

# ***'Tarkapaddhati'* in Indian and Western Philosophy**

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## **Abstract**

*Tarka, a cornerstone of Indian epistemology, is a critical tool for understanding the true nature of objects and refining reasoning processes. In parallel, Western logic employs formal rules, symbolic notation, and mathematical language to evaluate the validity of arguments. This article explores the similarities and differences between Indian and Western logic systems, focusing on their methodologies, principles, and contributions to reasoning. Indian logic integrates deductive and inductive methods as complementary processes, prioritizing practical applicability and contextual understanding. In contrast, Western logic, rooted in Aristotle's syllogistic framework, emphasizes formal rigor and deductive reasoning. By examining unique elements such as upanaya and udāharāṇa in Indian logic and comparing them with Western approaches, this study highlights their respective strengths. The analysis contributes to cross-cultural philosophical discourse, fostering a deeper appreciation of these intellectual traditions in the context of reasoning.*

**Keywords:** *Tarka, Tarkapaddhati, Western Logic, Indian Reasoning, Inference.*

## **Introduction**

Philosophy has a rich and long-standing tradition of debate and dialogue. These debates and counterarguments have consistently relied on tarka or reasoning. The reliance on logical discourse has significantly contributed to the development of philosophy. In the Indian tradition, the concept of *tarka* can be traced back to the term *ūha* used in the R̥gveda Saṁhitā to resolve the ambiguous meanings of hymns through intellectual and mental activity. This concept has been extensively discussed and gradually developed in texts such as the Upaniṣads, Caraka Saṁhitā, Arthaśāstra, and various philosophical treatises.

The term '*Tarka*' is commonly associated with confutation, reasoning, or argumentation. Its etymology reveals an intriguing insight. Linguistically, tarka is derived through the transposition of the verbal root *kṛt*, meaning "to cut." Thus, tarka serves as an instrument for "cutting" or refuting an opponent's arguments, a role it prominently plays in the art of debate. Grammatically, tarka originates from the root *tarka*, which encompasses meanings such as assuming, inferring, supposing, and guessing. (Satyamurti 2015: 1) Ancient texts like the Upaniṣads and Smṛtis employ

the term in these various senses. For instance, the Kaṭhōpaniṣad uses tarka to imply inference, asserting that Supreme Knowledge cannot be attained through mere inference.<sup>1</sup> Conversely, Manu employs the term to signify reasoning, emphasizing that the one who discerns righteousness does so through tarka.<sup>2</sup> In practice, the term tarka has been used flexibly, referring to both inference and reasoning or argumentation. Terms such as nyāya, upapatti, anumāna, ānvīkṣikī, and abhyūha are often used interchangeably to express these meanings. It is worth noting that in the technical domain, tarka is sometimes associated with the padārthas (categories) in Nyāya-Vaiśeṣika treatises like Tarkasamgraha and Tarkabhāṣā.<sup>3</sup> However, this broader sense of tarka is not the focus here. In the strict technical sense found in Indian epistemological texts, tarka is understood as an accessory to the means of valid cognition (pramāna), as developed by the Naiyāyikas. (Satyamurti 2015: 2) In this context, it is specifically analyzed within the framework of the science of argumentation, emphasizing its role in ascertaining and validating knowledge.

So, Reasoning serves as the cornerstone of philosophical inquiry, aiding in the establishment of truth and the resolution of intellectual dilemmas. While Indian and Western traditions of logic share some common goals of systematic reasoning, their methodologies, objectives, and theoretical foundations differ significantly. Indian logic intertwines with metaphysical and spiritual goals, aiming for liberation (niḥśreyas) and the alleviation of suffering (duḥkhatraya). In contrast, Western logic is primarily concerned with intellectual curiosity, seeking to unravel the principles underlying the observable universe and rendering them comprehensible. The objectives of this research include exploring the foundational principles and methodologies of Indian and Western logic systems, analyzing their similarities and differences, evaluating their practical applications and theoretical implications, and contributing to cross-cultural philosophical discourse by highlighting the strengths of each system. To achieve these goals, the study employs a comparative and analytical approach. Primary texts such as the Nyāya Sūtra, Nyāyabhāṣya, Nyāyalīlāvati, Praśastapādabhāṣya, Brahmasūtraśāṅkarabhāṣya, Sāṁkhyakārikā, Vaiśeṣika sūtra, Śābarabhāṣya, etc and the works of Aristotle, John Stuart Mill, Stebbing, etc, as well as many secondary texts, form the basis of this analysis. The methodology involves juxtaposing Indian concepts like tarka, anumāna, nyāyavākya, and upanaya with Western syllogistic structures and inductive methods, contextualizing their philosophical and cultural backgrounds, and critically evaluating their applicability and refinement.

