

1.1 IMPORTANCE OF ANCIENT KNOWLEDGE

Ancient knowledge is the accrued knowledge over several generations and preserved in formal and informal means. Formal means include documented knowledge and informal means include shared values and practices through oral traditions. Sadly, as explained above, ancient Indian knowledge has been relegated to millions of palm manuscripts lying scattered all over the country and it is gathering dust. While several scholars are engaged in the process of bringing the hidden knowledge out of these manuscripts by researching and republishing such works, it does not match the scale required to make a meaningful impact. It is a herculean proposition to uncover the knowledge and bring it to the attention of modern society. On the

- ◆ If the underlying knowledge systems are abruptly withdrawn from society, the cultural practices will be rudely jolted.
 - ◆ Ancient knowledge provides a head start to a society to march on the highway of innovation and new knowledge creation.
- On the other hand, the oral traditions continue in some rural pockets and are at the threat of getting extinct for want of patronage. The question in front of us is, "Does any society need to preserve, protect and pass on the ancient knowledge to the future generations?"

The thinking patterns and the repository of knowledge created by the forefathers in any society enable the current generation to understand the thought processes and frameworks of the previous generations. It will allow them

to analyse the received wisdom in a contemporary context and identify new opportunities to assimilate the accrued wisdom and synthesize new knowledge. Therefore, keeping the current generation in the dark about the contributions of the ancestors is an inefficient, and a short-sighted option for society. Ancient knowledge serves multiple roles for society. Figure 1.1 schematically captures these.

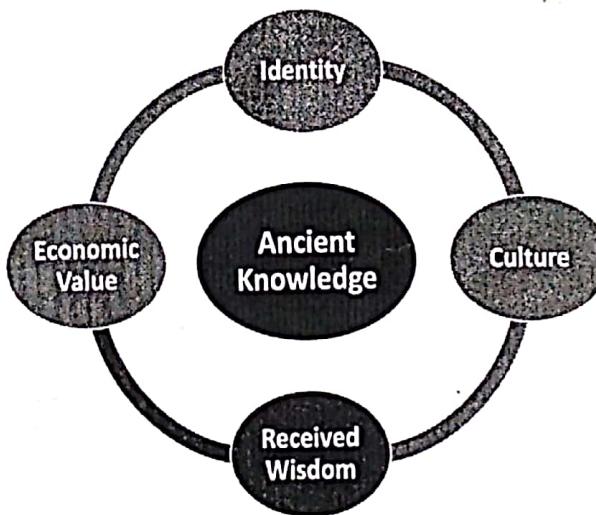


FIGURE 1.1 Importance of Ancient Knowledge

Identity

The quintessential value that ancient knowledge brings to society is the identity it provides to fellow members of the society. Essentially it defines the context for several aspects of the day-to-day living of every individual. The social practices and norms have continuity as most

of them are transmitted from generation to generation through practices and supporting knowledge repositories. Therefore, preserving this knowledge and baton passing them on to the next generation is an important step for contemporary society. In the absence of this continuity, individuals lose their conviction on several living practices. They lose their ability to 'meaning making' of much of the knowledge. Eventually it challenges one's own identity and that of the society.

Culture

Culture has several dimensions. In a direct sense, it is the manifestation of human intellectual achievement regarded collectively by society over time. From a social perspective, culture is nothing but the set of ideas, customs, and behaviour of society. In other words, culture provides a sense of identity at a societal level by providing a common medium for communication and the transaction of ideas. The prevailing knowledge and the literary traditions play a significant role in shaping the culture of the society. If the underlying knowledge systems are abruptly withdrawn from society, the cultural practices will be rudely jolted. It may create distortions and discontinuities in societal progress.

Received Wisdom

Knowledge and innovation are in a continuum. Innovation and new knowledge creation in any society is 'path-dependent'. What it essentially means is that the road travelled so far determines the future path. Without the continuity of thoughts, it is very difficult to make further progress in terms of new ideas. The other equally important issue is the risk of reinventing the wheel. When the benefit of prior knowledge and the thought process is lost by society, it will lead to reinventing the wheel, making innovation and new knowledge creation inefficient. In this context, ancient knowledge plays the valuable role of 'received wisdom' and provides a head start to a society to march on the highway of innovation and new knowledge creation.

Economic Value

One of the compelling arguments in support of the ancient knowledge systems is the huge potential it offers from an economic value standpoint. The emerging world order puts greater emphasis on knowledge society. The prevailing 'military power' will give way for 'knowledge power' and such nations who demonstrate the superiority of knowledge traditions are bound to lead the rest of the world. Transforming knowledge into economic value has been fully formalized with the global intellectual property rights regulations and patent laws. Therefore, the ancient knowledge system will be beneficial to a country like India (see IKS in Action 1.1 at the beginning of the chapter for an illustration of this idea).

'Let us see an example to understand this aspect. The US patent and trademark office granted patent rights on knowledge of the usage of pigeon pea extracts for treating diabetes, hypoglycemia, obesity, and arterio-sclerotic cardiovascular disease (clogged arteries) to Insmed Inc, based in Richmond in Virginia. The company claimed its novelty in the invention of pigeon pea extracts for treating these diseases. In the patent applications, Insmed

- ◆ The prevailing 'military power' will give way for 'knowledge power' and such nations who demonstrate the superiority of knowledge traditions are bound to lead the rest of the world.
- ◆ Unless we preserve the ancient knowledge, we will not be able to prevent the spillover of our economic value arising out of our ancient knowledge.

acknowledged only a handful of uses of pigeon peas in traditional medicines by citing some references of journal articles that appeared in 1957 and 1968 that describe the effects of pigeon pea and its extracts on blood sugar. The patent application did not include references to the traditional use of pigeon peas in the treatment of the mentioned diseases.

Pigeon pea (botanical name *Cajanus cajan*) is commonly known as arhar or red gram in India. There are several instances of the use of pigeon pea extracts in traditional medicines in India. A study of plant medicines by researchers in the department of pharmacology at the All-India Institute of Medical Sciences (AIIMS) tested pigeon pea extracts as they are used to treat diabetes in Ayurvedic medicines. The scientists at the Council of Scientific and Industrial Research (CSIR) observed that there is a need to gather strong evidence from our traditional texts to challenge such patent rights. Unless we preserve and be aware of the ancient knowledge, we will not be able to prevent the spill over of our economic value arising out of our ancient knowledge¹.

1.2 DEFINING INDIAN KNOWLEDGE SYSTEM

Indian Knowledge Systems (IKS) is a generic phrase that covers practically everything about India. For a nation with more than 5000 years of recorded history, abundant cultural and archaeological artifacts, literature, and social and community practices defining what constitutes Indian Knowledge is itself a huge challenge. Literature, cultural and social practices, historical evidence, and other such knowledge assets available in all Indian languages, dialects, and geographical regions will all technically fall under the ambit of IKS. The other aspect of the issue is the time dimension. Knowledge is continuously synthesized by any society. Knowledge assets available in India from the pre-historic times to the current day will all qualify to be part of the IKS. Therefore, it requires an unambiguous scope for defining IKS for this book.

Arguably, IKS can evoke different meanings to different stakeholders. The term IKS has three words in it. To better understand what we mean by IKS in the context of this book, we shall analyse each of these words separately.

Indian

By this term, we mean the indigenous sources of knowledge generated by the Indian society. The current political formation called 'India' is of recent origin and it alone does not qualify to be called 'Indian'. The term 'Indian' points to the undivided Indian subcontinent (Akhaṇḍa Bhārata). We mean the geographical area spanning from Burma on the east to modern-day Afghanistan in the west and Himalayas in the North to the Indian Ocean in the south. This region has common cultural, literary, and social practices, and has witnessed a continuous exchange of people, and ideas among them throughout the history of undivided India. Despite several political formations and princely states ruling this entire region for the last several hundred years until the consolidation begun from the 16th century CE, the society was unified under the common umbrella of social practices. Cāṇakya could get educated in Takṣaśilā in the western part of the sub-continent and be instrumental in establishing a powerful Mauryan empire with Pāṭaliputra as the capital in the Eastern part. Similarly, Pāṇini, a Sanskrit Grammarian from Gāndhāra in the North-Western corner of undivided India (now in Pakistan) could influence the thinking of people in the entire country on the Sanskrit language.

A second aspect to this is only such knowledge synthesized, codified, and made available by the 'Indians' is considered Indian knowledge. This implies that they ought to have been part

of the Indian subcontinent, born and lived there, and are part of the knowledge system in an integral fashion. This is especially important because India witnessed several foreign travellers who visited its universities, stayed for some time and wrote about the country, the knowledge, and cultural practices. These have significantly contributed to the export of this knowledge to the west and other parts of the world. For example, some reports have extensively studied the role of such authors in taking mathematical thinking to the west via the Arab world². These are considered as 'about IKS' rather than IKS itself.

Knowledge

The second component of IKS is 'the' 'knowledge', which is always tacit. It primarily arises in the form of the wisdom of the knowledge seekers. It is obtained by the insights gained by personal experiences with life situations, facing problems, and coming up with means of solving them. At other times, one obtains knowledge by means of intense observation of events, experimentation, conjecturing, and analysis. Knowledge may or may not be converted to a literary format. The tacit knowledge can be preserved and transmitted through an oral tradition without loss. India has a rich tradition of folklore practices even to date, that belongs to this category. While both these forms of knowledge are equally important and valuable it is impossible to formally study knowledge transmitted through oral traditions. Therefore, by 'knowledge', we mean in this book, a formal repository of knowledge available in literary sources.

The tacit knowledge gained by a seeker is eventually transmitted systematically in the form of some 'explicit' knowledge. This happens by way of proposing a new theory, framework, or literary work. Furthermore, knowledge pervades all three domains: spiritual, religious, and others addressing social and day-to-day issues. We can summarise the term 'knowledge' as that emanating from the wisdom and insights arising out of deep experiences, observation, experimentation, and analysis and validated, improved, and augmented further.

System

By 'System' in IKS, we mean a structured methodology and a classification scheme to access the available corpus of knowledge. By its inherent nature, knowledge could be accessed in any manner depending on the interest, purpose, and capacity of the seeker. For an uninitiated, this vastness could throw a challenge as the seeker may be clueless as to where to begin and how to proceed. Therefore, the available knowledge needs to be collected, grouped, and arranged logically. Codification and classification of the available knowledge using a definite framework would constitute one dimension of the word 'System' in IKS. The other important requirement is the interconnection between the part of the knowledge in the classification framework. The framework used to represent should also provide some logical relationships between the different parts of the proposed framework. This helps easy understanding of the overall contribution of the knowledge and how the different components of the knowledge complement each other. We take up this issue for discussion in the next section and present a systematic approach to classifying IKS for this book.

1.3 THE IKS CORPUS – A CLASSIFICATION FRAMEWORK

There are many ways to define and identify what constitutes IKS. For example, one approach is to merely pick the important topics representative of the knowledge corpus such as the Vedas,

Vedāngas

To benefit fully from the Vedas some complementary tools and skills are required. These help to understand the exact meaning and intent of what is presented in the Vedas and follow them based on specific instructions provided. These are collectively referred to as Vedāngas. Chapter 2 of the book has more details on the Vedas and the Vedāngas.

Darśanas

It is a natural quest for everyone to understand three forces that operate and interact with one another: an individual (Jīva), the Universe (Jagat), and a larger force governing the other two (variously referred to as Īśvara, Brahman etc.). Establishing the connection between these three becomes an issue of philosophical thinking. Darśana essentially means a philosophical thought or view. There are six schools of philosophy in the Sanātana-dharma literature and other schools outside the realm of this. These are discussed in some detail in Chapter 3 of the book.

Purāṇas and Itihāsas

Purāṇas contains a rich repository of ideas that seek to explain various aspects of the Vedic thoughts using detailed stories and anecdotes. They present several socio-cultural ideas and practices for living. Furthermore, they address some of the common issues that mankind faces and provide answers using the overarching framework of the Vēdas. The stories in the Purāṇas relate to pre-historic events and the subject matter discussed follows a set pattern⁵. Itihāsas, on the other hand, relate to historical events that have taken place which can be associated with specific timelines. As we know, Mahābhārata and Rāmāyaṇa are two well-known itihāsas. In some sense, this literature represents the wisdom that we have accrued through the ages. Chapter 4 of the book discusses these aspects in some detail.

Dharma-śāstras and Smṛtis

Let us think for a moment about what we practice in our modern-day work life. For example, if we need to be part of a company as an employee, we are supposed to know the rules and norms of the organisation, the do's and don'ts, expectations on the part of the employer and the co-workers, social etiquettes, our limits and entitlements and the consequences of wrong actions. If this clarity is not there, there will be chaos and we will end up with unproductive work. If this is the situation in an office, such norms and rules are essential in a society where several entities have complex interactions among them, both in structured and unstructured ways. In other words, a guide to lead a dhārmic life based on the principles of the Veda is required.

The dhārmic principles engrained in the Vedic corpus are presented in multiple formats in our knowledge traditions. Smṛtis are rule books with specific operating guidelines of how to put the dhārmic principles into action and what are the consequences of not doing so. Itihāsas demonstrate dhārmic principles 'in action' through case studies and real-life situations. Nīti-śāstras and Subhāṣitas are pearls of wisdom articulated by learned people in the society, clearly showing the value of adhering to the dhārmic principles in life. A discussion of some of these topics is available in Chapter 4 of the book.

IKS IN ACTION 2.1

Yajña and Project Management

In order to understand the various divisions of the Veda better, we need to inquire into some of the governing principles behind the living style of the Vedic people. The life of the Vedic people in some ways revolved around Yajñas. Every aspect of life and celebration was linked to Yajña, where the devatās were invoked and offerings made. Agni was the carrier of the offerings to the intended devatā.

These were performed to request for material blessings, wealth, health and overall evolution of an individual. They were also performed as an expression of gratefulness for the bounty showered on oneself and the society at large. A large corpus of the Vedic knowledge provided intricate details for performing the yajña related rituals. Therefore, there was a very evolved structure and methodology to the performance of yajña. The way the yajña was done provides a good insight into the project management skills that they brought into the act.

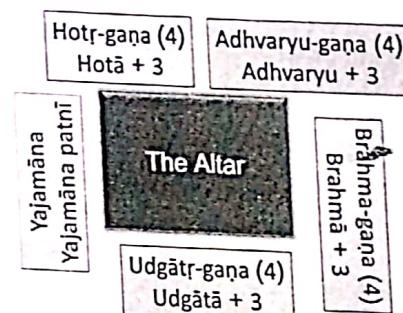
Certain types of yajñas require a team of 18 people for managing the entire set of activities. The yajamāna and his wife are the first two required because they are the underlying cause for the yajña to happen. They are perhaps seeking specific favours from the devatā or are expressing their sense of gratitude to the devatās. In order to perform the yajña 16 more people consisting of four groups of each four are required.

The first group is called 'Hotṛ-gaṇa', consisting of four people, a head and three assistants, who are experts in the Rgveda. They invoke the intended devatā by uttering relevant hymns from the Rgveda.

The second group of four are called 'Adhvaryu-gaṇa', whose job is to indeed perform the rituals and make offerings. They are experts in the Yajurveda

and use the relevant mantras and prescribed practices from Yajurveda. The third group of four experts from Sāmaveda is called 'Udgātṛ-gaṇa'. They select the relevant mantras from Sāmaveda and sing in praise of the invoked devatā.

The fourth group are called 'Brahma-gaṇa' and are experts from Atharvaveda. They play the role of overall supervision of the yajña, ensuring that the rituals happen as per plan and prescribed methods. They intervene and rectify any deviations and address issues emerging during the conduct of the ritual.



Rgveda: – Hotṛ-gaṇa; Yajurveda – Adhvaryu-gaṇa
Sāmaveda – Udgātṛ-gaṇa; Atharvaveda – Brahma-gaṇa

FIGURE 2.1 Organisation of a Yajña

Yajñas differ in size and scale, some of them running to several days involving huge outlay. Therefore, a high level of organisation and management skills need to be put in place. This explains why the Vedic people have exhibited such project management skills in performing a yajña, which was central to their living.

2.1 INTRODUCTION TO VEDAS

The word 'Veda' is generally derived from the Sanskrit root विद् (vid - to know). The word Veda can be derived from five verbal roots¹. These mean to exist, to know, to discriminate, to obtain, and to make known. Veda indicates a vast body of knowledge concerning the eternal spiritual values and principles and practices for gainful and happy living revealed to the ṛsis through their deep meditation. The Hindu religious tradition has accorded the Vedas the highest place in its canonical literature and are revered as the basic scriptures. The Vedas are not merely considered as scriptures but as the fountainhead of Indian culture and human civilisation. It is believed in the Indian tradition that the Veda is the poetry of Gods and it neither fades nor

their interpretations. The Western approach to the study of the Vedic corpus has primarily been in extracting the archival material and publishing them afresh, with English commentaries. In the Western approach, they often view the entire exercise as purely intellectual and linguistic in nature. Since most of them would have had very little opportunity to experience and imbibe native traditions, the work could ignore or overlook traditional and cultural dimensions that are required to present the knowledge in an appropriate context and perspective. Moreover, the Western works generally ascribe to the Aryan invasion theory and use that as one of the main lenses to study the Vedic scriptures. One needs to be aware of these aspects while dealing with such works.

2.2 THE FOUR VEDAS

As per the tradition it is held that the Vedas were originally three and they together were called the *Trayī Vidyā*. *Rk* is typically a hymn and is distinct from *Yajus*, which is a sacrificial formula. Certain *Rks* were set to singing and they are called the *Sāmas*. These *Sāmas* were sung at sacrifices or at the time of extracting the Soma juice. The fourth Veda is the *Atharvaveda*, recognised later and it contains some hymns as old as the *Rgvedic hymns*, while others are evidently of later date in terms of the structure, style of the language and matter. Although the Vedas existed for a long time there was a need to organise them systematically so that the available knowledge is put to correct use by society. The credit to organise the Vedic repository in the manner we understand it today goes to Kṛṣṇa-Dvaipāyana popularly known as Vyāsa. Vyāsa organised the Vedic corpus into four major divisions: *Rgveda*, *Yajurveda*, *Sāmaveda* and *Atharvaveda*. To ensure that the knowledge is passed down to future generations without interruption, he taught these divisions to four of his primary disciples and made each of them responsible to primarily propagate one of the four. Paila was associated with *Rgveda*, Vaiśampāyana *Yajurveda*, Jaimini *Sāmaveda* and Sumantu *Atharvaveda*.

Rgveda

The *Rgveda* represents the earliest sacred book of India. It is the oldest and biggest amongst all the four Vedas². All the features of classical Sanskrit poetry can be traced to the *Rgveda*. In the *Rgveda* we find the origins of the religious and philosophical development of the most ancient society. Thus, both for its poetry and its religious and philosophical importance, the *Rgveda* should be studied by one who wants to understand Indian literature and spiritual culture. The *Rgveda* priest is known as Hotṛ (see the opening box for a description of the roles of the priests in the conduct of a *yajñā*), who employs the mantras to sing the praise of *devatā* invoked during the ritual. The *Rgvedic* hymns are various and not always prayers addressed to the god to whom a sacrifice is being offered. The *Rgvedic* verses are essentially the utterances of the Vedic sages on several topics in the form of poetry.

The inherent curiosity and quest for new knowledge of ancient Indians are quite evident from the varied theme and character of the *sūktas* in the *Rgveda*. These provide a rich repository of creative thinking, opening our understanding to several aspects of life and their inter-connections. The origin of the Universe, for example, is a question that has captured

the attention of today's scientists. However, there are several sūktas in the R̄gveda which has taken up this theme. The Nāsadiya-sūkta (RV10.129) which speculates on the origin of the Universe has attracted several commentaries both in Indian darśanas and in Western philology. The other sūktas that inquired into the origin of the Universe include Hiranyagarbha-sūkta (RV10.121) and Puruṣa-sūkta (RV10.90). The lofty and interesting set of ideas that one finds in R̄gveda makes it special and contextually relevant. It promotes a high sense of unity in diversity by proclaiming that the truth is one but learned ones articulate it in different ways (*ekam sat viprāḥ bahudā vadanti*, RV1.164.46). Rich philosophical ideas expounded in Vedānta literature have their seeds in the R̄gveda mantras. These sūktas are set in a highly mystic and poetical form that requires correct understanding to derive the full benefit of the intended message.

