

Modelling of Generancy

Modelling of Generancy is a book on Indian philosophy. In this book I have tried to express various problems of philosophy in mathematical language. I think mathematics is a language. Everything can be expressed in this language. With the help of mathematics, the published issues are understandable to all. No one has any objection to this. In the realm of knowledge all terms or words are considered categories. This category is again of three types: substance, quality and action. In another way, this category is divided into five parts. These five parts are: Purusa, prakrti, jagat, jnana and karma. These five subjects are known as panchatattva. A total of fifty-five words, including these five words, are discussed in detail in the panchatattva. Fifty-five letters of the Sanskrit alphabet have been used to identify these fifty-five words. I think the problems of the present world are the problems of philosophy and knowledge. If this philosophy or knowledge can be expressed in the language of mathematics, then it will be useful for everyone to understand. Everyone will be aware of their responsibilities. That is what has been tried in this book.



Deapon Biswas, born in Chattogram district of Bangladesh. He studied mathematics and philosophy. The book 'Bystematics My Classic' on mathematics has been published in two volumes. A book of his poems has also been published in Bangladesh. He is currently working in a private company.



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Modelling of Generancy

A Logical Solution

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Modelling of Generancy
A Logical Solution

Deapon Biswas

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Dedicated

To

Paramaradhya Gurudeva Srimat Swami Sudarshanananda Puri Maharaj and his Gurudeva Srimat Swami Advaitananda Puri Maharaj on whose blessings and grace I have been able to form this book 'Modelling of Generancy: A Logical Solution'.

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Preface

There are three types of knowledge in the world, language, philosophy and science. Bangla, Sanskrit, English etc. are languages. Epistemology, Metaphysics, Ethics etc. are philosophies. Physics, Biology, Sociology etc. are sciences. Language is the moderator of philosophy, philosophy is the pratibhu (representative) of language. Science is the manifestation of philosophy, philosophy is the driving force of science. Science presents a subject in a fragmented way. Philosophy presents this as a whole. The views of science is divided, the views of philosophy is overall. We present this through language. Mathematics is a language. That is to say, the most accurate language. All the definitions of knowledge can be expressed in the language of mathematics. It is possible to find out the range like mathematics.

The relationship between one topic to another can be calculated and this is mathematically. We can represent the whole philosophy through mathematics. Of course, this can be achieved by trying. All of us have to be math minded. Only then can we speak properly, say the right thing. Can be able to correct assessment of other's words. Remember, we say as much as we know. We can not say more than that. The person that won the Everest would correctly tell about, nobody else. In our speaking there comes out of what we know. Our character is reflected in our work. The matter is exactly relative. This is a math.

Religion is a science. It discusses the ways to get closer to God. Sri Sri Ramakrishna Paramahansa Deva said, 'as much as the way'. So there are many paths, many religions, of course one goal, finding God. As every science has a philosophy so there is a philosophy of religion. Political philosophy of political science, social philosophy of social science, metaphysics of physical science, religious philosophy of religious science etc. Every religion should be driven by philosophy. Religion is a science that has been told from the current use of religion. However, the etymological meaning of dharma is the addition of 'mon' suffix to Sanskrit verb root 'dhr'. The verb root 'dhr' means holding. Religion holds the creation. In this sense religion is one.

All other Indian philosophies, except Carvaka philosophy, believe in karma. Surely man has to suffer the consequences of his deeds. If you do not enjoy the fruits in one life then you will have to be born again. That is the Janmantaravada. It has to be remembered that the place where we are going to finish today, have to start from there again tomorrow. Today, who will be tortured, tomorrow, we have to suffer ourselves like that. Be the fruits of karma is happiness or sorrow, to be born again to enjoy it. This is a math. This rule will continue until moksa is achieved. This universe is rotated in a ubiquitous all-around rule-chain. Vedas are said this eternal rule as 'Rta'. It is not possible for anyone to avoid this rule. Avoiding this rule is not possible for anyone.

The language of Vedas is Sanskrit. The vowels, the consonants and the applications of sounds of this language are discussed in the book is called siksha. This siksha is a limb of the Vedas. There are six limbs in the Vedas. The other five are kalpa, nirukta, vyakarana, chhanda and jyotisha. The Fifty-five letters of Sanskrit language used in this book as a

symbol of the alphabetic combination. This fifty-five letters again represent the fifty-five words of language, philosophy, and science that is used in the alphabetic combination.

The world today is becoming increasingly intolerant. Because of this, I think there is a lack of proper education. We study science, but do not philosophy. Again study philosophy but do not mathematics. But philosophy is the driving force of science, mathematics or language is the controller of philosophy. So, when we read science, we must read philosophy. Of course, we all know it, but do not follow. Once again, to read philosophy, we need to read mathematics. It seems to me, of course, we do not know, so do not follow. This is what we do not understand each other. Another thing that we avoid is the dream. Dream should always be seen as growing up. The range of knowledge is increasing day by day. But we restrict our goals. Teach our children by looking at job market. What is it, a huge repository of knowledge that is going to unexplored. The talents will have to come forward in that undiscovered knowledge. Only then others will run there.

In the Gita, Bhagavan Sri Krishna says, 'catur-varnyam maya srstam guna-karma-vibhagasah, tasya kartaram api mam viddhy akartaram avyayam'. That is, according to the three qualities and actions of nature, I have created four fold caste system in human society. And, although I am the author of this system, you should know me as non-doer and eternal. Brahmanas (brahmins), ksatriyas, vaisyas and sudras these four castes have specific functions. Of course, this caste division is not created by birth, but according to quality and action. If think the meritorious of the society are Brahmanas, then they will have to be the foremost in the realm of knowledge. They should be the guides of society. Then there will be the ksatriyas, vaisyas and sudras respectively. But if the brahmanas or the most meritorious are less pioneers then at what stage will the ksatriyas, vaisyas and sudras remain? They will be more less pioneers in the realm of knowledge. The state of knowledge is much like a football playground. If players like Messi and Ronaldo are always in the middle field, then the game will be limited to one half. And if they are on the frontline then the game will be full-blown.

The way of life is like a game. But we think it as a war. As we think in the game, we do not think that in the way of life. We tried to give the highest target in the card game, we tried to give the highest target in the game of cricket, but in life game, we do not try to give the highest target. As we take the risk for fake gold do not risk such for real gold.

Today, I think, we are living in the narrow realm of knowledge. One of the reasons is that the talents do not come forward. The talents have become confused with conventional ideas and unable to move forward. As a result, less talents are also lying in a narrow space. This caused conflict of thought with one person to another. If the intellectuals move forward in the realm of knowledge, then the less talented will follow them. This will expand the kingdom of knowledge. One's thought will not be contrary to another. Violence will reduce from nation to nation. The intellectuals can not avoid responsibility in the current world problems. It must be held accountable to the one who has given intelligence.

Talents are showing interest in science education, are not showing same interest in philosophy education. One thing to keep in mind, and it is that as philosophy can solve the global problems, science can not do that. Because the outlook of philosophy is overall and the

views of science are divided. The problems of billions of people can not be solved with a divided view. With an overall view that can be done effortlessly.

We also think about the acceptability of philosophy. People seem to be acceptable as scientific fact, philosophical truths do not seem to be acceptable to humans. One of the reasons for this is that the limitations of mathematical usage in the philosophy. There is no use of mathematics in philosophy without logic only. As science is interpreted in the language of mathematics, philosophy is also to be interpreted in the language of mathematics. Due to this philosophy will be acceptable to the common people. This effort has been made in this book.

Another thing that is very important that we are always busy with ourselves. We spend our entire talent and mind for our own development. Spend for our family's development. If I always care for my apartment, and if you only take care of your apartment, then according to cosmology, in middle of the two flatbars weeds, insects, etc. will grow. Once the insects will also be in your house. Therefore, the surrounding environment also have to be taken care of. Because of this, the care of own house was reduced a little. It has to be obeyed. When a neighbour is trapped in mud, to rescue him you have to get yourself in the mud. In my opinion, people need to work for overall salvation, not for personal salvation. Do not use merit alone to own development but for the development of the entire humanity. This will not lead to waste of merit. However, we should not forget one thing, and that is, think of this planet as the planet of the whole species, not just as a human planet. Not only human rights, but it should be thought about the whole life scale. Think about the whole creation of God.

There is a series of relationships between effect and cause. The work we are doing today will be the cause of tomorrow's work. Today's work is the cause for tomorrow. So there is no scope to ignore today's work. If we think that, we will work better from tomorrow that is good. But, the value of the work of the past days must be paid. Everything here is perfect. Incorrect or correct that is what we talk about. The world situation today is the results of past working days. There is no doubt about it. God is keeping the balance of everything. He is creating as Brahma, preserving as Vishnu and destroying as Shiva.

However, I am optimistic. People have genuine love and interest for truth and beauty. He wants to establish truth and beauty in his own life. But this love and interest are in the subconscious level of the humans. Through endless efforts, people will be able to overcome this subconscious level and be able to live in a true, beautiful and divine life. The people of spiritual and divine consciousness will one day bring an end to this conflicting era and will bring the golden era. Rishi Advaitananda have realized the right thing, do not think that there is no sage era. The golden era is coming into circulation.

Chattogram
August 30, 2021

Deapon Biswas

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CHAPTER 1

Preliminary Philosophy

1.1 Basic Features of Indian Philosophy

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1.1 Basic Features of Indian Philosophy

1.1.1 Meaning of Philosophy

The origin of the word 'darsana' is from the conjunction of sanskrit suffix 'ant' with the root 'drs'. The common meaning of the word 'darsana' is to see. However, in philosophy the word 'darsana' has not been accepted in the same way. Philosophy is to know a subject with experience, intelligence and intuition. Philosophy is to see things as a whole, not partially. In English, what we call philosophy in Bengali we call this philosophy. The word philosophy is derived from the Greek words 'philos' and 'sophia'. The meaning of the word 'philos' is affection and the meaning of the word 'sophia' is knowledge. Thus the word philosophy literally means passion for knowledge. Therefore, it may be said that philosophy is the search for truth or the search for tattvajnana (knowledge of the principles).

1.1.2 Nature of Indian Philosophy

The Indian philosophy refers to the thoughts of all the thinkers of India. In this sense, well-thought-out opinions about the universe and life of Indian thinkers Hindus, non-Hindus, theists, atheists, Vedic, non-Vedic are considered as Indian philosophy. Indian philosophers' views are liberal and extensive. Even if there is enough difference between different sects of the Indian philosophy, every philosophical community would give importance to the opinions of other philosophical communities. Before establishing his own doctrine, he used to discuss the whole doctrine completely and later refuted to establish his own arguments. The discussion and explanation of the opponent's doctrine is called purvapaksa or prejudice. Then, by refuting the doctrine of the preceding, he established his own doctrine with the help of arguments. That is why it is called uttarapaksa or decision. Endurance of others opinions is a significant feature of Indian philosophers. This feature has enriched every philosophical community of India. Indian philosophy discusses not only theoretical aspects but also practical aspects. Indian philosophers believe that there is an intimate relationship between philosophy and life. Controlling everyday life philosophy can help in proper living conditions.

1.1.3 Different systems of Indian Philosophy

Indian philosophical schools are divided into two categories namely: theist and atheist. According to belief or unbelief in the Vedas, the six schools that is, Nyaya, Vaisesika, Samkhya, Yoga, Mimamsa and Vedanta are called as astika philosophy or Vedic philosophy and Charvaka, Jaina and Bauddha philosophy are called as nastika philosophy or non-Vedic philosophy. The Indian philosophical schools are shown under the table below.

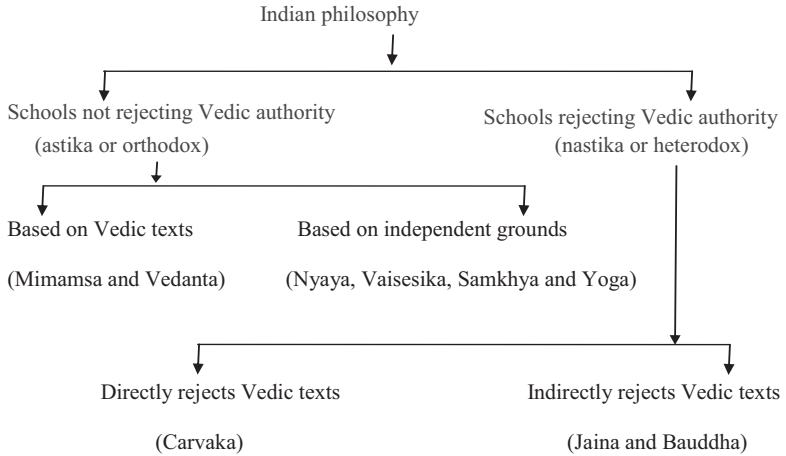


Fig. 1.1

1.1.4 Development of Indian Philosophy

After reviewing the history of western philosophy, the main philosophical doctrines there appeared one after another. A doctrine after a few days of influence, a new doctrine has emerged and the impact of old doctrine has been decreased. But India's various philosophical schools did not even appearing at the same time they have long maintained their influence as well. This is possible because the Indian philosophy is life oriented.

Although it is not possible to accurately calculate the origin time of Indian philosophy, there is no doubt that Indian philosophy arises in relation to the Vedas. Only the Vedas are the oldest books of Indian philosophy and literature. Philosophers were unable to make any unanimous decision on the Veda's composition-time. However, the Indians believe that the Vedas are eternal and apauruseya (impersonal, authorless). How old is the Vedas the matter I want to mention on the basis of 'Veda-Vedanta Uttara Khanda' by Dr. Mahanambrata Brahmachariji. There is a mention of Sarasvati river in a mantra of the Rigveda. Maharashtrian Pandit Ketkar has come through research that the Sarasvati river has disappeared in the desert in 7,500 BC. Balgangadhar Tilak collected evidence of Brahmanas books and in his famous book 'The Orion', there is a reference to roughly 4000 to 2500 BC many sources of the Rigveda have been revealed. Professor Jacobi of Germany, in a separate study, mentions that it is the period of time of the Samhitas and the Brahmanas is 4500 BC.

1.1.5 Common Characters of the Indian Systems

Discussing the different Indian philosophical schools, it can be seen that there are differences between them in many respects but there are similarities in some respects. The reason for this similarity is that Indian philosophy is the bearer and carrier of the culture, civilization and tradition of India. The common characters of Indian philosophy are, (1)

feeling the practical need, (2) spiritual dissatisfaction, (3) discussion about the Vedas, (4) an eternal moral order, (5) karmavada, (6) the reason for bonding is ignorance, (7) janmantaravada or rebirth, (8) purusartha or values of life, (9) meditation and moral purity, (10) multiple proofs, (11) self-control for complete knowledge, (12) spiritual philosophy etc.

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1.2 Fundamental Concepts of Indian Philosophy

1.2.1 Concept of Karma in Indian Philosophy

All Indian philosophies, except Carvaka philosophy, believe in an all-round moral law or order. In the Vedas the eternal rule or discipline is called 'Rta'. This Rta subsequently emerged as karmavada (law of karma). Everyone has to suffer from karmaphala (fruits of karma). No living creature can avoid this karmaphala. If one's life does not end the karmaphala, he has to born again for the enjoyment of the remaining karmaphala. From this karmavada, janmantaravada (reincarnation) is established. According to janmantaravada, the soul is believed to have been reborn after death and the soul holds a new body.

1.2.2 Concept of Soul in Indian Philosophy

Soul is an extra-body entity, consciousness is a quality of the soul. The body is ruined but the soul is not destroyed. Different philosophical communities of India have different opinions about the nature of the soul. Carvakas think there is no separate entity of the soul. Body with consciousness is the soul. Caitanya or consciousness is the quality of the body, not of the soul. According to Jain philosophers, the soul has an extra-body entity. Consciousness is the quality of the soul. The soul is the knower, the doer and the consumer. The soul is self-luminous. According to Buddhist philosophers, when everything is minimal in the universe, it is not possible to have the soul as an eternal thing. According to Nyaya-Vaisesika, there is an individual entity of the soul. Caitanya is not the natural quality of the soul. The soul came into contact with the body and mind and became conscious. According to Samkhya and Yoga philosophy, the soul is self-luminous, pure conscious. The soul is eternal, qualityless, inactive, and unchanged. The soul is not one, but many. According to Mimamsa philosophers, the soul is a different entity, different from the body, mind and intellect. The body is ruined, but the soul is not destroyed. The soul is not one, but many. According to Advaita Vedanta, the soul is pure conscious and self-luminous. The soul is one and unique. According to Ramanuja, the soul is a cit (conscious spirit) part of Brahman. Caitanya is the eternal quality of the soul.

1.2.3 God in Indian Philosophy

Disagreements between the Indian philosophical schools about God's existence are noticed. According to the Carvakas, because God can not be perceived, therefore there is no need to believe in the existence of God. The Jain philosophy also did not believe in God. Their argument is, it is not possible to prove God's existence with the help of perception or assumption. The Buddhist philosophy also does not acknowledge the existence of God. Later, however, the religious leaders of the Mahayana community proclaimed Buddha as God to meet the spiritual desires of ordinary people. According to the Nyaya-Vaisesika, God is the efficient cause (nimitta karana) of this universe. The universe is the effect. The creation of this universe requires a master and he is God. In the Samkhya philosophy, the existence of God as the creator of the universe was not recognized. The universe has been revealed due to the connection between conscious Purusa and unconscious prakrti. The Samkhya philosophy

is atheisticist. However, the existence of God in the Yoga philosophy has been acknowledged. The Yoga philosophy is called *śeṣvara Sāṃkhya* (Sāṃkhya with *Īsvara*). *Puruṣa* and *prakṛti* are contradictory natured. Only God plays the role of creating the universe by connecting them. The *Mīmāṃsā* philosophers does not acknowledge the existence of God as the creator of the universe. However, the *Mīmāṃsā* philosophers believe in many gods. *Sāṅkarācārya* speaks of two forms of *Brahman*, *śaṁśesa* (determinate) and *nirśesa* (indeterminate). The first is with impositions (*upadhīś*) and the second is absent from impositions. In the *Upaniśads* the first is called *Aparabrahma* and the second is called *Parabrahma*. According to *Sāṅkara*, *Aparabrahma* is *śaḡuna Brahman* and *Parabrahma* is *nirḡuna Brahman*. *Sāṅkarācārya* thinks that there is no divine entity but only a functional entity of God. On the other hand, according to *Rāmaṅja*, *Brahman* is not *nirḡuna*, but *śaḡuna*. This *śaḡuna Brahman* is God. He is one and unique.

1.2.4 Puruśartha in Indian Philosophy

Dharma (righteousness), *artha* (economic prosperity), *kāma* (love or pleasure) and *mokṣa* (liberation), this four are called *puruśarthas* or objects of human pursuit in Indian philosophy. These are called *caturvarga* too. *Artha* and *kāma* are called minor *puruśarthas* and *dharma* and *mokṣa* are called main *puruśarthas*. The organism is the sum of the body and the soul. The body of the living being (*jīva*) is two, *sthūla śarīra* (gross body) and *śukṣma śarīra* (subtle body). The gross body is composed of the *pañca mahabhūtas* (five great elements), while the subtle body is composed of the *pañcajānaṅdriyas* (five organs of cognition), *pañcakarmendriyas* (five organs of action), *pañcapraṇas* (five life forces), *manas* (mind) and *buddhi* (intellect). The creature wants the objects that are useful to the body and the creature does not want the objects that are not suitable for the body. That is why, *kāma* is a *puruśartha* of the creatures. Again, if the human being lives in the society, to survive in the society, he has to be able to attain money, resources, power and prestige. For this reason, *artha* is also one of the *puruśarthas* of the *jīvas* (living beings). Again, he has to get wealth and enjoy the wealth from the path of religion. So, *dharma* is also considered as a *puruśartha* of the *jīvas*. However, most Indian philosophers accepted *mokṣa* as the absolute *puruśartha* of the creatures.

1.2.5 Concept of Mokṣa in Indian Philosophy

Mokṣa has been acknowledged as the absolute and only valid *puruśartha* by the Indian philosophies without the materialistic *Carvaka* philosophy. However, there are differences among philosophers about the nature of *mokṣa*. According to the *Carvakas*, there is no extra body entity of the soul, therefore, the question of the freedom of the soul is irrelevant here. According to the *Jain* philosophy, the soul is usually a repository of infinite knowledge, infinite strength, eternal vision and everlasting joy. *Mokṣa* is the own form of the soul. According to *Buddhism*, the state of eternal restraint of misery is that of *nirvāna*. In *Buddhist* philosophy, *mokṣa* has been called as *nirvāna*. According to *Buddhism*, regeneration is prevented by *nirvāna*, however, the state of *nirvāna* is indefinable. According to the *Nyāya-*

Vaisesika, the free natured soul comes into contact with the body, mind and senses and obtained bondage. When ignorance is removed, the soul is attained freedom. According to the Nyaya-Vaisesika, moksa is a cessation of endless grief but not a happy state, because there is no consciousness of the soul during freedom. According to Samkhya and Yoga philosophy, Purusa or soul is naturally free and constant. Due to ignorance the soul identifies itself with the intellectuals of nature. The name of this state is bondage. Knowledge of the difference of Purusa and prakrti can lead to the cessation of suffering. According to the Samkhya-Yoga, moksa is the self-position of Purusa or self. According to the ancient Mimamsa, heavenly benefits should be the ultimate goal of human life. Heavenly happiness can be attained by performing the Vedas directed actions. According to them, Moksa is the self-position of the soul. After performing the Vedas directed works without wishing, the salvation of the soul is attained. According to advaita Vedanta, the soul is naturally free, but feels ignorantly identical with the body. When the self-knowledge is attained, the soul can learn about its true nature and attain salvation. Moksa is attained when there is realizing a connection between the paramatman or the supreme soul and the jivatman or the living soul. According to Visistadvaita, the captivity of the creature is obtained only for the enjoyment of karmaphala. The creature can be released from captivity through proper knowledge and Vedas directed actions. According to Ramanuja, jivanmukti (liberation during lifetime) is not possible, but videha mukti (liberation after death) is possible. Without the grace of God, salvation cannot be achieved.

1.2.6 Different Paths of Realization of the Supreme End

There are three ways of gaining the supreme end, i.e., jnana marga (path of knowledge), karma marga (path of action) and bhakti marga (path of devotion). The jnanavadis think that avidya or ignorance is the main obstacle to attain paramartha or absolute end. People became involved in the actions by avidya or ignorance. After receiving the self-knowledge, the soul is free from the ties of action and the status of liberation is attained. The karmavadis think that it is possible to achieve heavenly bliss by performing the order given by the Vedas. According to them, heaven is the supreme end of creatures. The bhaktivadis think that there is no relation between the karmayoga of Mimamsa philosophers and jnanayoga of Advaitins. Nirguna Brahman can not be described as the creator of the universe, and it is not possible for ordinary people to be established devotional affair with Nirguna Brahman. So Saguna Brahman or God has to imagine. According to the bhaktivadis, the relationship of a devotee with God is established through devotion. The wonderful combination of knowledge, action and devotion can be found in Srimad Bhagavad Gita.

1.3 The Carvaka Philosophy

1.3.1 Introduction

In Indian philosophy, Carvaka philosophy is considered as equality of materialism. This universe has been created from inert material. The Carvakas do not believe in the soul and God. No authentic book has yet been found in the Carvaka philosophy. What is the meaning of Carvaka, who is the initiator of Carvaka philosophy, there are differences among scholars about these. Someone thinks that a sage named Carvaka is the initiator of this philosophy. Again according to some, the Carvaka philosophy is derived from the root 'carv'. The meaning of the root 'carv' is to chew. Some people say the word Carvaka means caru + vak, that is, sweet speech. The words of this philosophy are pleasant. Some texts have been called Brhaspati as the promoter of the Carvaka views, but there is a disagreement with the true identity of this Brhaspati. This philosophy expresses the thoughts of ordinary people so another name for this philosophy is 'Lokayata Darsana'.

The philosophy of Carvakas is mainly divided into three communities, namely: (1) Adi Carvakas (Ancient Carvakas), (2) Dhurta Carvakas (Cunning Carvakas) and (3) Susiksita Carvakas (Well Educated Carvakas). In the present paragraph, only the opinions of Cunning Carvakas will be discussed.

1.3.2 The Carvaka Theory of Knowledge

In Indian philosophy the true knowledge is called 'prama' and the correct way of acquiring knowledge is called 'pramana' or 'source of knowledge'. The Carvakas believe that perception is the only source of knowledge. The only way to get right knowledge is sense perception. That which can not be perceived by the senses, it is worthless to say that it exists. According to Carvakas, perception or pratyaksa is of two types, namely external (bahya) perception and internal (manasa) perception. The phenomena that result from the connection of objects with the five sense organs, eyes (chaksu), ears (shotra), nose (grahna), tongue (jivha) and skin (tvak) are called external perception. And with the help of the sixth sense of mind, that meets the emotional issues, such as happiness, sorrow, and so on are called internal perception.

The Carvakas did not accept the inference (anumana) as a source of knowledge or pramanas. According to them, the inferred knowledge is only possible knowledge, not sure knowledge. The inference is dependent on the invariable relation (vyapti) but the knowledge of vyapti is not perceived. Again they did not accept the words or sabda as a valid source of knowledge. Sabda or testimony is the words of a trusted person. And it is a matter of inference whether a person is trustworthy or not. Where inference does not prove any reliable source of knowledge, so testimony cannot be reliable proofs. The Carvakas do not believe in the validity of the vedic words. Therefore, the knowledge gained through the verbal testimony or aptavakya cannot be undoubtful and accurate. The Carvakas do not accept the causal relationships. The inevitable mutual relation between karya (effect) and karana (cause) is not known by perception.

1.3.3 Carvaka Metaphysics

The Carvakas think that the inert universe that we see with the senses is made up of four inanimate elements; ksiti (soil), jala (water), agni (fire) and vayu (air). All the objects of the universe, even the living beings are created by these four elements (bhutas). Since akasa or ether cannot be perceived, the Carvakas do not acknowledge the existence of akasa or ether. The Carvakas believe that these four elements ksiti (soil), jala (water), agni (fire) and vayu (air) are eternal and indestructible. These four elements combined with their natural actions and created the universe. This universe is the result of a sudden mix of the four key elements.

1.3.4 Soul

Carvaka philosophers acknowledged the existence of consciousness. They think that consciousness is the quality of the body and perceivable. The conscious body is the soul. There is no separate entity of the soul except body. The Carvakas think that as soon as the body is destroyed, the soul is destroyed. They do not believe in the immortality of the soul.

1.3.5 God

Carvaka philosophy atheistic philosophy. They think perception is the only way to gain knowledge. According to them the inference is imperfect. Since God can not be perceived, so there is no God. There is no need to acknowledge the existence of God as the creator of the universe.

1.3.6 Purusartha

The Carvakas think that kama or love or pleasure and artha or economic prosperity as the purusarthas of life. They do not recognize dharma and moksa as the purusarthas. Artha is the only way to achieve happiness or kama, so they think happiness is the main purusartha and artha is the secondary purusartha. The Carvakas do not recognize the karmavada. According to karmavada if the results of the work do not enjoy in this life then it will be the next generation to enjoy. Since the Carvakas do not accept the body excessive soul, so they do not accept the soul's regeneration. The Carvakas do not accept the causal relationship too. According to them, there is no inevitable relationship between works and causes, which is a sudden connection.

1.3.7 Conclusion

Carvaka philosophy does not acknowledge the authenticity of the Vedas, belief in God, body excessive soul, karmavada, doctrine of regeneration etc. This philosophy has been in protest against the blind faith and superstition. This philosophy is a philosophy of positivist, skeptical and independent thinking.

1.4 The Jaina Philosophy

1.4.1 Introduction

The word 'Jain' derived from the Sanskrit word 'jina' which means 'victor'. The word 'jina' is derived from the root 'ji'. The Jain philosophy is very ancient philosophy. Generally Vardhamana Mahavira is considered to be the founder of Jain religion and philosophy. But the twenty-four tirthankaras are the preacher of this philosophy. The first tirthankara is Rsabhadeva and the last tirthankara is Vardhamana.

There is no disagreement among the Jainas about the policy of philosophy, but in religious traditions the Jainas are divided into two communities. These two communities are Svetambara and Digambara. In respect to celebrating religious rituals, the Svetambaras are moderates and the Digambaras are extremists.

Digambaras believe that monks should not wear clothes. They should not be attracted to wealth, assets too. These are the obstacles to gain salvation. They also think that to gain the salvation of females, they must be born again as males. These are not accepted by the Svetambaras. They are in favor of the monks wearing white clothes. However, both the communities followed the advice of the tirthankaras.

1.4.2 The Jaina Theory of Knowledge

According to the Jainas, knowledge and the object of knowledge are different. The object of knowledge is the individual entity, mind-neutral or sense-neutral. According to them, knowledge is mainly of two types: mediate (paroksa) and immediate (aparoksa). Two types of paroksa jnana is, mati (sensory knowledge) and sruta (scriptural knowledge). Again there are three types of aparoksa jnana, avadhi-jnana (limited knowledge), manahpariyaya (telepathy) and kevala-jnana (omniscience). The Jainas accept these three types of pramanas- pratyaksa (perception), anumana (inference) and sabda (testimony). According to the Jain philosophy, every object has innumerable characters. These can be mainly divided into two parts: positive and negative. In order to have all right knowledge of an object, all the characters of the object, positive and negative, have to know.

According to the Jainas, the knowledge of ordinary people about an object is incomplete or partly true. It is just like blind men perceive an elephant. The real essence can be achieved only by judging from different perspectives. This views of the Jainas is known as anekantavada. It is only possible for the all-knowing, all-wise and all-perfect men to have full knowledge. The Jainas think that since no proposition is absolutely true, but partly true, the word 'syat' should be used when referring to each proposition. The meaning of the word 'syat' is 'perhaps' or 'maybe'. It implies that each proposition or naya is conditional or relative. This doctrine of the Jainas is known as syadvada. The Jainas mentioned seven forms of propositions or nayas.

1.4.3 Substance

The classification of substance of the Jainas is shown below with the help of a table.

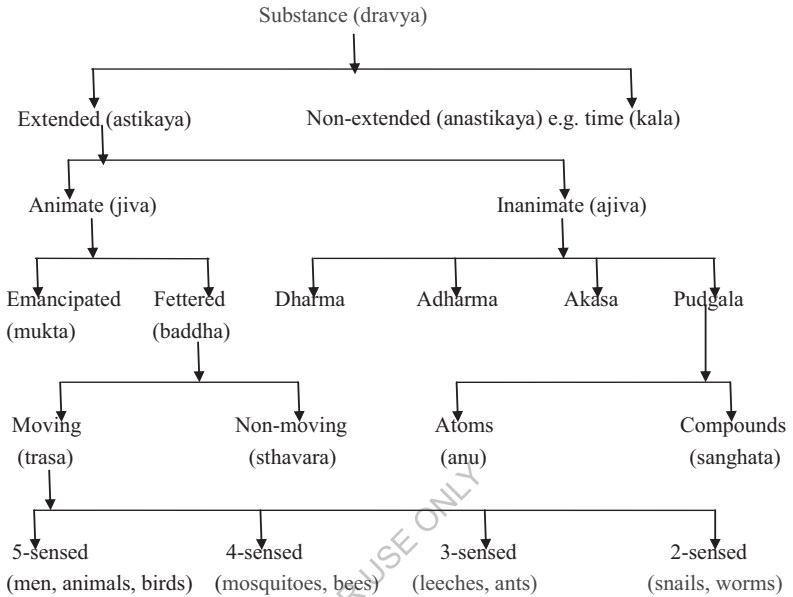


Fig. 1.2

According to the Jainas, dharma is considered as characters and that which possesses the characters is considered as dharmi. This dharmi is generally called substance or dravya.

1.4.4 Jaina Ethics

According to the Jain philosophy, moksa should be the ultimate objective of life. Moksa is the self position of the soul. The soul is a base of infinite knowledge, infinite strength, eternal vision and everlasting happiness. Three paths have been mentioned in the Jain philosophy for salvation. These three paths are right knowledge (samyag-jnana), right faith (samyag-darsana) and right conduct (samyag-caritra). Together these three paths are called three jems (triratna).

1.4.5 Atheism

The Jain philosophy is materialistic and pluralistic philosophy. Although pluralistic, they are actually dualist. They do not believe in God. The Jainas think that if you have the knowledge of the whole form of an object is to be omniscient, the entire universe can be known. The anekantavada of the Jainas have a large number of liberal viewpoints.

1.5 The Bauddha Philosophy

1.5.1 Introduction

Gautama Buddha emerged in the sixth century BC, in the royal family of the Sakya dynasty, in the city of Kapilavastu at the foothills of the Himalayas. His father's name is Sudhodana and mother's name is Maya Devi. His original name was Siddhartha. Though he grew up in royal pleasures, he was very thoughtful and dispassionate from his childhood. He realized that this world is full of sorrow. At the age of twenty-nine, he left the samsara dharma in hopes of salvation from distress. In the initial stages, after the rigorous austerity and austerity measures with the five monks, the nature of misery and the search of truth were not found. Afterwards, believing in self-power he was meditated in solitude under the bodhi tree in Bodhi Gaya. After almost seven weeks of austerity, he attained enlightenment (buddhatva) at a happy moment.

Buddhist religion and philosophy have been developed based on the words of Gautama Buddha. He did not write any book. His words and teachings were being publicized in the face of the people. After the demise of Buddhadeva, his invaluable words and teachings were recorded in three books. These three texts written in Pali are called 'Tripitakas' together. These three pitakas are: (1) Vinaya-pitaka, (2) Sutta-pitaka and (3) Abhidhamma-pitaka.

1.5.2 The Four Noble Truths

The ultimate goal of Buddhadevas's life was how to give eternal cessation to people from grief. As a way to curb this suffering, Buddhadeva had searched four truths. These truths are known as 'four noble truths'. The first noble truth is dukkha or there is suffering, the second noble truth is dukkha-samudaya or there is a cause of this suffering, the third noble truth is dukkha-nirodha or there is a cessation of this suffering and the fourth noble truth is dukkha-nirodha-marga or there is a path to end this suffering. As a way of preventing suffering, Buddhadeva has mentioned eightfold noble path. The eightfold noble path consists of (1) right view (samyak-drsti), (2) right resolve (samyak-samkalpa), (3) right speech (samyag-vak), (4) right conduct (samyak-karmanta), (5) right livelihood (samyag-ajiva), (6) right effort (samyag-vyayama), (7) right mindfulness (samyak-smrti) and (8) right concentration (samyak-samadhi). A person who has been able to control himself by following the seven preceding procedures, has been able to conquer the senses and managed to control the mind, he is the one who can attain nirvana through right concentration. The eightfold noble path (marga) is divided into three skandhas. First skandha is prajna or perfect wisdom. Right view (samyak-drsti) and right resolve (samyak-samkalpa) belong to this skandha. Second skandha is sila. Right speech (samyag-vak), right conduct (samyak-karmanta) and right livelihood (samyag-ajiva) belong to this skandha. Third skandha is samadhi. Right effort (samyag-vyayama), right mindfulness (samyak-smrti) and right concentration (samyak-samadhi) belong to this skandha.

1.5.3 The Religious Schools of Buddhism

Religiously the Buddhists are mainly divided into two schools: (1) Hinayana and (2) Mahayana. The Hinayana school is fanatic and conservative. They do not believe in God's existence. Their religious literature was composed in Pali and their religion spreads in Ceylon, Burma and Siam. The Hinayanists are materialists. The Mahayanists are liberal and humanist. They think that all people of the world should think about the salvation without thinking about their own salvation. To satisfy the spiritual needs of the common people, the Mahayanists believe that Buddha is God. Their religion spreads in Tibet, China and Japan. The Mahayanists are idealists.

1.5.4 Philosophical Implications of Buddha's Teachings

Although Buddhadeva did not show interest in philosophical theory, there are several philosophical principles at the core of his moral teachings. These principles are (1) theory of dependent origination (pratityasamutpadavada), (2) theory of karma (karmavada), (3) doctrine of universal change and impermanence (anityavada) and (4) doctrine of the non-existence of the soul (anattavada). According to Buddhadeva, nothing happens in this world without a cause or does not happen suddenly. Any event is just a continuation of its previous events. All things in the world are subject to a omnipresent causal affair. No God or imperceptible conscious entity is operating it. This is known in Buddhist philosophy as the theory of dependent origination or pratityasamutpadavada. Pratityasamutpada means that the present object or action is derived from the object or cause obtained. The theory of karma of Buddhadeva is just a special form of the theory of dependent origination. According to the theory of karma, every person should enjoy the fruits of his deeds. If the enjoyment of the fruits of karma does not end in one life, it is stored for next birth, not lost. Therefore, the present condition of man is the result of his previous actions. However, this karmavada is older than Buddhism. Because the law of karma is mentioned in the Vedas. The doctrine of impermanence or anityavada is derived from his theory of dependent origination. According to him, everything in the universe is transitory, nothing is permanent. The universe is constantly changing. If the cause acts the effect is created, and when there is no cause, then the effect is no longer there. This is the doctrine of impermanence or anityavada. Buddha does not accept the existence of eternal or immortal soul. In this universe, when everything is temporary and short, it is not possible to have the existence of an eternal soul. This is known in Buddhist philosophy as the doctrine of non-existence of the soul or anattavada.

1.5.5 The Schools of Buddha Philosophy

After the demise of Buddha, his disciples elaborated on the inherent philosophical significance of his words and exhortations and developed four schools. These are- (1) Madhyamika or Sunyavadi school, (2) Yogacara or Vijnanavadi school, (3) Sautrantika or Bahyanumeyavadi school and (4) Vaibhasika or Bahya-pratyaksavadi school. According to the Madhyamika or Sunyavadi school, both the material world and the mental world are false. There is no real thing in this universe, everything is unreal, false and void. According to the Yogacara or Vijnanavadi school, the external object is false, it is the idea of the mind. There

is no entity of an inertial object but there is an entity of consciousness. The mind is true. The Sautrantika school recognizes the separate entities of both the external object and the mind. Our knowledge of the existence of objects is inferred. The Vaibhasika school accepts the separate entities of the material object and the mind. However, they think it is possible to perceive the external objects.

Among the Buddhist religious schools, the Hinayana school can be identified as realist and the Mahayana school as idealist. Now the religious schools and philosophical schools of Buddhism can be shown with the help of the following table.

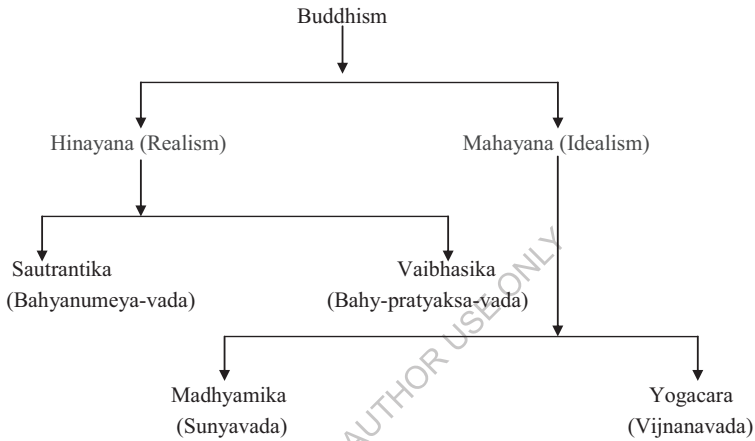


Fig. 1.3

1.5.6 Soul in Buddha Philosophy

Ancient Buddhism did not accept the existence of the eternal soul. According to them, the soul is just the flow of the emotional actions like thoughts, feelings, etc. However, the common people express their doubts about the non-existence of eternal soul. To overcome their doubts, the Mahayana school recognized the existence of the eternal soul.

1.5.7 God in Buddha Philosophy

Buddhadeva did not acknowledge the existence of God. There is no place for God in Buddhist philosophy. The Buddhists do not accept the arguments that are being made about the existence of God. They think there is nothing to be *adi karana* (primary cause) or *parinati karana* (inevitable cause). The universe is the cause of the universe. On the other hand, if God has created this universe, then it has done with purpose. It shows his feeling needy. Then he is not full. Again, happiness and sorrow of human beings can also be seen in God. But in an attempt to emphasize the spiritual consciousness of the common people, the Mahayana community has established Buddha as God.

1.6 The Nyaya Philosophy

1.6.1 Introduction

Gautama Muni is the originator of the Nyaya philosophy. He is also known as Aksapada. The main book of the Nyaya philosophy is Gautama's 'Nyaya-sutra'. This book is the first composition of Nyaya philosophy. There are two schools in the Nyaya philosophy, one of them is the ancient school of the Nyaya (pracina-nyaya) and the other is the modern school of the Nyaya (navya-nyaya). There are several books in the ancient school of the Nyaya. Among these, the names of Vatsayana's 'Nyaya-bhasya', Uddyotakara's 'Nyaya-varttika', Vacaspati Misra's 'Nyaya-varttika-tatparya-tika', Udayana's 'Nyaya-varttika-tatparya-parisuddhi' and 'Nyaya-kusumanjali' and Jayanta Bhatta's 'Nyaya-manjari' may be mentioned. The foundation of the modern school of the Nyaya is based on the 'Tattvacintamani' of Gangesa Upadhyaya from the kingdom of Mithila. Vardhamana Upadhyaya, son of Gangesa, wrote two nyaya commentary (bhasya) titled 'Nyaya-kusumanjali-prakasa' and 'Nyaya-nibandha-prakasa'. Apart from this, the names of Jayadeva Misra's 'Aloka', Mathuranath Tarkavagish's 'Rahasya', Raghunatha Siromani's 'Didhiti-prakasa', Jagadish Tarkalankar's 'Tarkasmriti' and 'Mathuri' and Gadadhara Bhattacharya's 'Gadadhari' are especially noteworthy.

1.6.2 Padarthas in Nyaya Philosophy

The main topic of the Nyaya philosophy is knowledge. In what way or how can we get the right knowledge the Nyaya philosophy basically discusses it. Apart from this, like other Indian philosophies, it discusses the material universe, salvation and God. Sixteen categories (padarthas) have been acknowledged in the Nyaya philosophy. These sixteen categories are: (1) pramana (valid means of knowledge), (2) prameya (objects of valid knowledge), (3) samsaya (doubt), (4) prayojana (aim), (5) drstanta (example), (6) siddhanta (conclusion), (7) avayava (members of syllogism), (8) tarka (hypothetical argument), (9) nirnaya (settlement), (10) vada (discussion), (11) jalpa (wrangling), (12) vitanda (cavilling), (13) hetvabhasa (fallacy), (14) chala (quibbling), (15) jati (sophisticated refutation) (16) nigrahashtana (point of defeat).

1.6.3 The Nyaya Theory of Knowledge

The knowledge-neutral existence of the object has been acknowledged in the Nyaya philosophy. The Naiyayikas (the Nyaya scholars) accept the existence of the object through arguments. That is why materialism of the Naiyayikas is called rational materialism. Here knowledge has been divided into two parts- prama or valid knowledge and aprama or invalid knowledge. Prama is divided into four parts- pratyaksan, anumiti, upamiti and sabdaboda. Again, there are four types of aprama- smrti (memory), samsaya (doubt), bhrama (error) and tarka (hypothetical argument). The Naiyayikas acknowledge four types of pramanas: namely- perception (pratyaksa), inference (anumana), comparison (upamana) and testimony of reliable sources (sabda).

1.6.4 Nyaya Perception

First of all, perception is divided into two parts- laukika (ordinary) and alaukika (extraordinary). Laukika or ordinary perception is of two distinct types- the external (bahya) and the internal (antara or manasa). When there are links to an object with the five external senses; eyes (caksu), ears (srotra), nose (ghrana), tongue (rasana) and skin (tvak), then it is called external perception. Again, the perception in connection with the mental process of thoughts, feelings, etc. and internal sense or mind, is called internal perception. Ordinary perception may be divided into another type- nirvikalpa (indeterminate), savikalpa (determinate) and pratyabhijna (recognition). The perception that is simply the knowledge of any object, does not know its variations or qualities, is considered as nirvikalpa pratyaksa. Again, the perception where the existence of an object is also known as well as its variations or qualities is considered as savikalpa pratyaksa. Cognizing what is known as a pre-identified object is a recognition or pratyabhijna. On the other hand, there are three types of extraordinary perception- samanyalaksana, jnanalaksana and yogaja. Perceiving a person or an object, the whole class is perceived on the basis of the generality of that class then that is called samanyalaksana perception. Again, when perceiving an object with the help of one of the senses, if the quality related to the object of another sense is perceived, it is called jnanalaksana perception. With the help of supernatural power generated by devout meditation or with the help of intuition what the yogis perceive is called yogaja perception.

1.6.5 Nyaya Inference

If based on a known object and supported by it the knowledge of any other unknown object can be obtained then it is called inference. There are three terms and at least three propositions in the inference of the Naiyayikas. The propositions are called the avayavas of syllogism. And the three terms are called sadhya (major term), paksa (minor term) and hetu (middle term). What is inferred that is sadhya, where the existence of sadhya is inferred that is paksa and the term that related the sadhya to the paksa is called hetu. The other name of hetu is linga or sadhana. If there is a smoke in a distant hill, it is said that where there is a smoke there is a fire, then in this inference the fire is the sadhya, the hill is the paksa and the smoke is the hetu. The invariable concomitance relation between the hetu or linga and the sadhya is called vyapti. Nyaya syllogism is five-membered. According to the Naiyayikas, inference is of two kinds, namely, svarthanumana (inference for oneself) and pararthanumana (inference for others). In the case of svarthanumana, the inference does not need to be properly explained, however, in the case of pararthanumana, the inference needs to be properly explained. In another view, there are three types of inferences, namely, purvavat, sesavat and samanyatodrsta. The inference that the unperceived effect is inferred perceiving the cause is called purvavat inference and the inference that the unperceived cause is inferred perceiving the effect is called sesavat inference. Not based on causal relationships but an inference that is based on past experience and similarity is called samanyatodrsta inference. Again, inferences are divided into three parts based on the nature of induction of vyapti between the hetu and the sadhya. These are kevalanvayi, kevalavyatireki and anvayavyatireki. In an inference

where hetu (middle term) appears a glimpse of reason but not really so then the inference faulted and this fault is called hetvabhāsa (fallacies of inference).

1.6.6 Nyaya Comparison and Testimony

Seeing the similarity of a new and unfamiliar object with a previously known object, the knowledge about the new object is obtained, then the process of acquiring knowledge is called upamāna or comparison and the knowledge that is gained through the upamāna is called the upamiti. According to the Naiyāyikas Sabda is the fourth pramāna. Sabda is a testimony of a trustworthy person or aptavākya. The knowledge that comes from sabda or aptavākya is called sabda-jñāna.

1.6.7 The Nyaya Theory of Physical World

The Naiyāyikas are dualist. They acknowledge the uniqueness of both the universe and the soul. All things in the universe have a neutral entity, free of knowledge. The Naiyāyikas admits twelve kinds of prameyas or the objects of knowledge. These are atma (self), sarira (body), indriya (senses), artha (objects of the senses), buddhi (cognition), manas (mind), pravṛtti (activity), dosa (mental defects), pretyabhāva (rebirth), phala (results), duḥkha (suffering) and apavarga (liberation). Apart from this, the Naiyāyikas also acknowledge the existence of seven padārthas or categories of the Vaiśeṣikas and these are dravya (substance), guṇa (quality), karma (action), samānya (generality), viśeṣa (particularity), samāvaya (inherence) and abhava (non-existence). The universe is composed of four gross elements and these are kṣiti (soil), jala (water), agni (fire) and vāyu (air). The last part of these four gross elements are the four types of atoms or paramānu. The atoms are eternal, unchangeable and indivisible. All the compounds are composed of these atoms.

1.6.8 Nyaya Soul and Moksa

The self is of two types- the individual self (jīvatma) and the supreme self (paramatma). There are differences in Indian philosophies about the nature of the individual self. The Naiyāyikas think that the soul is an extramundane product. The soul is naturally unconscious and inactive. Caitanya is not a natural quality of the soul, but an adventitious quality. When the soul comes in contact with the mind, when the mind comes in contact with the senses and when the senses come in contact with the external objects then the consciousness of the soul arises. According to the Naiyāyikas, the salvation of the soul can be achieved only when one must acquire true knowledge of the self and all the objects of experience (tattva-jñāna) and that is what are need- śravaṇa, manana and nididhyāsana. The first stage is śravaṇa, the study of the scriptures, the second stage is manana, one must use his own reasoning to take into consideration what he learned and the third stage is nididhyāsana, one must meditate on the soul with the principles of yoga.

1.6.9 The Nyaya Theology

Gautama Muni did not discuss God in detail in the Nyaya Sutras but mentioned God. He spoke of God in the verses IV.1.22 to IV.1.24 of the Nyaya Sutras. In the conclusion sutra, Gautama made it clear that God controls the actions and fruits of actions of living beings.

According to the Nyaya philosophy, the self is one of the twelve prameya (a knowable or an object of true knowledge) padarthas. This self is of two types, the jivatma (individual self) and the Paramatma (Supreme self). Paramatma is God. God is omnipotent and omniscient. He is the creator, protector and destroyer of this universe. God did not create this universe from nothing. He created this universe with the help of paramanu (atom), dik (space), kala (time), akasa (ether), manas (mind) and atman (self or soul). Atom, space, time, ether, mind and soul are all eternal and everlasting like God. God did not create these. They existed like God before the creation of the universe, and they will continue to exist forever. Then, what does it mean that God created the universe? God has, in fact, coordinated these eternal (nitya) and everlasting entities. God is the cause of the origin of impermanent (anitya) entities. He is the efficient cause of the universe, not the material cause. It is god's will (iccha) that creates this universe. It is by His will that the universe is destroyed. God is the giver of the result of action of the living beings. The living beings act on its own will, but the result of action does not depend on its will. The living beings are entitled to merit (punya) or demerit (papa) according to their deeds. God judges the merit and demerit of the living beings and arranges for their rewards.

1.7 The Vaisesika Philosophy

1.7.1 Introduction

Kanada is the founder of the Vaisesika philosophy. The name of this philosophy is Vaisesika philosophy as a unique category called 'visesa' is discussed in this philosophy. This is also called Kanada system. Kanada Muni also named as uluka. For this reason, his philosophy is also called as Aulukya system. The main text of the Vaisesika philosophy is 'Vaisesika-sutra'. It is divided into ten adhyayas (chapters) and each adhyaya is subdivided into two ahnikas (sections).

After the Vaisesika Sutra, Prasastapada Muni's 'Padartha-dharma-sangraha' is an authentic book on Vaisesika philosophy. Udayana's 'Kiranavali', Vyomasiva's Vyomavati and Sridhara's 'Nyaya-kandali' are three significant commentaries on the Padartha-dharma-sangraha. Apart from this, two notable books on the Vaisesika philosophy are Vallabhacarya's 'Nyaya-lilavati' and Udayana's 'Laksanavali'. In the subsequent works of Vaisesika philosophy, the relationship between Nyaya and Vaisesika philosophy is seen. Notable among these are Sivaditya's 'Sapta-padarthi', Laugaksi Bhaskara's 'Tarka-kaumudi', Visvanatha's 'Bhasaparicchada' etc.

1.7.2 Relation between Nyaya and Vaisesika Systems

The Nyaya and the Vaisesika systems are called allied systems (samanatantra) of philosophies. There are many similarities between the doctrines of both philosophies. According to both, salvation is the absolute goal, and salvation is the ultimate cessation of suffering. Both philosophies think that ignorance or false knowledge is the cause of all suffering. In addition, the Nyaya and the Vaisesika systems hold the same view about jivatma (the individual self), Paramatma (the Supreme self), material world, paramanu (atom), desa (space), kala (time), akasa (ether), ksiti (soil), jala (water), agni (fire) and vayu (air), etc. Both are materialistic and pluralistic philosophies. Although there is so much similarity between the two philosophies, there are two important differences between the views. Four pramanas (source of knowledge) have been acknowledged in the Nyaya philosophy, namely- pratyaksa (perception), anumana (inference), upamana (comparison) and sabda (testimony). But according to the Vaisesikas, the pramanas are two, namely- pratyaksa (perception) and anumana (inference). The Vaisesikas consider that upamana (comparison) and sabda (testimony) belong to anumana (inference). Again, according to the Naiyayikas there are sixteen types of padarthas, but according to the Vaisesikas there are seven types of padarthas.

1.7.3 Padarthas in Vaisesika Philosophy

Padasya artha: padartha- that is, all things indicated by words are padarthas. Without the name, nothing can be imagined in this universe. Padartha is the object of what is known with the name. According to the Vaisesikas, padarthas are of seven kinds, namely, dravya (substance), guna (quality), karma (action), samanya (generality or universal), visesa (particularity), samavaya (inherence) and abhava (non-existence). All the padarthas or categories are objects of valid knowledge or prameya.

1.7.4 Substance

The category in which quality and action can exist but different from quality and action is called dravya or substance. Substance is of nine kinds, namely, ksiti (soil), jala (water), agni (fire), vayu (air), akasa (ether), dik (space), kala (time), atma (soul) and manas (mind). Among these nine substance first five are called panchabhuta (five physical elements). Each of them has a specific quality (visesa guna) that can be perceived by external senses, such as smell of soil, taste of water, colour of fire, touch of air and sound of akasa or ether. The substances of soil, water, fire and air are of two kinds again, namely, nitya (eternal) and anitya (non-eternal). The atoms of soil, water, fire and air are eternal, because the atoms can not be created or destroyed. All the compounds that are formed in connection with these atoms are non-eternal, because they can be created or destroyed. Akasa is the fifth physical substance. Akasa is eternal, all-pervading and imperceptible substance. Akasa is one and endless. Many skies do not exist. The specific quality of akasa is sound and perceiving the sound we infer the existence of akasa as the substratum of sound quality.

Dik or space is one, endless, eternal and all-pervading substance. Space is not many, because of limiting conditions (upadhi), space appears to be many. We infer the existence of space from the concepts or cognitions of 'far', 'near', 'here', 'there', etc. Like space, time is also one, endless, eternal and all-pervading substance. We infer the existence of time from the concepts or cognitions of 'past', 'present', 'future', etc. The soul or atma is eternal and omnipresent substance. The existence of the soul is inferred as the substratum of knowledge or consciousness. The soul is of two kinds, namely – jivatma (the individual soul) and Paramatma (the Supreme soul). The individual soul is many in numbers, but the Supreme soul is one. The Supreme soul is the cause of the universe and the creator and the destroyer. The mind is an eternal substance. Every organism has only one mind in its body. Just as the external senses are needed to perceive the external objects, the internal sense (antarindriya) is needed to perceive happiness, sorrow, soul, knowledge and so on. This internal sense is the mind or manas. The mind is very subtle and atomic.

1.7.5 Quality and Action

The category that exists in a substance and which has no quality or activity is called quality or guna. According to the Vaisesikas, quality is of twenty-four types, such as rupa (colour), rasa (taste), gandha (smell), sparsa (touch), sabda (sound), sankhya (number), parimana (magnitude), prthaktva (distinctness), samyoga (conjunction), vibhaga (disjunction), paratva (remoteness), aparatva (nearness), buddhi (cognition), sukha (pleasure), dukkha (suffering), iccha (desire), dvesa (aversion), prayatna (effort), gurutva (heaviness), dravatva (fluidity), sneha (viscosity), samskara (tendency), dharma (merit) and adharma (demerit). Karma or action is the physical movement. Like quality, action exists in a substance also. Action is different from substance and quality. Action is dynamic and active yet quality is stable and passive. Quality is permanent, but action is temporary.

1.7.6 Generality, Particularity, Inherence and Non-existence

Due to the general characteristics despite the many differences between many objects of the same class, that are called by the same name then the characteristics is called samanya or generality or universal. As humanity, due to this general characteristics, Rama, Shyama, Jadu, Madu- all of them are called human beings. Samanya is of three kinds, namely, para (the highest), apara (the lowest) and parapara (the intermediate). Visesa or particularity is the extreme opposite category of samanya or universal. Visesa or particularity subsists in the eternal substances. The Nyaya-Vaisesikas recognize two types of relationships, namely, samyoga or conjunction and samavaya or inherence. The two things that can exist individually and if there is a non-eternal relation between them, then it is called samyoga or conjunction. The eternal and inseparable relation between the positive categories (bhava padartha) is called samavaya or inherence. Non-existence is a negative category. It is the opposite of the six positive categories. There are four types of non-existence, namely, pragabhava (antecedent non-existence), dhvamsabhava (non-existence after destruction), atyantabhava (absolute non-existence) and anyonyabhava (mutual non-existence).

1.7.7 Vaisesika Atomism

The Vaisesikas have explained the creation and destruction of this universe with the help of Atomism. According to them, all the compounds in this universe are created due to the connection of ksiti, jala, agni and vayu- these four atoms and are destroyed due to the destruction of this four atoms. According to the Vaisesika philosophy all atoms are perpetual and have no origin or destruction. Two atoms are united into a dyad (dvyanuka), the combination of three dyads generated a triad (tryanuka). Triad is perceivable, but dyad is not perceivable.

1.7.8 Vaisesika Soul and Moksa

According to the Vaisesika philosophy the soul is of two kinds. Jivatma and Paramatma. Jivatma or the individual soul is associated with the body. So jivatma or individual souls are many. Paramatma or the Supreme soul is God. The soul is naturally unconscious. Caitanya is an adventitious attribute of the soul. The abhedajnana (identical knowledge) of non-eternal objects such as the body, the senses, etc., and jivatma (the individual self) is the cause of happiness and sadness. This abhedajnana is the avidya or ignorance. When aditya is overcome, self-knowledge can be attained through sravana, manana and nididhyasana. In the state of salvation, the soul remains in its own form. There occurs an ultimate cessation of suffering in the state of salvation.

1.7.9 The Vaisesika Theology

Kanada muni did not mention God in his Vaisesika Sutra, but the next Vaisesikas have tried to establish God. They believe that God is the creator of Vedas. They think that God is eternal, omniscient and omnipresent. God is the efficient cause of the universe and atom is the material cause of the universe.

1.8 The Samkhya Philosophy

1.8.1 Introduction

Kapila Muni is said to be the founder of the Samkhya philosophy. It is said that he was the first to meet Nirguna Purusatattva and hence his name is adi viddhana (first scholar). Among the Indian philosophies, Samkhya philosophy is considered to be the oldest. According to someone, he is the son of Brahma. According to somebody, he is the incarnation of Visnu. According to some others, he is the incarnation of fire. The first book written on the Samkhya philosophy is Kapil's Tattva Samasa. As this book is very short, Kapila Muni later wrote another book explaining the details of the sutras. The name of this book is 'Samkhya Pravachana Sutra'. But these books are no longer available. Among the ancient books which are preserved from the destruction, 'Samkhya Karika' of Isvara Krsna is the oldest and most authoritarian. In addition to this book, there may be a few other names written on Samkhya philosophy that can be mentioned. Such as 'Samkhya Karika Bhasya' of Gaudapada, 'Samkhya Tattva Kaumudi' of Vacaspati Misra, 'Samkhya Pravachana Bhasya' and 'Samkhyasara' of Vijnana Bhiksu, 'Samkhya Pravachana Sutravrtti' of Anirruddha etc. There is disagreement among scholars as to why this philosophy is called Samkhya. Some people think that the objective of this philosophy is to obtain the tattvajnana by determining the number of tattvas. So the origin of the word Samkhya. Some people also think that the meaning of the word Samkhya is Samyak Jnana (right knowledge). Samyak Jnana is available when reading this philosophy so its name is Samkhya philosophy.

1.8.2 Samkhya Metaphysics

In the Samkhya philosophy, two basic tattvas have been acknowledged, namely- Purusa and prakrti. According to Samkhya philosophy, the universe is created from prakrti and the destruction of the universe happens in prakrti. This philosophy is contrary to the pluralism of Vaisesika and then contrary to Vedanta's Advaita theory. The prakrti tattva of the Samkhya philosophy is established on the theory of causation. This theory of causation is known as satkaryavada. Two doctrines about the causation exist in the Indian philosophy, namely- satkaryavada and asatkaryavada. According to the doctrine, the effect that is rooted in the material cause before it is created is called satkaryavada. And according to the doctrine, its (the effect) existence is denied in material cause before the effect is produced, then the doctrine is called asatkaryavada. Samkhya philosophers are supporters of the satkaryavada. According to them, prior to the production of the effect, it (the effect) already exists in its material cause. They think that the effect (karya) is not a new creation, which was in an unexpressed state in its material cause, it is its own manifestation. There are two types of satkaryavada, namely: parinamavada and vivartavada. According to the parinamavada when the effect is generated from the cause then the cause really becomes an effect. And according to the vivartavada, the fact is that it does not really become an effect, just the effect is lighted as well. Samkhya philosophers are the supporters of the parinamavada. The Advaitins are the supporters of the vivartavada.

According to the Samkhya philosophers, Purusa is conscious being, eternal and self-luminous. In the Samkhya philosophy, the self is said to be Purusa. Purusa is not one, many. Purusa is unchangeable. Purusa is unborn and naturally free. Purusa is nirguna that is having no qualities and nirvikara that is having no antipathy to anything. The difference between functional Purusa and spiritual Purusa is made in Samkhya philosophy. The functional Purusa is 'jiva' or the 'individual' and the spiritual Purusa is Paramatma or the 'Supreme self'.

According to the Samkhya philosophers, the main element of the jadajagat (material universe) is prakrti. Prakrti is one, not many. Prakrti is inert, not conscious. Prakrti is eternal and omnipresent. Before the creation, the universe was unmanifested. The name of this unmanifested condition is prakrti or nature. Prakrti is composed of three gunas and these three gunas are sattva, rajas and tamas. These three gunas are not properties of prakrti, but elements of prakrti. Prakrti is the equilibrium of these three elements. All the things in the universe are made up of these three elements. These three gunas are very sensitive, they can not be perceptible, they can be guessed. Sattva guna create happiness, rajas guna create misery and tamas guna create fascination. The evolution of the universe is made by connecting conscious Purusa and unconscious prakrti. The cosmology or sristitattva of Samkhya, that is, Purusa, prakrti and twenty three tattvas from prakrti that create the twenty five tattvas is shown with the help of a diagram.

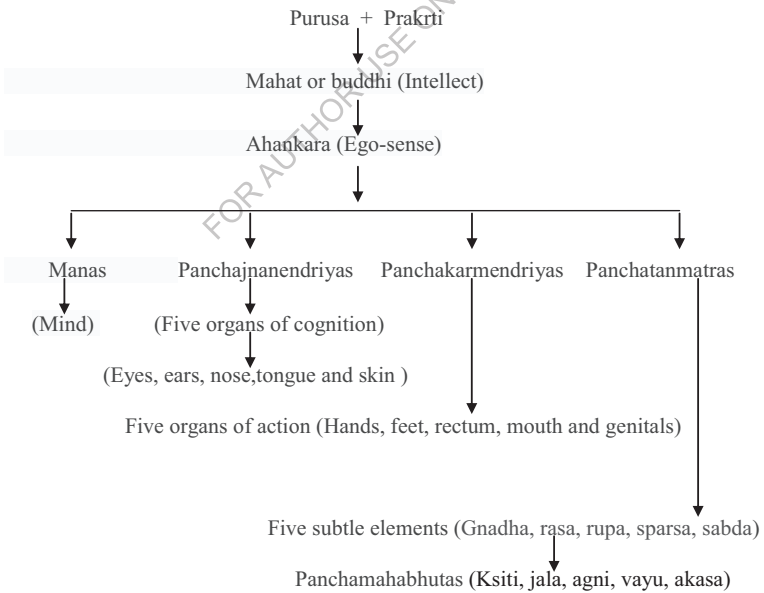


Fig. 1.4

The parinamavada of Samkhya, that is, from prakrti to mahat, mahat to ahankara, ahankara to eleven indriyas and panchatanmatras and from panchatanmatras to

panchamahabhutas, is called anuloma parinama. The process of dissolution of Samkhya is the reverse of it, this process is called pratiloma parinama.

1.8.3 The Samkhya Theory of Knowledge

Three pramanas are recognized in the Samkhya philosophy, i.e. pratyaksa (perception), anumana (inference) and sabda (testimony of reliable persons). The direct knowledge arises due to the connection of the senses with the objects is called pratyaksa jnana. Pratyaksa is of two types- laukika pratyaksa and alaukika pratyaksa. Laukika pratyaksa is again two types- nirvikalpa and savikalpa. Perceiving an issue, based on that perceived knowledge, the process of acquiring knowledge about an unknown issue invariably or vyapti related to that perceived issue is called anumana. In the Samkhya philosophy anumana is divided into two parts, namely- vita and avita. The anumana that is based on universal affirmative proposition is called a vita anumana. And the anumana that is based on universal negative proposition is called an avita anumana. Vita anumana again is of two types, viz., purvat and samanyatodrsta. Based on what is previously experienced about two things or events, that assumption is called purvat anumana. Not based on causality, the anumana that is just based on similarities is called samanyatodrsta anumana. Like the Naiyayikas, the Samkhya philosophers have also acknowledged five membered syllogism. The objects or phenomena that can not be known with pratyaksa or anumana they are known with the help of sabda pramana. Sabda is of two types- laukika and Vaidika. Laukika sabda is a maxim of reliable and expert persons. And Vaidika sabda is the words of the Vedas.

1.8.4 Moksa According to Samkhya System

According to the Samkhya, the abhedajnana (identical knowledge) of Purusa and prakrti is the reason for bondage of Purusa. The bhedajnana (discriminate knowledge) of Purusa and prakrti or conscience knowledge is the only way to end cure. When realizing the differences between soul and non-soul substances the soul is no longer a consumer of happiness and misery. Then Purusa becomes alone and this situation is called kaivalya. According to the Samkhya, liberation is of two kinds- jivan mukti and videha mukti. The liberation that is released in life is jivan mukti and the liberation that is released after death is videha mukti.

1.8.5 About God

There is a difference of opinion between the commentators and interpreters of Samkhya philosophy in relation to God. According to some commentators, Samkhya philosophy is atheist. Again, some commentators have given its opinion the Samkhya philosophy a God-oriented philosophy, just like Nyaya and Vaisesika. There is no mention about God in the Tattva Samasa or Samkhyakarika. God has been rejected by the Samkhya Pravachana Sutra of Kapila. Vacaspati Misra and Aniruddha gave a thought to Samkhya philosophy as atheistic. But Vijnanabhiksu and some modern interpreters of the Samkhya philosophy believe that Samkhya philosophy is a God-oriented philosophy.

1.9 The Yoga Philosophy

1.9.1 Introduction

Patanjali Muni is the promoter and founder of the Yoga philosophy. According to his name, this philosophy is also called Patanjala philosophy. The main book of Yoga philosophy is 'Yoga-sutra' or 'Patanjala-sutra'. One of the most valuable commentary on this philosophy is 'Vyasa-bhasya' written by Veda Vyasa. 'Tattva-vaisharadi' of Vacaspati Misra and 'Yogavarttika' of Vijñānabhikṣu are the authentic explanations of Vyasa-bhasya. 'Vritti' of Bhojraj, 'Yogamani-prabha' of Ramananda Sarasvati and 'Yogasara Samgraha' of Vijñānabhikṣu are the significant books written on the Yoga Philosophy. Apart from these, there are many other valuable books and notes written on the Yoga philosophy.

The Yoga philosophy is divided into four padas or parts, namely- Samadhipada, Sadhanapada, Vibhutipada and Kaivalyapada. In the first pada or Samadhipada, the nature, types, purpose, pramanas, citta vritti and the theology of yoga have been discussed. In the second pada or Sadhanapada, kriyayoga, panchaklesas, the signs of avidya, karmaphala, sufferings for karmaphala, the causes of sufferings and cessation, the way to prevent sufferings have been discussed. In the third pada or Vibhutipada the inward aspects of yoga and the supernormal powers acquired by the process of yoga have been discussed. In the fourth pada or Kaivalyapada the nature and types of liberation, the uniqueness of purusa, the afterlife etc. have been discussed.

1.9.2 Samkhya and Yoga

Samkhya and Yoga are the same level philosophies. In the Gita it is said that he is a samyaktadarshi (right viewer) who sees Samkhya and Yoga in the same way. Yoga philosophy has also acknowledged the twenty five tattvas of Samkhya philosophy namely- Purusa, prakrti, mahat etc. and three pramanas viz., pratyaksa, anumana and sabda. However, an additional tattva has been accepted in the Yoga philosophy and this is the concept of Isvara. That is why another name for Yoga philosophy is 'Sesvara Samkhya' (Samkhya with Isvara). In both Samkhya and Yoga philosophies avidya is considered to be the cause of bonding. However, in the Samkhya philosophy due to the lack of bhedajnana (discriminate knowledge) and in the Yoga philosophy false knowledge is the reason for bonding. In the Samkhya philosophy the lack of bhedajnana (discriminate knowledge) is called akhyativada (non-apprehension). In the Yoga philosophy false knowledge is to perceive an object as another object. That is the anyatha-khyativada (misapprehension) or viparit-khyativada. According to the Samkhya philosophy moksa is the permanent cessation of suffering. According to the Yoga philosophy moksa or kaivalya is the self-position of the soul. The three kinds of pains described in the Yoga philosophy are: parinama dukkha, tapa dukkha and samskara dukkha. The three kinds of pains described in the Samkhya philosophy are: adhibhautika, adhidaiivika and adhyatmika. The three antara indriyas (inner senses) of Samkhya, namely- buddhi (intellect), ahankara (ego) and manas (mind) are called citta (consciousness) in the Yoga philosophy.

1.9.3 Yoga Psychology

According to the Yoga philosophy, the soul is free and alone. The individual self (jiva) is the soul associated with the sthula sarira (gross body) and the suksma sarira (subtle body). Sthula sarira or suksma sarira or citta, soul is not related to anyone. Citta, in its own nature is unconscious, but it seems to be conscious due to the proximity of the soul. When citta is related to any object, then citta assumes the form of that object. The assumption of the form of that object of citta is called vrtti (fluctuations of the mind). These vrittis are of five types, viz., pramana (right knowledge), viparyaya (misconception), vikalpa (imagination or feeling), nidra (deep sleep), smrti (memory). The pramanas are the right knowledge. This pramanas are of three types- pratyaksa (perception), anumana (inference) and sabda (testimony of reliable persons). Viparyaya or wrong knowledge of objects are the knowledge of the objects that are not the same as the objects really are. For example, knowing a rope as a snake. Even if no real object exists in the meaning of the word, listening to the word the knowledge we have, is called the vikalpa. Nidra is another kind of cittavrtti. This vrtti arises due to the excessive tamas guna in citta. Smrti is also another kind of cittavrtti. The appropriate repetition of past experiences is the smrti.

1.9.4 The Nature and Forms of Yoga

According to the Yoga philosophy the meaning of yoga is citta-vrtti-nirodha. In the Yoga philosophy, yoga has not been used in the sense of connection, it has been used in the meaning of the samadhi. Sattva, rajas and tamas, due to the importance of these gunas, the level of the citta or the mind has been differentiated. This level of mind is called bhumi. Cittabhumi (mental level) is of five kinds, namely, ksipta (restless), mudha (torpid), viksipta (distracted), ekagra (concentrated) and niruddha (restrained). In this condition of ksipta the mind is being overpowered by rajas and tamas and so runs away from object to object and cannot remain firmly on an object. This condition is not suitable for yoga practices. In the condition of mudha, the mind is being overpowered by tamas and so is subdued by lust, anger and is immersed in sleepiness, sleep, laziness and ignorance. In the viksipta or distracted level, the mind becomes fixed on an object for a short period of time. This situation is a bit better than the ksipta level. This situation is not suitable for the yoga practices as there is no permanent restraint of citta or the mind of the devotee. In the ekagra level, the mind can permanently attach itself to an object for a long time. In this situation, the influence of rajas and tamas is disappeared and sattva element is increased in the mind. Citta remains steady like a constant motionless lamp. In this situation, there is no complete restraint of mental modifications (citta-vrtti). In the niruddha level, all kinds of mental functions are destroyed, even the state of concentration is prevented. In this situation, citta (the mind) remains calm and buried. The last two conditions are conducive for yoga practices and helpful for the attainment of liberation. The state of ekagra (concentrated) is called samprajnata yoga or samprajnata samadhi and the state of niruddha (restrained) is called asamprajnata yoga or asamprajnata samadhi.

1.9.5 The Eight-fold Means of Yoga

According to the Yoga philosophy, vivekakyati (the knowledge of discrimination) is the way to overcome sorrow and attainment of liberation (kaivalya). Vivekakyati is the well known knowledge that the soul is pure consciousness, and is different from body, mind, intellect and ego-sense (ahankara). It is not possible to gain this renowned knowledge if citta is not pure and calm. For this reason, in the Yoga philosophy eightfold means are described. These are namely (1) yama (restraint), (2) niyama (discipline), (3) asana (posture), (4) pranayama (breath-control), (5) pratyahara (withdrawal of the senses), (6) dharana (attention) (7) dhyana (meditation) and (8) samadhi (concentration).

Ahimsa (nonviolence), satya (truthfulness), asteya (nonstealing), brahmacharya (control of the carnal desires and passions) and aparigraha (nonpossessiveness) the practices of these five commitments are called yama or restraint. Sauca (purity), santosa (contentment), tapas (austerity), svadhyaya (self-study) and isvara pranidhana (surrender to the supreme being) these five cultivations are called niyama or discipline. In order to practice yoga, the way the body is kept healthy and the mind remains stable is called asana. There are different types of asanas, such as padmasana, bhadrasana, virasana etc. Controlling the normal breathing speed and overcoming it is the name of pranayama. There are three types of pranayama, namely, recaka (expiration), puraka (inspiration) and kumbhaka (retention). Withdrawing the senses from the external objects and keeping them under the control of citta is called pratyahara. The discipline which consists in binding or fixing the mind (citta) on any external or internal object is dharana or attention. If dharana or attention is uninterrupted, then dhyana or meditation is there. Samadhi or concentration is the final step in the yoga practice. In the state of samadhi, the meditator, the object of meditation and the process of meditation all become united. In this situation, the mind of the yogi is completely absorbed in the worshipped object.

1.9.6 Kaibalya

In the Yoga philosophy, the own position of the Purusa or the self is moksa or mukti or kaibalya. Purusa is ever free in its nature. Purusa think of himself as master or consumer because of ignorance. When this ignorance (avidya) is removed through the knowledge of discrimination (vivekakyati), the true nature of the self can be realized and Purusa achieves liberation or kaibalya. The state of liberation is not a joyous situation, however, there is an endless cessation of sadness in the salvation.

1.9.7 The Place of God in the Yoga Philosophy

In addition to the twenty five tattvas (principles) of Samkhya, that is, Purusa, prakriti, buddhi, ahankara, eleven indriyas, panchatanmatras and panamahabhutas, another tattva has been accepted in the Yoga philosophy. This tattva (principle) is God. That is why the Yoga philosophy is called Sesvara Samkhya (Samkhya with Isvara or God). The connection and separation of Purusa and prakrti are not their nature. It is therefore necessary to acknowledge the existence of an absolute being which will connect between these two eternal realities. Patanjali acknowledged the existence of God, but did not discuss God theoretically. He acknowledged the existence of God in order to satisfy practical needs.

In the Yoga philosophy, God is one and unique. God is eternal, unborn, endless and free from all defects. According to the Yoga, God is the Supreme Person. He is different from other persons. All individuals are subject to the panchaklesh, karma (deeds), vipaka (consequence) and asaya (impressions) etc. Pancha klesas (afflictions) are, avidya (ignorance), asmita (egoism), raga (craving), dvesa (aversion) and abhinivesah (fear of death). But God is above all. God is only a particular self (purusavisesa) and not the creator and preserver of the universe.

Regarding the description of the attributes (laksana) of God, Patanjali said that the Purusa who is free from the five afflictions of ignorance, karma, vipaka and asaya is God (klesa karma vipaka asayaih apamristah purusa-visesa isvara). According to the Yoga philosophy, God is free from all afflictions (klesa) and free from all faults (dosa). He is the Perfect Being and all-pervading, omnipotent and omniscient. There is no one else who has the additional supremacy of God. A free person cannot be called God. Because he also had a bond once upon a time. But God is eternally free. He was never associated with klesa, karma, vipaka and asaya.

According to the philosophy of Yoga, Isvara pranidhana (offering the fruits of one's actions to the higher source or Isvara) or meditation (dhyana) of God is the best way to attain samadhi (attainment of concentration). Worshiping God, remembering God's words, and offering all the fruits of one's deeds to God is the Isvara pranidhana. The release of the devotee is accelerated by Isvara pranidhana.

1.10 The Mimamsa Philosophy

1.10.1 Introduction

Jaimini Muni is the founder of the Mimamsa philosophy. According to his name, another name for this philosophy is the Jaimini philosophy. There are two kandas (divisions) in the Vedas, namely, purva-kanda or karma-kanda and utara-kanda or jnana-kanda. The Mimamsa philosophy is based on the purva-kanda or karma-kanda of the Vedas. And the Vedanta philosophy is based on the utara-kanda or jnana-kanda of the Vedas. The Mimamsa philosophy is also known as the purva Mimamsa, as it is founded on the purva-kanda of the Vedas. Similarly the Vedanta philosophy is also known as the utara Mimamsa, as it is founded on the utara-kanda of the Vedas.

The main book of the Mimamsa philosophy is the 'Mimamsa-sutra' written by Jaimini. The name of Badarayana Muni, the author of the Brahma-sutra is mentioned multiple times in the Mimamsa-sutra and the name of Jaimini Muni, the author of the Mimamsa-sutra is mentioned several times in the Brahma-sutra. For this reason Jaimini is considered to be the contemporary person of Badarayana. Sabarasvami is a renowned commentator on the Mimamsa Sutra. Sabara Bhasya, composed by him is a significant commentary on the Mimamsa-sutra. Prabhakara Misra and Kumarila Bhatta are notable among the commentators who wrote commentaries on the Mimamsa Sutra after Sabarasvami. In the name of both, two schools have emerged in the Mimamsa philosophy, one of these is the Prabhakara school and the other is the Bhatta school. Prabhakara Misra compiled two commentaries on the Sabara Bhasya in the Mimamsa philosophy, these are 'Brhati' and 'Laghvi'. Kumarila Bhatta composed Brhattika, Tantratika, Slokavarttika, Tantravarttika and Tuptika on the Mimamsa philosophy. Mandana Misra composed the books 'Mimamsanukramanika', 'Vidhiviveka', 'Bhavanaviveka' and 'Vibhramaviveka' etc. Vacaspati Misra wrote a commentary named 'Nyaya-kanika' and a book named 'Tattvabindu'. Murari Misra established the third view in the Mimamsa philosophy.

To explain and to illustrate the Vedic ritualism with the help of reasoning is the function of the Mimamsa philosophy. The first aphorism of the Mimamsa philosophy is 'athato dharma jijnasa'. So it is seen that dharma or vedic ritualism and its subject matter are the objects of Mimamsa philosophy. In order to facilitate discussion, Mimamsa philosophy can be divided into three parts, namely, Mimamsa theory of knowledge, Mimamsa metaphysics and ethics and theology.

1.10.2 The Mimamsa Theory of Knowledge

The Mimamsakas think that both jnata (the knower) and jneya (the object known) are necessary for jnana (the knowledge itself). According to the Bhatta Mimamsakas, the knowledge which is of an unlearned or an unknown object is the prama or valid knowledge. Valid knowledge is not obstructed by other knowledge. However, according to the Prabhakara Mimamsakas, there is no such thing that true knowledge will always be an unlearned or an unknown. There may be prama or right knowledge about known objects. However, knowledge that is not constrained by other knowledge is true knowledge.

According to Prabhakara, knowledge is self-revealing (svaprakasa), knowledge can manifest itself. There are three aspects of knowledge: jnata (the knower), jneya (objects to be known) and jnana (knowledge). According to Bhatta, knowledge can reveal the object but can not manifest itself. There are four aspects of knowledge, namely, the knower (jnata), objects to be known (jneya), the cause of knowledge and the cognizedness (jnatata) of the jneya. Jaimini acknowledges three types of pramanas (means of valid knowledge) such as, pratyaksa (perception), anumana (inference) and sabda (testimony). But Prabhakara acknowledges five types of pramanas, namely, pratyaksa (perception), anumana (inference), sabda (testimony), upamana (comparison) and arthapatti (postulation). On the other hand, Kumarila Bhatta admits one more pramana with these five; that is anupalabधि (non-perception).

1.10.3 Perception and Inference

The knowledge that happens when the senses are connected to any object is perception knowledge. Perception knowledge is of two types, namely, indeterminate perception (nirvikalpa pratyaksa) and determinate perception (savikalpa pratyaksa). In the indeterminate perception there is knowledge of the existence of an object, but there is no clear knowledge of the quality of the object. In the determinate perception there is a clear knowledge about the class, quality, activity, etc. of the object. Indeterminate perception is the basis of determinate perception. Based on a known object and supported by it, if any knowledge about an unknown object can be gained, then the process of acquiring knowledge is called inference (anumana). There are three terms in an inference, namely, sadhya (major term), paksa (minor term) and hetu (middle term). The statements of the Mimamsakas about the inference are very similar to those of the Naiyayikas. But the syllogism of the Naiyayikas is five-membered (avayavas) and the syllogism of the Mimamsakas is three-membered (avayavas).

1.10.4 Testimony, Comparison, Postulation and Non-perception

The words of a credible person is the testimony and the knowledge that depends on these words are authoritative knowledge. There are two types of testimony, namely, personal (pauruseya) and impersonal (apauruseya). The words of a trusted person is personal or pauruseya. The authority of the Vedas is impersonal or apauruseya. Testimony is of two types, siddhartha vakya or knowledge of the existent objects and vidhayaka vakya or give directions to do something. According to the Naiyayikas, comparison (upamana) is the knowledge of the objects denoted by words gained from its denotation. But according to the Mimamsakas, the resemblance of an object that is perceiving at present with an object that is perceived in the past is called comparison or upamana. If an unperceived fact is imagined to solve an apparent conflict, then the supposition of that unperceived fact is called postulation or arthapatti. In order to explain the non-existence of an object, Kumarila Bhatta acknowledges another distinct source of knowledge named non-perception or anupalabधि.