### ***Bhāratīya Tarka: Definition, Framework and Features***

Among Indian philosophical systems, the Nyāya philosophy provides a comprehensive account of the reasoning process. According to Nyāya, tarka is a form of deliberation (ūha) for determining the specific nature of an object, whose real nature is yet to be known by pointing out the real ground for it.<sup>4</sup> Tarka is the name of

<sup>1</sup> naiṣā tarkeṇa matirāpaneyā - Kaṭhōpaniṣad; 1.2.9

<sup>2</sup> arṣam dharmopadeṣam ca vedaśāstrāvirodhinā/ yas tarkenānu-sandhatte sa dharmam veda netaraḥ// Manusmṛti; 12.106

<sup>3</sup> tarkāḥ sodaśapadārthāḥ, te bhāṣyante anayeti Tarkabhāṣā - commentary on the Tarkabhāṣā

<sup>4</sup> avijñātattatve'rthe kāraṇopapattitastattvajñānārthamūhastarkaḥ. Nyāyasūtra; 1.1.40

indecisive reasoning before the nature of a subject is determined. Since there is no definite knowledge in it, it is not called tattvajñāna or valid cognition (pramā).<sup>1</sup> According to Nyāyalīlāvātikāra, 'After accepting one property, there is tarka in the form of definite attainment of another property.'<sup>2</sup> Similarly, Vaiśeṣika commentators like Praśastapāda<sup>3</sup> and Śaṅkara Miśra<sup>4</sup> have referred to tarka as anadhyavasāya. According to Maṇikaṅṭha Miśra, logic is defined by vyāpyāropatvāvachchinnakāraṇatā-pratiyogikakāryatāśrayavyāpakāropatva.<sup>5</sup> The importance of tarka is also acknowledged in other Indian philosophical systems, including Buddhism, Jainism, Mīmāṃsā, and Vedānta. Ācārya Śaṅkara, in particular, upholds the importance of tarka validated by śruti.<sup>6</sup>

Tarka generally serves two primary functions: (a) Supporting one's own position (svapakṣa) and (b) Identifying flaws in the opponent's position (parapakṣa). In Indian philosophy, the development of these methodologies draws upon processes of inference (anumāna) and the system of logical syllogisms (nyāyavākya). The founder of the Sāṅkhya school, Maharṣi Kapila, describes inference as the knowledge of the probandum (pratibaddha) through observation of the pervasion (pratibandha).<sup>7</sup> According to Vijñānabhikṣu, inference involves gaining knowledge of the probandum or major term (sādhya) through the knowledge of invariable concomitance (vyāpti), while human cognition (pauruṣeya bodha) is considered a form of memory.<sup>8</sup> Īśvarakṛṣṇa similarly bases inference on the relationship between the proban(liṅga) and the probandum(liṅgi).<sup>9</sup> In the Vaiśeṣika system, inference arises when one observes specific proban such as effect, causality, contacted (saṁyogī), or inherent (samavāyī) and derives knowledge of their corresponding probandum.<sup>10</sup> The Nyāya Bhāṣya of Vātsyāyana defines inference as knowledge of the probandum through the recognized proban (liṅga).<sup>11</sup> Similarly, Keśava Miśra equates inference to knowledge again through confirmatory 'cognition' of proban.<sup>12</sup> According to Śābara Svāmī, a Mīmāṃsaka scholar, inference involves the knowledge of a distant and non-immediate (asannikṛṣṭa) entity (sādhya) based on the observation of a known invariable concomitance (vidita vyāpti sambandha) through observation of proban (liṅgadrṣṭi).<sup>13</sup> In Indian logical systems, logical syllogisms (nyāyavākya) are employed to establish definitive meanings. However, there is diversity among Indian

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<sup>1</sup> Nyāyasūtravātsāyanabhāṣya, page 35.