Yajurveda

Yajurveda confines itself to the major issue of conducting the sacrifices. The word Yajurveda is derived from the root *Yaj*, meaning, the worship associated with sacrifice. This Veda mainly focuses on yajña and a list of various yajñas is found in this Veda. The mantras in Yajurveda are mostly in prose form although a small fraction is in the metrical form, among these many are borrowed directly from the R̄gveda. The mantras in Yajurveda are referred to as *yajus*³. The Adhvaryu-priest who is mainly charged with the performance of sacrifices makes use of the *yajus*. The Yajurveda is essentially a guidebook for the Adhvaryu priest who had to do practically all ritualistic works in a sacrifice. The Adhvaryu priest needs to perform a variety of tasks including the selection of a plot of land for the sacrificial altar, offering oblations to the sacred fires with relevant mantras for the devatā. Though the major topic of Yajurveda is Yajña, many other topics are discussed in it. These include human anatomy, metals, constellation, seasons, numbers and geometry, grains, and yogic insights.

- ◆ Yajurveda mainly focuses on Yajña and a list of various yajñas are found in this Veda.
- ◆ Yajurveda is in two major branches: Krṣṇa-Yajurveda and Śukla-Yajurveda.

The Yajurveda is divided into two branches: the Krṣṇa (Black) and the Śukla (White). The distinguishing aspect is that the Krṣṇa-Yajurveda is more ancient than the Śukla-Yajurveda. Till the time of Sage Yājñavalkya, Yajurveda was a single scripture. Sage Yājñavalkya learned Yajurveda from his guru Vaiśampāyana. Later, because of some misunderstanding between them, Yājñavalkya is said to have learned the new Veda which is known as Śukla-Yajurveda and the earlier one is known as Krṣṇa-Yajurveda. Yājñavalkya transferred this knowledge to fifteen of his disciples. The śākhās of Śukla-Yajurveda are named after these disciples.

Sāmaveda

The word Sāmaveda is derived from the Sanskrit root, 'Sāma' indicating 'to please, pacify or satisfy'. Essentially, it refers to the singing of R̄gveda mantras. The mantras in Sāmaveda are typically referred to as 'Sāma'. It is a R̄gveda mantra set to music. Sāmaveda currently has three branches viz. Kauthuma, Raṇayaniya, and Jaiminiya. However, there are references in Mahābhāṣya of Patañjali, Śrīmad-Bhāgavata-Mahāpurāṇa, and other sources which suggest that there were 1,000 branches of Sāmaveda, indicating different traditions and versatile ways of singing the mantras. In a yajña, Sāmaveda is used to please the devatās by singing mantras after making the offering.

Sāmaveda is divided into two parts: Pūrvārcikam and Uttarārcikam, consisting of a total of 1,549 mantras. Out of these, except 75 mantras, the rest are taken from the Rgveda saṁhitā. There are more than 150 seers associated with Sāmaveda. Unlike the other three Vedas, the mantras of the Sāmaveda, are related to musical scales, similar to the seven scales of classical music. Therefore, in some ways, the origin of Indian classical music lies in the Sāmaveda.

Atharvaveda

The etymology of the word 'Atharvan' brings out the multi-faceted nature and characteristics of this Veda. It means one which brings wellness, seen by sage Atharvan and one with no falsehood or movement. As already mentioned, it is generally believed that the Atharvaveda is a later addition to the original set of the three Vedas (Rg-Yajur-Sāma), chronologically speaking. The Atharvaveda priest is known as Brahman, whose main job is overall coordination and monitoring of the Vedic ritual. Before starting any activity in the yajña, Brahman's permission is sought. When there are deviations or changes, the Brahman steps in and makes the necessary amendments. In other words, the Atharvaveda priest plays the crucial role of quality control and compliance when rituals are performed. Viewed from this perspective, the Atharvaveda priest must be a knower of all the other three Vedas to flawlessly execute this task of overall coordination and quality control.

Originally, nine Śākhās of this Veda are known to have existed, but only two are extant: Pippalāda and Śaunaka. Of the two, it is only the latter that is available in a complete form. The hierarchy of the arrangement of mantras in Atharvaveda is quite similar to what we see in Rgveda. At the highest level, the Atharvaveda-saṁhitā is divided into four books. There are 20 kāṇḍas or books in all. Except for Books 15 and 16, the text is in poem form deploying a diversity of Vedic metres. Each kāṇḍa is again subdivided into sūktas or hymns, and the sūktas into mantras. There are 6,077 mantras, in 736 sūktas. About a sixth of the Atharvaveda texts adapts verses from the Rgveda. In particular, the last kāṇḍa, i.e., the 20th, has borrowed heavily from the Rgveda-saṁhitā.

Messages in the Vedas

Vedas are the quintessential wisdom that forms the foundation for the Sanātana-dharma and is considered as the ultimate reference for every aspect of living in India. The subject matter covered in the Vedic repository is vast. The details about performing several rituals to propitiate the devatās form a major component, however, several other issues are addressed. These

- ◆ Atharvaveda has details on diseases and their cure.
 - ◆ Prayers for prosperity and peace in the Vedas invariably included all the living organisms in the Universe, not just the mankind.
- include, for example, inquiring into the origin of the Universe, human beings' intricate relationship with nature, reflecting on some observed celestial happenings leading to astronomical insights, marriage, health and wellness, and larger questions such as our purpose in life, and many methods of inquiring into these subjects. There is a rigor with which several aspects of life are inquired into.

Prayers for prosperity and peace in the Vedas invariably included all living organisms in the Universe, not just mankind. For example, in the Śanti-sūkta in the Atharvaveda, the prayer is to bless both the two-legged and four-legged creatures with peace and prosperity. In certain other mantras, mention of eight-legged creatures and nine-legged creatures is also indicated. Similarly, peace and prosperity are prayed for the Earth, the Interspace, and Space above. Such is the vastness of appeal and degree of inclusivity in the thinking of the Vedic people.

- ◆ Relationship with oneself and one's teachers
- ◆ One's attitude towards the learned and the wise in society
- ◆ Charity and the laws of giving
- ◆ Remedy for doubts regarding one's own duty and conduct in life
- ◆ Doubts regarding one's relationship with others falsely accused in the world

Know the Charioteer of Your Life Journey

The most inert part of us is the body. There is no motive force to the body by itself. Only because of the *prāṇa* the body gets activated. This is the reason for a person who is so fond of halwa unable to open his/her eyes wide after he/she is dead when a cup of oven fresh halwa is brought in front of him/her. The *indriyas* are better than the body. This is because our *indriyas* can travel far and wide and reach places. For example, in a split moment the *indriyas* can take us to a beautiful tourist spot in the US.

The *manas* is truly a super-*indriya*, as it can do all the functions of the *indriyas* when none of them are at work. Otherwise, how can we explain watching vividly our favourite movie in dream or taking our son to a cricket match in a dream. The *buddhi* is considered superior to the *manas* as it has the capability to analyse and decide what is right and what is wrong. The *manas* can only deploy instructions to the *indriyas* and the body. It is poor in deciding what is right and what is wrong. This is the reason for the Kāṭha-upaniṣad teaching, know the buddhi to be the charioteer of your life (वृद्धिं तु सारथिं विद्धि—*buddhiṁ tu sārathim viddhi*).

The soul is superior to everything as it is the very storehouse of energy (*prāṇa*) without which none of the above can perform. It is like having number of electrical gadgets, but they will work only as long as there is electricity. Once you pull the plug everything comes to a grinding halt.

2.4 VEDĀNGAS

During the earlier times, the Vedic language was easy to recite and understand. With passing time natural changes occurred in the spoken language of the people and it slowly drifted away from the Vedic language. Therefore, these people needed support to read and comprehend the Vedic text. Because of the importance of Vedic texts, a lot of effort has gone into preserving

- ◆ The loftiest thoughts of the Vedic seers are found in the Upaniṣads.
 - ◆ Upaniṣads pertains to the jñāna-kāṇḍa of the Vedas.
 - ◆ There are 10 principal Upaniṣads.
 - ◆ The Mahā-vākyas are found in the Upaniṣads.
- the text in its original form. A specific body of knowledge, practices, and tools and techniques was created to preserve the Vedas and appropriately use them. Eventually, these became an integral part of the Vedic literature, hence called Vedāngas, literally limbs of the Vedas.

One can identify six complementary requirements for the preservation of Vedic corpus and the practices prescribed therein and the proper use of them.

- ◆ Vedic texts being oral in nature have to be preserved in their original form. This requires listening to the sounds properly and reproducing them the same way they were heard.
- ◆ The words and sentences of the text had to be understood, without any ambiguity.
- ◆ The metres to which the mantras are set had to be systematically understood and their rules followed properly.
- ◆ There is a need for a complete guide to lead a life as prescribed in the Vedas. This requires unambiguously spelt out practices and norms for various activities to be performed.

- ♦ A properly structured set of instructions to perform the rituals prescribed in the Vedas, right from building the *yajña-śālā* to carrying out elaborate rituals such as the *soma-yāgas* need to be established.
- ♦ A method to fix the time to do all these prescribed activities is also necessary.

There are six *Vedāṅgas*; *Śikṣā*, *Vyākaraṇa*, *Nirukta*, *Chandas*, *Kalpa*, and *Jyotiṣa* addressing these roles. Figure 2.5 lists these roles of the *Vedāṅgas*. Though the seeds of all these *Vedāṅgas* are found in Vedas itself, people wrote elaborate texts on these topics to make them clear and updated them as and when required. Thus, we have several texts authored by various people at different points in time explaining these. While these *Vedāṅga* texts help us decipher the Vedic texts and know their practical applications, they have other values of practical applicability in other fields also. Works such as Pāṇini's *Aṣṭādhyāyī*, Piṅgala's *Chandaḥ-śāstra*, *śulba-sūtras* and many works related to *jyotiṣa-śāstra* are some of the examples. We will see the applications of these in other chapters.

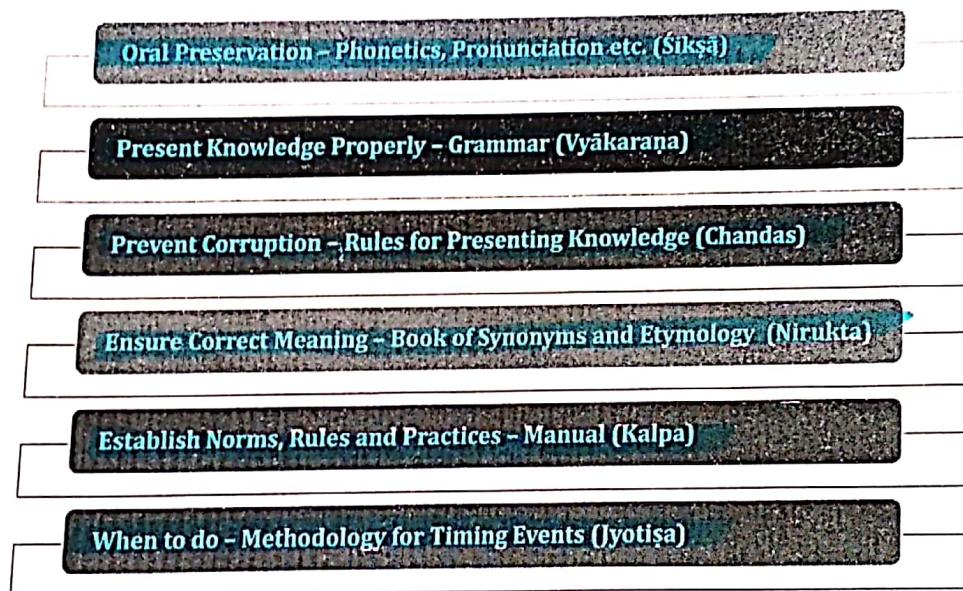


FIGURE 2.5 The Role of *Vedāṅgas*

2.4.1 Śikṣā

The word *śikṣā* means 'to acquire knowledge'. This was the first thing students were taught in the ancient educational system; hence it is called *śikṣā*. This has been described in *Taittirīya Upaniṣad* very briefly⁹. It was further elaborated in *śikṣā-śāstra*. *Śikṣā* essentially is the science of pronunciation. As preserving the Vedic text from any form of corruption is the most important thing, *śikṣā* directs our attention to all the details of the process involved in pronunciation. *Śikṣā-śāstra*, therefore, is a systematic approach to the art and practice of phonetics. It defines the characteristics of the basic units of the sound of the language known as *varṇa* and explains what causes the sound pertaining to a *varṇa* to emanate. There are several books on *śikṣā-śāstra*. The most popular work today is '*Pāṇinīya-śikṣā*' which is attributed to Pāṇini, the famous grammarian.

IKS IN ACTION 2.2

Pañca-mahā-yajña

The term Yajña typically invokes in our mind an altar in which offerings are made to a deity with a certain expectation of tangible material benefits, usually of a self-centred nature. The critical aspect of Yajña is giving (or sharing) without a sense of attachment. This puts our life into perspective and provides broad guidelines for us to imbibe the value of peaceful coexistence in our daily life. This can happen only when we are able to practice 'care and share' as a daily habit. The concept of pañca-mahā-yajña (Five Great Sacrifices) as our daily duty was instituted to practically implement this idea.

In the Indian tradition, the role of a householder was considered very important in maintaining sustenance of the society. The responsibility of a householder to provide for the sustenance of the life around him is formalised with pañca-mahā-yajña. Every householder is expected to perform this every day and if one does not undertake these yajñas he may not even qualify to be a householder.

This is a mechanism to care for and share his food with the other entities in the creation and it subtly reminds himself every day of his responsibility towards all creation. The importance of pañca-mahā-yajña is evident from the references to it found in all Indian literature: in the Vedas, the itihāsas and purāṇas, smṛtis and dharmaśāstras.

- ◆ *Bhūta-yajña* is for all created beings. By offering Bhūta-yajña, we take care of small living beings around us (such as birds, domesticated animals, worms, insects etc.). By being very conscious of the environment we can extend this idea to plants, rocks and rivers. This is the extended thinking of bhūta-yajña. This is a good approach to address the vexing ecological problems that we face today.

- ◆ *Manuṣya-yajña* we derive the joy of helping destitute, orphans, unexpected guests, poor and the needy by offering whatever we can

(in cash or kind, food) to them. This can be the bedrock of social sustainability and can positively impact the society.

- ◆ By *Pitr-yajña* we give away food for the sake of our ancestors and offer our respects and deep sense of gratitude to the departed souls in our family who are responsible for what we are today.
- ◆ By offering *Deva-yajña*, we express our thankfulness for what the Gods bless us (in terms of rain, and other bounties of nature) and continue to receive them in a framework of mutual dependence. The most manifested form of the Devas are the five great elements (space, air, fire, water and earth). This daily act makes us acutely aware of the need to keep our ambience in absolute rhythm with our activities and thereby minimize pollution (air, water, earth etc.) levels.
- ◆ By *Brahma-yajña* (by reciting the Vedic hymns, Upaniṣads etc. and teaching them to others) we show our enormous respect to the great seers and rishis, who gave us the wisdom that we can ever have. We also assure them by this act that this great knowledge is being handed down the generations with reverence and a sense of responsibility.

Pañca-mahā-yajña is related to the Indian understanding of human life as a gift that is sustained by all aspects of creation. Man is thus born in and lives in debt, to all creation, and it therefore becomes his duty to recognize this debt and undertake to repay it every day.

Pañca-mahā-yajña, therefore, is not performed for the sake of earning merit or virtue. It is merely a matter of endeavouring to repay debts that are incurred by being born and living in the world. It is about being humanly responsible.

2.5 VEDIC LIFE: DISTINCTIVE FEATURES

So far, we have seen some of the salient features of the Vedas, the material presented in the Vedas, and the issues described in various parts of the Vedas. Based on this limited understanding, we can develop some broad ideas about certain distinctive features of the Vedic life. These can be discussed under the following heads:

Vedas Extol Living a Zestful and Exuberant Life: There is a misconception that Vedic people de-emphasized materialism and instead chose to lead a simple life with no minimum comforts. However, the mantras, the prayers, and the things that they asked for (the karma-kāṇḍa of the Vedic literature is abundant with such examples), we can infer that they aspired to live a life full of energy, enthusiasm, hopes, desire to explore and innovate to make their life better and comfortable.

Balanced Life Priorities: The Vedic thinking (discussed in great detail in the jñāna-kāṇḍa) also presents a balanced view of life, where the attainment of material riches and prosperity was

- ◆ Vedic thinking presents a balanced view of life where material prosperity and spiritual orientation are important.
 - ◆ Yajña was central to day-to-day living in Vedic times.
 - ◆ Vedic life recognized the overarching role of natural systems in sustainability.
- considered important, but not at the cost of spiritual orientation to life. The inquisitiveness of the people and a desire to know and innovate enabled them to develop ideas, knowledge, and thought processes that addressed both material progress and spiritual progress. This resulted in the development of karma kāṇḍa and jñāna kāṇḍa aspects in the Vedic repository. As a result, the Vedic living ought to have advocated for the all-round development of an individual in terms of physical, mental, intellectual, and spiritual dimensions.

Emphasis on Sustainable Living: The practicality of Vedic life proposed a model that was economically and ecologically viable, and socially sustainable. The Vedic people recognised the importance of mutual dependence and co-existence with nature and other living beings. This is well documented and articulated in the numerous hymns in Rgveda on several aspects of nature. The principle of mutual dependence pervades much more than what we normally imagine. Man, and nature have a strong relationship of mutual dependence. Living entities and non-living entities also are mutually dependent. Our ancestral wisdom and practices in everyday living seem to have understood this aspect and respected it. Numerous references convey this idea. For example, as we already saw, in Śānti-sūkta, the well-being of not just the living entities, but also of natural systems is sought through the prayers.

The Primacy of Agni: This is primarily because Yajña was central to day-to-day living. Every activity and celebration in life was done with Yajña and dāna (gifting). It was recognized as a way of showing reverence and gratitude to the Gods for making things happen the way they are. Agni was considered the main deity and carrier of the offering to all the other devatās. Therefore, it is not surprising that the first mantra of Rgveda begins with a celebration of Agni as the priest and the giver of all riches to us.¹⁷ The notion of Yajña as conceptualized by the Vedic seers is much larger than what is ordinarily understood as an act of sacrificial offering to Agni in an altar. It was a grand principle of 'give and take' and 'live and let live' and thereby ensure social sustainability in addition to the narrow environmental sustainability that we are currently debating on.

A Life Guided by Rta, Satya, and Dharma: There are larger principles that shaped the paradigms of good living. Rta in simple terms is the cosmic order or equilibrium which ensures that the Universe functions in its natural state. The nearest English word that one can think of is rhythm. In the Rigveda, the term Rta appears as many as 390 times and has been characterised as

- ◆ Despite divergent views on some of the philosophical concepts and foundational premises between these schools, there is a healthy culture of respectful and peaceful coexistence of these schools of thought. There was no effort to demean, dismiss or downgrade one school by the other using any emotional, dogmatic, irrational, or unscientific methods. Instead, there was a healthy tradition of the followers of the schools to engage in dialogues and debates. These demanded a highly advanced intellectual exercise, be it writing a book refuting the argument of the opposing point of view or engaging in the dialogue following strict rules of debate.
- ◆ One of the Vedic schools, Nyāya provided a de facto framework for all other schools to engage in such intellectual debates. In fact, the ontologies of Sāṃkhya and Vaiśeṣika schools have been adopted by most other schools with little modifications to suit their theories.
- ◆ There are historical accounts of several such debates that took place throughout the country for several centuries, which continue even today. Thus, several schools of philosophy have flourished in India, interacted extensively with each other, and have organically co-existed for millennia.