1.10.5 The Validity of Knowledge and Error

According to the Mimamsakas, if the reasons for knowledge are present properly and if they are free from doubt, then knowledge is generated. They think that the evidence or the validity of knowledge is inherent in the knowledge. Does not depend on any other factor. And as soon as the knowledge is generated, the knowledge is known as truth or valid. This validity of knowledge does not depend on any other condition. This doctrine regarding the origin and validity of knowledge is known as the theory of intrinsic validity (svatah-pramanya-vada). According to Prabhakara, all knowledge is true. In the case of error, it is a combination of two types of knowledge, perception and memory, such as the serpent's illusion in a rope. Here the rope is perceived and the serpent is remembered. This doctrine is known as akhyati-vada (non-apprehension). According to the Bhatta school, an object is perceived in the illusion as another object. This doctrine is known as viparita-khyati-vada (contrary apprehension).

1.10.6 Mimamsa Metaphysics

According to the Vaisesika there are seven types of categories (padarthas), but according to Prabhakara there are eight types of categories, namely, dravya (substance), guna (quality), karma (action), samanya (generality or universal), paratantrata (inherence), sakti (force), sankhya (number) and sadrsya (similarity). According to Kumarila, there are five types of categories, namely, dravya (substance), guna (quality), karma (action), samanya (generality) and abhava (non-existence). Of these, the first four are positive and the last one is negative. There are four types of non-existence again, namely, pragabhava (prior non-existence), dhvamsabhava (posterior non-existence), anyonyabhava (mutual non-existence) and atyantabhava (absolute non-existence). Kumarila does not accept sakti (force), sankhya (number) and sadrsya (similarity) as categories. Prabhakara, on the other hand, does not recognize abhava (non-existence) as a distinct category. According to the Vaisesikas, substance is nine, but according to Kumarila, substance is eleven, namely, ksiti (soil), jala (water), agni (fire), vayu (air), akasa (ether), kala (time), dik (space), atman (soul), manas (mind), andhakara (darkness) and sabda (sound). According to Prabhakara, the quality is twenty-two, such as rupa (colour), rasa (taste), gandha (smell), sparsa (touch), parimana (magnitude), prthakva (distinctness), samyoga (conjunction), vibhaga (disjunction), paratva (remoteness), aparatva (nearness), gurutva (heaviness), dravatva (fluidity), sneha (viscosity), samskara (tendency), sabda (sound), buddhi (cognition), sukha (pleasure), dukkha (suffering), iccha (desire), dvesa (aversion), prayatna (effort) and dharma (merit). The Mimamsakas think that the universe and its diverse objects are true. There is neither creation of the universe nor destruction. According to the Mimamsakas, an imperceptible power (sakti) is hidden in each cause and if there is no obstacle, that power produces the effect. On the occasion of the Vedic yajna (ritual works), the performer can attain heavenly bliss. But this fruits do not happen immediately, but after a long time. The reason for achieving this result is that the Mimamsakas acknowledge the existence of an unperceived potency called 'apurva'. Like the Nyaya-Vaisesikas, the Mimamsakas also believe that the soul is an eternal and omnipresent substance. The soul is different from the body, the mind and the senses. The body is ruined, but the soul is not destroyed. The soul is naturally inactive and unconditioned. Consciousness

(caitanya) is not an essence of the soul, but an adventitious quality of the soul. The soul is not one but many.

1.10.7 Religion and Ethics

Dharma or religion is to perform duties and activities prescribed by the Vedas. Adharma is the performing duties and activities against the Vedic commandments. According to the Mimamsakas, the Vedic rituals are the main, the deities are secondary. The Vedic rituals are performed for the sake of the Vedic commandments, not for personal interests. According to them, there are three types of rituals (karma), namely nitya, naimittika and kamya. The ritual duty that should be performed every day is nitya karma. The ritual duty that should be performed on a particular day or lunar date is naimittika karma. And the ritual duty that is taken to obtain a particular result is kamya karma. According to the early Mimamsakas, attaining heaven is the absolute end or the ultimate goal of living beings. Eternal bliss prevails in the heaven. This attainment of heaven is achieved by performing duties prescribed by the Vedas. But the later Mimamsakas have called moksa as the absolute end of life. According to them, there is a total cessation of sadness in the state of liberation. To achieve salvation, both action and knowledge are required. The Mimamsakas do not acknowledge the existence of God as the creator of the universe. According to them, the law of karma is responsible for the creation of the universe and the enjoyment of karmaphala of the living beings (jivas). The Vedas are the foundation of Mimamsa philosophy. God is not the author of the Vedas. The Vedas are eternal and self-manifest. The work of the Mimamsakas is to preach the glory of the Vedas. In fact, the Vedas occupy the place of God in the Mimamsa philosophy.

1.11 The Vedanta Philosophy

1.11.1 Introduction

The etymological meaning of the word 'Vedanta' is 'the end of the Vedas'. The four parts of the Vedas, namely, first is the Mantras or the Samhitas (hymns), then the Brahmanas, then the Aranyakas and finally the Upanisads. The Mantras of the Vedas are in the part of the Samhitas, the details and explanations of the sacrificial rituals described in the Samhitas are in the Brahmanas, the inner sacrifice in the form of enlightenment, instead of actionable external sacrifice, are in the Aranyakas, and the philosophical theory is discussed in the Upanisads. This Upanisads are the Vedanta. So far the names of 112 Upanisads have been found. Badarayana Muni formulated the Brahma Sutra, systematizing and coordinating the various teachings of the Upanishads. This Sutra is also known as Vedanta Sutra, Vedanta philosophy, Uttara Mimamsa etc. Brahma Sutra is divided into four adhyayas or chapters, namely, samanvaya (harmony), avirodha (non-contradiction), sadhana (the means) and phala (the fruits). Each chapter is further divided into four padas or paricchadas and so in the Brahma Sutra there is a total of sixteen padas or paricchadas. Each pada has some parts, these are the adhikaranas. Each adhikarana contains varying numbers of sutras. There are a total of 555 sutras in the Brahma-sutra. Because the sutras of the Brahma-sutra are very short, so their meaning is difficult to understand. As a result, the need to write commentaries (bhasyas) and sub-commentaries on the sutras is required.

There are innumerable commentators and sub-commentators of the Brahma Sutra. They are divided into two groups by Dr. Mahanambhrata Brahmachariji. One of them is the Sannyasi-goshti (monk group) and the other is the Vaisnava-goshti (devotee group). Acharya Sankara is the head of the Sannyasis, from his teacher Govindacharya, Gaudapada, Padmapadacharya, Suresvaracharya, Bhaskaracharya, Vacaspati Misra, Sadananda Yati to Madhusudana Sarasvati, innumerable philosophers are in the class. Acharya Ramanuja is the head of the Vaisnavas, from his teacher Yamunacharya, Vallabhacharya, Nimbarkacharya, Madhvacharya, Vijnanabhiksu to Baladeva Vidyabhushana, innumerable philosophers are in the class.

The basis of the Vedanta philosophy is three, namely, the Upanisads, the Bhagavadgita and the Brahma Sutra. The Upanisads are the Sruti Prasthanas (heard-based source), the Bhagavadgita is the Smriti Prasthanas (remembered-based source) and the Brahma Sutra is the Nyaya Prasthanas (reason-based source). Prasthanas means canonical text. The Vedanta philosophy has been developed on the basis of this Prasthanatrayi.

1.11.2 Sankara's Advaita Theory

Advaita (non-dualism) theory is the most ancient doctrine. As the originator of this doctrine the name of Sankaracharya is common. Sankaracharya was born in a Brahmin family in the Southern Indian province of Kerala. According to many, his lifetime from 788 AD to 820 AD, just 32 years. It is rare in the history of philosophy that he has left the identity of philosophical talent in such a short time. He had ruthless intelligence and great performance. At the age of only eight years, he had studied the whole Vedas and at that age he left the

family and took the Sannyas. His father's name is Sivaguru and mother's name is Visista. Sankaracharya's Gurudeva (teacher) was Govindacharya and Govindacharya's Gurudev was Acharya Gaudapada.

When Sankaracharya emerged, the influence of Buddhism in India comes motionless. The influence of Jainism in the Deccan is ongoing. The Mimamsakas especially the Kumarila Bhatta and Mandana Misra compared to jnanakanda and monasticism, and promoted the superiority of karmakanda and domestic religion. At such a time, Sankaracharya defeated many of the Indian scholars of various opinion by argument and established his own opinion. Among the books that are found on Advaitaism Gaudapada's 'Mandukyakarika' is the oldest one. This composition is in pre-Sankara era. Among the texts composed by Sankaracharya, the commentary on the Vedanta Sutra or Brahma Sutra is the main. His commentary is known as 'Sariraka bhasya'. He also wrote commentary on the main Upanishads and Bhagavadgita. Many notes were later written on Sankaracharya's books. Among them, 'Bhamati' of Bacaspati Misra and Sankara's direct disciple Padmapada's 'Pancapadika' is very remarkable.

1.11.3 Sankara's Conception of the Universe

According to Sankara, the universe is the creation of maya. There is no entity in the universe. There are indications in the Vedas and Upanishads that the universe is false and the creation of maya. According to Sankara, maya is a kind of inexplicable power (anirvacaniya sakti) of Brahman. This power can mislead people like magician's magic. Brahman is manifested as an universe under the influence of maya sakti, and people, according to avidya, think the universe as true. When tattvajnana (knowledge of the principles) comes to mind, the ignorance is removed, and Brahman is the only entity, there is no real entity of the universe, this truth is realized. Sankara explains maya with the help of adhyasa (superimposition, illusion) of everyday life or error perception. Like a serpent in rope. Two things can be found when analysing illusion. One of them is adhisthana (rope) about which there is a lack of clear knowledge and other is the imagination of a false object (snake) in adhisthana. Avidya's two strengths: coating (avarana) strength and scattering (viksepa) strength. Avidya covers the adhisthana by coating strength and later creates falsehood with scattering strength. Likewise, avidya hid the Brahman with its coating power and later scattering the universe in Brahman.

Sankara thinks that the universe is not the result (parinama) of Brahman, the universe is the revolution (vivarta) of Brahman. According to parinamavada the cause actually turns into action, and according to vivartavada, the cause does not turn into action, only the action is reflected. Sankara speaks of three types of entities (satta), namely, pratibhasika (apparent), vyavaharika (practical) and paramarthika (spiritual). In the case of serpent, the knowledge of the snake has its pratibhasika entity. The universe is not real (sat) but true, here the knowledge of the universe is practical and the knowledge of Brahman is spiritual. In the practical approach, the creation of the universe is as follows: At first akasa emerges from Brahman. Then gradually appear vayu (air), agni (fire), jala (water) and ksiti (soil). These are the panchatanmatras (five subtle elements). From panchatanmatras, panchamahabhutas (five

gross elements) is created through panchikarana (method and process of the subtle matter to transform into gross matter). The sthula sarira (gross body) of human being is composed of the panchamahabhutas and the suksma sarira (subtle body) is composed of the panchatanmatras.

1.11.4 Sankara's Conception of Brahman

According to Sankara, Brahman is the only truth, the universe is illusory, the creature (jiva) is Brahman itself, not different. (brahma satyam, jagat mithya, jivo brahmaiva naparah). He did not acknowledge anything else other than Brahman's entity. Regarding the nature of Brahman, Sankara said that Brahman is ever-pure, ever-buddha and ever-free. Brahman is infinite, eternal and uninterrupted. Brahman and soul are identical. Brahman is sat (ultimate being), cit (pure consciousness) and ananda (perfect bliss) in its nature. Truth, knowledge and joy are the nature (svarupa) of Brahman, not the signs (laksana) of Brahman. Sankara described Brahman from two perspectives. One of them is practical perspective, and the other is spiritual perspective. In empirical point of view (vyavaharika drsti) He is saguna (with characters) and in transcendental point of view (paramarthika drsti) He is nirguna (without characters). In Upanishads, two forms of Brahman are mentioned, namely, Parabrahman and Aparabrahman. According to Sankara, Parabrahman (Supreme Reality) is nirvisesa (indeterminate), nirguna (without character) Brahman and Aparabrahman is savisesa (determinate), saguna (with character) Brahman. Brahman is nirupadhi (free from passions or attachment). He has no bheda (difference). He is niravayava (devoid of parts). Brahman is visvagata (omnipresent) and visvatita (all surpassing).

1.11.5 Sankara's Conception of Soul and Moksa

According to Sankara, the soul and Brahman are one and identical. (Atma ca Brahman). According to him, the soul is the only honest thing. The phrase 'Tat Tvam Asi (that thou art) of the Upanishads mention the identity of jivatman and paramatman. Everything can be doubted, but the existence of the soul can not be doubted. Because the soul is the one who doubts it. There are four states of consciousness in our lives, namely, jagrat (waking), svapna (dreaming), susupti (deep sleep) and turiya (pure consciousness). There is a difference between the knower (subject) and the known (object) in the waking state. In the dreaming state, the conscious of object is not as true as the conscious of object of the waking condition. Nevertheless, there are differences in the knower and the known. In the state of deep sleep there is self-consciousness, but the mind does not have a clear conscious of object which is in waking or dreaming condition. Knowledge about the true nature of the soul can be attained in deep Sleep. The devotee realized the intrinsic position of the soul in the state of turiya (pure consciousness). According to Sankara, the soul is not the master, the soul is irrespective, inactive, integral and endless. The soul is conscious in and out and no forms of extra consciousness. The soul is in blissful condition. The soul is always eternal, pure, buddha and free. The oneness of the soul with the body is the bondage of the soul. Avidya or ignorance is the cause of this bondage.

Sankaracharya thinks that when avidya is removed, the soul can know its true nature and then the soul is liberated. According to Sankara, to attain self-knowledge (atma-jnana) one needs to perform fourfold qualifications (sadhana catustaya). These are (1) nityanitya vastu viveka, that is to feel the discrimination between the real (nitya) and unreal (anitya) substances, (2) ihamutrartha phalabhoga viraga, that is the complete renunciation of enjoyments of physical and spiritual objects, (3) samadamadi sadhana sampat, that is the practice of restraint of the senses and the mind and (4) mumuksutva, that is the solemn desire for salvation. According to Sankara, the liberation of the soul is of two types, namely, jivan-mukti and videha-mukti. The liberation of the embodied soul is called jivan mukti and the liberation of the disembodied soul is called videha mukti. At the liberation of the soul, the soul does not gain anything new, because the soul is inherently free. Atman and Brahman are one, ignorance (avidya) creates a false distinction between them. When the self-knowledge (atma jnana) unfolds that cover, the soul returns to its own nature. This is the liberation of the soul. Not only the endless cessation of sadness, but a complete joyous situation prevails in the release of the soul.

1.11.6 Sankara's Theory of Knowledge

Sankara points out the difference between the spiritual reality (paramarthika satta) and the empirical reality (vyavaharika satta). The the knowledge by which spiritual reality is known is called paravidya or vidya. And the knowledge by which empirical reality is known is called aparavidya or avidya. According to Sankara, Brahma jnana (knowledge of God) is the true knowledge. This knowledge is first available from sruti (the Samhitas and the Upanisads). Then with the help of reasoning the justification of knowledge gained is available, and at last he realized the truth in the form 'I am Brahman' through anubhava (direct cognition) or samyak darshan (spiritual enlightenment). The Rishis (sages) attained Brahma-tattva (deals with the nature of Brahman) through sravana (hearing), manana (thinking) and nididhyasana (meditation). According to Sankara, non-contradiction is the criterion for determining truth. Knowledge of non-duality is the true knowledge because this knowledge is not constrained by other knowledge. Correspondence (anurupata) can also be a criterion for determining truth, but it is only in the case of determining empirical truth (vyavaharika truth). According to the Advaita Vedanta, the object perceived by illusion neither describable as real (sat) nor as unreal (asat). On the other hand, it can not be described as sadasat (conjoint perception of real and unreal objects). For example, snake in a rope. This snake is indescribable (anirvacaniya). This reality is pratibhasika or apparent reality. This doctrine of the Advaitins is known as anirvacaniya khyati-vada (apprehension of the indescribable).

Sankara has acknowledged six pramanas (source of knowledge), namely, pratyaksa (perception), anumana (inference), sabda (testimony), upamana (comparison), arthapatti (postulation) and anupalabधि (non-perception). The explanation given by Sankara of these pramanas is similar to that of the Bhatta Mimamsakas.

1.11.7 Ramanuja's Visistadvaita Theory

Ramanuja is the chief promoter of the Visistadvaita theory (qualified monism). Ramanujacharya was born in 1017 at Sriperumbudur in the Deccan. His father died at his early age. After learning general education, Ramanuja studied Vedanta with Yadavaprakasa, a resident of Kanchipuram. Seeing the curiosity of learning about Vedanta education of Ramanuja, Alavandar or Yamunacharya, the head of Srirangam Math, intended to establish him at Srirangam Math. He acknowledged that his doctrine was based on the doctrines of his earlier writers. The name of Nathamuni is particularly significant among those who introduced the Visistadvaita theory before Ramanuja. He wrote two books. These are 'Nyayatattva' and 'Yogarahasya'. Later, Nathamuni's grandson, Alavandar or Yamunacharya preached well the Visistadvaita theory. The books written by him like, 'Agama Pramanya', 'Mahapurusa Nirnaya', 'Siddhitrayam' and 'Gitārtha Samgraha', are very common. The name of Ramanuja can be mentioned only after Yamunacharya. He wrote the famous 'Sribhasya' on the Brahma Sutra and a commentary (bhasya) on the Bhagavadgita. In addition, he wrote the books like 'Vedantadipa', 'Vedantasara' and 'Vedantasamgraha' etc. Even after Ramanuja many books have been written on the Visistadvaita theory, among these, 'Sruta Prakasika' of Sudarsana Suri, 'Tattvatraya' of Lokacharya, 'Tattvatika' of Venkatanatha are particularly significant.

1.11.8 Ramanuja's Conception of the Universe

According to Ramanuja, the universe is true. Brahman or Isvara is the creator of this universe. He wants to be many and to fulfill this desire, He created the living and the inanimate universe. The creation of this universe is His lila (divine play) but is not due to any lack. Brahman does not have a homogeneous distinction (svajatiya bheda) and a heterogeneous distinction (vijatiya bheda), but there is an internal distinction (svagata bheda). Cit (conscious soul) and acit (unconscious matter) are two integral parts of Brahman. The origin of the living organism (jiva) is from the part of cit and the origin of the material object (jada jagat) is from the part of acit. This acit is called 'prakrti'. However, this prakrti is not the same as the prakrti of the Samkhya philosophy. This prakrti is also called maya or avidya.

Ramanuja is a proponent of satkaryavada. But he does not believe in vivartavada, he believes in parinamavada. According to him, jagat (the universe) is not a vivarta (modification) of Brahman, but is a parinama (transformation) of Brahman. Before the creation, cit (conscious soul) and acit (unconscious matter) remains as unmanifested form (avyakta) in Brahman. Brahman is then called causal state of Brahman (karana brahma). Again after creation, cit and acit parts emerge in the form of embodied souls (jivas) and world of objects (jada jagat), respectively. Then this state of Brahman is called effect state of Brahman (karya brahma). The origin of mahat or buddhi from the suksma (subtle) prakrti at the will of Brahman. According to the supremacy of trigunas, sattva (purity and holiness), rajas (action and drive) and tamas (laziness and inertia), mahat can be of three types, namely, sattvika, rajasika and tamasika. Five organs of cognition (panchajnanendriyas), five organs of action (panchakarmendriyas) and mind (antarendriya), are emerged from sattvika ahankara (ego-sense). Panchatanmatras (five subtle elements) are emerged from tamasika ahankara and

panchamahabhutas (five gross elements) are emerged from panchatanmatras. The Visistadvaita theory supports the doctrine of panchikarana (process of the subtle matter to transform into gross matter). According to Ramanuja, maya is not ignorance (avidya) or lack of knowledge, maya is a bhava padartha (existence). Just as God's creation and the universe are true, in the same way His maya sakti (power) is also true.

1.11.9 Ramanuja's Conception of Brahman

According to Ramanuja there are three tattvas, namely cit, acit and Brahman or God. Cit (conscious spirit) and acit (unconscious matter) are two parts of Brahman. The living organisms (jivas) from the part of cit and the material world (jada jagat) from the part of acit have emerged. Brahman associated with visesana (qualifying characters) and saguna (with attributes) Brahman is the truth. Calling Brahman as nirguna (without attributes) does not mean that Brahman possessed of no impure qualities. According to Ramanuja, there can be no substance (dravya) without quality (guna) or no quality without substance. Substance with attributes can be the object of direct cognition (anubhava). Substance without qualities cannot be the object of direct cognition. Therefore, Brahman is not nirguna, but saguna. Again, calling Brahman as nirvisesa (indeterminate) means all visesas (determinations) being emitted from Brahman. Brahman is the base of all kinds of visesanas (qualifying characters). Therefore, Brahman is not nirvisesa, but savisesa (with qualifications). Sat (existence), cit (consciousness) and ananda (bliss) are the qualities of Brahman. That is why Brahman is called Saccidananda (Satcitananda). According to Ramanuja, there is no sajatiya bheda (difference in a single species) and vijatiya bheda (difference of different kinds of species) in Brahman, but there is svagata bheda (difference within one's own body). There are no substances similar or dissimilar to Brahman, but there are internal differences in Brahman. Cit (conscious spirit) and acit (unconscious matter) are two parts of Brahman. So Brahman has svagata bheda (internal distinction). According to Ramanuja, Brahman and Isvara (God) are one. Brahman or Isvara is conscious Purusa. He is the master of creation, stability and destruction. He is purusottama (supreme being) or bhagavan. He is the worshipped by the creatures. He is the most gracious.

1.11.10 Ramanuja's Conception of Soul and Moksa

According to Ramanuja, the living being (jiva) is an embodied soul and the soul (atman) is a part of Brahman. That is why the soul is not infinite, but finite. The soul is separate from the body, mind, prana (life-giving force), senses and intellect. The creation of an organism's (jiva) body is from the acit (unconscious matter) part of Brahman. For this reason, the body is not infinite, but finite. The soul is the doer, the knower and the consumer. Caitanya (consciousness) is neither an accidental quality of the soul, nor its essence (svarupa). Caitanya is an intrinsic quality of the soul. The soul is self manifestation. The soul is eternal, uncreated, immortal and infinitely small. The soul is not sensible. According to Ramanuja, jiva (the individual) and Brahman are not identical, because jiva is a part of Brahman. Again, the individual cannot be called different from Brahman, because the part cannot be separated

from the whole. According to him, the relation between the Brahman and the jiva is the relation of the bheda (difference) and the abheda (identity). The bondage of living being (jiva) is for the sake of enjoyment of karmaphala. According to its own work (karma), the soul occupies the body. Because the soul is ignorant of its essence (svarupa), it considers itself identical with the body. Therefore ignorance or avidya is the cause of the bondage of the soul.

Ramanuja thinks that both work and knowledge are needed to attain salvation. If the rituals prescribed by the Vedas are done without desire, the accumulated fruits of past deeds are destroyed. As a result, the desire to gain tattvajnana (knowledge of the principles of reality, realization of the absolute truth) is awakened. After studying the Karma Mimamsa and practicing Vedic rituals without any interest, the mumukshu person (one who has intense desire for salvation) realizes that salvation is not possible through work alone, but also requires knowledge. Then his desire to read the Vedanta awakens. He was informed of the Vedanta text that jivatma (the individual soul) and the body are not identical. The soul is a part of Brahman. The mumukshu person can also understand that salvation is not possible without God's grace. According to Ramanuja, jivanmukti (moksa achieved while living) is not possible, but videha mukti (moksa attained after death) is possible.

1.11.11 Ramanuja's Theory of Knowledge

Ramanuja has clearly recognized these three pramanas (means of valid knowledge) such as, perception (pratyaksha), inference (anumana) and scripture (agama). Perception is the direct knowledge. Perception is of two types, permanence (nitya) and impermanence (anitya). Almighty God always sees everything. Therefore, His perception is permanence. And what people see with the help of the senses is impermanence perception. Impermanence perception is again of two types, namely, yogaja and ayogaja. What the yogis perceive the infinitesimal objects with the power of yoga without the senses is called yogaja perception. Again, what is perceived to the human being by the senses of the eyes, ears, nostrils, etc., is called ayogaja perception. The Ramanuja community recognizes these two types of perceptions like indeterminate perception (nirvikalpa pratyaksha) and determinate perception (savikalpa pratyaksha). In the indeterminate perception the universal (samanya) category of known objects is perceived, however, it is not known, that is an universal category of all those class of objects. This is known for the second time or third time perception. This second or third perception is determinate perception. According to the Visistadvaita theory, inference is the knowledge gained from common truth. The common truth is available from just a single instance. Suspicion can be eliminated from multiple instances. With the help of argument and using positive and negative examples, unnecessary things can be excluded and the common truth can be established. According to Ramanuja, agama or word or scripture is a source of knowledge. Knowledge obtained from scriptures is agama. Knowledge about the supernatural objects can be obtained only through the scriptures. However, judgments can be applied in support of the scriptures. Ramanuja thinks that all knowledge is the knowledge of real (vastu). But generally: our knowledge is partial and incomplete. The knowledge that is worthy to use is prama (valid knowledge). Knowing the object as it is, is true knowledge. And to know it differently is false knowledge (mithya jnana). True knowledge can accomplish the need but

false knowledge can not do it. Knowledge in the practical perposes remains incomplete. After attaining salvation, one has the knowledge of the absolute truth. Then the knowledge comes to an extreme level and that is the apprehension of Brahman.

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1.12 Systems of Indian Philosophy at a Glance

1.12.1 Founder, Main Book and the Vedas

Indian philosophical systems	Founder	Main book	Vedas
(1) Carvaka philosophy	There are differences about its founder	No main book	Directly rejects Vedic texts
(2) Jaina philosophy	Vardhamana Mahavira	No main book	Indirectly rejects Vedic texts
(3) Bauddha philosophy	Gautama Buddha	No main book	Indirectly rejects Vedic texts
(4) Nyaya philosophy	Gautama Muni	Nyaya Sutra	Based on independent grounds
(5) Vaisesika philosophy	Kanada Muni	Vaisesika Sutra	Based on independent grounds
(6) Samkhya philosophy	Kapila Muni	Tattva Samasa	Based on independent grounds
(7) Yoga philosophy	Patanjali Muni	Yoga Sutra	Based on independent grounds
(8) Mimamsa philosophy	Jaimini Muni	Mimamsa Sutra	Based on Vedic texts
(9) Vedanta philosophy	Badarayana Muni	Brahma Sutra	Based on Vedic texts

Tab. 1.1

1.12.2 Karmavada, Pramanas and Causation

Indian philosophical systems	Karmavada	Pramanas	Causation
(1) Carvaka philosophy	Does not Believe in Karmavada	Pratyaksa	Does not acknowledge causality
(2) Jaina philosophy	Believes in Karmavada	Pratyaksa, anumana and sabda	Acknowledges both sat and asat with its cause
(3) Bauddha philosophy	Believes in Karmavada	Pratyaksa and anumana	Asatkaryavada
(4) Nyaya philosophy	Believes in Karmavada	Pratyaksa, anumana, upamana and sabda	Asatkaryavada
(5) Vaisesika philosophy	Believes in Karmavada	Pratyaksa and anumana	Asatkaryavada
(6) Samkhya philosophy	Believes in Karmavada	Pratyaksa, anumana and sabda	Parinamavada
(7) Yoga philosophy	Believes in Karmavada	Pratyaksa, anumana and agama	Parinamavada
(8) Mimamsa philosophy	Believes in Karmavada	Pratyaksa, anumana, sabda, upamana, arthapatti and anupalabdhī	Sakti and apurva
(9) Vedanta philosophy	Believes in Karmavada	Pratyaksa, anumana, sabda, upamana, arthapatti and anupalabdhī (Advaita Vedanta)	Vivartavada (Advaita Vedanta)

Tab. 1.2

1.12.3 Soul, Consciousness and God

Indian philosophical systems	Soul	Consciousness	God
(1) Carvaka philosophy	Body and soul are synonymous	Consciousness is the quality of the body	Denies God
(2) Jaina philosophy	The soul is eternal and self luminous, body and soul are not one	Consciousness is the quality of the soul. Caitanya is the intrinsic characteristic of the soul	Denies God
(3) Bauddha philosophy	There is no existence of eternal self, the soul is a combination of five groups of changing elements	Everything is temporary and short	Denies God, however Mahayanists identifies Buddha as God
(4) Nyaya Philosophy	The soul is eternal and omnipresent, the soul is many	The soul is naturally unconscious, consciousness is an adventitious quality	Affirms God
(5) Vaisesika philosophy	The soul is eternal and omnipresent, the soul is many	The soul is naturally unconscious, consciousness is an adventitious quality	Affirms God
6) Samkhya Philosophy	The soul is eternal, characterless and self-luminous	The soul is pure consciousness	Affirms God
(7) Yoga philosophy	The soul is eternal, characterless and self-luminous	The soul is pure consciousness	Affirms God
(8) Mimamsa philosophy	The soul is eternal and omnipresent substance	The soul is naturally unconscious	Affirms God
(9) Vedanta philosophy	The soul is eternal, indeterminate, the soul is one and non-dual (Advaita Vedanta)	The soul is pure consciousness (Advaita Vedanta)	Affirms God

Tab. 1.3

1.12.4 What is Moksa, Nature of Moksa and Way to Attain Moksa

Indian philosophical systems	What is moksa	Nature of moksa	Way to attain moksa
(1) Carvaka Philosophy	Question of the freedom of the soul is irrelevant	Question of the freedom of the soul is irrelevant	Question of the freedom of the soul is irrelevant
(2) Jaina Philosophy	Moksa is the own form of the soul	Infinite knowledge, infinite faith, infinite power and infinite bliss can be attained	Right knowledge, right faith and right conduct
(3) Bauddha Philosophy	Total extinction, state of bliss, inconceivable state	There is an endless cessation of sadness	Eight- fold path
(4) Nyaya Philosophy	Moksa is the own form of the soul	There is an endless cessation of sadness	Sravana, manana and nididhyasana
(5) Vaisesika Philosophy	Moksa is the own form of the soul	There is an endless cessation of sadness	Sravana, manana and nididhyasana
(6) Samkhya Philosophy	Moksa is the own form of the soul	There is an endless cessation of sadness	Vivekakhlyati
(7) Yoga Philosophy	Moksa is the own form of the soul	There is an endless cessation of sadness	Vivekakhlyati
(8) Mimamsa Philosophy	Moksa is the own form of the soul	There is an endless cessation of sadness	The knowledge of essence of the self and performing duties without interest
(9) Vedanta Philosophy	The realization of identity of the individual soul and the supreme soul (Advaita Vedanta)	Complete joyous situation (Advaita Vedanta)	One needs to perform fourfold qualifications (Advaita Vedanta)

Tab. 1.4

1.13 A Brief Introduction to Western Philosophy

1.13.1 The Methods of Philosophy

In order to gain adequate knowledge of any subject, some paths have to be followed. There are certain paths to follow in order to gain philosophical knowledge. These paths are the methods of philosophical discussion. Philosophers use different methods to answer different questions of philosophy. These methods are discussed here.

1.13.1.1 Dogmatism

Dogmatism is one of the oldest methods of philosophical discussion. Accepting the truth of a matter without judgment is dogmatism. In this way philosophical discussions are started without knowing anything about the origin or conditions of knowledge. Dogmatists accept some of the ideas as axiomatic and try to infer others from them. They strongly support their views. This method is not based on logic, analysis, but on superstition, orthodoxy and assumptional ideas.

1.13.1.2 Scepticism

The doctrine that casts doubt on the possibility of theoretical knowledge is called scepticism. According to scepticism, knowledge is not precise and certain. The English word 'scepticism' comes from the Greek word 'skeptikos'. The main point of this doctrine is that it is not possible to acquire proper knowledge. This doctrine is the opposite method of dogmatism. Dogmatism accepts the truth of knowledge without reasoning.

The Sophists of ancient Greece were sceptics. The protogoras express the essence of ancient scepticism in a single sentence as 'Man is the measure of everything'. According to them, the truth is a personal matter. There is no general standard of truth.

Rene Descartes used scepticism as a philosophical method in modern Western philosophy. Through suspicion, he has tried to find conclusive. He has started his philosophical discussions with scepticism. He says doubt everything in the world that can be suspected. In this way he found the undoubted soul. Later he gained his great philosophical decisions such as, there is world, there is God, and so on. In the present age John Locke introduces a kind of scepticism. He says that the quality of an object can be known through perception, but the inherence of quality cannot be known. David Hume thinks that what is perceptible is only known, our knowledge is limited to the senses.

1.13.1.3 Dialectic Method

The word 'dialectic' comes from the Greek word 'dialogue' which means conversation between two people. The method of arguing for or against something is called dialectic method. There are two forms of dialectic method namely, negative dialectic method and positive dialectic method. This method proves that the decision is untrue by showing the contradictions in the opponent's argument. Ancient Greek philosopher Socrates adopted negative method in the ancient times. This method is known in the history of philosophy as Socrates method. Kant adopted this negative method in modern Western philosophy. Kant

shows the difference between the world, consciousness, soul, God, etc. and proves that transcendental knowledge is not possible.

German philosopher Hegel introduced the positive dialectic method. The name given to the combination of two opposing ideas is the dialectic method. The method used by Hegel is the positive dialectic method. His method is called positive because his only purpose is not to defeat the opponent but to seek the absolute theory. Thesis, antithesis and synthesis, these three combine to form a trilogy of dialectical processes. Hegel's positive dialectic method can be shown using the following formula.

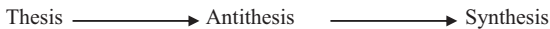


Fig. 1.5

This process does not stop when the first synthesis is made. The first synthesis again appeared as a thesis for the second time. This thesis created antithesis again. In this way the dialectic method continues gradually until it comes to the absolute theory. Finally a pyramid of thesis, antithesis and synthesis is created. At the top of this pyramid is absolute thought.

1.13.2 The Origin of Knowledge

What is the origin of knowledge? There are differences among philosophers about this. This is a complex problem and different philosophers have preached different theories at different times. The four main theories in this regard are, (1) empiricism, (2) rationalism, (3) criticism and (4) intuitionism.

1.13.2.1 Empiricism

According to empiricism, experience is considered to be the true source of knowledge. According to this doctrine, there is no alternative to gaining knowledge without experience. The British philosophers Locke, Berkeley and Hume concluded from the study that knowledge originates from sensations and feelings. Knowledge originates from the senses and the materials obtained from them. The foundation of knowledge is built on the experience, we get with the help of the five senses, that is, the eyes (caksu), the ears (srotra), the nostrils (ghrana), the tongue (rasana) and the skin (tvak), etc. The English philosopher John Locke thinks that the only source of the ideas or thoughts that exist in our minds is the sensory experience. When ideas enter the white screen of the mind from the outside, the mind creates complex ideas by comparing them with different ideas according to its nature. From this complex idea the mind creates simple ideas through generalization. This is why John Locke says 'There is nothing in the intellect which was not previously in the senses'. From the senses through which we gain knowledge of a particular object, we gain general truth and general ideas by generalization through the ascending method. John Lock thinks experience enters our minds by going two ways. One of them is sensation and the other is reflection.

Through sensation we gain knowledge of the external world and through reflection we gain knowledge of the mental state.

1.13.2.2 Rationalism

The doctrine according to which the knowledge obtained through experience is defective but the knowledge obtained through intellect is considered to be correct and certain is called rationalism. According to rationalism, intellect is the only source of knowledge.

The knowledge we gain through the senses is incomplete and inconsistent. The knowledge that a person acquires through experience can be called personal opinion, but not overall knowledge. Knowledge is eternal. Experience or sense cannot give us this kind of knowledge. Knowledge gained through experience varies from person to person. The rationalists have rejected external experience and adopted intellect as the source of true knowledge. They do not value the knowledge gained with the help of the five senses. They do not value the knowledge acquired with the help of five senses. According to the rationalists, the mind is active, intellect is the natural quality of the mind. The mind actively generates knowledge from its innate ideas.

Rene Descartes is the chief priest of rationalism. Suspecting all the beliefs of the Middle Ages, Descartes began his philosophical discussion. He declared that he would doubt everything in the world that could be suspected. Thus he began to doubt everything like God, the world, the conventional source of knowledge. But at one point Descartes came to see that everything in the world is in doubt but its own existence cannot be doubted. He says, 'I can doubt everything in the world but I cannot doubt myself'. The main premise of his philosophy is, I think, therefore I am (cogito, ergo sum).

1.13.2.3 Criticism

The doctrine that the German philosopher Immanuel Kant propagated trying to reconcile between empiricism and rationalism is called criticism. Kant criticized empiricism and rationalism and found that neither of these two doctrines was completely true, nor was it completely false. None can create knowledge alone. Both experience and intellect are needed to create knowledge. Therefore, he has come up with a way to gain accurate knowledge by combining empiricism and rationalism. In Western philosophy it is called criticism.

Kant thinks everything has two aspects. These two aspects are material and shape. Similarly, there are two aspects of knowledge. These two aspects are percepts and concepts. The function of experience is to provide the element (material) of knowledge and the function of intellect is to provide the shape of knowledge. Experience provides the element of knowledge or sensation and that sensation is integrated and well-organized by the intellect and creates accurate knowledge. That is why Kant said, 'Concepts without percepts are empty and percepts without concepts are blind'.

According to Kant, two faculties of mind are required in the knowing process and they are sensibility and understanding. Space and time are called the faculty of sensibility. Substance, causality, unity and multiplicity etc. are called the faculty of understanding. Kant thinks that objects capture our senses through space and time. But that is not the end. To attain pure

knowledge, one has to go a long way beyond the realm of sensation with space and time. In this state the mind gives the faculty of understanding to it. When this faculty is given, the sensation is consolidated and knowledge is generated. There can be no knowledge without sensibility and understanding.

1.13.2.4 Intuitionism

Intuitionism is the theory that basic truths are known intuitively. Basically, one's intuition knows something because it is true. Now what is intuition? Intuition is the ability to understand something without conscious reasoning or thinking. Intuitionism is the practice of perceiving an object directly with the mind without any thought. According to the intuitionists, the knowledge of material beings is obtained through intuition. The main patron of intuitionism is the French philosopher Henri Bergson. He termed intuition as intellectual sympathy.

Bergson thinks that the knowledge gained by the intellect cannot describe the nature of the entity, only the symptoms of the object. As the intellect revolves around the material world, it can give information about the manifestation of the object, but cannot enter inside the object. With the help of intuition we can get inside the object and find its form by uniting with it. The function of the intellect is to analyze the judgment, the intellect tries to explain something in pieces, so that with the help of the intellect a partial image is obtained instead of the whole image of the object. Intuition is the only way to realize the integrity of an object. The primary step in determining theory is intellect but the end result is in intuition. If the first is compared to a tree, the second can be termed as its fruit.

1.13.3 The Nature of Object of Knowledge

In order to sustain life, one has to practice knowledge. He has to resort to knowledge to deal with various problems in daily life. For this, people cannot continue without knowledge. Knowledge requires the knower and the knowable object. The one who knows or acquires knowledge is called the knower and the object he has knowledge of is called the knowable object. Knowledge indicates the relationship between the knower and the knowable object.

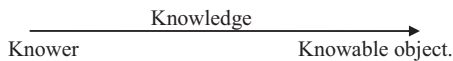


Fig. 1.6

Now what is the nature of the knowable object? Does the knowable object have a mind-neutral different entity? Or the knowable object depends on the mind or knowledge of the person. In answering these questions, two basic streams have been created in philosophy. These two streams are realism and idealism.

1.13.3.1 Realism

According to realism, the existence of an object does not depend on the mind of the knower. The existence of knowable object does not depend on our knowledge. The knowable object has its own independent reality and this reality is not affected by knowing or not knowing it. When we analyze an object, we see an assembly of qualities inside it. The basis of these qualities is called substance. All realists believe that the basis of quality is not known. But the qualities of the object are known. Now are the qualities of the object subject to knowledge or knowledge neutral? Various realisms have been created around the answer to this question.

1.13.3.1.1 Popular or Naive Realism

The oldest form of realism is popular or naive realism. According to this theory, both the substantiality of an object and its qualities exist independently. The idea of our mind is an exact replica of an external object. External objects are exactly the same as the ideas of our minds. This theory is also called popular realism because the common people simply believe in it.

1.13.3.1.2 Scientific Realism

English philosopher John Locke is one of the proponents of scientific realism. According to this theory, knowledge of objects is through ideas or symbols. What the mind perceives directly is the idea. We cannot know the object directly. If the object is similar to the concept or idea, our knowledge is true and if there is no similarity, our knowledge is false. Locke's scientific realism can be shown with the help of the following figure.

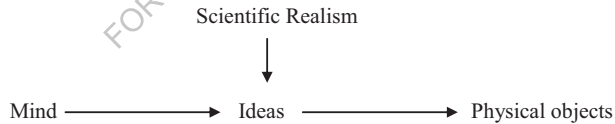


Fig. 1.7

1.13.3.2 Idealism

The doctrine according to which the existence of a known object depends on the mind or the existence of a known object depends on knowledge is called idealism. Idealism does not believe in the mind-neutral independent being of objects. But the object depends on whose mind? Based on the answer to this question, various idealisms have been created.

1.13.3.2.1 Berkeley's Subjective Idealism

The doctrine that there is no real entity of the external object, the existence of the object depends on the individual mind, is called subjective idealism. According to subjective idealism, the mind and the idea of mind are true. Berkeley is believed to have reached his subjective idealism from John Locke's scientific realism. Like Locke, Berkeley thinks that

there are some qualities to be gained by analyzing objects. However, Berkeley considers the distinction between the primary and secondary qualities introduced by Locke to be artificial and unreasonable. According to Lock, the primary qualities are objective and the secondary qualities are subjective. But Berkeley acknowledges that not only the secondary qualities but also the primary qualities are mind dependent. Therefore, if all the qualities are dependent on the mind, then there can be no separate entity beyond the mind of the object. The quality of an object can be found through perception, but the substance cannot be found as an inherence of quality.

1.13.3.2.2 Kant's Phenomenalistic Idealism

Like idealists, Kant thinks that the object of knowledge depends on knowledge. According to Kant, just as everything has form and matter, so knowledge has concepts and contents. Understanding gives the concepts of knowledge and sensibility gives the contents of knowledge. The name of what we get from the external world through sensibility with the help of the senses is intuition. When intuition is presented to us in the form of space and time, then its name is appearance. When appearance come to the mind, the mind imposes categories of understanding on them and then knowledge is generated. When appearance shaped in the categories of understanding, then it is called phenomenon. This phenomenon is the object of knowledge. Therefore, the object of knowledge depends on knowledge, not on anything else.

1.13.3.2.3 Hegel's Objective Idealism or Absolute Idealism

Hegel propagated his philosophical doctrine based on Kant's theory of knowledge. Criticizing Kant's decision about the knower and the knowable, Hegel tried to reconcile the knower and the knowable. According to Hegel, the absolute theory is not a person's mind, it is the ultimate truth or supreme cognition power. The supreme cognition power is self-knower and self-knowable. This is a consensus between the knower and the knowable. This is the holder of the knower and the knowable. This is the full sum of the knower and the knowable.

According to Hegel, supreme soul is the supreme being and the living soul is the manifestation of the supreme soul. Both the living soul and the inanimate objects are manifestations of the supreme soul. So they are basically one and the same. This makes it possible for the living soul to gain knowledge of things and knowledge of the supreme soul. According to Hegel, the supreme soul is conscious and is self-knower and self-knowable.

According to Hegel, the absolute is fruitless and qualityless. This absolute is alive and dynamic. His characteristic is to express himself in different diversity. This revelation runs on the dialectic method. In this method, thesis, antithesis and synthesis, these three forms can be seen.

What is established in the thesis, in antithesis with its opposite concept, in synthesis it is equated with a higher concept. This higher concept is again a thesis. Now what is established in this thesis, in the antithesis with its opposite concept, in the synthesis it is integrated into a higher concept. But this synthesis is not the end of the revelation. Conflict is the life blood of revelation. In this way the absolute manifests himself through thesis, antithesis and synthesis.

CHAPTER 2

Preliminary Mathematics

2.1 Preliminary Algebra

2.2 Preliminary Geometry

2.3 Preliminary Calculus

2.4 Preliminary Statistics

2.5 Preliminary Bystematics

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2.1 Preliminary Algebra

2.1.1 Set

A set is a collection of subject-matters or well defined objects. The subject-matters of a set need to be precise so that they can differ from one to another. The object with which a set is made is called the element of the set. Usually sets are expressed with English capital letters. For example, A, B, C, X, Y, Z etc. Again the elements of the set are expressed with English small letters. For example, a, b, c, x, y, z etc. If a is an element of the set A, then we write $a \in A$ and read a is an element of the set A. If a is not an element of the set A, then we write $a \notin A$ and read a is not an element of the set A.

2.1.2 Set Formation Methods

The set is generally expressed in two ways, namely: (1) tabular method and (2) set builder method.

(1) Tabular Method: In this method all the elements of a set are expressed inside the second bracket and separated by using 'commas' if there are multiple elements. For example, $A = \{1, 2, 3, 4\}$

(2) Set Builder Method: This method gives some conditions for determining the elements of the set. For example, if the set A of all natural numbers smaller than 5 then,

$$A = \{x \mid x \text{ natural number and } x < 5\}$$

2.1.3 Subset

Suppose A and B are two sets. If all the elements of set A are in set B, then set A is called the subset of set B. With the symbol we can write, $A \subseteq B$

Suppose $B = \{1, 2, 3, 4\}$, then $\{1, 2\}$, $\{3, 4\}$, $\{2, 3, 4\}$ etc. will be the subsets of set B.

2.1.4 Empty Set

A set that has no elements is called an empty set. The empty set is expressed with the symbol \emptyset . For example,

$$A = \{ \text{All provinces of Bangladesh} \} = \emptyset$$

2.1.5 Universal Set

If all the sets included in a discussion are subsets of a particular set, then that particular set is called the universal set. The universal set is expressed with the symbol U. For example,

$$U = \{ \text{The lowercase English alphabet} \} = \{a, b, c, \dots, x, y, z\}$$

2.1.6 Complement of a Set

Suppose U is the universal set and the set A is a subset of U. Then we can construct another set whose elements are in set U but not in set A. Then that set will be the complement of a set A. The complement of a set A is expressed with the symbol A' . For example,

$U = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 10\}$ and $A = \{4, 5, 6, 7\}$ then,
 $A' = \{1, 2, 3, 8, 9, 10\}$

2.1.7 Union of Sets

Suppose A and B are two sets. The new set, which consists of all the elements of both sets, is called the union of the two sets. The union of sets is expressed with the symbol $A \cup B$. For example,

$A = \{1, 2, 3, 4\}$ and $B = \{5, 6, 7\}$; then,
 $A \cup B = \{1, 2, 3, 4, 5, 6, 7\}$

2.1.8 Intersection of Sets

Suppose A and B are two sets. Then the new set comprising the common elements of both sets is called the intersection of the two sets. The intersection of sets is expressed with the symbol $A \cap B$. For example,

$A = \{1, 2, 3, 4\}$ and $B = \{3, 4, 5, 6\}$; then,
 $A \cap B = \{3, 4\}$

2.1.9 Disjoint Sets

Suppose A and B are two sets. If both sets have no common elements, then the sets will be the disjoint sets. Suppose

$A = \{1, 2, 3, 4\}$ and $B = \{5, 6, 7\}$.

Then the sets will be the disjoint sets.

If the set of intersection of two sets is empty set then the sets will be disjoint sets.

2.1.10 Natural Numbers

From time immemorial, people started counting. And since then numbers have been born. 1, 2, 3, etc. are called natural numbers. One of the characteristics of natural numbers is that adding or multiplying two numbers will also be a natural number. However, subtracting one natural number from another or dividing by it may not always be a natural number. The set of natural numbers is expressed by N. That is

$N = \{1, 2, 3, \dots\}$

Natural numbers has not an end.

2.1.11 Integers

We know that subtracting two natural numbers may not always be a natural number. Then the idea of zero and negative numbers is born. A set of integers is a combination of natural numbers, zero and negative numbers and each of its element is an integer. The sum, subtraction and multiplication of two integers will always be an integer. However, the division may not always be an integer, then the number will be a fraction. Fractional numbers will never be in the set of integers. The set of integers is expressed by Z. That is

$Z = \{\dots, -3, -2, -1, 0, 1, 2, 3, \dots\}$

2.1.12 Positive Integers

The integers greater than 0 are called positive integers. The set of positive integers is denoted by R^+ . That is

$$R^+ = \{\dots, 1, 2, 4, \dots\}$$

2.1.13 Negative Integers

The integers smaller than 0 are called negative integers. The set of negative integers is denoted by R^- . That is

$$R^- = \{\dots, -4, -3, -2, \dots\}$$

Positive integers, negative integers and zero can be shown in the following figure.

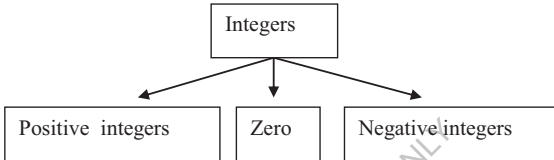


Fig. 2.1

2.1.14 Even Numbers

The integers that are divisible by 2 is called even numbers. The set of even numbers is expressed by Z_e . That is

$$Z_e = \{\dots, -4, -2, 0, 2, 4, 6, \dots\}$$

2.1.15 Odd Numbers

The integers that are not divisible by 2 are called odd numbers. The set of odd numbers is expressed by Z_o . That is

$$Z_o = \{\dots, -3, -1, 1, 3, 5, \dots\}$$

Even numbers and odd numbers can be shown in the following figure.

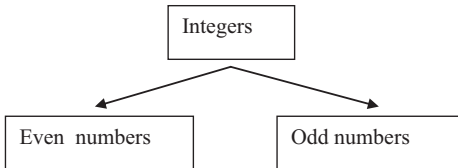


Fig. 2.2

2.1.16 Prime Numbers

The integers greater than 1 that have no divisors other than 1 and itself are called prime numbers. For example 2, 3, 5, 7 etc. 1 is not a prime number because the prime numbers are greater than 1.

2.1.17 Rational Numbers

The number that can be expressed as the ratio of two integers (p/q , where $q \neq 0$) is called rational number. Rational numbers consist of fractions and integers. If the rational number is expressed as a decimal number, there are finite number of digits or repeats same finite sequence of digits over and over after the decimal point. The set of rational numbers is expressed by Q . That is

$$Q = \left\{ \frac{p}{q} \mid p, q \in \mathbb{Z}, q \neq 0 \right\}$$

2.1.18 Irrational Numbers

A number that cannot be expressed as a ratio of two integers is called irrational number. The set of irrational numbers is expressed by Q' . $\sqrt{2}$, $\sqrt{3}$, π , e etc. are irrational numbers.

2.1.19 Real Numbers

The larger number class that consists of numbers such as integers, rational, irrational etc. is called real numbers. The set of real numbers is expressed by R .

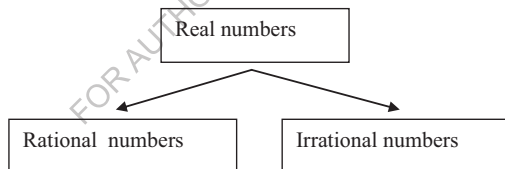


Fig. 2.3

We can express all real numbers by a number line.

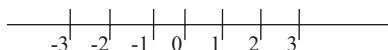


Fig. 2.4

2.1.20 Absolute Value

If the absolute value of any real number a is $|a|$ then

$$|a| = a \text{ when } a \geq 0$$

$$|a| = -a \text{ when } a < 0$$

For any two real numbers a and b , we mean $|a - b|$ that the number is the absolute value of the subtraction of the two numbers. That is, the distance from point a to point b in the number line is expressed as $|a - b|$.

2.1.21 Inequality

For any two real numbers a and b , we can say, a is less than b , or a is equal to b or a is greater than b . With the symbols we can write,

$$a < b \text{ or } a = b \text{ or } a > b$$

If a is less than or equal to b , then we write $a \leq b$, and if a is greater than or equal to b , then we write $a \geq b$. With the symbols we can write,

$$a \leq b \text{ where, } a < b \text{ or } a = b$$

$$a \geq b \text{ where, } a > b \text{ or } a = b$$

2.1.22 Interval

Suppose, a and b are two real numbers where $a < b$, then the set of all numbers between a and b are called interval. Here a is called the left endpoint and b is called the right endpoint. Mathematically there are four types of intervals.

$$(2.1.22.1) \quad [a, b] = \{x \in \mathbb{R} \mid a \leq x \leq b\}$$

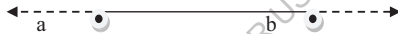


Fig. 2.5

This is an closed interval. Here includes both endpoints.

$$(2.1.22.2) \quad [a, b) = \{x \in \mathbb{R} \mid a \leq x < b\}$$



Fig. 2.6

This interval is a half-open interval. Here the left endpoint includes but the right endpoint does not include.

$$(2.1.22.3) \quad (a, b] = \{x \in \mathbb{R} \mid a < x \leq b\}$$



Fig. 2.7

This interval is a half-open interval. Here the left endpoint does not include but the right endpoint includes.

$$(2.1.22.4) \quad (a, b) = \{x \in \mathbb{R} \mid a < x < b\}$$



Fig. 2.8

This interval is an open interval. Here no endpoints include.

If the intervals are unbounded then we can express these as:

$$(2.1.22.5) \quad (a, \infty) = \{x \in \mathbb{R} \mid a < x\}$$

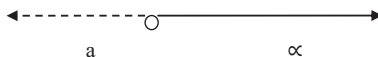


Fig. 2.9

$$(2.1.22.6) \quad [a, \infty) = \{x \in \mathbb{R} \mid a \leq x\}$$

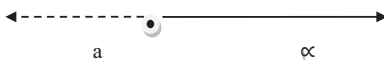


Fig. 2.10

$$(2.1.22.7) \quad (-\infty, b) = \{x \in \mathbb{R} \mid x < b\}$$

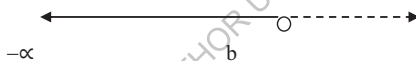


Fig. 2.11

$$(2.1.22.8) \quad (-\infty, b] = \{x \in \mathbb{R} \mid x \leq b\}$$

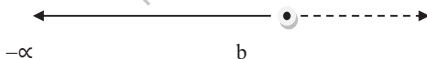


Fig. 2.12

2.1.23 Line Symmetry

A line of symmetry is a line that halves a shape. This means that if the shape is folded along a line, both half match right, or if a mirror is placed next to the line, the shape remains unchanged. For example, the diameter of a circle.

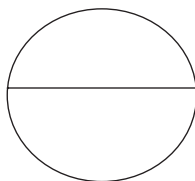


Fig. 2.13

2.1.24 Point Symmetry

An object has point symmetry when there is a position or central point such that, the central point divides the object into two parts and each part has a matching point with the other which is the same distance from the central point. For example, any point of a regular hexagon.

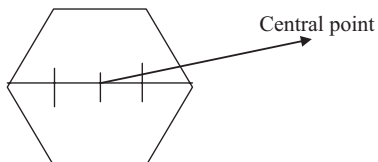


Fig. 2.14

2.1.25 Zero, One and Many

Zero is not a natural number. Zero is not contained in the set of natural numbers. Zero is a mysterious number in Mathematics. Zero is an even number. The idea of zero came from the Indian subcontinent. One is the first natural number. One is not a prime number. One is an integer and the unit of numbers. All natural numbers are calculated from one. Many is more than one. Two or more. Many is not a specific number.

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2.2 Preliminary Geometry

2.2.1 Cartesian Co-ordinates

If two straight lines XOX' and YOY' intersect perpendicularly in a plane at a point O , then XOX' is called X axis, YOY' is called Y axis and O is called origin. The coordinates of the origin will be $(0, 0)$.

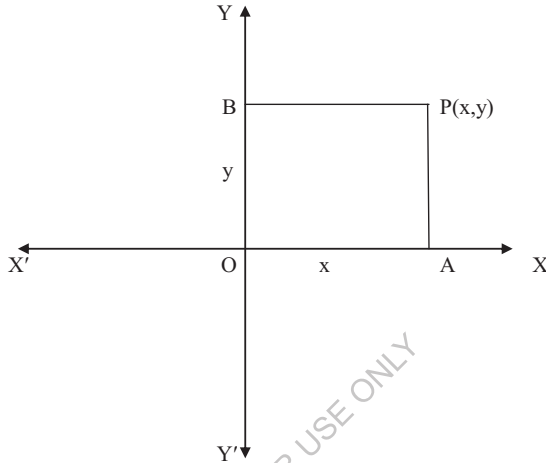


Fig. 2.13

If P is a point on the plane, then the line PA perpendicular to the X -axis is called ordinate and the line PB perpendicular to the Y -axis is called abscissa. It is important to remember that $AP = OB$ and $BP = OA$. Now suppose $OA = x$ and $OB = y$ then the Cartesian coordinates of the point P are denoted by $P(x, y)$.

2.2.2 Polar Co-ordinates

If O is a fixed point and OX is a fixed line on a plane, then O is called the origin or pole and OX is the polar axis. Suppose that P is a point on the plane, and if $OP = r$ and $\angle POX = \theta$ then the polar coordinates of the point P are denoted by $P(r, \theta)$.

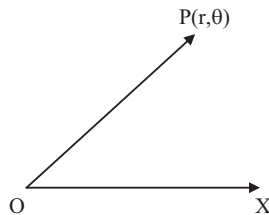


Fig. 2.14

2.2.3 Three Dimensional Cartesian Co-ordinates

Notice the figure below.

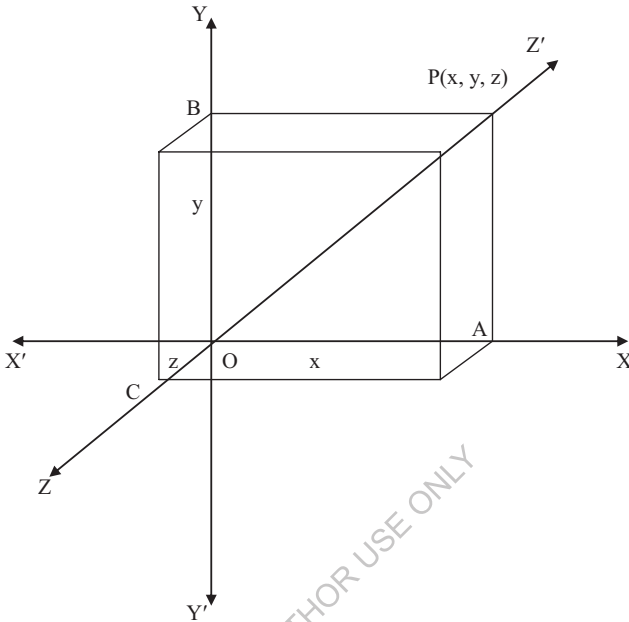


Fig. 2.15

Suppose XOX' , YOY' and ZOZ' are three straight lines that are not coplanar and intersect perpendicular to each other, then XOX' is called X axis, YOY' is called Y axis and ZOZ' is called Z axis. The intersection of three straight lines is called the origin. Now the plane drawn by the X and Y axes is called xy-plane, the plane drawn by the Y and Z axes is called yz-plane and the plane drawn by the Z and X axes is called zx-plane. Everything that is around us is located in this three-dimensional universe. Suppose P is a point in this universe. Then the coordinates of the point P will be $P(x,y,z)$ where, $OA = x$, $OB = y$ and $OC = z$. The coordinates of the origin will be $O(0,0,0)$. Three axes divide this universe into eight. Each part is called an octant. The signs of coordinates of the points of various octants are given below.

Octants	OXYZ	OXYZ'	OXY'Z	OXY'Z'
Signs	(+,+,+)	(+,-,-)	(+,-,+)	(+,-,-)
Octants	OX'YZ	OX'YZ'	OX'Y'Z	OX'Y'Z'
Signs	(-,+,+)	(-,+,-)	(-,-,+)	(-,-,-)

Tab. 2.1

2.2.4 Point

A primitive notion which has no length, width and height, just has a position is called point. For example: the intersection of two lines is a point. In the figure O is a point.

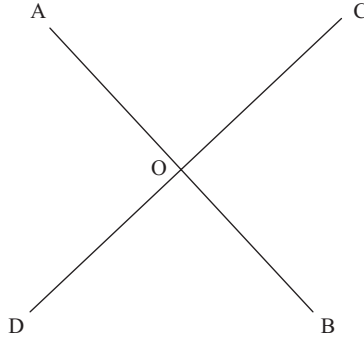


Fig. 2.16

2.2.5 Line

A geometrical mark which has only length, no width and height, is called a line. For example: two surfaces of a box are aligned together in one line in a box.

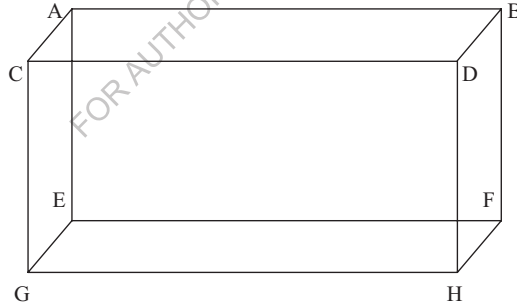


Fig. 2.17

In the figure above, the two surfaces $ABDC$ and $ABFE$ are joined in a line AB .

2.2.6 Plane

A geometrical mark which has length and width, no height, is called a plane. For example: In the figure 2.17 $ABDC$ and $ABFE$ are two planes. There are six planes of a brick.

2.2.7 Solid

A geometrical mark which has length, width and height is called a solid. For example: books, exercise books, bricks, boxes, etc. In the figure 2.17 $ABDCGHFE$ is a solid.

2.3 Preliminary Calculas

2.3.1 Constants

The factors or quantities that remain the same values during observation are called constants or constant quantities. Constants are usually expressed in lowercase English letters a, b, c etc.

2.3.2 Variables

The factors or quantities that take different values during observation are called variables or variable quantities. Variables are usually expressed in lowercase English letters x, y, z and so on. There are usually two types of variables, namely independent variable and dependent variable.

2.3.3 Relations

Suppose x and y are two variables. If multiple values of y are available for each value of x, then it is said there is a relation between x and y. For example, X and Y are two sets. Then the relation is expressed through the following figure.

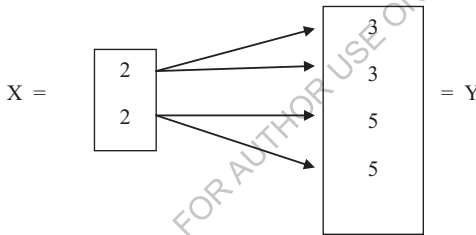


Fig. 2.18

2.3.4 Functions

Suppose x and y are two variables. Then if only one value of y is available for one or more values of x, then, y variable is called the function of x variable. For example, X and Y are two sets. Then the function is expressed by the following figure.

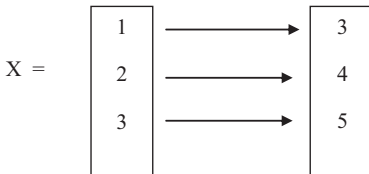


Fig. 2.19

The above function can be expressed using the following symbol.

$$y = f(x)$$

2.3.5 Independent and Dependent Variables

In a relation or a function, the value of the variable is determined by putting possible values of the other variable is called the independent variable. On the other hand, to find out the value of a variable, the help of the value of other variable is required is called dependent variable. In the figures of relations and functions described above x is independent variable and y is dependent variable.

2.3.6 Range of a Variable

In the figure of relation and function described above the set X is called the range of the variable. For example,

$$X = \begin{array}{|c|} \hline 2 \\ \hline 2 \\ \hline \end{array}$$

Fig. 2.20

or,

$$X = \begin{array}{|c|} \hline 1 \\ \hline 2 \\ \hline 3 \\ \hline \end{array}$$

Fig. 2.21

2.3.7 Domain of a Variable

In the figure of relation and function described above, the set Y is called the domain of the variable. For example,

$$Y = \begin{array}{|c|} \hline 3 \\ \hline 3 \\ \hline 5 \\ \hline 5 \\ \hline \end{array}$$

Fig. 2.22

or,

$$Y = \begin{array}{|c|} \hline 3 \\ \hline 4 \\ \hline 5 \\ \hline \end{array}$$

Fig. 2.23

2.3.8 Limits of a Variable

If a variable is approximated to a constant from its range, it becomes zero at one point, then the constant is called the limit of that variable. Suppose the variable x is close to a constant a from its range so that $|x - a|$ or the absolute value of $(x - a)$ gradually becomes smaller and smaller to zero. Then a is called the limit of the variable x . Keep in mind that each value of x may be gradually larger or smaller than a . That is, x may be closer to a from the right, or x may be closer to a from the left. In this case the first is called the right limit of x and the next is called the left limit of x . These two limits can be expressed with the following symbols.

$$x \rightarrow a + 0 \text{ or } x \rightarrow a^+ \quad (\text{from the right})$$

$$x \rightarrow a - 0 \text{ or } x \rightarrow a^- \quad (\text{from the left})$$

2.3.9 Limit of a Function

If the value of a variable x is approximated to c and the value of the function $f(x)$ is closest to a , then a is called the limit of the function $f(x)$. The limits of the function are expressed using the following symbols.

$$\lim_{x \rightarrow c} f(x) = a$$

Let us consider the following two examples to find out limits of function.

$$\text{Example (1) } y = f(x) = \frac{4x+2}{2x+1}$$

In the above example, if the value of x is set to c , the value of y is not $\frac{0}{0}$ size. Therefore, the value of x in the function is given by setting c , that will be the value of the limits of the function.

$$\text{Example (2) } y = f(x) = \frac{x^2-4}{x-2}$$

In the above example, when the value of x is 2, then the value of y is $\frac{0}{0}$ size. So in the function the value of x putting $2+h$ instead of 2 we get

$$\begin{aligned} \lim_{x \rightarrow c} f(x) &= \lim_{x \rightarrow 2} \frac{x^2-4}{x-2} \\ &= \lim_{h \rightarrow 0} \frac{(2+h)^2-4}{(2+h)-2} \\ &= \lim_{h \rightarrow 0} \frac{4+4h+h^2-4}{h} \\ &= \lim_{h \rightarrow 0} (4+h) \\ &= 4 \end{aligned}$$

So the limiting value of the function will be 4.

2.3.10 Continuity of Function

If the value of the variable x of a function $y = f(x)$ is changed continuously, then the value of the variable y is continuously changing, then the function $y = f(x)$ is called a continuous function. In other words if a function $y = f(x)$ has a fixed value $f(a)$ at $x = a$ and the value of $y = f(x)$ near $x = a$ is $f(a)$. That is

$$\lim_{x \rightarrow a} f(x) = f(a)$$

Then the function $y = f(x)$ will be continuous at the point $x = a$.

2.3.11 Discontinuity of Function

If a function $y = f(x)$ is not continuous at a certain point, then the function is called the discontinuous function. In other words if a function $y = f(x)$ has a break at a fixed point $x = a$, then the function $y = f(x)$ will be discontinuous at the point $x = a$. That is

$$\lim_{x \rightarrow a} f(x) \neq f(a)$$

Then the function $y = f(x)$ will be discontinuous at the point $x = a$.

2.3.12 Differentiation

Suppose the value of the variable x of the function $y = f(x)$ is changed to h . That is, the value of x is changed from x to $(x+h)$. Now for this change of x the function is changed to $f(x+h) - f(x)$. Now for an unit change of the variable x , the average change of the function is

$$\frac{f(x+h) - f(x)}{h}$$

Then the limiting value

$$\lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

is called the derivative of the function $y = f(x)$. The derivative is expressed by $\frac{dy}{dx}$. The process of finding the derivative of a function is called differentiation.

Example (3) if $y = x^2$ then find the value of $\frac{dy}{dx}$.

$$\begin{aligned} \frac{dy}{dx} &= \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h} \\ &= \lim_{h \rightarrow 0} \frac{(x+h)^2 - x^2}{h} \\ &= \lim_{h \rightarrow 0} \frac{x^2 + 2xh + h^2 - x^2}{h} \\ &= \lim_{h \rightarrow 0} \frac{h(2x+h)}{h} \\ &= \lim_{h \rightarrow 0} (2x + h) \\ &= 2x + 0 \\ &= 2x \end{aligned}$$

2.3.13 Integration

The method of determining integral of a function $f(x)$ is called integration. The symbol \int is used for the integration process, the sign \int before the function and dx after the function. The function that is integrated is called the integrand or function to be integrated. The following symbols are used to indicate an integral.

$$\int f(x)dx = F(x) + c \quad \text{where}$$

$$\frac{d}{dx}F(x) = f(x)$$

Here $f(x)$ is called the integrand or function to be integrated and $F(x)$ is called the integral. Here c is a constant number that is called the constant of integration. So it appears that integration is the reverse process of differentiation. There are two types of integrals: (1) indefinite integral and (2) definite integral. The above mentioned integral is called an indefinite integral. On the other hand, if the variable x has two values a and b and changing the value of x from a to b , then the change in the value of $F(x)$ is called the definite integral of $f(x)$ in the limits a and b . It is expressed with the following symbol.

$$\int_a^b f(x) dx = [F(x)]_a^b = F(b) - F(a)$$

Here a is called the lower limit and b is called the upper limit. Just as there are various rules to work out the derivatives of a function, likewise, there are various rules for working out the integrals.

2.3.14 Symmetric Function

A symmetric function of the n variables is a function, that is, the value of the function is the same by any permutation of its variables. For example, let the functions

$$f(x, y, z) = (x-y-z), f(x, z, y) = (x-z-y) \text{ and } f(y, z, x) = (y-z-x)$$

then, the functions will be symmetric when,

$$f(x, y, z) = f(x, z, y) = f(y, z, x)$$

that means,

$$(x-y-z) = (x-z-y) = (y-z-x)$$

2.4 Preliminary Statistics

2.4.1 Frequency Distribution

The distribution in which the number of data or frequency is displayed against the occurrences of values is called frequency distribution. That is, the value of a frequency is expressed individually against the value of a variable, which is called frequency distribution. For example, the numbers obtained in the mathematics of the 40 students are disclosed in the form of frequency distribution.

Obtained numbers (x)	Frequency (f)
30	1
36	2
38	2
45	2
48	3
52	3
58	4
62	5
69	5
73	4
76	3
86	2
88	2
95	1
97	1

Tab. 2.2

Frequency distribution is generally of two types, namely, (1) symmetrical distribution and (2) skewed distribution.

2.4.2 Mean

The sum of different data of a given frequency distribution divided by the number of those data is called the mean or arithmetic mean of this distribution. For example, the mean of the numbers from 1 to 10 is 5.5.

2.4.3 Median

The number value of the data that is in the middle is divided into two equal sides when the data of a frequency distribution is arranged in a standard order is called median. For example, the median of the numbers from 1 to 5 is 3. The median of the numbers from 1 to 10 is 5.5.

2.4.4 Mode

The data value that is most commonly observed in any frequency distribution is called the mode of that distribution. For example, in the distribution 4, 6, 5, 7, 6, 9, the mode is 6. Mode can be more than one.

2.4.5 Range

The differences between the highest and lowest values of any frequency distribution is called the range. For example, in the distribution 4, 8, 12, 25, 37, 46, 69, 73, the range will be 69.

2.4.6 Skewness

Skewness is an important feature of any frequency distribution. The degree of deviation from the balanced state of a frequency distribution is called the skewness of that distribution.

That is, if there is a discrepancy in the different data values of a frequency distribution, then that distribution is called the skewed frequency distribution.

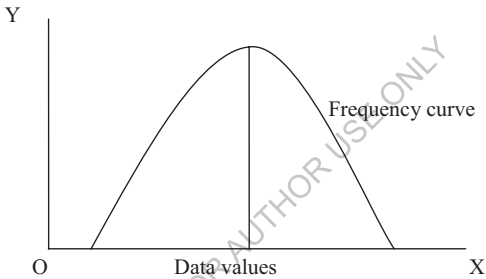


Fig. 2.24

Here, arithmetic mean = median = mode

Skewness is of two types, (1) positive skewness and (2) negative skewness. The above distribution is zero skewed. The relation of the arithmetic mean, median and mode of the frequency distribution is arithmetic mean > median > mode. Then the distribution will be positive.

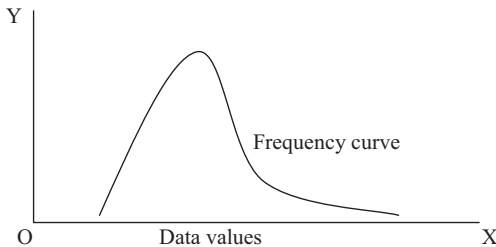


Fig. 2.25

Here, arithmetic mean > median > mode

The relation of the arithmetic mean, median and mode of the frequency distribution is
 arithmetic mean < median < mode
 then the distribution will be negative.

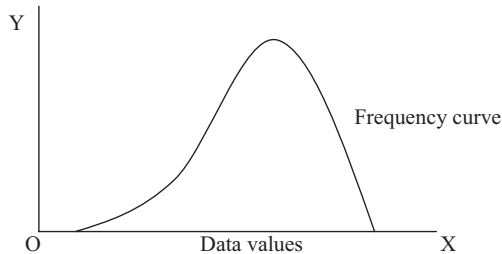


Fig. 2.26

Here, arithmetic mean < median < mode

2.4.7 Kurtosis

The degree to which other data values are centered on both sides of the mode of a frequency distribution is called the kurtosis of that distribution. There are three types of kurtosis. (1) meso kurtic, (2) leptokurtic and (3) platykurtic.

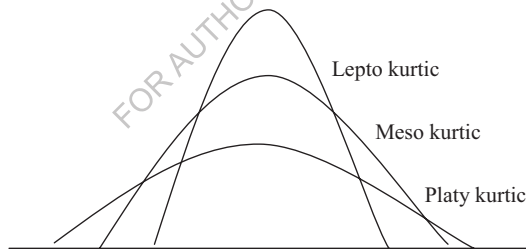


Fig. 2.27

2.4.8 Binomial Distribution

The binomial distribution is a discrete probability distribution of a random variable X , with parameters n and p where, ' n ' is the number of trials, ' p ' is the success probability and ' q ' ($q = 1 - p$) is the failure probability. The formula of binomial distribution for a random variable $X = x$ is given by,

$$P(x; n, p) = \binom{n}{x} p^x (q)^{n-x}$$

2.4.9 Normal Distribution

The normal distribution is a limiting form of binomial distribution. When the number of trials at binomial distribution is too large and the chances of success and failure are almost equal then binomial distribution takes the form of normal distribution. The formula of normal distribution for any value of x , where

– $-\infty < x < \infty$ is given by,

$$f(x) = \frac{1}{\sigma\sqrt{2\pi}} e^{-\frac{(x-\mu)^2}{2\sigma^2}}$$

$f(x)$ = probability of normal distribution

x = value of the random variable

μ = mean

σ = standard deviation

σ^2 = variance

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2.5 Preliminary Bystematics

2.5.1 Component

Anything meaningful can be called component. Components are considered as undefined terms. The component is identified by the letter M of the English alphabet.

2.5.2 Member

The collection of components is called a member. Usually the member is expressed using connectives and brackets with components. The members are identified with ${}^V M$, ${}^W N$ etc. For example,

$${}^5 M = (4+5+7+8+9)$$

$${}^6 N = (H.H.H.H.H.H)$$

2.5.3 Assembly

An assembly is a collection of clearly defined objects or things. There may be a repetition of the objects or things included in the assembly. But there is no repetition of the objects or things contained in the set. The objects or things of the assembly are called components. The components of the assembly are bound by the first bracket or parentheses (). The assembly is usually expressed in English capital letters. For example, A, B, S, T etc. The components of the assembly are usually expressed by A_i , B_i , S_i , T_i etc.

If A is an assembly and A_i is its component, then we can write,

$$A_i \notin A$$

Suppose, $A = (1, 2, 3, 4, 5)$ then, 1, 2, 3, 4, 5 etc. will be separately the components of Assembly A.

2.5.4 Inclusion

Suppose ${}^V M$ and ${}^W N$ are two members and their inclusion ${}^U L = {}^V M \vee {}^W N$ then ${}^U L$ will be the collection of all the components that are taken gradually from ${}^V M$ or from ${}^W N$ or from both ${}^V M$ and ${}^W N$ respectively. We can write,

$${}^U L = {}^V M \vee {}^W N \text{ where,}$$

$${}^V M \in {}^U L ; \quad {}^V M < {}^U L \text{ and}$$

$${}^W N \in {}^U L ; \quad {}^W N < {}^U L$$

For example,

$$HH \vee HHH = HHHHH \Rightarrow {}^2 H \vee {}^3 H = {}^5 H$$

2.5.5 Exclusion

Suppose ${}^V M$ and ${}^W N$ are two members where, ${}^V M > {}^W N$ and their exclusion ${}^U L = {}^V M \wedge {}^W N$ then ${}^U L$ will be the collection of all the components that are taken gradually from ${}^V M$ and do not lie at the same time in ${}^W N$. On the other hand we can say ${}^V M$ will be the inclusion of ${}^U L$ and ${}^W N$. We can write,

$$U_L = V_M \wedge W_N$$

On the other hand,

$$V_M = U_L \vee W_N$$

For example,

$$HTTHH \wedge TH = HT-H \Rightarrow HT-H \vee TH = HTTHH$$

2.5.6 Triangulum

A triangulum is an algebraic expression bounded by a second bracket or braces whose components are arranged in the form of triangles. Here the number of components from the first row to the bottom row gradually decreases. For example:

$$G_{\{6\}}^{(2)} = \left\{ \begin{array}{cccccc} A & B & C & D & E & F \\ & B & C & D & E & F \\ & & C & D & E & F \\ & & & D & E & F \\ & & & & E & F \\ & & & & & F \end{array} \right\} \text{-----} (2.1)$$

There are 6 rows and 6 columns in the triangulum. The component number in the first row is called the width of the triangulum. The numbers of rows and columns of a triangulum can be equal and may not be the same again. It is not essential to have the same components in each row, but sometimes it may be that each column will have the same components. The component of a triangulum can be a number, letter, object or any other triangulum. The end point of the first row or the upper row is called the centre of the triangulum. The degree of the above triangulum is 2 and the width is 6. Now for degree 3 and width 6 we get the triangulum,

$$G_{\{6\}}^{(3)} = \left\{ \begin{array}{c} G_{\{6\}}^{(2)} \\ G_{\{5\}}^{(2)} \\ G_{\{4\}}^{(2)} \\ G_{\{3\}}^{(2)} \\ G_{\{2\}}^{(2)} \\ G_{\{1\}}^{(2)} \end{array} \right\} \text{-----} (2.2)$$

$$\text{Or, } G_{\{6\}}^{(3)} = \{G_{\{6\}}^{(2)}, G_{\{5\}}^{(2)}, G_{\{4\}}^{(2)}, G_{\{3\}}^{(2)}, G_{\{2\}}^{(2)}, G_{\{1\}}^{(2)}\}' \text{-----} (2.3)$$

In the above equation (2.2), the component triangulum is one below the one, and in the equation (2.3), the component triangulum is one next to the other. One thing to keep in mind that A' is read A transpose. Now putting the components of the triangulum we get,

$$G_{\{6\}}^{\{3\}} = \left\{ \begin{array}{c} A B C D E F \\ B C D E F \\ C D E F \\ D E F \\ E F \\ F \\ B C D E F \\ C D E F \\ D E F \\ E F \\ F \\ C D E F \\ D E F \\ E F \\ F \\ D E F \\ E F \\ F \\ E F \\ F \\ F \end{array} \right\} \quad (2.4)$$

The following are the examples of three most important triangulums:

$$G_{\{5\}}^{\{1\}} = \{1 \ 1 \ 1 \ 1 \ 1\} \quad (2.5)$$

$$G_{\{6\}}^{\{2\}} = \left\{ \begin{array}{c} 5 \ 4 \ 3 \ 2 \ 1 \\ 4 \ 3 \ 2 \ 1 \\ 3 \ 2 \ 1 \\ 2 \ 1 \\ 1 \end{array} \right\} \quad (2.6)$$

$$G_{\{6\}}^{\{2\}} = \left\{ \begin{array}{c} 5 \ 4 \ 3 \ 2 \ 1 \\ 4 \ 3 \ 2 \ 1 \\ 3 \ 2 \ 1 \\ 2 \ 1 \\ 1 \\ 4 \ 3 \ 2 \ 1 \\ 3 \ 2 \ 1 \\ 2 \ 1 \\ 1 \\ 3 \ 2 \ 1 \\ 2 \ 1 \\ 1 \\ 2 \ 1 \\ 1 \\ 1 \end{array} \right\} \quad (2.7)$$

(2.5), (2.6) and (2.7) arranging these three triangulums from top to bottom we get,

$$G_{\left\{ \begin{matrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{matrix} \right\}} = G \left\{ \begin{matrix} 1 \\ 1 \\ 1 \\ 1 \\ 1 \end{matrix} \right\} \quad \text{————— (2.8)}$$

$$G_{\left\{ \begin{matrix} 1 \\ 1 \ 2 \\ 1 \ 2 \ 3 \\ 1 \ 2 \ 3 \ 4 \\ 1 \ 2 \ 3 \ 4 \ 5 \end{matrix} \right\}} = G \left\{ \begin{matrix} 1 \\ 1 \ 2 \\ 1 \ 2 \ 3 \\ 1 \ 2 \ 3 \ 4 \\ 1 \ 2 \ 3 \ 4 \ 5 \end{matrix} \right\} \quad \text{————— (2.9)}$$

$$G_{\left\{ \begin{matrix} 1 \\ 1 \\ 1 \ 2 \\ 1 \\ 1 \ 2 \\ 1 \ 2 \ 3 \\ 1 \\ 1 \ 2 \\ 1 \ 2 \ 3 \\ 1 \ 2 \ 3 \ 4 \\ 1 \\ 1 \ 2 \\ 1 \ 2 \ 3 \\ 1 \ 2 \ 3 \ 4 \\ 1 \ 2 \ 3 \ 4 \ 5 \end{matrix} \right\}} = G \left\{ \begin{matrix} 1 \\ 1 \\ 1 \ 2 \\ 1 \\ 1 \ 2 \\ 1 \ 2 \ 3 \\ 1 \\ 1 \ 2 \\ 1 \ 2 \ 3 \\ 1 \ 2 \ 3 \ 4 \\ 1 \\ 1 \ 2 \\ 1 \ 2 \ 3 \\ 1 \ 2 \ 3 \ 4 \\ 1 \ 2 \ 3 \ 4 \ 5 \end{matrix} \right\} \quad \text{————— (2.10)}$$

2.5.7 Trapezium Law of Vectors

If the joining line of initial points of two parallel vectors and the joining line of shadow points of two terminal points of vectors when the vectors replaced each other on, with the component vectors make a trapezium, then the point of intersection of two diagonals gives the position through which the resultant vector acts, its direction being the same as the direction of the greater vector and the magnitude is equal to the algebraic sum of the component vectors.

