existent
Athva	Either-or combination
Atindriy	Beyond senses: Based on a model or construct of intellect
Atishay	(something) extraordinary, miracle
Atit	Eternal
Atm	Self (individual identity)
Atmani	Individual entities and constructs, syllogism?
Avaran	Cover (obscure?)
Avbhas	Short statement
Avbodh	to know
Avdhar	forms basis
Avianbhuv	See Avinabhav
Aviddya	Delusion?
Avighat	Not damaged (not-destroyed?)
Avinabhav	Invariably associated (concomitant invariance)
Aviruddh	Unequivocal
Avisamvad	Miscommunication or misinterpretation)
Avlamb	Support, dependent
Badar	larger, macro, a cherry-like fruit
Badha	Interference, interruption
Bhav	Intention, trend and pattern in meaning (bhaav)
Bhas	Impression
Bhautik	Physical (earthly)
Bh(a)v	Exists, present, is-so (Different than Bhav above)
Bhavna	Thoughts/concerns for others
Bhranti	Confusion (mis-understanding, make-belief, rationalization)
Bidambana	Paradox, Ambivalence
Bodh	Know with awareness
Bruvaan	intention of what is said (narration)
Ch	And (as in A and B together)

Chet	If, even if,
Darshan	Insight (Attitude, point of view)
Dharm	Behavior, relations
Dhrauvya	Total (all)
Dosh	Defect
Drasht	Seen (as in awareness)
Drashtant	Analogy, analog
Ekant	One conclusion
Gammya-man	Moves the argument (as in follows from)
Grahanam	Accept or take it for granted
Gun	Properties, quality
Gyan	Cognition of sense experience (prior information)
Han	Short-coming
Hetu	Relevant
Hetutv	Relevance
Ikchya	Reflection: Thought and thinking with a purpose
Isht	Desired (seek)
Ishyate	Sought
Jalp	Restatement for cross-examination and scrutiny
Jati	Class
Karan	Basis for action (reasoning)
Karuna	Compassion
Karya	Act of reasoning
Keval	Perception of the only valid construct
Khanik	Momentary, transient
Khar-Vishan	Unreal (like horns of a horse)
Kriya	Action, reasoning, verb
Lakchan	Symptoms, characteristics
Lamb	Dependent, hanging
Lamm	Access, reaching
Ling	Attribute, distinguishing features,
Mechak	Different facets (prism)
Mithya	Contradictory to or inconsistent with reality
Naigam	Reasoning devices
Nay	Reasoning with devices and evidence (but not with ad hoc a priori):
Ni-	Re- (or another way)
Nibandh	Concept (abstract) binding
Nibodh	Reasoning to resolve
Nigman	Re-affirmed by reasoning
Nigrahsthan	mis-placed
Nimitt	Relevant and necessary influences that mediate an effect
Nirakaran	Resolve the issues
Nirakrat	Uncover a form (identify?)
Niranvay	Not- analyzable (<i>nir-anvay</i>): beyond scrutiny
Nirdesh	Indication
Nirnay	Decision based on the Nay devices

Nirodh	Interference based on rules
Nishpatteh	Identified (without alternatives?)
Nishpatti	Indication
Nishreyas	Recovered well being
Nityatv	Perpetual
Nivesh	Introduce
Nivratak	on that settles
Nivratti	Resolved, settled
Ni-yog	Re-consider
Nyay(a)	vacch-Nay
Pakch	A definite position on an issue
Param	Reliable (ultimate)
Paraokch	Indirect (evidence): based on the experience of others
Pariched	scrutinize in parts, analyze
Parigyan	Cognition of the limits
Parinam	Motive and content
Patti	Amounts to (a conclusion, meaning)
Porusheyah	Human-Incarnates (as in Son-of-God)
Prachkchate	show, demonstrate
Pragya	Cognition reconstructed from a model
Prakalpit	A possible interpretation, implication?
Prakaran	A particular aspect of the topic under consideration
Praman	Evidence (based on known measures and standards)
Pramey	Abstract subject for a construct for reasoning and inquiry
Prameyatv	The subject of a topic
Prapede	Suggest, postulate
Prasajjyte	placed in a context, create a context
Prasang	Context
Prasiddh	Established as in generally accepted
Prati-	In response to-
Pratibhas	Impression from (conception of the communicated)
Pratighat	Counter-attack
Pratipadan	postulate to introduce or define
Pratipadyet	Assume postulate
Pratipatti	Suggestion, implication
Pratishedh	Refutation, rule out, not-permissible
Pratiti	Awareness (a sense of, appears to be, feeling)
Pratyabhigyan	Cognition of the whole in a particular context from available information
Pratyakch	Evident as in observable or direct sense experience
Pratyay	Something between information and knowing to awareness/understanding
Pratykhyan	Counter-statement, double-check,
Pratyneek	Counter-argument, alternative interpretation
Pravachan	Reason advice
Pravad	Counter point for a point in an argument (Vad-pravad)
Prety	Nemesis
Pretybhav	Reincarnation