Figure 3.1 provides a schematic of the classification of the Indian philosophical systems into Vedic and non-Vedic systems.

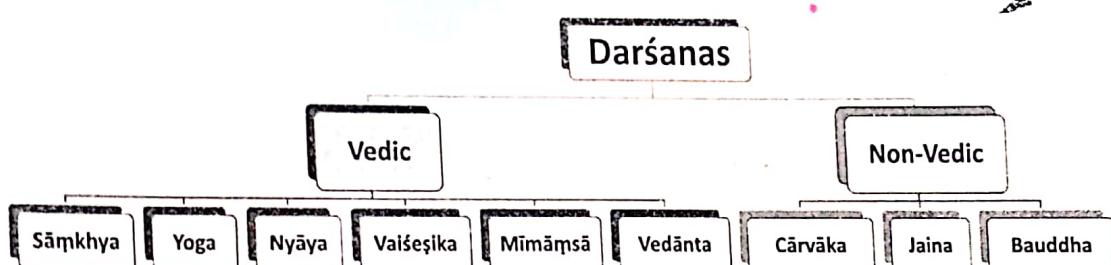


FIGURE 3.1 Indian Philosophical Systems (Darśanas)

3.2 VEDIC SCHOOLS OF PHILOSOPHY

Figure 3.2 summarises some of the salient features of vedic schools. All the schools have a common goal, i.e. to answer questions such as, "Who am I?" and "What is the process for final liberation? To know oneself and escape from the cycle of birth-death and get liberated, correct knowledge needs to be obtained. The schools differ in presenting how to obtain the right knowledge and use it as the means for the ultimate liberation of the 'self'. The context for the philosophical discussion is the three inter-related concepts of God – Universe – Individual". All schools have employed several constructs involving these three entities in discussing the path for self-evolution and liberation. The six schools differ in the approach taken to reach the goal. In the case of Sāṃkhya and Yoga systems, there is the centrality of the role of the 'matter' in this journey. A good understanding of the evolution of nature leading to the context paves the way for liberation. On the other hand, Nyāya and Vaiśeṣika systems have prominently focused on the importance of obtaining the 'right knowledge' in the journey of liberation. Therefore, these systems elaborately focused on getting the right knowledge of oneself and the other entities. On the other hand, Mīmāṃsā and Vedānta proposed that the Vedic repository provides guidance

for an individual in his journey of liberation. While Mīmāṃsā stressed on the importance of the ritualistic part of the Vedic corpus (Karma-kāṇḍa), Vedānta emphasised on the knowledge leading to self-experience (Jñāna-kāṇḍa).

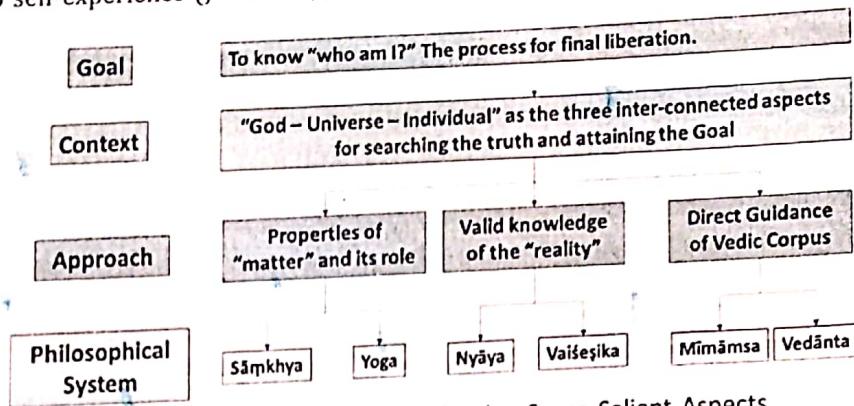


FIGURE 3.2 The Six Vedic Schools – Some Salient Aspects

3.3 SĀṂKHYA AND YOGA SCHOOLS OF PHILOSOPHY

The Sāṃkhya-Yoga philosophical system begins with the basic premise that Prakṛti, the source of the physical Universe and the 'self' are sub-ordinate to a larger force called Puruṣa and liberation of the 'self' involves getting to know the right knowledge of the Puruṣa and Prakṛti and their relative role. According to these schools of thought, Prakṛti is the first cause of the Universe (of everything except the spirit) and entirely accounts for whatever is physical, both matter and force. Prakṛti is conceived as constituted of the tri-guṇas. The evolution of Prakṛti causes the Universe, bringing the multi-various forms and entities. The preponderance of the three Guṇas and their role in establishing the link between Puruṣa and Prakṛti is another common ground for both the philosophical systems. Finally, both the schools agree that the process of final liberation involves the realisation of the true nature of Prakṛti and Puruṣa.

- ◆ Vedic schools acknowledge the authority of the Vedic text whereas Non-Vedic schools don't.
- ◆ The context for philosophical discussion is three inter-related concepts of God – Universe – Individual.

Sāṃkhya school does not acknowledge the existence of an ultimate God (Īśvara). On the other hand, Yoga acknowledges the existence of a supreme being. Yoga has an emphasis on a more structured, practical methodology for cessation of all activities of the mind. To facilitate this process, the Yoga system of philosophy provides a practical step-by-step approach for this journey. On the other hand, Sāṃkhya school emphasises more of contemplation and analysis leading to experiential knowledge.

3.3.1 Sāṃkhya-darśana

Although sage Kapila is supposed to be the author of the Sāṃkhya system, there is no available evidence or material to substantiate this. The earliest authoritative material available on Sāṃkhya is the Sāṃkhya-kārikā by Īśvarakṛṣṇa. This is a work in seventy verses and has a lucid exposition of the Sāṃkhya system. Sāṃkhya argues that the root cause of all pains and

sufferings is the lack of the correct knowledge (Sāṃkhyā). By a proper understanding of the ontology of Sāṃkhya-darśana, the causes of pain and the way to end it can be explained.

Puruṣa and Prakṛti

According to the Sāṃkhya system, two basic elements constitute everything in this world, matter (Prakṛti) and spirit (Puruṣa). Puruṣa is the pure consciousness, sentient, changeless, eternal, and passive. Prakṛti on the other hand is the root cause of all activities including the entire creation. When the Prakṛti comes in association with the Puruṣa it assumes diverse shapes and forms, gross and subtle, and manifests as body, senses, and the mind. Prakṛti is made of the three basic constituents namely sattva, rajas, and tamas. These are also called guṇas and are known only through inference.

- ♦ According to the Sāṃkhya system, two basic elements constitute everything in this world, matter (Prakṛti) and spirit (Puruṣa).
- ♦ Prakṛti is made of the three basic constituents namely sattva, rajas, and tamas.

Sattva is the faculty that is light and causes knowledge and pleasure. Rajas is the one that causes movement and is the cause of pain. Tamas is heavy, causes ignorance, and causes indifference. Before the manifestation of the Prakṛti its constituents, sattva, rajas, and tamas are in equilibrium.

The evolution of the Prakṛti results in creating the following elements:

- ♦ 'Mahat', which is also called 'Buddhi'
- ♦ Ego or Self-consciousness (Ahaṅkāra), which introduces the sense of 'I' and 'mine'
- ♦ Mind (Manas), the master of the organs and the conduit between the internal and external instruments
- ♦ Five sense organs (Jñānendriyas): ears, skin, eyes, tongue, and nose
- ♦ Five organs of action (Karmendriyas): the mouth (speech), hands, feet, sex organs, and anus
- ♦ Five generic classes attributable to objects perceived through sense organs (Tanmātras): sound, touch, form or colour, taste, and smell
- ♦ Five gross elements (Bhūtas): ether, air, fire, water, and earth.

Figure 3.3 illustrates the evolution of Prakṛti described above. When the Puruṣa is conditioned by the twenty-three elements, it perpetuates this process wherein Puruṣa goes from one body to another. This is the cause of all mundane existence, and this continues so long as it does not discriminate the difference between Puraṣa and Prakṛti². Once the conscious self comes out of this ignorance, through the actual knowledge, he realises that he is separate from the Prakṛti and its manifestations, he does not feel pleasure, etc. anymore. This is called liberation (kaivalya, i.e. mokṣa) in the Sāṃkhya doctrine.

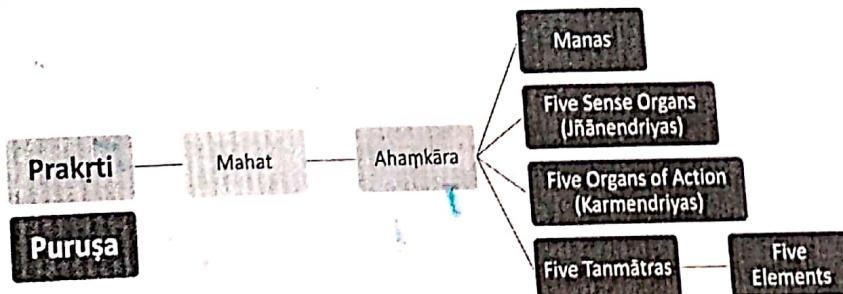


FIGURE 3.3 Prakṛti and its Evolution into Matter

3.3.2 Yoga-darśana

Yoga as a school of philosophy is said to have been founded by Patañjali through his yoga-sūtras. Some Indologists assign a date of 5th century CE for this work, while many others associate this work with Patañjali, who wrote the *Mahābhāṣya* for Pāṇini's grammar. In that case, it will be dated to the 2nd century BCE. Yoga serves as a methodology to the realisation of the difference of Prakṛti and Puruṣa. It elaborately establishes the necessary practices an individual needs to go through to have the realisation of this separation. The unique thing that establishes Yoga as distinct among the other darśanas is that its emphasis on understanding the mind, its various states, its cognitive activities, and methods to control it. The other schools have a difference of opinion on the matters of epistemology, and the concept of mokṣa with Yoga. However, they accept methods prescribed in yoga to gain control over the mind.

- ◆ Twenty-three elements act as the seed, out of which the body (consisting of the internal (subtle) instruments and the external (gross) organs) is produced.
- ◆ According to Yoga philosophy to attain liberation, an individual must focus on the physical, psychological, and moral states of his being.

The Yoga philosophy rests on the basic premise that if a person wants to understand his true nature, and experience bliss eventually, he must focus on the physical, psychological, and moral states of his being and make simultaneous progress on all the three. To achieve this, the basic prescription is to develop the capacity for single-pointed concentration of the mind. Therefore, Yoga-sūtras begin with the definition that 'Yoga is the cessation of mental modifications'³. Unless a person arrives at this stage, it will not be possible for him to understand the notion of 'existence' and the secrets of nature may not get revealed. Therefore, the operational part of Yoga provides a practical set of 'actionable' steps that an aspirant can go through sequentially to reach this state. Further Yoga system observes that a journey of constant practice with dispassion makes a person perfect⁴ and he will feel within himself the universal truth with no sense of separateness. While Sāṃkhya prescribes a method of analysis and contemplation, yoga argues for mind control through sustained practices as prescribed. Yoga system provides an eight-step process to gradually attain complete cessation of the activities of mind. Figure 3.4 presents the eight steps in a pictorial fashion. The details of the eight steps follows:

- ◆ **Yama:** The ultimate journey to complete cessation of the activities of the mind starts with the first step which is forbearance or control over mind, body, and speech. Five activities are prescribed for practice in this stage; abstaining from harming (Ahimsā), speaking the truth (Satya), not stealing others' belongings (Asteya), keeping away from lust (Brahmacarya), and resisting from accumulating wealth (Aparigraha). According to Patañjali these are to be followed irrespective of time, place, and status by a sādhaka and this is called mahāvrata (greatest of all austerities).
- ◆ **Niyama:** The five kinds of forbearances, specified in the previous step relate to abstaining from negative injunctions. On the other hand, in the second stage, five kinds of observances, which are positive commands are prescribed. The five niyamas include cleanliness of body and mind (Śauca), being happy with what one possesses (Santoṣa), tolerating heat, cold and other physical difficulties and purifying the senses and the body (Tapas), the study of Vedas and other scriptures (Svādhyāya) and the meditation of Iśvara (Iśvara-praṇidhāna). These two stages are to be practiced by an individual (sādhaka) at all times.

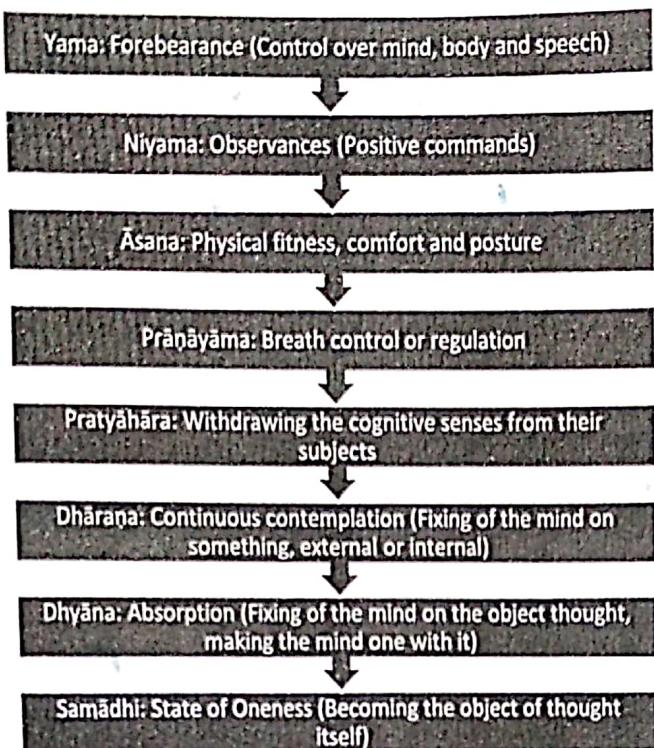


FIGURE 3.4 Aṣṭāṅga-yoga – Eight Step Process

- ◆ **Āsana:** A meditative posture where one can sit comfortably for a long time. Various modes of keeping the body in position at the time of performing Yoga are prescribed in this stage. As per Yoga-sūtra, the sitting posture must be firm and comfortable for the sādhaka⁵.

Henceforth, all the aspects are of the meditation process.

- ◆ **Prāṇāyāma:** This stage focuses on controlling the breath. Breath is directly connected to the mind, hence having it in control is the key to controlling the activities of the mind. Patañjali prescribes four types of prāṇāyāma practices meant for controlling the mind.
- ◆ **Pratyāhāra:** The next stage of practice is withdrawing the cognitive senses from their objects, bringing them to a state as if they were not in contact with their objects.

The first five stages are external in terms of effort (bahirāṅga-prayoga) and help the practitioner purify the thoughts and regulate or moderate the inner self by avoiding various distractions. Once this stage is reached, it will be possible to focus on internal efforts (antaraṅga-prayoga). The last three stages of the 8-step process provide details on this.

- ◆ **Dhāraṇā:** Focusing the mind on an object, not letting it perceive other objects by constant practice is the next stage of this process.
- ◆ **Dhyāna:** Meditating continuously on an object without break is called dhyāna. It is achieved by fixing the mind on something, external (such as a picture, OM sign, a deity)

or internal (using the tip of the nose, and the space between the two eyebrows as a reference to focus inside or visualising OM in the mind).

- ♦ **Samādhi:** The final step in this process is being completely absorbed into the object of meditation, known as samādhi. Once a person reaches here the activities of his mind completely cease, leading to the realisation that he, the conscious 'self' is separate from Prakṛti and thus becomes liberated, free from all pains.

Cessation of all mental activities of the mind, the final goal of Yoga has a very useful bye product. On account of the journey in the path of mind control, Yoga can help an individual address the vexing problem of stress-induced lifestyle leading to health and wellness challenges that modern society is facing. We have briefly touched upon this aspect in the chapter on health, wellness, and psychology. The current popularity of Yoga globally stems from this aspect of Yoga practices. However, it must be understood that Yoga is a way of life, with a grand purpose of realising the true nature of oneself and liberate one from the limitations of the mundane world arising out of the duality of pain and pleasure. We should never lose sight of this ultimate objective of Yoga as a darśana.

3.4 NYĀYA AND VAIŚEṢIKA SCHOOLS OF PHILOSOPHY

The Nyāya-Vaiśeṣika school begins the analysis with the world that an individual experiences. By experience, it means all varieties of valid knowledge, whether perceptual or non-perceptual. Therefore, it starts with the assumption that whatever is obtained by uncontradicted experience must necessarily be real. The Nyāya-Vaiśeṣika school proceeds with an analysis of the experience to understand reality, also known as *knowable*. Both Nyāya and Vaiśeṣika set out in their journey of the 'knowable' and define various categories to describe the same. In this process, two possibilities emerge to conduct the study in greater detail. The first is about the 'ways of knowing the reality' and the second is about the 'objects in the reality that is knowable'. The Vaiśeṣika school provided a greater emphasis on the latter, mainly studying the reality itself in its various aspects. On the other hand, the Nyāya school proposed a methodology for an investigation into the problem of knowledge in its relation to reality. Nyāya and Vaiśeṣika schools place a greater emphasis on obtaining the 'right' knowledge for liberation.

3.4.1 Nyāya-darśana

The original theory of Nyāya school is found in the Nyāya-sūtra, a set of aphorisms developed by Gautama. The aphorisms are organised into five chapters, each having two sections. It was followed by many other seminal works. By the end of the 11th century CE, Gaṅgeśopādhyāya took different positions on some of the theories of the school and established a new school called Navya-nyāya, meaning the new Nyāya School. The navya-nyāya school has contributed extensively to discussing details of inference and verbal cognition. These discussions and the set of technical terminologies developed by the navya-nyāya school have influenced the other schools so much that in the later times all other schools laid significant emphasis on these topics and adopted the language to discuss the issues in their respective schools as well.

- ♦ Yoga provides a structured and practical eight-step process to gradually reach a stage of complete cessation of the activities of Citta.
- ♦ Yoga can help an individual address the vexing problem of stress-induced lifestyle leading to health and wellness challenges that modern society is facing.

The Nyāya philosophy starts with the proposition that one attains liberation only when he acquires the knowledge of the truth. The knowledge of the truth drives away miseries and an individual escapes the cycle of birth-death leading to final liberation. The Nyāya system, therefore, placed enormous emphasis on the means of obtaining 'right knowledge'. Therefore, the unique contribution of Nyāya school is its detailed inquiry of knowledge (Pramā) and valid cognition and its means (Pramāṇa). The elucidation of the correct way of thinking and arriving at the right conclusions, the art of debating, well laid out rules for a debate to arrive at the most reasonable conclusion are the main contributions of the Nyāya school. On account of this, Nyāya is commonly understood as 'argumentation'. Nyāya concepts and the art of debating to establish true knowledge became a useful tool for all philosophical systems. It has over time assumed the de facto methodology to establish valid knowledge. The details of these have been explained in Chapter 7 (see Section 7.4 for details).

The goal of a self is not to gain pleasure but to be liberated from all kinds of pains once for all. This is liberation according to the Nyāya school. Iṣvara or the God is the creator of this universe. An individual self must try to gain the correct knowledge of the self, i.e., he is not the body, or the mind or the senses, which often people mistake 'the self' out of delusion. Then he ceases to have attachment for the fruits of his actions, as all actions an individual does are aimed at gaining worldly pleasure. When he gives up the desire for the results of his actions, he no more accumulates the effects of his actions, good or bad, which are the cause of the birth and death cycle. When an individual has finished experiencing the effects of his past actions there is no reason for his birth and he will be free from the birth-death cycle. Ultimately, he will be free from pain.

3.4.2 Vaiśeṣika-darśana

Vaiśeṣika was propounded by Kaṇāda and his work was organised into aphorisms in ten chapters, each consisting of two sections. The exact date of the work is hard to establish,

however, it is believed that it is earlier than Nyāya-sūtras.

