

ANCIENT INDIAN VIEW OF ONTOLOGIES

EXPLORING CONCEPTS OF BEING, EXISTENCE, AND CATEGORIES

PHILOSOPHICAL SYSTEMS (ASTIKA) (DARŚANAS)

NYĀYA
(LOGIC)



VAIŚEŚIKA
(CATEGORIZATION)



SĀṆKHYA
(DUALISM)



YOGA
(MEDITATION)



MĪMĀṆSĀ
(RITUAL/EXEGETICAL)



VEDĀNTA
(NON-DUALISM)



KEY ONTOLOGICAL CATEGORIES (e.g., VAIŚEŚIKA PADĀRTHAS)

1. SUBSTANCE
DRAVYA - Earth, Water, Fire, etc.



2. QUALITY
GUṆA - color, shape



3. ACTION
KARMA - motion



4. GENERALITY
SĀMĀNYA - Universal



5. PARTICULARITY
VIŚEṢĀ - Specific



6. INHERENCE
SAMAVĀYA - Essential connection



7. NON-EXISTENCE
ABHĀVA

METAPHYSICAL CONCEPTS

BRAHMAN
(ULTIMATE REALITY)

ĀTMAN
(SELF)

PRAKRTI
(NATURE)

PURUṢA
(CONSCIOUSNESS)

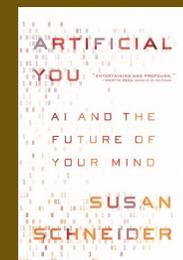


Ram D. Sriram, Ph.D.

Evolution of AI

- Prehistory (Paleolithic: Indian and Greek Philosophies; Neolithic: Hume, Russell, Turing, Others)
- The Beginning (1956: AI coined at Dartmouth Conference)
- Early years and Rise of Knowledge Systems (1957 – 1980: GPS, Dendral, Hearsay, Macsyma, Mycin, Shrdlu, Shakey, etc.)
- Knowledge is Power & Early Neural Networks (1980 -- 1990: The first wave/revolution)
- The Silent Period (1990 – 2000: Deep Blue, Rise of Robots, Commercialization of AI technologies, e.g., Speech Recognition)
- Neural Networks to the Fore (2000 – 2015: The second wave/revolution: Deep Learning)
- Symbiosis of Neural and Knowledge Networks (2015 –2025): Explainable AI, OKN, etc. – The third wave/revolution)
- The Conscious Machine (2025 -- ?? -- The fourth wave/revolution: Tsunami)

(see also Henry Kautz's talk: <https://www.cs.rochester.edu/u/kautz/talks/index.html> and associated paper: <https://onlinelibrary.wiley.com/doi/full/10.1002/aaai.12036>)



'TAXONOMY OF ANCIENT INDIAN PHILOSOPHY'

ANCIENT INDIAN PHILOSOPHY

ĀSTIKA

NĀSTIKA

Orthodox Schools:
Accept the Authority of
the Vedas as Divine
Revelation.

Heterodox Schools:
Reject the Authority of
the Vedas as the Ultimate
Source of Knowledge.

NYĀYA
(Logic & Epistemology)
Principal Author:
Gautama
(Akṣapāda Gautama)

VAIŚEṢIKA
(Atomic Metaphysics)
Principal Author:
Kaṇāda
(Ulūka Kaṇāda)

SĀṂKHYA
(Dualism)
Principal Author:
Kapila Muni

YOGA
(Spiritual Discipline)
Principal Author:
Patañjali

MĪMĀMSĀ
(Vedic Ritualism)
Principal Author:
Jaimini

MĪMĀMSĀ
Author:
Śaṅkarācārya
Author:
Rāmānujācārya
Author:
Madhvācārya

VEDĀNTA
(Ultimate Reality)
Original Author:
Bādarāyaṇa
(Veda Vyāsa)

ADVAITA
(Author: Śaṅkarācārya)
VIŚIṢṬĀDVAITA
(Author: Rāmānujācārya)
DVAITA
Dualism