Rirte	without, not
Rodh	Interference
Rup	Form
Sadbhav	In accord with, meaningfully so
Saddhe	Shown to be so
Sadhan	Means, device (to address a concern)
Sadhya	Construct or assertion for reasoning
Samanya	Other equals, generally, ordinarily (<i>Sam+annya</i>)
Samarth	Viable and appropriate
Samarthan	To support
Samay	Comparable (Time, meaning, form)
Samma	Balanced
Samplay	Organized
Sampradan	Intended meaning
Samprati-	A prefix for balanced response
Samvay	Relations as in tree and branches
Samvid	Understand
Samvitti	Understanding with balanced certainty
Samvratti	Rational bounds for behaviors
Sandeh	Suspicion
Sandiggdh	suspect, dubious, uncertain
Sangya	Noun, commonsense,
Sankalp	Intention, interest, commitment? intuition?
Sanket	Indication, pointer
Sanshay	Uncertainty, suspicion
Sanshrayat	Mediated
Sanskar	Influence of upbringing
Sanskar	Upbringing
Sanslash	aggregated, together
Sansth	Informative (established) in relation to
Santan	derivative (as in necessarily follows from, implication)
Sanyam	Balancing the choices
Sanyog	Coincidences suitable for an outcome
Sarv	All (in the sense of any and all?)
Sarvgya	Knowledge of an entire <i>pramey</i> (not the omniscience)
Sat	Existent (tangible), existent
Satta	Abstract entity (understanding)
Shabd	Proposition
Shakti	Power
Shakya	Capable of doing or useful
Shrut	Oral a priori, oral tradition, heard,
Siddhant	Finally accepted view
Siddhi	Establish (identify or existence)
Syad	(Identified) Doubt or uncertainty based on a set of criteria
Tad/tat	That particular
Taimir	Diffuse, night blindness, not clearly defined

Tantr	Manipulation
Tanya	stretch or extend
Tatv	A part of the tangible (or Content)
Tatv-gyan	Cognition of the underlying basis
Udaharan	Example (real world example)
Unmeelan	Opening, flowering
Upadan	Tangible basis (basis in fact);
Upadayah	Significance?
Upchar	Method
Uplabdh	Available for examination
Uplabdh	Achieved through a method of reasoning (such as logical deduction)
Uplabhy	Worth examining (adjective of <i>uplabdh</i>)
Uplambh	Accessible for examination, to establish it-exists or is-so
Upman`	Partial comparison, secondary measure
Upnay	Secondary devices for reasoning and validation
Uppad	Indication by association or analogy
Uppann	Result of comparison (inference, availability)
Uppatti	On the basis of the main conclusion
Upsanhar	Conclusion
Upyog	Use, application
Utpadnam	A definite outcome, result, conclusion
Utpatti	Valid derived result from conclusion
Va	Or (as in A or B or both)
Vachan	Narrative
Vadhak	Interruption
Vaidharm	Not normal behavior, out of character
Vaky	Opinion/assertion/statement
Varn	Form
Ved	Response (unrelated to The Vedas), experience (physical or mental)
Vibhavyate	Examined for existence/scrutinized in different ways at different places?
Vibhram	Confusion
Vichitr	Unusual
Vidambana	see Bidambana
Vidham	Procedure
Vidhan	Overall process
Vidvisham	Intolerant of others (opinions, possibilities)
Vidya	A protocol, method of reasoning
Vigahat	Damage (verb)
Vigyan	Reasoned but uncommon cognition of the properties and behaviors
Vikalp	Ambiguity, alternative
Vilakchan	Unusual characteristics
Vinash	Loss, destruction
Vinyas	Rearrange
Viparyast	Scattered states
Viplav	Disorganized
Vipratipatti	Difficulty in arriving at a something (- conclusion)

Vipreet anvay	Reverse implication
Vipreet	Reverse
Virodh	Opposing??
Visamvad	Non-sense, distracted communication
Vishay	Topic of the construct for discussion
Vishesh	Sometimes, under particular conditions,
Vitand	argumentative, skeptic
Viruddh	Contrary
Vratte/Vratti	Bounds (as in set, group, behaviors, tendency)
Vyabhichar	Contradiction
Vyahatv	Implication
Vyapak	Permeates or pervaded
Vyapar	Purposeful action, rational dealings
Vyapti/Vyapy	Basis for the whole that can not ascribed to parts, concomitance
Vyasang	Distorted context
Vyatirek	Assembled or grouped
Vyvhar	Practical outcome, response
Vyavrat	Boundaries of the basis
Vyutpann	Deeper understanding of the underlying basis
Yad/yat	that which
Yadracchaya	Choice
Yujjyate	Planning/decision made
Yukt	Appropriate
Yukti	Device or leverage

Volume I

What is Nay?

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Introduction

World is Knowable by Affirmative Reasoning

Nay is a Prakrit word for boat or ferry. *Like a boat, Nay devices ferry reason from one point of certainty to another.* Reasoning with cognitive tools fashions awareness into usable perceptions. Abstractions relate to relevant real world if the inputs and outputs or known and unknown are balanced, whereby what lies outside such constructs is likely to be non-existent. Such an attempt to reveal truth also reveals what is not true. In this search received wisdom is often unwise, if not wrong.

World is understandable. Knowing the world is a problem of measurement. Meaningful answers come from specific questions about identified parts. Cognition of an expressed concern emerges from the bounds of facts of evidence. An understanding is pieced together from the answers that conserve the content and relations. What follows is a measure of the evidence to affirm perceptions that form internal and external identity (*Atm*) of an individual.

Nay or Reasoning with established evidence is probably as ancient as the human origins. Consider how we use the past and the present to see the future. As we process the new inputs, the present is cognized in terms of the past experiences to evaluate viable options to address current concerns. A choice and decision to act on a concern is based on perceived outcome. In a real world chance of success improve if such actions and behaviors are based on tangible facts and relations (*Sat*). The search is derailed by make-belief.