- ◆ Nyāya deals with 'ways of knowing the reality' and Vaiśeṣika with 'objects in the reality that is knowable'.
 - ◆ Nyāya and Vaiśeṣika schools place a greater emphasis on obtaining the 'right' knowledge for liberation.
- A 5th century CE commentary on Vaiśeṣika-sūtras was authored by Praśastapāda. A lucid exposition of the Vaiśeṣika-sūtras is available in the commentaries Kiraṇāvalī (Udayana, 984 CE), Kandalī (Śridhara) and Upaskāra (Śaṅkara Miśra, 1650 CE).

The word Vaiśeṣika is derived from the word 'Višeṣa', meaning difference or unique attributes in a thing. According to this school, diversity, not unity is fundamental to the Universe.

Although the multitude of forms and shapes exist they can be reduced to certain types. It is by virtue of this that 'knowables' are divisible into three classes of dravya, guṇa, and karma, but also into sub-classes such as cows, redness, or moving. While there is some sense of 'alikeness' in the manner described above, it must be remembered that if there are two things that resemble each other in every aspect, there must be something distinctive since there are 'two' of them. This is the basic concept of Višeṣa. The Vaiśeṣika school proceeds along this line to systematically present the 'knowables' that form all the 'real' entities in the universe using certain categories.

Sāmānya is a very important aspect in the scheme of classification. When we classify many things into one category, consider the similarities. For example, we designate a particular set of animals 'cow' because they bear some common features in them. That common quality, which

example
of cow

we shall say 'cowness', is the reason for all such animals being referred to as a cow. It is an inherent property that all these animals carry by their nature. This is called sāmānya or jāti. Because of this sāmānya, we can group, categorise or generalise things.

Viśeṣa essentially becomes important as Vaiśeṣika school considers all entities to be different from each other. In this approach, the difference is sought by an examination of the constituents of an object of knowledge. Proceeding in this manner, differentiating by examining the constituents finely, the Vaiśeṣika school eventually proposes smallest particles, ultimate atomic material (Paramāṇus), which have no more constituents and are therefore not further divisible. Hence Vaiśeṣika school accepts 'a property called 'viśeṣa' in Paramāṇus. Using this elemental matter, the difference of the constituted bodies can be explained.

According to Kanāda, six sub-categories constitute existence, and knowledge of them is considered the essence of the supreme good⁶. The final liberation or salvation comes as a result of real knowledge produced by proper understanding of the six categories listed out in the sūtra. The desire to end the misery of the birth-death cycle leads one to acquire the knowledge of the categories from a master. This knowledge removes ignorance once and for all and the individual is free from love, hate, etc. As he does not accumulate further any merit or demerit on account of this clarified knowledge of the reality, in a certain finite cycle of birth-death, he would have exhausted all the existing merits and demerits, leading to final liberation.

- ◆ The word Vaiśeṣika is derived from the word 'Viśeṣa', meaning difference or unique attributes in a thing.
- ◆ The Vaiśeṣika school presents the 'knowable' that form all the 'real' entities in the Universe using certain categories.

3.5 PŪRVA-MĪMĀṂSĀ AND VEDĀNTA SCHOOLS OF PHILOSOPHY

In Chapter 2, we discussed the details about the Vedic corpus, where we remarked that the Brāhmaṇas, the portion of the Vedic corpus has details on the ritualistic aspects. This portion is typically referred to as karma-kānda of the Vedic corpus. On the other hand, the Upaniṣads lay greater emphasis on the knowledge of the Brahman. This portion is known as Jñāna-kānda. The Pūrva-mīmāṃsā school has established its tenets based on the karma-kānda and the Vedānta school has established its tenets based on the Jñāna-kānda. The Vedānta school is also known as Uttara-mīmāṃsā on account of its reliance on the latter portion of the Vedic corpus.

Both the schools share common beliefs in several of the philosophical principles. This includes the notion of ātman, the existence of karma, rebirth, and long and seemingly endless cycles of birth-death. Therefore, the common goal of these two systems is to liberate the ātman from the clutches of birth-death. However, the major difference lies in the path to liberation. In the case of the Pūrva-mīmāṃsa school, it is believed that ultimate liberation is obtained only by engaging in various rituals that purify the karma and extinguishing them eventually. In the case of the Vedānta school, it is argued that total detachment from worldly activities is the only way to exhaust all the karma. With a purified mind one will then experience the ultimate knowledge 'within' to liberate.

3.5.1 Pūrva-mīmāṃsā-darśana

The word 'Mīmāṃsā' conveys different meanings: reflection, consideration, profound thought, investigation, examination, and discussion. In the context of the Pūrva-mīmāṃsā school of

philosophy. Mīmāṃsā means 'reflection' or 'critical investigation' and is primarily based on a tradition of deep contemplation on the meanings of Vedic texts which it relies on as the

The Pūrva-Mīmāṃsā school has established its tenets based on the karma-kāṇḍa and the Vedānta school has established its tenets based on the Jñāna-kāṇḍa.

The Pūrva-Mīmāṃsā text provides rules for the interpretation of the Vedas and provides philosophical justifications for the observance of Vedic rituals.

The Pūrva-mīmāṃsā school was established by Jaimini, who is said to be the student of Veda Vyāsa. Jaimini presented his aphorisms numbering over 2500 in twelve chapters, which are further divided into sixty sections. The text provides rules for the interpretation of the Vedas and also provides philosophical justifications for the observance of

Vedic rituals, by offering meaning and significance of Vedic rituals to attain Mokṣa. Over the centuries many commentaries were written on this text, most important being the Śābara-bhāṣya written by Śābara-svāmin, the only extant commentary on all the 12 chapters of the Mīmāṃsā-sūtras. The major commentaries were written on the text as well as the Śābara-bhāṣya by Kumārila Bhaṭṭa and Prabhākara Miśra. These texts have collectively put together robust rules of language analysis which enables one to not only examine injunctive propositions in any scripture but also examine the alternate related or reverse propositions for better understanding.

The main aim of the school is to ascertain the meanings of the Saṃhitā and Brāhmaṇa portions of Veda which lay importance on the karma, performing rituals, and thereby attaining dharma, a quality that is acquired by an ātman which prompts him to the respective results such as svarga (heaven). Eventually, with purified actions, such a person attains liberation (mokṣa). If one does not resort to dharmic actions, then he is likely to continue in the cycle of birth and death (Figure 3.5). Hence it is also called 'dharma-mīmāṃsā'. Along with ascertaining the intended meaning of the Vedic texts in this context, the school provides a philosophical explanation as to how a ritual performed results in the desired outcome. Thus, it holds the status of a darśana or school of philosophy.

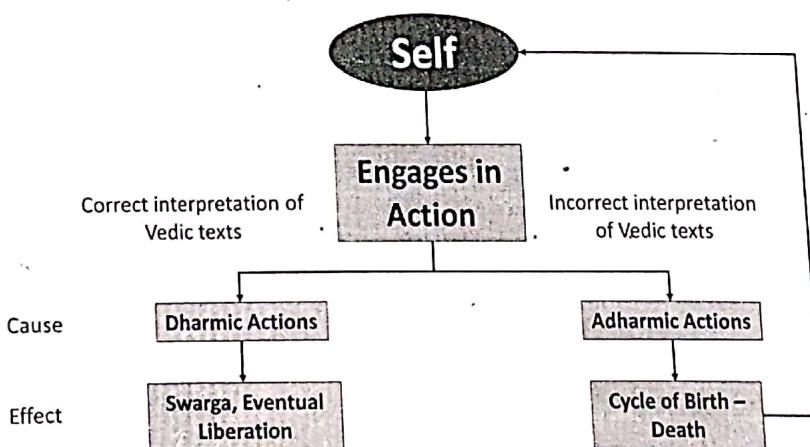


FIGURE 3.5 Pūrva-Mīmāṃsā – The Path to Liberation

The ultimate goal of human beings is to seek joy and happiness in this life and the next. The Pūrva-mīmāṃsā school of philosophy argued that this is possible only when one engages in actions that are considered as dharmic. Such actions are prescribed by the Vedic texts, and it is important to properly interpret and understand the Vedic sentences, words, and meaning. Therefore, it is not surprising that the Pūrva-mīmāṃsā school was centrally concerned with the philosophy of language and correct interpretation. On account of a special emphasis on the correct interpretation of the Vedic text concerning various injunctions and prohibitions, Pūrva-mīmāṃsā developed into a good source for hermeneutics. The laws of interpretation formulated by Jaimini and his successors are quite general and applicable to literary works outside the Vedas too. Pūrva-mīmāṃsā principles are widely utilised for arriving at a right interpretation of all old texts, particularly legal treatises, and the legal fraternity could greatly benefit from the knowledge of Pūrva-mīmāṃsā.

3.5.2 • Vedānta (Uttara-mīmāṃsā-darśana)

All Vedānta schools of philosophy derive a considerable part of their material from the Upaniṣads. The Vedānta schools of philosophy rely on three major texts, known as 'Prasthāna-traya' for establishing their tenets. This includes the Brahma-sūtras, a collection of about 550 aphorisms written by Bādarāyaṇa (Vyāsa); the Bhagavadgītā, and the Upaniṣads. The proponents of the Vedānta schools have written detailed commentaries on the three major texts and through that have established the unique position that they have taken in articulating their version of Vedānta philosophy. In general, the Vedānta schools look upon Brahman as the absolute and are predominantly philosophical in their approach. In this section, we shall briefly see the salient aspects of Advaita, Viśiṣṭādvaita, and Dvaita schools of Vedānta.

- ◆ Pūrva-mīmāṃsā texts have put together robust rules of language analysis which enables one to examine injunctive propositions in any scripture.
- ◆ Pūrva-mīmāṃsā principles are widely utilised for arriving at a right interpretation of all old texts, particularly legal treatises.
- ◆ Liberation in Advaita vedānta is not reaching something new but recognising what is one's inherent nature.

Advaita-vedānta

Śaṅkara (688-720 CE) propounded a monistic philosophy, known as Advaita, with the conception of the attribute-less God (Nirguṇa-brahman) as the ultimate reality. The Upaniṣads describe Brahman as one without form, name, and attributes, known as Nirguna-brahman. Śaṅkara built further on Gauḍapāda's foundational work through his kārikā (set of verses) for Māṇḍukya-upaniṣad and gave more strength and structure and formalised the Advaita-vedānta. The other main aspects of his philosophy include the doctrine of Māyā, the identity of the Jīva with the Brahman and the conception of mokṣa as the merger of Jīva in Brahman. Śaṅkara's commentary on the Brahma-sūtra is remarkable for its charming style and highly logical and consistent arguments. Śaṅkara has made immense contributions to Indian philosophical thought through numerous commentaries and independent works which run to several thousand pages. He also made robust institutional arrangements in different parts of India to preserve and promote Advaita-vedānta. The conceptualisation of Nirguṇa-brahman of Śaṅkara at the outset will resemble closely the śūnya-vāda (emptiness or nothingness) of Buddhists. However, through elaborate commentaries on the three major texts, Śaṅkara has established the uniqueness of his proposition.

Advaita-vedānta postulates oneness of Jīva and Īśvara and in its scheme of things, the Īśvara and the Jīva deploy similar mechanisms to create the world. Īśvara represents the macrocosm with Māyā as the mechanism to create the physical universe. In the same manner, the Jīva uses avidyā (ignorance) as the mechanism to create its own world constituting a parallel microcosm.

Viewed in this manner, the Māyā is the cosmic illusion for the Īśvara to create the world out of himself and avidya the source of illusion for the Jīva. The rejection of the world as something illusory by the Advaita school does not advocate cessation of all worldly activities that we undertake under the garb of it being 'unreal'. Instead, it brings out different stages of knowledge an individual experiences. So long as the identity of oneself with the Brahman is not realised, the empirical world, the activities, and the knowledge about these are true. This is similar to the conditional knowledge of the dream until one wakes up. Therefore, in the Advaita school, two types of knowledge are proposed corresponding to two realms of reality that we have.

One is a transactional reality of the changing world and the associated empirical knowledge that we have which helps us to engage in day-to-day chores of life. On the other hand, once the identity with the Brahman is realised, the reality is one of changeless, oneness of everything which is eternal, and this produces a changeless knowledge of oneself that results in bliss. This is considered to be the 'true or ultimate' knowledge.

Sankara proposed a two-stage approach to realise 'true' knowledge. By merely engaging in the world of activities, one does not obtain the 'true' knowledge. In the first stage, we need to engage with the world and perform the required activities to purify the mind. This is the karma yoga that Bhagavadgīta advocates. Once the mind is purified, the second stage is to engage in deep contemplation and self-reflection on one's real nature which will reveal the 'true' knowledge? Liberation in Advaita-vedānta is not reaching something new but recognising what is one's inherent nature. The two-stage approach indeed leads an individual towards this goal.

Viśiṣṭādvaita-vedānta

Rāmānuja (1017–1137 CE) proposed the philosophy of Viśiṣṭādvaita. Viśiṣṭādvaita combines the bhakti (devotion) to a personal God, who has name, form, and shape and who saves his devotees from all miseries of the world and the impersonal God as espoused in the Upaniṣads into a single school of thought. Brahman or the ultimate reality is also referred to as Viṣṇu, etymologically meaning that which pervades everything. The attribute-less Brahman held by the Advaita school is rejected as metaphysical abstraction and Brahman is conceived, by Viśiṣṭādvaitin as God with attributes like possessing a bodily form, with infinite good qualities and glories.

The ultimate is one, according to Viśiṣṭādvaita, but is not the attributeless. Matter, Jīva and Īśvara are three entities recognised in the Viśiṣṭādvaita school. The matter and the Jīva are considered as the body of Īśvara and are sustained by Him and existing entirely for Him. In other words, the three are inseparable unity, the first two being subjected to the restraint of the third in all its forms. This is the core of the conceptualisation in Viśiṣṭādvaita. An example of a blue lotus illustrates this concept. The blueness (a quality) is quite distinct from the lotus (substance). However, blueness depends on the substance for its very being and is not considered external to the lotus. According to Rāmānuja, all things are eventually forms of Īśvara and all names are his only. Every word is a symbol of Īśvara and points to Him only.

According to Viśiṣṭādvaita school, the cycle of birth and death and the associated sorrows are due to the forgetfulness of an individual of the relation between them and Nārāyaṇa. One

attains freedom by gaining knowledge of the nature of self and attaining the feet of the Lord in his abode, Vaikuntha. However, in order to gain this knowledge, each Jīva has to put forth the effort to attain liberation. The nature of the effort to be invested requires a continuous and unwavering meditation with love on the Supreme Being. This is referred to as Bhakti in the Viśiṣṭādvaita school. Bhakti is generated with total observance of religious duties as prescribed in the scriptures. The concept of total surrender to the Lord (Prapatti) is also considered as the direct means to liberation. In fact, according to Viśiṣṭādvaita, both bhakti and prapatti are two sides of the same coin and hence they function as the direct means to attain the feet of the Lord.

♦ Viśiṣṭādvaita combines the bhakti to the personal God, and the impersonal God as espoused in the Upaniṣads into a single school of thought.

♦ The quintessential aspects of Dvaita Vedānta are that Viṣṇu is the supreme God, the world is real and there is a difference between God and the jīvas.

Dvaita-vedānta

Madhvācārya (1238–1317 CE) is the founder of the Dvaita-vedānta school. Madhvācārya established Udupi as the center of the Dvaita-vedānta. Like the other schools of Vedānta, Madhva derives his philosophical tenets from prasthānatraya, the purāṇas and Mahābhārata. The quintessential aspects of Dvaita-vedānta are that Viṣṇu (Hari) is the supreme God, the world is real and there is a difference between God and the jīvas. All jīvas are dependent upon Viṣṇu, and liberation consists in the enjoyment of bliss that is inherent in oneself. Finally, pure devotion is the means of attaining it.

The Dvaita school clearly admits two independent and mutually irreducible substances that make up the Universe: the Jīva and the Iśvara. However, of the two, Iśvara is independent whereas the jīvas are dependent on Iśvara. The matter making up the physical universe was considered real, unlike illusory as in the case of Advaita. The Dvaita school also refuted the idea of Viśiṣṭādvaita that the matter and the jīvas are different yet form a part of Iśvara. For Dvaita, there are clear differences among them, despite being dependent on Iśvara. Difference (Bheda) is the very essence of Dvaita philosophy. Madhva advocated five-fold differences: between Jīva and Iśvara, among jīvas, Jīva and matter, Iśvara and matter and one material thing and another.

Madhva acknowledged the reality of human misery and bondage. According to Dvaita-vedānta, it is the Iśvara who causes the individual to be unaware of the relationship of the ātman with God. Hence, he alone eventually brings liberation through his grace. In this process, a self-effort on the part of the Jīva is an essential component. According to dvaita school, the jīvas have an innate nature (svarūpa) that never changes. This svarūpa should not be confused with the habits of a person at a superficial level. This acts at a deep level and thus differentiates one jīva from another. The purpose of the creation is to allow this and provide a conducive environment to the jīva to manifest to fullest of his nature. Depending on the composition of sattva, rajas and tamas gunas in the svarūpa, the jīvas perform karmas accordingly and attain mokṣa, or niraya (hell), or be bound in the birth-death cycle for ever. The doctrine of jīvas that are liberated and those eternally damned has a parallel in Jaina's religious thought also.

In Dvaita-vedānta, liberation is achieved through the knowledge of the greatness of Iśvara. Similar to Viśiṣṭādvaita philosophy, Iśvara in Dvaita-vedānta is a personal God with attributes of name and form, who can be reached through devotion (bhakti). Through bhakti combined with meditation, one can dispose oneself to the experience and grace of Iśvara. The Jīva, on his part, must prove himself worthy of it by good works (karma), acquisition of right knowledge (jñāna-yoga), and single-minded devotion (bhakti-yoga).

Table 3.1 provides a comparative picture of the three schools of Vedānta, summarising the salient aspects of the schools on several elements of philosophical thinking.

TABLE 3.1 A Comparison of the Salient Features of the Three Schools of Vedānta

No.	Criterion	Advaita	Viśiṣṭādvaita	Dvaita
1	Basic reference for establishing the tenets	Upaniṣads, Bhagavadgītā, Brahmasūtra	Upaniṣads, Bhagavadgītā, Brahmasūtra	Upaniṣads, Bhagavadgītā, Brahmasūtra
2	Concept of Iśvara	One, attribute-less (Nirguṇa-brahman)	One, personal God (Saguṇa-brahman) – Viṣṇu or Nārāyaṇa, Independent, Ultimate	One, personal God (Saguṇa-brahman) – Viṣṇu or Hari, Independent, Ultimate
3	Concept of Universe (Jāgat)	Not real, mere illusory experience, made of Prakṛti and Guṇas	Real, made of Prakṛti and Guṇas	Real, made of Prakṛti and Guṇas
4.	Jīva-Jagat-Iśvara relation	All are one and the same – Brahman	All are part and parcel of Iśvara, Jīva and Jagat depend on Iśvara	All are uniquely different, Jīva and Jagat depend on Iśvara
5	Valid means of knowledge (Pramāṇas)	Perception, inference, comparison, verbal testimony, presumption, non-apprehension	Perception, inference, verbal testimony	Perception, inference, verbal testimony
6	Liberation	Experience oneness with Brahman	Attaining the feet of the Lord	Knowledge of the greatness of Iśvara
7	Path to liberation	Jñāna-yoga, Karma-yoga as a pre-requisite	Bhakti and Prapatti, Bhakti-yoga, Karma-yoga and Jñāna-yoga as pre-requisites	Bhakti-yoga, Grace of Iśvara

3.6 NON-VEDIC PHILOSOPHICAL SYSTEMS

There are other philosophical systems that lie outside of the realm of the Vedic corpus. These philosophical systems did not consider the Vedas as an authoritative text and are called Non-Vedic philosophical systems. These schools do not also accept the entity Iśvara. Jaina, Bauddha, and Cārvāka schools are prominent among them.