<sup>2</sup> ekadharmābhyupagame dvitīyasya niyataprāptirūpaḥ. Nyāyalīlāvātī, page 514.

<sup>3</sup> Praśastapādabhāṣya, page 84.

<sup>4</sup> Kaṇādarahasyam, page 115

<sup>5</sup> Nyāyaratna, page 25.

<sup>6</sup> Brahmasūtrasāṅkarakabhāṣya, 2.1.6

<sup>7</sup> pratibandhadṛṣṭaḥ pratibaddhajñānamanumānam. Sāṅkhyasūtra, 1.100

<sup>8</sup> Sāṅkhyapravacanabhāṣya, page 75

<sup>9</sup> Sāṅkhyakārikā 5

<sup>10</sup> Vaiśeṣika Sūtra, 9.2.1

<sup>11</sup> mitena liṅgena liṅgino'rthasya paścānmānamanumānam. Vātsāyanabhāṣya, 1.1.3

<sup>12</sup> liṅgaparāmarśo'numānam. Tarkabhāṣā, page 75.

<sup>13</sup> Śābarabhāṣya, page 36.

philosophers regarding the components of these syllogisms. The Nyāya philosophy identifies five components of a syllogism:<sup>1</sup>

1. Pratijñā (proposition),
2. Hetu (reason),
3. Udāharāṇa (example),
4. Upanaya (application), and
5. Nigamana (conclusion).

Mīmāṃsakas recognize three or four components: proposition, reason, and example, or alternatively, example, application, and conclusion.<sup>2</sup> Vedāntins reject all five components, accepting only the first three or the last three.<sup>3</sup> Chitsukhācārya reduces the components to just two: example (udāharāṇa) and application (upanaya).<sup>4</sup> Buddhist philosopher Dīṇnāga accepts three components,<sup>5</sup> while Vaiśeṣikas retain the the five components from Nyāya but rename them as pratijñā (proposition), apadeśa (statement), nidarśana (illustration), anusandhāna (investigation), and pratyāmnāya (recapitulation).<sup>6</sup>

### **Western Logic: Framework and Features**

Unlike Indian philosophy and logic, which aim at liberating beings from the threefold suffering (duḥkhatraya) and attaining liberation (niḥśreyasa), the purpose of Western philosophy and logic is primarily confined to intellectual inquiry into the fundamental nature of the observable world and rendering it comprehensible to the human intellect. Western philosophy leans heavily towards rationalism (buddhivāda). (Radhakrishnan 1932: 129) Western logic is not the investigation of the desired object through perception, verba testimony, etc. means of knowledge like Indian logic, instead, its roots lie in the Greek term logos, referring to reasoning expressed through language. The primary goal of Western logic is to determine the values of truth through observation, judgments, reasoning, or inference, and logical methods. (Prior 1963: 12) The establishment of the truth of an object through valid reasoning is the essence of Western logic.

In Western thought, a judgment is defined as the combination of observation that reveal the truth or falsity of an object. When expressed through language, this judgment becomes a proposition. However, not all statements qualify as propositions; only those that encapsulate the truth or falsity of an object are considered so. (Ricke and Sillars 1984: 6) Western logic classifies propositions into four types based on quality and quantity:

1. Universal Affirmative,
2. Universal Negative,
3. Particular Affirmative,

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<sup>1</sup> Nyāyasūtra, 1.1.32

<sup>2</sup> Śāstradīpikā, 1.1.5

<sup>3</sup> nyāyo nāma avayavasamudāyaḥ. avayavāśca trayāḥ eva prasiddhāḥ  
pratijñāhetūdāharāṇarūpāḥ udāharāṇopanayanigamanarūpāḥ vā, na tu pañcāvayavarūpāḥ -  
Vedāntaparibhāṣā