Conservation as the basis for tangibility

Nay reasoning facilitates real world searches. It is believed that the conservation principle was the first lesson that Mahaveer (599-527 BCE) gave to his new disciple Indrabhuti Gautam (Goyam). This conceptual foundation was set by Rishabhath (ca. 2700 BCE) with the following insight:

उपपानेई वा विगमेई वा धुवेई वा

Literally: **The net is the balance (total) of the inputs and outputs.**

Mentions of Tripadi (of Rishabhath) communicated by Mahaveer to Indrabhuti.

Tripadi balances (*samma*) the input and output in the real world behaviors, and it also holds for reasoning through tangible constructs.

(क) उपपाने, विगमे, परिणए—भगवती ५/९ ।

(ख) उपपाने विगमे धुवपय तियम्मि कहिए जिणेण तो तेहि ।

सव्वेहि वि य बुद्धीहि वारस अंगाइं रइयाइं ॥

—महावीर चरियं (नेमिचन्द्र) पत्र ६९-२

(ग) जाते संघे चतुर्थेवं धौव्योत्पाद व्ययात्मिकाम् ।

इन्द्रभूति प्रभूतानां त्रिपदीं व्याहरत् प्रभुः ॥

—त्रिषष्टि० १०/५

See volume VIII (Commentary by Manibhadra) for gathas with dialog of Mahaveer and Goyam.

Conservation is inherent in all relations of balance of inputs and outputs in real world as in:

Income	+	Expense	=	Balance
This		That		All
Used		Wasted		Total
Known		Unknown		Total
(Free energy)		(Entropy)		(Enthalpy)

The conservation is reiterated and applied in all Nay works. As a critical test of reality it can be phrased in many different ways:

- *By sure it is the arithmetic where no term drops.*

- Something can not be created out of nothing.
- One does not get something for nothing.
- Something does not disappear into nothing.
- Only nothing is created from nothing.
- During a change the material content is conserved.
- The steady state of a tangible entity is a balance of inputs and outputs.
- The information content also depends on the relations of the material content.
- A state without the means of some change is also without the means of conservation.
- Violations of conservation lead to the magic box where *anything can go-in and anything can come-out*.
- Miracles happen but we can not count on them.
- There no free-lunch.
- Lottery is not a viable business model.
- Mahaveer advised (Gautam) "*Goyam, do not spend time in self-indulgence that does not create value.*" It recognizes that time is to be conserved even though it is free and appears virtually infinite.
- An empty medium of representation is boundless as in the emptiness of space or the time that appears without a beginning or the end. Only the non-existent exists in this imagined or fictional world.

In short conservation pertains to the **Sat** or tangibility that underlies the content or the change of state and relations. It applies to all real world entities and events. Conservation is a critical test for all concepts and constructs that deal with matter, time, energy, information, resources, organizations, and other representations of tangible worlds and happenings. Accounting and accountability of input/output or credit/debit determines viability and sustainability of an enterprise. A process is viable only if the balance is conserved whether it related to matter, energy, information, money, time, space or any other resource. Thus all entities, events and concepts are finite constructs against the backdrop of the boundless medium

of space, time or thought. Thus discreteness and finiteness is a necessary condition for representation of thought to guide response.

Reasoning with discrete and finite parts

Conservation principle facilitates knowing and understanding. Knowing is a problem of measurement. Only finite entities and events are considered, reasoned, and evaluated and measured with evidence. A finite world is represented against a bigger medium of the 'nothingness' of space or the time without a beginning or end. Thus we speak of home as a discrete place, and event time as the time span of identity. Like a place, life time is a finite duration with a beginning and an end. Such discreteness assures that no two entities occupy or events span the same space at the same time. Of the infinite possibilities that mind can concoct and conceive, only a few express and communicate a concern through word or other means of representation. A thought is useful because it communicate a sliver of experience at the appropriate time. Thus a meaningful construct has a discrete bounded form with defined content, characteristics, attributes, functions, and relations that communicate useful information about the class as well as the particulars.

Tangible concerns are communicated by a bounded representation. It is also meaningful because the information about the concern and its behavior is conserved through reasoning. At an abstract level such conservation relation is at the root of the concept of evidence, balance, standard, and specification. Such evidence based measured reasoning creates value by efforts for change. Thus truth is a shared convention of conserved information if it includes what one knows, what others know, what others know that one knows, and what one knows that others know.

The question of non-existence

Constructs and devices for reasoning conserve the content and relations of the parts bounded by a representation. Constructs of boundless and infinite are meaningless because they do not represent a measure of tangibility that is conserved. For example a word construct for reasoning

balances (conserves) the meaning, intention, and motive with the facts and relations in the evidence. Identified inconsistencies can be resolved by scrutiny. Seminal concepts that emerge help in dealing with the unknown, sorting out contradictions.

Non-existence can not be proven by direct evidence, but such constructs have certain attributes [See later volumes in this series]. Traditional constructs of "Infinite-Supreme" have little validity to facilitate reasoning or to guide behaviors. This is also the case with the constructs that invoke ultimate, absolute, universal, forever, and infinite or nothing in particular. Not only these are not-testable, but they are paradoxical, self-referential, and often contradictory. Possibly for such reasons, the words and concepts emphasizing conservation are not found in the theistic religious works that rely on miracles. Such faith-based constructs invokes omniscience, omnipotence, infinite wisdom, Cosmic Awareness, Brahm, Maxwell's demon, perpetual motion machines, and gods. Their common feature is that they exist and do-not-exist in the same space at the same time. According to Syad-Nay such constructs become paradoxical, self-referential, and contradictory. As suggested by Gautam and forcefully argued by Aklank, Omniscience as a class derives its power from the authority of self-reference as in "I am a liar." Such self-referential constructs are paradoxical, and they can neither be affirmed nor falsified. Similarly even a meaningful current relation, such as tree-and-seed or chicken-and-egg, provides little information about the relations in the distant past or the future. Such prognostications are not much different than guessing the past or the future from the current state of a falling leaf. All such constructs are beyond reason by virtue of being unreasonable.