3.6.1 Jainā School of Philosophy

The word 'Jaina' is derived from the Sanskrit root 'ji', to conquer, essentially indicating someone who has successfully subdued his passions and obtained mastery. The Jaina school considers twenty-four Tīrthaṅkaras, starting from Vṛṣabhadeva to Mahāvīra as prophets and masters of the philosophy. Tīrthaṅkaras appear periodically in the world to educate and lead people to cross over the ocean of rebirth. This is similar to the notion of avatāra-puruṣas, who by their conduct and teaching help the human beings cross the ocean of samsāra (endless birth-death).

cycle). Although in contemporary terms Mahāvīra is well-known among the twenty-four, he is regarded as the last of the twenty-four Tirthankaras. According to the Jain tradition, Mahāvīra lived during the 6th century BCE. There is a vast literature in which the doctrines of the school are recorded. The details of the Jaina school of philosophy can be found in the canonical texts of Jainism, which are largely based on the teachings of the Tirthankaras. Jain philosophy refuses to acknowledge the authority of the Vedas and the notion of a supreme God, however, several concepts in the Jaina school is in line with the Vedic schools of philosophy.

During the early part of the common era (during 4-5th century CE), two sects of Jains, Śvetāmbaras (white-clad ascetics) and Digambaras (sky-clad ascetics) emerged. There are some differences between the two sects in certain aspects such as rituals, ascetic practices, and monastic organisation. Despite this, on matters of philosophical principles and concepts, they remain similar. Both the sects accept the authority of the *Tattvārthaśūtra*, composed by Umāsvāti during 2nd-3rd century CE. The *Tattvārthaśūtra* has been commented upon by both Śvetāmbara and Digambara scholars over the centuries and is, therefore, an important Jain text.

According to Jain ontology, the fundamental categories of being are a soul (Jīva), a matter of which the substances in the world are formed (Pudgala), space (Ākāśa), time (Kāla), the principle of motion (Dharma), and the principle of rest (Adharma). Jīvas are infinite and so are the material particles. These particles also possess innumerable qualities and jīvas with their limited ability cannot describe them completely. Hence our knowledge of any substance is not absolute but relative. Jaina school proposes a methodology to address this issue and argues that capturing reality perfectly with the language is not possible.

This is analogous to six blind men trying to describe how an elephant looks like. Each one of them will describe an elephant in a manner that is both right and not right. It is right in a limited sense and not right if we take it as the ultimate description of the elephant. However, the description of the reality can be sufficiently enhanced through appropriate qualification of the claim made. This approach is known as 'syād-vāda', meaning conditional predication. 'Syāt' in Sanskrit essentially means, 'maybe'. In this context, it would mean, 'in a certain sense of the term' or 'from a certain point of view'. Using this concept, the Jaina school lists seven possibilities for the truth values. With syādvāda, Jain philosophers are able to analyse claims made by various systems of thought and show them to be relative assertions of the truth as understood by the Jain tradition.

- ◆ The concept of rebirth and other world is completely dismissed in Cārvāka philosophy.
- ◆ The details of the Jain School of Philosophy can be found in the canonical texts of Jainism, which are largely based on the teachings of the Tirthankaras.

In the Jaina school, the cycle of birth-death is attributed to tiny particles of matter (Pudgala) that have embedded themselves into the Jīva. This is called karma and in the Jain philosophy, spiritual growth is to overcome this karma. An analogy of a wet cloth explains how karma affects the Jīva. Just as a wet cloth becomes sticky when worn, the kārmic matter gets attached to the Jīva. The passions that we get attracted to are compared to the water in a wet cloth. A wet cloth attracts dust, in the same manner, the Jīva attracts karma. According to the Jain philosophy, the passions are evoked by experiences, which arise due to the kārmic particles that have previously bonded with the Jīva. Just as the seeds ripen eventually and bear fruit, the karma is supposed to have an impact on the jīva in terms of some experiences. These experiences could be pleasant, painful, or neutral, and evoke corresponding passions of attraction, aversion, or indifference. The passions, in turn, attract more kārmic particles or seeds, and the entire process repeats itself.

The Jīva is stuck in bondage with the matter because of his karma and passions. Hence freeing the self from the matter is the way to liberation. The association of the matter with Jīva is due to the ignorance about himself and the world. The real knowledge which can destroy the ignorance is not easily obtained by the Jīva, for that he has to listen to the teachings of the great masters, the Tīrthaṅkaras, who are liberated from the bondage. From a practical point of view, the goal is to purify the Jīva of kārmic matter, in a way by cleaning the karma so that the Jīva can radiate in its inherent blissful nature. To achieve this goal, Jain philosophy considers ascetic practices as essential. Since karma is considered as a physical substance that has bonded with the Jīva, Jain philosophy puts special emphasis on ascetic practices in terms of what one must and must not do, as a means to 'clean up' the karma. Three gems are prescribed: right faith, right knowledge, and right conduct⁸. Right faith is given utmost importance as any activity undertaken with false convictions loses much of its value. Right knowledge pertains to a good understanding of the Jain philosophy. Right conduct is also placed huge importance in the Jain philosophy. The individual must control the passion with the right conducts, of which ahimsā is the most important one.

Once a person begins to diligently practice the ethical restraints and prescribed ascetic disciplines, the karmas slowly drop away and the pure knowledge, which is the inherent nature of the Jīva begins to radiate. By these practices, the passions can be calmed and through a two-way process of cleaning existing kārmic matter and preventing further accumulation of karma, the Jīva can attain the final goal.

3.6.2 Bauddha School of Philosophy

The Bauddha (or Buddhist) school of philosophy is largely based on the teachings of Gautama Buddha. Buddha was born as Siddhārtha during the 4th–5th Century BCE. Although Buddhism originated in ancient India, it later spread to several parts of Asia. There are two forms of Buddhism: the northern form and the southern form. The form of Buddhism prevailing in Nepal, Tibet, China, Korea, Vietnam, Taiwan, Singapore, and Japan is called northern Buddhism (also synonymous with Mahāyāna) while the form prevailing in Sri Lanka and other parts of Southeast Asia including Cambodia, Laos, Myanmar, and Thailand is called Southern Buddhism (also known as Theravāda). The earliest form is the northern version, and it includes several sub-traditions such as Zen, Nichiren, and Shingon. Kaniśka is supposed to have convened a great council of the Northern Buddhists in the 1st century CE. Lalitavistara is an important work composed by the Northern Buddhists sometime during the 2nd–4th century CE. Tibetan Buddhism drifted away from the primitive Buddhism in India and is supposed to have adopted forms and ceremonies, which were unknown to Gautama and his followers.

According to early texts, Gautama was moved by the suffering of life and death. Further, on account of rebirth, this suffering is experienced in an endless cycle of birth-death. His enlightenment showed him the path for liberation from this suffering forever, by reaching a state of Nirvāṇa. Gautama's teachings were initially oral and in the later period, they developed into a complete philosophical system with several treatises written by the followers of the school.

Buddha's philosophy focuses on the means of ending the suffering of the individuals. It is based on four noble truths (catvāri-ārya-satyāni). Figure 3.6 graphically illustrates this. These are elaborated as follows:

1. **There is suffering:** According to Gautama, "Birth is suffering, decay is suffering, illness is suffering, death is suffering. The presence of objects we hate is suffering, not able

to obtain what we desire is suffering." The Buddhist philosophy argues that the human being is a compound of five aggregates and clinging to them leads to suffering. The five aggregates include the following:

- (a) The form made of four elements (earth, water, fire, and air), five sense organs, five attributes of matter (smell, form, sound, taste, and touch), two distinctions of sex (male, female), three essential conditions (thought, vitality, and space) and two means of communication (gesture and speech)
- (b) Consciousness
- (c) Feeling: Sensations of pleasure and pain
- (d) Formation
- (e) Perception and Potentialities which lead to good or bad results

These five aggregates include all physical and mental elements and powers of man and are impermanent in nature. Consciousness arises from other aggregates and mental factors from the contact of consciousness and other aggregates.

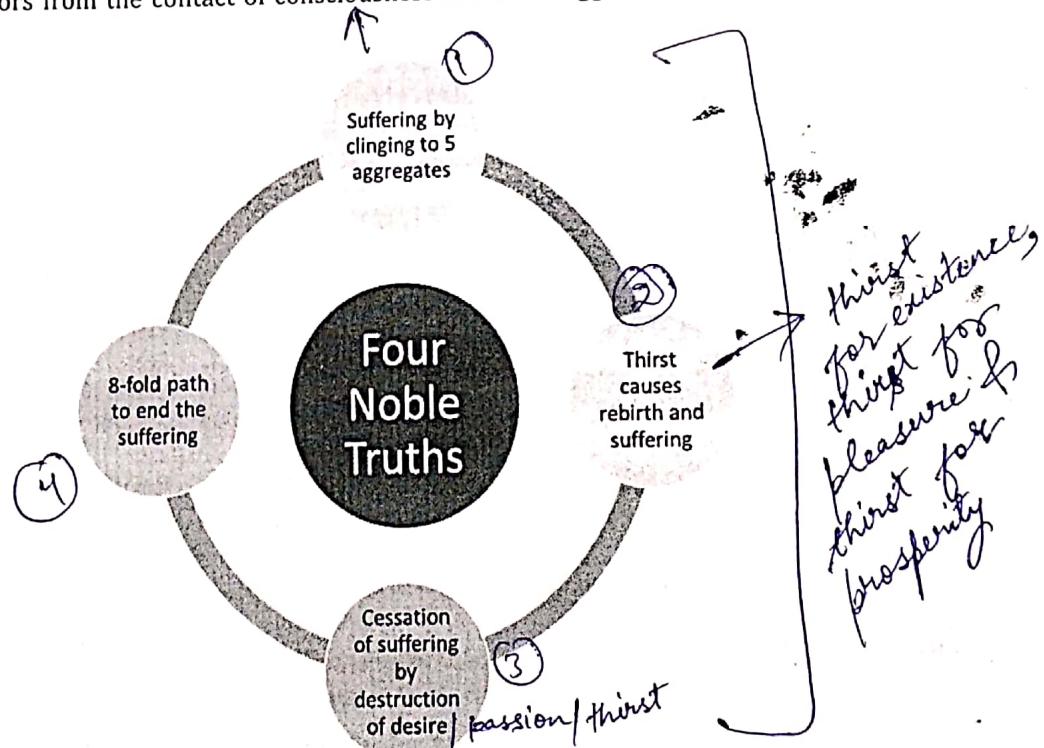


FIGURE 3.6 The Four Noble Truths of Buddhism

2. *There is the cause of suffering:* In Gautama's words, "Thirst leads to rebirth accompanied by pleasure and lust, thirst for pleasure, thirst for existence, thirst for prosperity".
3. *The cessation of suffering:* The cessation of suffering will be possible with the complete cessation of thirst, which amounts to the absence of passion and complete destruction of desire.

4. There is a path to end the suffering: Buddhist philosophy prescribes a holy eight-fold path that enables one to lead a holy moral life and that will lead one to the final goal of liberation. The eightfold path includes right views, right resolve, right speech, right conduct, right livelihood, right effort, right mindfulness, and right concentration.

The ultimate goal in Buddhist philosophy is to reach Nirvāṇa. Nirvāṇa is not a state reached after death, but something that is attainable in this very life. It is the sinless calm state of mind attained due to freedom from desires and passions, a state of perfect peace, goodness, and wisdom. Once a person reaches Nirvāṇa, the cycle of birth and death ends, which is the final goal leading to liberation.

As we have seen above, the central issue in Buddhist philosophy is to strive for the cessation of suffering. The Buddhist philosophy systematically argues how sufferings happen using a cause - effect cycle. Figure 3.7 illustrates this cycle leading to suffering. As seen in the figure, the root cause of the suffering is ignorance. Due to ignorance, the impressions of the previous birth lead to initial consciousness. The body and the mind and the sense organs evolve out of this consciousness. Once the sense organs are in contact with the senses and gather the experiences of life, the thirst for enjoyment drives the process leading to rebirth and suffering. Therefore, the only way to break this cycle of suffering is to remove ignorance by acquiring the right knowledge. The fourth noble truth provides the path for removing ignorance.

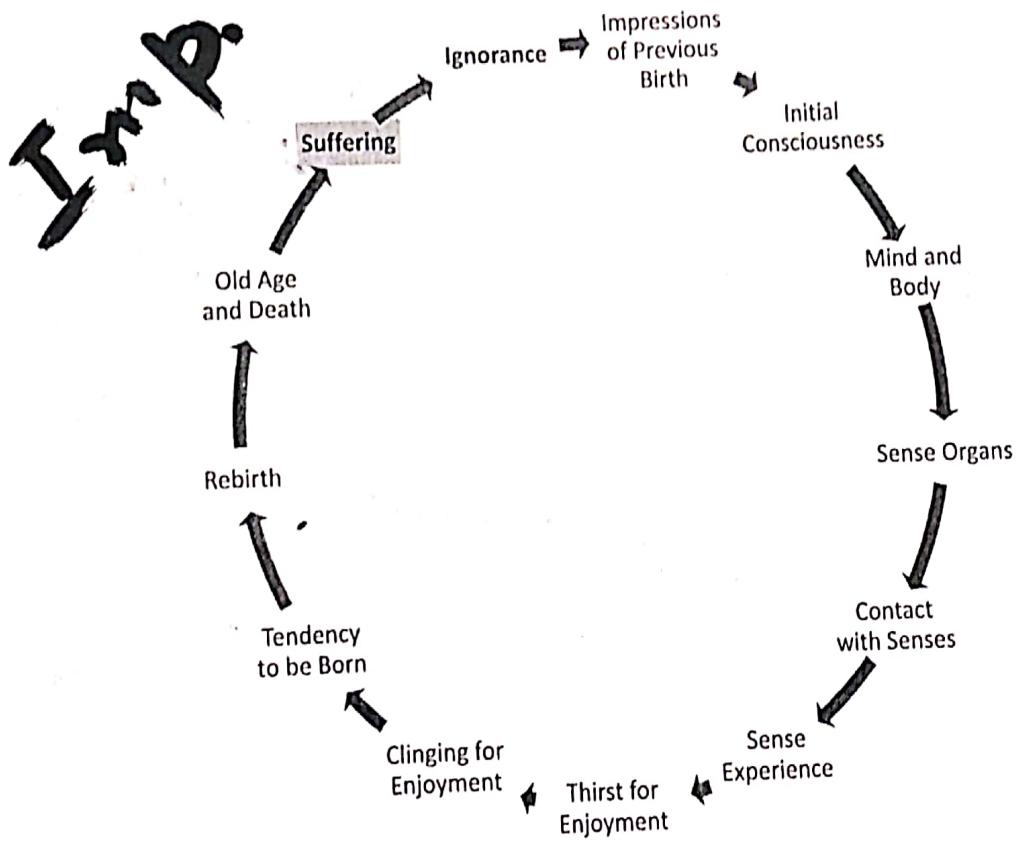


FIGURE 3.7 The Cycle of Suffering

3.6.3 Cārvāka School

Cārvāka school of thought closely maps to the trait of materialism, which emphasises a life of enjoyment based on certain principles and assumptions about life. The word Cārvāka literally means 'sweet-tongued' (cāru-vāka), in a way signifying that the ideas appear attractive at the outset. This is because the system only advocates two of the four puruṣārthas, pleasure and wealth as objectives of living. This school is also called Lokāyata. The Cārvāka school considers matter as the ultimate reality and rejects the idea that there is a divine or a transcendental power behind the matter, called Prakṛti conceptualised by the Sāṃkhya-Yoga school.

Philosophical systems in India had systematic methods for the presentation of the key concepts in the system. This began with a book (of aphorisms), followed by a growing literature of a few commentaries and sub-commentaries. In the case of the Cārvāka system, we do not seem to have such extensive literature on the school. No text of the Cārvāka school is available to us today which discusses its tenets in totality. The absence of canonical texts and a lineage of followers who were able to establish the tenets of the system by constantly engaging in intellectual debates to establish their tenets were perhaps responsible for its decay. Current discussions on this school of thought are based on the scanty fragments available for some analysis⁹. The available material is from texts such as Sarva-darśana-saṅgraha where, during the discussion of these schools, some verses are quoted. Mostly we get to know about this system through refutations from its opponents.

- ◆ No text of the Cārvāka school is available to us today which discusses its tenets in totality.
- ◆ According to Cārvāka school whatever is directly perceptible can only be accepted as valid means of knowledge.

One of the major differences of the Cārvāka school with that of the Vedic schools of philosophy pertains to what is the accepted means of valid knowledge. Unlike all other schools, Cārvāka school considers only direct perception through senses as pramāṇa¹⁰. Essentially this implies that whatever is directly perceptible can only be accepted as valid means of knowledge. This has significant implications for metaphysics. On account of this, Carvaka school considers matter as the only reality using which the world is made of. Furthermore, the world is constituted of only four basic categories, namely, earth, water, fire, and air, which are all physical and directly perceptible. Ether or space is not accepted as the fifth element because it is not perceptible. Other entities such as the sky, ātman, mind, iśvara, dharma, reincarnation, svarga, and mokṣa that the other schools have accepted are rejected in the Cārvāka system. In essence, all transcendental entities are dismissed using the argument that only direct perception provides valid knowledge.

There is nothing called ātman other than the body. Cārvāka considers the four basic elements of the world as the basic constituents of the body too. When the individual constituents exist in a disjointed state, they are bereft of life and consciousness. However, when these come together the body is formed, and by a peculiar combination of these constituents, the life-breath and consciousness appear in the body. The concept of rebirth and other world is completely dismissed in this system. The arguments primarily stem from the limitation of using only direct perception as the means of valid knowledge. There are no means available for determining the existence of the 'other world'. Moreover,

*earth,
water,
fire,
air*

situations faced and experiments conducted. These experiences and insights are shared and stored for posterity through literary works. These showcase the cultural practices, history, science and technology, social customs, assumptions about life, and know-how prevailing at the time the literary work was created. It also describes how some of the challenges faced in personal and public life were addressed. It also provides useful guidelines to society on several issues faced in life. Therefore, the accumulated body of literature serves as the repository of wisdom through the ages. With a long civilizational history, India has a rich body of knowledge and experience that has developed within the society from time to time, captured through a variety of literary works.

In this chapter, we shall have a glimpse of the ancestral wisdom recorded in various literary works. Purāṇas and Itihāsas mainly belong to this category. The origin of the purāṇas and the itihāsas is not yet accurately established, but it dates back to antiquity. However, in the recorded history, several literary works have been authored in Sanskrit and other regional languages.

4.1 PURĀṇAS – AN ENCYCLOPAEDIC WORK

In the history of Indian literature, Purāṇas occupy a unique position. Purāṇas are literary sources of ancient and medieval Indian history and culture. The larger purāṇic repository provides valuable insights into the history of philosophy and religion and is a storehouse that provides deep insights into all aspects and phases of the society, culture during the ancient and medieval times in India. Puranas may be described as a popular encyclopaedia of ancient and medieval religious, philosophical, historical, personal, social, and political aspects of the society.

On account of the diversity of people and issues discussed in the purāṇic repository, purāṇas have significantly contributed to maintaining cultural pluralism in India. They played a role in influencing classical art forms such as dance and music and promoted social practices such as the celebration of various festivals. The spread of the cultural heritage among the masses has to a large extent possible only because of the purāṇas. Moreover, they have played a pioneering role in motivating and practice of ethical and moral values in the life of the people of Indian society using stories as a powerful medium to communicate the ideals. In this manner, Purāṇas have provided means by which socio-cultural values can blend with religious values and dharmic living.

The literary beauty and story-based narration of ideas through a living tradition called 'Hari Kathā' have perennially attracted the masses towards the purāṇas. On account of this, purāṇas enjoy a unique position in the sacred literature of ancient India. They closely align with the epics in form and substance. Purāṇas enable us to know the true import of the ethos, philosophy, and religion of the Vedas and are companion texts to help understand and interpret the Vedas. Therefore, knowledge of purāṇas is considered very important as evident from the following observations in some of the purāṇas¹:

- ◆ Purāṇas are one of the most important literary sources of ancient and medieval Indian history and culture.
- ◆ Purāṇas are companion texts to help understand and interpret the Vedas.