In the figures \vec{P} and \vec{Q} vectors are denoted by the line segments AB and CD in the directions and magnitudes. In the fig: 3.29 \vec{P} and \vec{Q} are both positive and in the fig: 3.30 \vec{P} is negative and \vec{Q} is positive.

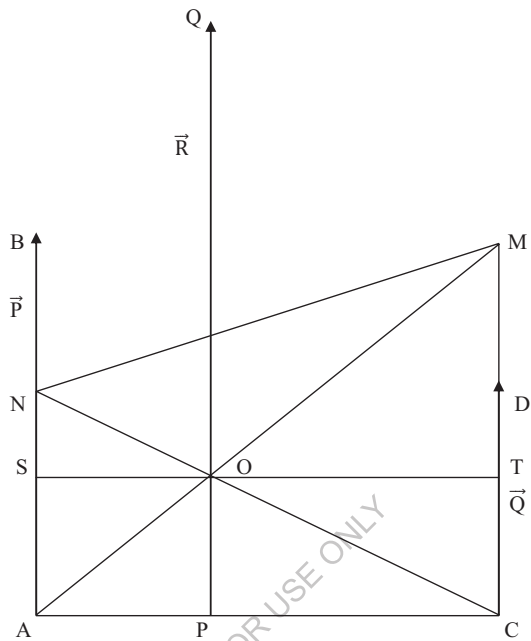


Fig. 2.28

Now according to the law,

$$\overline{AB} + \overline{CD} = \overline{PQ}$$

$$\text{or, } \vec{P} + \vec{Q} = \vec{R}$$

That is, here the magnitude of the resultant \vec{R} will be equal to the algebraic sum of the vectors \vec{P} and \vec{Q} and the direction will be the positive.

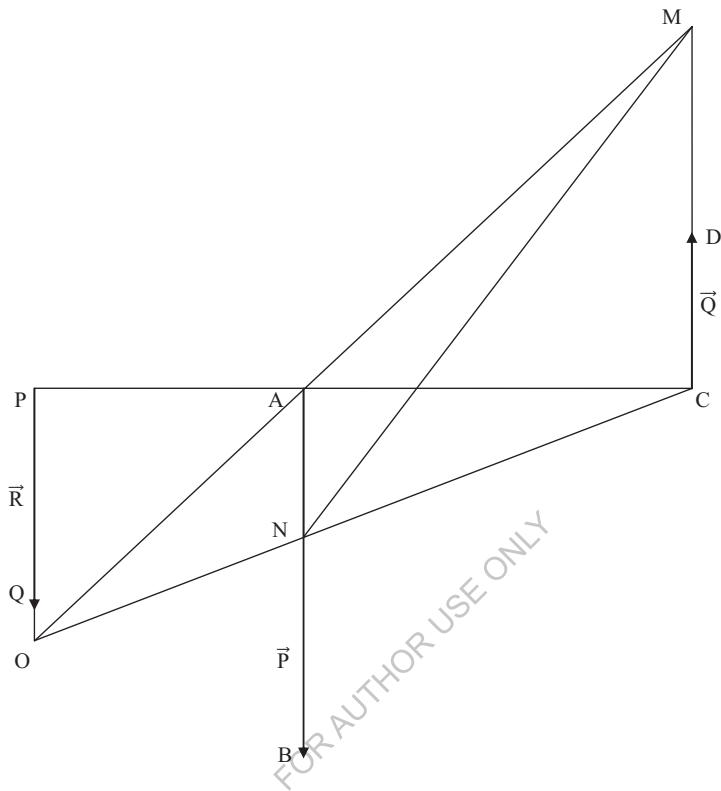


Fig. 2.29

Now according to the law,

$$-\overline{AB} + \overline{CD} = -\overline{PQ}$$

$$\text{or, } -\vec{P} + \vec{Q} = -\vec{R}$$

$$\text{or, } \vec{R} = \vec{P} + (-\vec{Q})$$

That is, here the magnitude of the resultant \vec{R} will be equal to the algebraic sum of the vectors \vec{P} and \vec{Q} and the direction will be the negative.

The trapezium law of vectors was discovered in 1982 when I appeared SSC examinations. A detailed discussion of this law is contained in the book 'Bystematics Vol. I My Classic'.

2.5.8 Two Special Figure

The diagrams of applying two major continuous relationships is given. The two figures were taken from my book, 'Bystematics Vol. I My Classic'. There are detailed applications in that book.

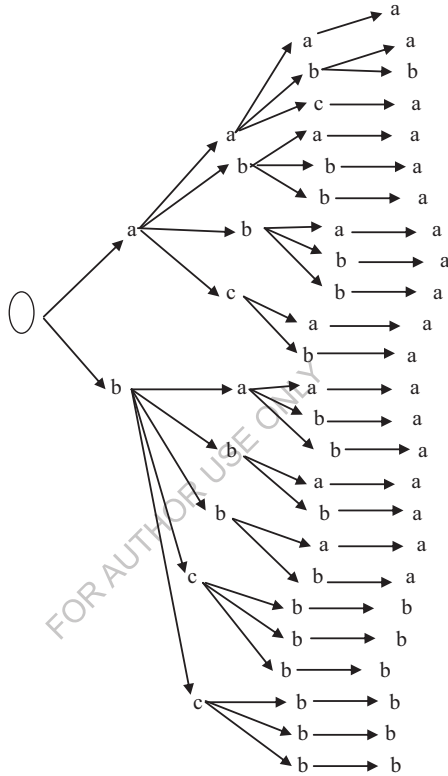


Fig. 2.30

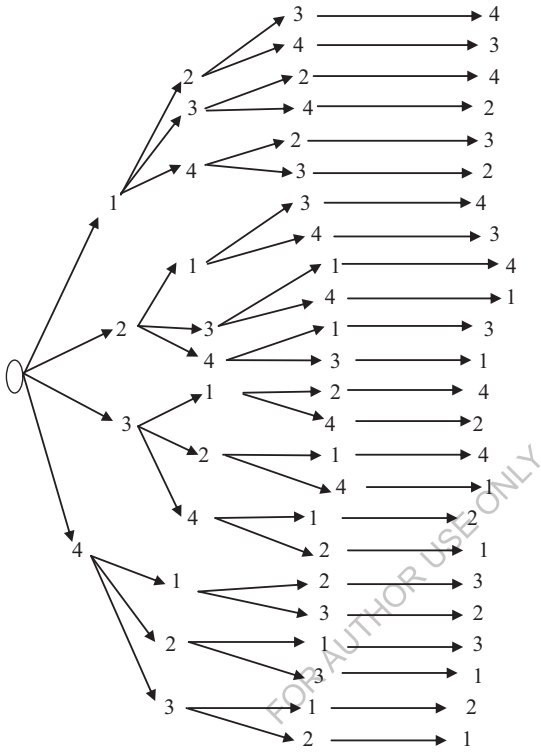


Fig. 2.31

CHAPTER 3

Philosophical Thought

3.1 Laws of Creation

3.2 Laws of Knowledge

3.3 Orders

3.4 Causality

3.5 Numberism

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3.1 Laws of Creation

There are a number of laws that need to be applied to create an work. Work cannot be performed properly if the laws are not implemented correctly. Only when one performs an work correctly, then the work is correct. True work helps people to achieve their goals. Five laws are described in the following figure for performing the right work.

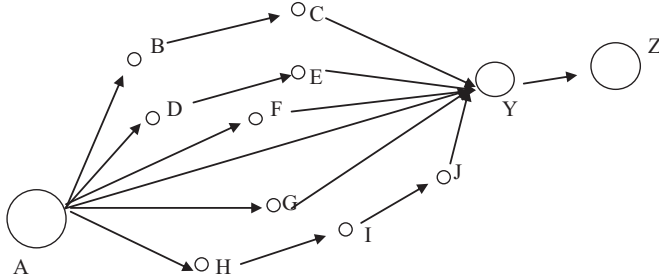


Fig. 3.1

These five laws are namely, law of center point, law of best target, law of many ways, law of middle term and law of declaration. In the figure above, A is centre point, Z is best target, Y is true work and B, C, D, E, F, G, H, I and J etc. denote the middle terms. Now let us discuss the laws in detail.

3.1.1 Law of Centre Point

At the law of centre point the centre is the doer. Each work has a centre point. No work can be performed properly if there is no centre point or the master. The centre point may be within the work and also outside the work. The following two figures show the relation between the doer or centre point and the work.

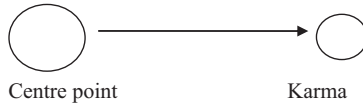


Fig. 3.2

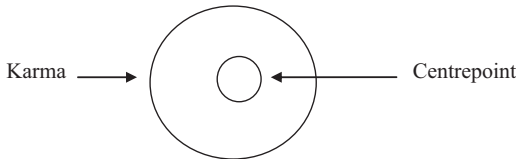


Fig. 3.3

In the figure 3.2 A is centre point. This centre point is out of action. In the figure 3.3 the centre point is inside the action. An artist's work is out of the artist. Again an artist is hiding in the middle of a life story. If the work is considered fragmentary, it can be said that the artist is out of his work. Looking at the work as a whole it can be said that the artist is inside his work.

3.1.2 Law of Best Target

Target means dream. The best target is the best dream, the highest dream. In order to perform an work properly, this law of best target has to be implemented. In the figure 3.1 Z is the best target. The subject is shown with a separate figure.



Fig. 3.4

The above figure shows that work is always dreamy. Dreams run in the direction of the action. Dreams must always be made bigger than ability. It is a crime not to make dreams grow. Seeing a dream bigger than it can afford then there will be no waste of merit. If not, then there will be a waste of talent. The following formula can be formulated with action (karma), ability and dream.



Fig. 3.5

Figure 3.5 shows that action cannot be greater than a dream. So the bigger the dream, the bigger the action. On the other hand, the dream has to be greater than the ability, otherwise the extra ability which cannot be converted into action will be wasted.

3.1.3 Law of Many Ways

Sri Sri Ramakrishna Paramahansa deva said, 'as much as the way'. There are many ways to perform a proper work. No action can be performed without a way. But there must be continuity in these ways. The law of many ways can be explained by the following figure.

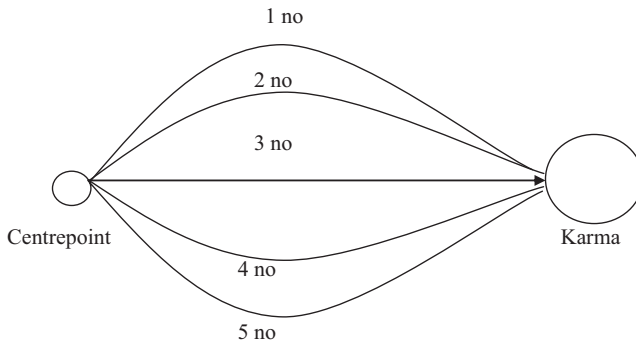


Fig. 3.6

There are five ways in the above figure and these ways are continuous so that be used to do the right work.

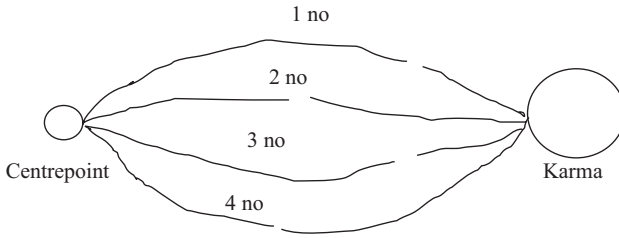


Fig. 3.7

There are four ways in the figure above and since these ways are not continuous, so that proper work cannot be done. No right action can be done by disconnected ways or paths.

3.1.4 Law of Middle Term

If one of the action is not performed in a way, the help of the middle term can be aided. With the help of the middle term, it is possible to do the right work. If you do not go to one destination at a time, you can take a break somewhere and can go later. Traveling from Dhaka to New York by air you have to stop over to London. Because going from Dhaka to New York directly on the same plane would cause a fuel shortage. So somewhere the aircraft will have to land for fuel oil. The topic can be shown with the help of a figure.

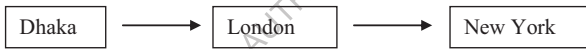


Fig. 3.8

In order to meet the Prime Minister of a country, it is possible to meet the Prime Minister only after passing steps like PS, Secretary, Minister etc. Can not meet the Prime Minister directly. This is an example of a law of middle term. In the figure 3.1, B, C, D, E, F, G, H, I and J etc. denote the middle terms. This is shown in the figure below.

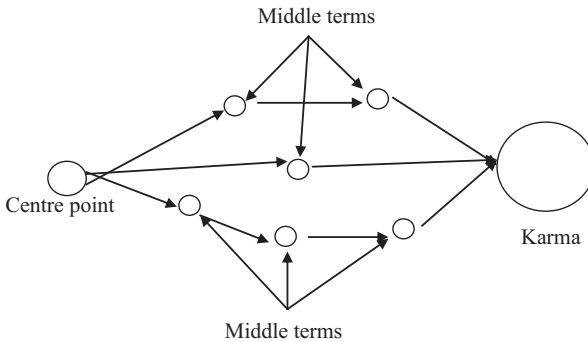


Fig. 3.9

The principle of deity can be explained with the help of the law of middle term. If fail to reach a desired goal after a hundred attempts, can reach that goal with the help of the grace of the god.

3.1.5 Law of Declaration

Any action has a beginning and an end. We start the work voluntarily and finish the work voluntarily. If we do not start the action it does not begin and if we do not finish it does not end. This is the law of declaration. Any true action has to start with the declaration and end with the declaration. Action is always changing as long as we want it. So in order to finish an action, we have to finish it. The same is true in the beginning.

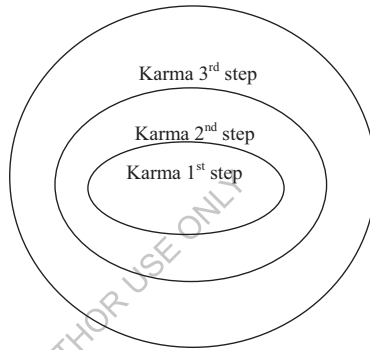


Fig. 3.10

The figure shows that the action in the first step is small, in the second step the action is a little bigger, the action is even bigger in the third step. In this way we can make the action as big as we want, make it great. There are so many big actions are being announced on the earth. Bangladesh has become independent by declaration. Doctors are announcing patients' death news in the peace of life and death. Keeping them alive for as long as they want with life-support. Children are born before or after a certain date. An author can publish his autobiography in one part, publish also it in two parts, and again publish it in three parts.

3.2 Laws of Knowledge

Knowledge is the right understanding (samyag upalabधि) of an unknown object. The manifestation of the object is the nature (svarupa) of knowledge. Through knowledge, something is revealed to us. As the light of a lamp illuminates all the objects in front of it, knowledge also reveals everything to us. There are two types of knowledge, that is, prama or valid knowledge and aprama or invalid knowledge. Prama is of four types- pratyaksan, anumiti, upamiti and sabdaboda. Again, aprama is of four types, namely, smrti (memory), samsaya (doubt), bhrama (error) and tarka (hypothetical argument). The process of obtaining valid knowledge is called pramana. There are four types of pramanas: namely- perception (pratyaksa), inference (anumana), comparison (upamana) and testimony (sabda). Let us discuss these four types of pramanas (source of knowledge).

First of all, pratyaksa or perception is of two types- laukika pratyaksa (ordinary perception) and alaukika pratyaksa (extraordinary perception). Laukika or ordinary perception is of two types again- bahya pratyaksa (external perception) and antara pratyaksa (internal perception). The eyes (caksu), the ears (srotra), the nostrils (ghrana), the tongue (rasana) and the skin (tvak)- all that is perceived through these five external senses are called external perception. Again, the perception in connection with the antarendriyas or the mind through the mental process of thinking, feeling etc. is called internal perception. In another view, ordinary perception may be divided into three parts, namely, nirvikalpa (indeterminate), savikalpa (determinate) and pratyabhijna (recognition). The perception that is simply the knowledge of an object but does not know the merits of it is called nirvikalpa pratyaksa. Again, the perception that is the knowledge of the existence of an object as well as its various qualities is called savikalpa pratyaksa. Pre-identification of a person or an object as a previously known is called recognition or pratyabhijna. On the other hand, there are three types of extraordinary perception, namely, samanyalaksana pratyaksa, jnanalaksana pratyaksa and yogaja pratyaksa. If perceiving the generality category of a person or an object, the whole class is perceived, then it is called samanyalaksana pratyaksa. Again, with the help of a sense, if the qualities attributable to other senses except that sense are perceived, then it is called jnanalaksana pratyaksa. With the help of supernatural power obtained by the pursuit of yoga, what the yogis perceive is called yogaja pratyaksa.

If it can be obtained knowledge of an unknown object based on and supported by a known object, then it is called anumana or inference. Any inference has three terms and at least three propositions. The three terms are sadhya (major term), paksa (minor term) and hetu (middle term). What is inferred is sadhya, that is where the existence of sadhya is inferred is paksa and the term that establish the link between the sadhya and the paksa is hetu. Another name for Hetu is linga or sadhana. If there is a smoke in a distant mountain, it is said that where there is smoke there is fire, then in this inference, the fire is the sadhya, the mountain is the paksa and the smoke is the hetu. An invariable concomitance relation between the hetu or linga and the sadhya is called vyapti. The propositions are called the avayavas or members of syllogism. Syllogism is five-membered.

Inference or anumana is of two types, namely, svarthanumana (inference for oneself) and parathanumana (inference for others). The inference that one is made to gain one's knowledge is called svarthanumana and the inference that is supposed to prove something to others is called parathanumana. In another view, there are three types of inferences, namely, purvavat, sesavat and samanyatodrsta. The syllogism that infers unperceived effect by perceiving the cause is called purvavat anumana. Again, the syllogism that infers unperceived cause by perceiving the effect is called sesavat anumana. On the other hand, the syllogism that based on past experience and similarity, but not on causal relationships, is called samanyatodrsta anumana. Again, the inferences are divided into three parts based on the point of view of induction of vyapti between the hetu and the sadhya, namely, kevalanvayi anumana, kevalavyatireki anumana and anvayavyatireki anumana. In a syllogism where hetu (middle term) appears a glimpse of reason but not really so, then the syllogism is faulted and this fault is called hetvabhasa (fallacies of inference). When the knowledge of a new object is noticed by the resemblance of the new and unfamiliar object to a previously known object, then the process of acquiring that knowledge is called upamana or comparison and the knowledge obtained with the help of upamana is called upamiti. Sabda or testimony is the word of a trustworthy person or aptavakya. The knowledge that derives from sabda or aptavakya is called sabda-jnana.

Five laws are explained for knowledge in the following. These five laws are law of absolute knowledge, law root point, law of relativity, law of limitation and unique position.

3.2.1 Law of Absolute Knowledge

Knowledge or jnana is of two types, abhedajnana (knowledge of identity) and bhedajnana (knowledge of difference). In the knowledge of identity, the soul thinks of itself as the master, the knower, and the consumer. Knowledge of difference leads to self-realization. The difference between body and soul is realized. The soul is eternal, the body is impermanent, this feeling is born. In the Gita there is a saying, all the body is temporary, but the embodied soul is indestructible. The soul is inseparable, incombustible, inmoistened and insoluble. He is everlasting, omnipresent, unchanging, unmoving and eternal. That is absolute knowledge. The cognition of the supreme soul is born in the absolute knowledge. At the centre point, knowledge is relative, and at the root point, knowledge is absolute.

3.2.2 Law of Root Point

The origin of all knowledge (jnana) that is available or known so far is the root point. True knowledge will be in the way of this root point. True knowledge will never be constrained by anyone. The topic can be shown with the help of a figure.

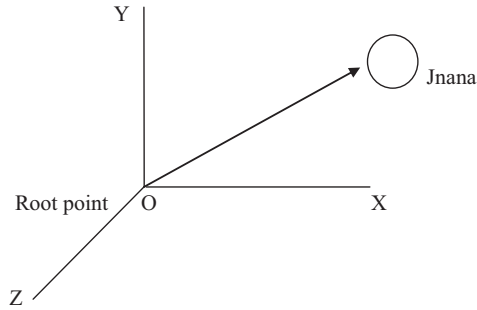


Fig. 3.11

In the figure, XYZ is the three-dimensional world, O is the root point and P indicate jnana or knowledge. The figure shows that knowledge is in the way of root point and not constrained by anything else. The Vedas are the original books of the human race. From the Vedas, all things are known about righteous and unrighteous acts. The Vedas are apauruseya (impersonal, authorless). True knowledge will be adherent to the Vedas.

3.2.3 Law of Relativity

Knowledge is relative to the centre point, absolute to the root point. The knowledge of a particular object is different to each one. This is the law of relativity. All the plants on the ground will be moving to a passenger on the ongoing train. And to a person standing on the ground, these trees will seem to be fixed. There are two different experiences of two people about the plants. The law of relativity can be shown with a figure.

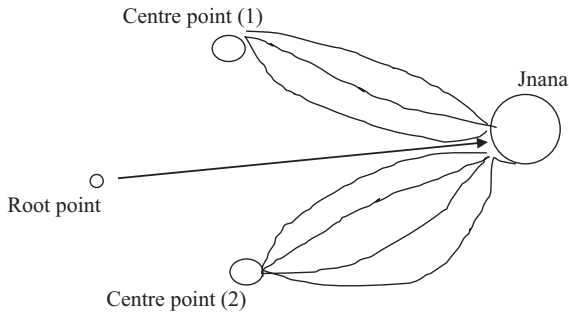


Fig. 3.12

The above picture shows three ways to gain knowledge from the center (1), In the above figure, one can get knowledge from the centre point-1 in three ways, while from the centre point-2 can be obtained in four ways. Knowledge from the centre point is relative but knowledge from the root point is absolute.

3.2.4 Law of Limitation

The range of knowledge is infinite. After learning something specific about a particular topic, new directions are revealed. After learning about these things through effort, new aspects come to the people. Thus, it is seen that knowledge is infinite and expandable. On the other hand, the organism is finite. It is not possible for him to gain infinite knowledge. This is the law of limitation. According to the law of limitation, the organism may possess limited knowledge.

3.2.5 Law of Unique Position

Right knowledge is unique. Knowledge of two objects is completely two types. Knowledge of one object is one type but knowledge of other object is different. Knowledge of two objects can never be one. In terms of knowledge, the positions of different objects are different. This is the law of unique position. Let us explain the matter with the help of geometry.

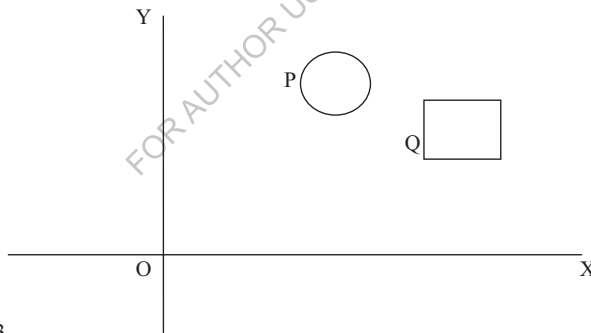


Fig. 3.13

P and Q are two objects in the figure above. The position of the knower is at point O. Clearly, the positions of the P and Q objects are different. Here, it turns out that P is a circle and Q is a square. Even if P and Q are the same objects here, their knowledge will be different. At least in terms of position, their knowledge will be different. Two objects can never be in the same position. Therefore, the knowledge of the two objects will be different.

3.3 Orders

3.3.1 Orders

When an object is positioned in front of another object, back, right, left, or top, bottom, the object can be said to be in order or in sequence. In other words, when an object is located in relation to another object, it can be said that it is in order or in sequence. In the main theory, order or sequence is marked by \rightarrow or \downarrow symbols. Three orders or sequences are discussed below. These are the cause, relation and rule.

3.3.2 Cause

The cause is an event that comes immediately before the action. No action can be created without cause. The cause is essential for producing action. Any irreversible previous event of the action cannot be called a cause. Only the immediate, unconditional and invariable antecedent to the effect can be called the cause. In the main theory, the cause is marked by the symbol \Downarrow .

3.3.3 Relation

Think of a set where

$$A = \{A_1, A_2, A_3, A_4, A_5\}; \quad A_i \in A$$

Here A_i is the element of A . Then it can be said that A_i is related to A . This is an example of membership relation. In the main theory, the relation is marked by the symbol \ni .

3.3.4 Rule

The rule is applied to make it easier to remember an equation. Such as X rule. With this rule we keep in mind, there are four quantities in this rule. With the help of this rule, we can know what is the changing between the two quantities keeping the other two quantities fixed. In the main theory, the rule is marked by the symbol \Rightarrow .

3.4 Causality

3.4.1 Three Kinds of Causality

There are three types of cause, namely, (1) samavayi karana or material cause, (2) asamavayi karana and (3) nimitta karana or efficient cause. Samavayi or material cause is the substance or matter by which an effect is produced. For example, thread is a samavayi or material cause of which the cloth is made. Clothes are work. Asamavayi karana is the connection of the thread with which the cloth is made. Without the thread, the existence of the cloth is not possible, although the existence of the thread is possible without cloth. Nimitta karana is the owner whose efforts make the cloth.

3.4.2 Asatkaryavada

There are two theories about the causality in Indian philosophy. One is the satkaryavada and other is the asatkaryavada. According to the satkaryavada, the effect (karya) exists in its material cause before the work is produced. According to the asatkaryavada, it does not exist in the cause before the work (karya) is produced. The effect is a whole new creation. The Naiyayikas and the Vaisesikas are supporters of asatkaryavada.

3.4.3 Satkaryavada

According to the satkaryavada, it (effect) exists in its material cause before the work (karya) is produced. According to this doctrine the origin of sat (existent) is from sat (existent), asat (non-existent) can never have the origin of sat (existent). The Samkhya and Vedanta philosophers are supporters of satkaryavada. Satkaryavada is again two types: parinamavada (theory of transformation) and vivartavada (theory of manifestation). According to parinamavada, when an effect arises from a cause, then the cause becomes a function in the true sense. For example, when curd is produced from milk, then milk really turns into curd. Here curd is the result of milk. The Samkhya philosophers are supporters of parinamavada. Again, according to vivartavada the cause is not made in the true sense of the effect, it is only practically illuminated. For example, having a snake on the rope, then the rope does not become a snake, it is only lighted as a snake. Advaita Vedantins are supporters of vivartavada.

3.5 Numberism

According to the numberism (sankhyavada), the effect exists in the material cause before the work (effect) is produced. In this sense, numberism is a kind of satkaryavada. However, according to this doctrine, the cause in the true sense it does not become an effect, again it does not appear as an effect. According to this doctrine the cause is bhuti (form, manifestation) and the effect is vibhuti (glorious form, outward manifestation). One is cause, many is effect. All numbers are the glorious forms or outward manifestation (vibhuti) of one. One exists in the many. This is the numberism. For example,

$$1 + 1 + 1 = 3.$$

A mathematician makes 3 by adding three 1s. In this number 1, the number 3 is unmanifested (avyakta). That is why mathematician have been able to create the number 3 from the number 1.

Numberism (sankhyavada) on the other hand is not parinamavada or vivartavada. According to parinamavada, when an action arises from a cause, the cause becomes action in the real sense. For example, when curd is produced from milk, milk actually turns into curd. Curd is the perfect result of milk. But when a mathematician generates the number 3 from the number 1, the number 3 is not the exact result of the number 1, because 3 is the vibhuti (glorious form) of 1. 3 cannot be measured except 1.

Again according to vivartavada the cause does not become action in the real sense, only manifests or reveals in action. For example, snake delusion on the rope. When a snake is mistaken for a rope, the rope does not become a snake in the real sense, it only appears as a snake. But when a mathematician makes 3 from 1, the number 1 does not become 3, again it does not appear as 3. The number 3 is the vibhuti (glorious form) of the number 1. If 1 is defined then 3 is defined.

CHAPTER 4

Mathematical Thought

4.1 Number System

4.2 Geo-algebraic Relation

4.3 Four Main Chain Relations

4.4 Five Main Rules

FOR AUTHOR USE ONLY

4.1 Number System

4.1.1 Unit of a Number

We know that people have begun counting thousands of years ago. The natural numbers such as 1, 2, 3, 4, 5 etc. have been conventional since ancient times. We are still using it. Now let us think about these numbers something new. Let us first think of 3 numbers of lines.

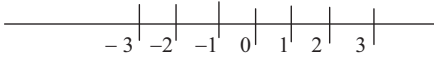


Fig. 4.1

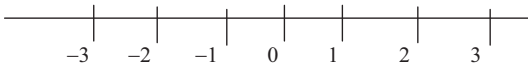


Fig. 4.2

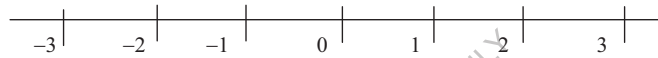


Fig. 4.3

In the figure 4.1, we have taken the distance from 0 to 1 as unit in the number line. In figure 4.2, we have also taken the distance from 0 to 1 as unit in the number line. And in the figure 4.3 in the same way, we have taken the distance from 0 to 1 as unit. Looking at the figures here, the value of the unit in figure 4.1 is smaller than the unit value of figure 4.2 and the value of the unit in the figure 4.3 is larger than the unit value of figure 4.2. See also the value of other numbers depends on the value of the unit. That is, we can say that 3 is dependent on the number 1 and 2 is dependent on the number 1 etc. If we can define 1 precisely, we can define other numbers as well. Now we can say there are 1 in 2, 1 in 3 and so on. But how is it? It can be said that there are 1 everywhere in 2, there are 1 everywhere in 3 and so on.

4.1.2 One and Many

There are many in one and one in many. Such a set. As a set there is one object but there are many objects as elements. For example:

A set

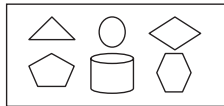


Fig. 4.4

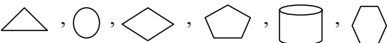
Many elements  etc.

Fig. 4.5

Think again of a number. For example 5. There are many fractions or integers.

A number 5.

There are integers 1, 2, 3, 4, 5 etc.

There are fractions $\frac{2}{3}$, $\frac{5}{6}$, $\frac{7}{12}$, $\frac{7}{2}$, $\frac{17}{4}$, etc.

The number one can be described as the form of an object. One is the form of God.

4.1.3 Number Variation

What is the difference between one and two? One is in two. What is the difference between one and three? One is in three. Etc. That is to say, one is in the all numbers. Here one is cause and two, three, four, five, etc. are effects. To count the natural numbers, one is to add to a number. What is the difference between one number to another? The simple fact is that there is one in all numbers. The variation between the different numbers is the number variation. For example:



Fig. 4.6

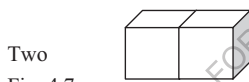


Fig. 4.7

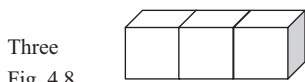


Fig. 4.8

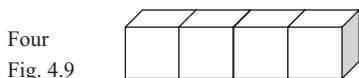


Fig. 4.9

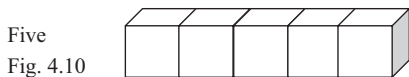


Fig. 4.10

As seen in the figures above, there are four in five and three in four. Similarly, it is seen that there are two in three and one two. These are the number variation.

4.1.4 Zero, Infinity

Zero is a peculiar number and a funny number too. Zero is neither positive nor negative. Any number greater than zero is a positive number and a number less than zero is a negative number. The set of real numbers contains positive numbers, negative numbers and zero. Infinity is not a number in particular. Think of the sum to a series up to n^{th} terms of numbers. We can calculate the terms 1^{th} , 2^{th} , 3^{th} , etc., even after calculating the term n^{th} . In this way we can find the sum up to infinite terms.

Zero can be described as the quality of an object. It should be mind that everything is in zero. Zero is the quality of God.

4.1.5 How Much Zero Is

In zero, actually there is no number other than zero. In the number 1 there are the numbers $1/2$, $2/3$, $1/4$. The number 5 has 1, 2, 3, 4 and many fractions. But zero has nothing but zero. However, zero can be measured in the line of numbers or in this universe, that is, zero can be large or small. Note the figures below.

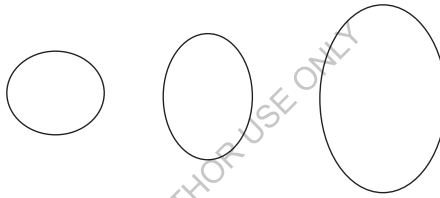


Fig. 4.11

4.1.6 Part, Total

Suppose a set $A = \{1, 2, 3, 4, 5, 6, 7, 8, 9, 0\}$. Another set $B = \{1, 2, 3\}$. Then it can be said that $B \subset A$ that is B contained in A. It can be clearly stated that B contained full scale in A and A contained fragment in B. With the venn diagram we can show,

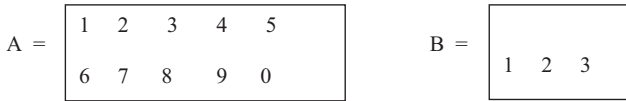


Fig. 4.12

The part is in full scale in the whole and the whole is in fragment in the part.

4.1.7 Identification of Numbers 1, 2, 3, 4, 5 etc.

Again notice from figure 4.6 to figure 4.10.

From figure 4.6 we find that there is one in one, that is, one and one are identical. From figure 4.7 we get there are one and two in two. From figure 4.8 we get there are one, two and three in three. From figure 4.9 we get there are one, two, three and four in four. From figure 4.10 we get there are one, two, three, four and five in five. With the graph we can show;

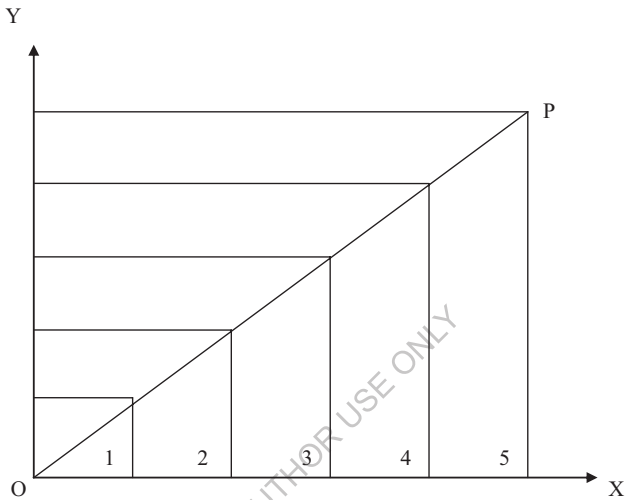


Fig. 4.13

4.2 Geo-algebraic Relation

4.2.1 Number Line

Notice the number line below.

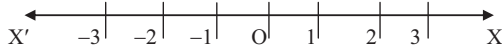


Fig. 4.14

Here 1, 2, 3 are located to the right of the origin and $-1, -2, -3$ are to the left of the origin. These numbers are of one dimension. It must be noted that 3 is a point but to get it, you have to pass 1, 2. It can be said that there are 1 in 3, 2 in 3. Again there are 1 in 2. That is, 1 is the cause of 3 and 1 is the cause of 2. That is to say the cause for all the numbers is one.

4.2.2 Number Plane

Notice the number plane below.

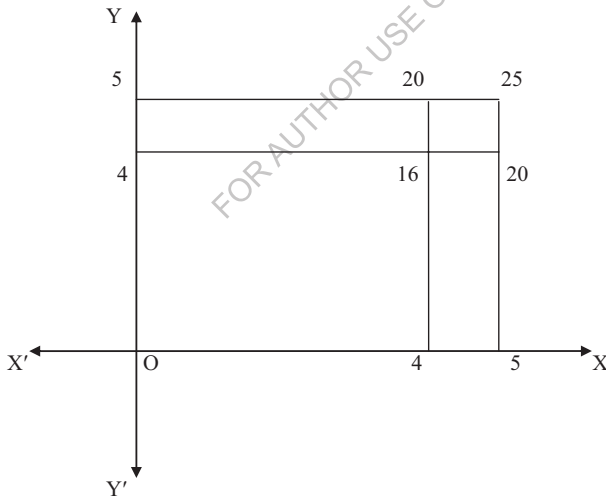


Fig. 4.15

Here the numbers 16, 20, 25 are of two dimensions.

$$16 = 4 \times 4$$

$$20 = 5 \times 4$$

$$20 = 4 \times 5$$

$$25 = 5 \times 5$$

It must be noted that 16 is a point but to get it, you have to cross 4 and 4. 20 is a point but to get it, you have to cross 5 and 4. Again another point of 20, but you have to cross 4 and 5 to get it. 25 is a point but you have to cross 5 and 5 to get it. From the discussion of the number line, it is said that the cause for 16 are 4 and 4. Again the cause of 4 and 4 is 1. Similarly, the cause for 20 and 25 is 1. It should be noted here that figure 4.15 has two 20's, but their position is different. On the other hand, let us look at the number plane below.

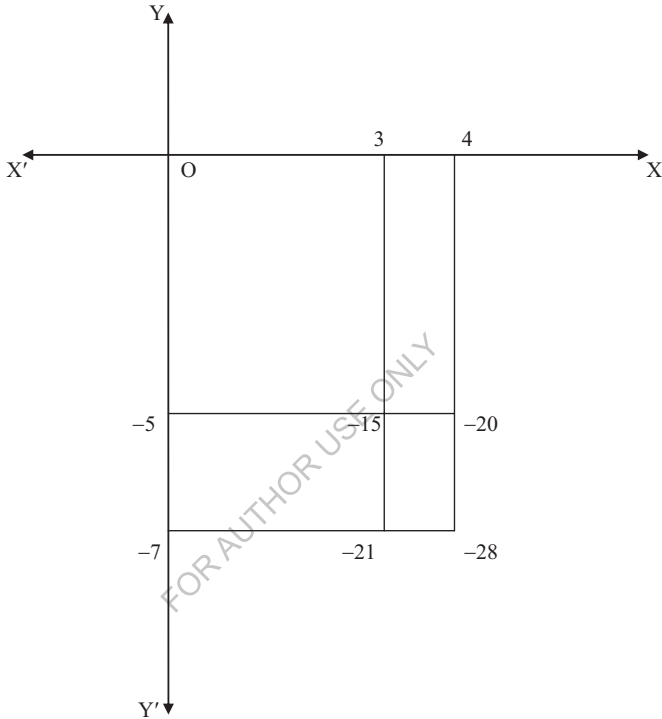


Fig. 4.16

Here also the numbers -15 , -20 , -21 , -28 are two-dimensional.

$$-15 = 3 \times (-5)$$

$$-20 = 4 \times (-5)$$

$$-21 = 3 \times (-7)$$

$$-28 = 4 \times (-7)$$

From the above discussion, it can be said here that -15 is a point and one has to cross 3 and (-5) to get it. In the same way, -20 is a point and one must cross 4 and (-5) to get it. The same is true for the numbers -21 and -28 . Again one is the cause for these numbers also.

4.2.3 Number Cube

Notice the number cube below.

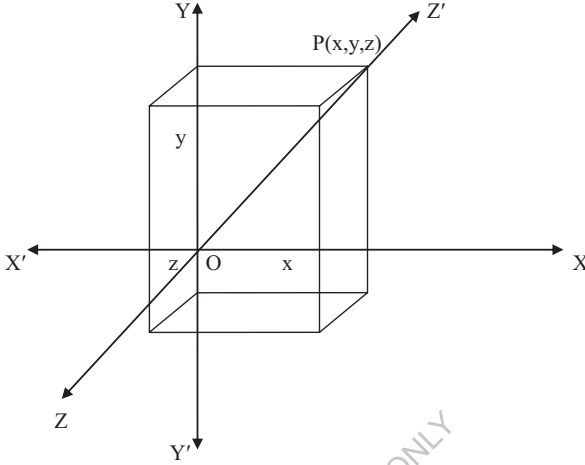


Fig. 4.17

Here $P(x, y, z)$ is a point that indicates a number. The number is three-dimensional and in order to get it one has to cross x , y and z . One is the cause for this number also. So it can be said that the cause for all the numbers is one. All numbers that are whole or in part created by this one. One is cause many is action. All numbers are vibhuti (glorious form) of the number one. Therefore, there is no difference between one and many.

4.3 Four Main Chain Relations

4.3.1 First Chain Relation

Suppose A and B are two sets where,

$$A = \{A_1, A_2, A_3\}$$

$$B = \{B_1, B_2, B_3, B_4\}$$

Then the first chain relation can be shown in this way

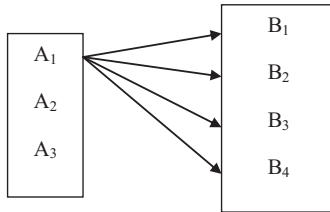


Fig. 4.18

In the illustration of the figure it is said that B_1, B_2, B_3, B_4 contained in A_1 . Or,

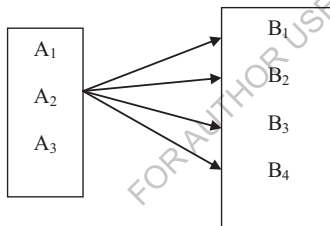


Fig. 4.19

In the illustration of the figure it is said that B_1, B_2, B_3, B_4 contained in A_2 . Or,

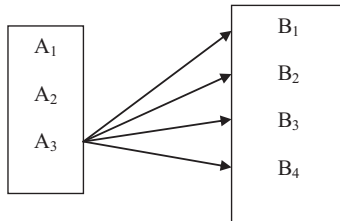


Fig. 4.20

In the illustration of the figure it is said that B_1, B_2, B_3, B_4 contained in A_3 .

4.3.2 Second Chain Relation

Suppose A, B and C are three sets where,

$$A = \{A_1, A_2, A_3\}$$

$$B = \{B_1, B_2, B_3, B_4\}$$

$$C = \{C_1, C_2, C_3, C_4, C_5\}$$

Then the second chain relation can be shown in this way

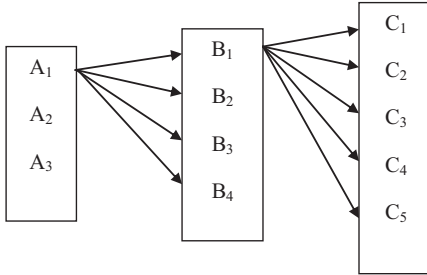


Fig. 4.21

In the illustration of the figure it is said that B₁, B₂, B₃, B₄ contained in A₁ and C₁, C₂, C₃, C₄, C₅ contained in B₁. Or,

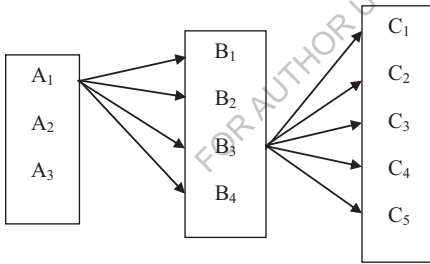


Fig. 4.22

In the illustration of the figure it is said that B₁, B₂, B₃, B₄ contained in A₁ and C₁, C₂, C₃, C₄, C₅ contained in B₃. Or,

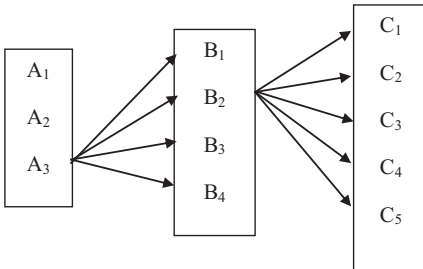


Fig. 4.23

In the illustration of the figure it is said that B_1, B_2, B_3, B_4 contained in A_3 and C_1, C_2, C_3, C_4, C_5 contained in B_2 , ect.

4.3.3 Third Chain Relation

Suppose A, B, C and D are four sets where,

$$A = \{A_1, A_2, A_3\}$$

$$B = \{B_1, B_2, B_3, B_4\}$$

$$C = \{C_1, C_2, C_3, C_4, C_5\}$$

$$D = \{D_1, D_2, D_3, D_4, D_5\}$$

Then the third chain relation can be shown in this way

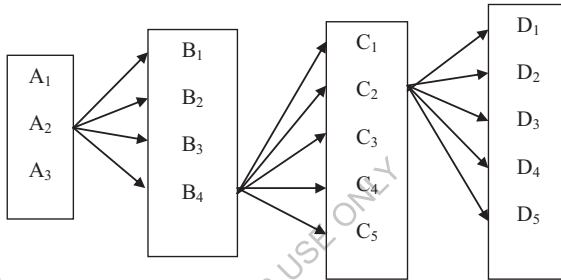


Fig. 4.24

In the illustration of the figure it is said that B_1, B_2, B_3, B_4 contained in A_2 and C_1, C_2, C_3, C_4, C_5 contained in B_4 and D_1, D_2, D_3, D_4, D_5 contained in C_2 . Or,

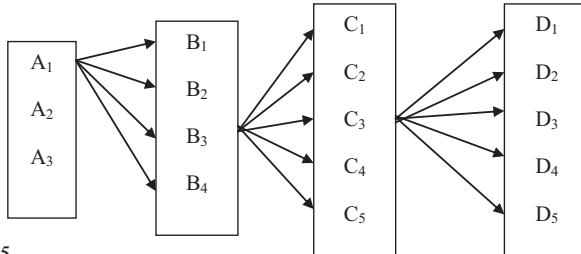


Fig. 4.25

In the illustration of the figure it is said that B_1, B_2, B_3, B_4 contained in A_1 and C_1, C_2, C_3, C_4, C_5 contained in B_3 and D_1, D_2, D_3, D_4, D_5 contained in C_3 . Or,

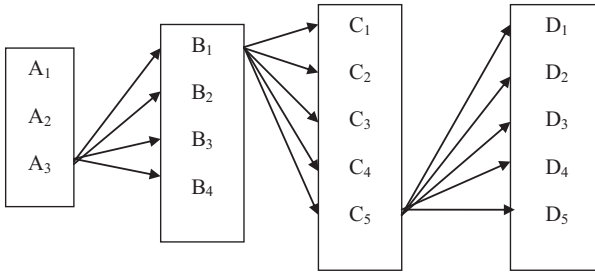


Fig. 4.26

In the illustration of the figure it is said that B_1, B_2, B_3, B_4 contained in A_3 and C_1, C_2, C_3, C_4, C_5 contained in B_1 and D_1, D_2, D_3, D_4, D_5 contained in C_5 . etc.

4.3.4 Fourth Chain Relation

Suppose A, B, C, D and E are five sets where,

$$A = \{A_1, A_2, A_3\}$$

$$B = \{B_1, B_2, B_3, B_4\}$$

$$C = \{C_1, C_2, C_3, C_4, C_5\}$$

$$D = \{D_1, D_2, D_3, D_4, D_5\}$$

$$E = \{E_1, E_2, E_3, E_4\}$$

Then the fourth chain relation can be shown in this way

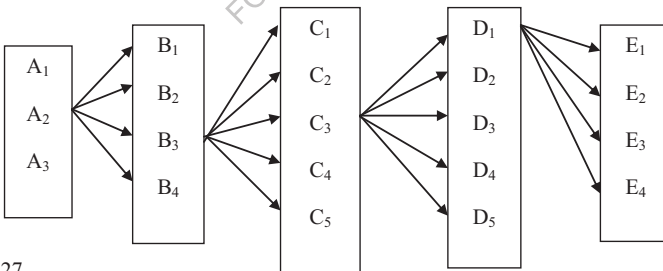


Fig. 4.27

In the illustration of the figure it is said that B_1, B_2, B_3, B_4 contained in A_2 and C_1, C_2, C_3, C_4, C_5 contained in B_3 and D_1, D_2, D_3, D_4, D_5 contained in C_3 and E_1, E_2, E_3, E_4 contained in D_1 . Or,

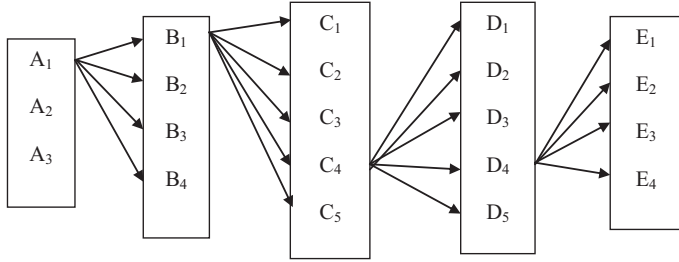


Fig. 4.28

In the illustration of the figure it is said that B₁, B₂, B₃, B₄ contained in A₁ and C₁, C₂, C₃, C₄, C₅ contained in B₁ and D₁, D₂, D₃, D₄, D₅ contained in C₄ and E₁, E₂, E₃, E₄ contained in D₄. Or,

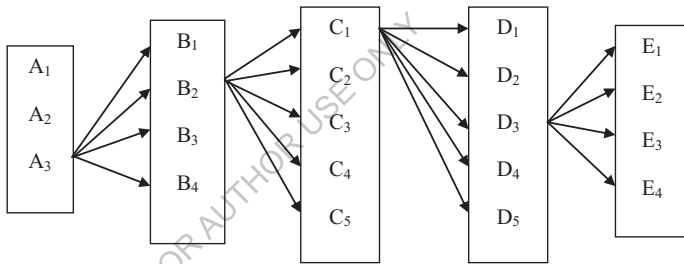


Fig. 4.29

In the illustration of the figure it is said that B₁, B₂, B₃, B₄ contained in A₃ and C₁, C₂, C₃, C₄, C₅ contained in B₂ and D₁, D₂, D₃, D₄, D₅ contained in C₁ and E₁, E₂, E₃, E₄ contained in D₃, etc.

4.4 Five Main Rules

In this paragraph we will discuss five main rules. These five main rules are (1) point rule or identity rule, (2) balance rule or straight line rule, (3) left-hand rule or triangle rule, (4) cross rule or X-rule or rectangle rule and (5) symmetrical distribution rule. The point rule or identity rule has one category or word, the balance rule has two categories or words, the left hand rule has three categories or words, the cross rule or X-rule has four categories or words, and the symmetrical distribution rule has five categories or words. The laws of the four rules can be divided into four kinds, except the point rule or the identity rule. These are: (1) unitary laws, (2) ratio laws, (3) partition laws and (4) order laws. In the unitary laws each variable or word remains intact and establishes a relation with other. In the ratio laws each variable or word remains in a certain proportion and establishes a relation with other. In the partition laws each variable or word establishes a relation with its parts. In the order laws each variable or word remains in a specific sequence and establishes a relation with other. The order laws indicate something more widespread than the ratio laws.

4.4.1 Point Rule or Identity Rule

We know that the point has no length, width, or height. There is only position or location. In this account it can be said that all points are equal and unique. This is called the point rule or identity rule. This rule applies to any particular discussion. Suppose P is a point. Then it can be shown in the figure as

P (.)

Fig. 4.30

Explanation of the rule states that each unique object is only equal to it. As such, the sun is equal to the sun. The moon is equal to the moon.

From the point rule we get one law.

$$(4.4.1.1) \quad P (.) = P (.)$$

The explanation of the law is P identical with P.

4.4.2 Balance Rule or Straight Line Rule

We know that there are two sides of a balance and that these two sides are equal or proportional to each other. This is called balance rule or straight line rule. This rule applies to any particular discussion. Suppose P and Q are two sides. Then it can be shown in the figure as



Fig. 4.31

Or,



Fig. 4.32

In explaining the rule it can be said that each word has an equal and opposite word. For example, deha (body) and prana (living force). Here the body is one so the living force is one but is opposite. The body is unconscious but the living force is conscious. We get a total of four laws from the balance rule.

(1) Unitary Laws

(4.4.2.1) P will be proportional to Q.

$$P \propto Q$$

(2) Ratio Laws

(4.4.2.2) The ratio of different parts of P will be equal to the ratio of different parts of Q.

That is

$$P_1 : P_2 : P_3 : \dots : P_n = Q_1 : Q_2 : Q_3 : \dots : Q_n$$

(3) Partition Laws

(4.4.2.3) Q will be equal to the sum of its different parts. That is

$$Q = Q_1 + Q_2 + Q_3 + \dots + Q_n$$

(4) Order Laws

(4.4.2.4) The order of different parts of P will be proportional to the order of different parts of Q. That is

$$P_1 \rightarrow P_2 \rightarrow P_3 \rightarrow \dots \rightarrow P_n \propto Q_1 \rightarrow Q_2 \rightarrow Q_3 \rightarrow \dots \rightarrow Q_n$$

4.4.3 Left Hand Rule or Triangle Rule

The image that is found when the left hand grows at the right angles of thumb, index finger and middle finger is similar to the three-dimensional Cartesian coordinates. This is called left hand rule. This rule applies to any particular discussion. Suppose there are three axes OX, OY and OZ. Then it can be shown in the figure as

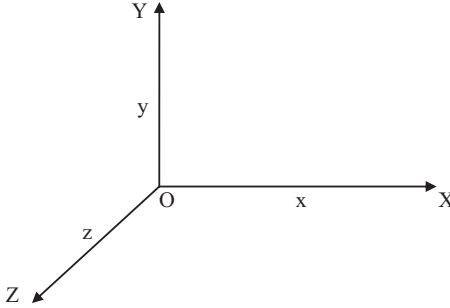


Fig. 4.33

In explaining the rule it can be said that the OY axis is standing at an angle of 90^0 with the OX axis. Similarly, the OZ axis is standing at an angle of 90^0 with the OX and OY axes. From this rule it can be said that this universe is three-dimensional. We get a total of twelve laws from the left hand rule.

(1) Unitary Laws

(4.4.3.1) If x is unchanged, y and z will be changed in inverse proportions. That is

$$y \propto 1/z$$

(4.4.3.2) If y is unchanged, z and x will be changed in inverse proportions. That is

$$z \propto 1/x$$

(4.4.3.3) If z is unchanged, x and y will be changed in inverse proportions. That is

$$x \propto 1/y$$

(2) Ratio Laws

(4.4.3.4) If x is unchanged, then the ratio of different parts of y will be equal to the inverse ratio of different parts of z. That is

$$y_1 : y_2 : y_3 : \dots : y_n = 1/z_1 : 1/z_2 : 1/z_3 : \dots : 1/z_n$$

(4.4.3.5) If y is unchanged, then the ratio of different parts of z will be equal to the inverse ratio of different parts of x. That is

$$z_1 : z_2 : z_3 : \dots : z_n = 1/x_1 : 1/x_2 : 1/x_3 : \dots : 1/x_n$$

(4.4.3.6) If z is unchanged, then the ratio of different parts of x will be equal to the inverse ratio of different parts of y . That is

$$x_1 : x_2 : x_3 : \dots : x_n = 1/y_1 : 1/y_2 : 1/y_3 : \dots : 1/y_n$$

(3) Partition Laws

(4.4.3.7) If x is unchanged, in case of variation of z against different parts of y , the inverse quantity of z (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/z = 1/z_1 + 1/z_2 + 1/z_3 + \dots + 1/z_n$$

(4.4.3.8) If y is unchanged, in case of variation of x against different parts of z , the inverse quantity of x (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/x = 1/x_1 + 1/x_2 + 1/x_3 + \dots + 1/x_n$$

(4.4.3.9) If z is unchanged, in case of variation of y against different parts of x , the inverse quantity of y (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/y = 1/y_1 + 1/y_2 + 1/y_3 + \dots + 1/y_n$$

(4) Order Laws

(4.4.3.10) If x is unchanged, the order of different parts of y will be proportional to the order of the inverses of the different parts of z . That is

$$y_1 \rightarrow y_2 \rightarrow y_3 \rightarrow \dots \rightarrow y_n \propto 1/z_1 \rightarrow 1/z_2 \rightarrow 1/z_3 \rightarrow \dots \rightarrow 1/z_n$$

(4.4.3.11) If y is unchanged, the order of different parts of z will be proportional to the order of the inverses of the different parts of x . That is

$$z_1 \rightarrow z_2 \rightarrow z_3 \rightarrow \dots \rightarrow z_n \propto 1/x_1 \rightarrow 1/x_2 \rightarrow 1/x_3 \rightarrow \dots \rightarrow 1/x_n$$

(4.4.3.12) If z is unchanged, the order of different parts of x will be proportional to the order of the inverses of the different parts of y . That is

$$x_1 \rightarrow x_2 \rightarrow x_3 \rightarrow \dots \rightarrow x_n \propto 1/y_1 \rightarrow 1/y_2 \rightarrow 1/y_3 \rightarrow \dots \rightarrow 1/y_n$$

4.4.4 Cross Rule or X Rule or Rectangle Rule

In a cross or an English letter X, the two arms are positioned at an angle of 90° . These two arms have four end points. The position of these end points is: if any two points are angular, the other two points will be angular or, if any two points are horizontal, the other two points will be horizontal or if any two points are vertical, then the other two points will be vertical. Now, if any two horizontal edge points are fixed, the other two horizontal edge points change in direct proportion. Or, if any two vertical end points are fixed, the other two vertical end points change in direct proportion. Again, if any two angular edge points are

fixed, the other two angular edge points change in inverse proportion. This is called cross rule or x- rule. This rule applies to any particular discussion. Suppose P, Q, R and S are four points. Then it can be shown in the figure as

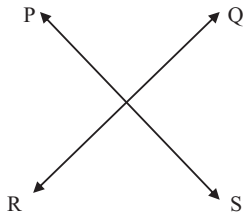


Fig. 4.34

We get a total of thirty laws from the cross rule or x- rule.

(1) Unitary Laws

(4.4.4.1) If P and Q are unchanged, R and S will change in the direct proportion. That is $R \propto S$

(4.4.4.2) If P and R are unchanged, Q and S will change in the direct proportion. That is $Q \propto S$

(4.4.4.3) If P and S are unchanged, Q and R will change in the inverse proportion. That is $Q \propto 1/R$

(4.4.4.4) If Q and R are unchanged, P and S will change in the inverse proportion. That is $P \propto 1/S$

(4.4.4.5) If Q and S are unchanged, P and R will change in the direct proportion. That is $P \propto R$

(4.4.4.6) If R and S are unchanged, P and Q will change in the direct proportion. That is $P \propto Q$

(2) Ratio Laws

(4.4.4.7) If P and Q are unchanged, then the ratio of different parts of R will be equal to the ratio of different parts of S. That is

$$R_1 : R_2 : R_3 : \dots : R_n = S_1 : S_2 : S_3 : \dots : S_n$$

(4.4.4.8) If P and R are unchanged, then the ratio of different parts of Q will be equal to the ratio of different parts of S. That is

$$Q_1 : Q_2 : Q_3 : \dots : Q_n = S_1 : S_2 : S_3 : \dots : S_n$$

(4.4.4.9) If P and S are unchanged, then the ratio of different parts of Q will be equal to the inverse ratio of different parts of R. That is

$$Q_1 : Q_2 : Q_3 : \dots : Q_n = 1/R_1 : 1/R_2 : 1/R_3 : \dots : 1/R_n$$

(4.4.4.10) If Q and R are unchanged, then the ratio of different parts of P will be equal to the inverse ratio of different parts of S. That is

$$P_1 : P_2 : P_3 : \dots : P_n = 1/S_1 : 1/S_2 : 1/S_3 : \dots : 1/S_n$$

(4.4.4.11) If Q and S are unchanged, then the ratio of different parts of P will be equal to the ratio of different parts of R. That is

$$P_1 : P_2 : P_3 : \dots : P_n = R_1 : R_2 : R_3 : \dots : R_n$$

(4.4.4.12) If R and S are unchanged, then the ratio of different parts of P will be equal to the ratio of different parts of Q. That is

$$P_1 : P_2 : P_3 : \dots : P_n = Q_1 : Q_2 : Q_3 : \dots : Q_n$$

(3) Partition Laws

(4.4.4.13) If P and Q are unchanged, in case of variation of S against different parts of R, the quantity S will be equal to the sum of its partial quantities. That is

$$S = S_1 + S_2 + S_3 + \dots + S_n$$

(4.4.4.14) If P and Q are unchanged, in case of variation of R against different parts of S, the quantity R will be equal to the sum of its partial quantities. That is

$$R = R_1 + R_2 + R_3 + \dots + R_n$$

(4.4.4.15) If P and R are unchanged, in case of variation of S against different parts of Q, the quantity S will be equal to the sum of its partial quantities. That is

$$S = S_1 + S_2 + S_3 + \dots + S_n$$

(4.4.4.16) If P and R are unchanged, in case of variation of Q against different parts of S, the quantity Q will be equal to the sum of its partial quantities. That is

$$Q = Q_1 + Q_2 + Q_3 + \dots + Q_n$$

(4.4.4.17) If P and S are unchanged, in case of variation of R against different parts of Q, the inverse quantity of R (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/R = 1/R_1 + 1/R_2 + 1/R_3 + \dots + 1/R_n$$

(4.4.4.18) If P and S are unchanged, in case of variation of Q against different parts of R, the inverse quantity of Q (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/Q = 1/Q_1 + 1/Q_2 + 1/Q_3 + \dots + 1/Q_n$$

(4.4.4.19) If Q and R are unchanged, in case of variation of S against different parts of P, the inverse quantity of S (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/S = 1/S_1 + 1/S_2 + 1/S_3 + \dots + 1/S_n$$

(4.4.4.20) If Q and R are unchanged, in case of variation of P against different parts of S, the inverse quantity of P (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/P = 1/P_1 + 1/P_2 + 1/P_3 + \dots + 1/P_n$$

(4.4.4.21) If Q and S are unchanged, in case of variation of R against different parts of P, the quantity R will be equal to the sum of its partial quantities. That is

$$R = R_1 + R_2 + R_3 + \dots + R_n$$

(4.4.4.22) If Q and S are unchanged, in case of variation of P against different parts of R, the quantity P will be equal to the sum of its partial quantities. That is

$$P = P_1 + P_2 + P_3 + \dots + P_n$$

(4.4.4.23) If R and S are unchanged, in case of variation of Q against different parts of P, the quantity Q will be equal to the sum of its partial quantities. That is

$$Q = Q_1 + Q_2 + Q_3 + \dots + Q_n$$

(4.4.4.24) If R and S are unchanged, in case of variation of P against different parts of Q, the quantity P will be equal to the sum of its partial quantities. That is

$$P = P_1 + P_2 + P_3 + \dots + P_n$$

(4) Order Laws

(4.4.4.25) If P and Q are unchanged, the order of different parts of R will be proportional to the order of different parts of S. That is

$$R_1 \rightarrow R_2 \rightarrow R_3 \rightarrow \dots \rightarrow R_n \propto S_1 \rightarrow S_2 \rightarrow S_3 \rightarrow \dots \rightarrow S_n$$

(4.4.4.26) If P and R are unchanged, the order of different parts of Q will be proportional to the order of different parts of S. That is

$$Q_1 \rightarrow Q_2 \rightarrow Q_3 \rightarrow \dots \rightarrow Q_n \propto S_1 \rightarrow S_2 \rightarrow S_3 \rightarrow \dots \rightarrow S_n$$

(4.4.4.27) If P and S are unchanged, the order of different parts of Q will be proportional to the order of the inverses of the different parts of R. That is

$$Q_1 \rightarrow Q_2 \rightarrow Q_3 \rightarrow \dots \rightarrow Q_n \propto 1/R_1 \rightarrow 1/R_2 \rightarrow 1/R_3 \rightarrow \dots \rightarrow 1/R_n$$

(4.4.4.28) If Q and R are unchanged, the order of different parts of P will be proportional to the order of the inverses of the different parts of S. That is

$$P_1 \rightarrow P_2 \rightarrow P_3 \rightarrow \dots \rightarrow P_n \propto 1/S_1 \rightarrow 1/S_2 \rightarrow 1/S_3 \rightarrow \dots \rightarrow 1/S_n$$

(4.4.4.29) If Q and S are unchanged, the order of different parts of P will be proportional to the order of different parts of R. That is

$$P_1 \rightarrow P_2 \rightarrow P_3 \rightarrow \dots \rightarrow P_n \propto R_1 \rightarrow R_2 \rightarrow R_3 \rightarrow \dots \rightarrow R_n$$

(4.4.4.30) If R and S are unchanged, the order of different parts of P will be proportional to the order of different parts of Q. That is

$$P_1 \rightarrow P_2 \rightarrow P_3 \rightarrow \dots \rightarrow P_n \propto Q_1 \rightarrow Q_2 \rightarrow Q_3 \rightarrow \dots \rightarrow Q_n$$

4.4.5 Symmetrical Distribution Rule or Pentagon Rule

If the arithmetic mean, median and mode of a frequency distribution is equal to one another, then that frequency distribution will be symmetrical distribution. That is, arithmetic mean = median = mode.

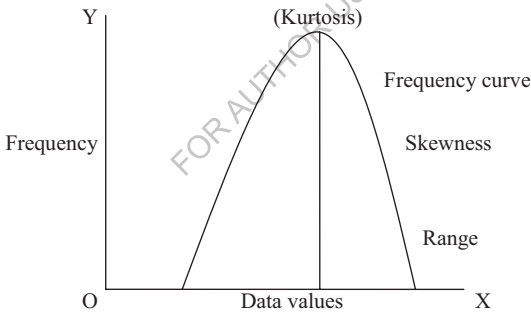


Fig. 4.35

Here, arithmetic mean = median = mode.

We get five points in symmetrical distribution. These are kurtosis (K), skewness-1 (S₁), skewness-2 (S₂), range-1 (R₁) and range-2 (R₂).

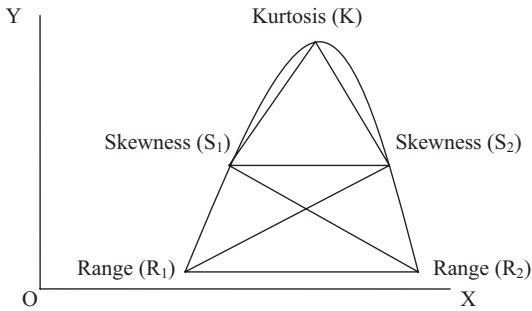


Fig. 4.36

We get a total of fifty laws from the symmetrical distribution rule.

(1) Unitary Laws

(4.4.5.1) If K, S₁ and S₂ are unchanged, then R₁ and R₂ will change in the direct proportion. That is

$$R_1 \propto R_2$$

(4.4.5.2) If K, R₁ and R₂ are unchanged, then S₁ and S₂ will change in the direct proportion. That is

$$S_1 \propto S_2$$

(4.4.5.3) If K, S₁ and R₁ are unchanged, then S₂ and R₂ will change in the direct proportion. That is

$$S_2 \propto R_2$$

(4.4.5.4) If K, S₂ and R₂ are unchanged, then S₁ and R₁ will change in the direct proportion. That is

$$S_1 \propto R_1$$

(4.4.5.5) If K, S₁ and R₂ are unchanged, then S₂ and R₁ will change in the inverse proportion. That is

$$S_2 \propto 1/R_1$$

(4.4.5.6) If K, S₂ and R₁ are unchanged, then S₁ and R₂ will change in the inverse proportion. That is

$$S_1 \propto 1/R_2$$

(4.4.5.7) S_1 , R_1 and R_2 are unchanged, then K and S_2 will change in the inverse proportion. That is

$$K \propto 1/S_2$$

(4.4.5.8) S_2 , R_1 and R_2 are unchanged, then K and S_1 will change in the inverse proportion. That is

$$K \propto 1/S_1$$

(4.4.5.9) S_1 , S_2 and R_1 are unchanged, then K and R_2 will change in the inverse proportion. That is

$$K \propto 1/R_2$$

(4.4.5.10) S_1 , S_2 and R_2 are unchanged, then K and R_1 will change in the inverse proportion. That is

$$K \propto 1/R_1$$

(2) Ratio Laws

(4.4.5.11) If K , S_1 and S_2 are unchanged, then the ratio of different parts of R_1 will be equal to the ratio of different parts of R_2 . That is

$$R_{11} : R_{12} : R_{13} : \dots : R_{1n} = R_{21} : R_{22} : R_{23} : \dots : R_{2n}$$

(4.4.5.12) If K , R_1 and R_2 are unchanged, then the ratio of different parts of S_1 will be equal to the ratio of different parts of S_2 . That is

$$S_{11} : S_{12} : S_{13} : \dots : S_{1n} = S_{21} : S_{22} : S_{23} : \dots : S_{2n}$$

(4.4.5.13) If K , S_1 and R_1 are unchanged, then the ratio of different parts of S_2 will be equal to the ratio of different parts of R_2 . That is

$$S_{21} : S_{22} : S_{23} : \dots : S_{2n} = R_{21} : R_{22} : R_{23} : \dots : R_{2n}$$

(4.4.5.14) If K , S_2 and R_2 are unchanged, then the ratio of different parts of S_1 will be equal to the ratio of different parts of R_1 . That is

$$S_{11} : S_{12} : S_{13} : \dots : S_{1n} = R_{11} : R_{12} : R_{13} : \dots : R_{1n}$$

(4.4.5.15) If K , S_1 and R_2 are unchanged, then the ratio of different parts of S_2 will be equal to the inverse ratio of different parts of R_1 . That is

$$S_{21} : S_{22} : S_{23} : \dots : S_{2n} = 1/R_{11} : 1/R_{12} : 1/R_{13} : \dots : 1/R_{1n}$$

(4.4.5.16) If K , S_2 and R_1 are unchanged, then the ratio of different parts of S_1 will be equal to the inverse ratio of different parts of R_2 . That is

$$S_{11} : S_{12} : S_{13} : \dots : S_{1n} = 1/R_{21} : 1/R_{22} : 1/R_{23} : \dots : 1/R_{2n}$$

(4.4.5.17) If S_1 , R_1 and R_2 are unchanged, then the ratio of different parts of K will be equal to the inverse ratio of different parts of S_2 . That is

$$K_1 : K_2 : K_3 : \dots : K_n = 1/S_{21} : 1/S_{22} : 1/S_{23} : \dots : 1/S_{2n}$$

(4.4.5.18) If S_2 , R_1 and R_2 are unchanged, then the ratio of different parts of K will be equal to the inverse ratio of different parts of S_1 . That is

$$K_1 : K_2 : K_3 : \dots : K_n = 1/S_{11} : 1/S_{12} : 1/S_{13} : \dots : 1/S_{1n}$$

(4.4.5.19) If S_1 , S_2 and R_1 are unchanged, then the ratio of different parts of K will be equal to the inverse ratio of different parts of R_2 . That is

$$K_1 : K_2 : K_3 : \dots : K_n = 1/R_{21} : 1/R_{22} : 1/R_{23} : \dots : 1/R_{2n}$$

(4.4.5.20) If S_1 , S_2 and R_2 are unchanged, then the ratio of different parts of K will be equal to the inverse ratio of different parts of R_1 . That is

$$K_1 : K_2 : K_3 : \dots : K_n = 1/R_{11} : 1/R_{12} : 1/R_{13} : \dots : 1/R_{1n}$$

(3) Partition Laws

(4.4.5.21) If K , S_1 and S_2 are unchanged, in case of variation of R_2 against different parts of R_1 , the quantity R_2 will be equal to the sum of its partial quantities. That is

$$R_2 = R_{21} + R_{22} + R_{23} + \dots + R_{2n}$$

(4.4.5.22) If K , S_1 and S_2 are unchanged, in case of variation of R_1 against different parts of R_2 , the quantity R_1 will be equal to the sum of its partial quantities. That is

$$R_1 = R_{11} + R_{12} + R_{13} + \dots + R_{1n}$$

(4.4.5.23) If K , R_1 and R_2 are unchanged, in case of variation of S_2 against different parts of S_1 , the quantity S_2 will be equal to the sum of its partial quantities. That is

$$S_2 = S_{21} + S_{22} + S_{23} + \dots + S_{2n}$$

(4.4.5.24) If K , R_1 and R_2 are unchanged, in case of variation of S_1 against different parts of S_2 , the quantity S_1 will be equal to the sum of its partial quantities. That is

$$S_1 = S_{11} + S_{12} + S_{13} + \dots + S_{1n}$$

(4.4.5.25) If K , S_1 and R_1 are unchanged, in case of variation of R_2 against different parts of S_2 , the quantity R_2 will be equal to the sum of its partial quantities. That is

$$R_2 = R_{21} + R_{22} + R_{23} + \dots + R_{2n}$$

(4.4.5.26) If K , S_1 and S_2 are unchanged, in case of variation of S_2 against different parts of R_2 , the quantity S_2 will be equal to the sum of its partial quantities. That is

$$S_2 = S_{21} + S_{22} + S_{23} + \dots + S_{2n}$$

(4.4.5.27) If K , S_2 and R_2 are unchanged, in case of variation of R_1 against different parts of S_1 , the quantity R_1 will be equal to the sum of its partial quantities. That is

$$R_1 = R_{11} + R_{12} + R_{13} + \dots + R_{1n}$$

(4.4.5.28) If K , S_2 and R_2 are unchanged, in case of variation of S_1 against different parts of R_1 , the quantity S_1 will be equal to the sum of its partial quantities. That is

$$S_1 = S_{11} + S_{12} + S_{13} + \dots + S_{1n}$$

(4.4.5.29) If K , S_1 and R_2 are unchanged, in case of variation of R_1 against different parts of S_2 , the inverse quantity of R_1 (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/R_1 = 1/R_{11} + 1/R_{12} + 1/R_{13} + \dots + 1/R_{1n}$$

(4.4.5.30) If K , S_1 and R_2 are unchanged, in case of variation of S_2 against different parts of R_1 , the inverse quantity of S_2 (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/S_2 = 1/S_{21} + 1/S_{22} + 1/S_{23} + \dots + 1/S_{2n}$$

(4.4.5.31) If K , S_2 and R_1 are unchanged, in case of variation of R_2 against different parts of S_1 , the inverse quantity of R_2 (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/R_2 = 1/R_{21} + 1/R_{22} + 1/R_{23} + \dots + 1/R_{2n}$$

(4.4.5.32) If K , S_2 and R_1 are unchanged, in case of variation of S_1 against different parts of R_2 , the inverse quantity of S_1 (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/S_1 = 1/S_{11} + 1/S_{12} + 1/S_{13} + \dots + 1/S_{1n}$$

(4.4.5.33) If S_1 , R_1 and R_2 are unchanged, in case of variation of S_2 against different parts of K , the inverse quantity of S_2 (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/S_2 = 1/S_{21} + 1/S_{22} + 1/S_{23} + \dots + 1/S_{2n}$$

(4.4.5.34) If S_1 , R_1 and R_2 are unchanged, in case of variation of K against different parts of S_2 , the inverse quantity of K (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/K = 1/K_1 + 1/K_2 + 1/K_3 + \dots + 1/K_n$$

(4.4.5.35) If S_2 , R_1 and R_2 are unchanged, in case of variation of S_1 against different parts of K , the inverse quantity of S_1 (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/S_1 = 1/S_{11} + 1/S_{12} + 1/S_{13} + \dots + 1/S_{1n}$$

(4.4.5.36) If S_2 , R_1 and R_2 are unchanged, in case of variation of K against different parts of S_1 , the inverse quantity of K (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$1/K = 1/K_1 + 1/K_2 + 1/K_3 + \dots + 1/K_n$$

(4.4.5.37) If S_1 , S_2 and R_1 are unchanged, in case of variation of R_2 against different parts of K , the inverse quantity of R_2 (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$R_2 = R_{21} + R_{22} + R_{23} + \dots + R_{2n}$$

(4.4.5.38) If S_1 , S_2 and R_1 are unchanged, in case of variation of K against different parts of R_2 , the inverse quantity of K (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$K = K_1 + K_2 + K_3 + \dots + K_n$$

(4.4.5.39) If S_1 , S_2 and R_2 are unchanged, in case of variation of R_1 against different parts of K , the inverse quantity of R_1 (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$R_1 = R_{11} + R_{12} + R_{13} + \dots + R_{1n}$$

(4.4.5.40) If S_1 , S_2 and R_2 are unchanged, in case of variation of K against different parts of R_1 , the inverse quantity of K (multiplicative) will be equal to the sum of its partial inverse quantities (multiplicative). That is

$$K = K_1 + K_2 + K_3 + \dots + K_n$$

(4) Order Laws

(4.4.5.41) If K , S_1 and S_2 are unchanged, the order of different parts of R_1 will be proportional to the order of different parts of R_2 . That is

$$R_{11} \rightarrow R_{12} \rightarrow R_{13} \rightarrow \dots \rightarrow R_{1n} \propto R_{21} \rightarrow R_{22} \rightarrow R_{23} \rightarrow \dots \rightarrow R_{2n}$$

(4.4.5.42) If K , R_1 and R_2 are unchanged, the order of different parts of S_1 will be proportional to the order of different parts of S_2 . That is

$$S_{11} \rightarrow S_{12} \rightarrow S_{13} \rightarrow \dots \rightarrow S_{1n} \propto S_{21} \rightarrow S_{22} \rightarrow S_{23} \rightarrow \dots \rightarrow S_{2n}$$

(4.4.5.43) If K , S_1 and R_1 are unchanged, the order of different parts of S_2 will be proportional to the order of different parts of R_2 . That is

$$S_{21} \rightarrow S_{22} \rightarrow S_{23} \rightarrow \dots \rightarrow S_{2n} \propto R_{21} \rightarrow R_{22} \rightarrow R_{23} \rightarrow \dots \rightarrow R_{2n}$$

(4.4.5.44) If K , S_2 and R_2 are unchanged, the order of different parts of S_1 will be proportional to the order of different parts of R_1 . That is

$$S_{11} \rightarrow S_{12} \rightarrow S_{13} \rightarrow \dots \rightarrow S_{1n} \propto R_{11} \rightarrow R_{12} \rightarrow R_{13} \rightarrow \dots \rightarrow R_{1n}$$

(4.4.5.45) If K , S_1 and R_2 are unchanged, the order of different parts of S_2 will be proportional to the order of the inverses of the different parts of R_1 . That is

$$S_{21} \rightarrow S_{22} \rightarrow S_{23} \rightarrow \dots \rightarrow S_{2n} \propto 1/R_{11} \rightarrow 1/R_{12} \rightarrow 1/R_{13} \rightarrow \dots \rightarrow 1/R_{1n}$$

(4.4.5.46) If K , S_2 and R_1 are unchanged, the order of different parts of S_1 will be proportional to the order of the inverses of the different parts of R_2 . That is

$$S_{11} \rightarrow S_{12} \rightarrow S_{13} \rightarrow \dots \rightarrow S_{1n} \propto 1/R_{21} \rightarrow 1/R_{22} \rightarrow 1/R_{23} \rightarrow \dots \rightarrow 1/R_{2n}$$

(4.4.5.47) If S_1 , R_1 and R_2 are unchanged, the order of different parts of K will be proportional to the order of the inverses of the different parts of S_2 . That is

$$K_1 \rightarrow K_2 \rightarrow K_3 \rightarrow \dots \rightarrow K_n \propto 1/S_{21} \rightarrow 1/S_{22} \rightarrow 1/S_{23} \rightarrow \dots \rightarrow 1/S_{2n}$$

(4.4.5.48) If S_2 , R_1 and R_2 are unchanged, the order of different parts of K will be proportional to the order of the inverses of the different parts of S_1 . That is

$$K_1 \rightarrow K_2 \rightarrow K_3 \rightarrow \dots \rightarrow K_n \propto 1/S_{11} \rightarrow 1/S_{12} \rightarrow 1/S_{13} \rightarrow \dots \rightarrow 1/S_{1n}$$

(4.4.5.49) If S_1 , S_2 and R_1 are unchanged, the order of different parts of K will be proportional to the order of the inverses of the different parts of R_2 . That is

$$K_1 \rightarrow K_2 \rightarrow K_3 \rightarrow \dots \rightarrow K_n \propto 1/R_{21} \rightarrow 1/R_{22} \rightarrow 1/R_{23} \rightarrow \dots \rightarrow 1/R_{2n}$$

(4.4.5.50) If S_1 , S_2 and R_2 are unchanged, the order of different parts of K will be proportional to the order of the inverses of the different parts of R_1 . That is

$$K_1 \rightarrow K_2 \rightarrow K_3 \rightarrow \dots \rightarrow K_n \propto 1/R_{11} \rightarrow 1/R_{12} \rightarrow 1/R_{13} \rightarrow \dots \rightarrow 1/R_{1n}$$

4.5 Small, Big, Near, Away, Much Deep, Less Deep etc.

4.5.1 Small, Big

1 is small, 2 is big, 5 is small, 8 is big.