By the same reasoning "Only nothing is forever, and nothing in particular is forever." Such an inexpressible does not communicate a defined awareness that can be cognized and reasoned with. It is not possible to affirm, refute, or interpret something that can be shown to exist or can not be established with defined criteria. Reasoning is facilitated only with shared awareness of the content and relations. It is not faith or belief based. Even a

logical belief does not provide insight that is not already built into the belief. Here the concern is not about the validity of what is not said, but about the meaning, significance, intention, motive, and relevance of what is purported to be inexpressible. The criteria to uphold a tangible representation assure validation of what exists. Additional insights in the expressed form emerge with a qualitative change in perception validated by relevant evidence.

The "Why" question

Conservation of the content of what exists does not relate to the "Why" questions. To begin with the 'why it is so?' questions can lead to infinite regress. Insights into the concerns about the cause and effect often emerge from the meaning and relevance that may or may not be evident as the **evidence** is operationally processed in three sequential steps:

- (a) **Awareness** connects the internal or external parts of the evidence.
- (b) **Cognition** identifies tangible relations in the evidence.
- (c) **Perceptions** fill the gap to judge and make purposeful decision.

Value of the past is to guide the present. Thus concerns are expressions of the real world condition that may appear enormously confusing and confounding. Yet a tangible world is never inconsistent or contradictory. If it appears so, the operational construct need be modified or discarded as meaningless and irrelevant. The purpose of reasoning is to scrutinize evidence and construct to extract concepts that are useful to guide behaviors. Perceptions emerge with new representations that recognize the relevance of the "moment" for the emerging challenges. The past remains relevant to the changing conditions only in the sense that "Happy families are all alike. Every unhappy family is unhappy in its own way." Here the assumption is that most people are happy most of the time. Therefore all real world concerns are about unhappy disruptions in this matrix. These are the worldly concerns of survival and welfare of self, mate, and progeny. Such concerns are timeless. However they do not suggest that a 'why' guides the workings of the human condition.

Finally a key consideration for affirmative reasoning is to address the not-so question or the what-if concerns that can not be affirmed by evidence. At the very least such concerns belong to the category of "have not found" suitable pro or con evidence. Nay reasoning also explores not only the boundaries set by what is affirmed by evidence but it also looks for ways to affirm what is not found yet but is known to exist. Considering the possibility of infinite regress or vicious circle it is also prudent to bet on what is known to work and exist.

Chapter 1

Who was Gautam?

The first work in this series is Gautam's Nyay Sutr (Nyaya Sutra). In the traditional literature the name Gautam, Goutam, Goutama, Gotam, Gotama, Gautama, and Goyam refer to a person who gave rules for discourse and reasoning. Apparently, Akchpad (Akchahapada, ca 200 BCE or later) compiled these rules in the text in the current form that comes to us through Vatsyayan's commentary (400 CE) titled Nyay Sutr.

Available evidence suggests that Indrabhuti Gautam (ca. 607 to 515 BCE) lived in Mithila (or modern Bihar) region of North-East India. Indrabhuti Gautam was a well-known scholar of Vedant with a command of language. He was a respected discussion leader in matters of Vedic scriptures. Many of his concerns about the role of humans were addressed in his first discourse with discourse at the age of 50. (Ganesh Muni, 1990). Mahaveer, who was then 42, provided the insight that knowledge is established by circumspection of all available information and evidence (see below). In his first greeting Mahaveer addressed Indrabhuti as Goyam. After joined the group of Mahaveer the first lesson to Goyam was on the conservation principle of Rishabh Nath which as discussed above is the Hall-mark of all reasoning based on content and context. Besides Goyam's discourses with Mahaveer, as his *Gandhar* or discussion leader Goyam addressed concerns of several thousand monks who regularly went out for discussion with other scholars and lay public. In short, if Mahaveer revitalized the tradition of Nay, Gautam developed the Nay techniques for discussion and discourse. In effect Goyam elaborated and organized rules for discourse, where an inference is arrived at in stages by reasoning with answers to the what, what, when, where, how type of questions.

Atm (identity) versus Atma (soul)

It can be said that Gandhar Goyam elaborated the meaning of the content and the thought process developed by Mahaveer and other Arihants. Goyam was for example curious about what distinguishes a living organism from a dead one. The Vedantic view was that attributes of life result from the interaction of material body with the soul (*atma*) that is part of the cosmic Brahm. The view of Arihants was that each living individual has its own unique identity (*atm*). This identity is indicated by the patterns of sensory awareness and response as in the bodily pain and pleasure which at a given moment are unique to each individual. The individual identity is also asserted by expressions such as "I did it," "I am doing it," or "I will do it." [Contrast these to "I am, I think, I exist" and other self-referential constructs such as *I think therefore I exist*]. In such constructs by bodily "I" identifies the indirect (*Parokch*) individual identity (*Atm*). This bearer of the individual identity is doer of actions and the bearer of the consequences. Also the individual actions and experiences mirror and thus provide the direct evidence of the external world happenings in real space and time. Since the experience of consequence is inherent in the responses to the individual world happenings, only that individual organism can modify its behaviors and influence outcome.