- ◆ Skanda-purāṇa – Śruti (Vedas), Śmṛti (Rāmāyaṇa, Mahābhārata, Manu-smṛti, etc.) and Purāṇas are the three eyes of a scholar. One who sees the world with his three eyes is indeed a part of the supreme God.
- ◆ Visnu-purāṇa – One who is a scholar of all the four Vedas, with its limbs and Upaniṣads in it and has no knowledge of purāṇas cannot be ever considered as a complete scholar.

As in the case of the knowledge repository in ancient India, purāṇas have been handed down the ages through oral transmission. Therefore, it is difficult to establish the period to the authorship of the purāṇas as there is no explicit mention. The current version available to us may be the work of several authors over the centuries.

However, using the information available in the purāṇas, Indology researchers have made some guesstimates. Accordingly, some of the extant Mahā-purāṇas, e.g. Vāyu, Brahmāṇḍa, Viṣṇu, Matsya, and Mārkandeya are assignable to a period of 300 CE – 660 CE, while some others

- ◆ The study of purāṇas and the upa-purāṇas are critical to developing an understanding of the social and religious institutions in India.
- ◆ Purāṇas deal with the evolution of the Universe, the recreation of the Universe, genealogies of Gods and seers, and the history of royal families.
- ◆ such as Agni, and Garuda are assignable to a period of 600 CE – 900 CE and some others are assigned to a period later than 900 CE². On the other hand, in the Indian tradition, the antiquity of purāṇas is established using the available material in the purāṇas itself. According to Matsya Purāṇa, Brahmā remembered the purāṇas even before the Vedas³. We find mention of the word Purāṇa in the Vedas and Upaniṣads. For instance, in Chāndogyopaniṣad it is mentioned that Purāṇas can be considered as the fifth Veda⁴.

4.1.1 Mahā-purāṇas, Upa-purāṇas and Sthala-purāṇas

The purāṇic repository can be broadly divided into three: Mahāpurāṇas (Major Purāṇas), Upa-purāṇas (Minor Purāṇas), and Sthala-purāṇas (Regional Purāṇas).

- ◆ Mahā-purāṇas, the largest ever composed literature in the history of mankind is very extensive. There are 18 mahā-purāṇas⁵ and they are estimated to contain among them about 400,000 verses. The text in the purāṇas is in the form of several stories, anecdotes, clarificatory concepts, and rules and observances in a narrative style, often in the form of a reply to some issues raised during a dialogue between the narrator (usually a sage) and the audience (usually a group of sages, king, etc.). It enumerates stories of different forms of God, various kings, rṣis, etc. Usually, each purāṇa focuses on one form of the trinity (Brahma, Viṣṇu, Śiva) and celebrates the chosen trinity by narrating events centred around the trinity. For instance, Bhāgavata-purāṇa and Viṣṇu-purāṇa hold Viṣṇu as a supreme being, and Liṅga-purāṇa holds Śiva, etc. Some major purāṇas have discussed in detail a focused theme. For example, the Skanda, Padma and Bhaviṣya purāṇas deal mainly with pilgrimage to holy places (Tīrta-māhātmyas). The purāṇas cover a wide range of issues including the creation process and the geographical details, various rituals and their importance, certain scientific aspects, etc.
- ◆ Upa-purāṇas are similar to the mahā-purāṇas but are smaller in size. The number of Upa-purāṇas cannot be established with certainty, though about 100 of them can be enumerated from different sources. However, it is generally believed that there are eighteen of them which are prominent⁶. The list of upa-purāṇas differ in the verses found in various purāṇas⁷. So, it is difficult to list the names of eighteen upa-purāṇas exactly.
- ◆ Sthala-purāṇas are a class of sacred works which provide a connection between the land and the Divine in many forms. Each sthala-purāṇa is focused on a specific geographical place (usually a famous temple in a city) and weaves information centred

The purāṇas, for example, state that the common origin of all races of mankind is traceable to one centre on this planet. This is in accordance with the modern monogenist theory which holds that all varieties of humankind are of single zoological species. The purāṇas also present a picture in which the seven different human groups radiated from the common centre and occupied seven different regions of the world. In each of these regions, human society and civilization developed independently. This view also aligns with the current understanding that the world's primary races belong to seven different climatic regions. The purāṇas state that one of the seven regions is 'Jambū-dvīpa', where the Indian sub-continent (Bhārata-varṣa) is situated.

4.2 ITIHĀSA AS A SOURCE OF WISDOM

The etymology of the word 'Itihāsa' provides us some clues about the nature of the work and its contents. It consists of three components, *Iti + ha + āsa* (verily did exist thus). For example, 'Rāma lived thus', 'Rāvaṇa lived thus', 'This happened thus', etc. The literature which explains such examples is considered as Itihāsa. This gives us a sense that the word Itihāsa points to 'history'. However, other definitions convey a wider meaning:

- ◆ The text which teaches the four goals of life Dharma, Artha, Kāma, and Moksā, and which deals with the stories of historical happenings is called Itihāsa¹⁸.
- ◆ The text explains the story of the past¹⁹.
- ◆ According to Kautilya - history (*Purāṇa*, *Itivṛtta*), tales (*Ākhyāyikā*), illustrative stories (*Udāharana*), *Dharmaśāstra*, and *Arthaśāstra* are (known by the name) Itihāsa²⁰.

Therefore, Itihāsa is not merely a collection of stories related to some past events but an attempt to see the events through the lens of the four puruṣārthas. Though several literary works are considered as Itihāsa, only Rāmāyaṇa and Mahābhārata, also known as the great epics, have earned the fame of two major Itihāsas. At a cursory glance, the separation as Purāṇas and Itihāsas may appear artificial as both focus on narrating stories related to past events. However, there are crucial differences between the two:

- ◆ Itihāsas are narrations of the story in which the narrator has been part of the story. Thus, Mahābhārata authored by Vyāsa is a story in which he was also one of the actors, living at the time. So is the case of Vālmiki in Rāmāyaṇa.
- ◆ In this sense, Itihāsas are not stories about a distant past, as in the case of purāṇas. Therefore, there is a certain element of historicity to the Itihāsas, and these have been dated. On the other hand, establishing the period for the events narrated in purāṇas is not possible as they belong to a very distant past.
- ◆ In the case of purāṇas, there are five laksanas, as we have already seen. This involves discussion of multiple lineages of royal dynasties and rṣis. In contrast, in the two Itihāsas, there is a clear focus respectively on a single dynasty. In the case of Rāmāyaṇa, the focus is on the 'solar dynasty' (Sūryavamṣa) and in the Mahābhārata, the focus is on the 'lunar dynasty' (Candravamṣa). While the main flow of the story revolves around these respective dynasties, there are narrations of some purāṇic stories in Itihāsas, more as a side story to illustrate some point.

- ◆ By design, itihāsas are not meant to be encyclopaedic in nature, as in the case of purāṇas. Instead, the focus is to narrate the events using the lens of the four puruṣārthas, as mentioned already.

4.2.1 Uniqueness of the Two Epics

The two Itihāsas, Rāmāyaṇa and Mahābhārata occupy a very unique position in the repository of the Indian knowledge system. According to Swāmī Vivekānanda, "The Rāmāyaṇa and the Mahābhārata are the two encyclopaedias of the ancient Āryan life and wisdom, portraying an ideal civilisation, which humanity has yet to aspire after²¹". It is a common belief in Indian society that there is nothing that is not covered in these two Itihāsas. Several poetries, texts on governance, and Nīti śāstra have been inspired by these two epics.

These two great epics have deeply influenced Indian society for time immemorial as is evident from several references to the heroes of the two epics in local matters throughout the length and breadth of the Indian sub-continent. In several sthala-purāṇas and local traditions we find examples such as, 'This rock contains the footprints of Rāma, the mountain got split into two unable to bear the weight of the Hanumān, the colour of this river is like this because mother Sītā had washed her clothes here, this is the cave where the Pāṇḍavas spent their Vanavāsa' etc. Another indication of the great influence of the two epics on society is evident from the fact that classical Indian literary works (mahā-kāvyas) selected the themes from the two epics. For example, Kālidāsa's Raghuvamśa, Kumāradāsa's Jānakī-harana, and Bhaṭṭī's Bhaṭṭī-kāvya (Rāvaṇa-vadha) were based on Rāmāyaṇa. Similarly, Kālidāsa's Abhijñānaśākuntala, Bhāravi's Kirātārjuniya, Māgha's Śiśupāla-vadha and Śriharṣa's Naiṣadhiya-carita were based on Mahābhārata. Similarly, Indian drama, dance, movies, and other performing arts have been greatly influenced by the two epics.

The two epics have taken different approaches to the issues of life and the propagation of dharma. Interestingly, both address the core issue of dharma and one's duty towards personal, family, and societal obligations. However, by virtue of the differences in their approach, they arrive at different answers to the questions related to the core issue. On account of this, they together serve as a complete handbook for sensible and successful living. Rāmāyaṇa's approach is simple and straightforward. Despite personal sufferings, the duty is clear, there is little scope for ethical and moral dilemmas. Presenting an ideal picture of life, characters, relationships, and values to be pursued, it seeks to elevate an individual to a higher plane. This approach may be called a 'normative approach' to life (essentially suggesting what ought to be done in life).

On the other hand, Mahābhārata has taken what could be referred to as a 'descriptive approach' (essentially illustrating what the reality of life is). In this approach, by presenting the actual happenings, and the moral and ethical dilemmas that different actors faced, the epic showcases the decisions made by the actors and their consequences in the long run. Rather than presenting the ideals of life, it shows life as it unfolds with all its attendant challenges. Instead of informing us what our duty is it merely presents using several anecdotes and nested stories of how various people discharged their duties and what the fallout was. The richness and the value of Mahābhārata lie in the fact that it is full of unsolved ethical riddles

and dilemmas, which are faced by ordinary human beings, wherein the characters struggle to find what is right, make mistakes and suffer the full consequences.

It is remarkable to notice that the two epics are not a mere piece of poetic or literary work but a living entity deeply engaging the lives of the Indian people, not merely of the intelligentsia, but also all sections of the society.

4.3 RĀMĀYANA – KEY ISSUES AND MESSAGES

Rāmāyana consists of seven books which are called as Kāṇḍas, organized into 645 sargas (chapters), and 23,672 verses²². Rāmāyana is a vast history of Rāma but also consists of many other related instances. In India, we have more than 40 versions of Rāmāyana in different languages like the Rāmacaritmānas in Avādhī, Kamba-Rāmāyana in Tamil, Mādhava-Kāṇḍali in Assamese, Goṇa Budha's Raṅganātha-Rāmāyana in Telugu, Jagamohan-Rāmāyana in Oriya, Narahari-Rāmāyana in Kannada, etc. The story of Rāma is very well known in most parts of the world. It has been directly written in various languages in different countries. The Vālmīki-Rāmāyana is translated into many languages. There are reportedly around three hundred versions of Rāmāyana.

The Rāmāyana has played a significant role in cultural transmission between Indian and other Asian countries. It has travelled from India to other parts of Asia such as China, Turkestan, Burma, Thailand, Java, Cambodia, and Vietnam during the first millennium in the common era. It is interesting to note that almost all countries of Southeast Asia have the Rāma story, albeit in varied forms and content. From the thirteenth century onward, several Thai kings assumed the title Rāma, and the tradition continues. According to Rāmāyana, Rāma is not merely a human being but an embodiment and a living entity of the concept of Dharma. Through several characters, Rāmāyana provides a rich opportunity to understand important aspects of peaceful co-existence and successful living.

The Kāṇḍas in Rāmāyana

Bāla-kāṇḍa deals with the birth and childhood of Rāma and his brothers. Viśvāmitra takes along with him Rāma and Lakṣmaṇa through the forest and eventually to Mithilā leading to the marriage of Sītā to Rāma. One of the key messages that we can glean from this section is the importance of knowing the reality of life in the country by the king-to-be. Rāma's journey with Viśvāmitra through the forest and villages provided an opportunity for him to develop this awareness. This reminds us of an important principle stated in modern management parlance. In organisations, great leadership requires a good knowledge of the issues and realities facing the organisation. This is obtained only when the leader can connect to the people and situations in the organisation physically and mentally.

Ayodhyā-kāṇḍa describes the fast turn of events in which an attempt to coronate Rāma as the next heir apparent to the throne by Daśaratha was aborted and instead Rāma was sent to the forest for 14 years. The desire of Kaikeyī, the mother of Bharata, to install him as the prince went futile and Daśaratha died of shock and grief. This part of the epic provides an important message to the young that life can be a roller coaster ride. There is a need to understand that events in everyone's life can turn adversarial at any time. Rāma demonstrates that to be successful in life one needs to develop mental equanimity to handle such unforeseen events

- ◆ Rāmāyana takes a 'normative' approach while Mahābhārata takes a 'descriptive' approach to present events and decisions.
- ◆ Indian drama, dance, and other performing arts have been greatly influenced by the two epics.

in one's life. The conversation between Bharata and Rāma in the final portions of this section contains a wealth of information on public policy and administration and larger issues of life. We shall see some aspects of this in Chapter 14 of the book.

Aranya-kānda marks the large-scale elimination of demons in the forest in response to the request from the sages and seers, who were constantly harassed by these people. It also portrays the forceful and deceitful kidnapping of Sītā by Rāvana. The epic reminds us that goodness needs to be protected from evil forces, lest it becomes unsustainable. The conversation between Mārīca and Rāvaṇa brings out an important message that while removing a poisonous snake that entered into a freshwater lake, the only source of livelihood for a village, 1000's of good fishes will die for no fault of theirs. It reminds us of the fact that an evil action by an individual will eventually trigger a bigger reaction from the system and in the process of eliminating the evil, several good aspects may also get destroyed.

Kiṣkindhā-kānda describes the efforts on the part of Rāma and Lakṣmaṇa to find Sītā, who was abducted by Rāvana. The grief that they underwent was unparalleled as they were not even aware of what happened to Sītā and who took her away. The meeting of Sugrīva through the good offices of Hanumān instilled a ray of hope in their search. The epic brings out the importance of friendship, especially during periods of great distress. It also reminds us of the importance of wise counselling to wade through the challenges that we face in our life.

Sundara-kānda describes the heroic efforts of Hanumān to cross the ocean to locate Sītā and

- ◆ Rāmāyaṇa encourages one to contemplate the difference between 'goodness' and 'greatness' and the need to have both to succeed in life.
 - ◆ Mahābhārata discusses a variety of topics including law, philosophy, religion, and custom.
- repose confidence in her. It also describes the horrifying state of affairs for Sītā and the grit and determination with which she faced the situation. The epic beautifully demonstrates the strength of the character of Sītā, with which she discovered unlimited courage within and faced the adversity with grace and purpose, which can inspire the womenfolk. Other messages include statecraft, dealing with ambassadors, and the presence of mind and tact required for assessing the strength of an opponent.

Yuddha-kānda describes the royal battle that erupted between Sugrīva's army and Rāvaṇa's army, eventually culminating in large-scale elimination of rākṣasas and their king Rāvana as prophesied by Mārīca. Before the war, Rāvaṇa bluntly dismissed several attempts by his near and dear to instil a sense in him by pointing to the dangers of the imminent war and the need to broker peace with Rāma by giving up Sītā. Kumbhakarṇa while advising Rāvaṇa says, "One who takes the timely advice concerning Dharma, Artha and Kāma, about the pros and cons of the deeds from his scholarly councilors never gets into trouble²³". Rāvaṇa was very powerful but he flouted the advice given by his great councilors and well-wishers like Vibhīṣaṇa, Mārīca, Mālyavān, Maṇḍodarī, and Kumbhakarṇa. This led to his downfall and death. The epic forcefully brings out the benefits of wise counseling and the dangers of hasty decisions arising out of an inebriated mind polluted with attachment to unreasonable and unethical desires.

Uttara-kānda has a collection of related stories not necessarily in chronological order as in the case of the previous books. It discusses certain events in Rāvaṇa's life not mentioned in the other books, the birth of Lava and Kuśa and the departure of Rāma and Sītā from this world.

The epic throughout depicts Rāma and Rāvaṇa in equal measure when it comes to 'greatness'. While describing the final encounter between Rāma and Rāvaṇa, Vālmīki remarks that it is impossible to find a simile to describe this, "Just as the vastness of the sky has no

simile and the majesty of the ocean also does not have a simile, in the same manner, there is no analogy to the war between Rāma and Rāvaṇa²⁴. Unfortunately, in terms of 'goodness' Rāvaṇa was no match to Rāma. The epic encourages one to contemplate the difference between 'goodness' and 'greatness' and the need to have both to succeed in life. Greatness without 'goodness' is a definite recipe for eventual disaster as demonstrated by Rāvaṇa. On the other hand, 'goodness' without 'greatness' may not enable one to cover much ground in his life.

Rāma lived as a human being and faced the day-to-day situations and conflicts of life from an ordinary human plane. This makes Rāmāyaṇa special and realistic. The Rāmāyaṇa describes situations where there are moral dilemmas and conflicts between two rights. Rāma was a perfect role model, who lived through the good and enjoyable aspects of life yet in a detached fashion. He was detached from power, wealth, greed, fame, and desire. He was kind and even minded to even those who opposed him. His ability to face difficult situations in life and to gracefully handle success and tragedy is an excellent example to follow.

The Vālmīki Rāmāyaṇa beautifully depicts the dharma of personal life, family life, and social order. The human characters in Rāma, Lakṣmaṇa, Bharata, Kausalyā, and Sītā bring out the principles of ideal living. It emphasises the ideal relationships between father and sons, between brothers, and between husband and wife. The concept of dharma as the way to a meaningful life could be a powerful theme for positive mental health. Many conflicts in life can be resolved using this perspective. These anecdotes, the conflicts, and the situations are the real nuggets of wisdom for the people.

4.4 MAHĀBHĀRATA – A SOURCEBOOK FOR WORLDLY WISDOM

Mahābhārata is one of the greatest poems in the world composed by Kṛṣṇa-Dvaipāyana (Veda Vyāsa). According to the available information, the original and first version of Mahābhārata which was named Jaya consisted of only about 8,000 verses and then the second version had 24,000 verses which was named Bhārata²⁵. It was later extended to up to 1,00,000 verses and was named Mahābhārata. There are multiple versions of the epic available. Therefore, a long-term project under the auspices of BORI, Pune started in 1919 under V.S. Sukthankar to prepare a critical edition of Mahābhārata. After collating information from 1,259 manuscripts and several years of work, a critical edition was finally brought out in 1966. The critical edition consists of more than 89,000 verses organised under 18 Parvas.