$1 < 2, 5 < 8$

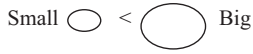


Fig. 4.37

4.5.2 Near, Away



Fig. 4.38

4.5.3 Much Deep, Less Deep

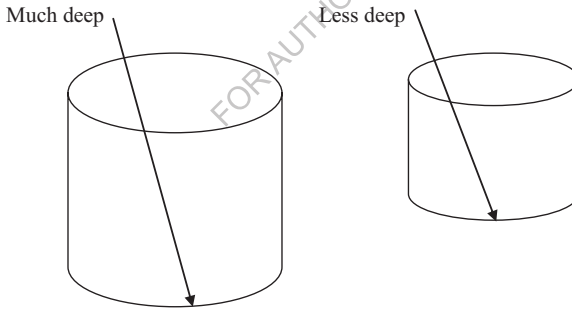


Fig. 4.39

CHAPTER 5

Main Theory

5.1 Number Combination

5.2 Solid Combination

5.3 Alphabetic Combination

5.4 Word Combination

5.5 Order Combination

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5.1 Number Combination

5.1.1 First Dimensional Number Combination

Rewriting the components of triangulum 2.8 we get,

1
1
1
1
1

Fig. 5.1

5.1.2 Second Dimensional Number Combination

Rewriting the components of triangulum 2.9 we get

1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

Fig.5.2

Arranging the components of figure 5.2 from up to down we get

1

1

2

1

2

3

1

2

3

4

1

2

3

4

5

Fig.5.3

5.1.3 Third Dimensional Number Combination

Rewriting the components of triangulum 2.10 we get

1
1
1 2
1
1 2
1 2 3
1
1 2
1 2 3
1 2 3 4
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5

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Fig. 5.4

5.1.4 Three Dimensional Number Combination

Combining the components of figures 5.1, 5.3 and 5.4 we get a model. This is follows:

1 1 1
1 1 1
2 1 2
1 1 1
2 1 2
3 1 2 3
1 1 1
2 1 2
3 1 2 3
4 1 2 3 4
1 1 1
2 1 2
3 1 2 3
4 1 2 3 4
5 1 2 3 4 5

Fig. 5.5

Rearrange the model of figure 5.5 as below:

1
1
1
1
1
1
1
2
1 2
1
1
1
2
1 2
3
1 2 3
1
1
1
2
1 2
3
1 2 3
4
1 2 3 4
1
1
1
2
1 2
3
1 2 3
4
1 2 3 4
5
1 2 3 4 5

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Fig. 5.6

5.2 Solid Combination

5.2.1 First Dimensional Solid Combination

Arrange the figure 5.1 with cubes and get



Fig. 5.7

5.2.2 Second Dimensional Solid Combination

Arrange the figure 5.2 with cubes and get

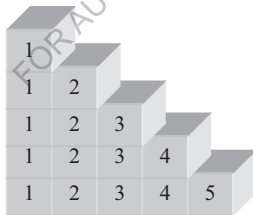


Fig. 5.8

Arrange the figure 5.3 with cubes and get



Fig. 5.9

FOR AUTHOR USE ONLY

5.2.3 Third Dimensional Solid Combination

Arrange the figure 5.4 with cubes and get

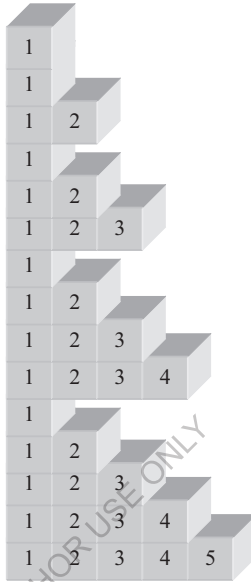


Fig. 5.10

5.2.4 Three Dimensional Solid Combination

Arrange the figure 5.5 with cubes and get

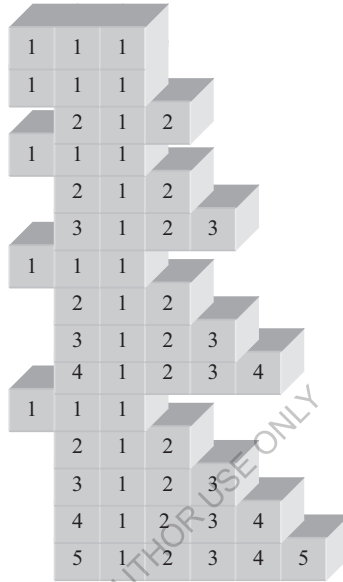


Fig. 5.11

Arrange the figure 5.6 with cubes and get

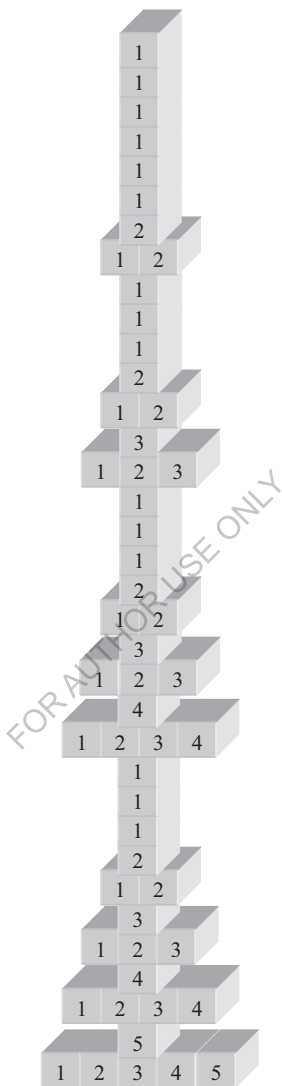


Fig. 5.12

The model of figure 5.12 may be arranged as another way.

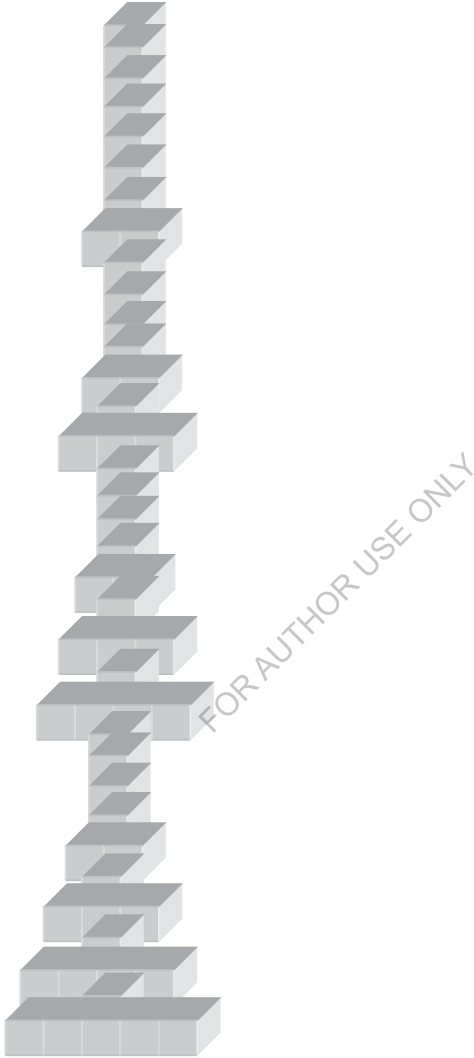


Fig. 5.13

5.3 Alphabetic Combination

5.3.1 Sanskrit Alphabetic Introduction

The Sanskrit alphabet (Devanagari) is of two types, viz., vowels and consonants. The vowels are mainly fourteen. These are अ, आ, इ, ई, ऊ, औ, ऋ, ॠ, ए, ऐ, ओ, औ. These letters again divided into three as short (hrasvah) vowels, long (dirghah) vowels and prolated (plutah) vowels. The short vowels are five. These are अ, इ, ऊ, ऋ, ए. The long vowels are nine. These are आ, ई, औ, ॠ, ऐ, ए, ओ, औ. The prolated vowels are eight. These are आ°, ई°, औ°, ॠ°, ऐ°, ए°, ओ°, औ°. The total number of vowels is 22. The use of long vowel ए is not much at present. We will use 20 letters, excluding ए and ऐ in the alphabetic combination.

The consonants are thirty-five. These are क, ख, ग, घ, ङ, च, छ, ज, झ, ञ, ट, ठ, ड, ढ, ण, त, थ, द, ध, न, प, फ, ब, भ, म, य, र, ल, व, श, ष, स, ह, ं, ः. From क to म, these 25 letters are the bilabial consonants (sparsa varna). The letters are bilabial consonants as they are touched in five places of the mouth, namely, throat (kanthah), palate (taluh), alveolar ridge (murdhan), teeth (dantah) and lips (osthah). Again there are five generic sounds from the place of pronunciation, namely,

क- genus (varga) — क, ख, ग, घ, ङ

च- genus (varga) — च, छ, ज, झ, ञ

ट- genus (varga) — ट, ठ, ड, ढ, ण

त- genus (varga) — त, थ, द, ध, न

प- genus (varga) — प, फ, ब, भ, म

On the other hand, य, र, ल, व- these four are called antastha (approximant) letters. श, ष, स, - these four are called uṣman (fricative) letters. ं and ः- these two are called ayogavahah (dependent) varna. Thus the total number of consonants is 25 + 4 + 4 + 2 = 35. Now let us divide the letters according to the place of pronunciation.

(1) Guttural (kanthyah)--- अ, आ, क, ख, ग, घ, ङ, ह.

(2) Palatal (talavyah)--- इ, ई, च, छ, ज, झ, ञ, य, श.

(3) Retroflex (murdhanyah)--- ऋ, ॠ, ट, ठ, ड, ढ, ण, र, ष.

(4) Dental (dantyah)--- ए, ऐ, त, थ, द, ध, न, ल, स.

(5) Labial (osthyah)--- ऊ, औ, प, फ, ब, भ, म.

(6) Palatoguttural (kanthatalavyah)--- ए, ऐ.

(7) Labioguttural (kanthosthyah)--- ओ, औ.

(8) Dentolabial antastha- व- diacritic.

(9) Velar nasal--- ं.

(10) Nasals (anunasikah)--- ङ, ञ, ण, न, म.

(11) Asrayasthana bhagi (support vowel)--- ः.

Consonants have other types of differences, namely, the first and second letters of the genus (varga) and श्, ष्, स् they are aghosa varna (Voiceless letters). Again, the third, fourth and fifth letters of the genus and य्, र्, ल्, व्, ह् are ghosa varna (Voiced letters). On the other hand, the first, third and fifth letters of the genus and य्, र्, ल्, व् are alpaprana (unaspirated) letters. The second and fourth letters of the genus and श्, ष्, स्, ह् are the mahaprana (aspirated) letters.

The letters of Sanskrit language are about ten thousand years old. For just a century, linguists have been studying the pronunciation of the alphabet. But it is surprising to think how the ancient Vedic sages knew the place of pronunciation of letters and arranged the letters accordingly. To write this paragraph ‘Sanskrit Alphabetic Introduction’, I have taken the help of Dr. Mahanambrata Brahmachari’s Veda-Vedanta: Uttar-Khanda: Veda-Bichintan (Bengali). I have used 20 vowels and 35 consonants in the Alphabetic Combination, a total of 55 letters.

5.3.2 First Dimensional Alphabetic Combination

Arrange the figure 5.7 with letters and get

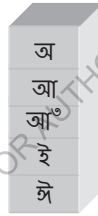


Fig. 5.14

5.3.3 Second Dimensional Alphabetic Combination

Arrange the figure 5.8 with letters and get

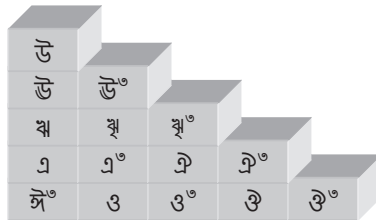


Fig. 5.15

Arrange the figure 5.9 with letters and get



Fig. 5.16

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5.3.4 Third Dimensional Alphabetic Combination

Arrange the figure 5.10 with letters and get

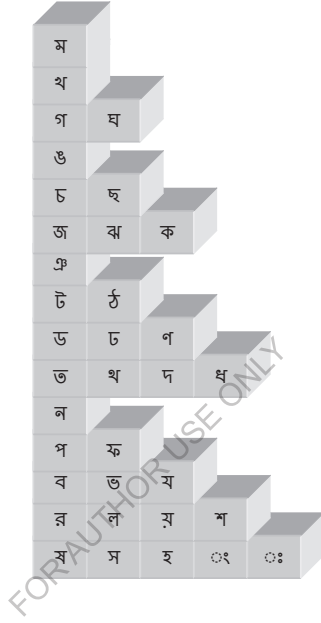


Fig. 5.17

5.3.5 Three Dimensional Alphabetic Combination

Arrange the figure 5.11 with letters and get

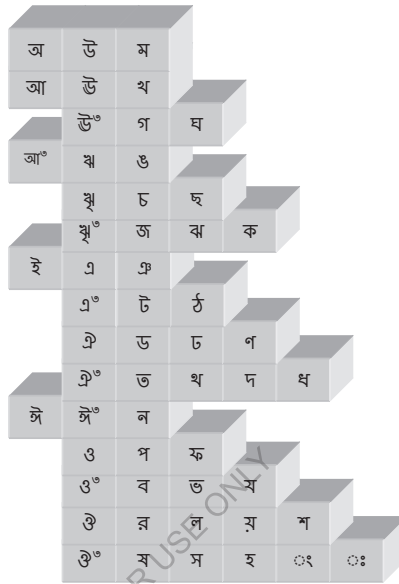


Fig. 5.18

Arrange the figure 5.12 with letters and get

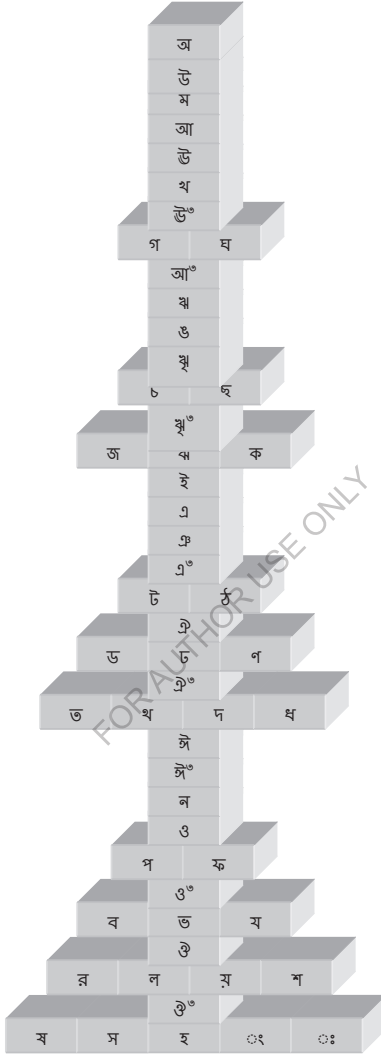


Fig. 5.19

5.4 Word Combination

5.4.1 Necessary Word Introduction

In this world we have to gain knowledge of many things. There is a lot to know, to learn. As the object of knowledge grows in the world, so does the scope of knowledge. The world is always changing. People's thoughts and ideas are changing over time. In order to survive in this world, we have to keep pace with the changing world situation. Words are one of the ways to gain knowledge. One can embody a particular object or knowledge by a single word. In the present paragraph we have selected 55 essential words which can be used in alphabetical order instead of letters. The words are as follows:

Purusa, Brahman, Isvara, prakrti, jada, jiva, paramanu, deha, prana, jagat, prithvi, antariksa, svarga, ksiti, jala, agni, vayu, akasa, atma, jnana, category, assertion, dimension, quantity, name, positivity, negativity, north, east, up, force, mass, space, time, karma, person, family, society, state, world, purusartha, reproduction, marriage, education, culture, cooperation, population, territory, power, sovereignty, life, environment, authority, development and peace.

5.4.2 First Dimensional Word Combination

Replacing letters with words in figure 5.14 we get



Fig. 5.20

5.4.3 Second Dimensional Word Combination

Replacing letters with words in figure 5.15 we get

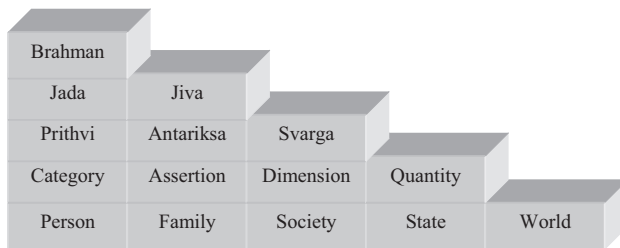


Fig. 5.21

Replacing letters with words in figure 5.16 we get



Brahman
Jada
Jiva
Prithvi
Antariksa
Svarga
Category
Assertion
Dimension
Quantity
Person
Family
Society
State
World

Fig. 5.22

5.4.4 Third Dimensional Word Combination

Replacing letters with words in figure 5.17 we get

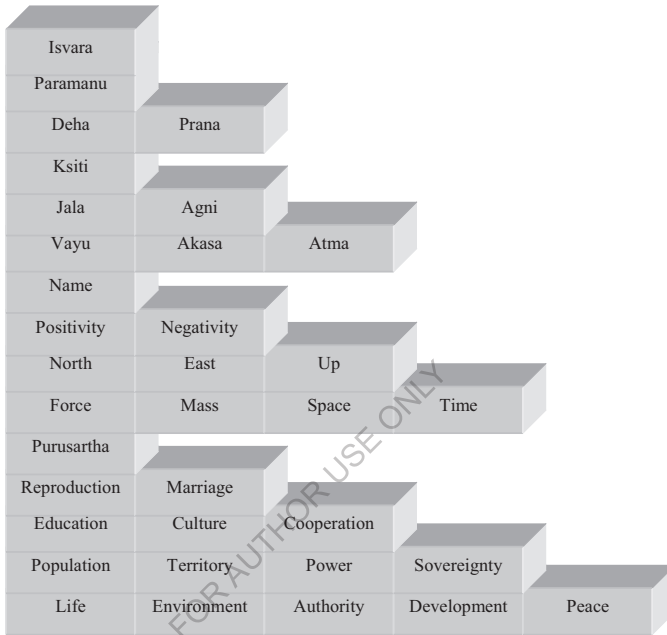


Fig. 5.23

5.4.5 Three Dimensional Word Combination

Replacing letters with words in model of figure 5.18 we get

Purusa	Brahman	Isvara				
Prakrti	Jada	Paramanu				
	Jiva	Deha	Prana			
Jagat	Prithvi	Ksiti				
	Antariksa	Jala	Agni			
	Svarga	Vayu	Akasa	Atma		
Jnana	Category	Name				
	Assertion	Positivity	Negativity			
	Dimension	North	East	Up		
	Quantity	Force	Mass	Space	Time	
Karma	Person	Purusartha				
	Family	Reproduction	Marriage			
	Society	Education	Culture	Cooperation		
	State	Population	Territory	Power	Sovereignty	
	World	Life	Environment	Authority	Development	Peace

Fig. 5.24

Replacing letters with words in model of figure 5.19 we get

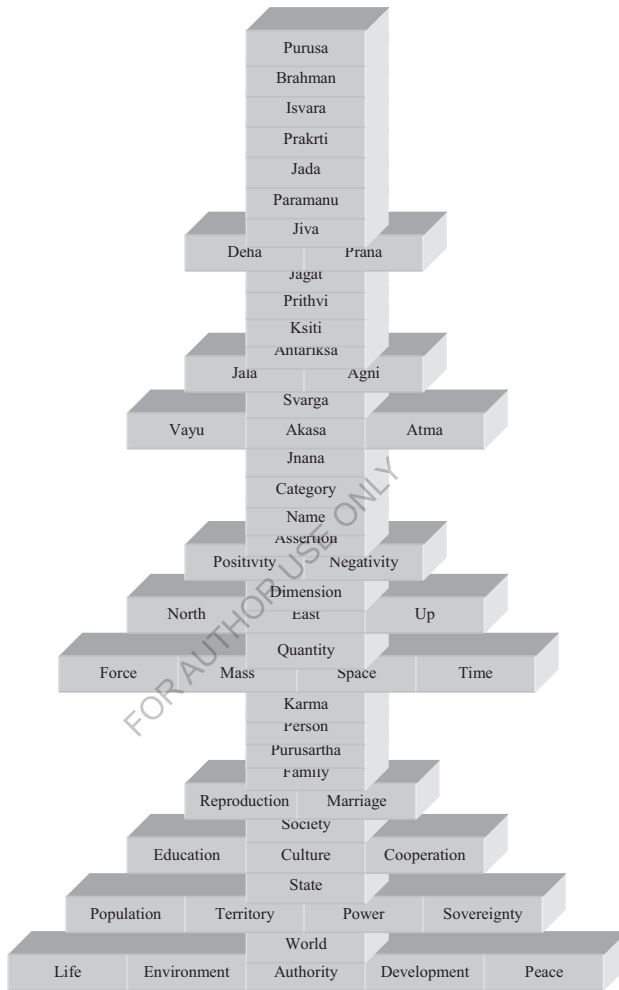


Fig. 5.25

Now divide the figure 5.24 and figure 5.25 according to the light of Panchatattva i.e., Purusa, prakrti, jagat, jnana and karma.

5.4.6 Purusa Based Word Combination



Fig. 5.26

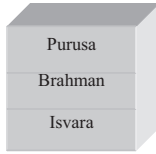


Fig. 5.27

- अ = Purusa
- ई = Brahman
- म = Isvara

5.4.7 Prakrti Based Word Combination

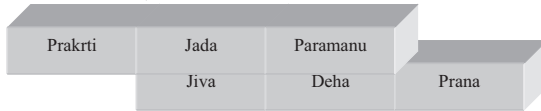


Fig. 5.28

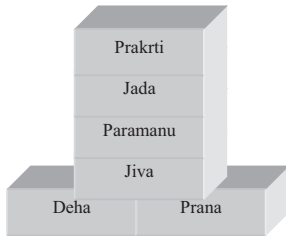


Fig. 5.29

आ = Prakrti
 ज्ञ = Jada
 ज्ञ° = Jiva
 थ = Paramanu
 ग = Deha
 घ = Prana

5.4.8 Jagat Based Word Combination



Fig. 5.30

आ° = Jagat
 थ = Prithvi
 थ = Antariksa
 थ° = Svarga
 उ = Ksiti
 ङ = Jala
 ङ = Agni
 ङ = Vayu
 थ = Akasa
 थ = Atma

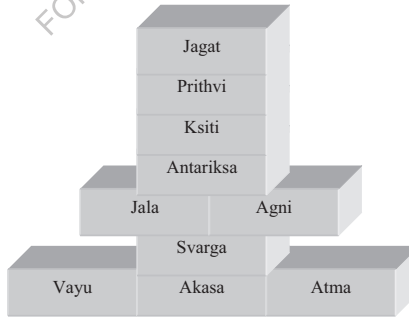


Fig. 5.31

5.4.9 Jnana Based Word Combination

Jnana	Category	Name			
	Assertion	Positivity	Negativity		
	Dimension	North	East	Up	
	Quantity	Force	Mass	Space	Time

Fig. 5.32

- ॐ = Jnana
- ॐ = Category
- ॐ° = Assertion
- ॐ = Dimension
- ॐ° = Quantity
- ॐ = Name
- ॐ = Positivity
- ॐ = Negativity
- ॐ = North
- ॐ = East
- ॐ = Up
- ॐ = Force
- ॐ = Mass
- ॐ = Space
- ॐ = Time

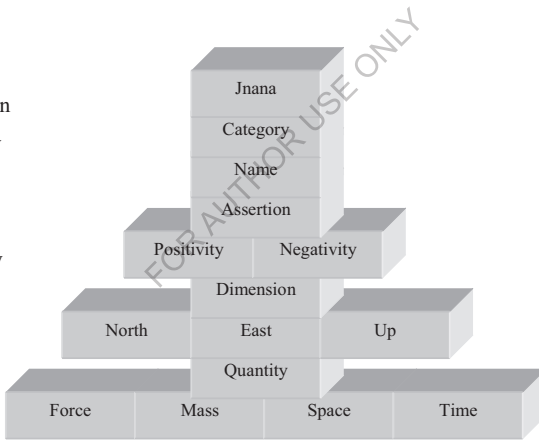


Fig. 5.33

5.4.10 Karma Based Word Combination

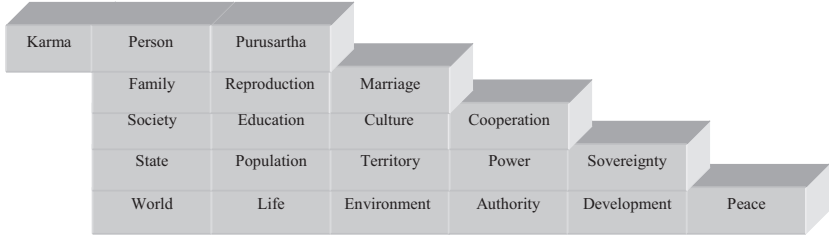


Fig. 5.34

- କ୍ମ = Karma
- ମ୍ମ = Person
- ଓ = Family
- ଓ° = Society
- ଓଓ = State
- ଓଓ° = World
- କ୍ମ = Purusartha
- ମ୍ମ = Reproduction
- ଋ = Marriage
- ବ = Education
- ଭ = Culture
- ସ = Cooperation
- ର = Population
- ଲ = Territory
- ୟ = Power
- ଶ = Sovereignty
- ଷ = Life
- ମ୍ = Environment
- ହ = Authority
- ଂ = Development
- ଃ = Peace

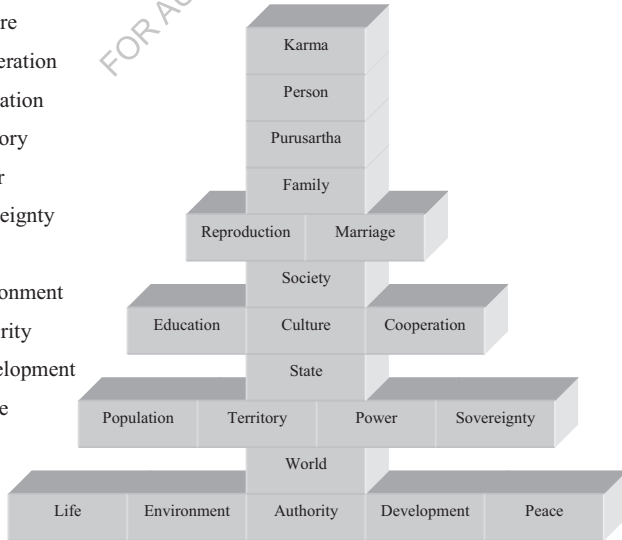


Fig 5.35

5.5 Order Combination

5.5.1 First Dimensional Order Combination

Replacing numbers with letters, words and applying orders in figure 5.1 we get two figures as

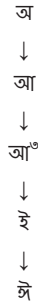


Fig. 5.36



Fig. 5.37

5.5.2 Second Dimensional Order Combination

Replacing numbers with letters, words and applying orders in figure 5.2 we get two figures as

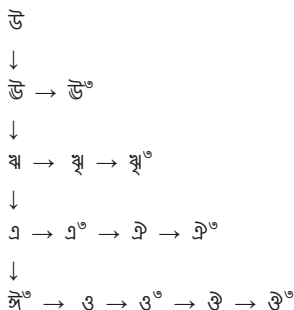


Fig. 5.38

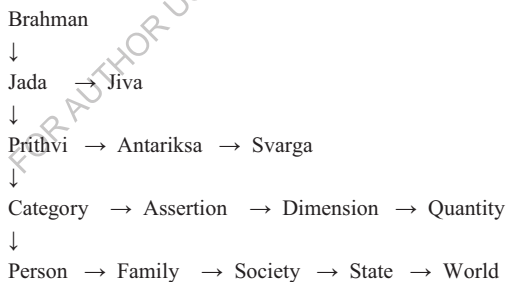
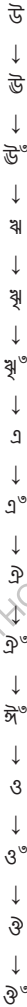


Fig. 5.39

Replacing numbers with letters, words and applying orders in figure 5.3 we get two figures as



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Fig. 5.40

Brahman



Jada



Jiva



Prithvi



Antariksa



Svarga



Category



Assertion



Dimension



Quantity



Person



Family



Society



State



World

Fig. 5.41

5.5.3 Third Dimensional Order Combination

Replacing numbers with letters, words and applying orders in figure 5.4 we get two figures as

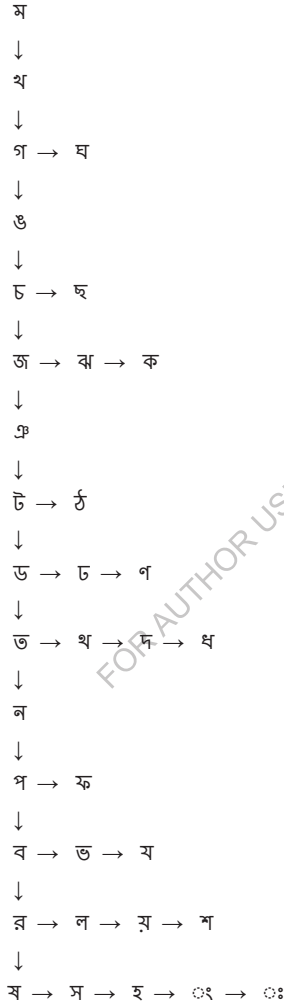


Fig. 5.42

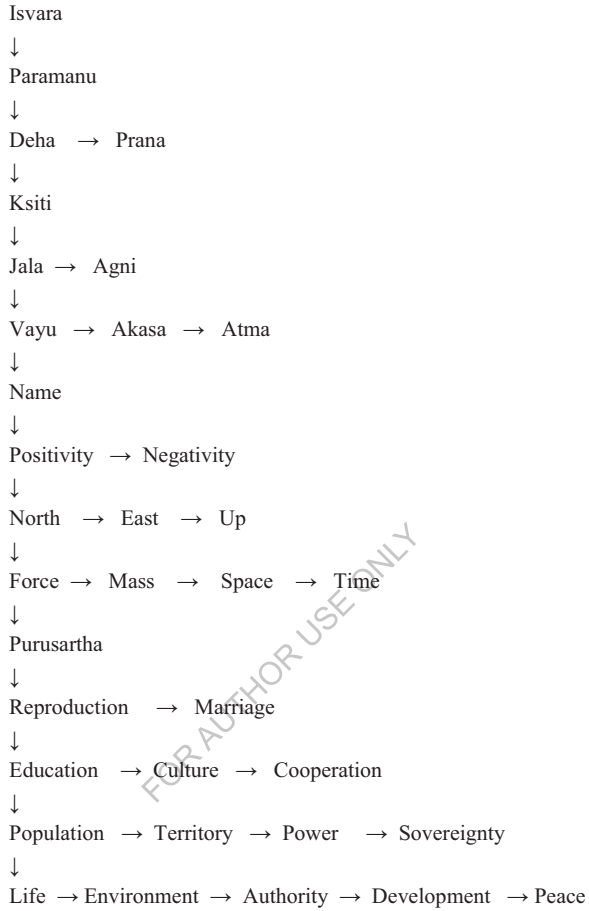


Fig. 5.43

5.5.4 Three Dimensional Order Combination

Replacing numbers with letters, words and applying orders in the model of figure 5.5 we get two figures as

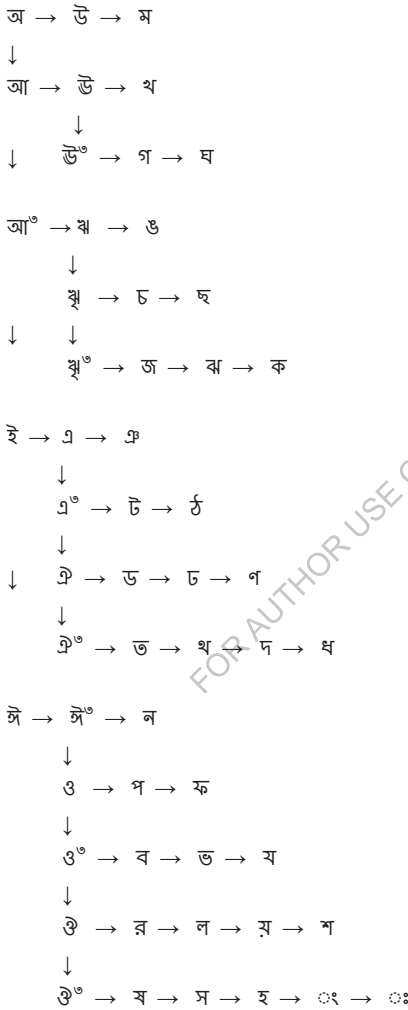


Fig. 5.44



Fig. 5.45

Replacing numbers with letters, words and applying orders in the model of figure 5.6 we get two figures as

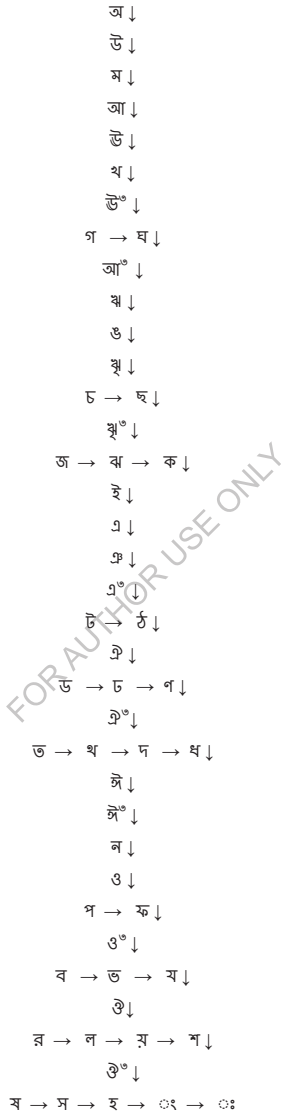


Fig. 5.46

Purusa ↓
 Brahman ↓
 Isvara ↓
 Prakrti ↓
 Jada ↓
 Paramanu ↓
 Jiva ↓
 Deha → Prana ↓
 Jagat ↓
 Prithvi ↓
 Ksiti ↓
 Antariksa ↓
 Jala → Agni ↓
 Svarga ↓
 Vayu → Akasa → Atma ↓
 Jnana ↓
 Category ↓
 Name ↓
 Assertion ↓
 Positivity → Negativity ↓
 Dimension ↓
 North → East → Up ↓
 Quantity ↓
 Force → Mass → Space → Time ↓
 Karma ↓
 Person ↓
 Purusartha ↓
 Family ↓
 Reproduction → Marriage ↓
 Society ↓
 Education → Culture → Cooperation ↓
 State ↓
 Population → Territory → Power → Sovereignty ↓
 World ↓
 Life → Environment → Authority → Development → Peace

Fig. 5.47

Now divide the four figures 5.44, 5.45, 5.46 and 5.47 according to the light of panchatattva i.e., Purusa, prakrti, jagat, jnana and karma.

5.5.5 Purusa Based Order Combination

अ → उ → म

Fig. 5.48

अ ↓
उ ↓
म ↓

Fig. 5.49

Purusua → Brahman → Isvara

Fig. 5.50

Purusa ↓
Brahman ↓
Isvara ↓

Fig. 5.51

5.5.6 Prakrti Based Order Combination

आ → उ → थ

↓
उ° → ग → घ

Fig. 5.52

आ ↓
उ ↓
थ ↓
उ° ↓
ग → घ

Fig. 5.53

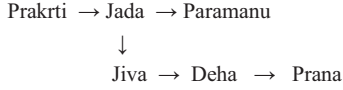


Fig. 5.54

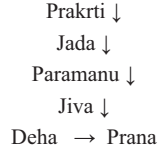


Fig. 5.55

5.5.7 Jagat Based Order Combination

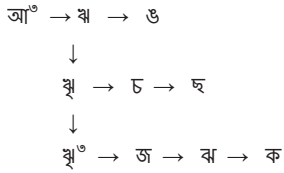


Fig. 5.56

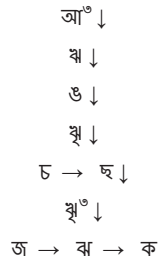


Fig. 5.57

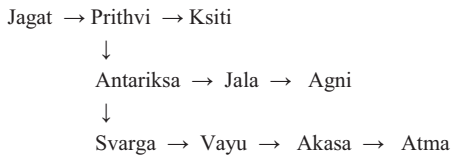


Fig. 5.58



Fig. 5.59

5.5.8 Jnana Based Order Combination

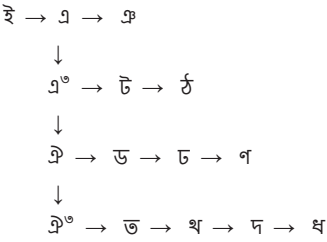


Fig. 5.60

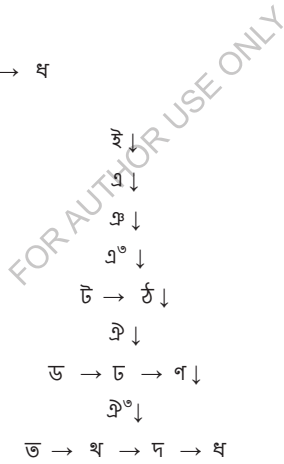


Fig. 5.61

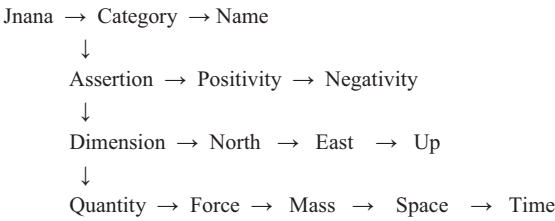


Fig. 5.62

Jnana ↓
 Category ↓
 Name ↓
 Assertion ↓
 Positivity → Negativity ↓
 Dimension ↓
 North → East → Up ↓
 Quantity ↓
 Force → Mass → Space → Time

Fig. 5.63

5.5.9 Karma Based Order Combination

ঙ্গ → ঙ্গ° → ন
 ↓
 ও → প → ফ
 ↓
 ও° → ব → ভ → য
 ↓
 ঔ → র → ল → য় → শ
 ↓
 ঔ° → ষ → স → হ → ং → ঃ

Fig. 5.64

ঙ্গ ↓
 ঙ্গ° ↓
 হ ↓
 ও ↓
 প → ফ ↓
 ও° ↓
 ব → ভ → য ↓
 ঔ ↓
 র → ল → য় → শ ↓
 ঔ° ↓
 ষ → স → হ → ং → ঃ

Fig. 5.65

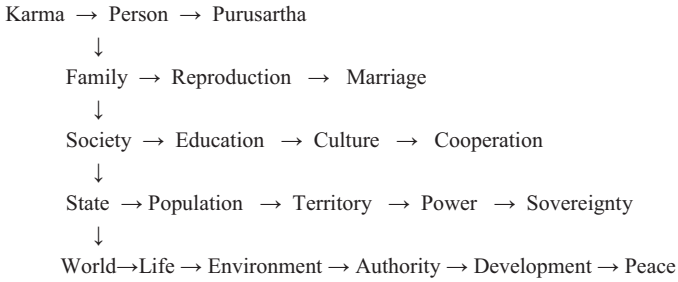


Fig. 5.66

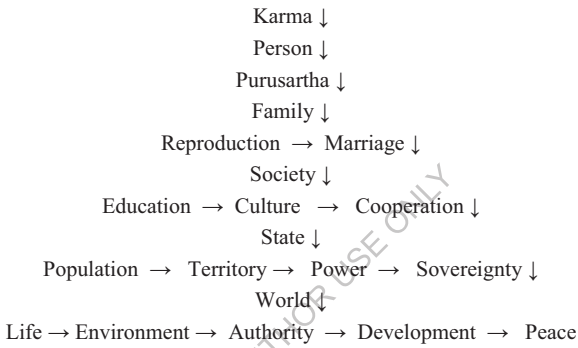


Fig. 5.67

5.5.10 Necessary Order Introduction

We draw a three dimensional figure marking with cause as ↓, relation as ↘ and rule as ⇒.

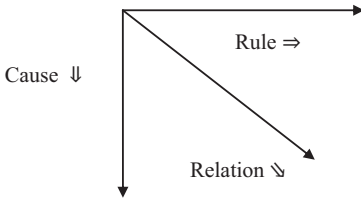


Fig. 5.68

Making the Generancy model it is considered letter as bricks, cause as rod, relation as sand and rule as cement. The Generancy model is made by letter, cause, relation and rule. It is considered the Generancy statue when aum ॐ is on top of the Generancy model.

5.5.11 Precise First Dimensional Order Combination

Combining the figures 5.36 and 5.37 and applying cause mark ↓ we get,

अ (Purusa)

↓

आ (Prakrti)

↓

आ° (Jagat)

↓

इ (Jnana)

↓

ऐ (Karma)

Fig. 5.69

Divide the figure 5.69 according to panchatattva and get four decisions.

Decision 5.11.1 Purusa is the cause, prakrti is the effect.

अ (Purusa)

↓

आ (Prakrti)

Decision 5.11.2 Prakrti is the cause, jagat is the effect i.e., Purusa and prakrti are the cause, jagat is the effect.

आ (Prakrti)

↓

आ° (Jagat)

Decision 5.11.3 Jagat is the cause, jnana is the effect i.e., Purusa, prakrti and jagat are the cause, jnana is the effect.

आ° (Jagat)

↓

इ (Jnana)

Decision 5.11.4 Jnana is the cause, karma is the effect i.e., Purusa, prakrti, jagat and jnana are the cause, karma is the effect.

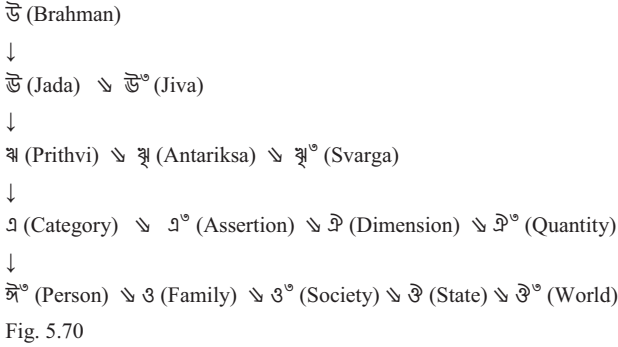
इ (Jnana)

↓

ऐ (Karma)

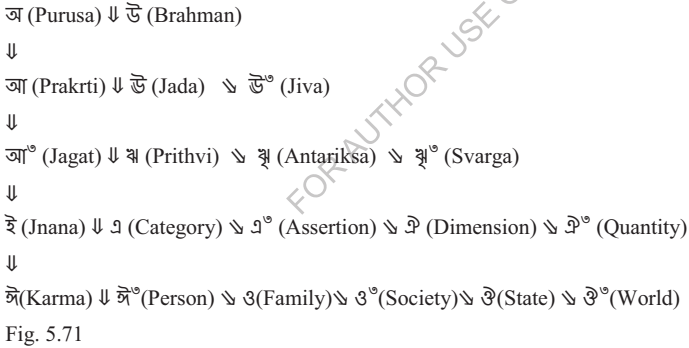
5.5.12 Precise Second Dimensional Order Combination

Combining the figures 5.38 and 5.39 and applying relation mark ∽ we get,



5.5.13 Precise Two Dimensional Order Combination

Now combining the figures 5.69 and 5.70 we get,



Divide the figure 5.71 according to panchatattva and get five decisions.

Decision 5.13.1 Brahman and Brahman related. Purusa is the cause of Brahman.

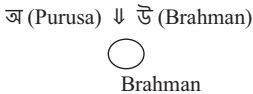


Fig. 5.72

The figure can be explained as Brahman is related to Brahman i.e., Brahman is in Brahman. Purusa is the cause of Brahman.

Decision 5.13.2 Jada and jiva are related. Prakrti is the cause of these.

आ (Prakrti) ↓ उ (Jada) ∽ उ° (Jiva)

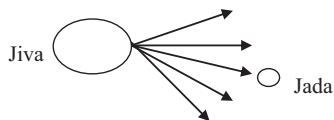


Fig. 5.73

The figure can be explained as jada is in jiva i.e., every jiva contains unlimited jadas. Prakrti constituted with unlimited jivas i.e., prakrti is the cause of these (jiva and jada).

Decision 5.13.3 Prithvi, antariksa and svarga are related. Jagat is the cause of these.

आ° (Jagat) ↓ अ (Prithvi) ∽ अ (Antariksa) ∽ अ° (Svarga)

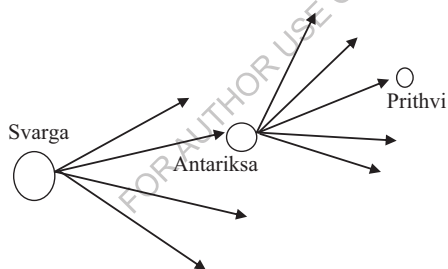


Fig. 5.74

The figure can be explained as antariksa is in svarga and prithvi is in antariksa. More clearly if antariksa is in the position of the sun then the planets are prithvi and the galaxy is svarga. Jagat constituted with unlimited galaxies i.e., jagat is the cause of these (svarga, antariksa and prithvi).

Decision 5.13.4 Category, assertion, dimension and quantity are related. Jnana is the cause of these.

इ (Jnana) ↓ अ (Category) ∽ अ° (Assertion) ∽ अ (Dimension) ∽ अ° (Quantity)

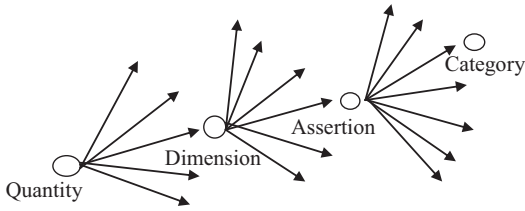


Fig. 5.75

The figure can be explained as dimension is in quantity, Assertion is in dimension and category is in assertion. Jnana constituted with unlimited quantity i.e., jnana is the cause of these (quantity, dimension, assertion and category).

Decision 5.13.5 Person, family, society, state and world are related. Karma is the cause of these.

$$\text{Karma} \downarrow \text{Person} \rightsquigarrow \text{Family} \rightsquigarrow \text{Society} \rightsquigarrow \text{State} \rightsquigarrow \text{World}$$

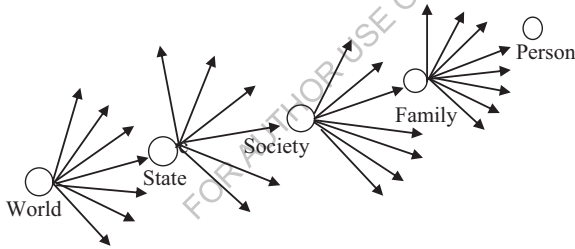


Fig. 5.56

The figure can be explained as state is in world, society is in state, family is in society and person is in family. Karma constituted with unlimited world i.e., karma is the cause of these (world, state, society, family and person).

5.5.14 Precise Third Dimensional Order Combination

Combining the figures 5.42 and 5.43 and applying rule mark \Rightarrow we get,

म (Isvara)

↓

प (Paramanu)

↓

ग (Deha) \Rightarrow व (Prana)

↓

उ (Ksiti)

↓

ज (jala) \Rightarrow ह (Agni)

↓

ज (Vayu) \Rightarrow अ (Akasa) \Rightarrow क (Atma)

↓

प्र (Name)

↓

ट (Positivity) \Rightarrow ठ (Negativity)

↓

ड (North) \Rightarrow ट (East) \Rightarrow ण (Up)

↓

त (Force) \Rightarrow थ (Mass) \Rightarrow द (Space) \Rightarrow ध (Time)

↓

न (Purusartha)

↓

प (Reproduction) \Rightarrow फ (Marriage)

↓

व (Education) \Rightarrow व (Culture) \Rightarrow य (Cooperation)

↓

र (Population) \Rightarrow ल (Territory) \Rightarrow ञ (Power) \Rightarrow श (Security)

↓

स (Life) \Rightarrow म (Environment) \Rightarrow ह (Authority) \Rightarrow ँ (Development) \Rightarrow ः (Peace)

Fig. 5.77

5.5.15 Precise Three Dimensional Order Combination

Combining the figures 5.71 and 5.77 we get the following model

अ (Purusa) ↓ उ (Brahman) ∽ ष (Isvara)

↓

आ (Prakrti) ↓ उ (Jada) ∽ थ (Paramanu)

∽

↓ उ (Jiva) ∽ ग (Deha) ⇒ ष (Prana)

आ (Jagat) ↓ ऋ (Prithvi) ∽ उ (Ksiti)

∽

ॠ (Antariksa) ∽ ङ (Jala) ⇒ च (Agni)

↓

∽

ॡ (Svarga) ∽ ज (Vayu) ⇒ ऋ (Akasa) ⇒ क (Atma)

इ (Jnana) ↓ ए (Category) ∽ इ (Name)

∽

ई (Assertion) ∽ ई (Positivity) ⇒ ई (Negativity)

∽

↓ ई (Dimension) ∽ ड (North) ⇒ ङ (East) ⇒ ण (Up)

∽

ॠ (Quantity) ∽ ङ (Force) ⇒ ॠ (Mass) ⇒ ङ (Space) ⇒ ङ (Time)

ई (Karma) ↓ ई (Person) ∽ न (Purusartha)

∽

उ (Family) ∽ ण (Reproduction) ⇒ ङ (Marriage)

∽

उ (Society) ∽ ष (Education) ⇒ ङ (Culture) ⇒ ष (Cooperation)

∽

उ (State) ∽ ष (Population) ⇒ ङ (Territory) ⇒ ष (Power) ⇒ ष (Sovereignty)

∽

उ (World) ∽ ष (Life) ⇒ ष (Environment) ⇒ ष (Authority) ⇒ ः (Development) ⇒ ः (Peace)

Fig. 5.78

Divide the figure according to panchatattva.

5.5.16 Precise Purusa Based Order Combination

अ (Purusa) ↓ उ (Brahman) ∽ म (Isvara)

Fig. 5.79

We get two decisions from the figure 5.79.

Decision 5.16.1 We get Isvara at point rule. Brahman is related to Isvara.



Fig. 5.80

We get one law from point rule.

Law 5.1.1 म (Isvara) = म (Isvara)

Explanation of the law is Isvara merely equal to Isvara.

Decision 5.16.2 Brahman and Brahman related. Purusa is the cause of Brahman.



Fig. 5.81

5.5.17 Precise Prakrti Based Order Combination

आ (Prakrti) ↓ उ (Jada) ∽ थ (Paramanu)
 ∽
 उ° (Jiva) ∽ ग (Deha) ⇒ घ (Prana)

Fig. 5.82

We get three decisions from the figure 5.82.

Decision 5.17.1 Paramanu follows the point rule. Jada is related to paramanu.



Fig. 5.83

We get one law from point rule.

Law 5.1.1 ॐ (Paramanu) = ॐ (Paramanu)

Explanation of the law is paramanu merely equal to paramanu.

Decision 5.17.2 Deha and prana follow the balance rule. Jiva is related to these (deha and prana)



Fig. 5.84

We get one law from balance rule.

Law 5.2.1 ण (Deha) ∝ ष (Prana)

Explanation of the law is deha directly proportional to prana, i.e., deha is as big as prana.

Decision 5.17.3 Jada and jiva are related. Prakrti is the cause of these .



Fig. 5.85

5.5.18 Precise Jagat Based Order Combination

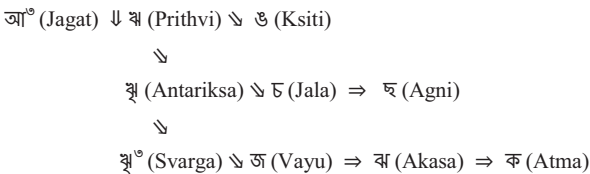


Fig. 5.86

We get four decisions from the figure 5.86 .

Decision 5.18.1 Ksiti follows the point rule. Prithvi is related to ksiti.



Fig. 5.87

We get one law from point rule.

Law 5.1.1 $\mathfrak{U}(\text{Ksiti}) = \mathfrak{U}(\text{Ksiti})$

Explanation of the law is ksiti merely equal to ksiti.

Decision 5.18.2 Jala and agni follow the balance rule. Antariksa is related to these (jala and agni).



Fig. 5.88

We get one law from balance rule.

Law 5.2.1 $\mathfrak{U}(\text{Jala}) \propto \mathfrak{U}(\text{Agni})$

Explanation of the law is jala directly proportional to agni.

Decision 5.18.3 Vayu, akasa and atma follow the left hand rule. Svarga is related to these (vayu, akasa and atma).

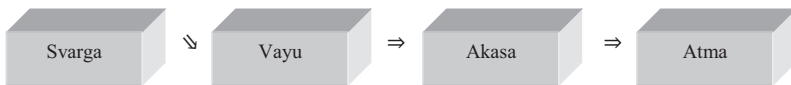


Fig. 5.89

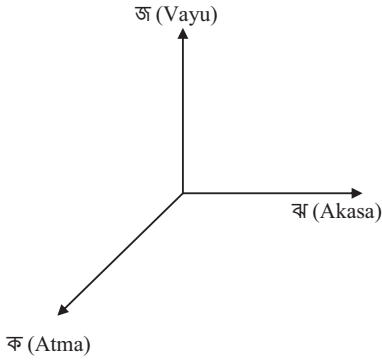


Fig. 5.90

We get three laws from left hand rule.

Law 5.3.1 Keeping ज (Vayu) constant, अ (Akasa) is inversely proportional to क (Atma),

i. e.,

$$\text{अ (Akasa)} \propto 1/\text{क (Atma)}$$

Law 5.3.2 Keeping अ (Akasa) constant, ज (Vayu) is inversely proportional to क (Atma),

i. e.,

$$\text{ज (Vayu)} \propto 1/\text{क (Atma)}$$

Law 5.3.3 Keeping क (Atma) constant, ज (Vayu) is inversely proportional to अ (Akasa),

i. e.,

$$\text{ज (Vayu)} \propto 1/\text{अ (Akasa)}$$

Decision 5.18.4 Prithvi, antariksa and svarga are related. Jagat is the cause of these.

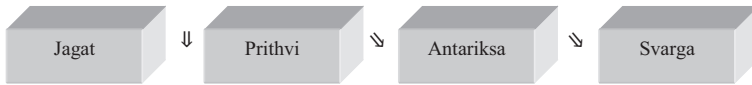


Fig. 5.91

5.5.19 Precise Jnana Based Order Combination

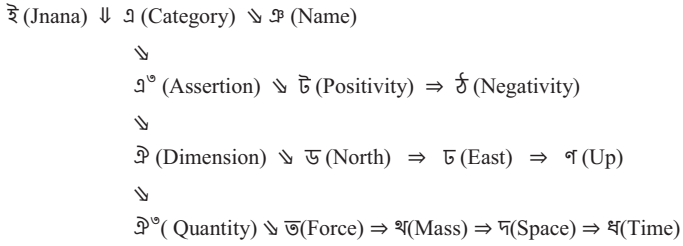


Fig. 5.92

We get five decisions from the figure 5.92.

Decision 5.19.1 Name follows the point rule. Category is related to Name.



Fig. 5.93

We get one law from point rule.

Law 5.1.1 $\text{प्र (Name)} = \text{प्र (Name)}$

Explanation of the law is Name merely equal to Name.

Decision 5.19.2 Positivity and negativity follow the balance rule. Assertion is related to these (positivity and negativity).



Fig. 5.94

We get one law from balance rule.

Law 5.2.1 $\text{द्वि (Positivity)} \propto \text{तृ (Negativity)}$

Explanation of the law is positivity directly proportional to negativity.

Decision 5.19.3 North, east and up follow the left hand rule. Dimension is related to these (north, east and up).

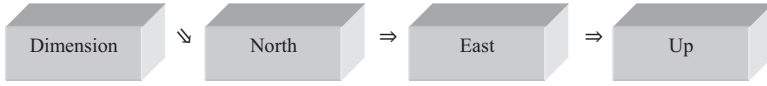


Fig. 5.95

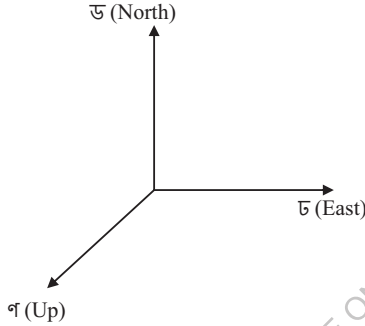


Fig. 5.96

We get three laws from left hand rules.

Law 5.3.1 Keeping $\bar{\chi}$ (North) constant, $\bar{\chi}$ (East) is inversely proportional to $\bar{\chi}$ (Up), i. e., $\bar{\chi}$ (East) \propto $1/\bar{\chi}$ (Up)

Law 5.3.2 Keeping $\bar{\chi}$ (East) constant, $\bar{\chi}$ (North) is inversely proportional to $\bar{\chi}$ (Up), i. e., $\bar{\chi}$ (North) \propto $1/\bar{\chi}$ (Up)

Law 5.3.3 Keeping $\bar{\chi}$ (Up) constant, $\bar{\chi}$ (North) is inversely proportional to $\bar{\chi}$ (East), i. e., $\bar{\chi}$ (North) \propto $1/\bar{\chi}$ (East)

Decision 5.19.4 Force, mass, space and time follow the cross rule. Quantity is related to these (force, mass, space and time).

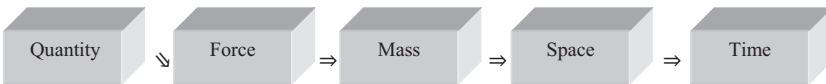


Fig. 5.97

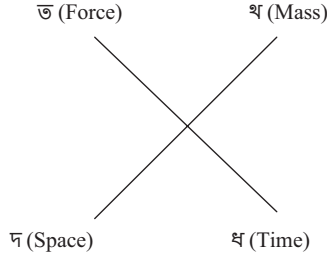


Fig. 5.98

We get six laws from cross rules.

Law 5.4.1 Keeping ଓ (Force) and ଏ (Mass) constant, ଦ (Space) is directly proportional to କ୍ଷ (Time), i. e.,

$$ଦ (\text{Space}) \propto କ୍ଷ (\text{Time})$$

Law 5.4.2 Keeping ଓ (Force) and ଦ (Space) constant, ଏ (Mass) is directly proportional to କ୍ଷ (Time), i. e.,

$$ଏ (\text{Mass}) \propto କ୍ଷ (\text{Time})$$

Law 5.4.3 Keeping ଓ (Force) and କ୍ଷ (Time) constant, ଏ (Mass) is inversely proportional to ଦ (Space), i. e.,

$$ଏ (\text{Mass}) \propto 1/ଦ (\text{Space})$$

Law 5.4.4 Keeping ଏ (Mass) and ଦ (Space) constant, ଓ (Force) is inversely proportional to କ୍ଷ (Time), i. e.,

$$ଓ (\text{Force}) \propto 1/କ୍ଷ (\text{Time})$$

Law 5.4.5 Keeping ଏ (Mass) and କ୍ଷ (Time) constant, ଓ (Force) is directly proportional to ଦ (Space), i. e.,

$$ଓ (\text{Force}) \propto ଦ (\text{Space})$$

Law 5.4.6 Keeping ଦ (Space) and କ୍ଷ (Time) constant, ଓ (Force) is directly proportional to ଏ (Mass), i. e.,

$$ଓ (\text{Force}) \propto ଏ (\text{Mass})$$

Decision 5.19.5 Category, assertion, dimension and quantity are related. Jnana is the cause of these.



Fig. 5.99

5.5.20 Precise Karma Based Order Combination

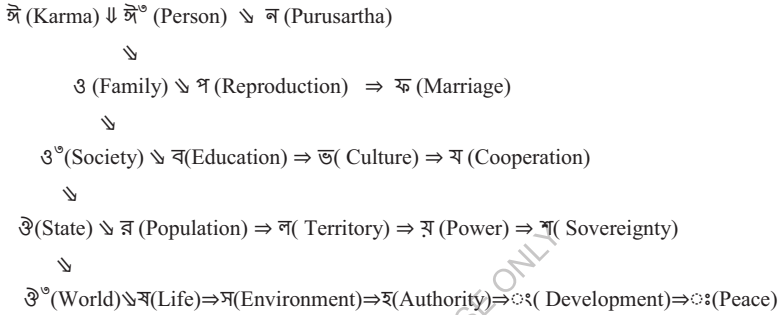


Fig. 5.100

We get six decisions from the figure 5.100.

Decision 5.20.1 Purusartha follows the point rule. Person is related to purusartha.



Fig. 5.101

We get one law from point rule.

Law 5.1.1 (5.1.1) $\text{पुरुषार्थ (Purusartha)} = \text{पुरुषार्थ (Purusartha)}$

Explanation of the law is purusartha merely equal to purusartha.

Decision 5.20.2 Reproduction and Marriage follow the balance rule. Family is related to these (reproduction and marriage).



Fig. 5.102

We get one law from balance rule.

Law 5.2.1 ଶ (Reproduction) \propto ଝ (Marriage)

Explanation of the law is reproduction directly proportional to marriage.

Decision 5.20.3 Education, culture and cooperation follow the left hand rule. Society is related to these (education, culture, cooperation).

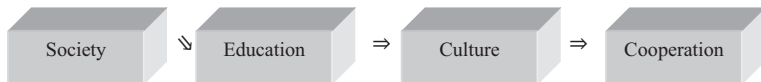


Fig. 5.103

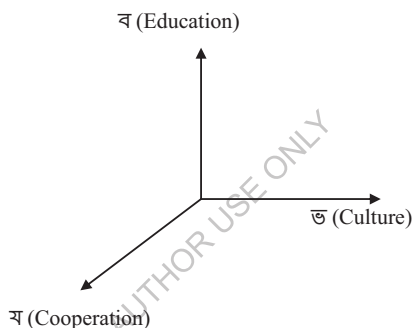


Fig. 5.104

We get three laws from left hand rule.

Law 5.3.1 Keeping ବ (Education) constant, ଭ (Culture) is inversely proportional to ସ (Cooperation), i. e.,

$$\text{ଭ (Culture)} \propto 1/\text{ସ (Cooperation)}.$$

Law 5.3.2 Keeping ଭ (Culture) constant, ବ (Education) is inversely proportional to ସ (Cooperation), i. e.,

$$\text{ବ (Education)} \propto 1/\text{ସ (Cooperation)}$$

Law 5.3.3 Keeping ସ (Cooperation) constant, ବ (Education) is inversely proportional to ଭ (Culture), i. e.,

$$\text{ବ (Education)} \propto 1/\text{ଭ (Culture)}$$

Decision 5.20.4 Population, territory, power and sovereignty follow the cross rule. State is related to these (population, territory, power and sovereignty).



Fig. 5.105

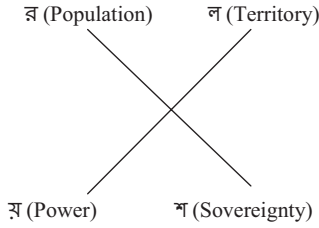


Fig. 5.106

We get six laws from cross rule.

Law 5.4.1 Keeping प (Population) and त (Territory) constant, श (Power) is directly proportional to स (Sovereignty), i. e.,

$$\text{श (Power)} \propto \text{स (Sovereignty)},$$

Law 5.4.2 Keeping प (Population) and श (Power) constant, त (Territory) is directly proportional to स (Sovereignty), i. e.,

$$\text{त (Territory)} \propto \text{स (Sovereignty)}$$

Law 5.4.3 Keeping प (Population) and स (Sovereignty) constant, त (Territory) is inversely proportional to श (Power), i. e.,

$$\text{त (Territory)} \propto 1/\text{श (Power)}$$

Law 5.4.4 Keeping त (Territory) and श (Power) constant, प (Population) is inversely proportional to स (Sovereignty), i. e.,

$$\text{प (Population)} \propto 1/\text{स (Sovereignty)}$$

Law 5.4.5 Keeping त (Territory) and स (Sovereignty) constant, प (Population) is directly proportional to श (Power), i. e.,

$$\text{प (Population)} \propto \text{श (Power)}$$

Law 5.4.6 Keeping ऋ (Power) and ऋ (Sovereignty) constant, ऋ (Population) is directly proportional to ऋ (Territory), i. e.,

$$\text{ऋ (Population)} \propto \text{ऋ (Territory)}$$

Decision 5.20.5 Life, environment, authority, development and peace follow the symmetrical distribution rule. World is related to these (life, environment, authority, development and peace).

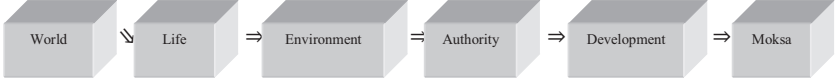


Fig. 5.107

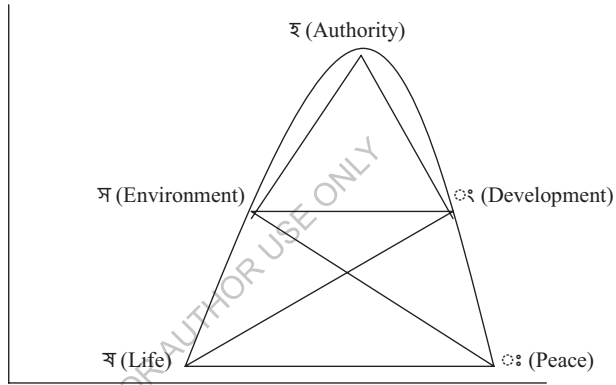


Fig. 5.108

We get ten laws from symmetrical distribution rule.

Law 5.5.1 Keeping ऋ (Life), ऋ (Environment), and ऋ (Authority) constant, ऋ (Development) is directly proportional to ऋ (Peace), i. e.,

$$\text{ऋ (Development)} \propto \text{ऋ (Peace)}$$

Law 5.5.2 Keeping ऋ (Life), ऋ (Environment), and ऋ (Development) constant, ऋ (Authority) is inversely proportional to ऋ (Peace), i. e.,

$$\text{ऋ (Authority)} \propto 1 / \text{ऋ (Peace)}$$

Law 5.5.3 Keeping ऋ (Life), ऋ (Environment), and ऋ (Peace) constant, ऋ (Authority) is inversely proportional to ऋ (Development), i. e.,

$$\text{ऋ (Authority)} \propto 1 / \text{ऋ (Development)}$$

Law 5.5.4 Keeping ष (Life), ह (Authority) and ं (Development) constant, ढ (Environment) is inversely proportional to ः (Peace), i. e.,

$$\text{ढ (Environment)} \propto 1 / \text{ः (Peace)}$$

Law 5.5.5 Keeping ष (Life), ह (Authority) and ः (Peace) constant, ढ (Environment) is directly proportional to ं (Development), i. e.,

$$\text{ढ (Environment)} \propto \text{ं (Development)}$$

Law 5.5.6 Keeping ष (Life), ं (Development) and ः (Peace) constant, ढ (Environment) is inversely proportional to ह (Authority), i. e.,

$$\text{ढ (Environment)} \propto 1 / \text{ह (Authority)}$$

Law 5.5.7 Keeping ढ (Environment), ह (Authority) and ं (Development) constant, ष (Life) is directly proportional to ः (Peace), i. e.,

$$\text{ष (Life)} \propto \text{ः (Peace)}$$

Law 5.5.8 Keeping ढ (Environment), ह (Authority) and ः (Peace) constant, ष (Life) is inversely proportional to ं (Development), i. e.,

$$\text{ष (Life)} \propto 1 / \text{ं (Development)}$$

Law 5.5.9 Keeping ढ (Environment), ं (Development) and ः (Peace) constant, ष (Life) is inversely proportional to ह (Authority), i. e.,

$$\text{ष (Life)} \propto 1 / \text{ह (Authority)}$$

Law 5.5.10 Keeping ह (Authority), ं (Development) and ः (Peace) constant, ष (Life) is directly proportional to ढ (Environment), i. e.,

$$\text{ष (Life)} \propto \text{ढ (Environment)}$$

Decision 5.20.6 Person, family, society, state and world are related. Karma is the cause of these.



Fig. 5.109

CHAPTER 6

Purustattva

6.1 Purusa

6.2 Brahman

6.3 Isvara

6.4 The Vedic Hymns about the Creator

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6.1 Purusa

In the first mantra of Purusa Sukta, Narayan Rishi says,

Om sahasra shirsha purushaha
sahasrakshas sahasrapat
sa bhumim vishvato vritva
atyatishthad dhashangulam

Meaning: Purusa (the Supreme Being) has a thousand heads, a thousand eyes and a thousand feet. He has enveloped this world from all sides and has (even) transcended it by ten angulas or inches.

Note:- This is the first Mantra of the famous Purusa Sukta of the Vedas. Here the transcendent totality of all creation is conceived as the Cosmic Person, the Universal Consciousness animating all manifestation. The word 'earth' is to be understood in the sense of all creation. 'Dasangulam' is interpreted as ten fingers' length, in which case it is said to refer to the distance of the heart from the navel, the former having been accepted as the seat of the atma and the latter symbolic of the root of manifestation. The word ten is also said to mean 'infinity', as numbers are only up to nine and what is above is regarded as numberless.

Let us see what Svetasvatara Upanishad says about Purusa.

These mantras of Svetasvatara Upanishad are taken from 'Svetasvatara Upanishad - Chap 3 The Highest Reality' by T.N.Sethumadhavan (eSamskriti).

Mantra 12

mahan prabhur vai purusah sattvasyaisha pravartakah
sunirmalam imam praptim isano jyotir avyayah

He, indeed, is the great Purusha, all pervasive and all-powerful. He also inspires the mind to attain the state of purity. He is the Supreme Lord, self-luminous and imperishable.

Mantra 13

angusthamatrah puruso ntaratma sada jananam hrdaye samnivistah
hrda manisa manasabhiklpto ya etad vidur amrtas te bhavanti

The Purusha, no bigger than a thumb, is the inner Self, ever seated in the heart of man. He is known by the mind, which controls knowledge and is perceived in the heart. They who know Him become immortal.

Mantra 14

sahasrasirsa purusah sahasraksah sahasrapat
sa bhumim visvato vrtva atyatishthad dasangulam

The Purusha with a thousand heads, a thousand eyes, a thousand feet, compasses the earth on all sides and extends beyond it by ten fingers' breadth.

Mantra 15

purusa evedam sarvam yad bhutam yac ca bhavyam
utamrtatvasyesano yad annenatirohati

The Purusha alone is all this-what has been and what will be. He is also the Lord of Immortality and of whatever grows by food.

Mantra 16

sarvatahpanipadam tat sarvato ksisirumukham
sarvatahsrutimal loke sarvam avrtya tisthati

His hands and feet are everywhere; His eyes, heads and faces are everywhere; His ears are everywhere; He exists compassing all.

Purusa is a tattva (theory). There is one akara (forms) of this tattva. This akara is Brahman.



Fig. 6.1

In the earliest Vedas, Purusa was a cosmic man, whose sacrifice by the gods created the whole of life. In the Upanishads the concept of Purusa was developed to convey an abstract universal significance, the eternal, indestructible, omnipresent universal principle of self and soul. Although various schools of Indian philosophy have different views on the definition, scope and nature, many of them agree that it is everything and connects everyone.

We get the figure 5.79 by presenting it differently.

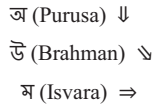


Fig. 6.2

We get two decisions from the figure.

Decision 6.1.1 We get Isvara at point rule. Brahman is related to Isvara.

ॐ (Brahman) ⇨ ऋ (Isvara)

Decision 6.1.2 Brahman and Brahman related. Purusa is the cause of Brahman.

अ (Purusa) ⇨ ॐ (Brahman) ⇨

6.2 Brahman

Brahman is the akara (form) of the tattva (theory) named Purusa. Isvara is the upakarana (component) of Brahman.

We find following by rewriting the figure 5.79

अ (Purusa) ↓ उ (Brahman) ∞ ऋ (Isvara)
Tattva Akara Upakarana

Fig. 6.3

It is said in the Brahmasutra, 'janmady asya yatah'. Janmady- origin etc. Birth, subsistence and dissolution. Asya- Of this world. This is the visible world phenomenon. Yatah- From which. From which birth, subsistence and dissolution of this visible world occur is He i.e., Brahman. Brahman is the truth, the knowledge and the infinite. Satyam jnanam anantam brahma (real, consciousness, infinite) is the svarupa lakshana of Brahman. Svarupa lakshana means definition as is. The identity that mentions about the universe with Him is tatastha lakshana. Tatastha lakshana means definition by indication. Brahman is not jivatma (individual self), He is Paramatma (supreme self). Srimad Bhagavatam mentions,

'Janmady asya yatah anvayad itaratas carthesv abhijnah svarat tene brahma hrda ya adikavaye muhyanti yat surayah tejo-vari-mrdam yatha vinimayo yatra tri-sargo 'mrsa dhamna svena sada nirasta-kuhakam satyam param dhimahi'

'I meditate upon Lord Sri Krishna because He is the Absolute Truth and the primeval cause of all causes of creation, sustenance and destruction on the manifested universes. He is directly and indirectly conscious of all manifestations and He is independent because there is no other cause beyond Him. It is He only who first imparted the Vedic knowledge unto the heart of Brahmaji, the original living being. By Him even the great sages and demigods are placed into illusion, as one is bewildered by the illusory representations of water seen in fire, or land seen on water. Only because of Him do the material universes, temporarily manifested by the reactions of the three modes of nature, appear factual, although they are unreal. I therefore meditate upon Him, Lord Sri Krishna, who is eternally existent in the transcendental abode, which is forever free from the illusory representations of the material world. I meditate upon Him, for He is the Absolute Truth.'

(The above paragraph is cited from the article 'Ten Subjects of Srimad-Bhagavatam').

Brahman is eternal, pure, free and Buddha. There are two variants of Brahman mentioned in the Upanishads, namely Parabrahman and Aparabrahman. Parabrahman is nirvisesa (indeterminate), nirguna (without character) Brahman and Aparabrahman is savisesa (determinate), saguna (with character) Brahman. Brahman is nirupadhi (free from passions or attachment). He has no bheda (difference). He is niravayava (devoid of parts). Brahman is visvagata (omnipresent) and visvatita (all surpassing).

Now from the decision 6.1.2 we get

Brahman and Brahman related. Purusa is the cause of Brahman.

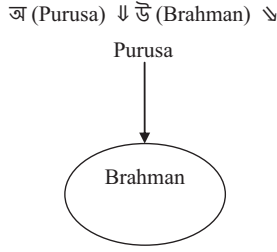


Fig. 6.4

6.2.1 Karana Brahman and Karya Brahman

Before creation, living beings and inanimate beings reside in Brahman unevolved (avyakta). This state is called the state of dissolution (pralaya) when Brahman is in causal condition (karanavastha). Then there is no difference in nama (name) and rupa (form). In this state Brahman is called Karana Brahman. When Brahman emerges as living beings and an inanimate beings after creation, this state of Brahman is called effect condition (karyavastha). Then this state of Brahman is called Karya Brahman.

6.2.2 Nirguna Brahman and Saguna Brahman

Nirguna Brahman means the Absolute without qualities or gunas. It implies the Absolute as pure consciousness having no name, form or attributes. He is nirvisesa or indeterminate, because He is perfectly formless, qualityless and distinctionless. Parabrahman (Supreme Reality) is nirvisesa (indeterminate) and nirguna (without character) Brahman. Nirvikalpa Samadhi reveals the Nirguna nature of Brahman.

Saguna Brahman means the Absolute with qualities or gunas. It implies God having forms and attributes. Brahman is the base of all virtues. He is savisesa or determinate, because everything special is emanating from him. Aparabrahman is savisesa (determinate) and saguna (with character) Brahman. Savikalpa Samadhi reveals the Saguna nature of Brahman. When Brahman manifests itself into Paramatma (the supreme soul) then creates the three gunas and yogmaya that create the universe. The gunas are

Rajas Guna: Force of Creation => Brahma

Sattva Guna: Force of Sustenance => Vishnu

Tamas Guna: Force of Dissolution => Shiva

Yogmaya or maya is the force of illusion that covers all the creation. God descends as an avatara (incarnation) when the repression of evil and the upbringing of discipline are needed. This is said in the Srimad Bhagavad Gita Chapter 4- Verses 7 and 8.

Yada yada hi dharmasya glanir bhavati bhārata I

Abhyuktanam adharmasya tadatmanam srijamyaham II (sloka 7)

O Bharata, whenever there is decline of righteousness (dharma) and rise of evil (adharm), I manifest Myself.

6.3 Isvara

The word 'Isvara' comes from the Sanskrit root 'is' which means owner, ruler, etc. and 'vara' which means best, beautiful, choice, etc. So the composite word 'Isvara' literally means owner of best, ruler of choices, etc.

Isa Upanishad in hymn 1.5-7, states Isvara is 'above everything, outside everything, beyond everything, yet also within everything'; he who knows himself as all beings and all beings as himself– he never becomes alarmed before anyone. He becomes free from fears, from delusions, from root cause of evil. He becomes pure, invulnerable, unified, free from evil, true to truth, liberated like Isvara.

Purusa is tattva, Brahman is akara and Isvara is upakarana. Isvara is sat (ultimate being), cit (pure consciousness) and ananda (perfect bliss) as a substance. Saguna Brahman is Isvara (God). God is omniscient, omnipotent and active.

To discuss the controlling power of the universe, two doctrines have to be mentioned first. These two doctrines are niresvaravada (atheism) and sesvaravada (theism). Atheism is to disbelieve in the existence of God. Theism is to believe in the existence of God. The doctrine that holds a negative view of the controlling power of the universe is called niresvaravada. Again the doctrine that holds a positive view of the controlling power of the universe is called sesvaravada. God is believed to have no existence in niresvaravada. On the other hand, God is believed to be present in sesvaravada. God can be discussed in terms of dravya (substance), guna (quality) and karma (action). Four doctrines can be mentioned about this. These four doctrines are akatvavada, visistavada, vahutvavada and ansatvavada.

6.3.1 Akatvavada

The word 'akatvavada' comes from the words 'akatva' means oneness and 'vada' means theory. The doctrine according to which the controlling power of the universe is considered to be the one is called akatvavada (monotheism). Believers of this doctrine think that God is one and that He is the holder and bearer of everything in the universe. According to this doctrine, God alone controls this universe. He is not bound by any distinction. His guna (quality) is sunya (void) and karma (action) is niscala (static). Nirguna Brahman is the power that controls the universe described in monotheism. This controlling power is nirvisesa that is devoid of variety. All visesas (varieties) are implicit to him.

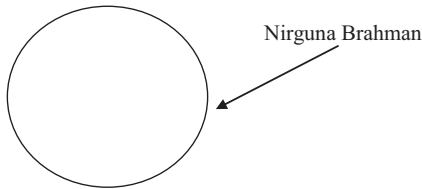


Fig. 6.7

6.3.2 Visistavada

The word 'visistavada' comes from the words 'visista' means distinguished and 'vada' means theory. The doctrine according to which the controlling power of the universe is one

but all visesas (varieties) is considered to be with him is called visistavada. Believers in this doctrine also think that God is one and He is the holder and bearer of everything in the universe. According to this doctrine He alone controls this universe. His guna (quality) is purna (full) and karma (action) is sacala (moving). The controlling power described in visistavada is Saguna Brahman. This controlling power is savisesa that is having varieties.

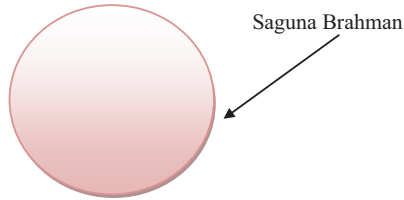


Fig. 6.8

6.3.3 Vahutvavada

The word 'vahutvavada' comes from the two words 'vahutva' and 'vada' where 'vahutva' means plurality and 'vada' means theory. The doctrine according to which the controlling power of the universe is one, but through many. He controls everything in the universe. This is called vahutvavada. Believers in this doctrine think that God is one, but He has many vibhuti (glorious forms). Different deities are the vibhuti of God. He is born as an avatara (incarnation) in the universe to destroy the wicked and to protect the gentlemen. The quality of the power that controls the universe described in this doctrine is vrhat (large) and action is bistirna (broad).

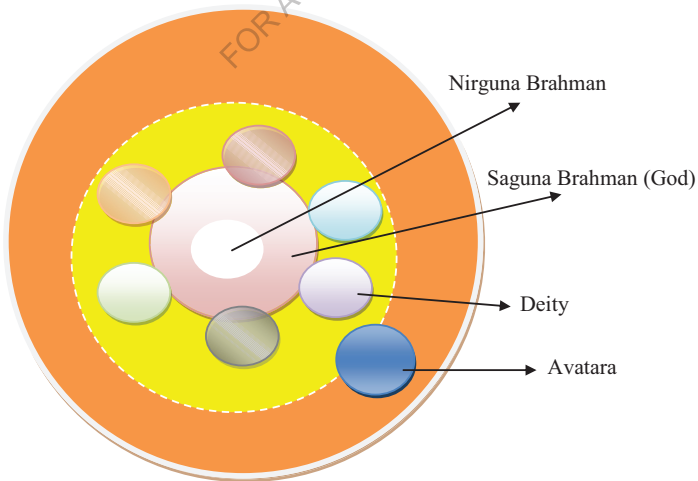


Fig. 6.9

6.3.4 Ansatvavada

The word ‘ansatvavada’ comes from the two words ‘ansatva’ and ‘vada’, where ‘ansatva’ means partially and ‘vada’ means theory. The doctrine that the controlling power of the universe is one but that it controls the universe through its parts is called ansatvavada. In this doctrine any deity or incarnation is placed in the seat of God. The quality of the power that controls the universe described in this doctrine is ksudra (small) and action is sankirna (narrow).

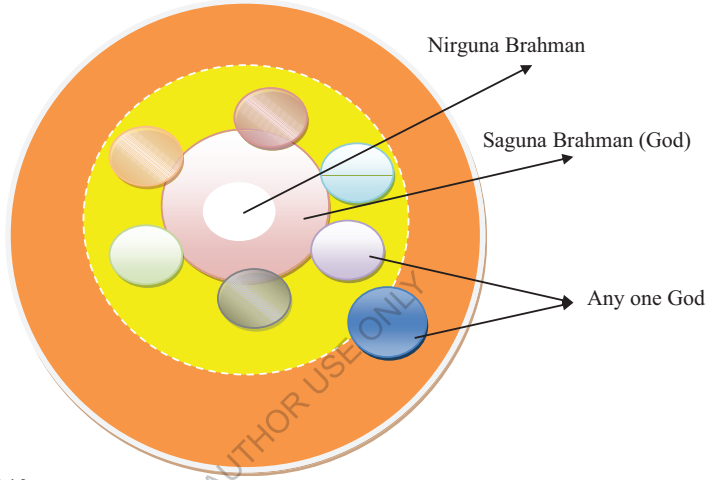


Fig. 6.10

The doctrines concerning the power that controls the universe are shown in the classification below.

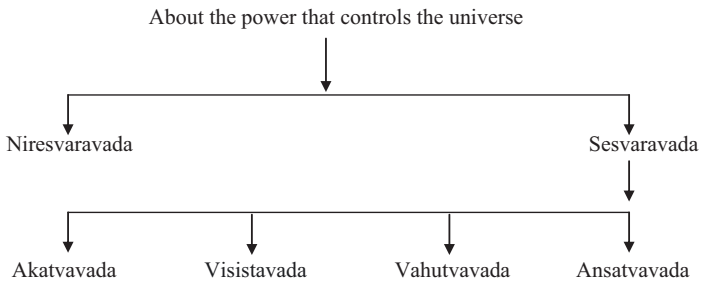


Fig. 6.11

The doctrines mentioned in Sesvaravada are shown in the following table in terms of dravya, guna and karma.

Doctrines	Dravya (substance)	Guna (quality)	Karma (action)
Akatvavada	Aka (one)	Sunya (void)	Niscala (static)
Visistavada	Visesa (variety)	Purna (full)	Sacala (moving)
Vahutvavada	Vahu (many)	Vrhat (large)	Bistirna (broad)
Ansavavada	Ansa (part)	Ksudra (small)	Sankirna (narrow)

Tab. 6.1

Notice the figure below in the light of the dravya (substance) of padarthas (Categories).

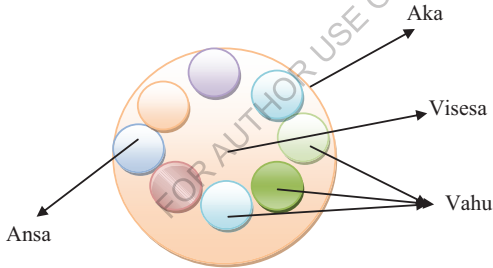


Fig. 6.12

The following inequality is found from the figure above.

$$\text{Aka} \geq \text{Visesa} > \text{Vahu} > \text{Ansa}$$

Notice the figure below in the light of the guna (quality) of padarthas (Categories).

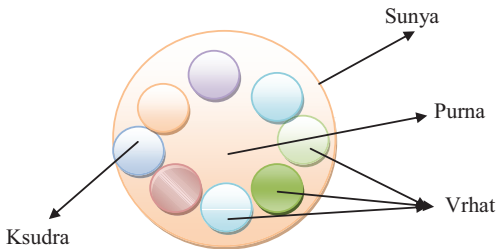


Fig. 6.13

The following inequality is found from the figure above.

$$\text{Sunya} \geq \text{Purna} > \text{Vrhat} > \text{Ksudra}$$

Notice the figure below in the light of the karma (action) of padarthas (Categories).