<sup>4</sup> Tattvapradīpikā, page 401

<sup>5</sup> Nyāyapraveśa, page 2

<sup>6</sup> Praśastapādabhāṣya, page 186

#### 4. Particular Negative.

Greek philosopher Aristotle, in his work *Analytica Priora*, identified two forms of mediated inference: (Joseph 1859: 185)

- Reasoning from the general to the particular, termed deductive reasoning (nigamana-mūlaka), and
- Reasoning from the particular to the general, termed inductive reasoning (āgaman-mūlaka).

According to Kant, inference involves deriving one judgment from another. John Stuart Mill further elaborates that inference entails discovering new possible truths from known facts. (Mill 1851: 26) According to Stebbing, inference is the process by which the reasoner (anumātā) moves towards a new conclusion based on one or more judgments, deriving it logically and definitively from them. (Stebbing 1942: 212) This form of mediated reasoning, where the argument involves three statements and precisely three terms, is termed categorical syllogism. (Kenage 1884: 239) For example:

All humans are mortal.  
All authors are humans.  
Therefore, all authors are mortal.

In Western logic, the inductive method progresses from the particular to the general. (Ziegelmueller and Kay 1996: 95) A general statement based on the examination of all particular instances is termed complete induction. According to Mill, induction is the process of discovering and proving general propositions.<sup>11</sup> Induction is a method through which we infer that what has been observed to be true in one or more specific cases will also hold true for other cases with similar attributes or not. Conversely, the deductive method in logic proceeds from the general to the particular. (Jensen 1981: 7) In induction, reasoning begins with the observation of specific instances, and based on these observations, a broader general rule is formulated. In deduction, however, the process starts with a universal principle and applies it to individual cases within its scope. Mill further elaborates that induction is the process of discovering new truths, and its essence lies in the novelty of the conclusions drawn. On the other hand, deduction does not aim to discover new truths; rather, it applies a universal truth to its specific aspects. (Singh 2013: 197)

#### **Comparative Analysis & Conclusion**

Indian and Western logic systems share certain similarities but also exhibit significant differences. In Indian logic, the two primary types of mediated inference—deductive (nigamanātmaka) and inductive (āgamanātmaka)—are not treated as absolute or independent systems. Instead, they are seen as integrated and relative methodologies. Deductive inference, devoid of empirical validation, has no inherent value beyond formal consistency, while inductive inference is considered partial due to its reliance solely on specific observations. Aristotle's syllogistic reasoning and demonstrative inferences can be compared to the Indian concepts of parārthānumāna (inference for others) and svārthānumāna (inference for oneself). Both Aristotle's syllogisms and

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<sup>1</sup> *Logic, Part III*, W.F. Johnson, Introduction

parārthānumāna are rooted in verbal expressions, while svārthānumāna and demonstrative reasoning are based on cognitive processes.

Western logic, largely influenced by Aristotle, uniformly supports his definition of inference. However, the nuanced deliberation (ūhāpoh) regarding the characteristics and causes of inference, as seen in Indian logic, is absent in Western traditions. Additionally, Indian logic does not recognize the concept of avyavahita anumāna (immediate inference) prevalent in Western thought, where inference occurs without the need for a middle term. This makes the Indian inference model more refined and original. (Sharma 1973: 465) Most Western logicians recognize three statements in inference: the major premise (sādhya or dīrgha-vākya), the minor premise (pakṣa or laghu-vākya), and the conclusion (niṣkarṣa-vākya). In Indian Nyāya philosophy, the upanaya (application) statement explicitly links the pakṣa, sādhya, and hetu, a feature absent in Western logic. Furthermore, Indian inference incorporates illustrative examples (udāharaṇa) through inductive methods, followed by the upanaya (application) statement to derive conclusions. The process of reaching a decision using nyāyavākya (logical statements) in Indian logic is simpler and more intuitive. However, the examination and testing of logical statements are more exhaustive in Western systems.

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