Multiple editions and redaction of the original text of Mahābhārata may appear to be a cause of concern. However, the leading incidents and characters of the epic have not been affected and modified by these changes. Mahābhārata depicts the trials and tribulations that

- ◆ Mahābhārata presents the reality of life and allows the reader to pick up their lessons for living.
- ◆ Nītiś are the guidance to take a person to the path of Dharma by providing the right perspectives about life and life goals.

various kings of the lunar dynasty went through. To a large extent, the story focuses on the dispute between two families, the Kauravas and the Pāṇḍavas. The story unfolds steadily in the text but is interspersed throughout with a variety of topics including law, philosophy, religion, custom, and to some extent, geography and cosmography combined with several episodes and legends adding to the richness of the message. Table 4.2 concisely presents the broad

organisation of the text and the major topics covered in the text. The issues discussed in the text can be broadly summarized under five major heads:

TABLE 4.2 Overall Structure and Organisation of Topics in Mahābhārata

<i>Parva</i>	<i>Chapters</i>	<i>Topics</i>
Ādi	225	Stories of the ancestors of Kuaravas and Pāṇḍavas; birth and education of Kauravas and Pāṇḍavas; enmity in their childhood; Draupadī's marriage to Pāṇḍavas; Arjuna's marriage to Subhadrā
Sabhā	72	Performance of Rājasūya yajña by Yudhiṣṭhira, the game of dice maneuvered by Duryodhana, and its tragic consequences
Āranyakā	299	Pāṇḍavas in exile, several stories from the past, famous conversation known as Yakṣapraśna
Virāṭa	67	The stay of the Pāṇḍavas incognito in the kingdom of Virāṭa, Virāṭa princess Uttarā gets married to Abhimanyu
Udyoga	197	Unsuccessful peace parleys and preparation for the war, the famous discourse of sage Sanatsujāta to Dhṛtarāṣṭra
Bhiṣma	117	Śrimad Bhagavad Gītā, detailed descriptions of the first ten days of the war, Bhiṣma mortally wounded by Arjuna
Droṇa	173	The heroic exploits of Droṇa and his death through a planned strategy; Abhimanyu's tragic death
Karṇa	69	Death of Duśsāsana, the second of the Kaurava brothers, fall of Karṇa at the hands of Arjuna
Śalya	64	Final encounter between Bhīma and Duryodhana on the last day of the war
Souptika	18	The gruesome massacre of the Pāṇḍava army in the night during sleep by Aśvatthāman
Strī	27	Lamentations of the widows of the dead warriors
Śānti	353	Wonderful discourses on all aspects of dharma by the patriarch Bhiṣma at the request of Yudhiṣṭhira, Bhiṣma's demise, Yudhiṣṭhira's coronation
Anuśāsana	154	
Āśvamedhika	96	Departure of Śrī Kṛṣṇa to Dvārakā, Āśvamedha Yajña by Yudhiṣṭhira
Āśramavāsika	47	Departure of Dhṛtarāṣṭra to the forest along with Gāndhārī, and Kuntī; their subsequent death in a forest fire
Mausala	9	Mutual destruction of the Yādava heroes and also the death of Śrī Kṛṣṇa
Mahāprasthānīka	3	Final journey of the Pāṇḍavas, their death on the way, Yudhiṣṭhira alone reaching heaven
Svargārohaṇa	5	
Harivamśa	118	Supplement of Mahābhārata
Total	2,113	

the two epics as evident from the above discussions.

Rāmāyaṇa

- 645 chapters, 23,672 verses
- Normative approach – Ideal ‘textbook’ like characters of life
- All countries in SE Asia have the Rāma story
- Descriptions of dharma of personal and social life and social order
- Notion of ‘Goodness’ vs ‘Greatness’

Mahābhārata

- 1,00,000 verses, over 2,000 chapters
- Descriptive approach – Characters present the ‘reality’ of life
- Rich collection of deeply nested stories
- Many nuggets of wisdom – Yakṣa Praśna, Vidura Nīti, Sanat-sujātīya, Bhagavad Gītā

FIGURE 4.4 A Summary of Some Salient Aspects of the Two Epics

4.5 NĪTI-ŚĀSTRAS – COLLECTION OF SNIPPETS OF WISDOM

5.2 PĀṇINI'S WORK ON SANSKRIT GRAMMAR

In the Indian context, since the preservation of the Vedas and their meanings was given utmost importance, linguistics was an important discipline to be studied by everyone. Therefore, three out of the six Vedāngas, Śikṣā, Nirukta and Vyākaraṇa focused on phonetical and syntactical aspects of language. We have briefly discussed these in Chapter 2 of the book. On account of this, people who are trained in Sanskrit can comprehend ancient works such as the epics, Purāṇas, and the Vedic corpus in a lossless fashion. Several Indian languages have borrowed the syntactical and phonetic structure, language organization, and vocabulary from Pāṇini's work on Sanskrit grammar. Therefore, it is important to know this in some detail. Pāṇini's work on Sanskrit grammar, known as Aṣṭādhyāyī is a process of refinement and syntactical structuring, because of which the language is called Samskrta (the refined one) and is considered a fine creation of human intelligence.

The Aṣṭādhyāyī is the culmination of a long grammatical tradition. Pāṇini brought his originality into action and proposed a structure to the grammar. It is the best available descriptive model of a language. The greatness of this work is evident from the fact that it has overshadowed all previous attempts on Sanskrit grammar. Moreover, several commentaries written on it is another proof of its prominence in linguistics. In the 4th century BCE, Kātyāyana composed a commentary (vārtika) on the Pāṇinian work, which served to provide further explanation of the work and clarified certain aspects of Aṣṭādhyāyī. Another great work on Aṣṭādhyāyī is the Mahābhāṣya, a commentary on the Aṣṭādhyāyī, authored by Patañjali in the 2nd century BCE. These three are considered the three great sages (tri-muni) of Sanskrit grammar.

While framing a syntax and linguistic framework, the challenge is to find an efficient set of rules to accommodate all the observed patterns and variations in the use of a language by the society.

- If there are robust rules that govern a language leaving several exceptions, it is not useful. At the other extreme, to accommodate all the possible variations, the number of rules framed may become very large, again making it less useful. The greatness of the Sanskrit grammar laid out by Pāṇini lies in its astuteness in establishing a framework for linguistics that nicely balanced both these aspects. Pāṇini did not write a set of rules and insisted that everyone must follow these rules to use the language. This is possible when we develop a computer language such as C or Python, for example. Pāṇini composed 3,983 rules (known as Sūtras) to mostly accommodate the patterns and variations in the Sanskrit language and arranged them in eight chapters (therefore, the name Aṣṭādhyāyī). Each chapter is further divided into 4 quarters, thereby making it 32 quarters in all.
- ◆ Pāṇini composed 3,983 rules to accommodate all the patterns and variations in Sanskrit language.
 - ◆ The basic approach of Pāṇini and its distinguishing features make Sanskrit a powerful language and eternal in its appeal.

The basic approach of Pāṇini and its distinguishing features make Sanskrit a powerful language and eternal in its appeal. These are summarized below:

- ◆ The entire vocabulary of the Sanskrit language could be created using the 3,983 rules. Few exceptions need special handling. The rules are aphorisms (known as sūtras), which are easy to commit to memory. What it implies is that if someone is familiar with

these rules and how it needs to be applied, then it amounts to gaining unambiguous mastery of Sanskrit language. The educational systems in India until the introduction of the Macaulayan system of education in the 19th century CE ensured this mastery for the students.

- ◆ Language processing and word generation are strictly rule-based and derivative in nature. Proper application of the rules must result in a valid word (a form of the language). There is no need to make any additional assumptions to derive any word.
- ◆ The derivation of words using the rules could be done using a step-by-step process. What it implies is that technically speaking, starting from a base (a verbal root or a nominal root), the logic can search if any of the 3,983 rules could be applied to the current transformation of the root. If the rule can modify, the current structure it will perform the operation. The procedure stops when none of the rules could be further applied. The result is the final word. This rule-based recursive structure to language is highly amenable to computer-based processing. The entire process is logical, unambiguous, and rational.
- ◆ The entire scheme for word generation follows a highly modular approach. Two basic components form a word. Each word is formed out of a base (verbal or nominal root). To this, one or more suffixes are added to generate the word. On account of this method of word generation, the Sanskrit language inherently has a high degree of 'patterns' of words and word structures that makes it very efficient to develop vocabulary.
- ◆ Since the entire language is rule-based, the vocabulary is not fixed or static for the language. The rules can be used for generating new words, as long as the rules are not violated. Therefore, the language is dynamic, can construct new words as demand arises, and can maintain its relevance. This has implications for lexicographic studies in the language.
- ◆ Aṣṭādhyāyī deploys several interesting data structures and computational elements that make it unique among linguistic studies.

These distinguishing aspects of Pāṇini's grammar are discussed details in Sections 5.5, 5.6 and 5.8 of this chapter. Since language has the phonetic (sound) and syntactical (script) dimensions, we shall see Panini's approach to these in the Sanskrit language.

and how it systematically developed through the ages. We shall dwell on these issues in this chapter.

6.1 NUMBER SYSTEM IN INDIA – HISTORICAL EVIDENCE

The contribution of ancient Indians to the development of mathematical concepts is well known and acknowledged. Many Scientists and writers from the West have time and again acknowledged this aspect, as evident from the following:

- ◆ Based on extensive research, Ifrah presented evidence from Europe and the Arabic world to show that modern number systems indeed originated in India. Using several references during 810 CE to 1814 CE, he presented several observations of the past writers on Indian Mathematics¹.
- ◆ Laplace remarked, "The ingenious method of expressing every possible number using a set of ten symbols (each symbol having a place value and an absolute value) emerged in India. Its simplicity lies in the way it facilitated calculation and placed arithmetic foremost amongst useful inventions"².
- ◆ In his book on India, composed around 1030 CE, Al-Biruni wrote, "Whilst we use letters for calculation according to their numerical value, the Indians do not use letters at all for arithmetic. And just as the shape of the letters that they use for writing is different in different regions of their country, so the numerical symbols vary"³.

A number of archaeological excavations supplement the linguistic evidence provided by the early writers about the maturity and supremacy of the Indian mathematical foundations. The street widths in the Indus-Saraswati Civilization were highly standardized. For instance, Kalibangam, a city in the Indus-Saraswati Civilization (in Rajasthan, India) had street widths

of 1.8 m, 3.6 m, 5.4 m, and 7.2 m⁴. These were built to the standard dimensions of 1, 2, 3, and 4 Dhanus (this unit is discussed in the section on measurements) respectively. Such widths are found at other sites also. The excavations at Harappa, Mohenjo Daro, Dholavira, and Lothal show that several constructions were done using fired bricks of standard dimensions and fine geometrical and material quality. The dimensions of the bricks appeared to be standard with length × width × depth in the ratio 4:2:1.

Weights and linear measures follow a similar pattern wherever they have been found. This similarity across sites spanning several hundred kilometres points to the use of a standard unit of measurement at that time, signalling mature mathematical thinking.

In the Arthaśāstra, there is a mention of two types of Dhanus as units for measuring lengths and distances: Dhanus = 96 Āngulas; Gārhapatya-dhanus = 108 Angulas used for measurement of roads and distances. The oldest dated Indian document containing a number written in the place-value format that we use today is a legal document dated 594 CE from the Bharukachcha (or Broach) region in Gujarat. In an inscription at Gwalior dated 'Sañyat 933' in the Vikrama calendar (876 CE) the numbers 50 and 270 were recorded with a small circle appearing at the appropriate positional place for zero. An ancient Indian scroll known as the Bhakshali manuscript was discovered in a field in 1881 giving evidence of the earliest recorded use of

◆ Several archaeological excavations provide evidence about maturity and supremacy of Indian mathematical foundations.

◆ An inscription on a temple wall in Gwalior dating back to the ninth century CE is considered the oldest recorded example of a zero.

zero. Carbon dating of this has revealed that it was probably written in the third or fourth century CE. An inscription found on a temple wall in Gwalior dating back to the ninth century CE is another recorded example of a zero.

6.2 SALIENT FEATURES OF THE INDIAN NUMERAL SYSTEM

The Indian numeral system has a long history. The origin and the evolution of the numbers could be traced from the time of the Vedic period. Being an oral tradition, unique and unambiguous names were to be attributed to the numbers. Therefore, as early as the Rgveda time, the use of numbers and unique names prevailed. The Sanskrit language has unique names for numbers starting from one and going up to very large numbers. The first nine digits have unique names (ekam, dve, trīṇi, catvāri, pañca, ṣat, saptā, aṣṭa, nava). There are unique names for numbers from 10 to 100 in steps of ten (daśa, viṁśati, trimśat, catvārimśat, pañcāśat, ṣaṣṭi, saptati, aṣṭi, navati, śata). Beyond 100, there has been the use of names for numbers, which extend up to very large numbers. There are many references in the literature pointing to the use of such number names.

Spread of Indian Mathematical Concepts Westwards

The catalogue of the Sui dynasty (610 CE), pointed to several Chinese translations of Indian works on astronomy and mathematics, which are no longer extant. Records from the seventh century (of the Tang dynasty), suggest that Indian astronomers were employed at the Astronomical Board of Chang-Nan to teach the principles of Indian astronomy and calendar. An Indian named Gautama-Siddhārtha was reported to have constructed a calendar along the lines indicated in the Indian *Siddhāntas*.

Indian numerals reached the court of second Abbasid Caliph al-Mansur (753–774 CE) from Sindh. Moreover, the Indian decimal place-value system reached at least a century earlier as evident from a passage attributed to Nestorian Bishop Severus Sebokht (662 CE). In a book written during 820 CE by al-Khwarizmi, the operations of addition, subtraction, multiplication, division and the extraction of square roots according to the Indian system was explained. His work was translated into Latin by 12th Century CE and there were several commentaries in Latin on this book.

In the transmission of Indian numerals to Europe, via the Arab world, Spain played an important role as it was under Muslim rule for many years. Documents from Spain and coins from Sicily provide evidence of the spread. Fibonacci (1170–1250 CE) learnt the Indian numerals during his travels in North Africa, Egypt, Syria and Sicily and wrote a book bringing these aspects into focus. The spread westwards continued slowly, displacing Roman numerals. It was simply a matter of time before the new numerals were put to use by the bankers, traders and merchants for their daily calculations.

Source: Adopted from Joseph (2009). "A Passage to Infinity: Medieval Indian Mathematics from Kerala and Its Impact", Sage, Chapter 8.

One can appreciate the importance of the Indian numeral system in scientific development if the following contributions are understood:

- ◆ A legacy of using large numbers with unique number names for these large numbers
- ◆ Developing a robust place value system for the numerals
- ◆ The concept of zero and its use beyond being a placeholder
- ◆ A decimal system that opened vast possibilities for arithmetic operations

6.2.1 The Concept of Zero and Its Importance

Today, zero, both as a symbol (or numeral) and a concept meaning the absence of any quantity allows us to perform calculus, solve complicated equations, and to have invented computer operations using binary digits. Among the significant contributions of the ancient Indians is the concept of zero.

◆ The concept of zero was established during the period 500–300 BCE.

The available evidence shows that the concept of zero was established during the period 500–300 BCE and fully developed in India by 600 CE. Ancient Indians were able to use a decimal system that allowed them to develop a method for handling large numbers. In this process, the use of number zero became inevitable as a placeholder. The number name to indicate zero is Śūnya. Pingala a second century BCE Indian philosopher authored Chandaḥśāstra, which dealt with the metres used in Sanskrit poetry in which the word śūnya was used, which obtained the mathematical connotation of 0. It later became its proper name as a number.

◆ Ancient Indians used a decimal system that allowed them to develop a method for handling large numbers.

Brahmagupta developed a symbol for zero in 628 CE. With this invention, zero could be used as an independent numeral for computational purposes. The real power of zero was evident when the use of zero was beyond a mere placeholder. Ancient Indians used zero in computations ahead of others and thereby elevated zero from a placeholder to a numeral. This is considered one of the greatest breakthroughs in the history of mathematics. Bhāskara II in his Bijaganita introduced the properties of zero when mathematical operators such as addition and subtraction are operated on it. He stated that its nature does not change when numbers are added to subtracted from zero.

6.2.2 Large Numbers and Their Representation

In the Chāndogya Upaniṣad, in a conversation between Sage Nārada and Sanatkumāra, it was mentioned, "There is no joy in the finite. The Infinite alone is joy. That which indeed is the Infinite is immortal. On the other hand, that which is finite is mortal"⁵. The Rgveda has several names of numbers scattered through its ten mandalas. Many of them are names of compound numbers, i.e., those which are neither atomic nor a power of 10. In the Taittiriya-saṃhitā, book 7, Chapter 2, there is a reference to numbers up to 10^{13} . In a passage in the Taittiriya-upaniṣad⁶, there is a reference to the quantum of happiness of an evolved individual who has transcended the realm of desires. In the description, the numbers are progressively raised by multiples of 100 up to 10 levels, suggesting a large number of 10^{20} . There is a similar passage in Brhadāraṇyaka-upaniṣad⁷ on the same theme, which amounts to a number 10^{14} . The opening story of the chapter (IKS in Action 6.1) demonstrates the knowledge of very large numbers to Ancient Indian at the time of Gautama-Buddha. One of the reasons for the use of large numbers could be the interest in Astronomy. Astronomical calculations invariably require large numbers. The Vedic corpus, the Itihāsas, and the Purāṇas have several references to astronomical data. Table 6.1 lists some references to large numbers in ancient Indian texts.

◆ Brahmagupta developed a symbol for zero in 628 CE.

◆ There are references to large numbers in canonical works in Jainism.

TABLE 6.3 Word Numerals for Bhūta-saṃkhyā System

Number	Represented by (partial list only)*
0	sūnya, anata, pūrṇa, kha
1	ādi, candra, prithivī, eka
2	aśvin, pairs of limbs, ayana, dvandva, dvi
3	rāma, guṇa, loka, kāla, agni, trineta
4	veda, śruti, yuga, aśrama, varṇa, samudra, kṛta
5	bhūta, śāstra, bāṇa, pāṇḍava, indriya
6	aṅga, ṛtu, darśana, saṃmukha, ṣaṭ
7	rṣi, adri, svara, dhātu, chandas
8	vasu, bhujāṅga, siddhi, dik, kuñjara, nāga
9	grha, aṅka, nanda
10	dik, anguli, avatāra, rāvaṇaśiras
11	rudra
12	āditya, rāśi
13	viśva, kāma
14	manu
15	tithi, dina

* For all the items listed, any word from the synonyms may be used

6.3.2 Kaṭapayādi System

Another system to convert the numerals to words is to associate a number to one or more alphabets. Once this association is established, the numbers can be replaced with a corresponding alphabet. Using the alphabet in the place of numbers, one can construct words, which by deciphering one alphabet at a time will reveal the number expressed in the word. The advantage of such a system lies in representing long (or large) numbers using a nice word, which can be easily remembered. This is particularly very valuable in an oral tradition, where large numbers may have to be remembered and communicated without loss of digits. This provided a very efficient method of presenting results of complex calculations using number symbols, and then codifying and committing to memory effortlessly.

Kaṭapayādi system employs certain rules to convert the numerals to alphabets:

- (a) The vowels when standing alone indicate the number zero. In all other cases when they are conjoined with consonants, they have no role in this system other than facilitating the pronunciation of the consonants when used in a word.
- (b) Each consonant is uniquely associated with a number from 0 to 9. For example, the consonants ka-ṭa-pa-ya was used to denote number 1. Therefore, the system was referred to as the Kaṭapayādi system. Similarly, kha-ṭha-pha-ra denotes number 2, and so on. Table 6.4 has the details of the assignment of consonants to the numbers.
- (c) As is evident from the table, more than one consonant may be associated with each of the numerals.
- (d) When more than one consonant is used in conjunction, only the terminal consonant preceding a vowel is to be considered for the identification of the corresponding numeral.

- (e) If a consonant is not conjoined with a vowel and stands alone, then it will not be considered for identification of the numeral.

- (f) Similar to the bhūta-saṃkhyā system, the numbers are to be read as units - tens - hundreds ... etc.

TABLE 6.4 Letter Numerals of the Kaṭapayādi System

1	2	3	4	5	6	7	8	9	0
क (ka)	ख (kha)	ग (ga)	घ (gha)	ङ (ña)	च (ca)	छ (cha)	ज (ja)	झ (jha)	ञ (ña)
ट (ṭa)	ठ (ṭha)	ड (ḍa)	ढ (ḍha)	ण (ṇa)	त (ta)	थ (tha)	द (da)	ধ (dha)	ন (na)
প (pa)	ফ (pha)	ব (ba)	ভ (bha)	ম (ma)					
য (ya)	র (ra)	ল (la)	ব (va)	শ (śa)	ষ (ṣa)	স (sa)	হ (ha)		

The use of conjoined vowels and consonants may be to aid generate pleasing and easy to remember words while representing a number, but the logic of identification of the number is based on the above rules. The origin of this system is traced back to the 5th century CE. Before the advent of the Kaṭapayādi system, the bhūta-saṃkhyā system was popular. Although this system is much simpler and easy to use, it was not in general use since there were four variations of the system. Table 6.4 has the letter numerals pertaining to the kaṭapayādi system.

Mādhavācārya's Approximation to π

Ancient Indian mathematicians have provided multiple approximations to π . Many of these mathematical details, numbers and computations required are invariably provided in the form of some verses using word numeral systems such as bhūta-saṃkhyā system. One such approximation is due to the 11th Century CE mathematician Mādhavācārya. The verse below contains the relevant details. Let us use the bhūta-saṃkhyā system to deciphers the details.