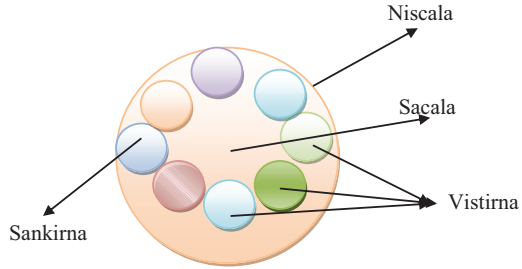


Fig. 6.14

The following inequality is found from the figure above.

$$\text{Niscala} \geq \text{Sacala} > \text{Vistirna} > \text{Sankirna}$$

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6.4 Some Vedic hymns about the Creator

6.4.1 Purusa Sukta

Purusa Sukta is a hymn of the Rigveda, (RV10:90) dedicated to the Purusa, the 'Cosmic Being'. It is also found in the Shukla Yajurveda Samhita and Atharva Veda Samhita. There are 16 verses in a version of Purusa Sukta, of which the first 15 are in Anushtubh Chandas and the last verse is in Tristubh Chandas. Another version of this hymn contains 24 verses where the first 18 mantras are as First Anuvaaka and the last 6 mantras are as Second Anuvaaka. In the present chapter I have mentioned the next version. The seer of the Sukta is Narayana Rishi. This Purusa Suktam is taken from the site <https://www.indiadinvine.org>, by the Bhaktivedanta Ashram.

First Anuvaaka

Text one

The Purusha has thousand heads,
He has thousand eyes,
He has thousand feet,
He is spread all over the universe,
And is beyond the count with ten fingers.

Text two

This Purusha is all the past,
All the future and the present,
He is the lord of deathlessness,
And he rises from hiding,
From this universe of food.

Text three

This Purusha is much greater,
Than all his greatness in what all we see,
And all that we see in this universe is but his quarter,
And the rest three quarters which is beyond destruction,
Is safely in the worlds beyond.

Text four

Above this world is three quarters of Purusha,
But the quarter, which is in this world,
Appears again and again,
And from that is born the beings that take food,
And those inanimate ones that don't take food.
And all these appeared for every one of us to see.

Text five

From that Purusha was born,
The scintillating, ever shining universe,
And from that was born the Purusha called Brahma,
And he spread himself everywhere,
And created the earth and then,
The bodies of all beings.

Text six

The spring was the ghee,
The summer was the holy wooden sticks,
And the winter the sacrificial offering,
Used or the sacrifice conducted by Devas through thought,
In which they also sacrificed the ever-shining Purusha.

Text seven

Seven meters were its boundaries,
Twenty one principles were holy wooden sticks,
And Devas carried out the sacrifice,
And Brahma was made as the sacrificial cow.

Text eight

Sprinkled they the Purusha,
Who was born first,
On that sacrificial fire.
And the sacrifice was conducted further,
By the Devas called Sadyas,
And the sages who were there.

Text nine

From this sacrifice called "All embracing".
Curd and Ghee came out,
Animals meant for fire sacrifice were born,
Birds that travel in air were born,
Beasts of the forest were born,
And also born were those that live in villages

Text ten

From this sacrifice called "All embracing"
The chants of Rig Veda were born,
The chants of Sama Veda were born,
And from that the well-known meters were born,

And from that Yajur Veda was born.

Text eleven

From that the horses came out,
From that came out animals with one row of teeth,
From that came out cows with two rows of teeth,
And from that that came out sheep and goats.

Text twelve

When the Purusha was made
By their thought process by the Devas,
How did they make his limbs?
How was his face made?
Who were made as His hands?
Who were made as his thighs and feet?

Text thirteen

His face became Brahmins,
His hands were made as Kshatriyas,
His thighs became Vaisyas,
And from his feet were born the Shudras.

Text fourteen

From his mind was born the moon,
From his eyes was born the sun,
From his face was born Indra and Agni,
And from his soul was born the air.

Text fifteen

From his belly button was born the sky,
From his head was born the heavens,
From his feet was born the earth,
From his ears was born the directions,
And thus was made all the worlds,
Just by his holy wish.

Text sixteen

I know that heroic Purusha, who is famous,
Who shines like a sun,
And who is beyond darkness,
Who created all forms,
Who named all of them,

And who rules over them.

Text seventeen

The learned one who knows that Purusha
Whom the creator, considered as one before Him,
And whom the Indra understood in all directions,
Would attain salvation even in this birth,
And there is no need for him to search for any other path.

Text eighteen

Thus the devas worshipped the Purusha,
Through this spiritual yagna,
And that yagna became first among dharmas.
Those who observe this Yagna,
Would for sure attain,
The heavens occupied by Saadya devas.

Second Anuvaaka

Text nineteen

From water and essence of earth was born,
The all pervading universe.
From the great God who is the creator,
Then appeared that Purusha
And the great God, who made this world,
Is spread as that Purusha, in all fourteen worlds.
And also the great form of Purusha,
Came into being before the start of creation.

Text twenty

I know that great Purusha,
Who shines like the sun,
And is beyond darkness,
And the one who knows him thus,
Attains salvation even in this birth,
And there is no other method of salvation.

Text twenty-one

The Lord of the universe,
Lives inside the universe,
And without being born,
Appears in many forms,
And only the wise realize his real form,

And those who know the Vedas,
Like to do the job of,
Savants like Mareechi.

Text twenty-two
Salutations to ever shining brahman,
Who gave divine power to devas,
Who is a religious teacher of devas,
And who was born before devas.

Text twenty- three
The devas who teach the taste in Brahman,
Told in ancient times,
That. He who has interest in Brahman,
Would have the devas under his control.

Text twenty-four
Hree and Lakshmi are your wives,
Day and night are your right and left,
The constellation of stars your body,
And Aswini devas your open mouth.
Give us the knowledge that we want,
Give us the pleasures of this world,
And give us everything of this and other worlds.

Shanthi Pata
Request we from you with all enthusiasm,
For the good deeds that are medicine,
For the sadness of the past and future,
Request we for the growth of fire sacrifices,
Request that only good should occur,
To the one who presides over such sacrifices,
Request we for the mercy of gods to man,
Request we for good to the community of men,
Request we that the herbs and plants,
Should grow taller towards the skies.
Request we for good for all two legged beings,
Request we for good to all four legged beings,
Request we for peace, peace and peace.

6.4.2 Nasadiya Sukta

The Nasadiya Sukta is a hymn from the Rig Veda (RV 10:129). This sukta is taken from the site [https:// www.swami-krishnananda.org](https://www.swami-krishnananda.org).

Rishi- Prajapati

Devata- Paramatma

Chandas- Tristubh

Text one

Then even nothingness was not, nor existence,
There was no air then, nor the heavens beyond it.
What covered it? Where was it? In whose keeping?
Was there then cosmic water, in depths unfathomed?

Text two

Then there was neither death nor immortality
Nor was there then the torch of night and day.
The One breathed windlessly and self-sustaining.
There was that One then, and there was no other.

Text three

At first there was only darkness wrapped in darkness.
All this was only unilluminated water.
That One which came to be, enclosed in nothing,
arose at last, born of the power of heat.

Text four

In the beginning desire descended on it.
That was the primal seed, born of the mind.
The sages who have searched their hearts with wisdom
know that which is kin to that which is not.

Text five

And they have stretched their cord across the void,
and know what was above, and what below.
Seminal powers made fertile mighty forces.
Below was strength, and over it was impulse.

Text six

But, after all, who knows, and who can say
Whence it all came, and how creation happened?
The gods themselves are later than creation,

so who knows truly whence it has arisen?

Text seven

Whence all creation had its origin,
he, whether he fashioned it or whether he did not,
he, who surveys it all from highest heaven,
he knows - or maybe even he does not know.

6.4.3 Hiranyagarbha Sukta

The Hiranyagarbha Sukta is a hymn from the Rig Veda (RV 10:121). Hiranyagarbha literally means the 'golden womb'. It praises the creator, his creations and his treasures. This sukta is taken from the site [https:// www.hinduism.stackexchange.com](https://www.hinduism.stackexchange.com).

Rishi- Hiranyagarbha Prajapatya

Devata- Kah (Prajapati)

Chandas- Tristubh

Text one

In the beginning was the Divinity in his splendour, manifested as the sole Lord of land, skies, water, space and that beneath and He upheld the earth and the heavens. Who is the deity we shall worship with our offerings?

Text two

It is He who bestows soul-force and vigor, whose guidance all men invoke, the Devas invoke-whose shadow is immortal life and death. Who is the deity we shall worship with our offerings?

Text three

It is He who by His greatness became the One King of the breathing and the seeing, who is the Lord of man and bird and beast. Who is the deity we shall worship with our offerings?

Text four

It is He through whose glory the snow-clad mountains rose, and the ocean spread with the river, they say. His arms are the quarters of the sky. Who is the deity we shall worship with our offerings ?

Text five

It is He through whom the heaven is strong and the earth firm, who has steadied the light and the sky's vault, and measured out the sphere of clouds in the mid-region. Who is the deity we shall worship with our offering?

Text six

It is He to whom heaven and earth, placed in the light by his grace, look up, radiant with the mind while over them the sun, rising, brightly shines. Who is the deity we shall worship with our offerings?

Text seven

When the mighty waters came, carrying the universal germ, producing the flame of life, then dwelt there in harmony the One Spirit of the Devas. Who is the deity we shall worship with our offerings?

Text eight

It is He who in his might surveyed the waters, conferring skill and creating worship - He, the God of gods, the One and only One. Who is the deity we shall worship with our offerings?

Text nine

Father of the world - may He not destroy us who with Truth as his Law made the heavens and produced waters, vast and beautiful. Who is the deity we shall worship with our offerings?

Text ten

Lord of creation! No one other than thee pervades all these that have come into being. May that be ours, for which our prayers rise, may we be masters of many treasures!

6.4.4 Skambha Sukta

Skambha who is the 'jyesthaya brahman' (Supreme Brahman) is none other than Bhagawan Rudra or Shiva alone. The 'devata' of this hymn is 'skambha' the 'jyestham brahman'. Its verses are in various meters. Here we only mention the part I of this Sukta which is in Atharva Veda X-7.

We take this Sukta from the article 'unassailable glory of lord Bhuvaneshwara- the primordial Skambha supporting the worlds' from the site <https://www.mahapasupatastra.com>.

Text one

"Which of his members is the seat of Fervour: Which is the base of Ceremonial Order? Where in him standeth Faith? Where Holy Duty? Where, in what part of him is truth implanted?"

Text two

"Out of which member glows the light of Agni? From which proceeds the breath of Mātarisvan? From which doth Chandra measure out his journey, travelling over Skambha's mighty body?"

Text three

“Which of his members is the earth’s upholder? Which gives the middle air a base to rest on? Where, in which member is the sky established? Where hath the space above the sky its dwelling?”

Text four

“Whitherward yearning blazeth Agni upward? Whitherward yearning bloweth Mātarisvan? Who out of many, tell me, is that Skambha to whom with longing go the turning pathways?”

Text five

“Whitheward go the half-months, and, accordant with the full year, the months in their procession? Who out of many, tell me, is that Skambha to whom go seasons and the groups of seasons?”

Text six

“Whitherward yearning speed the two young Damsels, accordant, Day and Night, of different colour? Who out of many, tell me, is that Skambha to whom the Waters take their way with longing?”

Text seven

“Who out of many, tell me, is that Skambha, On whom Prajāpati set up and firmly stablished all the worlds?”

Text eight

“That universe which Prajāpati created, wearing all forms,, the highest, midmost, lowest, How far did Skambha penetrate within it? What portion did he leave unpenetrated?”

Text nine

“How far within the past hath Skambha entered? How much of him hath reached into the future? That one part which he set in thousand places,—how far did Skambha penetrate within it?”

Text ten

“Who out of many, tell me, is that Skambha in whom men recognize the Waters, Brahma, In whom they know the worlds and their enclosures, in whom are non-existence and existence?”

Text eleven

“Declare that. Skambha, who is he of many, In whom, exerting every power, Fervour maintains her loftiest vow; In whom are comprehended Law, Waters, Devotion and Belief’.

Text twelve

“Who out of many, tell me, is that Skambha On whom as their foundation earth and firmament and sky are set; In whom as their appointed place rest Fire and Moon and Sun and Wind?”

Text thirteen

“Who out of many, tell me, is that Skambha He in whose body are contained all three-and-thirty Deities?”

Text fourteen

“Who out of many, tell me, is that Skambha. In whom the Sages earliest born, the Richas, Sāman, Yajus, Earth, and the one highest Sage abide?”

Text fifteen

“Who out of many, tell me, is the Skambha. Who comprehendeth, for mankind, both immortality and death, He who containeth for mankind the gathered waters as his veins?”

Text sixteen

“Who out of many, tell me, is that Skambha, the sky’s four directions stand there as whose chief arteries, in whom Sacrifice has advanced victorious?”

Text seventeen

“They who in Purusha understand Brahma know Him who is Supreme. He who knows Him who is Supreme, and he who knows the Lord of Life, These know the loftiest Power Divine, and thence know Skambha thoroughly”.

Text eighteen

“Who out of many, tell me, is that Skambha Of whom Vaisvānara became the head, the Angirases his eye, and Yātus his body parts?”

Text nineteen

“Who out of many, tell me, is that Skambha Whose mouth they say is Holy Lore, his tongue the Honey- sweetened Whip, his udder is Virāj, they say?”

Text twenty

“Who out of many, tell me, is that Skambha From whom they hewed the lichas off, from whom they chipped the Yajus, he Whose hairs are Sāma-verses and his mouth the Atharvāngi- rases?”

Text twenty-one

“The branch of Nonbeing which is far-extending men take to be the highest one of all. They reckon as inferior those who worship your other branch, the branch of Being”.

Text twenty-two

“Who out of many, tell me, is that Skambha In whom Ādityas dwell, in whom Rudras and Vasus are contained, In whom the future and the past and all the worlds are firmly set”.

Text twenty-three

“Whose secret treasure evermore the three-and thirty Gods protect? Who knoweth now the treasure which, O Deities ye watch and guard?”

Text twenty-four

“Where the Gods, versed in Sacred Lore (Vedas), worship the loftiest Brahman The priest who knows the Gods face to face may be a sage who knows the truth”.

Text twenty-five

“Great, verily, are those Gods who sprang from non-existence into life. Further, men say that that one part of Skambha is nonentity”.

Text twenty-six

“Where Skambha generating gave the Ancient World its shape and form, They recognized that single part of Skambha as the Ancient World”.

Text twenty-seven

“The three-and-thirty Gods within his body were disposed as limbs: Some, deeply versed in Holy Lore, some know those three-and- thirty Gods”.

Text twenty-eight

“Men know Hiranyagarbha as supreme and inexpressible: In the beginning, in the midst of the world, Skambha poured that gold”.

Text twenty-nine

“On Skambha Fervour rests, the worlds and Holy Law repose on him. Skambha, I clearly know that all of thee on Indra is imposed”.

Text thirty

“On Indra Fervour rests, on him the worlds and Holy Law recline. Indra, I clearly know that all of thee on Skambha findeth rest”.

Text thirty-one

“Ere sun and dawn man calls and calls one Deity by the other’s name. When the Unborn first sprang into existence he reached that independent sovran lordship; than which aught higher never hath arisen”.

Text thirty-two

“Be reverence paid to him, that highest Brahma, whose base is Earth, his belly Air, who made the sky to be his head”.

Text thirty-three

“Homage to highest Brahma, him whose eye is Sūrya and the Moon who groweth young and new again, him who made Agni for his mouth”.

Text thirty-four

“Homage to highest Brahma, him whose two life-breathings were the Wind, The Angirases his sight: who made the regions be his means of sense”.

Text thirty-five

“Skambha set fast these two, the earth and heaven, Skambha maintained the ample air between them. Skambha established the six spacious regions: this whole world Skambha entered and pervaded”.

Text thirty-six

“Homage to highest Brahma, him who, sprung from Fervour and from toil, Filled all the worlds completely, who made Soma for himself alone”.

Text thirty-seven

“Why doth the Wind move ceaselessly? Why doth the mind take no rest? Why do the Waters, seeking truth, never at any time repose?”

Text thirty-eight

“Absorbed in Fervour, is the mighty Being, in the world’s centre, on the waters’ surface. To him the Deities, one and all betake like the tree- trunk standing with the branches round it”.

Text thirty-nine

“Who out of many, tell me, is that Skambha. To whom the Deities with hands, with feet, and speech, and ear, and eye. Present unmeasured tribute in the measured hall of sacrifice?”

Text forty

“Darkness is chased away from him: he is exempt from all evil. In him are all the lights, the three abiding in Prajāpati”.

Text forty-one

“He verily who knows the Reed of Gold that stands amid the flood, is the mysterious Lord of Life”.

Text forty-two

“Singly the two young Maids of different colours approach the six-pegged warp in turns and weave it. The one draws out the threads, the other lays them: they break them not, they reach no end of labour”.

Text forty-three

“Of these two, dancing round as ’twere, I cannot distinguish whether ranks before the other. A Male in weaves this web, a Male divides it: a Male hath stretched it to the cope of heaven”

Text forty-four

“These pegs have buttressed up the sky. The Samans have turned them into shuttles for the weaving”.

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CHAPTER 7

Prakritology

7.1 Prakrti

7.2 Jada

7.3 Jiva

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7.1 Prakrti

Prakrti (nature) is a tattva (theory). There are two akaras (forms) of this tattva. Both of these akaras are jada (intimate objects) and jiva (living beings).

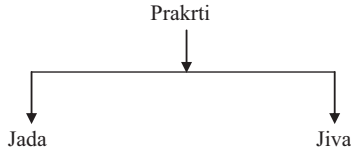


Fig. 7.1

Prakrti is made up of a combination of gross substance and subtle substance. The Gross substances are the panchamahabhutas- ksiti, jala, agni, vayu and akasa. The subtle substance are the mind (manas), the intellect (buddhi) and the ego (ahankara). There are two divisions of prakrti. These two divisions are called akaras. Purusa is karana (cause), prakrti is karya (effect).

The effect is generated from the cause and then in the time of destruction it (effect) becomes immersed in the cause. The effect is an extension of the cause. The expanding form of prakrti is the universe (jagat). Before the creation, the universe is in a state of inexpressible. So prakrti has been called avaktya (unmanifested).

Prakrti is made up of a combination of sthula dravya (gross substance) and suksma dravya (subtle substance). Sthula dravya are the five great elements (panchamahabhutas) namely, ksiti (soil), jala (water), agni (fire), vayu (air) and akasa (ether). Suksma dravya are the manas (mind), buddhi (intellect) and ahankara (ego-sense). Prakrti has two kinds namely, jada and jiva. Purusa is karana (cause), prakrti is karya (effect).

7.1.1 Trigunas

Prakrti is the sum of three gunas. This three gunas are sattva, rajas and tamas. This three gunas are the elements of prakrti. Here we can say where there is substance there is quality. Prakrti is in harmony with these three gunas. Sattva guna is the manifestation of purity and holiness. Rajas guna is the manifestation of action and drive. Tamas guna is the manifestation laziness and inertia. The nature of these three gunas is to dominate each other. These three gunas help one another, even though they are against each other. Without the cooperation of these three gunas, nothing can be created.

We get the figure 5.82 by presenting it differently.

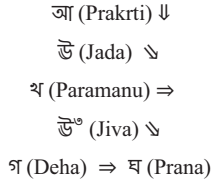


Fig. 7.2

From the figure we get three decisions.

Decision 7.1.1 Paramanu follows the point rule. Jada is related to paramanu.

$$\text{ऊ (Jada)} \simeq \text{अ (Paramanu)} \Rightarrow$$

Decision 7.1.2 Deha and prana follow the balance rule. Jiva is related to them (deha and prana).

$$\text{उ० (Jiva)} \simeq \text{ग (Deha)} \Rightarrow \text{घ (Prana)}$$

Decision 7.1.3 Jada and jiva are related. Prakrti is the cause of these.

$$\text{आ (Prakrti)} \downarrow \text{ऊ (Jada)} \simeq \text{उ० (Jiva)} \simeq$$

7.2 Jada

Jada is an akara (form) of the tattva (theory) named prakrti (nature). Jada is an unconscious substance. The upakarana (component) of the jada (intimate objects) is paramanu (atom). The upakarana refers to a structural unit of akara or form.

The desire to know nature (prakrti) has come from the evolution of human civilization. Jada is a part of this nature. In the year 460 BC, the Indian philosopher Kanada first proposed that all matter is made up of a very thin inseparable particles. At about the same time, the Greek philosophers Democritus and Leucippus presented a similar doctrine.

The inert materials are of two types again- elements and compounds. The difference between an element and a compound is that an element is made up of same type of atoms, whereas a compound is made up of different elements in definite proportions. Examples of elements are hydrogen H₂, oxygen O₂ etc. and examples of compounds are water H₂O, carbon dioxide CO₂. The molecule is the smallest particle of the element or compound. The compound is a type of molecule. Molecules consist of two or more atoms that are held together by chemical bonds. When in the molecule the types of atoms are different from each other, then it is called compound. Again the molecule consists of only one type of atoms is called element.

We find following by rewriting the figure 5.82

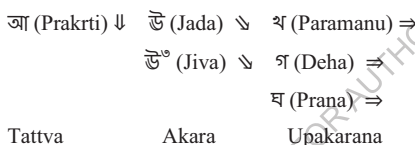


Fig. 7.3

7.2.1 Paramanu

The Indian philosophers first introduced the theory about atoms (paramanu). At about the same time Greek philosophers presented their doctrines about atoms.

7.2.1.1 Indian Atomism

In the ancient Indian Philosophy the Vaisesika school developed one of the earliest forms of atomism in the 6th century B. C. Kanada Muni is the founder of Vaisesika Philosophy. He has had extensive discussions about atomism in his Philosophy. This is known as Vaisesika atomism. According to Vaisesika atomism everything we see in the universe is made up of a combination of four types of atoms- ksiti (soil), jala (water), agni (fire) and vayu (air). When these atoms are detached, all the material are destroyed. The Vaisesikas believe that atoms are a fundamental component of all the material objects of the universe. According to Vaisesikas, continuously dividing any compound some fine particles are found at the end that can no

longer be divided. These particles are called paramanu or atoms. The atoms are eternal as they are neither created nor destroyed. Atoms are inactive and motionless in themselves. These atoms are so small that they cannot be perceived. Atoms are the inherent cause of all compounds because the creation of inert materials is in connection with different atoms. God is the efficient cause of the material world. Atoms are co-eternal with God.

In the first phase of creation two atoms are united into a dyad or dvyanuka. This dyad is the first state of the compound world. Like an atom, the dyad is not perceivable. So three dyad combination created a triad or tryanuka. This triad is the first perceivable compound. Atoms are many in number and separate from each other. Atoms do not have quantitative differences but there are qualitative differences. This is the first landmark on atomic theory. Kanada Muni is the person to whom credit can be given for developing this theory.

7.2.1.2 Greek Atomism

Greek philosophers Leucippus (480-420 B.C.) and his pupil Democritus (460-370 B.C.) thought that all matter was made up of small indivisible particles. They are called atoms. Atoms continually float in a vacuum or in the void, bouncing into each other. According to them, there is no qualitative difference between atoms, they have only quantitative difference. Some are small, some are big, some are overweight, some are underweight. They vary in form, order, and posture.

7.2.1.3 Modern Atomism

John Dalton in 1803 proposed that all chemical elements are composed of a unique type of atoms which are indivisible. All atoms of a given element are identical in mass and properties. The chemical compounds are made of molecules which are composed of atoms in definite proportions. So, the atoms determine the structure of matter and compounds are separated into their individual elements.

Later, different scientists presented different models of the structure of atoms. Sir J. J. Thomson proposed in 1904 the Plum Pudding Model soon after the discovery of electron (1897). In this model Thomson mentions that inside the pudding, such as plums are scattered, just as negative electrons (plums) are embedded in a positively charged sphere (pudding) in an atom.

New Zealand born physicist Ernest Rutherford proposed the solar model of atom in 1911. In this model he described positively charged nucleus where all the mass of an atom is concentrated. The nucleus is surrounded by the negatively charged electrons. These electrons circulate around the nucleus much like the planets circulate around the sun.

Neil Bohr, a Danish physicist proposed the Bohr atom model in 1913. He proposed in his model that electrons orbit the nucleus in a fixed circular path termed as stationary orbit. The orbit has a fixed amount of energy. The energy of the orbit is related to its size. The change in energy occurs when the electrons moves from one orbit to another.

7.2.1.4 Panchamahabhutas

This jada jagat (material universe) is made up of a combination of panchamahabhutas namely, ksiti (soil), jala (water), agni (fire), vayu (air) and akasa (ether). This panchamahabhutas (five physical elements) is again made up of smallest unit named atoms. The atoms are composed of mainly three type of particles named protons, neutrons and electron.

This inert universe originates from prakrti. Prakrti is again the sum of three gunas- sattva, rajas and tamas. Although there is a conflict between these three gunas, there is a sense of cooperation between them. These three gunas are constantly changing. The nature of the three gunas is to influence one another. But even if the other two gunas become overwhelmed when one guna is dominated. No one can work without recourse to the other two gunas. This is how the jadas (inert material) and the jivas (living beings) are created. The nature of the object is determined by the gunas within which the object takes precedence. The three gunas combine in different composition to create the panchamahabhutas.

Combination of trigunas	Predominant element
Sattva	Akasa (Ether)
Rajas	Vayu (Air)
Sattva + Rajas	Agni (Fire)
Sattva + Tamas	Jal (Water)
Tamas	Ksiti (soil)

Tab. 7.1

Paramanu or atom is an structural unit of jada.



Fig. 7.4

Now from the decision 7.1.1

We get paramanu follows the point rule. Jada is related to paramanu.

$$\text{उ (Jada)} \rightsquigarrow \text{अ (Paramanu)} \Rightarrow$$

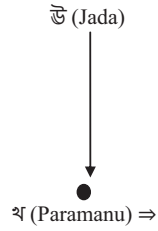


Fig. 7.5

We get one law from point rule.

Law 7.1.1 $\text{अ (Paramanu)} = \text{अ (Paramanu)}$

Explanation of the law is paramanu merely equal to paramanu.

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7.3 Jiva

Jiva is an akara (form) of the tattva (theory) named prakrti (nature). Jiva is a living being or any entity imbued with a life force. The word jiva originates from the Sanskrit verb-root 'jiv' which means 'to breathe or to live'. There are two upakaranas (components) of the jiva. One is the deha or sarira (body) and other is the prana or the vitality.

Now from the decision 7.1.3

We get Jada and jiva are related. Prakrti is the cause of these.

आ (Prakrti) ↓ उ (Jada) ∩ उ° (Jiva) ∩

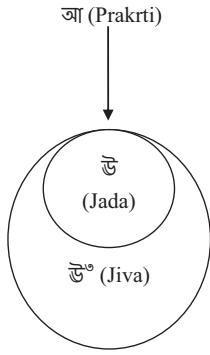


Fig. 7.6

7.3.1 Deha

According to Indian philosophy there are three types of human body or deha (sarira). These three types of bodies or sarira traya are

- (1) sthula sarira or the gross body,
- (2) sukshma sarira or the subtle body and
- (3) karana sarira or the causal body.

7.3.1.1 Sthula sarira

The sthula sarira or the gross body is the physical body that is composed of the panchamahabhutas or five great elements namely, ksiti (soil), jala (water), agni (fire), vayu (air), akasa (ether). The gross body is the mortal body that eats, breathes, moves and decays. It is subject to a sixfold change in the body and the changes are birth, subsistence, growth, maturity, decay, and death. The sthula sarira is determined by the karmaphala of ones past life. The process of formation of the gross body is done through the panchikarana i.e. combining of the five primordial subtle elements. After death the body of the jiva is destroyed and its five constituent elements are dissolved. Annamaya kosha (physical sheath) reside in the sthula sarira.

The sthula sarira is composed of the panchamahabhutas.

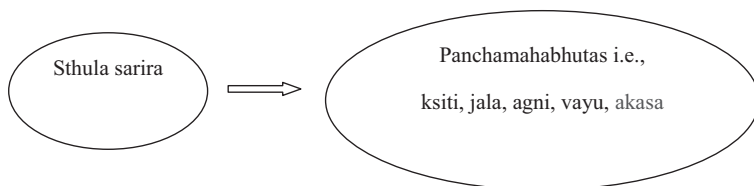


Fig. 7.7

7.3.1.2 Suksma sarira

The suksma sarira or linga sarira is the subtle body which is considered to contain all vital energies and keeps the physical body alive. The subtle body is composed of five organs of cognition (eyes, ears, nose, tongue and skin), five organs of action (hands, feet, rectum, mouth and genitals), five vital forces (prana, apana, samana, udana and vyana), manas (the mind) and buddhi (the intellect). At the death of the jivas the gross body is destroyed but the subtle body is not destroyed. After death, a subtle body remains present and plays a role in the reincarnation. When a person dies, his or her gross body is burnt and the soul by which leaves the gross body is called a type of vehicle and this vehicle is the linga sarira. This linga sarira sometimes described as angustha-matra (of the size of a thumb). Pranamaya kosha (vital energy sheath), manomaya kosha (mental sheath) and vijnanamaya kosha (intellectual sheath) reside in the suksma sarira.

The suksma sarira is composed of buddhi (the intellect), ahankara (ego sense), manas (the mind), pancha jnanendriyas (five organs of cognition), pancha karmendriyas (five organs of action) and pancha pranas (five vital breaths).

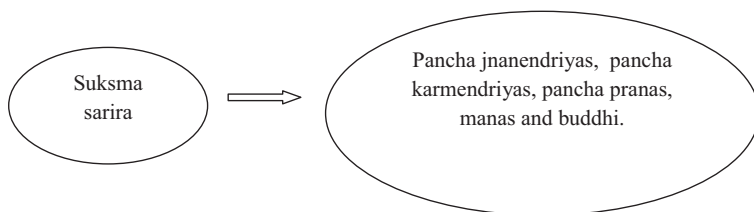


Fig. 7.8

7.3.1.3 Karana sarira

The karana sarira or the causal body is the basis of the sthula sarira and the suksma sarira. It is the seed of the two other bodies so it is called the karana sarira. The causal body functions after the other bodies are gone. It plays a role in the new life of the new body. At the time of death the subtle body and the causal body are separated from the physical body. At a time the soul is completely detached from the causal body. Anandamaya kosha (blissful sheath) reside in the karana sarira.

7.3.2 Prana

The prana vayu or the life force divided into five and each governing different functions. The five pranas are (1) prana, (2) apana, (3) udana, (4) samana and (5) vyana. Pranamaya kosha is made up of these five pranas, which are collectively known as the pancha-prana.

Prana vayu is upward flowing from the chest to the thorax. This governs the thoracic area between the larynx and the top of the diaphragm. It is the force by which breath is drawn into the body. It is associated with the element of air.

Apana vayu is the downward flowing which located below the navel region. This is responsible for all excretory, reproductive functions and provides energy for the large intestine, kidneys, anus and genitals. Disturbances of apana vayu can cause constipation, diarrhoea, piles, etc. It is associated with the element of water.

Udana vayu governs the neck and head and is responsible for all the sense organs. Udana also governs thought and consciousness. It harmonizes and activates the limbs and all their associated muscles, ligaments, nerves and joints. It is associated with the element of ether.

Samana vayu is located between the heart and the navel. It activates and controls the digestive system and governs the heart, liver, intestine, stomach, pancreas and their secretions. Disturbance of the samana vayu can cause indigestion and other stomach disorders. It is associated with the element of Fire.

Vyana vayu pervades the whole body, regulating and controlling all movement and coordinating the other prana vayus. It acts as the reserve force for the other prana vayus. It is associated with the element of earth.

Vayus, according to the Nisvasattvasamhita Nayasutra (6th-10th century) given below its location and responsibility.

Vayu	Location	Responsibility
Prana	Heart	Talking, laughing, singing, dancing, fighting, the arts, crafts, tasks
Apana (downward breath)	Anus	Lets food and drink enter body, waste move down and out of body
Udana (upward breath)	Throat	Sneezing, hiccuping, vomiting, coughing
Samana	Navel	Mixes what is eaten and drunk
Vyana	All the joints	Horripilation, sweating, stomach pain, bending of limbs, sense of touch.

Tab. 7.2

Prana (vitality) is composed of vayu, akasa and atma.

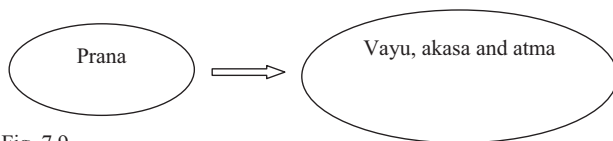


Fig. 7.9

Here we will discuss about the indriyas (sense organs), pancha koshas, saeven chakras etc of the jivas.

7.3.2.1 Indriyas

According to yoga, the indriyas (sense organs) are pancha jnanendriyas, pancha karmendriyas, and antarendriya (manas or mind).

Pancha jnanendriyas mean five sense organs of cognition. They are

1. Shotra (ears) for hearing
2. Chaksu (eyes) for sighting
3. Ghrana (nose) for smelling
4. Jivha (tongue) for tasting
5. Tvak (skin) for touching

Pancha karmendriyas mean five sense organs of action. They are

1. Vak (mouth) for speech
2. Pani (hands) for grasping
3. Pada (feet) for walking
4. Payu (tongue) for excretion
5. upastha (genitals) for reproduction

Antarendriya means manas or mind. This is for thinking.

7.3.2.2 Pancha koshas

Pancha kosha is the concept in the Yoga philosophy and in the Vedanta philosophy that means the five sheaths or the five layers around the human soul. The term comes from the Sanskrit pancha meaning 'five' and kosha meaning 'sheath'. The pancha kosha consists of the following

- (1) annamaya kosha (physical sheath),
- (2) pranamaya kosha (vital energy sheath),
- (3) manomaya kosha (mental sheath)
- (4) vijnanamaya kosha (intellectual sheath) and
- (5) anandamaya kosha (blissful sheath).

7.3.2.3 Seven chakras

Here the chakra names, Sanskrit and English, their locations, colours, elements and number of lotus petals are given below.

Sanskrit names	English names	Locations	Colours	Elements	Lotus petals
Muladhara chakra	Root chakra	Base of spine	Red	Earth	4
Svadhithana chakra	Sacral chakra	Root of sexual organs	Orange	Water	6
Manipura chakra	Solar plexus chakra	Navel	Yellow	Fire	10
Anahata chakra	Heart chakra	Heart	Green	Air	12
Vishuddhi chakra	Throat chakra	Throat	Blue	Ether	16
Ajna chakra	Third eye chakra	Between eyebrows	Indigo	Extra-Sensory Perception	2
Sahasrara chakra	Crown chakra	top of the head	Violet	Thought	1000

Tab. 7.3

Now from the decision 7.1.2 we get

Deha and prana follow the balance rule. Jiva is related to them (deha and prana).

$$\text{ॐ (Jiva)} \simeq \text{॑ (Deha)} \Rightarrow \text{॒ (Prana)}$$

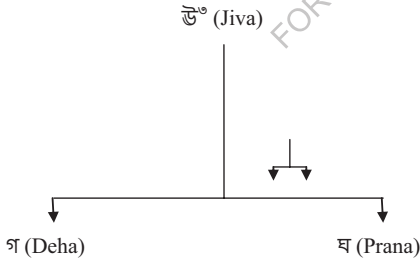


Fig. 7.10

We get one law from balance rule.

Law 1 $\text{॑ (Deha)} \propto \text{॒ (Prana)}$

Explanation of the law is deha directly proportional to prana, i.e., deha is as big as prana.

CHAPTER 8

Jagatonomy

8.1 Jagat

8.2 Prithvi

8.3 Antariksa

8.4 Svarga

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8.1 Jagat

Jagat (universe) is a tattva (theory). There are three akaras (forms) of this tattva. These akaras are prithvi (earth), antariksa (sky) and svarga (heaven).

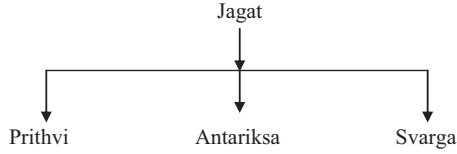


Fig. 8.1

There are three gunas of prakrti. This three gunas are sattva, rajas and tamas. These gunas are components of prakrti, not qualities. The three gunas of prakrti cannot last for a moment. Prakrti is constantly creating due to its nature (svabhava). Ahankara (ego-sense) is created from prakrti. There are three types of ego-sense, namely sattvika, rajasika and tamasika.

From Purusa to prakrti and prakrti to jagat, the emergence of the universe is in the following order.

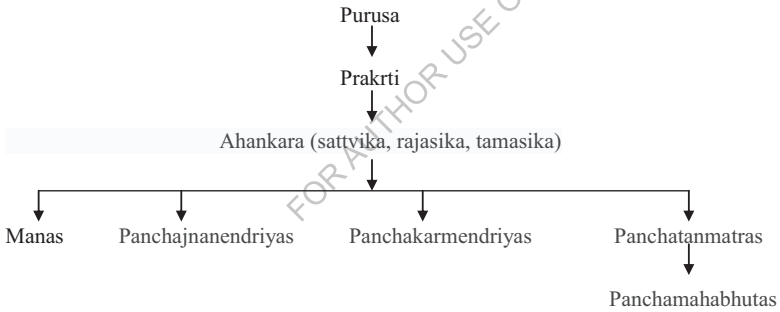


Fig. 8.2

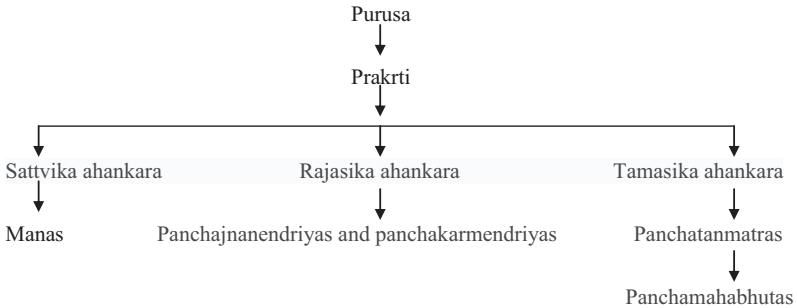


Fig. 8.3

Karmendriyas, Jnanendriyas, Tanmatras, Mahabhutas and avasthas were arranged in the table below.

Karmendriyas (organs of action)	Jnanendriyas (organs of cognition)	Tanmatras (subtle elements)	Mahabhutas (gross elements)	avasthas (states)
Payu (rectum)	Ghrana (nose)	Gandha (smell)	Ksiti (soil)	Solid
Upastha (genitals)	Jivha (tongue)	Rasa (taste)	Jala (water)	Liquid
Pada (feet)	Caksu (eyes)	Rupa (sight)	Agni (fire)	Energy
Pani (hands)	Tvak (skin)	Sparsa (touch)	Vayu (air)	Gas
Mukh (mouth)	Srotra (ears)	Sabda (sound)	Akasa (ether)	
	Manas (mind)	Caitanya (consciousness)	Atma (soul)	Unstable

Tab. 8.1

We get the figure 5.86 by presenting it differently.

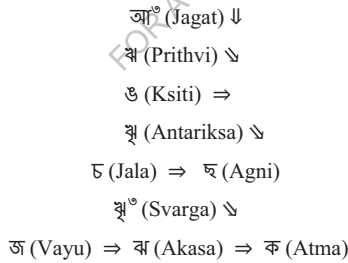


Fig. 8.4

From the figure we get four decisions.

Decision 8.1.1 Ksiti follows the point rule. Prithvi is related to ksiti.

$$\text{अ० (Prithvi)} \rightsquigarrow \text{उ० (Ksiti)} \Rightarrow$$

Decision 8.1.2 Jala and agni follow the balance rule. Antariksa is related to these (jala and agni).

$$\text{अ० (Antariksa)} \rightsquigarrow \text{ढ (Jala)} \Rightarrow \text{अ० (Agni)}$$

Decision 8.1.3 Vayu, akasa and atma follow the left hand rule. Svarga is related to these (vayu, akasa and atma).

$$\text{ꣳ}^\circ (\text{Svarga}) \text{ } \Downarrow \text{ } \text{ꣳ} (\text{Vayu}) \Rightarrow \text{ꣳ} (\text{Akasa}) \Rightarrow \text{ꣳ} (\text{Atma})$$

Decision 8.1.4 Prithvi, antariksa and svarga are related. Jagat is the cause of these (prithvi, antariksa and svarga).

$$\text{ꣳ}^\circ (\text{Jagat}) \text{ } \Downarrow \text{ } \text{ꣳ} (\text{Prithvi}) \text{ } \Downarrow \text{ } \text{ꣳ} (\text{Antariksa}) \text{ } \Downarrow \text{ } \text{ꣳ}^\circ (\text{Svarga}) \text{ } \Downarrow$$

Here jagat is tattva. Prithvi, antariksa and svarga are akaras. Ksiti, jala, agni, vayu, akasa and atma are upakaranas. So we find the following table by rewriting figure 5.86.

Tattva (theory)	Akara (form)	Upakarana (component)
ꣳ ^o (Jagat) ↓	ꣳ (Prithvi) ↓	ꣳ (Ksiti) ⇒
	ꣳ (Antariksa) ↓	ꣳ (Jala) ⇒ ꣳ (Agni) ⇒
	ꣳ ^o (Svarga) ↓	ꣳ (Vayu) ⇒ ꣳ (Akasa) ⇒ ꣳ (Atma) ⇒

Tab. 8.2

8.2 Prithvi

Prithvi is an akara (form) of the tattva (theory) named jagat (universe). The upakarana (component) of prithvi is ksiti. The upakarana refers to a structural unit of akara or form.

Prithvi or earth is a planet in our solar system. Earth is the third planet in the solar system by distance and the fifth largest by volume. The earth is home to billions of species, including humans. Earth is by far the only cosmic place where the existence of life is known. The only natural satellite of the earth is the moon. Both the mineral and biological resources of this planet are essential for the survival of humankind.

In this case, I can't help but mention the very nice Bhumi Sukta. I think this is very relevant in the context of the current world situation and lifestyle. The English translation of Prithvi Sukta or Bhumi Sukta is taken from www.indiadvine.org.

1. Truth, greatness, universal order (rita), strength, consecration, creative fervour (tapas), spiritual exaltation (brahma), the sacrifice, support the earth. May this earth, the mistress of that which was and shall be, prepare for us a broad domain!
2. The earth that has heights, and slopes, and great plains, that supports the plants of manifold virtue, free from the pressure that comes from the midst of men, she shall spread out for us, and fit herself for us!
3. The earth upon which the sea, and the rivers and the waters, upon which food and the tribes of men have arisen, upon which this breathing, moving life exists, shall afford us precedence in drinking!
4. The earth whose are the four regions of space, upon which food and the tribes of men have arisen, which supports the manifold breathing, moving things, shall afford us cattle and other possessions also!
5. The earth upon which of old the first men unfolded themselves, upon which the gods overcame the Asuras, shall procure for us (all) kinds of cattle, horses, and fowls, good fortune, and glory!
6. The earth that supports all, furnishes wealth, the foundation, the golden-breasted resting-place of all living creatures, she that supports Agni Vaisvânara (the fire), and mates with Indra, the bull, shall furnish us with property!
7. The broad -earth, which the sleepless gods ever attentively guard, shall milk for us precious honey, and, moreover, besprinkle us with glory!

8. That earth which formerly was water upon the ocean (of space), which the wise (seers) found out by their skilful devices; whose heart is in the highest heaven, immortal, surrounded by truth, shall bestow upon us brilliancy and strength, (and place us) in supreme sovereignty!

9. That earth upon which the attendant waters jointly flow by day and night unceasingly, shall pour out milk for us in rich streams, and, moreover, besprinkle us with glory!

10. The earth which the Asvins have measured, upon which Vishnu has stepped out, which Indra, the lord of might, has made friendly to himself; she, the mother, shall pour forth milk for me, the son!

11. Thy snowy mountain heights, and thy forests, O earth, shall be kind to us! The brown, the black, the red, the multi-coloured, the firm earth, that is protected by Indra, I have settled upon, not suppressed, not slain, not wounded.

12. Into thy middle set us, O earth, and into thy navel, into the nourishing strength that has grown tip from thy body; purify thyself for us! The earth is the mother, and I the son of the earth; Parjanya is the father; he, too, shall save us!

13. The earth upon which they (the priests) inclose the altar (vedi), upon which they, devoted to all (holy) works, unfold the sacrifice, upon which are set up, in front of the sacrifice, the sacrificial posts, erect and brilliant, that earth shall prosper us, herself prospering!

14. Him that hates us, O earth, him that battles against us, him that is hostile towards us with his mind and his weapons, do thou subject to us, anticipating (our wish) by deed!

15. The mortals born of thee live on thee, thou supportest both bipeds and quadrupeds. Thine, O earth, are these five races of men, the mortals, upon whom the rising sun sheds undying light with his rays.

16. These creatures all together shall yield milk for us; do thou, O earth, give us the honey of speech!

17. Upon the firm, broad earth, the all-begetting mother of the plants, that is supported by (divine) law, upon her, propitious and

kind, may we ever pass-our lives!

18. A great gathering-place thou, great (earth), hast become; great haste, commotion, and agitation are upon thee. Great Indra protects thee unceasingly. Do thou, O earth, cause us to brighten as if at the sight of gold: not any one shall hate us!

19. Agni (fire) is in the earth, in the plants, the waters hold Agni, Agni is in the stones; Agni is within men, Agnis (fires) are within cattle, within horses.

20. Agni glows from the sky, to Agni, the god, belongs the broad air. The mortals kindle Agni, the bearer of oblations, that loveth ghee.

21. The earth, clothed in Agni, with dark knees, shall make me brilliant and alert!

22. Upon the earth men give to the gods the sacrifice, the prepared oblation; upon the earth mortal men live pleasantly by food. May this earth give us breath and life, may she cause me to reach old age!

23. The fragrance, O earth, that has arisen upon thee, which the plants and the waters hold, which the Gandharvas and the Apsaras have partaken of, with that make me fragrant: not any one shall hate us!

24. That fragrance of thine which has entered into the lotus, that fragrance, O earth, which the immortals of yore gathered up at the marriage of Sūryā, with that make me fragrant: not any one shall hate us!

25. That fragrance of thine which is in men, the loveliness and charm that is in male and female, that which is in steeds and heroes, that which is in the wild animals with trunks (elephants), the lustre that is in the maiden, O earth, with that do thou blend us: not any one shall hate us!

26. Rock, stone, dust is this earth; this earth is supported, held together. To this golden-breasted earth I have rendered obeisance.

27. The earth, upon whom the forest-sprung trees ever stand firm, the all-nourishing, compact earth, do we invoke.

28. Rising or sitting, standing or walking, may we not stumble with our right or left foot upon the earth!
29. To the pure earth I speak, to the ground, the soil that has grown through the brahma (spiritual exaltation). Upon thee, that holdest nourishment, prosperity, food, and ghee, we would settle down, O earth!
30. Purified the waters shall flow for our bodies; what flows off from us that do we deposit upon him we dislike: with a purifier, O earth, do I purify myself!
31. Thy easterly regions, and thy northern, thy southerly (regions), O earth, and thy western, shall be kind to me as I walk (upon thee)! May I that have been placed into the world not fall down!
32. Do not drive us from the west, nor from the east; not from the north, and not from the south! Security be thou for us, O earth; waylayers shall not find us, hold far away (their) murderous weapon!
33. As long as I look out upon thee, O earth, with Sūrya (the sun) as my companion, so long shall my sight not fall, as year followeth upon year!
34. When, as I lie, I turn upon my right or left side, O earth; when stretched out we lie with our ribs upon thee pressing against (us), do not, O earth, that liest close to everything, there injure us!
35. What, O earth, I dig out of thee, quickly shall that grow again: may I not, O pure one, pierce thy vital spot, (and) not thy heart!
36. Thy summer, O earth, thy rainy season, thy autumn, winter, early spring, and spring; thy decreed yearly seasons, thy days and nights shall yield us milk
37. The pure earth that starts in fright away from the serpent, upon whom were the fires that are within the waters, she that delivers (to destruction) the blasphemous Dasyus, she that takes the side of Indra, not of Vritra, (that earth) adheres to Sakra (mighty Indra), the lusty bull.
38. Upon whom rests the sacrificial hut (sadas) and the (two) vehicles that hold the soma (havirdhāne), in whom the sacrificial post is

fixed, upon whom the Brāhmanas praise (the gods) with riks and sāmans, knowing (also) the yagur-formulas; upon whom the serving-priests (ritvig) are employed so that Indra shall drink the soma;--

39. Upon whom the seers of yore, that created the beings, brought forth with their songs the cows, they the seven active (priests), by means of the satra-offerings, the sacrifices, and (their) creative fervour (tapas);--

40. May this earth point out to us the wealth that we-crave; may Bhaga (fortune) add his help, may Indra come here as (our) champion!

41. The earth upon whom the noisy mortals sing and dance, upon whom they fight, upon whom resounds the roaring drum, shall drive forth our enemies, shall make us free from rivals!

42. To the earth upon whom are food, and rice and barley, upon whom live these five races of men, to the earth, the wife of Parganya, that is fattened by rain, be reverence!

43. The earth upon whose ground the citadels constructed by the gods unfold themselves, every region of her that is the womb of all, Prajāpati shall make pleasant for us!

44. The earth that holds treasures manifold in secret places, wealth, jewels, and gold shall she give to me; she that bestows wealth liberally, the kindly goddess, wealth shall she bestow upon us!

45. The earth that holds people of manifold varied speech, of different customs, according to their habitations, as a reliable milch-cow that does not kick, shall she milk for me a thousand streams of wealth!

46. The serpent, the scorpion with thirsty fangs, that hibernating torpidly lies upon thee; the worm, and whatever living thing, O earth, moves in the rainy season, shall, when it creeps, not creep upon us: with what is auspicious (on thee) be gracious to us!

47. Thy many paths upon which people go, thy tracks for chariots and wagons to advance, upon which both good and evil men proceed, this road, free from enemies, and free from thieves, may we gain: with what is auspicious (on thee) be gracious to us!

48. The earth holds the fool and holds the wise, endures that good and bad dwell (upon her); she keeps company with the boar, gives herself up to the wild hog.

49. Thy forest animals, the wild animals homed in the woods, the man-eating lions, and tigers that roam; the ula, the wolf, mishap, injury (rikshikâ), and demons (rakshas), O earth, drive away from us!

50. The Gandharvas, the Apsaras, the Arâyas and Kimîdins; the Pisâkas and all demons (rakshas), these, O earth, hold from us!

51. The earth upon whom the biped birds fly together, the flamingoes, eagles, birds of prey, and fowls; upon whom Mâtârisvan, the wind, hastens, raising the dust, and tossing the trees-as the wind blows forth and back the flame bursts after;--

52. The earth upon whom day and night jointly, black and bright, have been decreed, the broad earth covered and enveloped with rain, shall kindly place us into every pleasant abode!

53. Heaven, and earth, and air have here given me expanse; Agni, Sûrya, the waters, and all the gods together have given me wisdom.

54. Mighty am I, 'Superior' (uttara) by name, upon the earth, conquering am I, all-conquering, completely conquering every region.

55. At that time, O goddess, when, spreading., (prathamânâ) forth, named (prithivî 'broad') by the gods, thou didst extend to greatness, then prosperity did enter thee, (and) thou didst fashion the four regions.

56. In the villages and in the wilderness, in the assembly-halls that are upon the earth; in the gatherings, and in the meetings, may we hold forth agreeably to thee!

57. As dust a steed did she, as soon as she was born, scatter these people, that dwelt upon the earth, she the lovely one, the leader, the guardian of the world, that holds the trees and plants.

58. The words I speak, honied do I speak them: the things I see they furnish me with. Brilliant I am and alert: the others that rush (against me) do I beat down.

59. Gentle, fragrant, kindly, with the sweet drink (kîlâla) in her udder, rich in milk, the broad earth together with (her) milk shall give us courage!

60. She whom Visvakarman (the creator of all) did search out by means of oblations, when she had entered the surging (flood of the) atmosphere, she, the vessel destined to nourish, deposited in a secret place, became visible (to the gods) and the (heavenly) mothers.

61. Thou art the scatterer of men, the broadly expanding Aditi that yields milk according to wish. What is wanting in thee Pragâpati, first-born of the divine order (rita), shall supply for thee

62. Thy laps, O earth, free from ailment! Free from disease, shall be produced for us! May we attentively, through our long lives, be bearers of bali-offerings to thee!

63. O mother earth, kindly set me down upon a well-founded place! With (father) heaven cooperating, O thou wise one, do thou place me into happiness and prosperity!

8.2.1 Ksiti

Ksiti is an structural unit of prithvi. Ksiti is in the state of solid. Ksiti is a Sanskrit word meaning soil, land, earth etc. It is stable. According to Ayurveda, ksiti expresses itself within the solid structure of the body such as bones, teeth, meat and hair etc. It is hard, stable, heavy, dull and slow. Any food with similar features will provide nutrition, and cause heaviness in the body. It will also improve strength and stability.

Now from the decision 8.1.1

We get ksiti follows the point rule. Prithvi is related to Ksiti.

𑀧 (Prithvi) 𑀭 𑀓 (Ksiti) ⇒

𑀧 (Prithvi) 𑀭



𑀓 (Ksiti) ⇒

Fig. 8.5

We get one law from point rule.

Law 8.1.1 $\mathfrak{K}(\text{Ksiti}) = \mathfrak{K}(\text{Ksiti})$

Explanation of the law is ksiti merely equal to ksiti.

We can show ksiti, the attribute of ksiti and the sense (indriya) associated with ksiti given in the following table.

Mahabhuta	Attribute	Indriya (sense)
Ksiti	Smell	Nose (ghrana)

Tab. 8.3

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8.3 Antariksa

Antariksa literally means the sky, which is full of stars. Prithvi or earth is known as bhuloka and svarga or heaven is known as dyuloka. The region pervading the space between this earth and heaven is called antariksa. It is also known as bhuvanloka. According to Rigveda, Indra or Vayu is the chief deity of this region. The Aryans believe that different types of demi-gods live in antariksa.

According to the Puranas and the Atharva Veda, there are 14 lokas, seven higher and seven lower. The seven higher lokas are called vyahrtis and the seven lower lokas are called patalas. The fourteen lokas bhū, bhūvas, svar, mahas, janas, tapas, and satya are in the above and atala, vitala, sutala, rasatala, talatala, mahatala, patala are in the below. Antariksa is one of the higher seven lokas.

8.3.1 Jala

Jala is one of the five gross elements (panchamahabhutas). Its English synonym is water. Jala is a dravya (substance). With the help of the jivha (tongue) indriya we enjoy the taste of water. Jala exists in liquid state. According to Ayurveda, jala is present in all bodily fluids such as plasma, saliva, digestive juices.

Water serves as an important ingredient for Hindu worship. Water is used for bathing the gods and for cleaning the worship items, flowers, fruits etc. The water offered to the gods and goddesses is considered to be very sacred.

We can show jala, the attribute of jala and the sense (indriya) associated with jala given in the following table.

Mahabhuta	Attribute	Indriya (sense)
Jala	Taste	Jivha (tongue)

Tab. 8.5

8.3.2 Agni

The word agni originated from the Sanskrit root 'aj' which means 'to drive'. Agni is derived from three verbs namely, 'going', 'shining or burning' and 'leading'. The letter 'a' is from the root 'i' which means 'to go', the letter 'g' is from the root 'anj' which means 'to shine' or 'dah' which means 'to burn', and the last letter is by itself the root 'ni' which means 'to lead'. In the case of the word 'fire', the meanings of all the roots mentioned above exist. The word 'agni' used in the Indian Philosophy for 'fire'. Agni is one of the fifth gross elements. Its main characteristic is rupa or sight. We feel it through the caksu indriya (the senses of eyes). Agni is one of the five gross elements (panchamahabhutas). Its English synonym is fire. Agni is a dravya (substance).

Agni is the god of fire and the recipient of yajna. Fire is the bridge between heaven and earth. Agni is considered to be the messenger of the gods. Sri Aurobindo said, ‘sublime mediator between earth and heaven’. Agni works as a vehicle. Take our sacrifice to the gods. And not only bring their blessings, but bring them to us.

Agni is the heating power (tapah shakti) of Brahman. When there was nothing, everything was dark, darkness covered by darkness, then there was only one real thing. Tapah shakti was integrated with that real thing. Tejas (fire) is the first child of tapasya (austerity) or tapah shakti. According to the Vedas, tejas exists at three levels that is in the highest (sky) as the sun, in the space (antariksa) as lightning, and on the earth as fire.

We can show agni, the attribute of agni and the sense (indriya) associated with agni given in the following table.

Mahabhuta	Attribute	Indriya (sense)
Agni	Sight	Caksu (eyes)

Tab. 8.6

Now from the decision 8.1.2

We get jala and agni follow the balance rule. Antariksa is related to these (jala and agni).

$$\text{ॐ (Antariksa)} \simeq \text{८ (Jala)} \Rightarrow \text{२ (Agni)}$$

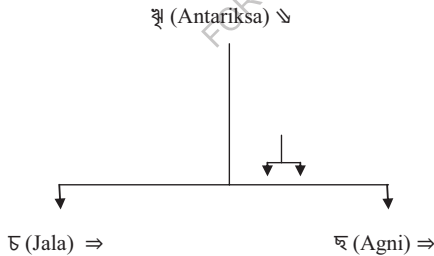


Fig. 8.6

We get one law from balance rule.

Law 8.2.1 $\text{८ (Jala)} \propto \text{२ (Agni)}$

Explanation of the law is jala directly proportional to agni.

8.4 Svarga

Svarga is a Sanskrit word which literally means ‘heaven’ or ‘paradise’. According to Hinduism, it is the abode of Indra, the lord of heaven. Svarga is one of the seven higher lokas in Hindu cosmology. The seven lokas consist of bhuloka, bhuvar loka, svarga loka, maharloka, janaloka, taparloka, satyaloka.

Heaven is a transfer place for the righteous souls who have performed good deeds in their lives but are not yet ready to attain moksa or elevation to Vaikunta. Vaikuntha is the abode of Lord Vishnu which is considered as the Supreme Abode. It is said that the souls who attain liberation or moksa live in this abode of Shri Vishnu. The Rig Veda (1.22.20) states.

“Om tad visnoh paramam padam sada pasyanti surayah”

This verse means ‘all the suras or devas (god and goddess) look towards the feet of Lord Vishnu as the Supreme Abode’.

The capital of heaven is Amaravati and its entrance is protected by Airavata. Indra, the leader of the gods, presided over the heaven. The souls of the righteous in heaven have not yet been released from the cycle of birth and death or from rebirth. In svarga, which is refer to heaven in general the souls live in paradise waiting for the next reincarnation.

Everything in the galaxies or in the constellations is svarga (heaven). Our milky way is a svarga. Antariksa is in svarga, so prithvi is in svarga.

Now from the decision 8.1.4, we get prithvi, antariksa and svarga are related. Jagat is the cause of these.

ॐ (Jagat) ↓ ॐ (Prithvi) ↓ ॐ (Antariksa) ↓ ॐ (Svarga) ↓

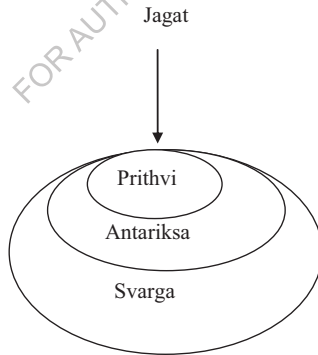


Fig. 8.7

8.4.1 Vayu

The word ‘vayu’ originated from the Sanskrit word ‘vata’ which literally means blown. So vayu translated as blower. The word used in the Indian Philosophy for ‘air’. Vayu is one of the fifth gross elements. Its main characteristic is sparsa or touch. We feel it through the tvak indriya (the senses of skin). Vayu is a dravya (substance). It is the fourth element, the

other four elements of five panchamahabhutas are ksiti, jala, agni and akasa. Vayu exists in gaseous state.

According to Hindu texts Vayu is the name of the Hindu deity, the lord of the winds. Sometimes it is called pranvayu or life force. Ancient yogis think, pranvayu is subdivided into five vayas. The subdivisions are prana vayu, apana vayu, vyana vayu, udana vayu and samana vayu. One can get the best out of yogic practice by being aware of the wind. Balancing the air during yoga practice not only increases physical strength, but also helps the practitioner to get closer to their spiritual desires. Life force is the essence of yogic practice.

We can show vayu, the attribute of vayu and the sense (indriya) associated with vayu given in the following table.

Mahabhuta	Attribute	Indriya (sense)
Vayu	Touch	Tvak (skin)

Tab. 8.7

8.4.2 Akasa

The term akasa is derived from the Sanskrit root 'kas' meaning 'to be'. The word used in the Indian Philosophy for 'ether'. In the Indo-Aryan and Dravidian languages the corresponding word of akasa is 'sky'. It is one of the five gross elements or panchamahabhutas. Its main characteristic is sabda or sound. As a reservoir for sound attribute, we know the existence of akasa. We feel it through the srotra indriya (the senses of ears). Akasa is a dravya (substance). It is the fifth element, the other four are ksiti, jala, agni and vayu. Akasa is one and eternal substance.

It is the thing by which gods and celestial beings are created. It is immortal, inseparable, infinite and eternal. It is the finest and the subtlest element. It is the means by which we can communicate with gods using sound vibrations due to chanting of mantras or sacred syllables. There are three worlds mentioned in the Vedas. Bhur, bhuvā and svar. Bhur is the prithvi or earth, bhuvā is the antariksa or sky, the middle region from earth to heaven and svar is the highest region above antariksa. Gods show their miraculous power in the sky. Rainfall from the sky creates vegetation and floods. Sometimes they bring in meteorites and lightning that cause fear and destruction.

In ancient times, people thought the sky was a meeting place for humans and gods. They also thought the sky was a playground where the gods would show their wonderful power. It was also believed that after death, men had ascended through the sky into the world of gods and ancestors.

We can show akasa, the attribute of akasa and the sense (indriya) associated with akasa given in the following table.

Mahabhuta	Attribute	Indriya (sense)
Akasa	Sound	Srotra (ears)

Tab. 8.8

8.4.3 Atma

The soul (atma) is pure consciousness and blissful. The soul is one and unique. In the paramarthika (transcendental) point of view the soul is one, but in the vyavaharika (empirical) point of view the soul is many. Therefore, it can be said that there are two types of self or soul, Paramatma (Supreme self) and jivatma (individual self). Soul is different from body, mind, senses etc. The body is subject to birth and death, but the soul is not subject to birth and death.

The soul that is an invariable consciousness (nirviesha chaitanya) is found in the susupati (deep sleep experience). There are four states of experience in our daily life. These four experiences are, jagrat (waking) state, svapna (dreaming) state, susupti (deep sleep) state and turiya (pure consciousness) state. The experience we get while awake is the waking experience. In the waking state, both knowledge and the object of knowledge are present. In this case both knowledge and the object of knowledge seem to be true. The experience that occurs during dreams is the dreaming experience. The object of knowledge in the dreaming state is not as true as the object of knowledge in the waking state. In this case the knower is true, but the object of knowledge depends on the experience of the knower. The experience of deep sleep without dreams is the deep sleep experience. In this state there is only self-consciousness, there is no memory of any object which exists in waking or dreaming state. The joy or knowledge that is found during deep sleep is actually the nature of the soul. It is impossible to think that there is no soul. Because the soul is the nature of the one who is thinking. Nothing exists without the soul, but the soul exists without the object. During the deep sleep, there is a hint of reality, consciousness and blissful soul. The experience that a devotee gets after being buried (samadhista) is the turiya experience. The devotee realizes the full form of the soul in the state of turiya.

The soul is self-evident. The existence of the soul is not perfected by others but the existence of others is perfected by the soul. The soul manifests itself, the omniscient witness. The soul is a form of pure consciousness. There is no other form of soul than consciousness. One has to acknowledge the existence of the soul as the basis (adhara) of consciousness. The soul is inactive. The soul is unchangeable, beginningless and eternal. There is no lack of soul. The soul is indifferent, inactive and unbroken. The soul is a witness to all. The soul is present as a witness to all knowledge. The soul is free from passions or attachment (nirupadhi). The soul is indestructible. The soul is one. The soul seems to be many because of ignorance. Paramatma is mahakasa (outer space or infinite void) and jivatma is ghatakasa (the empty

space contained inside a pot or ghata). There is no difference between jivatma and Paramatma when the ghata form disappears.

We can show atma, the attribute of atma and the sense (indriya) associated with atma given in the following table.

Mahabhuta	Attribute	Indriya (sense)
Atma	Consciousness	Manas (mind)

Tab. 8.9

Now from the decision 8.1.3

We get vayu, akasa and atma follow the left hand rule. Svarga is related to these (vayu, akasa and atma).

$$\text{ꣳ}^\circ (\text{Svarga}) \rightsquigarrow \text{ꣳ} (\text{Vayu}) \Rightarrow \text{ꣳ} (\text{Akasa}) \Rightarrow \text{ꣳ} (\text{Atma})$$

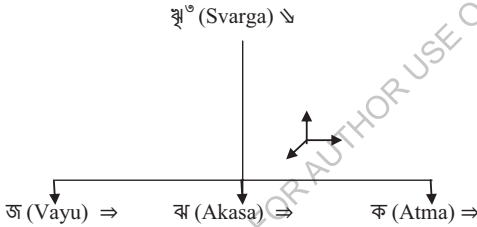


Fig. 8.8

We get three laws from left hand rule.

Law 8.3.1 Keeping ꣳ (Vayu) constant, ꣳ (Akasa) is inversely proportional to ꣳ (Atma),
i. e.,

$$\text{ꣳ} (\text{Akasa}) \propto 1/\text{ꣳ} (\text{Atma})$$

Law 8.3.2 Keeping ꣳ (Akasa) constant, ꣳ (Vayu) is inversely proportional to ꣳ (Atma),
i. e.,

$$\text{ꣳ} (\text{Vayu}) \propto 1/\text{ꣳ} (\text{Atma})$$

Law 8.3.3 Keeping ꣳ (Atma) constant, ꣳ (Vayu) is inversely proportional to ꣳ (Akasa),
i. e.,

$$\text{ꣳ} (\text{Vayu}) \propto 1/\text{ꣳ} (\text{Akasa})$$

CHAPTER 9

Jnanastatics

9.1 Knowledge

9.2 Category

9.3 Assertion

9.4 Dimension

9.5 Quantity

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9.1 Knowledge

Knowledge or jnana is the manifestation of objects. Knowledge is to convey the object as it is. Knowledge is the only way to understand something unknown. As the lamp illuminates all things in front of it, knowledge also reveals everything to us. Knowledge is self-evident.

There are mainly two types of knowledge, namely prama (valid knowledge) and aprama (non-valid knowledge). The characteristic of valid knowledge (prama) is the similarity, uniformity, adequacy and consistency to the nature of its object. Otherwise the knowledge is non-valid (aprama). Any valid knowledge requires three conditions, namely, pramata (the subject), prameya (the object) and pramana (the source of knowledge). Pramata acquires the valid knowledge of objects with the help of pramanas. Pramata is the jnata, one who knows. Prameya is the jneya, that is the knowledge of that object is acquired. Pramanas is the valid source of knowledge that is with the help of which the right knowledge can be obtained.

There are four types of pramanas of valid knowledge, namely, pratyaksan, anumiti, upamiti and sabdaboda. Again, there are four types of non-valid knowledge, namely, smrti (memory), samsaya (doubt), bhrama (error) and tarka (hypothetical argument). In all valid knowledge there are three factors, namely, pramata (the subject), prameya (the object) and pramana (the source of knowledge). Pramanas are of four kinds, namely, pratyaksa (perception), anumana (inference), upamana (comparison) and sabda (testimony).

The following figure explains how to gain knowledge of an object.

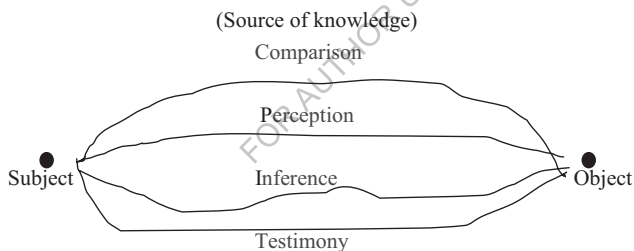


Fig. 9.1

Jnana (knowledge) is a tattva (theory). There are four akaras (forms) of this tattva. These akaras are category (padartha), assertion (vivrti), dimension (matra) and quantity (rashi).

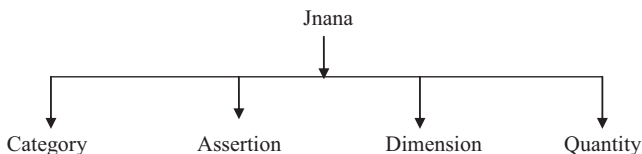


Fig. 9.2

We get the figure 5.92 by presenting it differently.

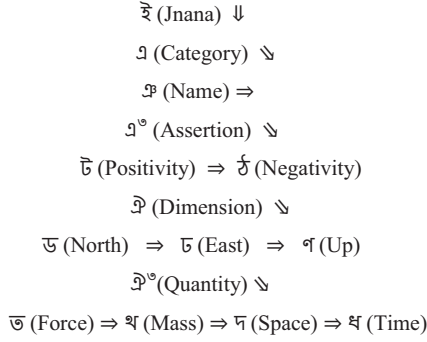


Fig. 9.3

From the figure we get five decisions.

Decision 9.1.1 Name follows the point rule. Category is related to name.

$$\exists \text{ (Category)} \Downarrow \text{P (Name)} \Rightarrow$$

Decision 9.1.2 Positivity and negativity follow the balance rule. Assertion is related to these (positivity and negativity).

$$\exists^\circ \text{ (Assertion)} \Downarrow \bar{\exists} \text{ (Positivity)} \Rightarrow \bar{\exists} \text{ (Negativity)}$$

Decision 9.1.3 North, east and up follow the left hand rule. Dimension is related to these (north, east and up).

$$\text{P (Dimension)} \Downarrow \bar{\exists} \text{ (North)} \Rightarrow \bar{\exists} \text{ (East)} \Rightarrow \text{P (Up)}$$

Decision 9.1.4 Force, mass, space and time follow the cross rule. Quantity is related to these (force, mass, space and time).

$$\text{P}^\circ \text{ (Quantity)} \Downarrow \bar{\exists} \text{ (Force)} \Rightarrow \text{P (Mass)} \Rightarrow \bar{\exists} \text{ (Space)} \Rightarrow \text{P (Time)}$$

Decision 9.1.5 Category, assertion, dimension and quantity are related. Jnana is the cause of these (category, assertion, dimension and quantity).

$$\exists \text{ (Jnana)} \Downarrow \exists \text{ (Category)} \Downarrow \exists^\circ \text{ (Assertion)} \Downarrow \text{P (Dimension)} \Downarrow \text{P}^\circ \text{ (Quantity)} \Downarrow$$

Here jnana is tattva. Category, assertion, dimension and quantity are akaras. Name, positivity, negativity, north, east, up, force, mass, space and time are upakaranas. So we find the following table by rewriting figure 5.92.

Tattva (theory)	Akara (form)	Upakarana (component)
ज्ञे (Jnana) ↓	श्र (Category) ∽	प्र (Name) ⇒
	श्र° (Assertion) ∽	स (Positivity) ⇒ र (Negativity) ⇒
	प्र (Dimension) ∽	उ (North) ⇒ द (East) ⇒ अ (Up) ⇒
	प्र° (Quantity) ∽	व (Force) ⇒ म (Mass) ⇒ स (Space) ⇒ क (Time) ⇒

Tab. 9.1

9.1.1 The Methods of Gaining Knowledge

9.1.1.1 Argumentism

In order to gain proper knowledge about something, one has to follow a certain method. Western philosophers followed different methods to gain knowledge. These are dogmatism, scepticism and dialectic method etc.

Dogmatism introduces philosophical discussion without following the origin and conditions of knowledge. This method initiates philosophical discussions based on superstition and previous ideas. This method accepts the truth and falsehood of knowledge without judgment.

Scepticism expresses doubt on the possibilities of theoretical knowledge. According to this doctrine, knowledge is not precise and certain. Dogmatism accepts the truth of knowledge without considering judgment and scepticism denies the truth of knowledge.

The name given to the combination of two opposing ideas is the dialectic method. In this method, the knower acquires correct knowledge through the combination of thesis, antithesis and synthesis. This process does not stop at the first adjustment. Here the first time adjustment appears as thesis for the second time. This thesis has antithesis again. Thus the dialectic method continues until the absolute truth is reached.

However the unsuspecting can be found through doubt. Where there is no doubt, dogmatism is born. But doubting something does not mean denying it. So everything in the world has to be doubted like Rene Descartes. There is no question of reasoning without

doubting something. Therefore, argument is the only ideal method of gaining knowledge. I think only argument is appropriate as the ideal method of philosophical discussion.

There is a thesis (beginning proposition) first in this argumentism. This thesis becomes antithesis (negation of that thesis) through doubt. Later, through argument, thesis and antithesis were combined to form synthesis (new proposition that combines two conflicting ideas). Here too, the first coordination appears as the thesis for the second time. This thesis turns into antithesis through doubt and later synthesis is formed by combining through argument. This method continues until it reaches the absolute truth. This method is called argumentism.

The following figures illustrate the argumentism.

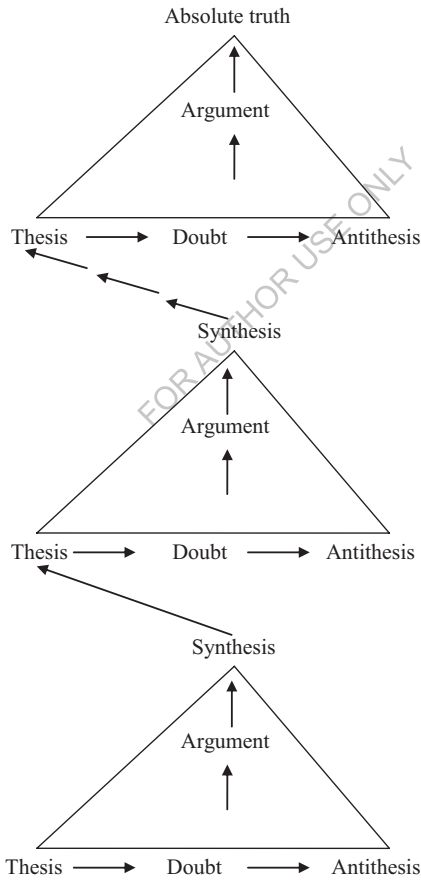


Fig. 9.4

To know an object, the knower has to go a long way. The matter can be explained in a very simple way. Suppose a Cartesian coordinate where the object is at the point P. The knower is at the point O. Then the knower has to go from point O to point P. Let's explain the matter with the help of a figure.

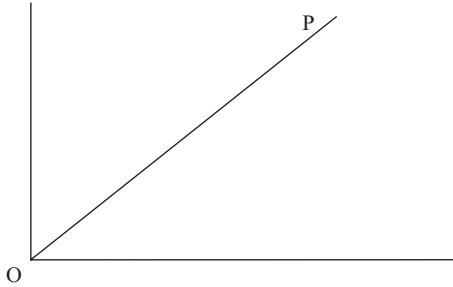


Fig. 9.5

Here the knower has to go from point O to point P. He or she has to step on every point. If one point is left out, there will be discontinuity. Then there will be no proper knowledge. Therefore, the matter of gaining knowledge has to be acquired. There is no short or easy way to acquire knowledge. Knowledge is a matter of achievement.

9.1.2 The Origin of Knowledge

9.1.2.1 Cognitivism

According to the empiricists, knowledge can be gained only through experience. They consider experience as a source of accurate knowledge. Experience is sensation or sense feeling. By senses we mean five external senses, viz. the eyes (caksu), the ears (srotra), the nostrils (ghrana), the tongue (rasana) and the skin (tvak). According to empiricism, the five senses are the only means of gaining knowledge.

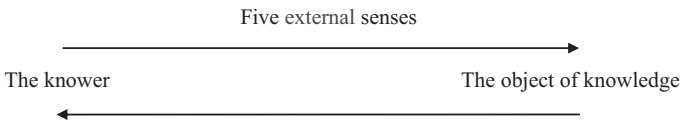


Fig. 9.6

Again, according to rationalism, intellect is the only means of gaining knowledge. According to the rationalists, proper knowledge can be gained through intellect. The knowledge that can be obtained with the help of the five senses is inconsistent and there is no

perfection in this knowledge. Intellect is the natural quality of the mind. The mind naturally generates knowledge from its inner perception.

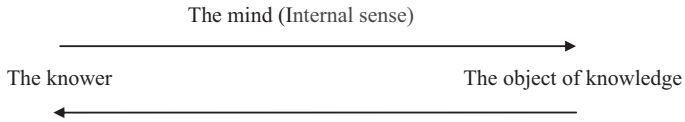


Fig. 9.7

According to criticism (critical theory of Kant), not only experience or intellect produces knowledge, but also experience and intellect are required for the origin of knowledge. Experience gives the element of knowledge and intellect gives the shape of knowledge. Through sensation we get the element of knowledge and that element is integrated by the intellect and produces knowledge.

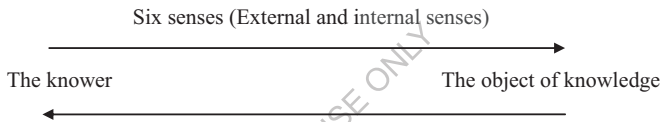


Fig. 9.8

Indian philosophers consider perception (pratyaksa) to be one of the sources of true knowledge. According to them, there are more sources of true knowledge, for example, inference (anumana), comparison (upamana) and testimony (sabda). However, this perception is again of two types, namely, external perception (bahya pratyaksa) and internal perception (antara pratyaksa). External perception is the perception of the five senses. Internal perception is the perception of the mind. In Indian philosophy, the mind is called the sixth sense. Therefore, according to Indian philosophy, the knowledge that is obtained through perception, according to Western philosophy, it is obtained through empiricism, rationalism and criticism.

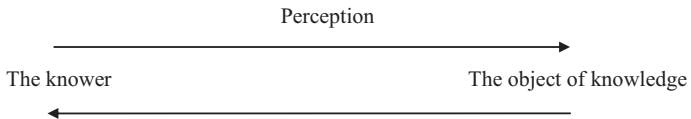


Fig. 9.9

Here perception means perception with the help of six senses. The sensation of the five senses give the material of knowledge and the intellect which is the characteristics of the

mind give the shape of knowledge. Beyond this there are sources of knowledge such as inference, comparison and testimony. Perception, inference, comparison and testimony are the four aspects of human consciousness or cognition. Therefore, cognition can be considered as the only source of knowledge. The knower acquires accurate knowledge of the knowable object with the help of cognition.

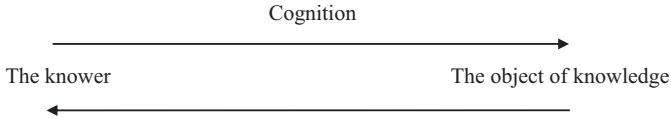


Fig. 9.10

Now let us discuss these four types of cognition separately.

9.1.2.2 Pratyaksa

The knowledge gained through the connection of the senses with the object is called pratyaksa or perception. First of all, pratyaksa is of two types, namely, laukika pratyaksa (ordinary perception) and alaukika pratyaksa (extraordinary perception). The perception in which indriya sannikarsa (the contact of the senses with their objects) is simple and usual is called laukika pratyaksa. The perception that occurs with the help of five external senses such as eyes, ears, etc., and internal sense mind is laukika pratyaksa. On the other hand, the perception in which indriya sannikarsa is unusual or miraculous is called alaukika pratyaksa. In the extraordinary perception, the senses do not have a usual connection with the object, but are perceived in an extraordinary way.

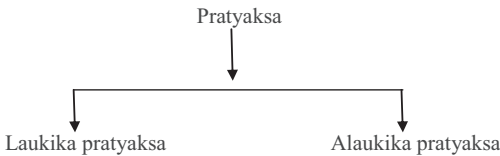


Fig. 9.11

Laukika pratyaksa is again of two kinds, namely, bahya pratyaksa (external perception) and antara pratyaksa (internal perception). The knowledge that comes with the help of the five external senses, namely, the eyes (caksu), the ears (srotra), the nostrils (ghrana), the tongue (rasana) and the skin (tvak), are called external perception. Again, the perception in connection with the mind through the mental process of thinking, feeling etc. is called internal perception.

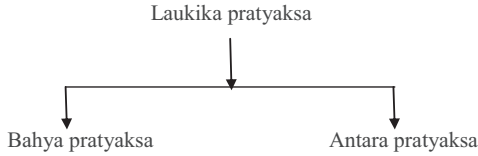


Fig. 9.12

According to another view, ordinary perception or *laukika pratyaksa* may be divided into three parts, namely, *nirvikalpa pratyaksa* (indeterminate perception), *savikalpa pratyaksa* (determinate perception) and *pratyabhijna* (recognition). An object which is known only as an object that is merely the existence of the object is known is called *nirvikalpa pratyaksa*. The ordinary perception which has the knowledge of the existence of an object and its class and various qualities is called *savikalpa pratyaksa*. *Pratyabhijna* or recognition is to cognize a person or an object as pre-identified.

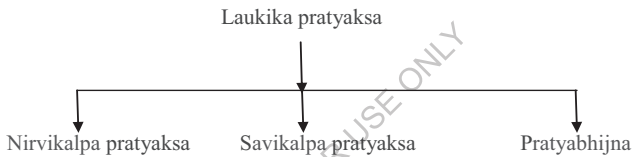


Fig. 9.13

Alaukika pratyaksa or extraordinary perception is of three types, namely, *samanyalaksana*, *jnanalaksana* and *yogaja*. The perception of a person or an object where the entire class is perceived on the basis of the generality of that class of person or object then it is called *samanyalaksana* perception. Again with the help of a sense, when perceiving an object, if the qualities attributable to other senses are perceived then it is called *jnanalaksana* perception. With the help of intuition or with the help of supernatural power generated by devout meditation, what the yogis perceive in which the past, present, future, distant and finer objects is called *yogaja* perception.