CĀRVĀKA
(Materialism)
Principal Founder
(Attributed):
Bṛhaspati

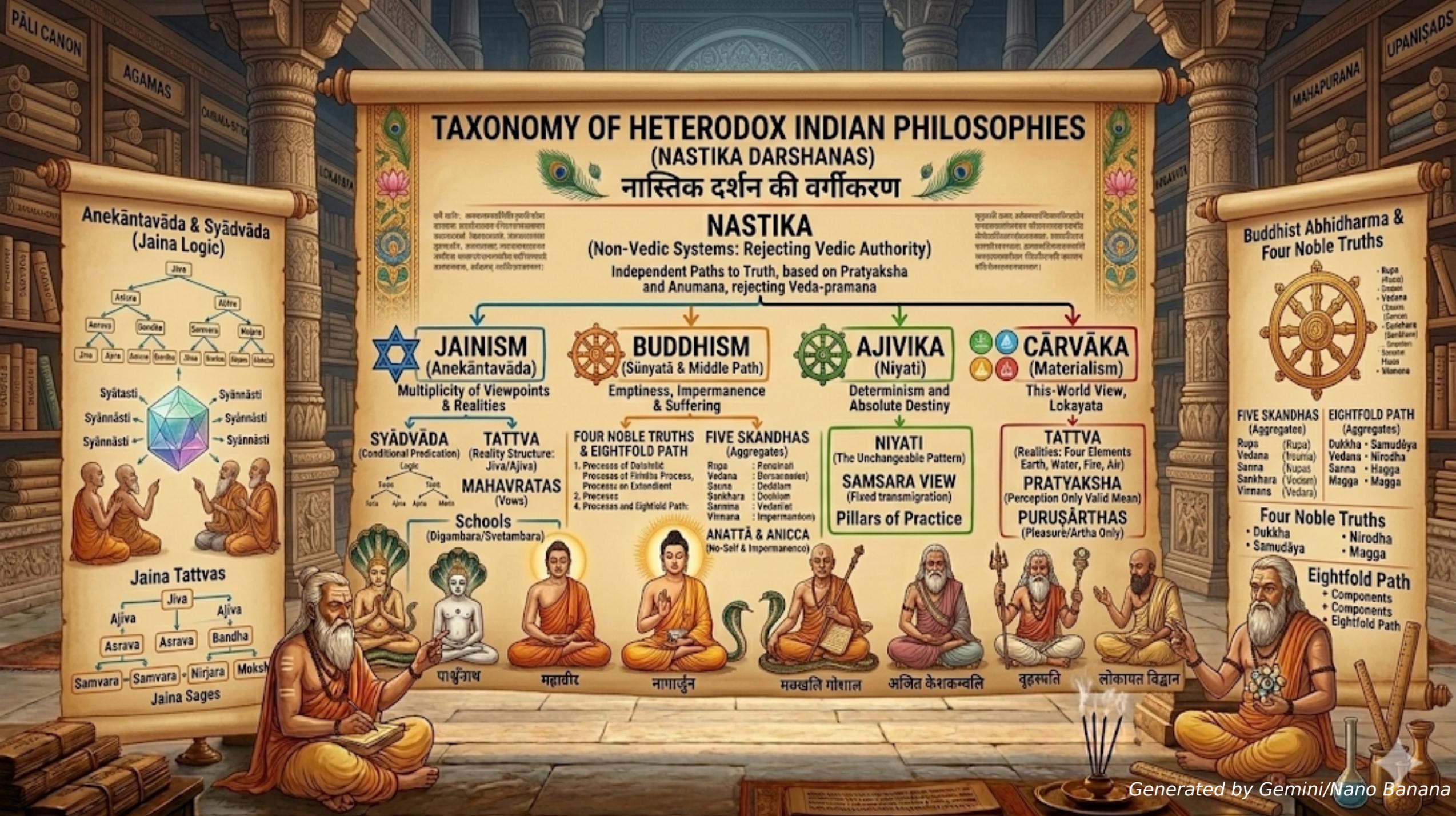
BUDDHISM
(The Middle Way)
Principal Founder:
Siddhartha Gautama
(The Buddha)

JAINISM
(Path of Non-violence)
Key Propagator
(24th Tirthankara):
Mahāvīra

ROOTS IN SANATANA DHARMA

Comparison with Modern KR Schemes

Concept	Vaisheshika (Ancient India)	OWL / Semantic Web (Modern KR)
The Base Object	<i>Dravya</i> (Substance)	Individual Class
Its Unique ID	<i>Vishesha</i> (Particularity)	URI (Uniform Resource Identifier)/Instance
Its Class/Type	<i>Samanya</i> (Universal)	owl:Class / rdf:type
Its Attributes	<i>Guna</i> (Quality)	owl:DatatypeProperty
Its Relationships	<i>Samavaya</i> (Inherence)	owl:ObjectProperty (isPartOf)
Its Operations	<i>Karma</i> (Action/Motion)	Process / Function
Its Null States	<i>Abhava</i> (Absence)	Negation / owl:complementOf



TAXONOMY OF HETERODOX INDIAN PHILOSOPHIES

(NASTIKA DARSHANAS)

नास्तिक दर्शन की वर्गीकरण

NASTIKA

(Non-Vedic Systems: Rejecting Vedic Authority)