Mahaveer also pointed out that individual awareness and responses could not be attributed to a cosmic soul (*brahm*) because all living beings do not have the same awareness and response at all times. If all individuals had the same cosmic soul all will also have the same experience at a given time. A cosmic soul can not interact with anything tangible or change its behavior. If it is unlike space, a cosmic soul can not provide place for entities. In a paradoxical way the ideal of cosmic soul is a universal in which others can only see themselves.

Validity of an inference rooted in the direct evidence from the external reality

The Nay methods, including those outlined in Nyay Sutr and other texts included in this series, emphasize the value of an inference consistent with direct evidence. To begin with while the evidence affirms the inference, the inference does not necessarily affirm the evidence. Thus the primary emphasis of Nay and its offshoots is

on the nature of the evidence to arrive at an inference which always remains open to further modification in the light of new inputs.

On the other hand, an insight (*darshan*) or philosophy provides a construct (subject, assertion) that is useful only as an assumption for the affirmation. It does not offer an independent verification. No matter how complex the concern or the direct evidence appears, the Nyay reasoning does not warrant the conclusion that there is an all-pervading external motive. Apparently the Nyay(a) Darshan lacks such rigor in reasoning. Such self-referential construct do not provide any additional information beyond the assumption itself.

Nay: *Nayati iti Nayah.* Nay is the 'doer' in the reasoning to arrive at an inference. Starting with incomplete information and knowledge, as in the inference of fire from observed smoke, Nay builds on the tangible (*tatv, saar, sat*) parts in the available evidence.

Tark: Logic is deduction with the given piece of information and knowledge. Like the pieces of a puzzle one can only put the piece only in a given order.

Nyay: *Ni (samantat) + ayanam iti Nyayah.* As an out-growth of *vacch nay* (reasoning through discourse), Nyay is the decision based on the basis of the sum total of the pro and con of the available evidence and arguments. In the practice of Nyay the insights tends to rationalize and explain-away as in the *matsya-nyay* (ca -300 BCE): *It is said that in a condition of draught, when ponds dry up, the big fish eat the little fish.*

Other suggestions for Who was Gautam

In the Jain literature the word Gautam is interpreted as:

The one who has destroyed darkness of ignorance through intellect and reasoning.

(gobhih dvastam tamah yasya sah)

This is an apt description for Goyama, the disciple or Mahaveer. Since most of the early Jain literature is in Prakrit, this Sanskrit interpretation is apparently to counter two other the interpretations found in Vedantic works, where Gautam is derogatorily associated with bovine (Gau) as in:

The one who is destroyed by the intellect of cow (or is bull headed), or

(gavi-tamah yat ten dhvastam yasya)

The one who suffers from the dark ignorance of cow.

(govistamo dhavastam yasya)

Interestingly, the rules in Nyay Sutr can be applied to argue that this display of scholarship is meaningless and irrelevant interpretation because:

1. A proper noun of an individual or a family name has little to do with the literal meanings.
2. Not all individuals with this name exhibit the behavior purported by the meaning of their name.
3. One can not be sure which one of the scores of Vedantic sages known as Gautam, including Gautam the Buddha and the Gautam who compiled a Vedantic Dharm Shastr, are the target of this attack.
4. At best such interpretations affirm ones own prejudices.
5. These interpretations are based on use of arbitrary conjunctions and verbs. In fact it is problem that is deeply rooted in the use of Sanskrit language.

Related approaches

Use of the *tark* is restricted to logical deduction from known parts and relations, which is neither Nyay or Nay. The terms Nay and Nyay do not appear in Ved, Shastr, and other early Vedantic works. By the time of Kautilya the Chanakya (-320 BCE) the term *anviksisiki vidya* was used for "device for scrutiny" of the real world. Possibly Vatsyayan (ca 400 CE) coined the term Nyay to draw a subtle distinction between Nyay and anviksisiki. According to the Sanskrit etymology *nyay* is derived from the *ni* root that connotes *by which sentences and words could be interpreted as having one particular meaning and not another*. This Sanskrit root suggests that Nyay remained a tool to clarify meaning through discourse, which is also consistent with the view that Nyay is an off shot of Vacch-Nay. Possibly it is also the sense in the following mention in Sumarsambhav of Kalidas (ca 400):

udghatado pranavyo yasam nyayais-tribhirudiranam

As implied here it is possible that guided by the *ni* root Nyay also became a tool to clarify etymological bases of words. Although accent and grammar are critical for effective communication, it is certainly not the intent and purpose of Gautam Nyay Sutr.

Who was Akchpad?

The text of Nyay Sutr was assembled by Akchpad sometimes after -200 BC. Virtually nothing is known about Akchpad. The interpretive latitude of anecdotes about the etymology of the word Ackhpad provides some insight into the attitudes. The name Akchpad literally means "eyes on feet" - possibly in the sense of 'see where you are going'. According to a legend in Nyay-Kosh a sage was so deeply engrossed in contemplation that he fell into a well. After being rescued, a God mercifully provided him with a second pair of "eyes on his feet" (literal for *akch-pad*). A more subtle interpretation of Akchpad in the broader context of reasoning would be that *one needs more than just a pair of eyes on the head to bring expectations in line with reality*.