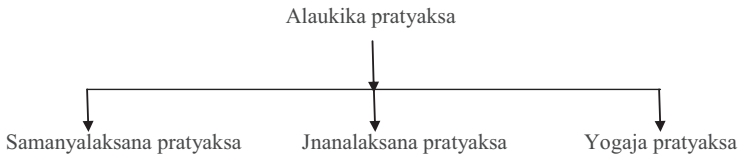


Fig. 9.14

9.1.2.3 Anumana

Depending on what is known and supported by it, if it is possible to know about something unknown, then it is called anumana or inference. There are three terms in an inference. They are sadhya (major term), paksa (minor term) and hetu (middle term). What is inferred is sadhya, that is where the existence of sadhya is inferred is paksa and the term that establish the link between the sadhya and the paksa is hetu. Another name for hetu is linga or sadhana. The following is an illustration of the terms with an example.

There is smoke on the hill.

Wherever there is smoke, there is fire.

Therefore, there is fire on the hill.

In the above inference, fire is sadhya or major term, because, on that inference, fire is inferred, the hill is paksa or minor term, because the existence of fire is inferred in the hill and the smoke is hetu or linga because fire is inferred on the basis of smoke. Each inference has at least three propositions. An invariable concomitance relation between the hetu and the sadhya is called vyapti. The propositions are called the avayavas or members of syllogism.

On the basis of the purpose of which the inference is fulfilled, the inference can be divided into two parts. They are svarthanumana (inference for oneself) and pararthanumana (inference for others). The inference that one is made to gain knowledge for himself is svarthanumana and the inference that one assumes something to prove to other is pararthanumana.

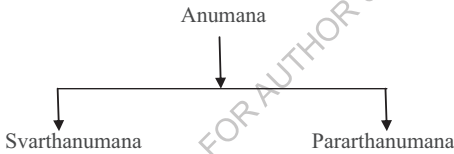


Fig. 9.15

According to the systematic differences in the journey from known truth to unknown truth, the inference can be divided into three parts. They are purvavat, sesavat and samanyatodrsta. The inference that infers unperceived effect by perceiving the cause is called purvavat anumana. The inference that infers unperceived cause by perceiving the effect is called sesavat anumana. The inference that is made based on prior experience and similarity, not based on causal relationships, is called samanyatodrsta anumana.

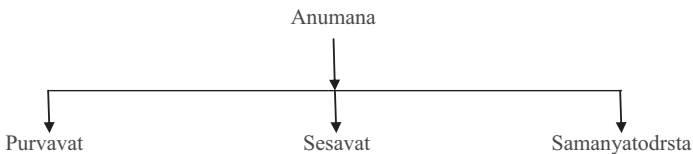


Fig. 9.16

The inferences can be divided into three, based on the point of view of induction of vyapti between the hetu and the sadhya. They are kevalanvayi anumana, kevalavyatireki anumana and anvayavyatireki anumana.

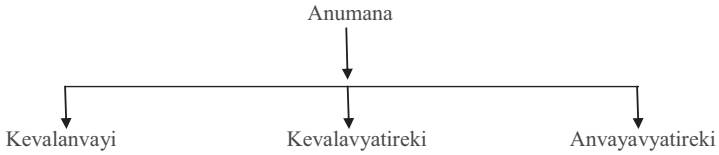


Fig. 9.17

The inference where hetu (middle term) looks like a reason but not actually so, that inference is misleading and the name of this delusion is hetvabhāsa or fallacies of inference. There are five kinds of hetvabhāsa, namely, savyabhicāra, viruddha, satpratipakṣa, asiddha and badhita.

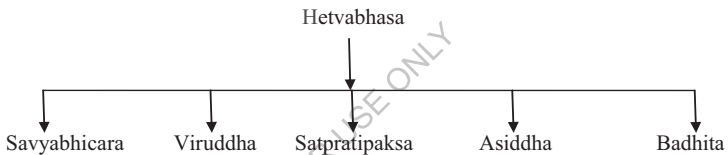


Fig. 9.18

9.1.2.4 Upamāna

When knowledge of a new object is obtained by observing the similarity of a new and unfamiliar object with a previously known object, the method of acquiring that knowledge is called upamāna or comparison. Let us understand the matter with the help of an example. No one has seen gavaya (wild cow) before. One of the forest dwellers told him that gavaya looks like a cow. Going into the forest, the man saw a new animal and noticed that the new animal resembled a cow. Then, with the help of the description of the forest dweller, he recognized the new animal as gavaya. Upamāna is the way of knowing the denotation of words, i.e., the relation between names and the objects denoted by the names. There are two factors involved in a comparison which are (1) gain knowledge about an unfamiliar object that has not been seen before and (2) knowledge of the resemblance of a new unfamiliar object to a previously familiar object.

9.1.2.5 Sabda

Sabda or testimony is the word of a trustworthy person. Trustworthy person is the one who knows the truth and tells the truth. It is also called aptavākya. The knowledge that derives from sabda or aptavākya is called sabda-jñāna.

According to the object of knowledge, sabda-pramana is of two kinds, namely, drstartha or that relating to perceptible objects and adrstartha or that relating to imperceptible objects. The words of a trustworthy person about sensible objects or things is called drstartha sabda pramana. Again the words of a trustworthy person about an object or thing that is not sensible is called adrstartha sabda pramana.

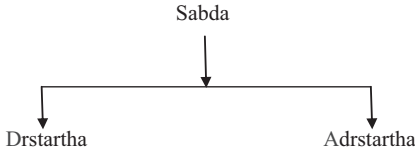


Fig. 9.19

According to another classification, there are two kinds of sabda jnana, one is vaidika or scriptural and other is laukika or secular. The words of the Vedas are vaidika sabda pramana. The vaidika testimony is the words of God and so is perfect. Again the words of human beings are laukika sabda pramana. The knowledge that comes from laukika sabda pramana is likely to go astray.

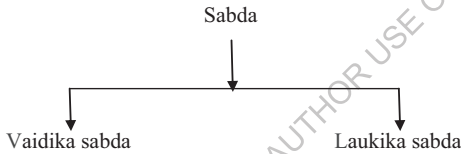


Fig. 9.20

9.1.3 The Nature of Known Object

9.1.3.1 Relativism

Humans are social creatures. He has to face different situations to continue in the society. People have to acquire knowledge to sustain life. Now our topic is what is the nature of the known object or knowable object? There are differences among philosophers about this. If there is to be knowledge, both the knower and the object to be known are needed. The one who acquires knowledge of the object is called the knower and the object that one has knowledge of is called the known object. So to be knowledge, both individuals and objects are needed. Knowledge reveals the relationship between the knower and the known object.

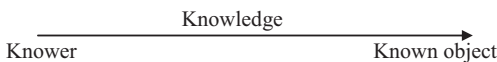


Fig. 9.21

Different philosophers have expressed different views on the nature of known objects. There is a group of philosophers who think that a known object has a mind-neutral or knowledge-neutral entity. Their doctrine is called realism. Again there are other philosophers who think that the known object is dependent on the mind or knowledge. Their doctrine is called idealism. The realists want to establish substance as the substratum of quality as an out-of-mind entity. They want to protect the sovereignty of nature. On the other hand, the idealists want to make all kinds of qualities of objects dependent on the mind and substance the substratum of the qualities to be made dependent on the mind. The realists are object-centered and the idealists are self-centered.

What is the nature of the known object? I will try to answer this question in a different way. We know that we can gain accurate knowledge only through cognition. Cognition is perception (pratyaksa), inference (anumana), comparison (upamana) and testimony (Sabda). Perception is a kind of cognition. This perception can be the perception of the five senses (external perception) or the perception in connection with the mind (internal perception). It is important to remember that the mind is also a kind of sense. In Indian philosophy, the mind is called the sixth sense. Therefore, the question of whether the existence of an out-of-mind entity is acceptable or excluded is not more important. Through the five senses perception we get the element (contents) of knowledge and through the mind sense perception we get the shape (concepts) of knowledge. The realists make the existence of known objects mind-neutral. On the other hand the idealists make the existence of known objects dependent on the mind. The mind has a role to play in knowing objects. Because intellect is the quality of the mind and if there is no intellect, knowledge is not its shape. Without the shape of knowledge, knowledge is not integrated and well-organized.

Thus the nature of the knowable object depends on the cognition of the knower. That is, the nature of the knowable object is relative. This is normal that the nature of the knowable object will depend on the knower, because the knower knows the matter. Now it can be said that known objects are perception-dependent, inference-dependent, comparison-dependent and testimony-dependent. Perception-dependent means perception-dependent of the five senses or perception-dependent of the mind.

So the nature of the knowable object depends on how the knower knows the object. Therefore the nature of the known object is relative. The matter can be explained with the help of mathematics.

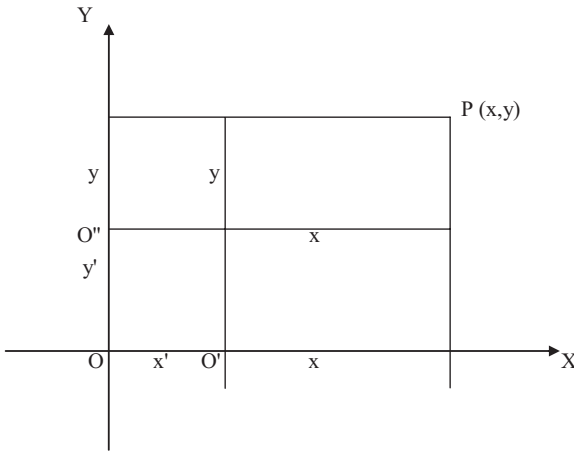


Fig. 9.22

Suppose XOY indicates the Cartesian coordinate system. Here the knower is in O position. The knowable object is in the P position. Then the position of the knowable object will be $P = (x, y)$. Now suppose, if the knower moves x' amount along the X axis, then the position of the knower will be O' . Then if the knower wants to know the position of the object, the position will be $P(x-x', y)$. On the other hand, if the knower moves y' amount along the y axis, then the position of the knower will be O'' . Then if the knower wants to know the position of the object, then the position of the object will be $P(x, y-y')$. So it can be said that the nature of the known object is relative. This doctrine is called relativism.

9.2 Category

Category is padartha. Padasya artha: padartha- that is, all things indicated by words are padarthas. Can not imagine anything on this universe that has no name. Padartha is the object of what is known with the name. Whatever knowledge matters, it certainly has a name. The topic that is specified by word is padartha.

There are four types of padarthas, namely, dravya (substance), guna (quality), karma (action) and samannaya (adjustment).

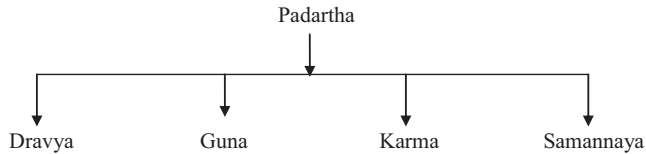


Fig. 9.23

The padarthas or categories of Generancy philosophy and Vaisesika philosophy can be arranged with the following table.

Padartha	Generancy philosophy	Vaisesika philosophy
	Dravya	Dravya
	Guna	Guna, samanya and visesa
	Karma	Karma
	Samannaya	Samyoga and samavaya
		Abhava or non-existence

Tab. 9.2

What is abhava or non-existence in the Vaisesika philosophy is the absence of anything. Abhava or non-existence is the opposite of existence. Abhava is a negative category or padartha.

According to the Nyaya philosophy sixteen categories or padarthas have been acknowledged. These are (1) pramana (valid means of knowledge), (2) prameya (objects of valid knowledge), (3) samsaya (doubt), (4) prayojana (aim), (5) drstanta (example), (6) siddhanta (conclusion), (7) avayava (members of syllogism), (8) tarka (hypothetical argument), (9) nirnaya (settlement), (10) vada (discussion), (11) jalpa (wrangling), (12) vitanda (cavilling), (13) hetvabhava (fallacy), (14) chala (quibbling), (15) jati (sophisticated refutation) (16) nigrahasthana (point of defeat). According to the Vaisesika philosophy, padarthas are of seven kinds, namely, dravya (substance), guna (quality), karma (action), samanya (generality or universal), visesa (particularity), samavaya (inherence) and abhava (non-existence).

9.2.1 Name

A name is a term that identifies a padartha or category. Everything around us has a name to mark it. Without a name we cannot identify anything. In order to gain knowledge of something, it is important to know the name first. Now let us discuss about the four types of categories, namely dravya, guna, karma and samannaya. The prerequisite for knowledge of an object is to find out the appropriate name of that object. For example, it is ignorant to call the imaginary number as a real number; to call an imaginary number as an imaginary number is knowledge.

9.2.1.1 Dravya

The category on which quality and action resides is called dravya or substance. Quality is simply the quality of a substance and action is simply the action of a substance. Without substance there can be no quality and action. So a substance is the basement or substratum of quality and action.

According to the Vaisesika system, dravya or substance is of nine kinds, namely, ksiti (soil), jala (water), agni (fire), vayu (air), akasa (ether), dik (space), kala (time), atma (soul) and manas (mind).

9.2.1.2 Guna

The category or substance that resides in dravya or substance and which has no action is guna or quality. Quality is always based on the substance. Substance is the base of quality. Without substance, there is no separate existence of quality. Therefore, quality is the extra substance category and depending on a substance. Quality exists in the substance as the inactive (niskriya) adjective of the substance. Even if the quality exists in the substance, it is different from the substance. It is different from action too. Quality is stable and passive.

According to the Vaisesika system, gunas or qualities are twenty-four, namely, rupa (colour), rasa (taste), gandha (smell), sparsa (touch), sabda (sound), sankhya (number), parimana (magnitude), prthaktva (distinctness), samyoga (conjunction), vibhaga (disjunction), paratva (remoteness), aparatva (nearness), buddhi (cognition), sukha (pleasure), dukkha (suffering), iccha (desire), dvesa (aversion), prayatna (effort), gurutva (heaviness), dravatva (fluidity), sneha (viscosity), samskara (tendency), dharma (merit) and adharma (demerit).

9.2.1.3 Karma

The motion of the material objects is karma or action. Like quality the base or substratum of action is substance. But action is different from substance and quality. The difference between action and quality is that action is dynamic and active, while quality is stable and passive. The action of the limited corporeal substances (murtadravya) is known through its function and motion. The limited corporeal substances are earth, water, light, air and the mind. Karma is regarded as the independent cause of the conjunction and disjunction of objects.

9.2.1.4 Samannaya

There are three main types of samannayas (adjustments). These three types of adjustments are cause, relation and rule. Samavaya (inherence) and samyoga (conjunction) are also a kind of samannaya (adjustment). Relation and rule will be discussed in chapter 11. Other issues were discussed in detail below.

9.2.1.4.1 Cause

The cause is the event which comes in invariable ways before the action or which is essential for the origin of the action. According to the Naiyayikas, a cause is an immediate, unconditional and invariable antecedent to the effect. The difference between effect and cause is that cause is the event preceded by effect and effect is the event followed by cause. Although the cause is a previous event, any previous event of an effect cannot be called a cause. The cause must be the universal antecedent of the action, that is, the cause is the invariable antecedent of the action. Again no invariable previous event of action can be said to be the cause. Then the day could be called the cause of the night and the night as the cause of the day. So the cause is not only the invariable antecedents of the action, but the unconditional invariable antecedents of the action. Furthermore, the cause must be an immediate preceding event of the effect, i.e. if there is a long gap between the cause and the effect then another event may occur within that time which is related to the effect.

9.2.1.4.2 Samavaya

Samavaya (inherence) is the name of the permanent and eternal relationship between two categories. For example, the relationship of fabrics and yarn. One of the two related categories resides in the other. Such as fabrics are located in the yarn. One of the inherence categories cannot be separated from the other. If one of the two objects cannot be separated from the other, that is, if the separation causes loss of existence of one of them, then they are called ayutasiddha or inseparable entities. So inherence is ayutasiddha relation.

The relationship of the whole to the part, the relationship of quality and action to the substances, etc., are examples of samavaya or inherence. Here we see that the cloth as a whole is located in the yarn, the white color as a quality is located in the buck, the motion as the action is located in the moving car. Terms relating to samavaya cannot be reversed. For example, it can be said that quality resides in substance, but substance resides in quality, it cannot be said. Inherence is permanent, eternal and internal relation. Internal relations are called because at least one of the two samavaya objects depends on the other.

9.2.1.4 .3 Samyoga

If two objects can exist separately and the impermanent relationship that is formed between them is called samyoga or conjunction relationship. For example, as long as I put the book on the table, the connection of the book with the table is made. Picking up the book from the table will disconnect the book with the table. So this relationship is temporary. Conjunctions may be in isolation. If one of the two objects can be separated from the other

and there is no loss of their existence, then they are called yutasiddha or separable entities. So the conjunction is the yutasiddha relationship.

The existence of the two connected objects does not depend on the conjunction or samyoga relationship. For example, a bird flew over the tree. It established the relationship of bird with tree. This relationship is not a permanent or eternal relationship. Tree and bird existed even before this relationship was formed. Terms relating to samyoga can be reversed. If it is said that the book is connected to the table, then it can also be said that the table is connected to the book.

Now from the decision 9.1.1

We get name follows the point rule. Category is related to name.

$$\exists (\text{Category}) \rightsquigarrow \mathfrak{P} (\text{Name}) \Rightarrow$$

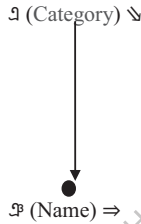


Fig. 9.24

We get one law from point rule.

Law 9.1.1 $\mathfrak{P} (\text{Name}) = \mathfrak{P} (\text{Name})$

Explanation of the law is name merely equal to name.

9.3 Assertion

An assertion is the correct and definitive description of an object. A confident and forceful statement about an object is the assertion. With an assertion, one can get accurate knowledge of a topic. An assertion reveals the attitude of a name. There are two types of attitudes of an assertion, namely: positivity and negativity.

9.3.1 Positivity

Positivity means thinking in an optimistic way, looking for solutions, expecting good results and success. It is the practice of being or tendency to be positive or optimistic in attitude. Positivity associated with emotions of joy, love and inspiration. It also associated with thoughts of courage, certainty and success.

The following figure explains a positivity.

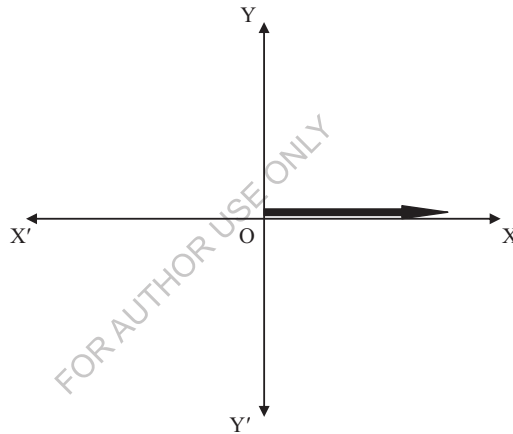


Fig. 9.25

If there is an object to the right of the origin in the Cartesian co-ordinate system is positive and this position assertion of the object is called positivity.

9.3.2 Negativity

Negativity is one where there is no positivity. It is something that is not positive. Negativity is expressing, containing, or consisting of a negation, refusal, or denial. It is lacking positive or constructive features.

The following figure explains a negativity.

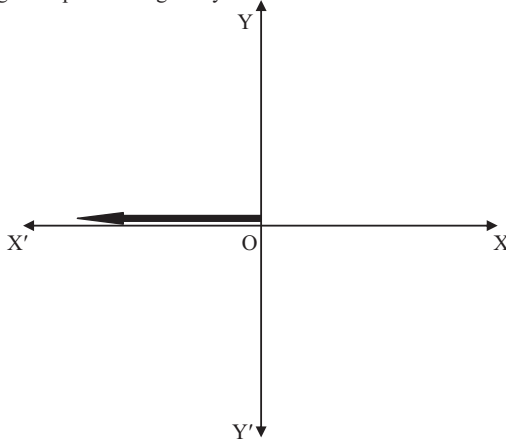


Fig. 9.26

If there is an object to the left of the origin in the Cartesian co-ordinate system is negative and this position assertion of the object is called negativity.

Now from the decision 9.1.2

We get positivity and negativity follow the balance rule. Assertion is related to these (positivity and negativity).

$$\mathfrak{A}^\circ (\text{Assertion}) \mathfrak{N} \mathfrak{P} (\text{Positivity}) \Rightarrow \mathfrak{N} (\text{Negativity})$$

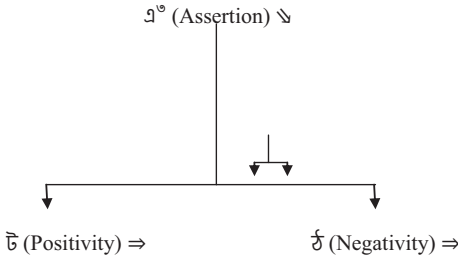


Fig. 9.27

We get one law from balance rule.

Law 9.2.1 $\mathfrak{P} (\text{Positivity}) \propto \mathfrak{N} (\text{Negativity})$

Explanation of the law is positivity directly proportional to negativity.

9.4 Dimension

The expansion of padartha is called dimension. Dimension is three. They are north, east and up. Any padartha or category is tri-dimensional. That is all objects bearing a name have three dimensions. On the other hand, all objects can be positioned on these three sides. Now let us describe the dimensions.

9.4.1 North

In the Cartesian co-ordinate system north and south is YOY' axis where north is OY axis and south is OY' axis.

In the following figure the arrow sign to the OY axis is north and the arrow sign to the OY' axis is south.

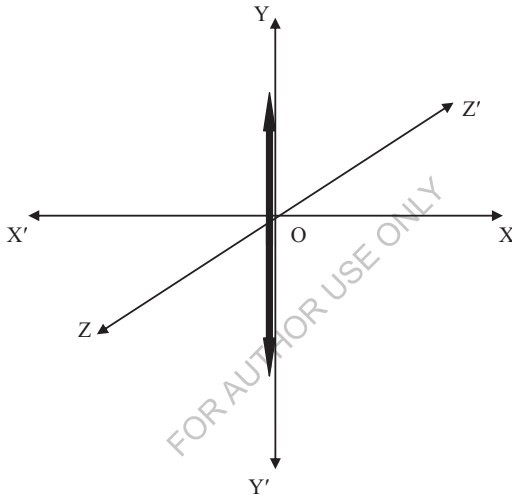


Fig. 9.28

9.4.2 East

In the Cartesian co-ordinate system east and west is XOX' axis where east is OX axis and west is OX' axis.

In the following figure the arrow sign to the OX axis is east and the arrow sign to the OX' axis is west.

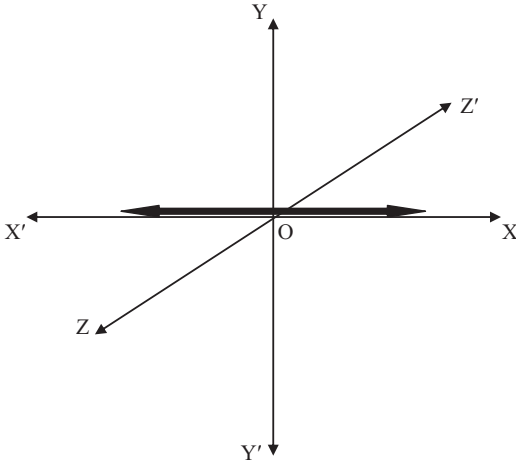


Fig. 9.29

9.4.3 Up

In the Cartesian co-ordinate system up and down is ZOZ' axis where up is OZ axis and down is OZ' axis.

In the following figure the arrow sign to the OZ axis is up and the arrow sign to the OZ' axis is down.

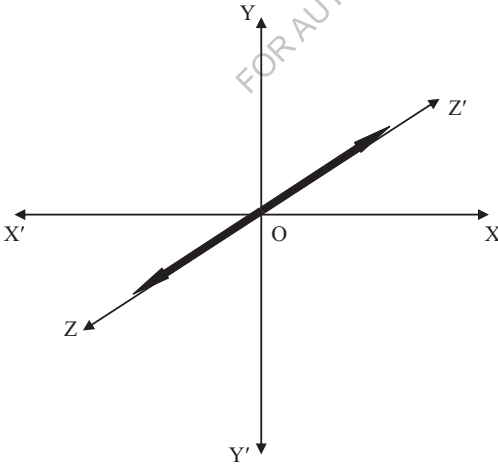


Fig. 9.30

Now from the decision 9.1.3

We get north, east and up follow the left hand rule. Dimension is related to these (north, east and up).

$$\mathfrak{D} (\text{Dimension}) \rightsquigarrow \mathfrak{N} (\text{North}) \Rightarrow \mathfrak{E} (\text{East}) \Rightarrow \mathfrak{U} (\text{Up})$$

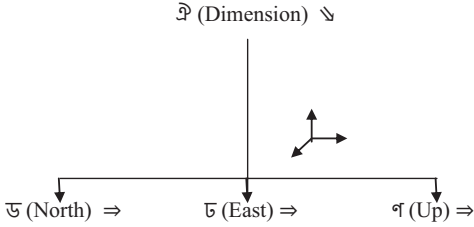


Fig. 9.31

We get three laws from left hand rule.

Law 9.3.1 Keeping $\mathfrak{N} (\text{North})$ constant, $\mathfrak{E} (\text{East})$ is inversely proportional to $\mathfrak{U} (\text{Up})$, i. e.,
 $\mathfrak{E} (\text{East}) \propto 1/\mathfrak{U} (\text{Up})$

Law 9.3.2 Keeping $\mathfrak{E} (\text{East})$ constant, $\mathfrak{N} (\text{North})$ is inversely proportional to $\mathfrak{U} (\text{Up})$, i. e.,
 $\mathfrak{N} (\text{North}) \propto 1/\mathfrak{U} (\text{Up})$

Law 9.3.3 Keeping $\mathfrak{U} (\text{Up})$ constant, $\mathfrak{N} (\text{North})$ is inversely proportional to $\mathfrak{E} (\text{East})$, i. e.,
 $\mathfrak{N} (\text{North}) \propto 1/\mathfrak{E} (\text{East})$

9.5 Quantity

What we measure in a category or padartha is called quantity or rashi. For example, we measure length and mass of a table. Then length and mass are quantities. Again let us find out how many times a car is running and what is the force of the car? Then time and force acting on the car are quantities. There are many quantities in this physical world. Firstly, the quantity can be divided into two parts, namely, fundamental quantity and derived quantity.

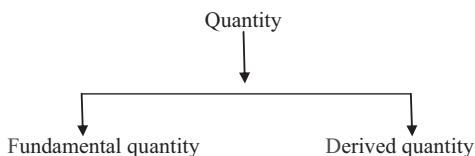


Fig. 9.32

To measure the quantity that do not require any other quantities are called fundamental quantity. For example, if the length and mass of the table is measured, only the length and mass are measured. No other measurements are needed. Again, the force applied to a moving object and the time to measure only force and time are measured. No other measurements are needed. So force, mass, space and time are fundamental quantities.

There are many quantities to measure them other quantities are needed. They are derived quantities. For example, to measure the velocity or speed of a moving vehicle, it is to measure that how much distance the vehicle crossed over time. Then the velocity or speed will be calculated by dividing the distance by time. Therefore, the velocity or speed is derived quantities. Again, to measure the density of a gold bar, you must measure the mass and volume of the gold bar. Then the density will be calculated by dividing the mass by volume. Therefore, the density is derived quantities.

Each of the numerous physical quantities used in science has its own unit. These units can be divided into two parts. They are fundamental unit and derived unit.

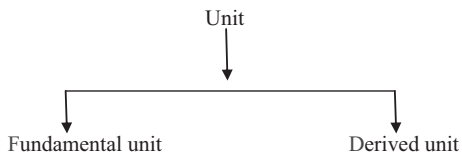


Fig. 9.33

A unit that does not depend on any other unit and is absolutely unrelated or independent is called a fundamental unit. Units such as force, mass, space and time do not depend on any other unit. So these four units are the fundamental units. The unit of force is newton, the unit of mass is kilogram, the unit of space is meter and the unit of time is second.

The unit that can be made based on the fundamental units are called derived unit. For example, velocity, acceleration, momentum etc. The velocity depends on the meter and second. That is

$$\text{Velocity} = \frac{\text{meter}}{\text{second}}$$

$$\text{or, } v = \frac{\text{m}}{\text{s}}$$

Again, the acceleration is also depends on the meter and second. That is

$$\text{Acceleration} = \frac{\text{meter}}{\text{second}^2}$$

$$\text{or, } a = \frac{\text{m}}{\text{s}^2}$$

Again, the momentum is also depends on the kilogram, meter and second. That is

$$\text{Momentum} = \text{mass} \times \text{velocity}$$

$$\text{or, } p = \text{kg} \times \frac{\text{m}}{\text{s}}$$

$$\text{or, } p = \frac{\text{kgm}}{\text{s}}$$

9.5.1 Force

We know that every object wants to maintain the state it is in, that is, if the object is stationary, it wants to remain stationary and if it is dynamic it wants to be dynamic. This property of object is called inertia. To change the inertia of the object, something has to be applied from the outside. An external cause is called force or bala which causes the object to move or wants to move, or to change or wants to change the motion of a moving object.

9.5.1.1 Fundamental Force

In nature we are familiar with different types of forces, but not all forces are fundamental. Those forces that are original or independent, that are not produced by any other force or form of any other force, but are expressed as other, are called fundamental forces. In Physics the fundamental forces are four. They are: gravitational force, electromagnetic force, strong nuclear force and weak nuclear force.

The interaction between any two objects in the universe is called the gravitational force. Gravity is a universal force. Every object in the universe feels this force because of another object. All objects on the surface feel this force because of the earth. The magnitude of this force is direct proportional to the product of the mass of the two acting objects and is inverse proportional to the square of the distance between the two. The range of gravitational force is infinite. The carrier particles of gravitational force is gravitons (hypothetical).

There is a kind of force acting between two charged objects and between two magnets. They are called Coulomb's electric and magnetic forces, respectively. Electric force and magnetic force are closely related. The attraction or repulsion force that two charged particles exert on each other because of their charge is called electromagnetic force. The range of electromagnetic force is infinite. The carrier particles of electromagnetic force is photons. Structure of atoms and molecules, chemical reactions, thermal and other properties of matter are the result of electromagnetic force.

The nucleus of an atom is made up of protons and neutrons. Collectively they are called nucleons. The strong force that binds together nuclear elements in the nucleus of an atom is called a strong nuclear force. The strong nuclear force binds proton and neutron to the nucleus. This force is attractive and the range is short. The carrier particles of strong nuclear force is gluons.

The force that acts on the nucleus causing instability in the nucleus is called a weak nuclear force. When a β ray is emitted from a nucleus, then weak nuclear force arises. This is a weak force and range is short. The carrier particles of weak nuclear force is W and Z bosons.

9.5.1.2 Newton's Laws of Motion

In 1687, Sir Isaac Newton published three laws, establishing the relation between the mass, the motion, and the force of the object. These three laws are known as Newton's laws of motion.

Newton's first law states that if body at rest will remain at rest, and a body in motion will remain in motion unless it is acted upon by an external force. From the first law, we know that the object cannot change its position if no external force is applied to the object. If the object is in a stable state, it always wants to be stable, again once in a dynamic state it always wants to be dynamic. This particular properties of matter is called inertia. So this law is also called the law of inertia.

Newton's second law states that the rate of change of momentum is proportional to the force applied to the object. Where in the direction the force is acting, the changes in momentum also occur in that direction.

We can write with the help of symbols as

$$\vec{p} = m\vec{v}$$

where, \vec{p} is momentum, m is mass and \vec{v} is velocity.

Now according to Newton's second law, the rate of change of momentum is proportional to the force applied to the object. So, if the momentum is \vec{p} and the force is \vec{F} , then

$$\vec{F} \propto \frac{d\vec{p}}{dt}$$

$$\text{or, } \vec{F} \propto \frac{d}{dt}m\vec{v}$$

$$\text{or, } \vec{F} \propto m \frac{d}{dt}\vec{v}$$

$$\text{or, } \vec{F} \propto m\vec{a} \quad \left[\text{where, } \frac{d}{dt}\vec{v} = a, \text{ acceleration} \right]$$

$$\text{or, } \vec{F} = k m \vec{a}$$

$$\text{or, } \vec{F} = m\vec{a} \quad \text{where, } k=1$$

So, the force acting on an object is equal to the mass of that object times its acceleration.

Newton's third law states that each action has an equal and opposite reaction. Newton's first and second laws are about a single object, while the third law is related to two objects.

Suppose P and Q are two objects. Then \vec{F}_1 is the attraction force by the second object Q on the first object P. And \vec{F}_2 is the attraction force by the first object P on the second object Q.

Then according to Newton's third law, we get

$$\vec{F}_1 = -\vec{F}_2$$

9.5.1.3 Conservation of Momentum

When the net force exerted on a system composed of multiple objects is zero, the total momentum \vec{P} of the system does not change over time. This is the conservation principle of momentum.

Suppose two objects with mass m_1 and m_2 collide while moving along the same straight line at \vec{u}_1 and \vec{u}_2 velocity, respectively. After the collision, the two objects moved along the same straight line at \vec{v}_1 and \vec{v}_2 velocity, respectively. So the total momentum of the two objects before the collision is $m_1\vec{u}_1 + m_2\vec{u}_2$. And the total momentum of the objects after the collision is $m_1\vec{v}_1 + m_2\vec{v}_2$.

Now if there is no external force applied, then according to the conservation principle of momentum,

$$m_1\vec{u}_1 + m_2\vec{u}_2 = m_1\vec{v}_1 + m_2\vec{v}_2$$

Therefore the total linear momentum remains unchanged.

Similarly when the net torque exerted on a system is zero, the total angular momentum of the system is conserved.

The following figure explains a two-asserted force.



Fig. 9.34

The following figure explains a three-dimensional force.

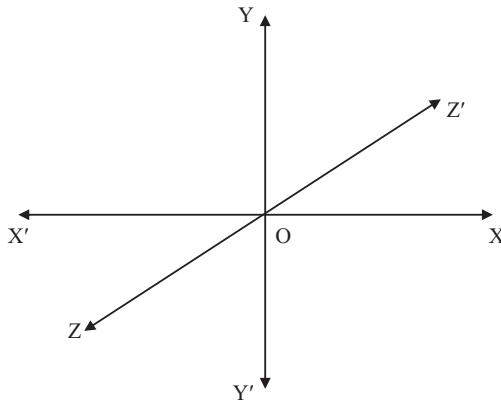


Fig. 9.35

9.5.2 Mass

Mass or bhara is an important concept in philosophy and physics. Mass is a measure of what is in that dravya or substance. Bhara or mass is one, eternal and all-pervading substance. Bhara is not many, there seems to be a lot of masses for adding conditions (upadhi). We divide mass into bricks, a table, a book and so on if we need it. Bhara is boundless extent. In Newtonian physics, mass is irreversible, wherever it is measured, is equal everywhere. But there is a difference of opinion in modern physics. In modern physics, mass is not something constant, but mass is relative. Due to space and time, mass may vary for different individuals. It is two-asserted and three-dimensional. Here are some laws of mass described in physics.

9.5.2.1 Inertial Mass

According to Newton's second law of motion we get the inertial mass as

$$m = \frac{F}{a}$$

where, F is the force imposed on, m is the mass of the body and a is the acceleration.

9.5.2.2 Gravitational Mass

According to Newton's law of gravitation we get gravitational mass as

$$m_g = \frac{Fd^2}{GM}$$

where, m_g is the gravitational mass, F is the gravitational force, M is the mass of standard object, d is the distance of the two objects and G is the gravitational constant.

9.5.2.3 Relativistic Mass

According to Einstein's theory of relativity, the relativistic mass is given by

$$m = \frac{m_0}{\sqrt{1-v^2/c^2}},$$

where, m = relativistic mass, m_0 = rest mass, v = velocity and c = speed of light.

The following figure is two- asserted mass.



Fig. 9.36

The following figure is three-dimensional mass.

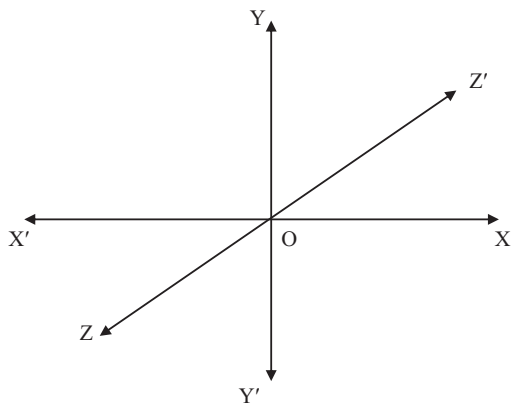


Fig. 9.37

9.5.3 Space

Space or sthana is one, eternal and all-pervading. Sthana is not many, there seems to be a lot of space for adding conditions. As a result, we have the idea of a vacant and full, here and there, near and far etc. Sthana is boundless extent. Sthana is one of the most important concepts in philosophy and physics. Space is needed to describe any event. Without knowing where an incident occurred, it is difficult to get a clear idea of the event. It is two-asserted and three-dimensional.

The following figure is two-asserted space.



Fig. 9.38

The following figure is three-dimensional space.

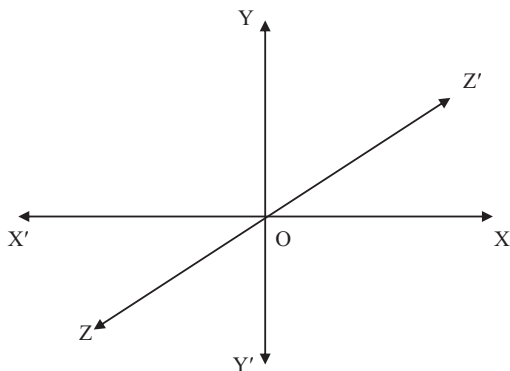


Fig. 9.39

9.5.4 Time

Like space or sthana, time or kala is one, eternal and all-pervading. Kala is not many, but the application of conditions (upadhi) make kala many. Time is the cause of our cognitions of past, present and future. To apply the conditions we divide time into days, months and years etc. Kala is boundless extent. It is two-asserted and three-dimensional. We divide time into hours, minutes, and seconds for our own needs. Kala or time such as space is an important concept in philosophy and physics. Space is also needed to describe any event. It is difficult to get a clear idea of an event without knowing when it happened. Sthana and kala are different dravya or substance.

The following figure is a clock which measures time.



Fig. 9.40

The following figure is two- asserted time.



Fig. 9.41

The following figure is three-dimensional time.

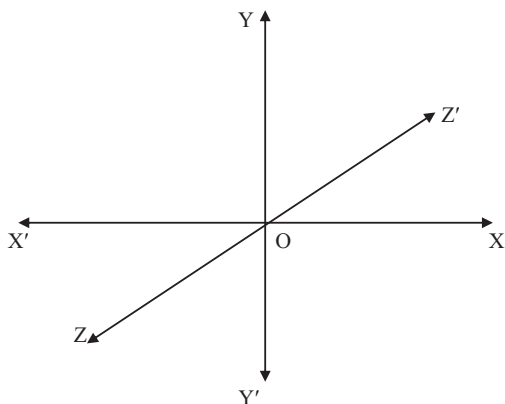


Fig. 9.42

Now from the decision 9.1.4

We get force, mass, space and time follow the cross rule. Quantity is related to these (force, mass, space and time).

$$\mathfrak{P}^{\circ}(\text{Quantity}) \simeq \mathfrak{T}(\text{Force}) \Rightarrow \mathfrak{M}(\text{Mass}) \Rightarrow \mathfrak{D}(\text{Space}) \Rightarrow \mathfrak{K}(\text{Time})$$

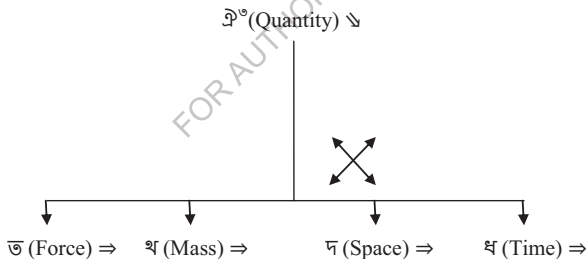


Fig. 9.43

We get six laws from cross rules.

Law 9.4.1 Keeping \mathfrak{T} (Force) and \mathfrak{M} (Mass) constant, \mathfrak{D} (Space) is directly proportional to \mathfrak{K} (Time), i. e.,

$$\mathfrak{D}(\text{Space}) \propto \mathfrak{K}(\text{Time})$$

Law 9.4.2 Keeping \mathfrak{T} (Force) and \mathfrak{D} (Space) constant, \mathfrak{M} (Mass) is directly proportional to \mathfrak{K} (Time), i. e.,

$$\mathfrak{M}(\text{Mass}) \propto \mathfrak{K}(\text{Time})$$

Law 9.4.3 Keeping $\bar{\text{t}}$ (Force) and t (Time) constant, m (Mass) is inversely proportional to d (Space), i. e.,

$$\text{m} (\text{Mass}) \propto 1/\text{d} (\text{Space})$$

Law 9.4.4 Keeping m (Mass) and d (Space) constant, $\bar{\text{t}}$ (Force) is inversely proportional to t (Time), i. e.,

$$\bar{\text{t}} (\text{Force}) \propto 1/\text{t} (\text{Time})$$

Law 9.4.5 Keeping m (Mass) and t (Time) constant, $\bar{\text{t}}$ (Force) is directly proportional to d (Space), i. e.,

$$\bar{\text{t}} (\text{Force}) \propto \text{d} (\text{Space})$$

Law 9.4.6 Keeping d (Space) and t (Time) constant, $\bar{\text{t}}$ (Force) is directly proportional to m (Mass), i. e.,

$$\bar{\text{t}} (\text{Force}) \propto \text{m} (\text{Mass})$$

Now from the decision 9.1.5

We get category, assertion, dimension and quantity are related. Jnana is the cause of these (category, assertion, dimension and quantity).

$$\text{Jnana} \Downarrow \text{Category} \rightsquigarrow \text{Assertion} \rightsquigarrow \text{Dimension} \rightsquigarrow \text{Quantity}$$

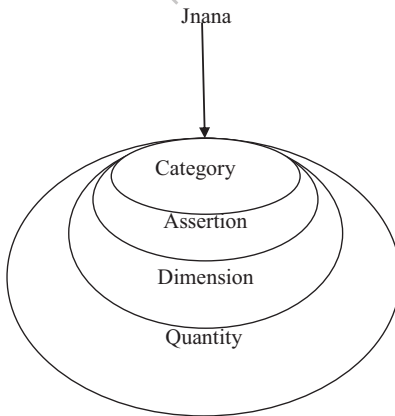


Fig. 9.44

CHAPTER 10

Karmodynamics

10.1 Karma

10.2 Person

10.3 Family

10.4 Society

10.5 State

10.6 World

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10.1 Karma

In order to survive, people have to take action (karma). He has to take action to survive in the family, society, state and world. Action is the motion of inert matter. Just as quality exists by taking refuge in a substance, so action exists by taking refuge in a substance. But action differs from substance and quality. The difference between action and quality is that action is dynamic and active, while quality is stable and passive. The action of the limited corporeal substances (murtadravya) is known through motion. The limited corporeal substances are earth, water, light, air and the mind. The Vaisesika-sutra composer Kanada defines action is that which takes refuge in a substance but is not a quality and is considered to be the direct cause of conjunction and disjunction of things.

For example, if a mango located on a branch of a tree is hit, it falls to the ground. Mango and its motion are not the same. Mango is a substance and motion is action. That motion belongs to mango. So action takes refuge in the substance. Again conjunction and disjunction of the mango with the branches of the tree arises directly from hit or motion. That is, action is proven as a direct and independent cause of conjunction and disjunction of things. When the mango falls to the ground, it runs out of motion. So the action is impermanent or temporary. On the other hand, guna or quality lasts as long as his shelter lasts, so quality is permanent and stable.

Karma or action takes refuge in goods. Asraya (shelter) and asrita (sheltered) cannot be one. So karma or action is not a dravya or substance, it is a distinct padartha or category. Again substance has quality but action has no quality. Action is also a different category than quality. If the substance is perceptible, its action will also be perceptible. Again, if the substance is imperceptible, its action will also be imperceptible. Ksiti, ap, tejas are perceptible, so their actions are also perceptible. The mind or manas is not perceptible so the action or motion of the mind is not perceptible. Action takes place only by taking refuge in concrete objects.

10.1.1 The Three Inevitable Facts of Organisms

10.1.1.1 Birth

The termination of pregnancy is called birth by the emergence of one or more babies from a woman's womb. The act or process of giving birth to a child from the mother's womb is called birth. Large mammals are usually pregnant with one child at a time, although they may give birth to two or more children occasionally. In large animals, the process of birth is similar to that of humans, but most offspring are precocial. This means that they are born in a better state than a human baby and can stand, walk and run shortly after birth. Humans usually produce single children at a time. The whole process from fertilization to birth takes about nine months. The birth of a human baby is usually 40 weeks after menstruation.

10.1.1.2 Karma

Karmavada (law of karma) is a moral concept of Indian philosophy. According to karmavada, every human being has to enjoy the fruits of his deeds. Good, evil, sin and virtue are conserved through karmaphala (fruits of karma). For this reason, karmavada is called the law of conservation of moral values. Karmavada is a kind of moral causality. Karma (action) is the cause and phalabhog (enjoying fruit) is effect. People will enjoy the fruits of their labor. People have to enjoy virtue if they do good deeds and sin when they do bad deeds. Karma produces a kind of 'invisible power' which causes organisms to suffer happiness and sorrow in the future according to actions. The law of karma states that as you sow shall you reap.

Karma comes from the root word 'kama' which means desires. Organisms usually perform two types of actions. These are namely, sakam karma and nishkam karma. Sakam karma means action with desire. Nishkam karma means action without desire. The action that is done for the sake of fruit is called sakam karma. The action that is done without expecting fruit is called nishkam karma. Sakam karma create bondage and attachment to the objects, resulting in reincarnation. As a result of performing nishkam karma, there is no possibility of attachment to the objects and as a result, there is no possibility of rebirth.

In another way, there are three types of karma, namely, prarabdha karma (fructifying works), sanchita karma (accumulated works) and sanchiyaman karma (current works). We know every action has a fruit or consequence, it is called karmaphala or fruits of actions. The action that has begun to bear fruit is called the prarabdha karma. The action that has been performed in the past but has not yet borne fruit is called sanchita karma. And the action that is being done now and has not yielded any fruit is called sanchiyaman karma. Valid knowledge can destroy the sanchita karmaphalas and sanchiyaman karmaphalas, but it cannot destroy the prarabdha karmaphalas. The present body of the living being and the happiness and sorrow are the result of his prarabdha karma.

The spiritual release or salvation achieved while alive is called jivanmukti. The salvation that is obtained after the destruction of the gross and subtle body after death is called videhamukti. Even if the soul remains in the body after salvation, that soul has no desire or attachment to any mundane object. This is called jivanmukti (liberation during life). The accumulated (sanchita) karmaphalas of jivanmukta person is wasted and sanchiyaman karma does not bear any fruit as it is nishkam karma (action without desire). Therefore, as soon as the enjoyment of prarabdha karmaphalas is over, the gross and subtle body of the jivanmukta person is destroyed and as a result he is released.

10.1.1.3 Death

In the Bhagavad Gita, Bhagavan Sri Krishna says,

Jatasya hi dhruvo mrtyur dhruvam janma mrtasya ca,
tasmad apariharye'rthe na tvam socitum arhasi. (BG-2.27)

Meaning

Death is certain for the born, and re-birth is certain for the dead; therefore you should not feel grief for what is inevitable.

One is born with a body according to his previous deeds. After staying in the material world for some time through that body, that body is destroyed and is reborn with a new body according to karma. Thus the soul continues to revolve in the cycle of birth and death until it is freed from inanimate bondage.

Death is a permanent, unchanging cessation of all biological functions that sustain a living being. Death is an inevitable, universal process that eventually occurs in all living things. Death is a total and permanent end of all vital activities of an organism. Death is the end of the life of an organism. Death is a state or condition when all physical activities such as respiration, food intake, circulation, etc. stop. When the cessation of consciousness occurs an organism is presumed to have died.

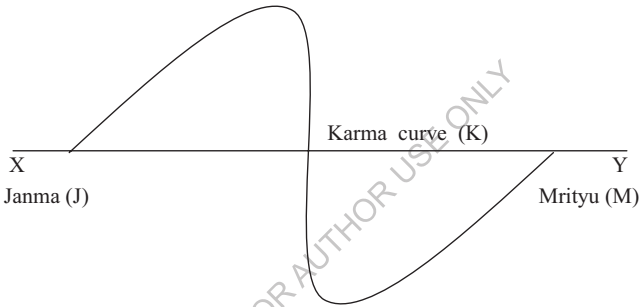


Fig. 10.1 Karma Curve

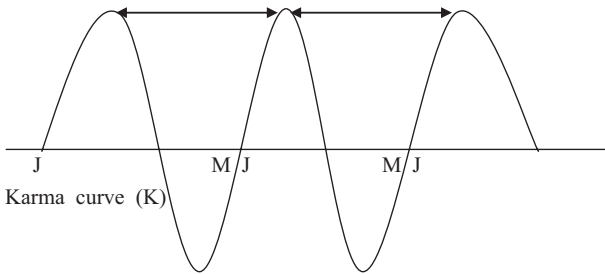


Fig. 10.2 Karma Curve

If an organism dies naturally, its life can be compared to a wave. The beginning of the wave is birth and the end is death. Then the wavelength (λ) is considered as the range of its life. The time period of the wave is calculated as the lifespan or age. Time period (T) is the time it takes for one complete oscillation. The equations for time period and wavelength are





$$T \text{ (period)} = 1 / f \text{ (frequency)}$$

$$\lambda \text{ (wavelength)} = c \text{ (wave speed)} / f \text{ (frequency)}$$

The area of a wave closed by the wavelength is called the karmaphala of that organism and the phase of the wave is called the karmaphalavog (enjoying the fruits of karma) of that organism. The actual state of motion of a particle that conducts waves at any given moment is called its phase. The actual state of motion here means the movement, velocity, acceleration, force etc. of the particle at a particular moment.

Karma tattva analysis in terms of jnana tattva.

Karma is a tattva. It has five akaras (forms) namely, person, family, society, state and world.

ॐ (Category) ⇓	Point rule 	ॐ (Name) ⇒	Karma
ॐ° (Assertion) ⇓	Balance rule 	ॐ̄ (Positivity) ⇒	Karma inclusion
		ॐ̅ (Negativity) ⇒	Karma exclusion
ॐ̄ (Dimension) ⇓	Left hand rule 	ॐ̄ (North) ⇒	Karma is in the north-south.
		ॐ̄ (East) ⇒	Karma is in the east-west.
		ॐ̄ (Up) ⇒	Karma is in the up-down.
ॐ° (Quantity) ⇓	Cross rule 	ॐ̄ (Force) ⇒	There is force in this karma.
		ॐ̄ (Mass) ⇒	There is mass in this karma.
		ॐ̄ (Space) ⇒	This karma is in a space.
		ॐ̄ (Time) ⇒	This karma is in a time.

Tab. 10.1

We get the figure 5.100 by presenting it differently.

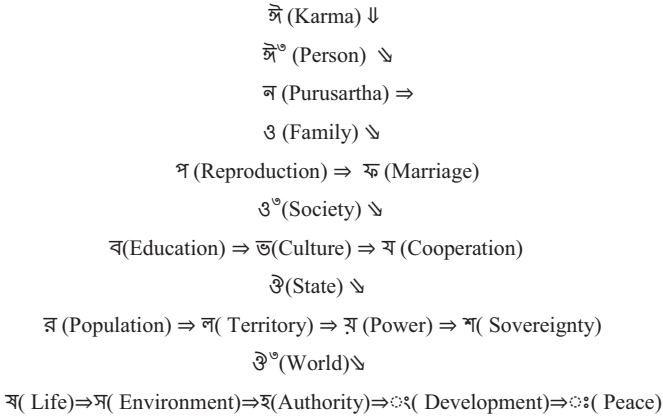


Fig. 10.3

From the figure we get six decisions.

Decision 10.1.1 Purusartha follows the point rule. Person is related to purusartha.

$$\text{କ୍ଷିଂ (Person)} \searrow \text{କ୍ଷ (Purusartha)} \Rightarrow$$

Decision 10.1.2 Reproduction and marriage follow the balance rule. Family is related to these (reproduction and marriage).

$$\text{ଓ (Family)} \searrow \text{ମ (Reproduction)} \Rightarrow \text{ଋ (Marriage)}$$

Decision 10.1.3 Education, culture and cooperation follow the left hand rule. Society is related to these (education, culture and cooperation).

$$\text{ଓଂ (Society)} \searrow \text{ବ (Education)} \Rightarrow \text{ଭ (Culture)} \Rightarrow \text{ସ (Cooperation)}$$

Decision 10.1.4 Population, territory, power and sovereignty follow the cross rule. State is related to these (population, territory, power and sovereignty).

$$\text{ଓ (State)} \searrow \text{ଋ (Population)} \Rightarrow \text{କ୍ଷ (Territory)} \Rightarrow \text{ମ୍ (Power)} \Rightarrow \text{ଋ (Sovereignty)}$$

Decision 10.1.5 Life, environment, authority, development and peace follow the symmetrical distribution rule. World is related to these (life, environment, authority, development and peace).

$$\text{ଓଂ (World)} \searrow \text{ସ (Life)} \Rightarrow \text{ମ (Environment)} \Rightarrow \text{ଋ (Authority)} \Rightarrow \text{ଂ (Development)} \Rightarrow \text{ଃ (Peace)}$$

Decision 10.1.6 Person, family, society, state and world are related. Karma is the cause of these (person, family, society, state and world).

$$\text{କି Karma} \downarrow \text{କ୍ଷିଂ Person} \searrow \text{ଓ Family} \searrow \text{ଓଂ Society} \searrow \text{ଓ State} \searrow \text{ଓଂ World}$$

Here karma is tattva. Person, family, society, state and world are akaras. Purusartha, reproduction, marriage, education, culture, cooperation, population, territory, power, sovereignty, life, environment, authority, development and peace are upakaranas. So we find the following table by rewriting figure 5.100.

Tattva (theory)	Akara (form)	Upakarana (component)
कर्म (Karma) ↓	पुरुष Person ↓	न (Purusartha) ⇒
	कुल Family ↓	प्र (Reproduction) ⇒ द (Marriage) ⇒
	समाज Society ↓	वि (Education) ⇒ भ (Culture) ⇒ स (Cooperation) ⇒
	राज्य State ↓	जन (Population) ⇒ भू (Territory) ⇒ शक्ति (Power) ⇒ सुभ्र (Sovereignty) ⇒
	लोक World ↓	जीव (Life) ⇒ परि (Environment) ⇒ शक्ति (Authority) ⇒ विकास (Development) ⇒ शान्ति (Peace) ⇒

Tab. 10.2

10.2 Person

A person is a human being that has certain attributes such as logic, morality, consciousness etc. Man is composed of body, mind, breath and spirit. And as a result of their balanced development, human personality is formed. The plural form of person is people or persons. People have to do many things to survive. Man is a contemplative being. His behavior cannot be explained without the mind.





From birth, babies feel the need for hunger, thirst, breathing, sleep, etc. His need increases with age. He feels other needs besides physical needs. Man is an intelligent social creature. He has to live in society. And if he wants to live in the society, he has to adapt to the society. The person is not only driven by a number of desires, emotions, feelings, but also by the power of intellect or judgment. He has the power of intellect or thinking. As a result, the person can think and act independently.

Language is the expression of the mind by all the semantic sounds or combinations of sounds uttered with the help of voice-organ. Language expresses the thoughts of people in a particular language area. Language in the broadest sense is a medium of communication through which people express their feelings to others. Language is the verbal and non-verbal means of communication used by humans, animals and even machines.

From birth people learn first from family and then from society. People take formal education from schools, colleges and universities. The main purpose of education is to prepare him for the future life. Through education a man becomes perfect. Every human being should practice yoga regularly. As a result of yoga, people get physical and mental peace and stay healthy and beautiful. One should adopt a lifestyle in keeping consistency with the society.

Naturally persons can be divided into two groups- male and female. This difference is also called biological difference. This difference is made according to the biological and physical condition. The difference between male and female created by society is called gender. Masculinity and femininity are created by society. Sex carries a biological identity on women and men but gender carries a social identity imposed on women and men.

Person is an akara (form) of karma. It has one upakarana (component) and it is purusartha.

३ (Category) ⇨	Point rule 	३ (Name) ⇒	Person
३° (Assertion) ⇨	Balance rule 	३ (Positivity) ⇒	Person inclusion
		३ (Negativity) ⇒	Person exclusion
३ (Dimension) ⇨	Left hand rule 	३ (North) ⇒	Person is in the north-south.
		३ (East) ⇒	Person is in the east-west.
		३ (Up) ⇒	Person is in the up-down.
३° (Quantity) ⇨	Cross rule 	३ (Force) ⇒	There is force in this person.
		३ (Mass) ⇒	There is mass in this person.
		३ (Space) ⇒	This person is in a space.
		३ (Time) ⇒	This person is in a time.

Tab. 10.3

10.2.1 Purusartha

Purusartha (object of human pursuit) means the desirable object of person. In Indian philosophy, the highest purpose or goal of a living being is called purusartha. There are four things that human beings need, namely, dharma (righteousness or moral values), artha (prosperity or economic values), kama (sensual pleasure or psychological values) and moksa (liberation or spiritual values). Dharma is the first purushartha. Then there is artha, kama and moksa. In Indian philosophy, there is no word of fulfilling any desire by rejecting moral values (dharma). To earn money from the path of dharma, to fulfill desires from the path of dharma and to attain moksa from the path of dharma.

10.2.1.1 Dharma

The word dharma is derived from the Sanskrit root 'dhri'. Dhri means to hold together or to preserve. So dharma is what holds or holds something with the help of virtue or power. Dharma signifies the behaviors that are considered to be in accord with 'rta', where rta is the natural (svabhavika) course of events. In the conventional sense the word dharma in English means religion.

Dharma is the first purusartha and it has very vast and multitude of meanings. The word dharma was used in the Rig Veda to mean ritual sacrifice (yajna). Later any scriptural duties are included in the dharma. According to the Mimamsa philosophy, 'codana laksanortho dharmah' that is dharma is to perform one's duties according to the Vedic rules. That is the righteous deeds and the duties for the living beings. The Vedas indicate what duties need to be done and what needs to be avoided. Dharma signifies truthfulness, righteousness, wholesomeness etc. The action which is forbidden by the Vedas is adharm. That is why it is called 'Veda pranahito dharma'.

Dharma is the moral order that holds this universe. So dharma protects the creation. Protects everything in the creation. Dharma is the action that teaches people to protect, to protect and preserve everything in the creation. As a result of following religious precepts, living beings can be freed from the cycle of birth and death and can attain moksa or salvation.

Dharma is a broad concept that encompasses all kinds of human activities. Bhagavan Shri Krishna says in the Mahabharata 'Dharmo Rakshati Rakshitah' which means dharma protects those who uphold or protect dharma. He explains that dharma is created for the benefit of all creatures. He also says dharma is to refrain from doing evil to any creation.

Dharma is the right way of living. To be dharmik means to be aware of one's words, deeds and thoughts and being sensitive to the needs of others.

10.2.1.2 Artha

Humans are social creatures. He has to earn artha (money) to survive in society. He has to rely on property, power and social status to live in society and enjoy the desired things. On the other hand artha or money is used as a medium of exchange. People cannot produce everything by themselves. But to collect his desirable items, he has to rely on artha or money. He collects artha or money in exchange for his own manufactured goods and later collects his desirable objects. For this he has to earn artha. Therefore, artha is one of the purusharthas in the life of a living being.

People's needs vary from person to person. Artha helps people meet all the needs. Artha connects people's lives with something that they can lead a full life. Artha falls within a human quality so that he can meet the basic needs of the family. He has to follow righteousness while maintaining a family. He has to face various obstacles to survive in the society. To deal with these obstacles, he needs knowledge, skills, love, friendship, good health, etc. Artha brings him all this. Artha serves as the basis of righteousness and sensual pleasure. Dharma and kama become difficult without artha in individual life or social life. But you have to earn artha in a legal way from the path of righteousness.

10.2.1.3 Kama

Most of the Indian philosophers accept four purusharthas or desirable objects. Purushartha is a Sanskrit word which literally means 'object of human pursuit'. Kama is one of these four purusharthas. The other three purusharthas are dharma, artha and moksa. Dharma, artha, kama and moksa- these four are collectively called caturvarga. In the explanation of these four

purusarthas or caturvarga, it can be said that dharma is righteousness or means moral values, artha is prosperity or means economic values, kama is pleasure or means psychological values and moksa is liberation or means spiritual values.

Kama is a Sanskrit word which signifies desire, wish, passion, emotions etc. The organism desires useful things to associate with its body and mind and wants to stay away from things that are not suitable for the body and mind. The desiration of the useful things to associate with is kama. It refers to all the desires of man for sense gratification and enjoyment.

10.2.1.4 Moksa

Moksa or salvation is the release of the bondage of the living being. The individual self (jivatma) is eternal, pure, enlightened and free in nature (svabhava). But due to ignorance the living being feels oneness with the body. The feeling of oneness of the organism with the body is its closed state. The unity of jiva and Brahman can be realized by breaking this bond. Knowledge of the difference (bhedajnana) between jiva and Brahman is the cause of bondage. This discrimination is due to ignorance. When ignorance is removed, the soul acquires knowledge of its true nature and then the soul is liberated.

The upakarana or component of the individual (form of karma) can be shown with the help of the following figure.

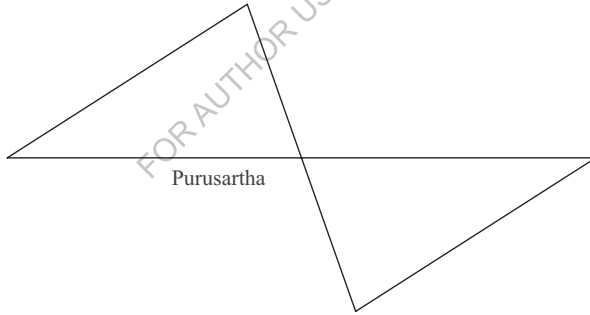





Fig. 10.4

Purusartha is an upakarana (component) of person.

३ (Category) ∽	Point rule ●	ॡ (Name) ⇒	Purusartha
३°(Assertion) ∽	Balance rule 	ॢ (Positivity) ⇒	More purusartha
		ॣ (Negativity) ⇒	Less purusartha
ॢ (Dimension) ∽	Left hand rule 	। (North) ⇒	Purusartha is in the north-south.
		॥ (East) ⇒	Purusartha is in the east-west.
		० (Up) ⇒	Purusartha is in the up-down.
ॢ°(Quantity) ∽	Cross rule 	॥ (Force) ⇒	There is force in this purusartha.
		० (Mass) ⇒	There is mass in this purusartha.
		ॣ (Space) ⇒	This purusartha is in a space.
		ॣ (Time) ⇒	This purusartha is in a time.

Tab. 10.4

Now from the decision 10.1.1

We get purusartha follows the point rule. Person is related to purusartha.

$$\text{ॢ° (Person)} \sim \text{ॣ (Purusartha)} \Rightarrow$$

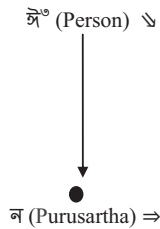


Fig. 10.5

We get one law from point rule.

Law 10.1.1 ॣ (Purusartha) = ॣ (Purusartha)

Explanation of the law is purusartha merely equal to purusartha.

10.3 Family





The family is the smallest primary group. The family is determined by the permanent relationship between husband and wife where children are produced and nurtured. The family is the primary social organization. People are born into families. The family is a safe and secure place for people. The unit of the family is the individual. The existence of society without family cannot be thought of. The child is born into the family and is introduced to the larger life through the family. The family is the only recognized social institution for child production.

There are some characteristics of the family. For example, the family is universal. Every human being is born into one or another family. Families are formed for the purpose of preserving the lineage. The family is the source of human physical instincts and mental emotions. Feeling-compassion, love-affection etc. are practiced among the family members.

On the basis of relationship, the family can be divided into two parts, namely, single family and joint family. When a husband, wife and their children live in a family, it is called a single family. When a family has a husband, wife and their children living together with their parents, it is called a joint family. Single family is the simplest form of family. Whether the family is single or joint, this is the first stage of social life. If the authority of the family is in the hands of the father then that family is called patriarchal family. Again, if the authority of the family is in the hands of the mother, then that family is called matriarchal family.

Through marriage the family is formed and the husband and wife gain social acceptance to have sex with each other and give birth to children. The family meets the biological and physical needs of the people. Families are needed to preserve the lineage of the human race. It is the responsibility of the family to meet the expenses of the family members including child rearing. Children are the future citizens of the country. The child's education starts at home before going to school. The importance of family in making them human is immense. The fact that sexual desire is not a sin, not obscene and indecent, carries the truth in our family life.

Family is an akara (form) of karma. It has two upakaranas (components) namely, reproduction and marriage.

३ (Category) ∽	Point rule 	३ (Name) ⇒	Family
३°(Assertion) ∽	Balance rule 	ॢ (Positivity) ⇒	Family inclusion
		ॣ (Negativity) ⇒	Family exclusion
३̂(Dimension) ∽	Left hand rule 	। (North) ⇒	Family is in the north-south.
		॥ (East) ⇒	Family is in the east-west.
		० (Up) ⇒	Family is in the up-down.
३̃(Quantity) ∽	Cross rule 	॥ (Force) ⇒	There is force in this family.
		० (Mass) ⇒	There is mass in this family.
		० (Space) ⇒	This family is in a space.
		० (Time) ⇒	This family is in a time.

Tab. 10.5

10.3.1 Reproduction

Reproduction is a biological process by which parents produce their offspring. As a result of this process, there is no possibility of extinction of any animal from the earth. This process is very important to maintain the stability of the ecosystem. All species on earth are the result of reproductive processes. Without the reproductive process, all the species on earth would be extinct. Reproduction is of two types, sexual reproduction and asexual reproduction.





An important feature of an organism is reproduction. It is an important biological process that helps species survive. Through this process the species maintains their continuity. The younger ones take the place of the older ones. These young eat, grow and reproduce. Reproduction plays an important role in maintaining the balance of the population. Reproduction can act as a vehicle for biological evolution. Reproduction balances birth and death rates. The genes are transmitted to the offspring from their parents. As a result of reproduction, the species can acquire the ability to survive in different environments.

The period from the birth of an organism to the time of natural death is called the lifespan. Every organism grows and survives for a certain period of time. Lifespan can be divided into four stages. These stages are called ashramas in Hinduism. The four ashramas are namely,

Brahmacharya (student life), Grihastha (householder life), Vanaprastha (retired life) and Sannyasa (renounced life).

Brahmacharya refers to the student state of life. This stage places importance on education. The individual goes to the guru (teacher) and learns philosophy, mathematics, science etc. and learns to live a life of dharma (righteousness, morals, duties). Grihastha refers to the married life of an individual. In this stage a family is formed, children are produced, they are nurtured and educated. This stage is very important in the social context because at this stage people produce food and resources which sustain the people of other stages. Vanaprastha refers to the retirement stage where a person transfers family responsibilities to the next generation. This stage enters the retirement life with greater emphasis on moksa from the household life with greater emphasis on artha and kama. Sannyasa refers to the stage of renunciation of material desires and superstitions. At this stage an individual renounces all of his desires, fears, hopes, responsibilities etc.

Reproduction is an upakarana (component) of family.

\mathfrak{C} (Category) \ni	Point rule 	\mathfrak{P} (Name) \Rightarrow	Reproduction
\mathfrak{C}° (Assertion) \ni	Balance rule 	\mathfrak{C} (Positivity) \Rightarrow	Reproduction inclusion
		\mathfrak{C} (Negativity) \Rightarrow	Reproduction exclusion
\mathfrak{P} (Dimension) \ni	Left hand rule 	\mathfrak{C} (North) \Rightarrow	Reproduction is in the north-south.
		\mathfrak{C} (East) \Rightarrow	Reproduction is in the east-west.
		\mathfrak{C} (Up) \Rightarrow	Reproduction is in the up-down.
\mathfrak{P}° (Quantity) \ni	Cross rule 	\mathfrak{C} (Force) \Rightarrow	There is force in this reproduction.
		\mathfrak{C} (Mass) \Rightarrow	There is mass in this reproduction.
		\mathfrak{C} (Space) \Rightarrow	This reproduction is in a space.
		\mathfrak{C} (Time) \Rightarrow	This reproduction is in a time.

Tab. 10.6

10.3.2 Marriage

Marriage is a social and legal agreement that unites two persons of the opposite sex socially and legally. It is a formal union where two individuals are united economically, socially and emotionally. Marriage is a universal social event. Contractual marriage implies that couples have the legal obligation to stay together for the rest of their lives or until they get divorced. Through marriage, couples gain social approval to have sex. Marriage is traditionally regarded as a key factor in the preservation of civilization.

Marriage is the beginning of a family and it is a lifelong commitment to live together in a family. Marriage is not only a physical union of two men and women but also their spiritual and emotional union. The social acceptance of men and women comes through marriage. Marriage is based on religion and law. Through marriage, husband and wife establish sexual relations with each other and gain social approval to give birth to children.

Marriage as a universal social institution is present in all societies. It is intimately connected with the family. However, the forms of marriage in different societies depend on their thoughts, customs and practices. In some societies it is a religious obligation and in others it is a social contract. The main forms of marriage based on the number of partners are, monogamy and polygamy.

Monogamy is a marriage where a man marries a woman at a time. This marriage is ideal, popular and prevalent worldwide. There are two types of monogamy, namely, serial monogamy and straight monogamy. In serial monogamy, a person can remarry in case of death or divorce of the spouse. Remarriage is not allowed in the case of straight monogamy. Polygamy is a marriage where one partner can marry more than one partner. There are three types of polygamy, namely, polygyny, polyandry and group marriage. Polygyny is a form of marriage where a man can marry more than one woman at a time. Polyandry is very rare in today's society where one woman can marry many men at the same time. Polygyny is more popular than polyandry but not as universal as monogamy. Group marriage is a marriage where a group of men can marry a group of women at the same time. In that case husbands are considered as common husbands and wives are considered as common wives. Children are considered as the children of the whole group.

Marriage is an upakarana (component) of family.

ॐ (Category) ⇨	Point rule ●	ॐ (Name) ⇒	Marriage
ॐ (Assertion) ⇨	Balance rule ↓ ↓	ॐ (Positivity) ⇒	Marriage inclusion
		ॐ (Negativity) ⇒	Marriage exclusion
ॐ (Dimension) ⇨	Left hand rule ↑ →	ॐ (North) ⇒	Marriage is in the north-south.
		ॐ (East) ⇒	Marriage is in the east-west.
		ॐ (Up) ⇒	Marriage is in the up-down.
ॐ (Quantity) ⇨	Cross rule ↗ ↘	ॐ (Force) ⇒	There is force in this marriage.
		ॐ (Mass) ⇒	There is mass in this marriage.
		ॐ (Space) ⇒	This marriage is in a space.
		ॐ (Time) ⇒	This marriage is in a time.

Tab. 10.7

The upakaranas or components of the family (form of karma) can be shown with the help of the following figure.

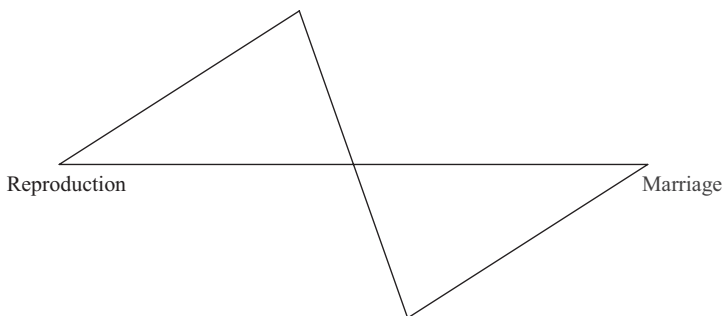


Fig. 10.6

Now from the decision 10.1.2

We get reproduction and marriage follow the balance rule. Family is related to these (reproduction and marriage).

$$\exists (\text{Family}) \simeq \Re (\text{Reproduction}) \Rightarrow \mathfrak{M} (\text{Marriage})$$

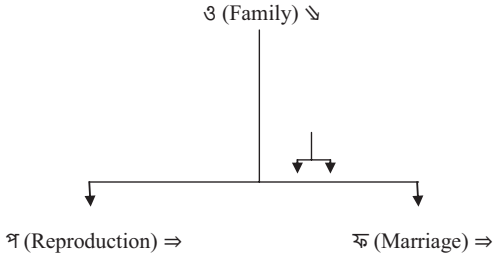


Fig. 10.7

We get one law from balance rule.

Law 10.2.1 $\Re (\text{Reproduction}) \propto \mathfrak{M} (\text{Marriage})$

Explanation of the law is reproduction directly proportional to marriage.

10.4 Society

A society is a permanent large grouping or collectivity of people formed for the purpose of mutual interests. Society is formed when many people live together for the same purpose. If a population has the two characteristics, it may be called a society. These two characteristics are a collectivity of people live in an organized way and at the root of this organization is the presence of a purpose. The unit of a society is family.

Human beings are social creatures. It is human instinct to live collectively in a society. But not all public societies in the world are the same. Different societies have developed in different parts of the world at different times. Humans have come from primitive wild life to the present social life in order to sustain their existence and put forward multiple needs. There is no single and universally accepted definition of the suffix 'society'. However, in this case, MacIver's definition deserves attention. MacIver, along with his co-writer Charles Page, later on defined it in his new book 'Society: An Introductory Analysis' (1949) as 'Society is a system of usages and procedures, of authority and mutual aid, of many groupings and divisions, of controls of human behaviour and of liberties. This ever changing, complex system we call society. It is the web of social relations which is always changing.'

The basic features of a society are:

- (1) A society has a large grouping of people living in an organized way.
- (2) A society has a definite, limited space or territory.
- (3) There are various individuals, groups, associations and organizations in a society.
- (4) The members of a society share a common and distinct culture.
- (5) Society is constantly changing.
- (6) The people in the society speak the same mother tongue.
- (7) Individuals and society are interdependent. Excluding the individual the society and excluding the society, the individual is unimaginable.

People feel both cooperation and conflict while living in the society. Reconciliation and conflict are both present in the society. Society has no external appearance. Society is an abstract concept.

Social inequality and social stratification are realities in social life. Within society we see the individuals in different positions. And in the context of this position the social prestige of the individual is determined. Social stratification refers to the arrangement of unequal positions of individuals, groups or classes.

Social Stratification is the process of dividing the population of a society into levels according to property, power, and prestige. Just as there is a layer (strata) layout in the soil, just as there is a layer (strata) layout in the atmosphere, so does the society. Social stratification was in the beginning of human society, still is and will be in the future. The social stratification has changed due to various events in history, but has not completely disappeared. Social stratification is a common feature of human society.

Social stratification is based on various principles. Sociologists mention four types of stratification. These are namely, (1) slavery (2) estate (3) caste and (4) class.





Slavery is one of the main stratifications. Ancient Greek and Roman civilizations were based on slavery. In the system of slavery, the people of the society were divided into two

levels namely, slave owner and slave. Slaves were considered the property of masters (slave owners). Every slave was a product of the master and any work was done by them. In the middle ages the estate system was prevalent in Europe. This system is seen in feudal society. This system emphasis to birth as well as to wealth. In feudal society there are three characteristics namely, clergy, nobility and commoners.

The caste (varna) system is another type of social stratification. This system is prevalent in Hindu society. In the caste system, a person’s social status is determined by birth and there is no scope for change. There are four varnas or groups namely, Brahmins (priests and scholars), Kshatriyas (rulers and warriors), Vaishya (agriculturalists and merchants) and Shudras (laborers and service providers).

The modern form of social stratification is the class system. Current society is divided on the basis of class and status. The characteristic of class system in the modern age is social mobility. This class is open as the system is determined through income, education, occupation etc. Social factors and individual achievements play an important role in shaping the class system.

Society is an akara (form) of karma. It has three upakaranas (components) namely, education, culture and cooperation.

ॐ (Category) ∽	Point rule 	ऐ (Name) ⇒	Society
ॐ (Assertion) ∽	Balance rule 	ॐ (Positivity) ⇒	Society inclusion
		ॐ (Negativity) ⇒	Society exclusion
ॐ (Dimension) ∽	Left hand rule 	ॐ (North) ⇒	Society is in the north-south.
		ॐ (East) ⇒	Society is in the east-west.
		ॐ (Up) ⇒	Society is in the up-down.
ॐ (Quantity) ∽	Cross rule 	ॐ (Force) ⇒	There is force in this society.
		ॐ (Mass) ⇒	There is mass in this society.
		ॐ (Space) ⇒	This society is in a space.
		ॐ (Time) ⇒	This society is in a time.

Tab. 10.8

10.4.1 Education





Education is the process of acquiring knowledge or skills. Education makes a huge difference in people's lives and behavior. Through education, people gain knowledge and can adapt to society.

The word education is used in both broad and narrow senses. Education and life are synonymous in the broadest sense. Life means education and education means life. Every experience of life is education, because every experience teaches us something. Education in the narrow sense refers to the acquisition of institutional knowledge.

There are three major types of education, namely, formal, informal and non-formal. Formal education generally takes place in school, college or university. One can learn many basic, trade and academic skills. Formal education is given in an organized way. It provides a systematic learning process. Students get knowledge from skilled teachers and professors. Informal education is required to increase social or general knowledge. It is like suppose a parent teaching a child how to prepare a meal or ride a bicycle. People can also get an informal education by reading books or educational websites. Non-formal education is the balance between formal and informal education. It includes adult basic education or adult literacy education.

Formal education has a syllabus and subject-oriented while informal education has no definite syllabus. Formal education has a specific timetable while informal education has no specific timetable. In the non-formal education syllabus and timetable can be adjustable.

Education is an upakarana (component) of society.

३ (Category) ∽	Point rule 	३ (Name) ⇒	Education
३° (Assertion) ∽	Balance rule 	ॢ (Positivity) ⇒	Advanced education
		ॣ (Negativity) ⇒	Backward education
३̂ (Dimension) ∽	Left hand rule 	। (North) ⇒	Education is in the north-south.
		॥ (East) ⇒	Education is in the east-west.
		० (Up) ⇒	Education is in the up-down.
३° (Quantity) ∽	Cross rule 	॥ (Force) ⇒	There is force in this education.
		० (Mass) ⇒	There is mass in this education.
		ॣ (Space) ⇒	This education is in a space.
		ॣ (Time) ⇒	This education is in a time.

Tab. 10.9

10.4.2 Culture





One of the most widely used concepts in modern civilized society is culture. The term culture is usually used to mean 'elegant taste'. Collective beliefs, arts, rules, principles, customs, reforms, or skills in any subject are part of the culture of that society. From a sociological point of view, culture is a way of life. In this sense, culture is the way of life of all the people in the society. Culture is what people have achieved as a social entity. In this situation culture is the creation of social condition. Culture is changeable and differences exist in cultures depending on social status. Language is a major carriage of culture and members of society communicate through language. Culture is not innate. Culture is not transmitted to a person in the same way that a child is inherited from birth.

When culture has advanced to a stage where political and economic security has come, higher knowledge, art and conscience have been created, civilization is believed to have emerged. Civilization is an overall success achieved through the efforts of human beings which indicates a better state of culture. Civilization has come to the next level of culture. Culture is the non-material creation of human beings such as customs, beliefs, meditative ideas, thoughts, religion, knowledge, etc. Civilization is the material creation of people, all the discoveries and inventions of man belong to his civilization.

The relationship of education with culture is immense. The education of the individual begins through social culture. Individuals learn through interactions with the social environment. The majority of individuals in a society follow a number of common practices that are recognized as customs. There is a sense of obligation in the custom. These are one of the hallmarks of culture. Analysis of culture reveals not only thoughts, actions, religions, beliefs, etc., but also a sense of beauty. Through music, dance, drama, painting, etc., people's sense of beauty and creation of beauty are identified. So art can also be called the introductory of a culture.

The impact of the environment on culture is immense. Culture is born out of the relentless effort of human life struggle. Since the environment of different societies is different, the culture is also different in different societies. Culture plays a helpful role in fulfilling the objectives of both the individual and society. Culture is important enough to maintain the solidarity of human society.

Culture is an upakarana (component) of society.

३ (Category) ∽	Point rule 	३ (Name) ⇒	Culture
३°(Assertion) ∽	Balance rule 	ॢ (Positivity) ⇒	Expanded culture
		ॣ (Negativity) ⇒	Contracted culture
३̂(Dimension) ∽	Left hand rule 	। (North) ⇒	Culture is in the north-south.
		॥ (East) ⇒	Culture is in the east-west.
		० (Up) ⇒	Culture is in the up-down.
३°(Quantity) ∽	Cross rule 	॥ (Force) ⇒	There is force in this culture.
		० (Mass) ⇒	There is mass in this culture.
		० (Space) ⇒	This culture is in a space.
		० (Time) ⇒	This culture is in a time.

Tab. 10.10

10.4.3 Cooperation

Cooperation is a social process where two or more people work to achieve a common goal. Cooperation is an essential element for building a society. No society can survive without cooperation. People of the society extend their hands of cooperation to each other to achieve common goals. If the members of the society do not cooperate with each other, they cannot live a happy and comfortable life. Cooperation is more needed for a modern, industrialized and advanced society. To produce a cloth requires the cooperation of different types of people. For example, the farmers produce cotton, the spinners produce yarn, the weavers weave the clothes, the dyers colour the clothes and the merchants market clothes. So, everyone in the society has to continue with the spirit of cooperation.

10.4.3.1 Interdependence

Humans are social creatures. He or she can't be alone. In isolation man cannot fulfill his hopes and aspirations. He has to depend on others to fulfill his hopes, aspirations and dreams. This dependence on each other is interdependence. For example, in a family, husband and wife depend on each other to satisfy their cravings. That is why we should cooperate with

each other. At present, not only the people of the society, but every country in the world is dependent on each other.





10.4.3.2 Competition

Competition arises when more than one person pursues a common goal at the same time. It is an important social process. Competition is centered around physical objects, social status, fame, power, etc., when the chances of obtaining are limited compared to human needs. Competition becomes meaningful through collaboration.

10.4.3.3 Conflict

Conflict is present in every society. It is a social process. Conflict is the dispute between two or more people over a particular purpose. There can be different types of conflicts such as personal conflict, class conflict, religious conflict, political conflict, etc. Conflict originates from competition, but it is not as continuous as competition.

Cooperation is an upakarana (component) of society.