Independent Paths to Truth, based on Pratyaksha and Anumana, rejecting Veda-pramana

ये दर्शन वेद, उपनिषदों की प्रमाणिता को खारज करके वैदिक प्रमाणों के बिना ही सत्यता की खोज करते हैं। वे प्रत्यक्ष (Pratyaksha) और अनुमान (Anumana) के माध्यम से सत्यता की खोज करते हैं।

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JAINISM (Anekāntavāda)

Multiplicity of Viewpoints & Realities

SYĀDVĀDA (Conditional Predication)
TATTVA (Reality Structure: Jiva/Ajiva)
MAHAVRATAS (Vows)

Schools (Digambara/Svetambara)



पारश्वनाथ



महावीर



नागार्जुन



BUDDHISM (Sūnyatā & Middle Path)

Emptiness, Impermanence & Suffering

FOUR NOBLE TRUTHS & EIGHTFOLD PATH
1. Process of Dukkha
2. Process on Extinction
3. Process of Samsara
4. Process and Eightfold Path

ANATTĀ & ANICCA (No-Self & Impermanence)



महाराज



AJIVIKA (Niyati)

Determinism and Absolute Destiny

NIYATI (The Unchangeable Pattern)
SAMSARA VIEW (Fixed transmigration)
Pillars of Practice



मखलि गोशाल



अजित केशकम्बलि



CĀRVĀKA (Materialism)

This-World View, Lokayata

TATTVA (Realities: Four Elements Earth, Water, Fire, Air)
PRATYAKSHA (Perception Only Valid Mean)
PURUṢĀRTHAS (Pleasure/Artha Only)

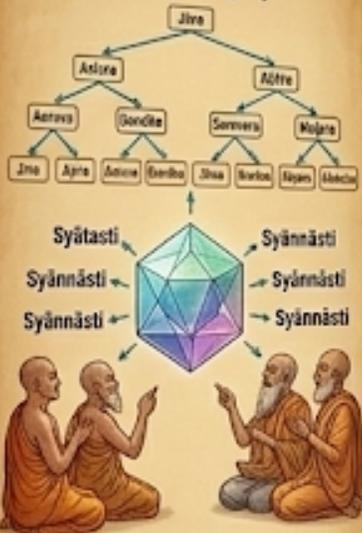


पुरुषपति



लोकापत विद्वान

Anekāntavāda & Syādvāda (Jaina Logic)



Jaina Tattvas



Buddhist Abhidharma & Four Noble Truths



- Rupa (Form)
- Dharma (Law)
- Vedana (Sensation)
- Sankhara (Formations)
- Samsara (Cycle of Birth and Death)
- Suffering
- Ignorance
- Wisdom

FIVE SKANDHAS (Aggregates)
Rupa (Rupa)
Vedana (Vedana)
Sanna (Nupas)
Sankhara (Vedana)
Vinnana (Vedana)

EIGHTFOLD PATH (Aggregates)
Dukkha • Samudaya
Vedana • Nirodha
Sanna • Haggā
Magga • Magga

Four Noble Truths
• Dukkha
• Samudaya
• Nirodha
• Magga

Eightfold Path
+ Components
+ Components
+ Eightfold Path

Multiple Perspectives: Truth in Jain Philosophy

- The Jain philosophy believes that "Absolute knowledge (even if we possessed it) could not properly be communicated using limited concepts, all claims should be seen as relative and provisional, and apparent contradictions may simple be the result of differences in perspectives.
- Suppose I look at a tree, I may say:
 1. There is some useful shade or shelter;
 2. That would be good to climb;
 3. There is some useful timber;
 4. It is an Oak;
 5. It has grown since I saw it last;
 6. It will have to be felled.
- Each of these perspectives is valid, whether it is concerned with past, present or future, and whether the tree is seen in itself (and categorized in terms of species) or simply viewed as a commodity or source of entertainment or comfort. Each has an element of truth, but each is limited by its particular perspective. Of course, I may be mistaken -- the tree is a beech rather than an oak -- but that may not invalidate the other statements about it."

Category Theory And Ancient Indian Philosophy

Modern Category Theory	Ancient Indian Philosophy	Conceptual Link
Objects defined by Morphisms	Buddhist <i>Pratityasamutpada</i>	Reality is relational; entities have no isolated internal essence.
Functors	Nyaya <i>Vyapti / Udaharana</i>	Truth-preserving mappings of structure from one domain to another.
Topos Theory	Jain <i>Syadvada / Anekantavada</i>	Truth is dependent on the specific logical universe/standpoint.
Categorical Logic	Vaisheshika <i>Padarthas</i>	The formal structuring of universals, particulars, and properties.