Another legend is about Vyas who organized and scribed Mahabharat on the basis of the popular stories. It is said that when a logician visited Vyas condescended by looking at the logician not through his natural eyes but with a new pair of eyes (*akch*) on his feet (*pad*). It is a 'lowly' form of acknowledgement (in the sense of *my foot*), possibly in reference to his own flight of imagination. Although Vyas vilified Nay, he took help of such methods to organize the rambling ancient thoughts from scores of Upnishads into a narrative of Vedant Sutr. Even in the Vedantic tradition, Nyay found a place in elaborating (seeing as in eyes) steps (*pad*) of an argument or an imaginary construct. Recall that after -500 BCE Varanasi was a stronghold of the logicians of all stripes. There is a legend that on his first visit Vyas was thrown out of Varanasi for criticizing the logicians. Even now, in a festival celebrated every year in Varanasi, "Vyas" is carried in a palanquin away from the spot known as "Well of Knowledge," and then brought back.

In the sense of *watch where you are going*, these anecdotes appeal for keeping arguments grounded in reality while the 'head in the clouds' may be concerned with other issues. In the spirit of the interpretive latitude common in the interpretation of scriptures (*Shrut*), these anecdotes juxtapose logic against imagination and personal insights. In Nyay Sutr Gautam noted that such interpretations have little validity for reasoning or validation because they do not affirm or refute a specific assertion.

Chapter 2

What is Interpretive Translation?

Understanding thought requires interpretation. Goal of interpretive translation of the works on this site is to introduce the thought and reasoned approach to the content in a contemporary context. It may be emphasized at the outset that to the best of my knowledge hardly any Western approach exceeds the rigor, depth, and scope of Nay reasoning affirmed by evidence.

Secular reasoning transcends time and space. The Nay approach for reasoning about the content and context of a concern spans several millennia. A major challenge in bringing the ancient works in a modern form is to provide conceptual continuity while overcoming limitations of language and social context. As anticipated in these works transfer of thought over time and place compromises subtle nuances of language, meaning and the way of reasoning.

My main goal is to bring out the conceptual continuity while staying within the bounds of the content. Often it is necessary to overlook linguistic purity that may be a part of the formulation of the sentences. My choice of the interpretative word equivalents is summarized in the [Glossary](#). These choices are based on the concept space of the word usage now in a comparable context, rather the literal meaning. . Without changing the sequence of the sentences and steps of the text, I have also introduced the chapter titles and sub-heading to identify certain short range themes. Taking cue from the tools of reasoning formalized by Gautam, I have used direct active form of expression. Often it facilitates the focus on the continuity of meaning and thought in relation to the content and causality. It required significant departure from some of the linguistic practices prevalent in the ancient writings. I have not relied on any of the ancient or modern commentaries, which I believe do not communicate the remarkable simplicity and depth of the approach to reasoning.

On the whole the works in this series show a remarkable conceptual continuity with an affinity for the modern secular way way of reasoning. By recognizing

relevance to ones own way of reasoning (contemplation and meditation) one begins to appreciate deeper roots of the process in the working of the human mind. Yet I believe that a strict adherence to the assumptions behind Nay reasoning takes the process father.

Chapter 3

What is Nay?

According to the Nay tradition the business and purpose of living is to respond to the environmental inputs. Language communication of the cognized inputs plays a role in the individual as well as shared interpretation and validation. Perceptions guided by valid cognition ward off contradiction and inconsistent behaviors. Valid perceptions guide individuals towards successful behaviors (See Jeevatthan on this site).

Natural languages of the pre-Aryan India are called the “The Prakrits.” They form the ancient roots of many of the regional languages of modern India that have been purified (literally Sanskritized) to varying extents. Currently available ancient Prakrit literature is extensive (Varni, 1997) that has attracted little attention from the Western Scholars. Breadth and depth of the Nay literature rivals the Nyay material where the art of inference has become a tool for the ad hoc.

Nay is a Prakrit word for boat or ferry. *Like a boat, Nay devices ferry reason from one point of certainty to another.* In another ancient language Pali Nay relates to leading to, instruction, plan, method, way, manner. Thus based on certain key assumptions, in the sense of *na-ayam* or *nayati neti* the Nay reasoning directs cognition from one affirmed assertion to the next:

1. Assertions verified by evidence (*paman* or *praman*) form the basis for verifiable constructs.
2. External evidence is the awareness of sense inputs *from all that lies in front of eyes* (*Pratyakch*). Its awareness is cognized in conjunction with the internal evidence *from all that lies behind the eyes* (*Parokch*).
3. All individual concerns are the response of the internal self to the external inputs.
4. On the basis of evidence a concern is established on the basis of certain criteria and characteristics.

5. A concern is affirmed by shared cognition and validated by external evidence.
6. A concern remains defined and viable as long as the inputs and outputs are in balance, i.e. the content and meaning are conserved.
7. Lack of affirmation is not the negation of a concern. Independent evidence is required to affirm the negation of a concern.
8. The term unknown or not-known is applied if certain characteristics of an established concern are not known.
9. Behavior of a concern may be inconsistent with established behavior of the class.

With such assumptions a viable concern and its parts can be manipulated for reasoning. A whole class of concerns is beyond rational consideration. As the constructs rooted only on the internal evidence such concerns lie in a fictional representational space of the coordinates, time, or language. With such figments of imagination one gets only what one puts in. They have undefined concept boundaries with only the assumed characteristics, attributes, and behaviors without any independent verification. Such expressions are self-referential, that is their behavior can not be independently established, i.e. they can neither be affirmed by evidence nor they are falsifiable. Also there is no point of a concern claimed to be beyond human reason.