ॐ (Category) ∽	Point rule 	ॐ (Name) ⇒	Cooperation
ॐ°(Assertion) ∽	Balance rule 	ॐ (Positivity) ⇒	Cooperation extension
		ॐ (Negativity) ⇒	Cooperation reduction
ॐ(Dimension) ∽	Left hand rule 	ॐ (North) ⇒	Cooperation is in the north-south.
		ॐ (East) ⇒	Cooperation is in the east-west.
		ॐ (Up) ⇒	Cooperation is in the up-down.
ॐ°(Quantity) ∽	Cross rule 	ॐ (Force) ⇒	There is force in this cooperation.
		ॐ (Mass) ⇒	There is mass in this cooperation.
		ॐ (Space) ⇒	This cooperation is in a space.
		ॐ (Time) ⇒	This cooperation is in a time.

Tab. 10.11

The upakaranas or components of the society (form of karma) can be shown with the help of the following figure.

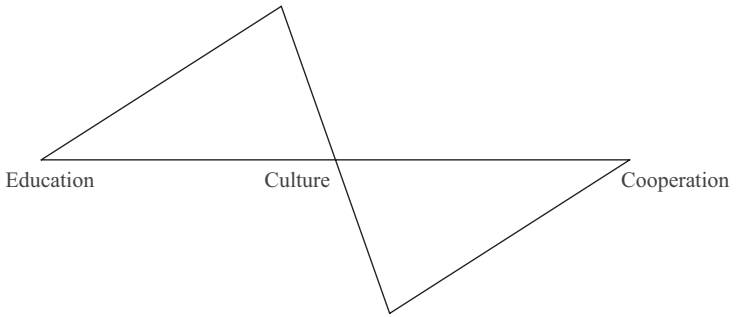


Fig. 10.8

Now from the decision 10.1.3

We get education, culture and cooperation follow the left hand rule. Society is related to these (education, culture and cooperation).

$$\text{ଓ}^\circ(\text{Society}) \bowtie \text{ବ}(\text{Education}) \Rightarrow \text{ଭ}(\text{Culture}) \Rightarrow \text{ସ}(\text{Cooperation})$$

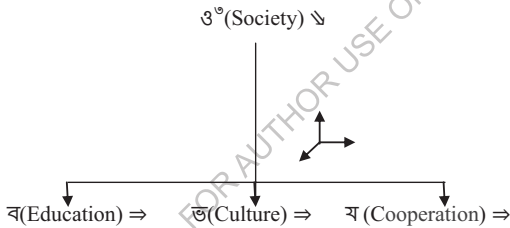


Fig. 10.9

We get three laws from left hand rule.

Law 10.3.1 Keeping $\text{ବ}(\text{Education})$ constant, $\text{ଭ}(\text{Culture})$ is inversely proportional to $\text{ସ}(\text{Cooperation})$, i. e.,

$$\text{ଭ}(\text{Culture}) \propto 1/\text{ସ}(\text{Cooperation})$$

Law 10.3.2 Keeping $\text{ଭ}(\text{Culture})$ constant, $\text{ବ}(\text{Education})$ is inversely proportional to $\text{ସ}(\text{Cooperation})$, i. e.,

$$\text{ବ}(\text{Education}) \Rightarrow \propto 1/\text{ସ}(\text{Cooperation})$$

Law 10.3.3 Keeping $\text{ସ}(\text{Cooperation})$ constant, $\text{ବ}(\text{Education})$ is inversely proportional to $\text{ଭ}(\text{Culture})$, i. e.,

$$\text{ବ}(\text{Education}) \Rightarrow \propto 1/\text{ଭ}(\text{Culture})$$

10.5 State





The state is a social organization. With the development of civilization, the state is the highest and strongest association among the people have formed as many associations as possible. The main difference between the state and other organizations is that they may not be governed by law. In different ages, different authors have defined the state. Even then there is a confusion.

Woodrow Wilson says to define the state, 'A state is a people organized for law within a definite territory'. The famous political scientist Harold Laski says, 'The modern state is a territorial society divided into government and subjects, claiming within its allotted physical area supremacy over all other institutions'.

Political scientist Mac Iver says, 'The state is an association which acting through law as promulgated by a government endowed to this end with coercive power, maintaining within a community territorially demarcated, the universal external condition of social order'. Professor Dr. Garner has given a clear, beautiful and acceptable definition of the state. He says, 'The state is a community of persons more or less numerous, permanently occupying a definite portion of territory, independent of external control and possessing an organized government to which the great body of inhabitants render habitual obedience'. An analysis of Garner's definition reveals four basic characteristics of the state. These are namely, population, territory, government and sovereignty.

It is not possible to say exactly when and how the state originated. However, research in anthropology, archeology and sociology has revealed much about the origin of the state. There are various theories about the origin of the state. These are the theory of divine origin, the theory of force, the social contract theory, the historical theory or the evolutionary theory, etc. Different philosophers have expressed different theories about the nature of the state in different eras. These theories include: (1) juristic theory, (2) mechanistic theory, (3) organic theory, (4) contract theory, (5) idealistic theory and so on.

State is an akara (form) of karma. It has four upakaranas (components) namely: population, territory, power and sovereignty.

३ (Category) ∽	Point rule 	३ (Name) ⇒	State
३° (Assertion) ∽	Balance rule 	३̄ (Positivity) ⇒	State inclusion
		३̅ (Negativity) ⇒	State exclusion
३̄ (Dimension) ∽	Left hand rule 	३̄ (North) ⇒	State is in the north-south.
		३̄ (East) ⇒	State is in the east-west.
		३̄ (Up) ⇒	State is in the up-down.
३̄° (Quantity) ∽	Cross rule 	३̄ (Force) ⇒	There is force in this state.
		३̄ (Mass) ⇒	There is mass in this state.
		३̄ (Space) ⇒	This state is in a space.
		३̄ (Time) ⇒	This state is in a time.





Tab. 10.12

10.5.1 Population

No state can be imagined without population. The population is an essential element of the state. The state has been established by the people. The people have established the state for their own welfare. The state is a social institution. But there are questions about how much population a state should have. Greek philosophers such as Plato and Aristotle spoke of a small population. However Greek philosophers have spoken of the city-state. Thinking of economic well-being and overall happiness, they are thinking of a desirable population within the confines of the city-state. They want a population desirable for good governance that is consistent with the size and resources of the state. However, this desirable population has not been canceled even today. This question is the subject of sociology and economics today.

The desirable population of the ancient Greek philosophers today seems insignificant due to the tremendous advances in science. At present there is no population limit in the state. India, China, USA etc. are the most populous countries in the world. Again, the two smallest states in terms of population are San Marino and Monaco. India and China have a population of about 130 crore and 140 crore respectively. The population of Monaco and San Marino are about 39,000 and 34,000 respectively. However, the question comes up here how small a population can form a state. A family can no longer be called a state. The family no longer has the power to solve all the complexities of social life. The state is a social institution where a large number of people and a large number of families exist.

Population is an upakarana (component) of state.

३ (Category) ∽	Point rule 	ॡ (Name) ⇒	Population
३°(Assertion) ∽	Balance rule 	ॢ (Positivity) ⇒	More population
		ॣ (Negativity) ⇒	Less population
ॢ (Dimension) ∽	Left hand rule 	। (North) ⇒	Population is in the north-south.
		॥ (East) ⇒	Population is in the east-west.
		० (Up) ⇒	Population is in the up-down.
ॢ°(Quantity) ∽	Cross rule 	॥ (Force) ⇒	There is force in this population.
		० (Mass) ⇒	There is mass in this population.
		० (Space) ⇒	This population is in a space.
		० (Time) ⇒	This population is in a time.

Tab. 10.13

10.5.2 Territory

A certain territory is required for a population to live. Just as population is an essential element of the state, so is certain territory an essential element of the state. The state cannot be established in a vacuum. This requires a territory marked with a certain boundary. For this reason, there is no state for nomadic nomads without permanent residence.

Territory refers not only to the surface of the soil, but also to the subterranean mineral resources, rivers, mountains, coastal areas etc. At present the water level up to twelve miles from the sea shore are considered to belong to the state. The sky above the territory falls within the boundaries of the state. If the aeroplanes of other countries are guilty of breaking the law by flying over that sky without any permission. The sovereign authority and governance of the state over the territory that carries all these things will be maintained.





The beginning of a state can be when a group of people start living within a certain geographical boundary. How big this geographical boundary will be cannot be determined. However, in terms of size, the state can be divided into two parts, namely, small state and large state.

The scholars of the past have given much thought to the territory of the state. Greek philosophers such as Aristotle and Plato thought that the territory of a state should have a definite boundary. Plato compared the size of a well-formed body with the size of a state.

Rousseau also expressed his weakness about the small state. He thinks the government has close ties with the size of the state. According to him, large state is suitable for monarchy and small state is suitable for democracy. He thinks that in a large country it is not possible to employ every person in the state and it is not possible to enforce the same law everywhere.

However, the communication system has improved considerably as a result of the phenomenal advancement of science. Mutual communication and formation of public opinion among the larger states is no longer as difficult as it used to be. It is not known that the regime is being disrupted in large countries like Russia and the United States. Again, there are many small countries in the world where the skills of governance are not recognized.

Territory is an upakarana (component) of state.

३ (Category) ∽	Point rule 	३ (Name) ⇒	Territory
३° (Assertion) ∽	Balance rule 	ॢ (Positivity) ⇒	Territory inclusion
		ॣ (Negativity) ⇒	Territory exclusion
३̂ (Dimension) ∽	Left hand rule 	। (North) ⇒	Territory is in the north-south.
		॥ (East) ⇒	Territory is in the east-west.
		० (Up) ⇒	Territory is in the up-down.
३° (Quantity) ∽	Cross rule 	॥ (Force) ⇒	There is force in this territory.
		० (Mass) ⇒	There is mass in this territory.
		ॣ (Space) ⇒	This territory is in a space.
		ॣ (Time) ⇒	This territory is in a time.

Tab. 10.14

10.5.3 Power

Power is a type of ability that involves approval. Power is the ability to influence the behavior of others in order to get something. Human conduct can be controlled with the help of approved capabilities. People who do not want power are rare in the world. Power brings people dignity, property, security, etc. Who is more dependent on you, the more power you have over him. Reliance on you increases when you have something that is rare and important. People have been involved in conflicts for power. One has ruled, exploited and controlled the other by power. Man has conquered this world by the force of power.

The multifaceted activities of the state have resulted in a variety of powers. The more work the state has, the more power it can be. However, the three main powers are political power, social power and economic power.

Political power is the ability to control human behavior or to influence the outcome of events. Political power is related to the legal framework and to the wider bureaucracy. In most cases political power is wielded by the elite, which is controlled by small, selected and privileged groups. Social power is found in society and politics. Social power is based on the opinions of different communities, family status, respect and dignity, and the enjoyment and lifestyle of society. Social power is available within the rules of society and the laws of land. Political power and economic power are deeply related. Political power is meaningless without economic power. Economic power is the skill to improve the quality of life of individuals, societies or states. Economic power increases the freedom of decision-making of a state and decreases the ability of external forces to reduce their freedom.

All power is a matter of approval. If this approval is widespread, the jurisdiction of power will also be widespread. The consequences of power for this approval can be positive or negative. Power is an important part of the state. The government exercises the power of the state. Now let us discuss about the government.

10.5.3.1 Government





One of the main features of the state is the government. If a group of people live in a territory, the state will not be established. They must have a common purpose and a specific organization to implement this common purpose. This particular institution is called the government. Without the government, the people are disorganized, incoherent and have no collective power. The will of the state is expressed through the government and the state performs all its functions. Just as a board of directors is needed to run an organization, so is a government needed to run a state. That government acts as the spokesperson of the state.

A government normally consists of legislature, executive and judiciary. The main function of the legislature is to make laws. The main function of the executive is to manage the governance of the country. The main functions of the judiciary is to explain and enforce the law in specific cases. Therefore, the government is formed with those who make laws, administer governance work and perform judicial functions. In general, the government is the body of persons who are involved in legislature, executive and judiciary in order to carry out the functions of the state. No state can be imagined without government. When the government falls for any reason, anarchy and chaos occur in the country.

In a democratic system, there can be different types of government. For example, there can be two governments based on the relationship of the state with the central government. These two governments are the unitary government and the federal government. The governing power of a unitary government is vested in a central level. On the other hand, some of the governing powers of the federal government are vested in the regional bodies and others in the central bodies. Again there can be two governments based on the relationship between the legislature and the executive. These two governments are the government ruled

by the presidential government and the parliamentary government. In a presidential government, the president administers the affairs of the state and is not accountable to the legislature. In a parliamentary government, the cabinet is the governing body and is accountable to the legislature for its functions.

Power is an upakarana (component) of state.

ॐ (Category) ∽	Point rule 	ॐ (Name) ⇒	Power
ॐ°(Assertion) ∽	Balance rule 	ॐ (Positivity) ⇒	Power inclusion
		ॐ (Negativity) ⇒	Power exclusion
ॐ(Dimension) ∽	Left hand rule 	ॐ (North) ⇒	Power is in the north-south.
		ॐ (East) ⇒	Power is in the east-west.
		ॐ (Up) ⇒	Power is in the up-down.
ॐ°(Quantity) ∽	Cross rule 	ॐ(Force) ⇒	There is force in this power.
		ॐ(Mass) ⇒	There is mass in this power.
		ॐ(Space) ⇒	This power is in a space.
		ॐ(Time) ⇒	This power is in a time.

Tab. 10.15

10.5.4 Sovereignty





Sovereignty is the most important part of the state. Without sovereignty, the vital force of the state is not established. A state without sovereignty cannot be considered a real state even if it has a population, a certain territory, and a well-controlled government. Sovereignty means the highest and ultimate power that is inflexible, indivisible, single and unique. In fact, the will of the state in a state is the extreme desire. Sovereignty is the power of will of the state. Any other person or organization will have to bow to this will of the state. If an individual or organization does not bow to this will, then the state has the power to bow down or punish it.

Sovereignty has to be understood from two sides. One, the right to all power in the internal affairs of the state and two, the freedom from the control of the external enemy. Extreme power from the inside and freedom from external control, this is the form of sovereignty. The state can enact laws to establish internal peace and order and apply them to the people. This is internal sovereignty. Again, it can set its own policy for maintaining

relations with other states, including the power to declare war and make peace. This is external sovereignty.

The sovereign power of the state is the original and uncontrolled absolute power. The state is completely independent for this absolute power. The state has no power to be equal or over it. This power is completely permanent. As long as the state exists, sovereignty is retained. Sovereign power is not transferable. Just as man cannot give his vitality to anyone else, so the state cannot transfer its sovereignty to anyone else. Universality is one of the main characteristic of sovereignty. The sovereign power of the state shall be maintained over every individual or institution within the state. However, foreign ambassadors or embassies are outside this sovereign power even though they are organized in the order of the sovereign power of the state.

Sovereignty is an upakarana (component) of state.

ॐ (Category) ⇨	Point rule 	ॐ (Name) ⇒	Sovereignty
ॐ (Assertion) ⇨	Balance rule 	ॐ (Positivity) ⇒	Sovereignty inclusion
		ॐ (Negativity) ⇒	Sovereignty exclusion
ॐ (Dimension) ⇨	Left hand rule 	ॐ (North) ⇒	Sovereignty is in the north-south.
		ॐ (East) ⇒	Sovereignty is in the east-west.
		ॐ (Up) ⇒	Sovereignty is in the up-down.
ॐ (Quantity) ⇨	Cross rule 	ॐ (Force) ⇒	There is force in this sovereignty.
		ॐ (Mass) ⇒	There is mass in this sovereignty.
		ॐ (Space) ⇒	This sovereignty is in a space.
		ॐ (Time) ⇒	This sovereignty is in a time.

Tab. 10.16

The upakaranas or components of the state (form of karma) can be shown with the help of the following figure.

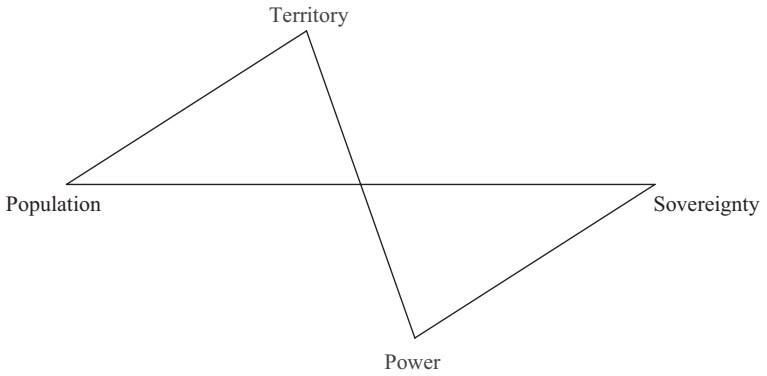


Fig. 10.10

Now from the decision 10.1.4

We get population, territory, power and sovereignty follow the cross rule. State is related to these (population, territory, power and sovereignty).

$$\text{State} \text{ (State)} \text{ } \text{Population} \Rightarrow \text{Territory} \Rightarrow \text{Power} \Rightarrow \text{Sovereignty}$$

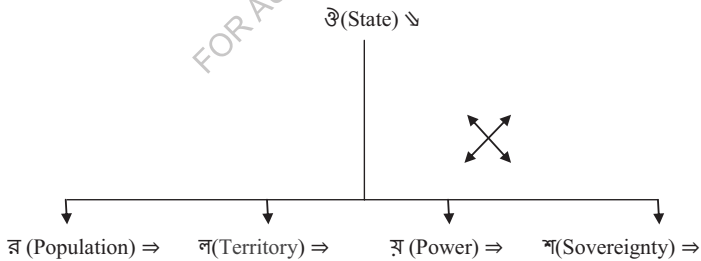


Fig. 10.11

We get six laws from cross rule.

Law 10.4.1 Keeping Population and Territory constant, Power is directly proportional to Sovereignty , i. e.,

$$\text{Power} \propto \text{Sovereignty},$$

Law 10.4.2 Keeping β (Population) and α (Power) constant, λ (Territory) is directly proportional to η (Sovereignty), i. e.,

$$\lambda (\text{Territory}) \propto \eta (\text{Sovereignty})$$

Law 10.4.3 Keeping β (Population) and η (Sovereignty) constant, λ (Territory) is inversely proportional to α (Power), i. e.,

$$\lambda (\text{Territory}) \propto 1/\alpha (\text{Power})$$

Law 10.4.4 Keeping λ (Territory) and α (Power) constant, β (Population) is inversely proportional to η (Sovereignty), i. e.,

$$\beta (\text{Population}) \propto 1/\eta (\text{Sovereignty})$$

Law 10.4.5 Keeping λ (Territory) and η (Sovereignty) constant, β (Population) is directly proportional to α (Power), i. e.,

$$\beta (\text{Population}) \propto \alpha (\text{Power})$$

Law 10.4.6 Keeping α (Power) and η (Sovereignty) constant, β (Population) is directly proportional to λ (Territory), i. e.,

$$\beta (\text{Population}) \propto \lambda (\text{Territory})$$

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10.6 World





This world is made up of all the countries of the world, seas, oceans, mountains, hills, etc. The main difference between the earth and the world is that the earth is a planet and the world is all the human associated regions of this planet. The earth does not only mean the surface of this planet but also everything inside. The world generally means the surface of the earth to take all the territories and resources necessary for the human race.

After the Second World War, the world was divided into three parts on the basis of political ideology. These three worlds are the first world, the second world and the third world. The first world refers to the capitalist and industrialized countries led by the United States and NATO. The second world refers to the countries led by the Soviet Union and the Warsaw Pact that are industrialized or less industrialized but ruled by the communist or the socialists. The third world refers to the countries that are underdeveloped or developing outside the NATO and Warsaw Pact. The idea of the first world, the second world, and the third world was during the Cold War, but with the collapse of the Soviet Union, the idea of the three worlds became obsolete.

After the First World War, the League of Nations was born with the goal of establishing peace on earth and ensuring the existence of states. But in 1939, when the Second World War broke out, the tomb of the League of Nations was built. After the Second World War, the heroes of the victorious party, with the goal of establishing lasting peace in the world, thought of establishing an organization so that the horrors of war would be removed from the earth forever and the stability and certainty of every state would be ensured. To this end, US President Franklin Roosevelt, British Prime Minister Winston Churchill and Soviet Union leader Joseph Stalin met at a historic conference to set out the basic principles of the United Nations or the UN Charter. On the basis of these basic principles, the United Nations Organization was established on October 24, 1945, with the determined efforts of the great powers to establish lasting peace in the world.

The United Nations Organization has six organs. These six organs are (1) the General Assembly, (2) the Security Council, (3) the Trusteeship Council, (4) the Economic and Social Council, (5) the International Court of Justice and (6) the Secretariat.

World is an akara (form) of karma. It has four upakaranas (components) namely: life, environment, authority, development and peace.

३ (Category) ∽	Point rule 	ऒ (Name) ⇒	World
३°(Assertion) ∽	Balance rule 	ॢ (Positivity) ⇒	Inclusive world
		ॣ (Negativity) ⇒	Exclusive world
ॢ (Dimension) ∽	Left hand rule 	। (North) ⇒	World is in the north-south.
		॥ (East) ⇒	World is in the east-west.
		० (Up) ⇒	World is in the up-down.
ॢ°(Quantity) ∽	Cross rule 	॥ (Force) ⇒	There is force in this world.
		० (Mass) ⇒	There is mass in this world.
		ॢ (Space) ⇒	This world is in a space.
		ॣ (Time) ⇒	This world is in a time.

Tab. 10.17

10.6.1 Life





Before discussing the life or jivan, it is necessary to know what a living thing is. A living thing is an object that is alive now or was once alive. And a non-living object is an object that has never been alive. There are some characteristics of living things. For example, living things respond to the environment. It changes for growth and development. They breed and produce offspring like them. All living things are made of one or more cells. They breathe for survival. Despite changes in external environment, the living thing keeps its internal environment within a certain range, i.e., it maintains homeostasis.

Life is a characteristic that separates an organism from inanimate matter and the dead. Activities such as food intake, metabolism, reproduction, movement, etc. indicate the presence of life. Most scientists use the eight life traits to determine whether something is alive or not. These traits or characteristics are cellular organization, metabolism, reproduction, homeostasis, genetics and heredity, response to stimuli, growth and change, adaptation through evolution.

All living things are made up of one or more cells. A cell is the basic unit of structure and function of all organisms. Living things are made up of large and complex molecules. To survive they have to pass through many complex chemical reactions. All living things must

have the ability to reproduce. Living things make more creatures like themselves. Reproduction can be either sexual or asexual. Organisms keep their internal environment within a certain range despite changes in the external environment. This process is called homeostasis. Another important characteristic of the living organism is heredity. Because of heredity, genetic information is transmitted from parents to their offspring. Living organisms respond to changes in the environment. For example, trees can bend to the source of light, climb fences and walls, or respond to touch. All living things grow and change. Monocellular organism enlarges its cell and multicellular organisms enlarge themselves through cell division. Populations of living organisms can pass through evolution. The genetic traits of a population changes over time.

Life is an upakarana (component) of world.

३ (Category) ⇓	Point rule 	३ (Name) ⇒	Life
३° (Assertion) ⇓	Balance rule 	ॢ (Positivity) ⇒	Inclusive life
		ॣ (Negativity) ⇒	Exclusive life
३̂ (Dimension) ⇓	Left hand rule 	। (North) ⇒	Life is in the north-south.
		॥ (East) ⇒	Life is in the east-west.
		० (Up) ⇒	Life is in the up-down.
३° (Quantity) ⇓	Cross rule 	॥ (Force) ⇒	There is force in this life.
		० (Mass) ⇒	There is mass in this life.
		ॣ (Space) ⇒	This life is in a space.
		ॣ (Time) ⇒	This life is in a time.

Tab. 10.18

10.6.2 Environment

The environment is a widely discussed issue in recent times. Environment pollution is a social problem. Environmental balance existed at the beginning of human society. But this situation did not last long. The environment is endangered today due to industrialization, urbanization, population growth, increase in the number of vehicles, increase in global warming etc. As a result, housing problems, traffic jams, poverty, drinking water problems, etc. are appearing. Excessive pressure is being exerted on sewerage systems, waste systems, gas, electricity and fuel. Biodiversity is declining drastically and the environment is losing its balance.

Environmental problems may be different. For example,

(1) Air is being polluted due to various types of motor vehicles, brick kilns, construction work, unplanned industries etc.

(2) Water is being polluted due to toxic chemicals, radioactive substances, domestic organic waste, silt from soil erosion, pesticides, shipping oil, etc.





(3) The ground is being polluted due to plastic materials, medical waste, polythene, pesticides, excreta etc.

(4) Forests are being deforested due to human settlement, expansion of agricultural land, extraction of fire wood and construction materials, etc.

Weather is the state of the temperature, clouds and humidity of a place at a particular time. Climate is the overall pattern of weather or the average of a few years. Climate change is having a negative impact on society. Sea levels rise and land in many areas becomes deserted. Ozone layer depletion is obtained. Many species of animals and plants have become extinct. Food production decreases, hunger and malnutrition increase.

Natural disasters are organized like the whims of nature, over which man has no hand. There are different forms of natural disasters. Cyclones are one of the natural disasters. It is a very strong and destructive airy storm. When the sea water comes to the ground under the influence of the cyclone, it is called tidal wave. Earthquakes are one of the natural disasters. The tidal wave caused by an earthquake is called a tsunami. Floods and droughts are also called natural disasters. Desertification is a kind of natural disaster.

Environment is an upakarana (component) of world.

३ (Category) ∽	Point rule 	३ (Name) ⇒	Environment
३° (Assertion) ∽	Balance rule 	३ (Positivity) ⇒	Environment protection
		३ (Negativity) ⇒	Environment contraction
३ (Dimension) ∽	Left hand rule 	३ (North) ⇒	Environment is in the north-south.
		३ (East) ⇒	Environment is in the east-west.
		३ (Up) ⇒	Environment is in the up-down.
३° (Quantity) ∽	Cross rule 	३ (Force) ⇒	There is force in this environment.
		३ (Mass) ⇒	There is mass in this environment.
		३ (Space) ⇒	This environment is in a space.
		३ (Time) ⇒	This environment is in a time.

Tab. 10.19





10.6.3 Authority

Authority is a kind of legitimate power that is entrusted in a person or a group and applied to another. Authority is the capacity with which one can control another. However the element of legitimacy is very important for the concept of authority. This element of legitimacy distinguishes authority from the general notion of power. Power in general is an entity that controls or directs others. On the other hand authority is the formal title that gives an equipment to an individual or a group that can influence others in an organization. So power is required for authority but there may be power without authority. Simply authority is nothing but the powers with executives which an organization provide them (executives) to achieve its common goals.

Here can be mentioned five important characteristics of authority. They are legitimacy, dominance, informality, rationality and accountability. Authority must have the power to be defended with reason or justice. Legitimacy is the main basis of authority. A person or group with authority exercises dominance over another person or group. The order of authority is usually the order of superior to an inferior. According to Fredrick 'Authority is not a power but something that accompanies power'. So it has an informality of power. Rationality is another characteristics of authority. He who has authority has something like that he can explain his rationality when applying it to others. Accountability makes the authority answerable for the work it performs. The person or group in authority is responsible to the higher authority for its actions.

The United Nations Organisation is a global organisation where the problems of the member countries are resolved peacefully. It was established in 1945. The reason for the formation of the UNO is to stop disputes between countries in a peaceful way. The aims and objectives of the United Nations are security, human rights, justice and welfare. The United Nations can authorize a peaceful solution to the problems of the states of the world. In this case, the United Nations can be a good authority.

Authority is an upakarana (component) of world.

३ (Category) ∽	Point rule 	३ (Name) ⇒	Authority
३°(Assertion) ∽	Balance rule 	३ (Positivity) ⇒	Authority inclusion
		३ (Negativity) ⇒	Authority exclusion
३(Dimension) ∽	Left hand rule 	३ (North) ⇒	Authority is in the north-south.
		३ (East) ⇒	Authority is in the east-west.
		३ (Up) ⇒	Authority is in the up-down.
३°(Quantity) ∽	Cross rule 	३ (Force) ⇒	There is force in this authority.
		३ (Mass) ⇒	There is mass in this authority.
		३ (Space) ⇒	This authority is in a space.
		३ (Time) ⇒	This authority is in a time.

Tab. 10.20

10.6.4 Development

Development is the process by which the economic, environmental or demographic components of a society or a state grow, progress or change positively. The goal of development is to create employment opportunities and increase the living standards of the people without harming the environment. Something or someone is further improved as a result of development. Development can be of different types, namely- social development, political development, economic development, human development, environmental development etc.

Social development improves the welfare of every person in the society so that they can reach their full potential. The development of society is linked to the welfare of every citizen. Social development is about investing in people. As many obstacles need to be removed in the path of social development so that all citizens can journey with confidence in the path of their dreams.





Political development refers to how politically united the people of a country are and how much they participate in politics. The more politically conscious people take part in political activities in a country, the more political development can be said to have taken place in that country. In a politically developed country, democracy has an institutional basis and ensures the welfare of the people, human rights and equitable distribution of resources.

Economic development refers to the extent to which a country has advanced in the overall economy, that is, in the micro-level and macro-level. Economic development improves the living standards of the people of a country and moves a country from poor economy to rich economy.

Human development means the expansion of human freedom and opportunities and the improvement of their well-being. Human development is about expanding the richness of human life and trying to make their opportunities and choices a reality. In reality, it means developing people's skills and giving them the opportunity to use them.

Environmental development is the direct result of investment in infrastructure, scenic surroundings, green areas and public spaces. Environmental development is very important because environment plays an important role in living a healthy life.

Development is an upakarana (component) of world.

ॐ (Category) ⇓	Point rule 	ॐ (Name) ⇒	Development
ॐ° (Assertion) ⇓	Balance rule 	ॐ (Positivity) ⇒	Development inclusion
		ॐ (Negativity) ⇒	Development exclusion
ॐ (Dimension) ⇓	Left hand rule 	ॐ (North) ⇒	Development is in the north-south.
		ॐ (East) ⇒	Development is in the east-west.
		ॐ (Up) ⇒	Development is in the up-down.
ॐ° (Quantity) ⇓	Cross rule 	ॐ (Force) ⇒	There is force in this development.
		ॐ (Mass) ⇒	There is mass in this development.
		ॐ (Space) ⇒	This development is in a space.
		ॐ (Time) ⇒	This development is in a time.

Tab. 10.21

10.6.5 Peace

Peace usually means the absence of violence in all kinds. Peace is a concept that means social harmony and friendship and the absence of terrorism and war. It refers to the state of society where the mind is free from annoyance, confusion, anxiety, etc., that is, the mind has tranquillity and purity. Peace is a condition where a person can live with dignity and honour.

Peace is a comprehensive and broad concept. Peace at the macro-level, is the absence of conflict and war. Peace at the micro level is subjective, depending on the inner state of the body, mind, and perceptions. Peace as a whole depends on social, political, economic, cultural and religious systems. The balance of international power is very important for peace. The pre-requisite for peace is the absence of war and conflict.

Now let's explain this matter mathematically. Two motor vehicles are running parallel in the same direction on the same road. There is no conflict in it. So it can be said that there is peace.

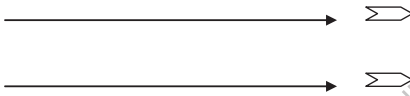


Fig. 10.12

In the same way five motor vehicles are running parallel in the same direction on the same road. There is no conflict too. In this case, it can be said that there is peace.

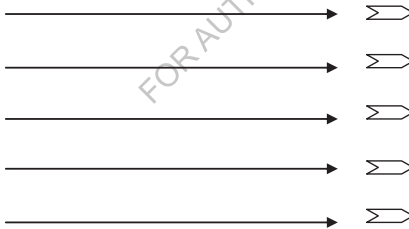


Fig. 10.13

Again, if a motor vehicle from the opposite direction runs in the same line, there will be a collision between them. If there is a clash, there will be unrest. So it can be said that peace will be disrupted there.



Fig. 10.14

Shanti Mantra

om bhadram karnebhih srunuyama devah
bhadram pasyemaksabhiryajatrah
sthirairangaistustuvagmsastanubhih
vyasema devahitam yadayuh
svasti na indro vrddhasravah
svasti nah pusa visvavedah
svasti nastarksyo aristanemih
svasti no brhaspatirdadhatu
om santih santih santih

Translation

Om! O gods, may we hear auspicious words with the ears;
While engaged in yagnas,
May we see auspicious things with the eyes;
While praising the gods with steady limbs,
May we enjoy a life that is beneficial to the gods.
May Indra of ancient fame be auspicious to us;
May the supremely rich (or all-knowing) Pusa (god of the earth)
Be propitious to us;
May Garuda, the destroyer of evil,
Be well disposed towards us;
May Brihaspati ensure our welfare.
Om! Peace! Peace! Peace!

Gayatri Mantra - A Universal Prayer

Om Bhur Bhuvah Swah
Tat-savitur Varenyam
Bhargo Devasya Dheemahi
Dhiyo Yonah Prachodayat

General meaning:

We meditate on that most adored Supreme Lord, the creator, whose effulgence (divine light) illumines all realms (physical, mental and spiritual). May this divine light illumine our intellect.

Word meaning:

Om: The primeval sound; Bhur: the physical body/physical realm; Bhuvah: the life force/the mental realm; Suvah: the soul/spiritual realm; Tat: That (God); Savitur: the Sun, Creator (source of all life); Varenyam: adore; Bhargo: effulgence (divine light); Devasya: supreme Lord; Dhimahi: meditate; Dhiyo: the intellect; Yo: May this light; Nah: our; Prachodayat: illumine/inspire.

Peace is an upakarana (component) of world.

३ (Category) ∽	Point rule ●	ॐ (Name) ⇒	Peace
३°(Assertion) ∽	Balance rule ↓ ↔	ॐ (Positivity) ⇒	Peace increase
		ॐ (Negativity) ⇒	Peace decrease
३̄(Dimension) ∽	Left hand rule ↕ ↔	ॐ (North) ⇒	Peace is in the north-south.
		ॐ (East) ⇒	Peace is in the east-west.
		ॐ (Up) ⇒	Peace is in the up-down.
३°(Quantity) ∽	Cross rule ↔ ↕	ॐ (Force) ⇒	There is force in this peace.
		ॐ (Mass) ⇒	There is mass in this peace.
		ॐ (Space) ⇒	This peace is in a space.
		ॐ (Time) ⇒	This Peace is in a time.

Tab. 10.22

The upakaranas or components of the world (form of karma) can be shown with the help of the following figure.

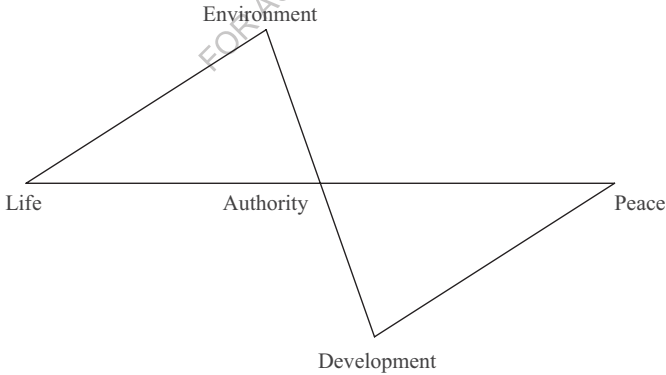


Fig. 10.15

Now from the decision 10.1.5

We get life, environment, authority, development and peace follow the symmetrical distribution rule. World is related to these (life, environment, authority, development and peace).

ॐ(World)∩ष(Life)⇒म(Environment)⇒इ(Authority)⇒ः(Development)⇒ः(Peace)

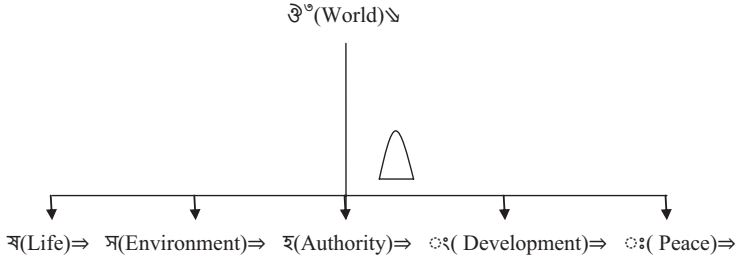


Fig. 10.16

We get ten laws from symmetrical distribution rule.

Law 10.5.1 Keeping ष (Life), म (Environment), and इ (Authority) constant, ः (Development) is directly proportional to ः (Peace), i. e.,

$$\text{ः (Development)} \propto \text{ः (Peace)}$$

Law 10.5.2 Keeping ष (Life), म (Environment), and ः (Development) constant, इ (Authority) is inversely proportional to ः (Peace), i. e.,

$$\text{इ (Authority)} \propto 1 / \text{ः (Peace)}$$

Law 10.5.3 Keeping ष (Life), म (Environment), and ः (Peace) constant, इ (Authority) is inversely proportional to ः (Development), i. e.,

$$\text{इ (Authority)} \propto 1 / \text{ः (Development)}$$

Law 10.5.4 Keeping ष (Life), इ (Authority) and ः (Development) constant, म (Environment) is inversely proportional to ः (Peace), i. e.,

$$\text{म (Environment)} \propto 1 / \text{ः (Peace)}$$

Law 10.5.5 Keeping ष (Life), इ (Authority) and ः (Peace) constant, म (Environment) is directly proportional to ः (Development), i. e.,

$$\text{म (Environment)} \propto \text{ः (Development)}$$

Law 10.5.6 Keeping ष (Life), ः (Development) and ः (Peace) constant, म (Environment) is inversely proportional to इ (Authority), i. e.,

$$\text{म (Environment)} \propto 1 / \text{इ (Authority)}$$

Law 10.5.7 Keeping म (Environment), ह (Authority) and ं (Development) constant, ष (Life) is directly proportional to ः (Peace), i. e.,

$$\text{ष (Life)} \propto \text{ः (Peace)}$$

Law 10.5.8 Keeping म (Environment), ह (Authority) and ः (Peace) constant, ष (Life) is inversely proportional to ं (Development), i. e.,

$$\text{ष (Life)} \propto 1 / \text{ं (Development)}$$

Law 10.5.9 Keeping म (Environment), ं (Development) and ः (Peace) constant, ष (Life) is inversely proportional to ह (Authority), i. e.,

$$\text{ष (Life)} \propto 1 / \text{ह (Authority)}$$

Law 10.5.10 Keeping ह (Authority), ं (Development) and ः (Peace) constant, ष (Life) is directly proportional to म (Environment), i. e.,

$$\text{ष (Life)} \propto \text{म (Environment)}$$

Now from the decision 10.1.6

We get person, family, society, state and world are related. Karma is the cause of these (person, family, society, state and world).

ॐ Karma ↓ ॐ Person ∩ ॐ Family ∩ ॐ Society ∩ ॐ State ∩ ॐ World ∩

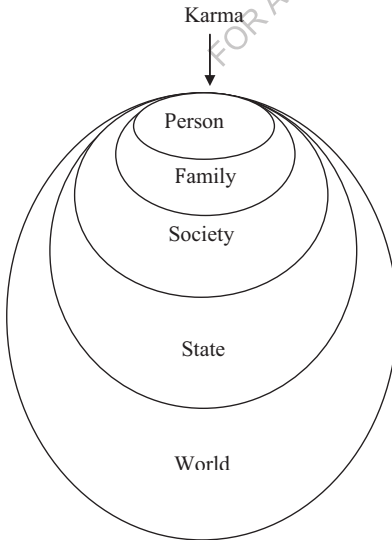


Fig. 10.17

CHAPTER 11

Samannayatics

11.1 Cause

11.2 Relation

11.3 Rule

FOR AUTHOR USE ONLY

11.1 Cause

A detailed discussion of the cause is discussed in chapter 9. In short, a cause is an immediate, unconditional and invariable antecedent to the effect. There are three characteristics of the cause. These three characteristics are,

- (1) Immediate antecedent to the effect,
- (2) Unconditional antecedent to the effect and
- (3) Invariable antecedent to the effect.

The doctrines on the relationship between cause and effect are discussed in detail in chapter 3. These doctrines can be briefly mentioned again. First of all, the doctrines of the origin of action can be divided into two parts, namely, *asatkaryavada* and *satkaryavada*. According to *asatkaryavada*, the cause does not exist in cause before the action originates. Again according to *satkaryavada*, action is rooted in cause before it originates. *Satkaryavada* is again of two types viz., *parinamavada* and *vivartavada*. According to *parinamavada*, when an action is produced from a cause, the cause actually becomes the action. On the other hand, according to *vivartavada*, when a work is produced from a cause, the cause does not actually become an action, it is only reflected in the form of action. Apart from *parinamavada* and *vivartavada*, there is another form of *satkaryavada*. This form is *numberism*. *Numberism* is discussed in chapter 3. In short, according to *numberism*, cause is form (*bhuti*) and action is glorious form (*vibhuti*). All numbers in mathematics are the glorious forms of the number one. All composite numbers are the glorious forms of the number one and fractions are also the glorious forms of the number one.

Four causes can be mentioned in this discussion. These four causes are,

- (1) Efficient cause,
- (2) Material cause,
- (3) Objective cause and
- (4) Qualitative cause.

Efficient cause is the master whose efforts produce the action. Material cause is the material with which the action is produced. Objective cause is the object due to which knowledge is generated. Qualitative cause is the quality due to which the object is useful.

For example, the potter made pot with the help of clay in his efforts. Here, potter is the efficient cause, clay is the material cause, pot is the objective cause and quality of pot (e.g. color, size, weight etc.) is the qualitative cause.

On the other hand, the weaver made cloth with the help of yarn in his efforts. Here, weaver is the efficient cause, yarn is the material cause, cloth is the objective cause and quality of cloth (e.g. color, size, weight etc.) is the qualitative cause.

Now I would like to mention the figure 5.69.

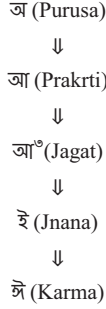


Fig. 11.1

We get four decisions from the figure.





Decision 1. Purusa is the efficient cause, prakrti is the effect.

Decision 2. Prakrti is the material cause, jagat is the effect i.e., Purusa and prakrti are the cause, jagat is the effect.

Decision 3. Jagat is the objective cause, jnana is the effect i.e., Purusa, prakrti and Jagat are the cause, jnana is the effect.

Decision 4. Jnana is the qualitative cause, karma is the effect i.e., Purusa, prakrti, jagat and jnana are the cause, karma is the effect.

Cause is a kind of samannaya (adjustment).

ॐ (Padartha) ∽	Point rule 	ॐ (Name) ⇒	Cause
ॐ (Assertion) ∽	Balance rule 	ॐ (Positivity) ⇒	Cause inclusive
		ॐ (Negativity) ⇒	Cause exclusive
ॐ (Dimension) ∽	Left hand rule 	ॐ (North) ⇒	Cause is in the north- south.
		ॐ (East) ⇒	Cause is in the east-west.
		ॐ (Up) ⇒	Cause is in the up-down.
ॐ (Quantity) ∽	Cross rule 	ॐ (Force) ⇒	There is force in this cause.
		ॐ (Mass) ⇒	There is mass in this cause.
		ॐ (Space) ⇒	This cause is in a space.
		ॐ (Time) ⇒	This cause is in a time.

Tab. 11.1

11.2 Relation

A relation between two sets is defined as the collection of ordered pairs in which the ordered pair is contained one object from each set. Let the object x from the first set X and the object y from the second set Y , then the set of ordered pairs $R = \{(x, y)\}$ is an example of relation. A function is a special type of relation.

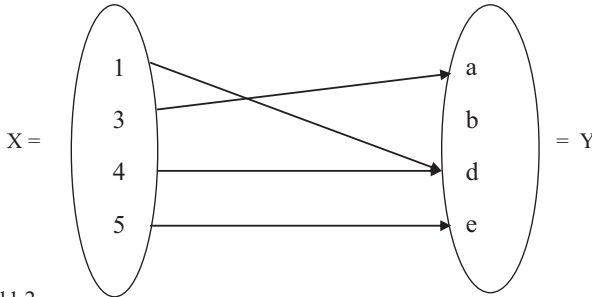


Fig. 11.2

The set X is called the domain of R and the set Y is called the co-domain or range of R . The relation R over the sets X and Y is

$$R = \{(1, d), (3, a), (4, d), (5, e)\} \text{ and}$$

$$\text{Domain } X = \{1, 3, 4, 5\},$$

$$\text{Range } Y = \{a, b, d, e\}$$

Here we can say 'x is related to y'. We denote it by xRy .

In mathematics the word 'relation' is used in the sense of relationship. The partial sentences like below are the examples of relations.

'is identical with'

'is transformed into'

'stay below', 'stay above'

'possesses'

'is a member of'

The above relationships can be identified separately in keeping with the partial sentences as; identity relation, transformational relation, positional relation, possessive relation and membership relation.

11.2.1 Identity Relation

Brahman is identical with Brahman. In other words, Brahman is related to itself only.

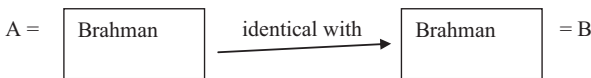


Fig. 11.3

Let the two sets A and B. Brahman contains in the set A. Brahman contains in the set B. A and B are the sets of one member and the member is Brahman. Brahman is identical with Brahman. Therefore, 'Brahman is identical with Brahman' is an example of identity relation.

11.2.2 Transformational Relation

Jada transforms in Jiva. In other words, jiva is a transformation of jada.

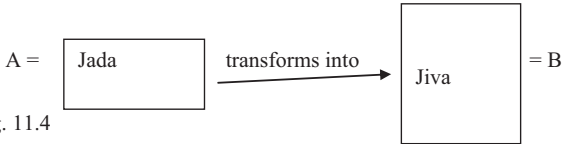


Fig. 11.4

Let the two sets A and B. Jada contains in the set A. Jiva contains in the set B. A is a set of one member and the member is jada. B is a set of many members of jada which is a jiva. Jada change into Jiva. Therefore, 'jada transforms into jiva' is an example of transformational relation.

11.2.3 Positional Relation

Prithvi stays below antariksa. In other words, antariksa stays above prithvi.

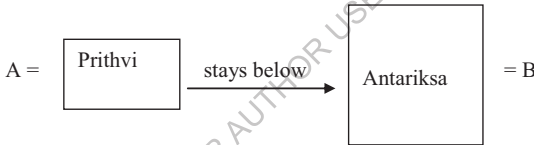


Fig. 11.5

Let the two sets A and B. Prithvi contains in the set A. Antariksa contains in the set B. A is a set of one member and the member is the planet prithvi. B is a set of many members of planets which is an antariksa. Prithvi stays down antariksa. Therefore, 'prithvi stays below antariksa' is an example of positional relation.

Antariksa stays below svarga. In other words, svarga stays above antariksa.

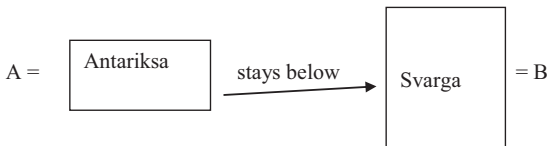


Fig. 11.6

Let the two sets A and B. Antariksa contains in the set A. Svarga contains in the set B. A is a set of one member and the member is the antariksa. B is a set of many members of antariksas which is a svarga. Antariksa stays down svarga. Therefore, 'antariksa stays below svarga' is an example of positional relation.

11.2.4 Possessive Relation

Category possesses assertion. Assertion is two, positivity and negativity. Category is in positive and negative both assertions.

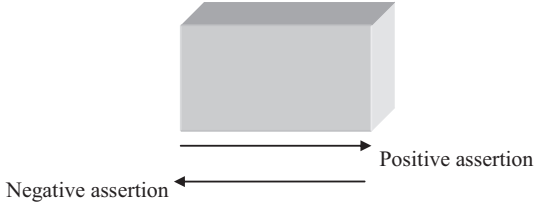


Fig. 11.7

Category can be both positive and negative in the Cartesian coordinates.

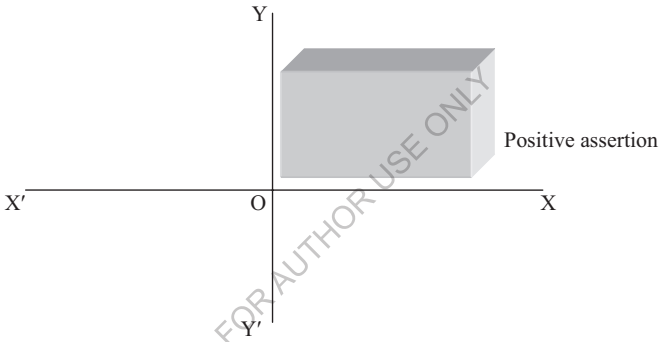


Fig. 11.8

Category possesses assertion. Category contained in A. Assertion i.e., positivity and negativity contained in B.

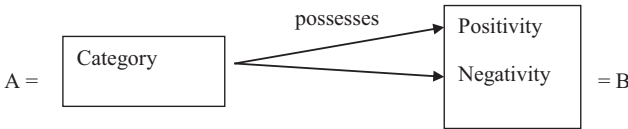


Fig. 11.9

Therefore, 'category possesses assertion' is an example of possessive relation.

Assertion possesses dimension. Dimension is three; north, east and up. Assertion have these three dimensions north, east and up.

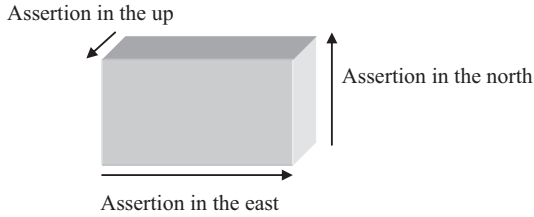


Fig. 11.10

In the Cartesian coordinate system, assertion are in three dimensions, north, east and up.

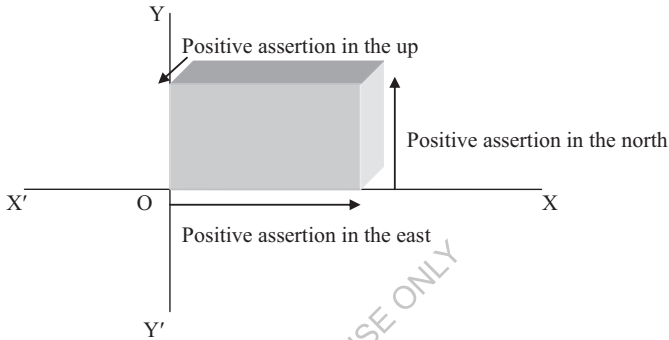


Fig. 11.11

Assertion possesses dimension. Assertion contained in A. Dimension i.e., north, east and up contained in B.

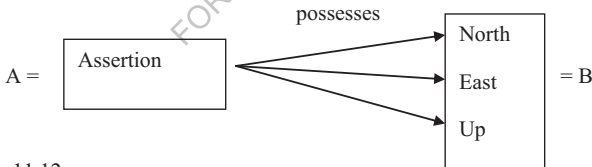


Fig. 11.12

Therefore, 'assertion possesses dimension' is an example of possessive relation.

Dimension possesses quantity. Quantity is four; force, mass, space and time. There are four quantities force, mass, space and time in the dimensions.

The up dimension have the quantities force, mass, space and time

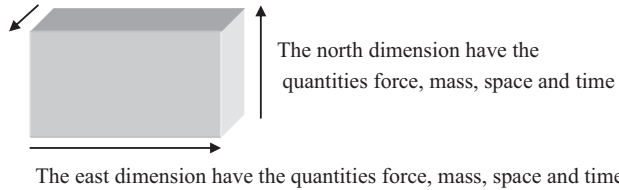


Fig. 11.13

In the Cartesian coordinate system, dimension contains the four quantities force, mass, space and time.

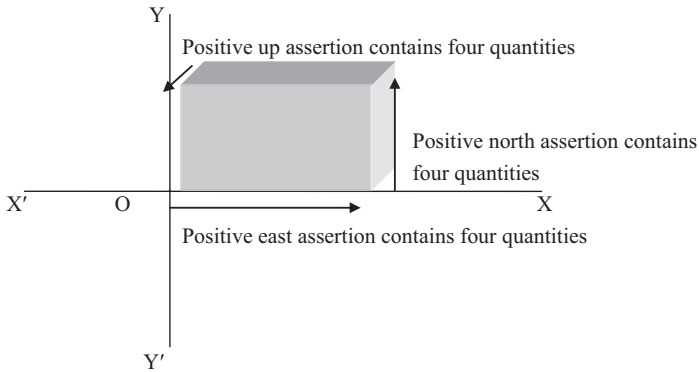


Fig. 11.14

Dimension possesses quantity. Dimension contained in A. Quantity i.e., force, mass, space and time contained in B.

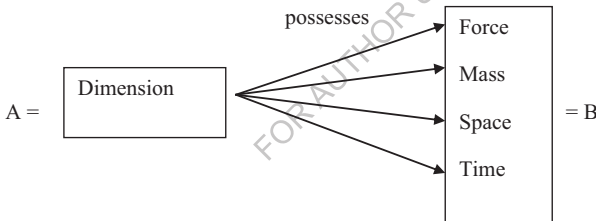


Fig. 11.15

Therefore, 'dimension possesses quantity' is an example of possessive relation.

11.2.5 Membership Relation

Person contains in family. In other words, person is a member of family.

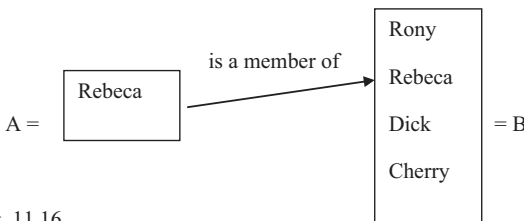


Fig. 11.16

Let the two sets A and B. Rebeca is a person and contains in the set A. Rony, Rebeca, Dick and Cherry contain in the set B. A is a set of one member of person. B is a set of many members of persons which is a family. Rebeca is a member of the set B. Therefore, 'Rebeca is a member of the set B' is an example of membership relation.

Family contains in society. In other words, family is a member of society.

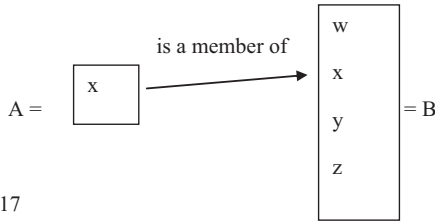


Fig. 11.17

Let the two sets A and B. Here A includes the family x i.e., x contains in the set A. B include the families w, x, y and z. A is a set of one member of family. B is a set of many members of families which is a society. The family x is a member of the set B. Therefore, 'x is a member of the set B' is an example of membership relation. Family is a member of a society, there exists a membership relation.

Society contains in state. In other words, society is a member of state.

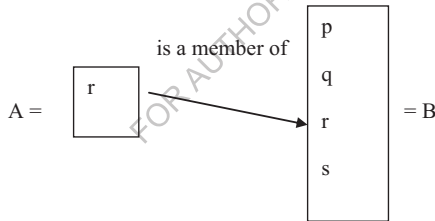


Fig. 11.18

Let the two sets A and B. Here A includes the society r i.e., r contains in the set A. B include the societies p, q, r and s. A is a set of one member of society. B is a set of many members of societies which is a state. The society r is a member of the set B. Therefore, 'x is a member of the set B' is an example of membership relation. Society is a member of a state, there exists a membership relation.

State contains in world. In other words, state is a member of world.

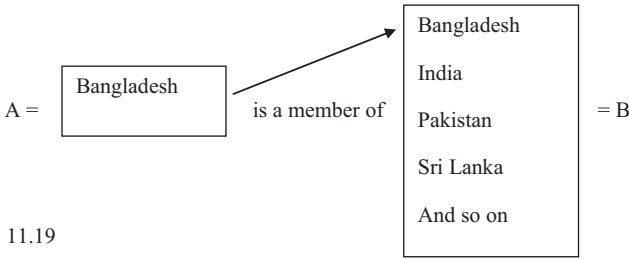


Fig. 11.19

Let the two sets A and B. Here A includes the state Bangladesh i.e., Bangladesh contains in the set A. B include the states Bangladesh, India, Pakistan and Sri Lanka and so on. A is a set of one member of state. B is a set of many members of states which is our world. The state Bangladesh is a member of the set B. Therefore, 'x (contained in A) is a member of the set B' is an example of membership relation. Bangladesh is a member of this world, there exists a membership relation.

Relation is a kind of samannaya (adjustment).

\exists (Padartha) \Downarrow	Point rule 	\mathfrak{P} (Name) \Rightarrow	Relation
\exists° (Assertion) \Downarrow	Balance rule 	\mathfrak{C} (Positivity) \Rightarrow	Relation inclusion
		\mathfrak{J} (Negativity) \Rightarrow	Relation exclusion
\mathfrak{P} (Dimension) \Downarrow	Left hand rule 	\mathfrak{N} (North) \Rightarrow	Relation is in the north-south.
		\mathfrak{E} (East) \Rightarrow	Relation is in the east-west.
		\mathfrak{U} (Up) \Rightarrow	Relation is in the up-down.
\mathfrak{P}° (Quantity) \Downarrow	Cross rule 	\mathfrak{F} (Force) \Rightarrow	There is force in this relation.
		\mathfrak{M} (Mass) \Rightarrow	There is mass in this relation.
		\mathfrak{S} (Space) \Rightarrow	This relation is in a space.
		\mathfrak{T} (Time) \Rightarrow	This relation is in a time.

Tab. 11.2

11.3 Rule

A rule is a procedure or method by which one or more equations can be described. One or more equations can be easily remembered with the help of a rule. In the main theory there are five rules. These five rules are (1) point rule or identity rule, (2) balance rule or straight line rule, (3) left hand rule or triangle rule, (4) cross rule or X-rule or rectangle rule and (5) symmetrical distribution rule or pentagon rule. The rule is marked by the symbol \Rightarrow . These rules are discussed in detail in chapter 4. Let us briefly discuss these rules here.

11.3.1 Point Rule or Identity Rule

A point is a position represented by a dot. It is a geometrical object and has a location only. It has no size or shape i.e., it does not have any length, width, or height. As it can be said all points are equal and unique. This is called the point rule or identity rule. Point rule can be shown with the help of the figure below.

P (.)

Fig. 11.20

In the interpretation of this rule it can be said that every unique object is only equal to it. For example, Isvara is equal to Isvara. The sun is equal to the sun.

From the point rule we get one law.

Law 1. P is equal to P, i.e.,

$$P = P$$

From the point rule in main theory we get a total of 5 laws. These laws are;

Law 1. Isvara is equal to Isvara, i.e.,

$$\text{ऐ (Isvara)} = \text{ऐ (Isvara)}$$

Law 2. Paramanu is equal to paramanu, i.e.,

$$\text{ऒ (Paramanu)} = \text{ऒ (Paramanu)}$$

Law 3. Ksiti is equal to ksiti, i.e.,

$$\text{ऒ (Ksiti)} = \text{ऒ (Ksiti)}$$

Law 4. Name is equal to name, i.e.,

$$\text{ऒ (Name)} = \text{ऒ (Name)}$$

Law 5. Purusartha is equal to purusartha, i.e.,

$$\text{ऐ (Purusartha)} = \text{ऐ (Purusartha)}$$

11.3.2 Balance Rule or Straight Line Rule

As we know, there are two sides of a balance and these two sides are equal or proportional to each other. This is called balance rule or straight line rule. Suppose, P and Q are two sides. Then, balance rule can be shown with the following figure.



Fig. 11.21
Or,



Fig. 11.22

The balance has two endpoints. The locations of these endpoints are as follows;

Location 1. One is in the end of the left side.

Location 2. Other is in the end of the right side.

There is 1 sub rule in balance rule and the sub rule is;

Sub Rule 1. Any endpoint is proportional to the other endpoint.

The law according to the sub rule is as follows;

Law 1. P will be proportional to Q.

$$P \propto Q$$

From the balance rule in main theory we get a total of 4 laws. These laws are;

Law 1. Deha will be proportional to prana, i. e.,

$$\text{१ (Deha)} \propto \text{ॡ (Prana)}$$

Law 2. Jala will be proportional to agni, i. e.,

$$\text{ॢ (Jala)} \propto \text{ॣ (Agni)}$$

Law 3. Positivity will be proportional to negativity, i. e.,

$$\text{। (Positivity)} \propto \text{॥ (Negativity)}$$

Law 4. Reproduction will be proportional to marriage, i. e.,

$$\text{० (Reproduction)} \propto \text{० (Marriage)}$$

11.3.3 Left Hand Rule or Triangle Rule

The image that is found when the left hand grows at the right angles of thumb, index finger and middle finger is similar to the three-dimensional Cartesian coordinates. This is called left hand rule. This rule applies to any particular discussion. Suppose there are three axes OX, OY and OZ. Then it can be shown in the figure as

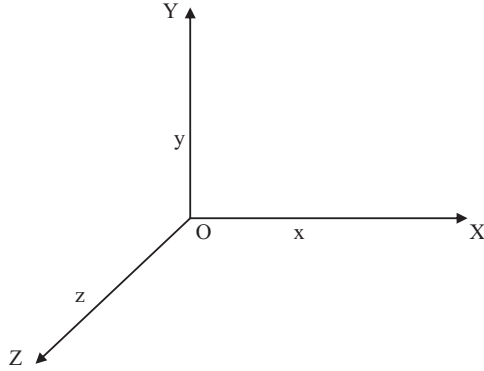


Fig. 11.23

In explaining the rule it can be said that the OY axis is standing at an angle of 90^0 with the OX axis. Similarly, the OZ axis is standing at an angle of 90^0 with the OX and OY axes.

These three axes have three endpoints. The locations of these endpoints are as follows;

Location 1. One is in the end of the X axis,

Location 2. Other is in the end of the Y axis,

Location 3. The third is in the end of the Z axis.

There is 1 sub rule in left hand rule. The sub rule is;

Sub Rule 1. If any one endpoint is fixed, the other two endpoints will change in opposite proportion.

The laws according to the sub rule is as follows;

Law 1. If x is fixed, y and z will be changed in inverse proportions. That is $y \propto 1/z$

Law 2. If y is fixed, z and x will be changed in inverse proportions. That is $z \propto 1/x$

Law 3. If z is fixed, x and y will be changed in inverse proportions. That is $x \propto 1/y$

From the left hand rule in main theory we get a total of 9 laws. These laws are;

Law 1. Keeping व (Vayu) constant, अ (Akasa) is inversely proportional to क (Atma), i. e.,
 $अ (Akasa) \propto 1/क (Atma)$

Law 2. Keeping अ (Akasa) constant, व (Vayu) is inversely proportional to क (Atma), i. e.,
 $व (Vayu) \propto 1/क (Atma)$

Law 3. Keeping क (Atma) constant, व (Vayu) is inversely proportional to अ (Akasa), i. e.,
 $व (Vayu) \propto 1/अ (Akasa)$

Law 4. Keeping द (North) constant, ढ (East) is inversely proportional to ए (Up), i. e.,
 $ढ (East) \propto 1/ए (Up)$

Law 5. Keeping ढ (East) constant, ङ (North) is inversely proportional to ञ (Up), i. e.,
 $\text{ढ (North)} \propto 1/\text{ञ (Up)}$

Law 6. Keeping ञ (Up) constant, ङ (North) is inversely proportional to ढ (East), i. e.,
 $\text{ढ (North)} \propto 1/\text{ढ (East)}$

Law 7. Keeping ब (Education) constant, भ (Culture) is inversely proportional to य (Cooperation), i. e.,
 $\text{भ (Culture)} \propto 1/\text{य (Cooperation)}$

Law 8. Keeping भ (Culture) constant, ब (Education) is inversely proportional to य (Cooperation), i. e.,
 $\text{ब (Education)} \Rightarrow \propto 1/\text{य (Cooperation)}$

Law 9. Keeping य (Cooperation) constant, ब (Education) is inversely proportional to भ (Culture), i. e.,
 $\text{ब (Education)} \Rightarrow \propto 1/\text{भ (Culture)}$

11.3.4 Cross Rule or X Rule or Rectangle Rule

The English letter X or a cross has two arms at a 90° angle. These two arms have four endpoints. The locations of these endpoints are as follows;

Location 1. If any two points are horizontal, the other two points will be horizontal.

Location 2. If any two points are vertical, the other two points will be vertical.

Location 3. If any two points are angular, the other two points will be angular.

This is called cross rule or x- rule or rectangle rule. The X rule can be shown with the help of the following figures.

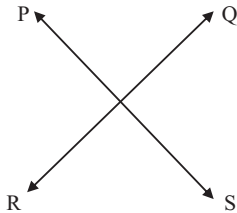


Fig. 11.24

There are 3 sub rules in cross rule. These sub rules are;

Sub Rule 1. If any two horizontal endpoints are fixed, the other two horizontal endpoints will change in direct proportion.

Sub Rule 2. If any two vertical endpoints are fixed, the other two vertical endpoints will change in direct proportion.

Sub Rule 3. If any two angular endpoints are fixed, the other two angular endpoints will change in opposite proportion.

The laws according to the sub rules are as follows;

Law 1. If P and Q are fixed, S and R will change in the direct proportion. That is
 $S \propto R$

Law 2. If P and R are fixed, Q and S will change in the direct proportion. That is
 $Q \propto S$

Law 3. If P and S are fixed, Q and R will change in the inverse proportion. That is
 $Q \propto 1/R$

Law 4. If Q and R are fixed, P and S will change in the inverse proportion. That is
 $P \propto 1/S$

Law 5. If Q and S are fixed, P and R will change in the direct proportion. That is
 $P \propto R$

Law 6. If R and S are fixed, P and Q will change in the direct proportion. That is
 $P \propto Q$

From the cross rule in main theory we get a total of 12 laws. These laws are;

Law 1. Keeping $\bar{\tau}$ (Force) and \mathfrak{M} (Mass) constant, $\bar{\nu}$ (Space) is directly proportional to \mathfrak{t} (Time), i. e.,

$$\bar{\nu}(\text{Space}) \propto \mathfrak{t}(\text{Time})$$

Law 2. Keeping $\bar{\tau}$ (Force) and $\bar{\nu}$ (Space) constant, \mathfrak{M} (Mass) is directly proportional to \mathfrak{t} (Time), i. e.,

$$\mathfrak{M}(\text{Mass}) \propto \mathfrak{t}(\text{Time})$$

Law 3. Keeping $\bar{\tau}$ (Force) and \mathfrak{t} (Time) constant, \mathfrak{M} (Mass) is inversely proportional to $\bar{\nu}$ (Space), i. e.,

$$\mathfrak{M}(\text{Mass}) \propto 1/\bar{\nu}(\text{Space})$$

Law 4. Keeping ਖ (Mass) and ਦ (Space) constant, ਤ (Force) is inversely proportional to ਖ (Time), i. e.,

$$\text{ਤ (Force)} \propto 1/\text{ਖ (Time)}$$

Law 5. Keeping ਖ (Mass) and ਖ (Time) constant, ਤ (Force) is directly proportional to ਦ (Space), i. e.,

$$\text{ਤ (Force)} \propto \text{ਦ (Space)}$$

Law 6. Keeping ਦ (Space) and ਖ (Time) constant, ਤ (Force) is directly proportional to ਖ (Mass), i. e.,

$$\text{ਤ (Force)} \propto \text{ਖ (Mass)}$$

Law 7. Keeping ੜ (Population) and ਲ (Territory) constant, ੜ (Power) is directly proportional to ਅ (Sovereignty), i. e.,

$$\text{ੜ (Power)} \propto \text{ਅ (Sovereignty)},$$

Law 8. Keeping ੜ (Population) and ੜ (Power) constant, ਲ (Territory) is directly proportional to ਅ (Sovereignty), i. e.,

$$\text{ਲ (Land)} \propto \text{ਅ (Sovereignty)}$$

Law 9. Keeping ੜ (Population) and ਅ (Sovereignty) constant, ਲ (Territory) is inversely proportional to ੜ (Power), i. e.,

$$\text{ਲ (Territory)} \propto 1/\text{ੜ (Power)}$$

Law 10. Keeping ਲ (Territory) and ੜ (Power) constant, ੜ (Population) is inversely proportional to ਅ (Sovereignty), i. e.,

$$\text{ੜ (Population)} \propto 1/\text{ਅ (Sovereignty)}$$

Law 11. Keeping ਲ (Territory) and ਅ (Sovereignty) constant, ੜ (Population) is directly proportional to ੜ (Power), i. e.,

$$\text{ੜ (Population)} \propto \text{ੜ (Power)}$$

Law 12. Keeping ੜ (Power) and ਅ (Sovereignty) constant, ੜ (Population) is directly proportional to ਲ (Territory), i. e.,

$$\text{ੜ (Population)} \propto \text{ਲ (Territory)}$$

11.3.5 Symmetrical Distribution Rule or Pentagon Rule

If the arithmetic mean, median and mode of a frequency distribution is equal to one another, then that frequency distribution will be symmetrical distribution. That is, arithmetic mean = median = mode. Notice the figure below;

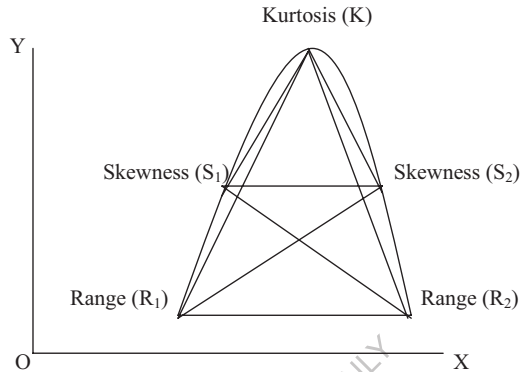


Fig. 11.25

We get five points in symmetrical distribution. These are kurtosis (K), skewness-1 (S_1), skewness-2 (S_2), range-1 (R_1) and range-2 (R_2).

A Pentagon can be seen in Figure 11.25. An isosceles triangle (S_1KS_2) can be seen at the top of this pentagon and a isosceles trapezium ($R_1S_1S_2R_2$) at the bottom. The isosceles triangle has two equal sides S_1K and S_2K . The isosceles trapezium also has two equal sides R_1S_1 and R_2S_1 . An isosceles triangle combining the triangle and trapezium can be imagined. This is R_1KR_2 . Now, there are five pairs of lines as follows;

Pair 1. There are two parallel lines of isosceles trapezium.

Pair 2. There are two unparallel lines of isosceles trapezium.

Pair 3. There are two diagonals of isosceles trapezium.

Pair 4. There are two equal lines of upper triangle.

Pair 5. There are two equal lines of combined triangle.

Clearly the pentagon has five endpoints. Each line contains two endpoints. This is called symmetrical distribution rule. There are 5 sub rules in symmetrical distribution rule. These sub rules are;

Sub Rule 1. The endpoints of parallel lines of isosceles trapezium will change in direct proportion if the other three endpoints are fixed.

Sub Rule 2. The endpoints of unparallel lines of isosceles trapezium will change in direct proportion if the other three endpoints are fixed.

Sub Rule 3. The endpoints of diagonals of isosceles trapezium will change in inverse proportion if the other three endpoints are fixed.

Sub Rule 4. The endpoints of equal lines of upper triangle will change in inverse proportion if the other three endpoints are fixed.

Sub Rule 5. The endpoints of equal lines of combined triangle will change in inverse proportion if the other three endpoints are fixed.

The laws according to the sub rules are as follows;

Law 1. If K , S_1 and S_2 are unchanged, then R_1 and R_2 will change in the direct proportion. That is

$$R_1 \propto R_2$$

Law 2. If K , R_1 and R_2 are unchanged, then S_1 and S_2 will change in the direct proportion. That is

$$S_1 \propto S_2$$

Law 3. If K , S_1 and R_1 are unchanged, then S_2 and R_2 will change in the direct proportion. That is

$$S_2 \propto R_2$$

Law 4. If K , S_2 and R_2 are unchanged, then S_1 and R_1 will change in the direct proportion. That is

$$S_1 \propto R_1$$

Law 5. If K , S_1 and R_2 are unchanged, then S_2 and R_1 will change in the inverse proportion. That is

$$S_2 \propto 1/R_1$$

Law 6. If K , S_2 and R_1 are unchanged, then S_1 and R_2 will change in the inverse proportion. That is

$$S_1 \propto 1/R_2$$

Law 7. S_1 , R_1 and R_2 are unchanged, then K and S_2 will change in the inverse proportion. That is

$$K \propto 1/S_2$$

Law 8. S_2 , R_1 and R_2 are unchanged, then K and S_1 will change in the inverse proportion. That is

$$K \propto 1/S_1$$

Law 9. S_1 , S_2 and R_1 are unchanged, then K and R_2 will change in the inverse proportion. That is

$$K \propto 1/R_2$$

Law 10. S_1 , S_2 and R_2 are unchanged, then K and R_1 will change in the inverse proportion. That is

$$K \propto 1/R_1$$

Now draw the figure 11.25 again as;

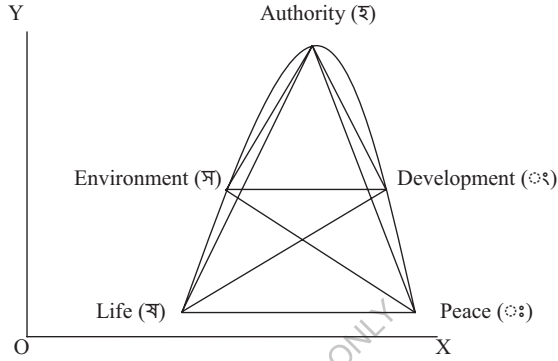


Fig: 11.26

From the symmetrical distribution rule in main theory we get a total of 10 laws. These laws are;

Law 1 Keeping ॐ (Life), ॐ (Environment), and ॐ (Authority) constant, ॐ (Development) is directly proportional to ॐ (Peace), i. e.,

$$ॐ (\text{Development}) \propto ॐ (\text{Peace})$$

Law 2 Keeping ॐ (Life), ॐ (Environment), and ॐ (Development) constant, ॐ (Authority) is inversely proportional to ॐ (Peace), i. e.,

$$ॐ (\text{Authority}) \propto 1/ॐ (\text{Peace})$$

Law 3 Keeping ॐ (Life), ॐ (Environment), and ॐ (Peace) constant, ॐ (Authority) is inversely proportional to ॐ (Development), i. e.,

$$ॐ (\text{Authority}) \propto 1/ॐ (\text{Development})$$

Law 4 Keeping ॐ (Life), ॐ (Authority) and ॐ (Development) constant, ॐ (Environment) is inversely proportional to ॐ (Peace), i. e.,

$$ॐ (\text{Environment}) \propto 1/ॐ (\text{Peace})$$

Law 5 Keeping ॐ (Life), ॐ (Authority) and ॐ (Peace) constant, ॐ (Environment) is directly proportional to ॐ (Development), i. e.,

$$ॐ (\text{Environment}) \propto ॐ (\text{Development})$$

Law 6 Keeping ष (Life), ं (Development) and ः (Peace) constant, ऩ (Environment) is inversely proportional to ऩ (Authority), i. e.,

$$\text{ष (Environment)} \propto 1/ \text{ऩ (Authority)}$$

Law 7 Keeping ऩ (Environment), ऩ (Authority) and ं (Development) constant, ष (Life) is directly proportional to ः (Peace), i. e.,

$$\text{ष (Life)} \propto \text{ः (Peace)}$$

Law 8 Keeping ऩ (Environment), ऩ (Authority) and ः (Peace) constant, ष (Life) is inversely proportional to ं (Development), i. e.,

$$\text{ष (Life)} \propto 1/ \text{ं (Development)}$$





Law 9 Keeping ऩ (Environment), ं (Development) and ः (Peace) constant, ष (Life) is inversely proportional to ऩ (Authority), i. e.,

$$\text{ष (Life)} \propto 1/ \text{ऩ (Authority)}$$

Law 10 Keeping ऩ (Authority), ं (Development) and ः (Peace) constant, ष (Life) is directly proportional to ऩ (Environment), i. e.,

$$\text{ष (Life)} \propto \text{ऩ (Environment)}$$

Rule is a kind of samannaya (adjustment).

१ (Padartha) ∽	Point rule 	ऩ (Name) ⇒	Rule
१°(Assertion) ∽	Balance rule 	ऩ (Positivity) ⇒	Rule inclusion
		ऩ (Negativity) ⇒	Rule exclusion
३(Dimension) ∽	Left hand rule 	ऩ (North) ⇒	Rule is in the north- south.
		ऩ (East) ⇒	Rule is in the east-west.
		ऩ (Up) ⇒	Rule is in the up-down.
३°(Quantity) ∽	Cross rule 	ऩ (Force) ⇒	There is force in this rule.
		ऩ (Mass) ⇒	There is mass in this rule.
		ऩ (Space) ⇒	This rule is in a space.
		ऩ (Time) ⇒	This rule is in a time.

Tab. 11.3

CHAPTER 12

Atmodel

12.1 Postulates of Atmodel

12.2 Related Elements of Atmodel

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12.1 Postulates of Atmodel

Brahma satyam jagan-mithya jivo-brahmaiva neparah (Brahman alone is real, the universe is unreal. Jiva is not other than Brahman). Jiva and Brahman are one. The atmodel is a model expressing the unity of living beings (jivas) and Brahman or Paramatman. I have tried to present the relationship of Paramatman and Jivatma mathematically through atmodel. Atmodel's postulates are as follows;

- (1) Atmodel has two parts, Paramatma and jivatma. Paramatma is at the center.
- (2) Jivatma revolves around the Paramatma.
- (3) Two forces are effective on jivatma. One is centripetal force which is the force of attraction of living being and Brahman. The other is that when the living being orbits Brahman in a circular path, a force equal to and opposite to the centripetal force is formed along the radius of the circular path on the living being. This is the centrifugal force.
- (4) The motion of an organism will be like the motion of a wave.
- (5) This journey (cycle of birth and death) of the living being continues till salvation is attained.

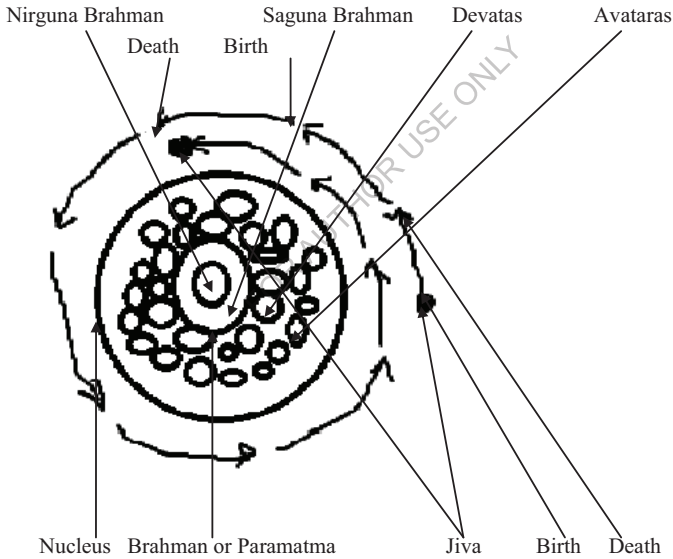


Fig. 12.1 Atmodel

The above figure shows that Nirguna Brahman is at the centre of all. Through maya, Nirguna Brahman is transformed into Saguna Brahman. Therefore, Saguna Brahman or God is shown to be in the pervasive state of Nirguna Brahman. After God, the first layer shows the devatas (gods) and the second layer shows the avataras. Brahman, God, devatas and incarnations can be considered as a nucleus. The jiva revolves around this nucleus or the

jivatma (individual soul) revolves around the Paramatma (supreme soul). Paramatma is Brahman. This orbiting of the organism continues until the moksa (salvation) is attained. In order to enjoy the fruits of karma, one has to be born again and again in samsara (world). The figure shows the birth and death of an organism through an arrow sign.

Salvation of the living beings is achieved through selfless deeds (nishkam karma). Selfish deeds (sakam karma) are an obstacle to the salvation of living beings. Nishkam karma creates centripetal force and sakam karma creates centrifugal force. Salvation is the attainment of Brahman, that is, realizing that the living being and Brahman are one. Therefore, if the individual soul (jivatma) meets the supreme soul (Paramatma), it can be said that moksa has been attained. The devatas and avataras are helpful in attaining salvation.

Mandukya Upanishad says 3.1.1

Dva suparna sayuja sakhaya samanam vrksam parisavjate
tayoranyah pippalam svadvattyanasnannanyo abhicakasiti MU 3.1.1

Meaning

Two birds, inseparable companions, perch on the same tree, one eats the fruit, the other looks on. The first bird is our individual self feeding on the pleasures and pains of this world; The other is the universal Self, silently witnessing all.

Isvara (God) and Jiva (living beings) are present in the world of creation as well as in the human body. They are friends. They are inseparable siblings, one connected with the other perpetually. These are compared to birds living on a single tree which is this vast creation. And they enjoy their existence on the tree.(Explanation by Swami Krishnanand / resanskrit.com).

Rig Veda samhita 1.164.20-22 says:

‘Two birds associated together, and mutual friends, take refuge in the same tree; one of them eats the sweet fig; the other abstaining from food, merely looks on. Where the smooth-gliding rays, cognizant, distil the perpetual portion of water; there has the Lord and steadfast protector all beings accepted me, though immature in wisdom. In the tree into which the smooth-gliding rays feeders on the sweet, enters, and again bring forth light over all, they have called the fruit sweet, but he partakes not of it who knows not the protector of the universe.’ This is taken from the site <https://treespiritwisdom.com>.

Two birds and mutual friends associated together take shelter in the same tree; one was sitting on the branches of the tree and is eating its fruits, the other is just watching.

The first bird represents a jiva or individual self. The Shiva Samhita briefly highlights the nature and functioning of the jiva. It says, ‘jiva live in the body of a man and also in the body of a woman. It is covered in all kinds of desires.

The second bird is Paramatman, an aspect of God who accompanies every living being in the heart while he is in the material world. He is the support of all creatures and is beyond sensual pleasure.

12.2 Related Elements of Atmodel

12.2.1 Atma

In the Bhagavad Gita, Bhagavan Sri Krishna says about the soul

na jayate mriyate va kadachin
nayam bhutva bhavita va na bhuyah
ajo nityah shashvato'yam purano
na hanyate hanyamane sharire (BG-2.20)

Meaning

The soul is neither born, nor does it ever die; nor having once existed, does it ever cease to be. The soul is without birth, eternal, immortal, and ageless. It is not destroyed when the body is destroyed.

vasamsi jirmani yatha vihaya
navani grhnati naro 'parani
tatha sarirani vihaya jirnany
anyani samyati navani dehi (BG-2.22)

Meaning

As a man casts off worn-out garments and puts on others that are new, so does the soul cast off its worn-out bodies and enter into others that are new.

nainam chindanti sastrani nainam dahati pavakah
na cainam kledayantyapo na sosayati marutah (BG-2.23)

Meaning

No weapon can cut the soul into pieces, nor can it be burned by fire, nor moistened by water, nor withered by the wind.