विबुधेनेत्रगजाहि हृष्टाशनत्रिगुणवेदभवारणवाहः ।
नवनिखर्वमिते वृत्तिविस्तरे परिधिमानमिदं जगदुर्बुधाः ॥

vibudha-netra-gaja-ahi-hutāśana-triguṇa-veda-bha-vāraṇa-bāhavaḥ ।
navanikharva-mite vṛttivistare paridhimānam-idam jagadurbudhāḥ ॥

In the first line of the verse, numbers are provided using the bhūta-saṃkhyā system. Let us first extract the numbers. vibudha - Devas (33); netra - Eyes (2); gaja - Elephant (8); ahi - Snake (8); hutāśana - Agni (3); tri - (3); guṇa - (3); veda - (4) bha - stars (27); vāraṇa - Elephant (8); bāhu - Hands (2); Therefore, the number mentioned is 2,827,433,388,233. In the second line of the verse, there is again a mention of a number; nava - (9); nikharva - 10^{11} . This number is 9×10^{11} . The balance part of the śloka mentions that this is the ratio of the circumference (*paridhimānam*) to the diameter (*vṛttivistare*) of the circle. Taking this ratio will yield us the value of π .

$$\text{The value of } \pi = \frac{2827433388233}{9 \times 10^{11}} = 3.14159265359222$$

Source: Based on <https://www.youtube.com/watch?v=Ke9yxVsUPvo&list=PLbMVogVj5nJThf31TNSQzuN7zqxe7HdRN&index=6>

We have made tremendous progress in the last 150 years with technological advances, scientific discoveries, and new inventions. There is a widespread feeling that we have developed capabilities to find new knowledge in hitherto unknown domains, however, this is not a newly found capability for the human race. Human beings armed with the thinking faculty have constantly strived to make innovations. Making such innovations follow a structured process, which culminates in resolving ambiguities in our understanding and finding new knowledge. The entire process requires that we have a robust framework to establish new knowledge. This has been the constant preoccupation of human beings. Ancient Indians too have developed a methodology for establishing new knowledge.

There is a feeling that the Indian thought process is driven by blind beliefs and dogmas rooted in a religious context. It is generally believed that much of the ideas developed and propagated down the ages have been on faith and were left unquestioned. If we explore the culture of developing new knowledge systems in India, we discover something on the contrary. A case in point is the development of Darśanas (Philosophical schools of thought) in India (in Chapter 3 we have introduced Darśanas and discussed some of the unique aspects). There are multiple schools of thought and there has been a healthy tradition of arguing and counter-arguing against the tenets of each school of thought in a highly professional, rational, and objective manner. In fact, one of the Darśanas, known as Nyāya, has specifically focused on how one can systematically inquire into a problem and establish new knowledge in a structured process. Using the tools and techniques developed by Nyāya researchers over 1000 years, a sound framework for logic and epistemology has been developed which has come in handy to critically analyse established tenets and bring in new knowledge. We shall see some aspects of these in this chapter.

7.1 THE KNOWLEDGE TRIANGLE

Knowledge (Jñāna) is defined as apprehension or consciousness. All knowledge is a revelation or manifestation of objects just as a lamp manifests physical things placed before it. Knowledge may be valid or invalid. Valid knowledge (Pramā) is defined as the right apprehension of an object or knowing an object as it is. A valid knowledge corresponds to the reality and not anything other than that and is indeed produced by some valid means. Invalid knowledge includes memory, doubt, error, and hypothetical reasoning. Memory is not valid because the object remembered is not directly presented to the ātman, but only indirectly recalled. Doubt is uncertainty in cognition. Error is misapprehension as it does not correspond to the real object. Hypothetical reasoning is no real knowledge. When we see a rope as a rope, we have obtained the right knowledge. If we are uncertain whether it is a rope or a snake, we have doubt. We may need some means by which the doubt is unambiguously resolved. If we merely recall the rope that we have seen, it is memory. If we mistake the rope for a snake, we are erroneous.

Valid knowledge is that which has been established rigorously and systematically so that it is non-refutable, true, and reliable in the context and the conditions in which the knowledge is supposed to be applicable. Typically, in the Indian tradition, the aspects of valid knowledge could be best understood from the notion of a knowledge triangle. Figure 7.1 pictorially represents the knowledge triangle, which consists of three components and provides the overall context for obtaining the right knowledge.

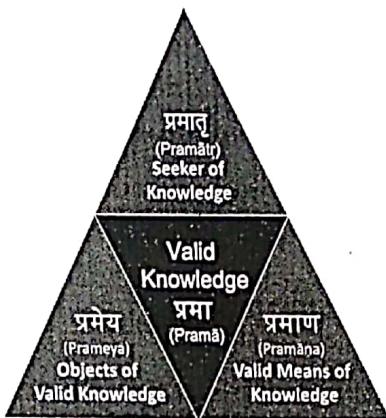


FIGURE 7.1 The Knowledge Triangle

- ◆ Firstly, the knowledge is obtained ultimately only by a seeker of the knowledge. Viewed in this manner all forms of knowledge manifest eventually as 'implicit' knowledge in the mind of the knowledge seeker. Whether it is a Nobel Laureate in Physics or a Scientist working in a laboratory developing a new formulation for medicine, or a spiritual seeker wanting to know who he/she is, the knowledge accrues in him/her only. Therefore, the first component of the knowledge triangle is the seeker of knowledge. The seeker of the knowledge is referred to as **Pramātṛ**. The knowledge seeker gets mentally involved in the process and commits physical and other resources, and time to the process. Once the knowledge seeker obtain the implicit knowledge he/she may choose to make it available to the others by way of tacit knowledge.
- ◆ The efforts of the knowledge seeker are directed towards some object or entity, as it becomes the context for seeking knowledge. This is the second aspect of knowledge, known as **Prameya**. For instance, a scientist developing a new vaccine will direct his/her entire focus in the knowledge creation process on the virus and all the aspects related to it. A physicist wanting to understand the world as a physical entity will direct the attention toward various aspects of the physical reality. The basic elements that constitute the physical reality, the processes that they employ to combine and regenerate into multiple forms and shapes may become the objects of knowledge that are being sought by the researcher. The term object does not have a mere 'physical' orientation. It includes all that towards which effort is directed to obtain the knowledge, which may include physical, meta-physical, virtual, and other entities.
- ◆ New knowledge creation is invariably a process of starting from known ideas and forms and progressing into the domain of the unknown. In this journey, since the destination is somewhat unknown, we need valid means to assure ourselves that the journey indeed was fruitful, and the process was robust and flawless. Therefore, the third component is to have valid means of obtaining the knowledge. In the Indian tradition, this is known as **Pramāṇa**.

Two schools of Indian thought, Nyāya, and Vaiśeṣika address the issue of knowledge of the reality, i.e. of the physical world of several entities and their interactions. Vaiśeṣika mainly, confines itself to 'the exposition of reality' and Nyāya focuses on the issue of 'right knowledge'

of reality'. To put it in another way, Vaiśeṣika deals with metaphysics and ontology, and Nyāya deals with logic and epistemology. The key contribution of Nyāya-śāstra lies in providing a robust framework for establishing the right knowledge. The very first sūtra in the text begins with identifying sixteen factors that one needs to take into consideration while establishing the right knowledge. A correct understanding of these and appropriate use of them is critical in the process¹. These sixteen factors provide a comprehensive set of concepts that help one to establish knowledge using a structured approach.

The principles laid out in Nyāya are fundamental and have had the widest appeal as a general framework for creating new knowledge and advancing our thoughts through logic and argumentation. The Nyāya principles have become a very useful tool for experts in all other fields (literature, grammar, philosophical studies, and other fields of knowledge). There have been numerous attempts both in India and outside to write commentaries on Nyāya.

Relating to our knowledge triangle; Vaiśeṣika deals with prameya of the knowledge triangle, whereas Nyāya mainly deals with pramāṇas, valid means of knowledge. However, in Nyāya-śāstra at a generalised level of abstraction 12 objects of knowledge (prameya) have been identified². In this chapter, we shall use the Vaiśeṣika framework to understand the physical reality that presents itself as the object for knowledge creation. On the other hand, we shall use the Nyāya framework to understand various aspects of establishing valid knowledge.

7.3 PRAMĀNA – THE MEANS OF VALID KNOWLEDGE

One of the components in the knowledge triangle is the means of obtaining valid knowledge. According to the Indian tradition, knowledge is ultimately produced in the 'ātman' and if the generating conditions are sound, knowledge is valid, otherwise, it is defective. Different schools of thought have come up with alternative means of obtaining valid knowledge. According to Nyāya-śāstra, there are four means of obtaining valid knowledge: Pratyakṣa, Anumāna, Upamana, and Sabda¹².

Pratyakṣa may be defined as perception and is the primary means for acquiring knowledge. Pratyakṣa is nothing but direct perception, which enables one to obtain knowledge from the contact of a sense organ with its object. It is a direct experience of reality by eyes, ears, nose, touch, and taste. This is why the sensory organs are referred to in the Indian tradition as '*Jñānedriyas*' (organs of knowledge). Pratyakṣa can be thought of as the ultimate gate to

ferry knowledge into the subtle organs of mind, intellect, and memory for anyone for further processing and internalisation. This process of internalisation will eventually convert the tacit knowledge obtained from various external sources through the sense organs into implicit. All other means of knowledge (Pramāṇas) eventually work in conjunction with Pratyakṣa to generate the right means of knowledge.

The knowledge so obtained is determinate and non-erratic¹³. Suppose there is an auditorium in which a program is being organised. If we are interested in answering the question, "How many people are attending the program?" The most authentic way to answer this would be to do an actual headcount and come to a conclusion, say 392 people are attending the program. In this example, we use our sense organs and count to arrive at an unambiguous answer.

Anumāna is inferential knowledge and is preceded by perception. 'Anu' in Sanskrit means 'follows' and 'māna' is knowledge. Therefore, anumāna points to the knowledge that follows something pre-existing and arrived at in a structured manner by relating to reasons and logic.

There are two aspects involved in inferential knowledge. However, there is a concomitance (of the reason (hetu)) which makes it possible to make the inference as the hetu connects the other two aspects. We shall take a simple but a classical example to understand inference. We know that smoke is invariably associated with fire (the concomitance of smoke and fire is the key aspect for inference). If we see smoke on a hill, we conclude that there must be fire on that hill. From the presence of smoke in the hill as qualified by the knowledge that wherever there is smoke there is fire, we proceed to infer the presence of fire in the hill. Suppose if we want to know as to what to infer if we put butter on a gas oven. We can use our repository of inference to answer this question. We know that a gas oven always generates 'heat' by burning the cooking gas. Further, we also know that when butter is heated up it becomes ghee. Therefore, we infer that butter will become ghee when placed on a gas oven. The 'hetu' in this example is the heat which has the concomitance with the gas oven and it connects the butter and the gas oven.

Three types of inferences are proposed in Nyāya¹⁴ (a priori, a posteriori, and commonly seen). In the case of a priori, previous knowledge of the cause will help us arrive at the knowledge. For instance, the moment we see heat being applied, we will be able to infer that ghee will be obtained from butter. In the case of a posteriori, knowledge is derived from the perception of the effect. For example, if we see warm ghee and a hotplate alongside, we will infer that there was butter that has been transformed into ghee. The commonly seen inference is similar to seeing many people walking on a wet road with an umbrella in their hands and inferring that it ought to have been raining in the area.

These are simple examples to illustrate anumāna. However, in reality, a structured logical framework is employed to validate knowledge using either a deductive or an inductive approach. The hetu (reason) is the prime driver of the inferential knowledge and in Nyāya, we have a reasoning logic (called avayava) to generate inferential knowledge, which we will discuss in Section 7.5.1.

Upamāna may be defined as a comparison or analogy. Since new knowledge generation is one of treading the path from 'the unknown' to the known, prior knowledge of related things plays a role in the process. In Nyāya, comparison and analogy obtained on account of the similarity of the unknown to another thing previously well-known¹⁵ are known as Upamāna. It is produced by the knowledge of resemblance or similarity-based on certain attributes. There are two entities involved in analogy, the subject for the analogy (which

relates to the unknown knowledge), the object for analogy (the known knowledge). Using one or more attributes, an axis for making the comparison is established through which new knowledge is developed. The knowledge developed is conditional to the choice of attributes but helps greatly in developing a better understanding of the unknown.

For example, with the knowledge of a cow and its physical and behavioral peculiarities, one can tread into the forest and develop a certain understanding of a hitherto unknown animal using attributes derived from the cow and projecting it on to the new animal. Hearing that a wild ox is like a cow the person who does not know about the wild ox infers that the animal which looks like a cow is a wild ox. In the Indian tradition, Upamāna is of three types:

- ◆ Sādṛśya-upamāna - In this type of upamāna, the similarity is the important source of knowledge. For example, Rakesh does not know about baseball and asks Ramesh who is aware of it. Ramesh tells him that baseball is similar to cricket. Later when Rakesh watches baseball, he gets to know that the sport he is watching over TV is baseball because he remembers the observation by Ramesh that baseball resembles cricket. In this example, upamāna is based on similarity.
- ◆ Vaidharmya-upamāna - In this case of upamāna, the dissimilarity plays an important role in the establishment of knowledge. For example, Devikā is new to the field of engineering. She does not know what a spanner is. But she knows what a screwdriver is. She asks her colleague David, how the spanner looks like. David gives her a description of the spanner as follows, "it does not look like a screwdriver; spanner is a typical screw head that has two holes drilled in it, and the bit that mates with it has two pins that are set the same distance apart as the two holes in the screw head; there are three or four sizes, etc." Remembering this and seeing a tool dissimilar to the screwdriver with attributes similar to what was being mentioned she concludes that the tool is a spanner.
- ◆ Asādhāraṇa-dharma-upamāna - In this type of upamāna, the knowledge is established based on special quality present in the object or knowledge base. For example, the rhinoceros bears a horn on its nose is a peculiar sign which helps in its recognition and differentiation from the elephant.

There are multiple dimensions on which analogy can be drawn to develop a better understanding of the unknown. In a chemical process, suppose there is a description that the new material after the completion of the chemical process will be like 'rubber'. It helps the scientist to understand that perhaps the new material will have certain physical attributes such as elasticity. Similarly, if there is a discussion about a rebellion that broke out in the city and the police restoring law and order. If the question was, 'how did the police quell the rebellion?'. One way to communicate it unambiguously is perhaps to say, "the police dealt the situation with an iron hand". In this case, the use of the word "iron hand" does not mean the police were all having special hands made of 'iron'. Rather the comparison and analogy to 'iron' are in the context of some attribute of iron such as 'firmness, hardness, not easy to bend, etc.' and relates it to the approach taken by the police to put the rebellion to an end.

From these discussions, it is evident that the efficacy of finding the new knowledge depends on the appropriate choice of the attributes to establish the similarity or otherwise between the unknown and the known aspect of knowledge.

Śabda is the verbal testimony of an authoritative expert in the subject. It also includes the authoritative texts of various śāstras composed by reliable experts. There are several

situations in real-life where correct knowledge is obtained only from a reliable source such as an expert. This is simply because the subject matter is not known to many and it may require specialised expertise to analyse and find answers to the questions. Such knowledge is implicitly accumulated over long years of experience by a person of high standing and character. We encounter this often in our daily life. For example, if one develops chest pain and wants to know if there is a heart problem, the only way to find an answer to this is to go to a cardiologist. By virtue of extensive training, specialised knowledge, and deep experiences, the cardiologist will be in a position to resolve this question.

In the Indian tradition, this is accepted as a very important and valuable means of obtaining the right knowledge. In the Nyāya-śāstra, this is referred to as śabda, which is defined as the assertion of a reliable person (expert in the field)¹⁶. In the Indian tradition, the injunctions of the Vedas are considered as śabda-pramāṇa, as it provides instructions on several things that are 'not seen' or ordinarily known to human beings.

Figure 7.6 briefly summarises these discussions in a pictorial form. Direct perception is the basic means of acquiring knowledge and therefore all other pramāṇas will make use of it. The inference will make use of perception and analogy and finally, verbal testimony will make use of all the other three pramāṇas.

प्रत्यक्ष (Pratyakṣa) - Perception

- How many people are attending this seminar? – 392

अनुमान (Anumāna) - Inference

- What will happen if you put butter on a hot plate? – It will become "ghee"

उपमान (Upamāna) - Comparison and analogy

- How did the police quell the rebellion? – They dealt with an "iron hand"

शब्द (Śabda) - Word, testimony of past/present reliable experts

- Is my heart working normally? – Cardiologist advice

FIGURE 7.6 The Four Pramāṇas – An Illustration

7.5.1 Deductive/Inductive Logic Framework

Central to the process of establishing new knowledge is a deductive/inductive reasoning framework proposed in Nyāya (known as Avayava). It has five steps in the process¹⁹ as depicted in Figure 7.9.

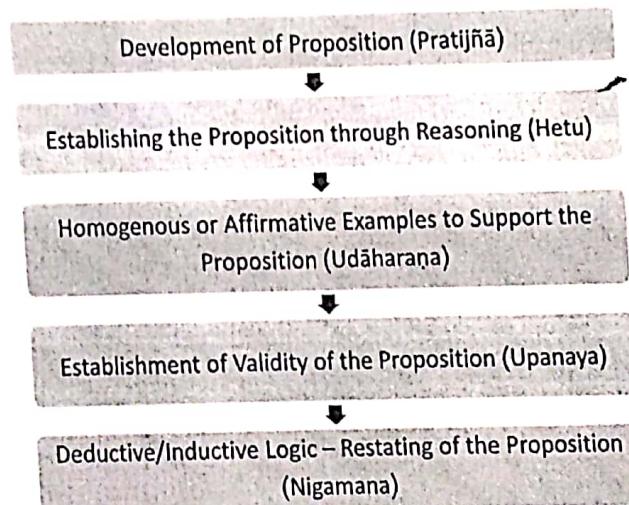


FIGURE 7.9 A 5-step Approach for Deductive/Inductive Logic

Step 1: Pratijñā (प्रतिज्ञा) – Development of a proposition

Deductive/inductive reasoning begins with the development of a proposition for the study. Based on the ambiguity to be resolved and the stated objectives, a proposition needs to be developed. For example, let us start with the proposition, 'Sound is non-eternal'.

Step 2: Hetu (हेतु) – Establishing the proposition through reasoning

Once the proposition is stated, one can draw upon the existing body of knowledge and argue the case for the proposition. In our example, we will reason 'sound is non-eternal' by arguing 'because it is produced'. Whatever is produced is non-eternal and therefore we seek to establish the proposition through this reasoning.

Step 3: Udhāharana (उदाहरण) – Examples for supporting the proposition through reasoning

The theoretical support will merely help conjecture and state the proposition formally and

logically. It requires support in terms of the observed phenomenon. Therefore, to establish the proposition, familiar instances need to be drawn from actual practice. In our example, the supportive observed phenomenon is, 'whatever is produced is non-eternal, as a pot'. In this case, the property of non-eternity is borrowed from the pot, which is a familiar substance. One can also use a counter-example (negative property). For example, whatever is 'not' non-eternal is 'not' produced as in the case of the soul (ātman).

Step 4: Upanaya (उपनय) – Establishment of the validity of the proposition

While the previous step may show support for the proposition based on the examples and counter-examples analysed, the validity of the proposition requires that it is sufficiently general and robust to state. This may also require checking for the logical and internal validity of the results. In the Nyāya-śāstra, some potential fallacies arising out of the work have been identified. Checking for these fallacies could help establish the logical and face validity of the propositions.

Step 5: Nigamana (निगमन) – Restating of the proposition

Once the above steps are completed, the deductive/inductive reasoning of the proposition is complete. Therefore, what was initially stated as a conjecture could be stated in a grounded fashion by restating the proposition. In our example, we may restate the proposition, 'Sound is non-eternal'.