Breaking away from the binary of Dead or Alive

The binary Aristotelian or Boolean logic as well as the Hindu Nyay interpretations also lack validation by independent affirmation and independent negation that is required for the Nay interpretations. For example, with common sense it is easy recognize the contradiction in an assertion that invokes dead *and* alive to the same body in the same space and time. However the ambivalence of dead *or* alive can only be resolved by reasoning with suitable evidence. A body is considered alive if a set of attributes are affirmed. However, a lack of one or more of these attributes does not lead to the characterization of the body as not alive. Such intermediates states include unconsciousness, or trans, or even the sleep. A body with failed heart, or dead brain, or in a state of coma may require more specific evaluation of the attributes and symptoms. Such states may be characterized not-alive or not-dead, or not-alive and not-dead!

An effective use of the **Not** operator in a complex world requires affirmative evidence for the pro as well as the con of each assertion. The *con* (opposite, reverse, converse) is not

necessarily implied if the evidence for *pro* is not affirmed. Independent evidence is required to negate "it is not alive" and then a positive evidence for "it is dead" by such and such criteria.

Effective use of **Not** and **All** operators in conjunction with **And** / **Or** is absolutely crucial to effectively identify contradictions, inconsistencies, and paradoxes. By breaking away from the binary of dead or alive (inevitable), more tangible concerns emerge about the transitional and the intermediates states and relations of self with the other.

A concern affirmed by evidence has defined boundaries. Such a pieced together script may appear blurred but the reasoning moves with a sense that each of the affirmed constructs is within the limitations of identified reality. What lies outside the boundary is not affirmed by evidence. Also the evidence that affirms a construct does not affirm or negate anything that may or may not lie outside the defined boundaries.

Chapter 4

The External World is Real

Real world, howsoever complex, has certain attributes: It is neither contradictory nor inconsistent; it is neither it is created from nothing nor does it disappear into nothing. All searches to grasp real world begin with incomplete evidence. Also the real time decisions are based on incomplete information.

These assumptions apply to all searches because they are consistent with each other and also with the working of the real world. Such reasoning is built from assertions affirmed by direct independent evidence wards off contractions. Most often we verbally communicate reasoning. Consider the role of evidence in the transition from grunt to a dialog where a transition from reaction to measured response is the beginning of the resolution aided by contemplation and mediation. With the assumptions that world is knowable it is necessary to define the problem. Consider one such ancient construct to define the cycle of expectation to address desires and choices that continue to be at the heart of the perpetual search for happiness: *In the remote past, complete harmony prevailed among all beings. They had no desires as everything was provided for and all wishes were satisfied. Things changed when needs, wants became manifest. Ownership resulted as desires took hold. Worries about family required private property. Struggles and disputes required law and authority. Justice was needed to fairly resolve disagreements and conflicts. This required sharing of what one possessed and earned.*

It elicits curiosity and awe without a fear of unknown. With this attitude even a complex world does not remain shrouded in mystery. When in doubt, compassion is preferable to reverence.

Chapter 5

Methods of Reasoning

At some fundamental level the self-contained grammar of thought is inherent in natural languages that provide a structure to shared reasoning. Evidence-based reasoning based on mutually agreed methods, rules, strategies, algorithms and syllogisms validate parts of the awareness of a concern to formulate a construct of cognitive inference.

I know of no single English, Hindi, or Sanskrit word that incorporates the scope of *Nay*. Its concept space is rooted in the reality that contributes characteristics, attributes and criteria to identify, define, organize, categorize, and manipulate parts and relations for reasoning. Both direct and indirect evidence validates a construct that can be cognized and refined by methods that include grammar of conventions, algorithms, syllogisms, and whatever else leads to rule-based certainty. Such shared knowledge evolves with active, questioning, and inquiring scrutiny. Several related terms may be noted:

Tark is logical deduction from the known parts of facts and relations with defined concept boundaries.

Anvishiki is rationalization with a priori (Vedic) or ad hoc (Iswar) assumption of omniscience or creator. Such approaches tend to selectively evaluate evidence with self-referential rationalizations, such in the *Just punishment by god.*

Shrut: Oral tradition interpreted as 'Truth' or faith-based beliefs. Akbar observed: *As for the need of argument, if traditionalism were proper, the prophets would merely have followed their own elders and not come up with new insights.*

Vacch Nay or Nyay(a) is the road-map for discourse to validate assertions. It has emerged as the main-stay of Nyaya that is often misinterpreted as the Indian logic. A search for consistency through dialog helps in bringing out an inference on the basis of the pro and the con evidence. It is with the realization that the surest method to resolve conflict is to arrive at the essence of an argument. Modern variations on this theme include the legal systems that deliver a standard of justice in reference to a set of rules

and past practices that are extensions of the moral a priori. As for the philosophical goal of *search for the truth*, the vacch-nay position is that one can be truthful to the extent that one has belief in the parts and the assumptions.

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The scope of Nay can be appreciated through some of the terms that appear in the work of Gautam and Akilank:

Anekant: Multiple possible states and relations that can not be distinguished on the basis of available evidence.

Anugam: Reasoning with represented parts (analysis).

Atm: Individual identity of a living being.

Bhranti: Confusion or make-belief.

Darshan: Insight (not necessarily a philosophy or a point of view)

Eekant: A single state irrespective of relations.

Hetu: Relevant and relevance (**Hetutv**) of a concern, subject, cause or outcome. In Nyay it is mis-interpreted as the cause in the cause-and-effect. Others have also interpreted Hetu as the distinguishing attribute (for which the appropriate word is **ling**), or as the sum of intent, purpose and objective (in Hindi).

Praty-abhigyan: Cognition from the sum-total of the evidence.

Swa-rupana and **Pra-rupana:** Representation of the self and the other.

Vyabhichar: Contradiction.

Chapter 6

Knowing: A Problem of Measurement

We know discrete parts. And we understand the world if we can examine and manipulate its parts. Thus curiosity driven meaningful searches involve question that begin with what, when and where.

what (individual, entity, category, content)

where (distribution in space)

when (in time)

Realistic and sensible answer follows if a question is meaningful in relation to the known measures, standards, and rules. Such answers must address identified doubt or uncertainty in relation of the cognized state. A broader context for the assertion of *what is it* or *what is it about* is often built into representations. Boundaries of cognition are further explored through the how questions as in:

how large or long (size)

how many (count in numbers)

how far

how long ago (time duration),

Conceptual grasp of answers to such questions takes a measure of the extant reality, and what may or may not lie beyond. Such cognition is **reaffirmed** by answers to:

who says so?

why should you trust?

what is it good for?

Concept **development and evolution** begins with:

how does it work?

is it always so?

how do you know?

Such questions also expose sophistry in *my child is most intelligent, my wife is most beautiful, my god is the only one*. "Why am I here" is sophistry to examine your own intent and purpose.

Not every grammatically correct word construct is a legitimate question. Not even all the questions of a child are curiosity driven. Then there are classes of the *why* questions. The most meaningful of these pertain to what and how as in:

How we came to be in this situation?

What am I doing here? How we do it?

What we do?

Why we do it?

Even other "W" questions can be turned into the impasse of "why" as in the following riddle or paradox (?) attributed to King Solomon:

That which has come to be,

that is what will come to be;

That which has been done,

that is what will be done;

And so there is nothing new under the Sun.

[See also Essays in Chapter B of Jeevatthan.](#)

Chapter 7

Basis of Nay Approach

Nay does not delve into the realm of "Why." At some hypothetical level the transition of the awareness of the sense inputs to cognition is apparent in all Nay works. Here why is a part of the *parokch* (behind the eyes) that is referred to as the functions of mind as in recall, upbringing, experience, awareness, cognition, insight and perception. Thus the overall purpose of reasoning is to process awareness into cognition to arrive at valid perceptions to guide future behaviors.

Nay reasoning seeks empirical consistency through the representational space of a concern. This space includes not only the space and time continuum but also the representational space of the language and other abstract media. Like the limitless space-time continuum, playfulness of mind with concepts has virtually infinite latitude for imagined and ad hoc conceptions. Like a child at play, based on the hypothetical purpose and the available resources we continuously redraw boundaries in the boundless space-time-concept continuum.

That may not be the purpose of reasoning by trial and error. However the goal of such reasoning is to arrive at a valid construct that does not contradict any other valid established construct nor is it inconsistent with itself. As Aklank puts it after that the process is like a creeper that grows into all the spaces that it can reach. It does so by addressing areas of doubt against the backdrop of established knowledge as the complex worlds are defined and redefined through hierarchical relations.

The useful constructs of our concerns have practical limits. In search of wider consistency with the extent reality Nay reasoning relies only on interplay of the sense organs and the mind. This is the only way in which we interact with the entities and events of the external world. It also tends to suffer least from defects because the resulting constructs must conform to external evidence as they are interpreted for generalizations. The generalized constructs can be scrutinized and validated by others by inductive and deductive methods. No matter what all constructs are subject to

refutation in terms of the emerging evidence. Even the imagined constructs are guided by the conventions and criteria that seek tangibility not only in the physical reality but also in terms of the usefulness of their representation.

Hall-mark of reasoning is in its simplicity, and its clarity is in the struggle between thought and language. Continuity and consistency of thought is built through conventions of representation. Reasoning draws on it in relation to the matrix of mind on the basis of which we interpret and reconstruct the sense inputs. Such reasoning creates value for the organism. Thus algorithms and syllogisms for reasoning are rooted in the grammar as well as the mathematical forms which build tangible relations that complement each other and are not inconsistent with each other. Through personal searches we seek to understand the meaning and significance of our perceived concerns. Just as illusions corrupt awareness, paradoxes emerge on the way to cognition, and perceptions are colored by wistfulness.

Social discourse facilitates cognition based on shared evidence and concerns rooted in external reality. All constructs remain provisional, and subject to continuing verification and validation. A construct assumes appearance of tangibility by ruling out contradictions, inconsistencies and paradoxes. For the long haul viable reasoning is guided through matrices of abstractions and idealizations as the search for liabilities continues through practice. Such limits to perception of the *self* and *the other* are abstracted from the range of observed behaviors (Jeevatthan), which is the theme of all the material on this site, and possibly the *itthivay*.

It is a common experience that the appeal of pure idealizations begins to fade away as it comes in touch with the ugliness of reality. In weeding out contradictions evidence-based thought explores limits of idealizations. On the way shared thought encounters doubt and uncertainty (*syad*), as well as wishfulness and other extraneous influences on the constructs of our minds. Probable range of tangible behaviors emerges from the consideration of multiple characteristics (*anekant*) of an entity. For example, all humans have certain distinguishing characteristics (*ling*) of the human class (*jati*), yet no two individuals have exactly identical set of all the characteristics (*lakshan*) related to gender, color, citizenship, education level, innate intelligence, health status, interests,

faith, relationships, interdependence, food habits, and whatever else. Such characteristics may have relevance (*hetutv*) in particular contexts.

Certainty is desirable because lottery ticket is not a good business plan and miracles can not be relied on. Constructs that can not go wrong within defined boundaries are useful to evaluate the meaning and significance of the experience. Such constructs encourage practices based on the continuity of validated thought. Practice is the only way to find the devil that may be lurking in the detail. Certainty of criteria and practice based construct tends to facilitate transition of reasoning to justified beliefs.