There are usually four types of experiences in our lives, namely, jagrat (waking experience), svapna (dreaming experience), susupti (deep sleep experience) and turiya (spiritual experience). The experience we get while awake is the jagrat experience. There is a difference between the knower and the object of knowledge. Both seem to be true separately. The experience we get in a dreaming state is a svapna experience. In this experience there is a difference between the knower and the object of knowledge, but the object of knowledge is not as true as the object of knowledge in the waking (jagrat) state. The object of knowledge in the waking state does not depend on the experience of the dreamer. The experience of deep sleep is the susupti (deep sleep experience) experience. In deep sleep state there is self-consciousness but no memory of any object which is in the waking or dreaming state. For

example, I slept very happily, I didn't feel anything. Here the soul is present as knowledge. In this state knowledge about the nature of the soul can be gained. The experience that a devotee gets after being buried (samadhistha) is the experience of the turiya state. In the turiya state, the devotee realizes the fullness of the soul. The four types of states and the knower and the knowable are described with the help of a table below.

The four types of states	The description of the known and the knowable
Jagrat state	Both the knower and the knowable are true, the knowable object does not depend on the individual.
Svapna state	The knower and the knowable are both true, but the knowable object depends on the individual.
Susupti state	There is the knower and the knowable, but the thing to know here is the individual soul.
Turiya state	There is the knower and the knowable, but here the knowable object is the full form of the soul or paramatma.

Tab. 12.1

So, from this discussion it is understood that the soul is unrestricted in these four states of waking, dreaming, susupti and turiya. Hence it can be said that the soul is the ultimate truth. No experience is possible without the soul. The existence of the soul cannot be denied. Because in order to doubt the existence of the soul, one has to acknowledge its existence.

There are two types of souls, namely, Paramatma (supreme soul) and jivatma (individual soul). Paramatma refers to Brahman. There is only one paramtma and that is Brahman. The individual soul resides in the living beings. The individual soul or jivatma is a partial manifestation of the supreme soul or Paramatma. Just as ghatakash is a partial expression of mahakash (space), so is the living soul a partial expression of Paramatma.

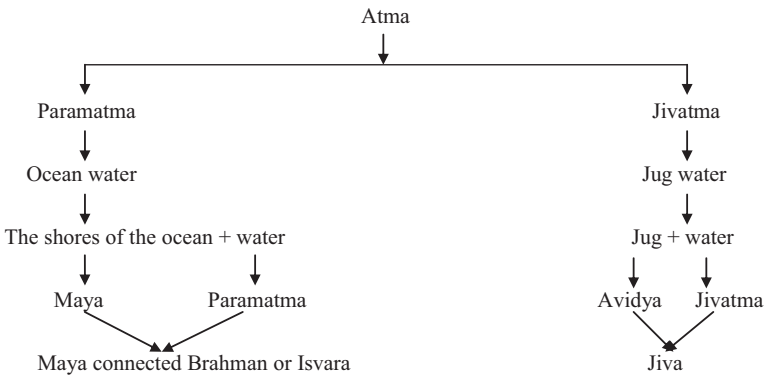


Fig. 12.2

12.2.2 Brahman

Maharshi Badarayana's Brahma Sutras started with the enquiry of Brahman. The first sutra of Brahma Sutras is 'Athato Brahma Jijnasa'. The English meaning is 'now, therefore, the enquiry into Brahman'. Brahman is the only provable of the Brahma Sutras. According to the Vedanta, Brahman is the absolute reality. The word Brahman is derived from the root 'brha' with the suffix 'man'. The root 'brha' means big or wide and the suffix 'man' means excessively. Therefore, the one who is very great, that is, from whom there is nothing superior, is Brahman. 'Atma cha Brahma' that is atma and Brahma are one. Brahman is omniscient, omnipresent and eternal. Brahman is eternally pure, eternally enlightened and eternally free. Brahman is one and unique. Since Brahman is infinite, Brahman is inactive and unchanging.

Brahman is sat, chit ananda swarupoham. That is Brahman is existence, consciousness and bliss. Sat, chit and ananda are the svarupa (essence) of Brahman, not the signs or qualities of Brahman. Brahman is sat means he is not non-existence or false. Brahman is chit means he is not something inert or unconscious. Brahman is ananda means he is not a form of sorrow. Sat, chit and ananda, these three terms are indicative of lack. Sankaracharya hesitated to call Brahman one. It may seem that there are the quality of numbers in Brahman. That is why he called Brahman as advaitam.

In Sruti (most authoritative, ancient religious texts), there are two kinds of Brahmanic words, Nirvisesa and Savisesa. He is not gross, not subtle, not short, not long, these sentences are specific to Nirvisesa Brahman. Again He is all action, all pleasure, all smell, all juice, these sentences are specific to Savisesa Brahman. The essence of Nirvisesa Brahman is to be realized by neti neti. That is He is not this, He is not that. The Upanisads speak of two forms of Brahman. One is devoid of all upadhis (limitations) and the other has all the upadhis (limitations). The first is called Parabrahma and the second is called Aparabrahma. Again in the Vedanta there are two forms of Brahman, Nirguna Brahman and Saguna Brahman. The Parabrahma of the Upanisads is the Nirguna Brahman of Vedanta and the Aparabrahma of the Upanisads is the Sarguna Brahma of Vedanta. Nirguna Brahman is devoid of all upadhis (limitations) and Saguna Brahman is of all kinds of upadhis (limitations).

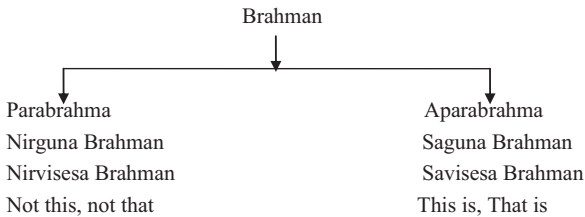


Fig. 12.3

He is not this means he is both; this and not this. He is not that means he is both; that and not that. He is not 'this', admitting 'this' then have to say is not 'this'. He is not 'that', admitting 'that' then have to say is not 'that'. He is Nirvisesa means He has all the visesas (attributes). Think of the number line below.

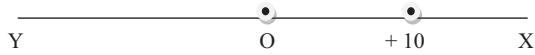


Fig. 12.4

Here by +10 we mean the point numbered by +10 on the number line.

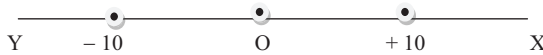


Fig. 12.5

Again, by -10 we mean the point numbered by -10 on the number line. To mean -10 here, we also accept +10. That is, to accept -10, +10 must be accepted.

$$-10 = - (+10)$$

12.2.3 Maya

Maya is an indescribable power of Brahman. Brahman is one and unique. Brahman is undivided, infinite and without any discrimination. So maya cannot be anything separate from Brahman. Again, Brahman is stable, immobile and unaffected. But the universe (jagat) created by maya is unstable, restless and consequential. Therefore, Brahman and maya cannot be said to be identical. Brahman is limited by acknowledging the existence of maya, again this universe cannot be explained by denying it. So maya is both sat (real) and asat (unreal). That is why maya is indescribable.

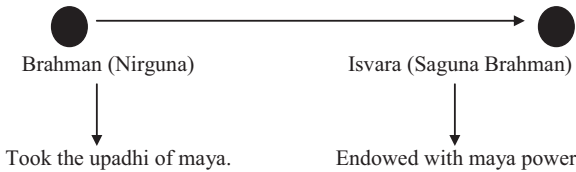


Fig. 12.6

This universe is the creation of maya, again maya is the power of God (Isvara). Just as the burning power of fire cannot be separated from fire, so the illusory power (maya shakti) of

God cannot be separated from God. This maya power of God can make people fall astray. Just as a magician uses his magic power to turn a rupee into ten rupees, so God creates the universe (jagat) in Brahman under the influence of his power of maya. Just as the creation of a magician is mithya (false), so is the creation of the universe in Brahman. Just as a magician cannot deceive another magician with his magic power, so God cannot deceive a tattvajnani (one who has the knowledge of absolute truth) with his maya power. Ordinary people ignorantly see ten rupees for one rupee and see the universe in Brahman.

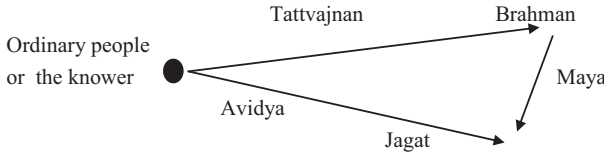


Fig. 12.7

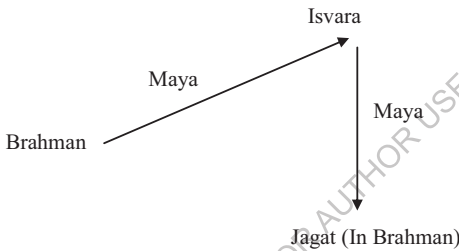


Fig. 12.8

Now let us learn about sat, asat, mithya and anirvachaniya.

One who exists independently by itself and does not have to depend on anyone else for his existence is called sat (existence, real, being). Sat is eternal and never changes. Brahman is sat (existence, real, being). Anything that does not exist at any time is called asat (non-existence, non-real, non-being). Bandhyaputra (barren woman's son), akasa kusuma (sky-flower), sasa-srriga (hare's horn) etc. are the examples of asat (non-existence, non-real, non-being). They do not have any meaning, because no one has ever perceived these categories.

Mithya does not mean asat (non-existence, non-real, non-being). Mithya has to depend on something else for its existence. Mithya is first perceived as true and later is constrained or proved to be untrue. Mithya exist for a certain period of time. Such as the serpent delusion on the rope. Here the person clearly perceives the snake and his snake-conviction exists until the mistake is broken.

What is not sat (existence, real, being) and what is not asat (non-existence, non-real, non-being) is anirvacaniya (indescribable). For example, maya. Maya cannot be called sat because

maya does not exist for the tattvajnani (one who has the knowledge of absolute truth). Again, it cannot be said to be asat because maya seems to be true as the cause of the universe until the rise of tattvajnana (the knowledge of absolute truth). So maya is indescribable. Earthly objects are indescribable because earthly objects are not eternal (nitya), they are changeable. Therefore earthly objects are not sat. Again earthly objects are not asat. Because if it is asat, how can it be perceived. So it is indescribable that the earthly objects are not sat or asat.

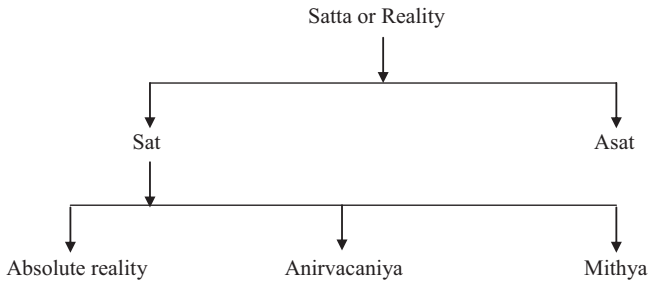


Fig. 12.9

Bhagavan Sri Krishna says in the chapter 02, verse 16, of the Srimad Bhagavad Gita, 'nasato vidyate bhavo nabhavo vidyate satah ubhayaorapi drsto'ntastvanayostattvadarsibhih' (Bhagavad Gita 2.16)

For the unreal (asat), there is never any being. For the real (sat), there is never any non-being. The ultimate truth about both of these (the real and the unreal) has been seen by the knowers of the truth (or the seers of the essence).

12.2.4 Isvara

Nirguna Brahman becomes Saguna Brahman by taking the upadhi (imposition) of maya. Saguna Brahman with maya power is God. This Saguna Brahman or Isvara (God) is the creator, protector or destroyer of the universe. Brahman can be described from two points of view, namely, the transcendental (paramarthika) point of view and the empirical (vyavaharika) point of view. In the transcendental point of view, Brahman is nirguna, nirvisesa and inactive. This Brahman is not the creator or the defender or the destroyer of the universe. In the empirical point of view, Brahman saguna, savisesa and active. This Brahman is omniscient and omnipotent. This Brahman is God. The origin, stability and destroy of the universe is from God. The Upanisads speak of two forms of Brahman. These two forms are Parabrahma and Aparabrahma. Parabrahma is Nirguna Brahman and Aparabrahma is Saguna Brahman. This Saguna Brahman is God.

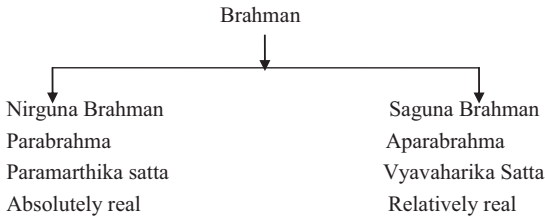


Fig. 12.10

Two laksanas or signs of Brahman can be described; these two laksanas are svarupa laksana and tatastha laksana. Svarupa laksana means the symptom which is always present. This is the original characteristics of a substance. Tatastha laksana means the symptom which is incidental. This is the subsequent characteristics of a substance. Sat, cit and ananda or sacchidananda form (rupa) is the real form of Brahman. To describe Brahman as satyam (eternal truth), jnanam (omniscient) and anantam (infinite) is to describe the svarupa laksana of Brahman. In the original form, Brahman is manifested in the form of joy or nectar. This description is made from the transcendental point of view. Brahman is the creator, defender and destroyer. To describe this form of Brahman is to describe the tatastha laksana of Brahman. This description is made from the empirical point of view. This description is of God.

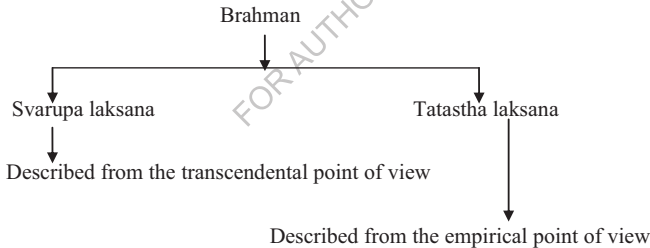


Fig. 12.11

Saguna Brahman or God is Bhagavan of the devotee. Bhagavan or God is the deity of living beings. Nirguna Brahman is imagined as Saguna Brahman for worship. When He appears as God, then he is characterized by the sentences all-love, all-smell, all-form, all-juice etc. At the root of the worship of God is the difference between the deity (god) and the worshiper. The living beings dominated by maya or avidya worship God as the creator of the universe. As a result of long-term worship of God, living beings consider this universe to be false and enchanting. Thus gradually he proceeds on the path of understanding Brahman. Therefore, worship of God is a step towards the realization of Nirguna Brahman. Worship of God results in purification of the mind, removal of filthiness of the mind and preparation of

the mind for the realization of Brahman. If there is knowledge of Brahman, the devotee realizes that ‘Aham Brahmasmi’ or I am (part of) Brahman. At this highest level of realization (upalabdhi) there is only pure consciousness or satchidananda Brahman.

12.2.5 Devata

Devata is a Sanskrit word. The English synonym for devata is deity. In Hinduism, the deity is considered a divine being. The devatas or deities can be male or female. Then they are called deva (gods) and devi (goddess) respectively. The deities have a certain number of heads, arms and legs. The deities are usually seen attached to vehicles. They are seen adorned with various types of ornaments and weapons. They are also associated with different numbers. When we talk about different aspects of deities, these (the symbols associated with) have different meanings in different senses.

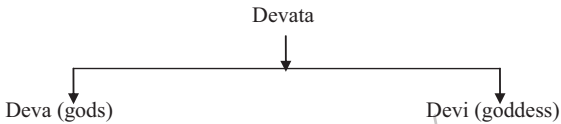


Fig. 12.12

The devata is a supernatural being that is considered sacred or heavenly. The devata is the manifestation of the power of Saguna Brahman or Isvara. Generally, the devatas can be divided into three parts, namely, Vedic devatas, Puranic devatas and Loukika devatas.

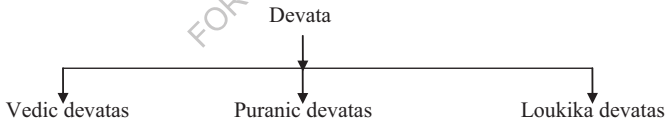


Fig. 12.13

The devatas mentioned in the Vedas are called Vedic devatas. For example, Agni, Indra, Mitra, Rudra, Surya, Soma, Varuna, Usha etc. The Vedic devatas had no idols. However, the Vedic mantra describes the form, quality and power of each devata. The devatas described in the Puranas are called Puranic devatas. For example, Brahma, Vishnu, Shiva, Lakshmi, Saraswati, Kali, Durga etc. There is a mention of idols of puranic devatas. There are rules for worshipping Puranic devatas. The great trinity of Brahma, Vishnu and Shiva, are the three forms of Isvara, or Saguna Brahman. Brahma is the creator, Vishnu is the perserver and Shiva is the destroyer of this universe. They are the three aspects of Isvara or god relative to the trigunas of rajas, sattva and tamas. Among the Vedic deities, some deities are also mentioned in the Puranas. They are Agni, Indra, Surya, Varuna etc. Kali, Lakshmi and Sarasvati are the three powers of the great trinity of Brahma, Vishnu and Shiva. The devatas not mentioned in

the Vedas and Puranas, but worshiped by the devotees, are called *loukika* (folk) *devatas*. For example, *Manasa*, *Shitala*, etc. Later, many other *loukika devatas* including *Manasa Devi* were also included in the Puranas.

Through worship we get the grace and closeness of the deities and later we get the opportunity to get closer to God. After gaining closeness to God or *Saguna Brahman*, one gets a chance to merge in *Nirguna Brahman*.



Fig. 12.14

12.2.6 Avatara

In the *Bhagavad Gita*, Chapter 4, Verse: 7-8, *Bhagavan Sri Krishna* says

Yada yada hi dharmasya glanirbhavati bharata
 Abhythanamadharmaasya tadatmanam srijamyaham
 Paritranaaya sadhunang vinashay cha dushkritam
 Dharmasangsthapanarthaya sambhabami yuge yuge (BG 4.7-8)

Meaning

Whenever there is decay of righteousness, O *Bharata*, and there is exaltation of unrighteousness, then I Myself I come down incarnate. For the salvation of the saints, the destruction of the wicked, and the establishment of religion, I am born from age to age.

It is not possible to say when God will appear on earth as an incarnation. But whenever the shadow of iniquity descends on the earth, the filth of religion descends, then God descends on the earth in the form of an incarnation. God came down to earth from time to time with the aim of protecting the virtuous, destroying the wicked and establishing religion.

Bhagavan Sri Krishna says says more

ajō `pi sann avyayatma
 bhutanam isvaro `pi san
 prakrtim svam adhisthaya
 sambhavamy atma-mayaya (BG 4.6)

Meaning

Although I am unborn, the Lord of all living entities, and have an imperishable nature, I still appear in this world by virtue of *Yogmaya*, my divine power.

According to Hindu scriptures, the arrival of Bhagavan Vishnu on earth in human or animal form is called avatara (incarnation). There are two types of incarnations namely, anshavatar (partial incarnation), purnavatar (complete incarnation). When Vishnu appears fully, he is called purnavatar (complete incarnation) and when he appears partially, he is called anshavatar (partial incarnation). According to the Garuda Purana, the ten incarnations of Vishnu are: Matsya, Kurma, Varaha, Narasimha, Vamana, Parashurama, Rama, Krishna, Buddha and Kalki.

Matsya avatara descended in the form of fish in Satya Yuga. Kurma avatara descended in the form of a tortoise in Satya Yuga. Varaha avatara descended in the form of a boar in Satya Yuga. Narasimha avatara incarnated in the form of part man and part lion in Satya Yuga. Vamana avatara descended in the form of a dwarf in Treta Yuga. Parasurama avatara incarnated in Treta Yuga in the form of the warrior with an axe. Rama avatara incarnated as the prince of Ayodhya in Treta Yuga. Krishna avatara incarnated with his brother Balaram in the Dvapara Yuga. Gautama Buddha incarnated as an avatara of Vishnu in Kali Yuga. Kalki, the last incarnation, will appear at the end of Kali Yuga.

12.2.7 Jiva

According to Sankara, 'Brahma satyam jagat mithya, jivo brahmaiva napaarah'. There is only one truth and that is Brahman, the universe is illusion, and there is ultimately no difference between Brahman and individual self. Jiva is nothing but Brahman. Under the influence of maya, Nirguna Brahman becomes Saguna Brahman or God. Again Saguna Brahman or God becomes a living being associated with maya. Nirguna Brahman is one and unique. He is formless and omnipresent. One Brahman or soul is manifested as many beings or jivas only because it is sophisticated by the imposition (upadhi) of antahkarana. Antahkarana is the sum of ahankara (ego), buddhi (intellect) and manas (mind). When the soul is manifested through the imposition of this antahkarana, then He is a jiva. Brahman has transcendental existence (paramarthika satta) and jivas have empirical existence (vyavaharika satta). Jivas are the creation of maya or avidya (ignorance). With the attainment of tattvajnana (knowledge of reality), ignorance is removed and the distinction between jiva and Brahman disappears. Then the identity of jiva and Brahman can be realized.

The Jivas are the divided manifestation of the undivided Brahman. Consciousness (chaitanya) limited by the antahkarana is the jivas and this antahkarana is different from person to person. So the individual soul (jivatma) is also different. The jivas are ghatakash (space separated by pot or ghat i.e., pot-space). Brahman is the mahakash (total space). Just as total space is given the name ghatakash for falling into the wall of the ghat, in the same way, falling into the wall of the antahkarana undivided Brahman is called jiva. The fruit of maya is avidya (ignorance), the pure chaitanya Brahman associated with maya is God and the pure chaitanya Brahman associated with avidya is the living being or jiva.

The combination of soul and non-soul is jiva. The organism consists of the connection of body and soul. The jiva has a sthula sarira (gross body) and a suksma sarira (subtle body). The gross body of the jiva is the creation of pancha mahabhutas or five great elements. The subtle body of the jiva is made up of pancha jnanendriya (eyes, ears, nose, tongue and skin),

pancha karmendriya (hands, feet, rectum, mouth and genitals), pancha prana (prana, apana, samana, udana and vyana), manas (mind) and buddhi (intellect). The death of the jiva destroys the gross body but does not destroy the subtle body. The subtle body is present with the soul during the migration of the organism.

Apart from these two bodies there is one more karana sarira or causal body. The karana sarira or the causal body is the basis of the sthula sarira and the sukshma sarira. It is the seed of the two other bodies so it is called the karana sarira.

12.2.8 Avidya

Before discussing avidya (ignorance), it is necessary to know what the adhyasa (illusion) is. When in the dark a rope is seen as a serpent then our perception is error. Seeing the rope as a serpent is an illusion or adhyasa. There is some real support for perceiving such illusions, This real support is the adhithana (substratum). In this case the adhithana is the rope. Another object is mistakenly imagined on this adhithana. In this case the snake is imagined on the rope. Perceiving one object over another is called adhyasa. The reason for this illusion is avidya or ignorance.

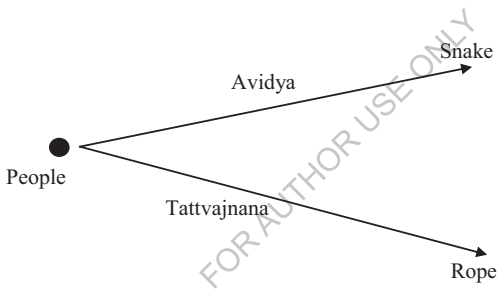


Fig. 12.15

Ignorance has two powers (shakti), such as avarana shakti (concealment power) and viksepa shakti (distortion power). Ignorance by concealment power covers the substratum or true object (here covered the rope) and later creates false object by the power of distortion (here created the snake). Here, due to ignorance, there is an illusion of serpent in the rope. Ignorance covers the form of the rope as well as scattering the serpent on the rope. Until the rise of the knowledge of truth (tattvajnana), the serpent is illusioned on the rope. This universe (jagat) is just an illusion like rope-snake. The universe is illusioned in Brahman because of ignorance. Here maya or avidya covers the form of Brahman and at the same time distorts the universe in Brahman. In the false vision of the living entity, the form of the universe is realized in Brahman. When the knowledge of truth emerges, ignorance is eliminated and the illusion of the universe in Brahman is also disappeared.

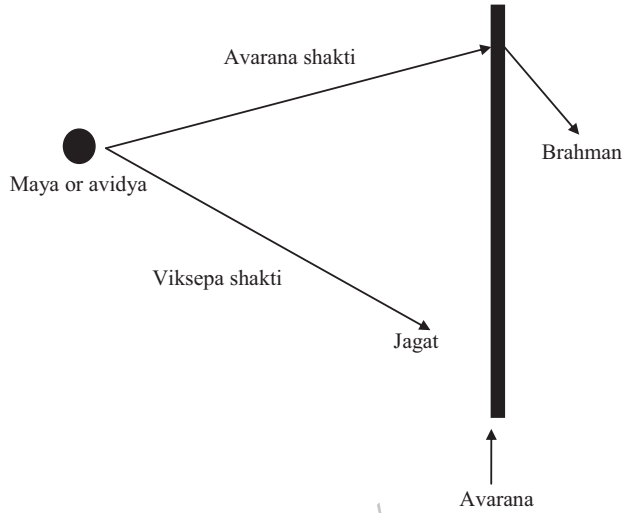


Fig. 12.16

12.2.9 Reincarnation

All Indian philosophers except Carvaka believe in an eternal moral order. Vedic and non-Vedic, astika (orthodox) and nastika (heterodox) all schools believe in such a universal moral discipline. In the Rig Veda, this eternal and inviolable universal order is called 'Rta'. This discipline is both universal and moral. Everything in the universe is subject to this inviolable law. No one can break this order, even the gods have to follow this order. The Vedic Rta has been called 'apurva' in the Mimamsa philosophy and 'adrsta' in the Nyaya-Vaisesika philosophy. Again this idea gradually transformed itself into the law of karma.

Causal relationship exists between both action (karma) and the result or fruit of action (karmaphala). The fruit of action is never lost. Everyone must suffer the consequences of their actions. Good-evil, sin-virtue are all preserved through karmaphala. That is why karmavada (law of karma) is called the law of conservation of moral values.

In the Bhagavad Gita, Bhagavan Sri Krishna says about reincarnation

dehino 'smin yatha dehe
 kaumaram yauvanam jara
 tatha dehantara-praptir
 dhira tatra na muhyati (BG- 2.13)

Meaning

Just as in the physical body of the embodied being is the process of childhood, youth, old age; similarly in the transmigration from one body to another the wise are never deluded.

sariram yad avapnoti
yac capy utkramatisvarah
grhivaitani samyati
vayur gandhan ivasayat (BG- 15.8)

Meaning

The living entity in the material world carries his different conceptions of life from one body to another, as the air carries aromas. Thus, he takes one kind of body and again quits it to take another.

Reincarnation or rebirth is based on karmavada. After death the soul is reborn and the soul assumes a new body. If an organism does not enjoy the fruits of all the deeds it does in one life, then it has to take on a body again in order to enjoy the fruits of its deeds. He or she continues to be born after birth to enjoy the fruits of his deeds. Because the moral value of karma is always conserved. The living being has to be born to enjoy the fruits of sakam karma (actions with desire). Since there is no fruit of nishkam karma (actions without desire), there is no enjoyment of fruits. Nishkam karma does not lead to rebirth, if one has already suffered the consequences of one’s actions. Sakam karma binds the living being to the samsara (endless cycle of birth, death, and rebirth), but nishkam karma liberates the living being from the samsara. Many times the righteous person is seen to suffer, while the sinner is seen to enjoy happiness. The enjoyment of these fruits cannot be explained by the actions of the present life. Since the moral value of karmaphala (fruit of action) is conserved, it can be said that they are enjoying the karmaphala of previous births. In accordance to bear fruits of action, karma is divided into two parts, namely, anarabdha karma and arabdha karma or prarabdha karma. Anarabdha karma is that the action has not yet yielded results. Arabdha or prarabdha karma is the action that has begun to bear fruit. Anarabdha karma is again of two types, namely, sanchita karma (accumulated works) and sanchiyaman karma (current works).

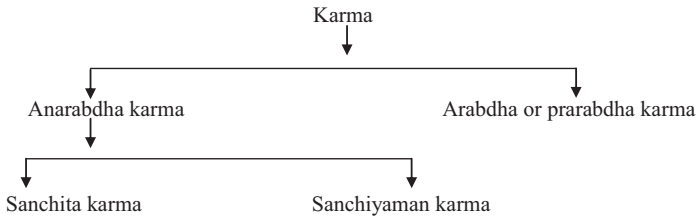


Fig. 12.17

12.2.10 Moksa

The soul is nitya (eternal), suddha (pure), Buddha (enlightened) and mukta (free) in svabhava (essential nature). But due to ignorance, the individual soul considers itself identical with the body and considers itself the master, knower and consumer. This feeling of oneness of the soul with the body of jiva is its captivity or bondage. A bound organism mistakenly imposes the properties of inert body in the non-inert soul and thinks of worldly happiness-sorrow and disease-grief as its own. As a result of doing sakam karma (to work with selfish expectations), living beings are born again and again in the world to enjoy the fruits of karma. In the closed state the soul forgets its Brahmatva (identification with Brahman or God). The individual soul (jivatma) and the Supreme soul (Paramatma) are identical in natural form (svarupata). Lack of proper knowledge about the nature (svarupa) of the soul is the cause of the bounded state of organism (jiva).

Moksa (salvation) is natural (svabhavika) or self-established (svatasiddha). Moksa is not a product, moksa is eternal; it is always there. The creature is actually eternally free. Due to ignorance, the living entity imposes the characteristics of the body on the soul and suffers itself. In fact, the feeling of oneness of soul and Brahman is liberation. And the fact that atma and Brahman are one is eternally true. There is a false difference between atma and Brahman because ignorance keeps this eternal truth covered. The self resides in its own form of the soul when the knowledge of self (atmajnana) exposes that false cover. And this is the liberation of the soul or moksa. Salvation is not just the ultimate cessation of sorrow, salvation is a state of bliss. Brahman is called sat (existence), chit (consciousness) and ananda (bliss) svarupa (own form), and so jivas are also sat, chit and ananda svarupa.

Both jnana (knowledge) and karma (action) are needed to free the living being from this bondage. First of all, atmajnana (knowledge of the self) or accurate knowledge of the nature (svarupa) of the soul. The second is nishkam karma (to work with selfless motives), that is, action that does not bear fruit. Bonds are created from adhyasa (superimposition of an attribute). Adhyasa is the name of perceiving two different objects as one. Adhyasa is to impose one's attribute on another by mistake. The reason for this superimposition is avidya or ignorance. When the knowledge of self or atmajnana arises, ignorance disappears, there is lack of superimposition. The living being acquires knowledge about the true nature of the soul. The living entity (jiva) then realizes that jiva is Brahman. Jivatma (individual self) and Paramatma (Supreme self) are identical. Only then, after enjoying the karmaphala of the living beings, salvation or moksa takes place.

The following figures show the relationship between jiva, Brahman and avidya or ignorance.

Figure 12.18 shows that jiva is a part of Brahman or identical with Brahman.

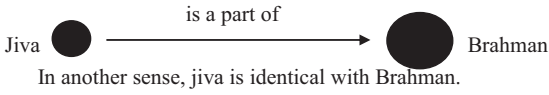


Fig. 12.18

Figure 12.19 shows how the difference between jiva (living being) and Brahman is created when ignorance is connected.

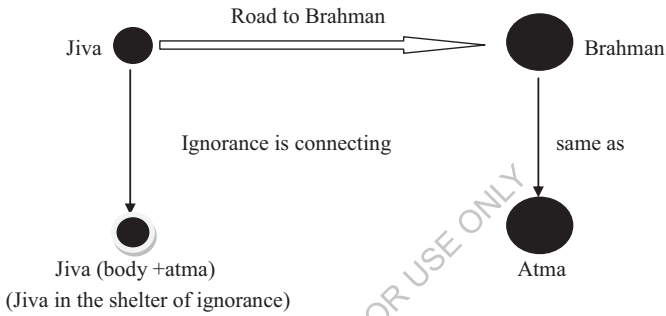


Fig. 12.19

Figure 12.20 shows how the oneness of the jiva (living being) with Brahman is created when ignorance is removed.

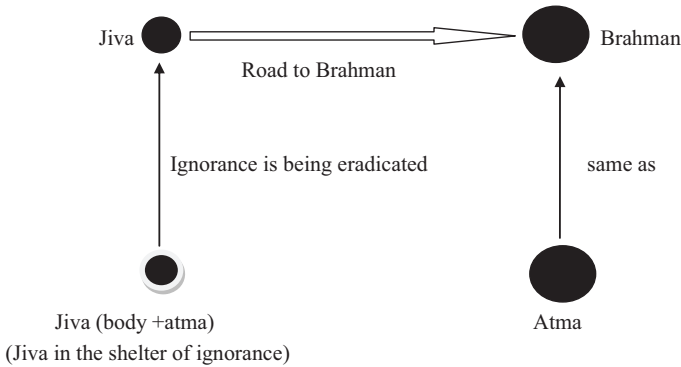


Fig. 12.20

CHAPTER 13

Karmodel

13.1 Postulates of Karmodel

13.2 Birth-death Circle

13.3 Way to Freedom

13.4 Combination of Birth-death Circle and Way to Freedom

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13.1 Postulates of Karmodel

The postulates of karmodel are as follows:

(1) The karmodel has two parts, namely, birth-death cycle and way to freedom.

(2) There are two aspects to the birth-death cycle. On the one hand there are janma (birth), jnana (knowledge), ahankara (ego sense), bandhan (bondage), mrtyu (death). On the other hand, there are janma (birth), karma (action), karma phala (fruits of action), karmaphalabhoga (enjoyment of fruits of action), mrtyu (death).

(3) There are two aspects to way to freedom. On the one hand there are janma (birth), yoga (meditation), abhedajnana (knowledge of identity), bhedajnana (knowledge of difference), vivekakhyati (knowledge born out of viveka or discrimination) and moksa (salvation). On the other hand, there are janma (birth), bhoga (enjoyment), sakam karma (attached involvement), nishkam karma (detached involvement), bhakti (devotion) and moksa (salvation).

(4) Karmodel is the combination of dravya (substance), guna (quality) and karma (action), where substance is the master or creature, quality is knowledge and action is the deeds that the creature does.

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13.2 Birth-death Cycle

Indian philosophy believes in an ubiquitous natural and moral discipline. In the Vedas, this eternal inviolable worldly and moral discipline has been called 'Rta'. The etymological meaning of the word Rta is 'natural law of events'. All other Indian philosophical schools except the Carvaka philosophical school believe in the existence of this moral and natural discipline. In Indian philosophy, this Rta has been self-revealed in karmavada. According to karmavada, the person who performs the action will reap the same benefits. It is not possible for any organism (jiva) to escape from the enjoyment of karmaphala. One of the essential aspects of this karmavada is 'janmantaravada' or reincarnation. According to janmantaravada, if the organism does not enjoy the fruits of all its actions in one life, then it has to be born again to enjoy the rest of the karmaphala. This janmantaravada is beautifully explained in the following birth-death cycle.

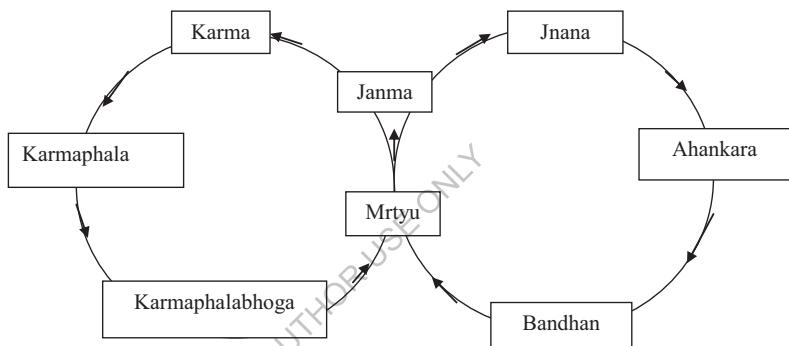


Fig. 13.1

This birth-death cycle is explained in two ways. On the one hand, janma (birth), karma (action), karmaphala (fruits of action), karmaphalabhoga (enjoyment of fruits of action), mrtyu (death) and later again janma (birth), on the other hand janma (birth), jnana (knowledge), ahankara (ego sense), bandhan (bondage), mrtyu (death) and later janma (birth) again. A causal relationship is found between these. Let us now explain the cycle of birth and death.

13.2.1 Birth

As long as the organism is not released, the organism has to be born (janma) in the world. For the enjoyment of karmaphala, the organism repeatedly holds the body. The soul is an extra body entity. The body of the organism is mortal but the soul is immortal.

13.2.2 Karma

In order to survive, the organism has to work. People need money for their nutrition and food. For this money he has to act. Man is social being. He has to take action to survive in the society.

13.2.3 Karmaphala

Any action has consequences. That is karmaphala or fruits of karma. There is happiness for good work and sorrow for bad work. According to Indian philosophers there is a causal relationship between karma and karmaphala.

13.2.4 Karmaphalabhoga

The consequences of action should be enjoyed by all. If one does not end up enjoying the fruits of action in one life, then in the next life he will have to enjoy the fruits of that action. In this way the organism becomes bounded in the cycle of birth and death.

13.2.5 Knowledge

Knowledge is the right understanding (samyag upalabdhi) of an unknown object. Knowledge is the manifestation of things. By knowledge, something is revealed to us. Just as the light of a lamp illumines all objects, likewise knowledge also manifests to us all things. In one view knowledge is of two types, bhedajnana (knowledge of discrimination) and abhedajnana (knowledge of indiscrimination).

13.2.6 Ahankara

From the knowledge of indiscrimination (abhedajnana) ego-sense (ahankara) is created. From ahankara egotism is created. Then think of myself as a master, a consumer and a knower.

13.2.7 Bondage

Bondage is the feeling of the soul's oneness with the body. The soul is naturally eternal, pure, buddha and free. For the sake of avidya or ignorance, the soul considers itself identical with the body. As a result, think of worldly happiness, sorrow, disease, grief as his own. In the state of being bound, there is a lack of knowledge of the true nature of the soul.

13.2.8 Death

In the Srimadbhagavadgita, it is said, 'jatasya hi dhruvo mrtyur; dhruvam janma mrtasya ca' that is, the death (mrtyu) of one who was born is inevitable; and the birth of one who was died is inevitable. According to the previous action, the soul is born with a body and then dies. The soul continues to move in the cycle of birth and death until it is free from inanimate bondage.

13.3 Way to Freedom

The way to freedom is explained with the help of the following figure. In this figure, janma (birth), bhoga (enjoyment), sakam karma (attached involvement), nishkam karma (detached involvement), bhakti (devotion) and moksa (salvation) are shown on the one hand, and janma (birth), yoga (meditation), abhedajnana (knowledge of identity), bhedajnana (knowledge of difference), vivekakhyati (knowledge born out of viveka or discrimination) and moksa (salvation) are shown on the other. Looking at the figure it is seen that it is a swastika sign (symbol of divinity and spirituality).

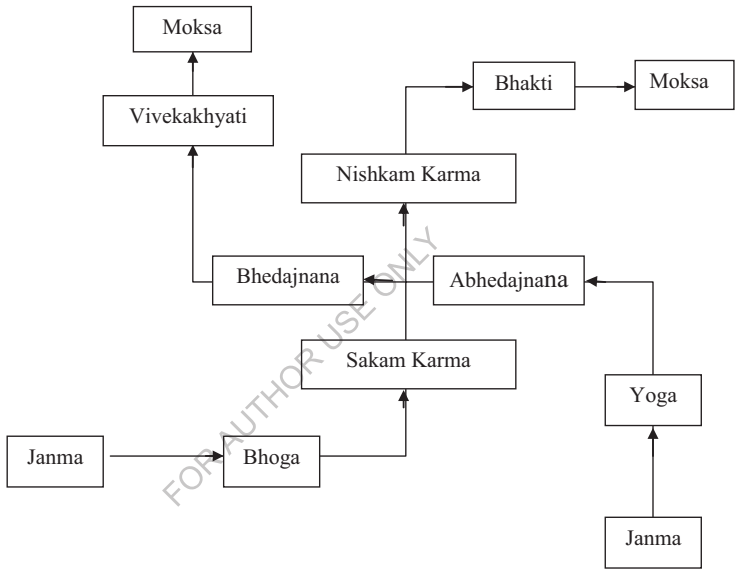


Fig. 13.2

13.3.1 Birth

Birth means janma. According to the predetermined action, the soul is born by obtaining a particular body. After staying in the material world for some time through that body, the body is destroyed and another new body is acquired as a result of its actions. The soul is born again and again until it is liberated.

13.3.2 Enjoyment

The pleasure of the senses is the enjoyment or bhoga. In this world, everyone is running out to satisfy the senses. The daily discovery of science is all for the pleasure of the senses and enjoyment. The goal of most people in this world is how to make more money. More earthly happiness can be enjoyed. The state-wide development activities are being carried out

in the world. One of these goals is to enjoy the sensual pleasure. Food is a kind of enjoyment. We should choose the right food. It should not be eaten so that other animals are harmed. The consumables must be collected in a manner that does not harm other organisms.

13.3.3 Sakam Karma

The action that desires the fruit is called sakam karma (action with desire). Sakam karma has the results. That is why one has to enjoy the fruits of Sakam karma. In the Srimadbhagavadgita, it is said, 'kankshantah karmanam siddhim yajanta iha devatah, kshipram hi manushe loke siddhir bhavati karmaja'. That is, people in this world seek the fulfillment of the sakam karma and therefore they worship different deities. The result of sakam karma must be obtained very soon. In this world, most people work for the sake of enjoyment. People are always thinking about how to enjoy more sensual pleasure.

13.3.4 Nishkam Karma

The action that is done without seeking results is called nishkam karma (action without desire). There is no fruits for the nishkam karma. So, the fruits do not have to suffer. In the Srimadbhagavadgita, it is said, 'brahmanyadhaya karmani sangam tyaktva karoti yah, lipyate na sa papena padma-patram ivambhasa'. That is, one who works without attachment and offers all the fruits of action to paramesvara Bhagavan (God), no sin can ever touch him, just as water cannot touch the leaves of lotus. There is more in the Gita, 'The yogi gives up his karmaphala (fruits of karma), and attains devout peace, but the sakam activist works by being addicted to karmaphala so that becomes attached to karma.

13.3.5 Devotion

The constant faith in God is bhakti or devotion. Affection or love is the nature (svarupa) of devotion. God is the only place of refuge, speed of motionless, with this attitude to call God in a solicitous mind. One of the things that is needed for worshiper for the devotion of God, is the extinction of all sorts of blackness of mind. Another notion of bhakti marga (path of devotion) is 'you are mine'. This is called premabhakti (loving devotion). This is pure love. There are different levels of premabhakti, namely, santa (placid love for God), dasya (the attitude of a servant), sakya (the attitude of a friend), vatsalya (the attitude of a mother towards her child) and madhura (the attitude of a woman towards her lover). In the Srimadbhagavad Gita a wonderful combination of karma (action), jnana (knowledge) and bhakti (devotion) is noticed.

13.3.6 Yoga

According to the Yoga philosophy, yoga is the cessation of mental functions or cittavrttinirodha. In the Yoga philosophy, yoga has not been used in the sense of connection but in the sense of intense concentration (samadhi). Due to avivekajnana (non-discriminate knowledge), the soul thinks itself to be identical with citta (intellect, ego and mind). The purpose of yoga is to remove the non-discriminate knowledge of the soul and to establish

vivekajnana (the soul is different from intellect, ego and mind) in it. But as long as the modifications of citta (mind) is there, consciousness of the self will be reflected in it and these modifications will seem to be the modifications of the self. In this case the knowledge of discrimination (viekajnana) of the soul cannot be established. Therefore, the Yoga philosophy speak of the cessation of mental modifications (cittavrttinirodha).

13.3.7 Abhedajnana

The soul in its form as eternal, pure, buddha and free. It is different from the body, mind, intellect and senses. But under the influence of avidya or ignorance, the soul feels itself united with the non-self objects like the body, mind, intellect and senses. This feeling of unity is abhedajnana (knowledge of identity). The other name for abhedajnana is avivekajnana (indiscriminate knowledge). This aviveka (indiscrimination) is the cause of the bondage of the self and non-self objects as well as the suffering.

13.3.8 Bhedajnana

The own position of the soul is called the state of salvation. But under the influence of ignorance, the soul cannot think of itself as different from the natural object. As a result, he was bound and suffered all the happiness and pains of the world. Under the influence tattvajnana (knowledge of principles), the soul is separate from the body, this feeling is born. The knowledge of this separation is bhedajnana (knowledge of difference). The other name of bhedajnana is vivekajnana (discrimination knowledge).

13.3.9 Vivekakhyaati

The liberation of the soul is never possible if it cannot remove the ignorance which is the cause of bondage or sorrow. Therefore, to get rid of bondage, we must first want to remove avidya or ignorance. To eliminate this ignorance, the renowned knowledge named 'vivekakhyaati' (knowledge born out of viveka or discrimination) is needed. The soul and the non-soul substances are completely different this well-known knowledge is called vivekakhyaati. Vivekakhyaati is achieved through the practice of the principles (tattva) or the pursuit of the yoga.

13.3.10 Moksa

The soul is naturally pure, buddha, free and eternal. Moksa or salvation is the self position of the soul. The realization of the oneness of the soul with the body is the bondage of the soul. Under the influence of avidya or ignorance, the soul considers itself identical with the body. When this ignorance is removed, the soul becomes aware of its true nature and the soul is liberated. There is a an endless cessation of sadness in the state of salvation. Salvation is a joyful state. Moksa is the realization of the oneness of the Supreme soul with the individual soul. Salvation is achieved in two ways. One of them is nishkam karma (desireless action) and bhakti (devotion) and the other is bhedajnana (knowledge of difference) of the body and the soul and vivekakhyaati (knowledge born out of viveka or discrimination). To achieve salvation, both paths are required.

13.4 Combination of Birth-death Circle and Way to Freedom

13.4.1 Combining of Birth-death Cycle and Way to Freedom

The combination of the birth-death cycle and the way to freedom is shown by the following figure.

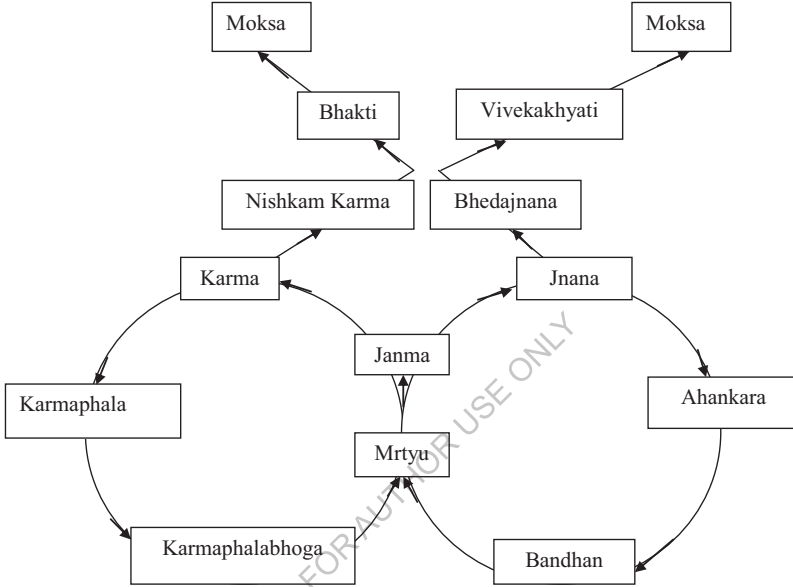


Fig. 13.3

In the figure above, janma (birth), karma (sakam karma, action with desire), nishkam karma (desireless action), bhakti (devotion) and moksa (salvation) are shown on the one hand, and janma (birth), jnana (abhedajnana, knowledge of identity), bhedajnana (knowledge of difference), vivekakhyati (knowledge born out of viveka or discrimination) and moksa (salvation) are shown on the other.

CHAPTER 14

A Review on Classical Mechanics

14.1 Galileo's Equations of Motion

14.2 Newton's Laws of Motion

14.3 Galileo's Laws of the Falling Bodies

14.4. Fundamental Theorem

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14.1 Galileo's Equations of Motion

Let's discuss Galileo's equations of motion. Galileo's three equations related to motion are,

$$s = ut \dots\dots\dots [1(i)]$$

$$v = u + at \dots\dots\dots [1(ii)]$$

$$s = ut + \frac{1}{2} a t^2 \dots\dots\dots [1(iii)]$$

Here it is seen that there is a difference between t in the first equation and t in the second equation. In the first equation we assume that an object is moving at u cm/sec initial velocity or uniform velocity. Then if we find the displacement of the object in 1 second we get,

$$u \text{ cm/sec} \times 1 \text{ sec} = u \text{ cm.}$$

Again, in the second equation, an object is moving at a uniform velocity of u cm/sec, that is, its initial velocity is u cm/sec. The acceleration of the object is a cm/sec² by using force. Now if we observe the position of the object for 1 second, we see that the final velocity of the object is $v = (u + a)$ cm/sec. That is, the time of the object was thought to be 0 when the object was moving at the initial velocity. Now it turns out that there is a difference between t of the first equation and the t of the second equation. If we sort the second equation according to the first equation, we can write,

$$v = u + a(t-1).$$

Again, in the case of the third equation, how far will an object moving in uniform acceleration of a cm/sec² travel in 1 second? Then we see that the object will cross a distance of $(u.1 + \frac{1}{2}.a.1^2)$ cm or $(u + \frac{1}{2}a)$ cm. Here it is also seen that the time of the object was considered to be 0 when the object was moving at initial velocity. Thus, there is a difference between t of the third equation and t of the first equation. Now the third equation has to be explained according to the first equation.

Suppose an object moving in the uniform acceleration of a cm/sec², whose initial velocity was u cm/sec, crosses the distance s cm in a total of t seconds. Suppose at the end of that time the final velocity of the object is v cm / sec.

Thus, the total distance traveled by the object is

$$s = [u + (u + a) + (u + 2a) + \dots\dots\dots + (v - a) + v] \dots\dots\dots [1(iv)]$$

If we reverse the series and write the first term at the end and the last term at the first, we get,

$$s = [v + (v - a) + (v - 2a) + \dots\dots\dots + (u + a) + u] \dots\dots\dots [1(v)]$$

Now by adding the equations [1(iv)] and [1(v)] we get,

$$2s = [(u + v) + (u + v) + (u + v) + \dots\dots\dots + (u + v) + (u + v)]$$

Since the number of $(u + v)$ is equal to the total time number t , we can write,

$$2s = (u + v) \times t$$

$$\text{Or, } s = \frac{1}{2} t (u + v)$$

$$s = \frac{t}{2} \{2u + a(t - 1)\}$$

Again, from the average velocity we get, $v = \left(\frac{u+v}{2}\right)$. Here the time is considered at the initial velocity u cm/sec.

Now Galileo's three equations of motion can be written as follows.

$$s = ut \dots\dots\dots [1(vi)]$$

$$v = u + a(t-1) \dots\dots\dots [1(vii)]$$

$$s = \frac{t}{2} \{2u + a(t-1)\} \dots\dots\dots [1(viii)]$$

Now how far will an object cross in the t^{th} second? In this case, it will indicate how much velocity the object will get in t seconds. That is, the displacement in the t^{th} second is

$$s_t = u + a(t-1) \dots\dots\dots [1(ix)]$$

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14.2 Newton’s Laws of Motion

From Newton’s first law of motion, we find that force is what moves or intends to move a stationary object and wants to change or intends to change the direction or magnitude or both of motion of a moving object. In this case, if no force is applied to the object, the stationary object will remain stationary and the moving object will continue to move in a straight line with uniform velocity.

Now, suppose F_1 dyne force is applied on an object in a stationary state. In that case the velocity of the object will continue to increase. Suppose the object continues to run in a cm/sec^2 uniform acceleration until the force acts. Then the object will move forever at a final velocity, suppose, u cm/sec . Now at this velocity we can say that the F_1 dyne force was applied to the object in the initial state (i.e. at the stationary state). We can call it primary force or initial force. But if we have to find the magnitude of this force, then the magnitude of this force is proportional to the momentum. Since the momentum is always constant (when moving at a velocity of u cm/sec) so the force will always be constant. Now, with the help of equation we get,

$$F_1 \propto mu \quad [\text{where } m = \text{mass of the object}]$$

$$\text{Or, } F_1 = kmu$$

Here the magnitude of k will depend on the unit of force.

If we create a velocity of 1 cm/sec in an object of mass 1 gm, then if the force required is considered as a unit, then the magnitude of k is a unit. That is,

$$1 = k.1.1$$

$$\text{Or, } k = 1$$

In this case we can write,

$$F_1 = mu$$

Sorting the equation by considering t = total time and s = total distance traveled, we get,

$$F_1.t = ms$$

Now the two equations are

$$F_1 = mu \quad \dots\dots\dots [2(i)]$$

$$F_1.t = ms \quad \dots\dots\dots [2(ii)]$$

Again, from the second law, we get that when force is applied to an object, that object is accelerated. For this purpose we will return to the first example. Suppose F_2 dyne force is applied on that object again while moving at u cm/sec velocity. Then suppose the object will continue to run at a_2 cm/sec^2 uniform acceleration as long as the force acts. When the action of the force stops, let the object will continue to move at the final velocity of v cm/sec . Here $v > u$. In this case, the magnitude of any force cannot be found by applying Newton’s second law while running at the velocity of v cm/sec . Because, then there is no acceleration of the object. Then we can find the magnitude of the initial force F_2 of the object (at the velocity of v cm/sec) as in equation [2(i)]. That is,

$$F_2 = mv \text{ (when running at a velocity of } v \text{ cm/sec).}$$

Now let us go back to the previous state i.e. when the object is moving at a velocity of u cm/sec. Since the force F_2 was applied then, we get in that case the magnitude of force applied to the object as F_2 . Expressing with the help of equations, we can write,

$$F_2 = ma_2 \text{ (when force is applied while running at a velocity of } u \text{ cm/sec).}$$

Now the two equations are,

$$F_2 = mv \text{ (running at the uniform velocity of } v \text{ cm/sec) [2(iii)]}$$

$$F_2 = ma_2 \text{ (running at the uniform acceleration of } a_2 \text{ cm/sec}^2 \text{) [2(iv)]}$$

Now it turns out that the force F_2 is the applied force when the object travels at a velocity of u cm/sec and when it travels at a velocity of v cm/sec it is the initial force. In other words, the force F_1 was the initial force and the force F_2 was the applied force when moving at a velocity of u cm/sec. Thus it is proved that there is a difference between F_1 and F_2 forces. That is, there is a difference between the force obtained according to Newton's first law and the force obtained according to the second law.

On the other hand, there is another inconsistency between the forces obtained from the equation $F_2 = ma_2$. If we say that an object of mass m gm is moving in the uniform acceleration of a_2 cm/sec², then we get the magnitude of force $F_2 = ma_2$. Again, if we say that the acceleration of a_2 cm/sec² after maintaining a certain time is obtained a uniform velocity, then also the magnitude of force of the object is $F_2 = ma_2$. Here it is seen that time has an impact on the force i.e. we also have to mention time.

There is another inconsistency between Newton's absolute force and gravitational force.

Newton's equation of absolute force is

$$F = ma \text{ [2(v)]}$$

Again Newton's equation of gravitational force is

$$F = \frac{GMm}{d^2} \text{ [2(vi)]}$$

Where, M = The mass of the earth

m = The mass of the object

d = The distance of the object from the center of the earth

G = Gravitational constant

We get the equations [2(v)] and [2(vi)] together

$$ma = \frac{GMm}{d^2} \text{ or, } a = \frac{GM}{d^2}$$

When a is denoted by g we get,

$$g = \frac{GM}{d^2} \text{ [2(vii)]}$$

But from the above discussion we get, the force of an object (initial force) moving at a velocity of v cm/sec is $F = mv$. Now comparing it to the gravitational force, we get,

$$mv = \frac{GMm}{d^2}$$

$$\text{or, } v = \frac{GM}{d^2} \text{ [2(viii)]}$$

Now equation [2(vii)] says that the higher an object is taken from the center of the earth to the surface, the lower the magnitude of g on it. But Equation [2(viii)] says that the higher an object is lifted from the center of the earth to the surface, the lower the magnitude of velocity v on it.

14.3 Galileo's Laws of the Falling Bodies

Let us try to eliminate the inconsistency of the previous two equations [2(vii)] and [2(viii)] from Galileo's laws of the falling bodies. From Galileo's second law of the falling bodies we get, the displacement covered by a falling body at a given time is proportional to the square of that time.

That is, displacement \propto (fall time)²

$$\text{Or, } h \propto t^2$$

$$\text{Or, } \frac{h}{t^2} = k$$

Or, $g = k$ Here, k is a constant.

If we write in a different way,

$$h \propto t^2$$

$$\text{Or, } \frac{h}{t} \propto t$$

Or, $v = kt$ Here, k is a constant.

Now the two equations are,

$$g = k \quad \dots\dots\dots [3(i)]$$

$$v = kt \quad \dots\dots\dots [3(ii)]$$

Here from the equation [3(i)] we see that the gravitational acceleration of a falling body is a constant calculation. This means that the acceleration is constant anywhere at any time. But the equation [3(ii)] shows that the velocity of a falling body is a variable calculation over time.

Again from the third law of the falling bodies we get, the velocity of a falling body at a given time is proportional to that time. That is, velocity \propto fall time.

$$\text{Or, } v \propto t$$

Or, $v = kt$ Here, k is a constant.

If we write in a different way,

$$v \propto t$$

$$\text{Or, } \frac{v}{t} = k$$

Or, $g = k$ Here, k is a constant.

Now the two equations are,

$$v = kt \quad \dots\dots\dots [3(iii)]$$

$$g = k \quad \dots\dots\dots [3(iv)]$$

In fact here, equation [3(iii)] and equation [3(iv)] are repetitions of equation [3(ii)] and equation [3(i)], respectively. Now it appears from equation [3(iii)] that the velocity of a falling body is a variable calculation over time. But equation [3(iv)] shows that the gravitational acceleration of a falling body is a constant calculation.

From the above discussion it can be seen that the velocity of the falling object increases with time. That is, if an object is released from the top to the bottom, the velocity of that object increases with time (approximately 32 feet per second). That is, the more the object comes to the center of the earth, the faster the velocity increases. On the contrary, the higher an object is taken above the earth's surface, the lower the magnitude of velocity on it.

The acceleration of a falling body, on the other hand, is not related to time. If an object is dropped from top to bottom, the acceleration of that object will always be constant. In other words, the velocity of the object will increase by 32 feet (approximately) per second. So the acceleration of that object will always be 32 feet/sec² (approximately). Conversely, no matter how high an object is taken from the surface, the acceleration of that object will always be constant.

However, when Newton's absolute force and gravitational force are combined, we get that the acceleration of the falling body is a varied calculation, which is contrary to the above discussion. And when the initial force (equations [2(i)] and [2(iii)]) and the gravitational force are combined, we get a varied calculation of the velocity of the falling body, which is favorable to the above discussion.

From the above discussion, we can express the view that Newton's main equation on force needs to change. In this case we will take the equation of force ($F = mv$) of an object moving at the uniform velocity as the main equation of force.

Therefore, $F = mv$

Or, $Ft = ms$ Since $v = \frac{s}{t}$

Now if we write t, m, s in capital letters we get,

$$FT = MS \quad \dots\dots\dots [3(v)]$$

This equation is a standard equation. This equation means that the product of the force and time of any object is equal to the product of the mass and length of that object. This equation can be called the fundamental equation of force. This is being discussed in detail in the fundamental theorem.

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14.4. Fundamental Theorem

There are five addresses of any matter in our universe which are category, direction, dimension, quantity and calculation.

14.4.1 Category

To know the exact address of an object, it is necessary to know the category of that object. Names need to be known first as category. Any object has a specific name and that name is expressed by N.

14.4.2 Direction

In order to know the correct address of any object, it is necessary to know which direction the object is on. Any object can be on two sides, one is on negative and the other is on positive. For example, if there is an object to the left of the origin or zero of the number line, it is on the negative side and if there is any object on the right side, it is said to be on the positive side.

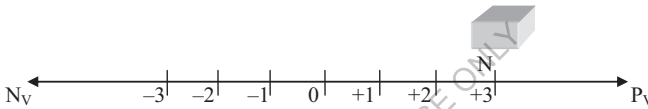


Fig. 14.1

The negative side is abbreviated as N_V and the positive side is abbreviated as P_V . Again, the negative side can also be expressed by the $(-)$ sign and the positive side also be expressed by the $(+)$ sign. Any object moving in a straight path can be to the left or right of the origin but no object can be to the left and right at the same time. For example, the object called N (Fig. 14.1) is at a point marked by 3 to the right of the origin. But the object is not at the point marked 1 or -3 at that moment.

14.4.3 Dimension

To know the correct address of any object, one has to know about the three dimensions of that object. These three dimensions are expressed by X, Y and Z. These three dimensions are definitely needed to know the quantity of any object in the world. If the direction of an object moving in a straight path is expressed by x, then y is considered at right angle to x and z is considered at right angle to both (x and y). Now we know from conventional science that object is only three-dimensional (of course, in relativity theory, four dimensional: x, y, z, t). That is, any object has length, width and height. In fact, it is only three dimensions of length measurement. Just as scales are needed to measure length, so scales are needed to measure width and height. In the same way, not only in length, but also in force, mass and time, each has three dimensions. In other words, the mass of an object is one gram, if so it is not clearly stated. We must mention, the mass of the object is one gram, in which direction? Will the

mass of the object be on the north or east or any other side? As we mention, the length of the station is 50 yards to the north or 15 yards to the east. Just saying 50 yards or 15 yards does not give clear idea. It is clear from this that mass is only three-dimensional. In the same way force and time are three-dimensional. This means that if the object called N has a lifespan of 50 years, then nothing is said clearly. We must mention that the life span of the object called N is 50 years— in the north, east or any other direction. Similarly, the same example applies to the force. Without saying another thing here, the discussion will remain incomplete. That is, what is the difference between the direction of the previous address and the dimension of the current address? In fact, the direction of the previous address is the motion of an object moving in a straight line which is negative if it is to the left of the origin of the number line and positive if it is to the right. But the concept of dimension is more extensive. It is necessary to measure the quantity of an object located at any point on either side of the number line.

14.4.4 Quantity

To know the correct address of any object, one must know the four quantities of that object. These four quantities are force, time, mass and length. These quantities are expressed by F, T, M and S respectively. These four quantities of any object are fundamental and vector. The main equation related to the quantity is the equation of [3(v)] of the previous presentation 14.3, i.e.

$$FT = MS$$

14.4.4.1 Corollary: The X Rule

If the four fundamental quantities of any object are rotated in the shape of X, if the two constant quantities are in the same line, then the other two constant quantities will change in opposite proportions to each other. And if they (the two constant quantities) are not in the same line, then (of the other two constant quantities) one will change in proportion to the other. Of course, here F and T have to be placed on the same line and M and S on another line. For example, if shown with the help of a figure, it will be as follows;

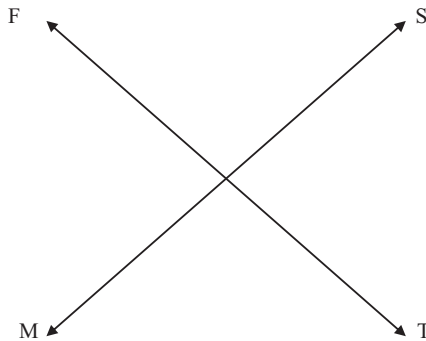


Fig. 14.2

However, keep in mind that F and T are transferable on the same line and in the same way M and S are transferable on the other line. Now if we write the rule mathematically, we get it,

- (i) $F \propto \frac{1}{T}$ [When M and S are fixed]
- (ii) $M \propto \frac{1}{S}$ [When F and T are fixed]
- (iii) $F \propto M$ [When S and T are fixed]
- (iv) $M \propto T$ [When F and S are fixed]
- (v) $T \propto S$ [When M and F are fixed]
- (vi) $S \propto F$ [When T and M are fixed]

To prove the fundamental equation related to quantity we would think that there is an object N in space, where there is no gravitational force. Suppose also the mass M and the length S of the object on which the force F was first applied. The direction of motion is towards the x axis. Now suppose that the time at which the object crosses the distance S is denoted by T .

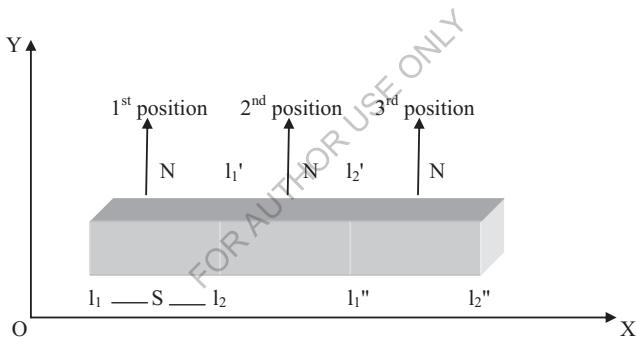


Fig. 14.3

We notice here that since the object is outside the force of gravity, only F force will act on the object. Therefore, according to Newton's first law, the object will continue to move in a straight line at the uniform velocity forever. Now we have been observing the movement of the object for some time. Since the object is moving, at some point the limit l_1 of the object will come to the limit l_2 and then we will mark this limit as l_1' and at the same time l_2 limit will reach l_2' limit. We will identify this time as T i.e. the object will reach 2nd position from 1st position in T time. In this way the object will reach 3rd position in the next T time.

Now let us measure the force, time, mass and length of an object in outer space. Suppose N_1 and N_2 these two objects are in motion in outer space (mahasunya). Suppose more, the force of each object is F , time is T , mass is M and length is S . Now at some point we double

the force of the N_2 object and think more that the mass and length of the object are constant (fig. 14.4).

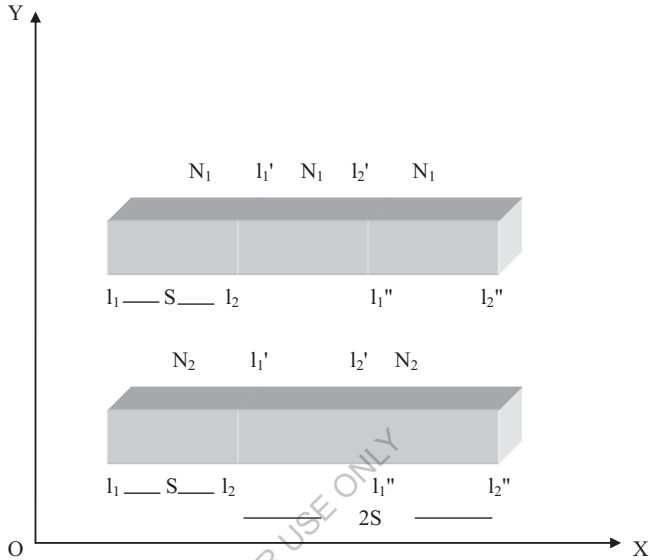


Fig. 14.4

From the previous discussion we find that the object will exceed the distance S at time T . But since the value of the force has been doubled, the object will travel twice the distance according to the conventional law, that is, it will travel $2S$ distance. But S remains constant. Therefore, in the case of the object N_2 , $2S$ distance cross at T time or S distance crosses at $\frac{T}{2}$ time. Thus, if M and S remain constant, the time of any object changes in inverse proportion to the force. In other words, the force of any object changes in the opposite proportion of time. Mathematically speaking,

$$F \propto \frac{1}{T} \quad [\text{When } M \text{ and } S \text{ are fixed}]$$

In this way the 6 formulas of X rule can be proved easily.

14.4.5 Account

To know the correct address of any object, It is necessary to know the five accounts of that object. These five accounts are velocity, acceleration, incremental acceleration, period and distance. These are represented by symbols as v , a , f , p and h respectively. It should be remembered that these five calculations are required to measure force, time, mass and accounts. Suppose the velocity of an object N is $v = 3$, the acceleration is $a = 2$ and the incremental acceleration is $f = 1$. Then let us calculate the accounts of the object in 5 periods.

Here the object will cover a distance of 3 units in the first period and (3+2) units in the second period, (3+2+3) units in the third period, (3+2+3 +4) units in the fourth period and (3+2+3 +4+5) units in the fifth period. Now we get arranged in the form of a series as 3, 5, 8, 12, 17. Now how many distances will the object travel in total in five periods? Obviously this distance is (3+5+8+12+17) or 45 units.

Let us now find out the basic equation relating to velocity, acceleration, incremental acceleration, period and distance of an object. Suppose the velocity of an object called N is v, the acceleration is a, the incremental acceleration is f, the period is p and the distance is h. In that case, if the object exceeds the total distance h in period p, then,

$$\begin{aligned}
 h &= v + \{v + a\} + \{v + a + (a + f)\} + \{v + a + (a + f) + (a + f + f)\} \\
 &\quad + \dots + \{v + a + (a + f) + (a + f + f) + \dots + (a + (p - 2)f)\} \\
 &= \{v + v + \dots \dots \dots p \text{ terms}\} + \{a + (a + f) + (a + f + f) + \dots + (a + (p - 2)f)\} \\
 &\quad + \{a + (a + f) + (a + f + f) + \dots + (a + (p - 3)f)\} \\
 &\quad + \{a + (a + f) + (a + f + f) + \dots + (a + (p - 4)f)\} + \{a + (a + f)\} + a \\
 &= vp + \frac{(p-2+1)}{2}\{2a + (p - 2 + 1 - 1)f\} + \frac{(p-3+1)}{2}\{2a + (p - 3 + 1 - 1)f\} + \dots + \{2a + f\} + a \\
 &= vp + \frac{(p-1)}{2}\{2a + (p - 2)f\} + \frac{(p-2)}{2}\{2a + (p - 3)f\} + \dots \dots \dots + \{2a + f\} + a \\
 &= vp + a(p - 1) + a(p - 2) + \dots \dots \dots + a.2 + a \\
 &\quad + \frac{1}{2}f(p - 1)(p - 2) + \frac{1}{2}f(p - 2)(p - 3) + \dots \dots \dots + f \\
 &= vp + a\{(p - 1) + (p - 2) + \dots \dots \dots + 2 + 1\} \\
 &\quad + \frac{1}{2}f\{(p - 1)(p - 2) + (p - 2)(p - 3) + \dots \dots \dots + 2.1\} \\
 &= vp + a. \frac{(p-1)(p-1+1)}{2} + \frac{1}{2}.f. \frac{(p-2)(p-2+1)(p-2+2)}{3} \\
 &= vp + \frac{1}{2}ap(p - 1) + \frac{1}{6}fp(p - 1)(p - 2)
 \end{aligned}$$

Therefore, we get

$$h = vp + \frac{1}{2}ap(p - 1) + \frac{1}{6}fp(p - 1)(p - 2) \dots \dots \dots [4(i)]$$

The above equation is the basic equation for the five accounts of an object. If we put incremental acceleration f = 0 in this equation, we get,

$$h = \frac{p}{2}\{2v + a(p - 1)\}$$

The equation obtained is similar to equation [1(viii)]. Again if we put f = 0 and a = 0 we get, h = vp

The equation obtained is similar to equation [1(vi)].

I wrote this article in 1985 while I was in my final year of I.S.C. at Raozan College, Chittagong, Bangladesh.

CHAPTER 15

Applications of Main Theory

- 15.1 Unification of Three Mathematical Sequences
- 15.2 Generalization of Gaseous Laws
- 15.3 Cash Transaction Approach in Terms of X Rule
- 15.4 Sample Examples
- 15.5 Foundations of Generancy Philosophy

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15.1 Unification of Three Mathematical Sequences

15.1.1 First Sequence

We get from figure 5.1

1

1

1

1

1

Fig. 15.1

Arrange the numbers as a sequence, we get

1, 1, 1, 1, 1

Fig. 15.2

This is a sequence with constant member 1.

15.1.2 Second Sequence

We get from figure 5.2

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

Fig. 15.3

Replacing the numbers as unit 1 we get

1
1 1
1 1 1
1 1 1 1
1 1 1 1 1

Fig. 15.4

By adding each row of the numbers to the form of sequence, we get

1, 2, 3, 4, 5

Fig. 15.5

This is a sequence with common difference 1.

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15.1.3 Third Sequence

We get from figure 5.4

1

1

1 2

1

1 2

1 2 3

1

1 2

1 2 3

1 2 3 4

1

1 2

1 2 3

1 2 3 4

1 2 3 4 5

Fig. 15.6

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Replacing the numbers as unit 1, we get

1
1
1 1
1
1 1
1 1 1
1
1 1
1 1 1
1 1 1 1
1
1 1
1 1 1
1 1 1 1
1 1 1 1 1

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Fig. 15.7

Adding the numbers to five rows

1

3

6

10

15

Fig. 15.8

We get the numbers in the form of sequence.

1, 3, 6, 10, 15

Fig. 15.9

This is a formation sequence where $M = 1, 2, 3, 4, 5$ and $V = 2$.

Combining first, second and third sequences and arranging from top to bottom, we get

1 1 1

1 2 3

1 3 6

1 4 10

1 5 15

Fig. 15.10

From the figure 15.10, we get three-dimensional number combination which is shown in the three figures below.

1 1 1
 1 1 1
 1 1 1
 1 1 1
 1 1 1
 1 1 1 1
 1 1 1
 1 1 1 1
 1 1 1 1 1
 1 1 1
 1 1 1
 1 1 1 1
 1 1 1 1 1
 1 1 1 1 1 1

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Fig. 15.11

1 1 1
1 1 1
2 1 2
1 1 1
2 1 2
3 1 2 3
1 1 1
2 1 2
3 1 2 3
4 1 2 3 4
1 1 1
2 1 2
3 1 2 3
4 1 2 3 4
5 1 2 3 4 5

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Fig. 15.12

1
1
1
1
1
1
2
1 2
1
1
1
2
1 2
3
1 2 3
1
1
1
2
1 2
3
1 2 3
4
1 2 3 4
1
1
1
2
1 2
3
1 2 3
4
1 2 3 4
5
1 2 3 4 5

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Fig. 15.13

15.2 Generalization of Gaseous Laws

15.2.1 Cross Rule or X rule

All the formulas of the generalization of gaseous laws were discovered in 1984 when I studied in the I.S.C. class at Raozan College, Chittagong, Bangladesh. Of the four variable quantity P (pressure), N (number of molecules), T (absolute temperature) and V (volume) of a gas amount, if any two are fixed, then the other two comply with certain rules. So we propose three other formulas out of the conventional three formulas (Boyle's law, Charles law and Pressure law).

1. At constant volume and fixed pressure, the number of molecules of a gas is inversely proportional to its absolute temperature, i. e.,

$$N \text{ (number of molecules)} \propto 1/T \text{ (absolute temperature)}$$

2. At constant temperature and fixed pressure, the volume of a gas is directly proportional to its number of molecules, i. e.,

$$V \text{ (volume)} \propto N \text{ (number of molecules)}$$

3. At constant volume and fixed temperature, the pressure of a gas is directly proportional to its number of molecules, i. e.,

$$P \text{ (pressure)} \propto N \text{ (number of molecules)}$$

If four variables of a gas or gas mixture are arranged in four edges of English X, we get four rules. These four rules applicable to all ideal gases.

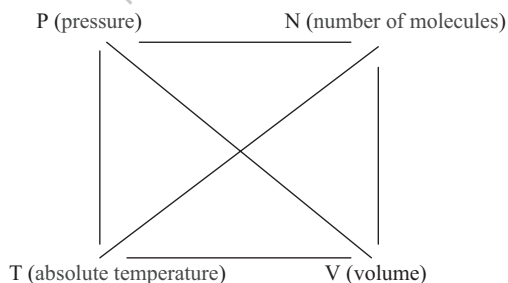


Fig. 15.14

15.2.1.1 If the two fixed quantities of a gas rotating in X-diagram is placed on an angular line, then the other two will be inversely proportional to each other.

15.2.1.2 If the two fixed quantities of a gas rotating in X- diagram is placed on a horizontal or vertical line, then the other two will be directly proportional to each other.

15.2.1.3 If the two fixed quantities of a mixture of gases measuring in same dimension (one of the remaining two quantities) rotating in X- diagram is placed on an angular line, then the inverse of remaining quantity is the sum of the inverses of its partial quantities.

15.2.1.4 If the two fixed quantities of a mixture of gases measuring in same dimension (one of the remaining two quantities) rotating in X- diagram is placed on a horizontal or vertical line, then the remaining quantity is the sum of its partial quantities.

15.2.2 Laws of Unit Gas

Now let us write down all the formulas. Suppose, the pressure is P, the volume is V, the absolute temperature is T and the number of molecules is N, then-

Formulas obtained from first rule-

15.2.2.1 When T and N fixed, then

$$P \propto \frac{1}{V} \quad [\text{Boyle's law}]$$

15.2.2.2 When P and V fixed, then

$$T \propto \frac{1}{N}$$

Formulas obtained from second rule-

15.2.2.3 When T and P fixed, then

$$V \propto N$$

15.2.2.4 When P and N fixed, then

$$T \propto V \quad [\text{Charles' law}]$$

15.2.2.5 When N and V fixed, then

$$P \propto T \quad [\text{Pressure law}]$$

15.2.2.6 When V and T fixed, then

$$N \propto P$$

15.2.3 Laws of Mixture Gases

Formulas obtained from third rule-

For T- dimensional mixture of r-gases

15.2.3.1 When P and V fixed, then

$$\frac{1}{N} = \frac{1}{N_1} + \frac{1}{N_2} + \frac{1}{N_3} + \dots + \frac{1}{N_r}$$

For P- dimensional mixture of r-gases

15.2.3.2 When T and N fixed, then

$$\frac{1}{V} = \frac{1}{V_1} + \frac{1}{V_2} + \frac{1}{V_3} + \dots + \frac{1}{V_r}$$

For N- dimensional mixture of r-gases

15.2.3.3 When P and V fixed, then

$$\frac{1}{T} = \frac{1}{T_1} + \frac{1}{T_2} + \frac{1}{T_3} + \dots + \frac{1}{T_r}$$

For V- dimensional mixture of r-gases

15.2.3.4 When T and N fixed, then

$$\frac{1}{P} = \frac{1}{P_1} + \frac{1}{P_2} + \frac{1}{P_3} + \dots + \frac{1}{P_r}$$

Formulas obtained from fourth rule-

For T- dimensional mixture of r-gases

15.2.3.5 When P and N fixed, then

$$V = V_1 + V_2 + V_3 + \dots + V_r$$

15.2.3.6 When N and V fixed, then

$$P = P_1 + P_2 + P_3 + \dots + P_r$$

For P- dimensional mixture of r-gases

15.2.3.7 When N and V fixed, then

$$T = T_1 + T_2 + T_3 + \dots + T_r$$

15.2.3.8 When V and T fixed, then

$$N = N_1 + N_2 + N_3 + \dots + N_r$$

For N- dimensional mixture of r-gases

15.2.3.9 When V and T fixed, then

$$P = P_1 + P_2 + P_3 + \dots + P_r \quad [\text{Dalton's law of partial pressure}]$$

15.2.3.10 When T and P fixed, then

$$V = V_1 + V_2 + V_3 + \dots + V_r$$

For V- dimensional mixture of r-gases

15.2.3.11 When T and P fixed, then

$$N = N_1 + N_2 + N_3 + \dots + N_r$$

15.2.3.12 When P and N fixed, then

$$T = T_1 + T_2 + T_3 + \dots + T_r$$

15.3 Cash Transaction Approach in Terms of X Rule

The cross rule or X rule in figure is

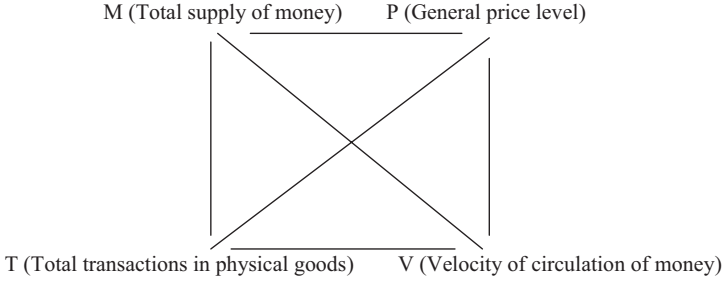


Fig. 15.15

Sub Rule 1. If the two fixed quantities of the cash transaction approach rotating in X-diagram is placed on an angular line, then the other two will be inversely proportional to each other.

Sub Rule 2. If the two fixed quantities of the cash transaction approach rotating in X-diagram is placed on a horizontal or vertical line, then the other two will be directly proportional to each other.

15.3.1 Laws of Cash Transaction Approach

Now let us write down all the formulas. Suppose, the total supply of money is M, the velocity of circulation of money is V, the total transactions in physical goods is T and the general price level is P, then-

Formulas obtained from first rule-

15.3.1.1 When T and P fixed, then

$$M \propto \frac{1}{V}$$

15.3.1.2 When M and V fixed, then

$$T \propto \frac{1}{P}$$

Formulas obtained from second rule-

15.3.1.3 When T and M fixed, then

$$V \propto P$$

15.3.1.4 When M and P fixed, then

$$T \propto V$$

15.3.1.5 When P and V fixed, then

$$M \propto T$$

15.3.1.6 When V and T fixed, then

$$P \propto M$$

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15.4 Sample Examples

15.4.1 Sample Examples About Purusa

Let us write down the figure of 6.2

अ (Purusa) ↓

उ (Brahman) ∽

म (Isvara) ⇒

Fig. 15.16

Brahman and Brahman related. Purusa is the cause of Brahman.

Now let us see how this relationship is.

15.4.1.1 Sample Examples About Brahman

What do we mean by Isvara of Brahman?

Isvara of Brahman = Isvara of Brahman

That is, Isvara is one and unique.

15.4.2 Sample Examples About Prakrti

Let's write down the figure of 7.2

अ(Prakrti) ↓

उ(Jada) ∽

अ(Paramanu) ⇒

उ^०(Jiva) ∽

ग (Deha) ⇒ घ (Prana)

Fig. 15.17

Jada and jiva are related. Prakrti is the cause of these.

Now let us see how this relationship is.

Jiva is made up of many jadas.

Jiva = Jada ∨ Jada ∨ Jada ∨ ∨ Jada

15.4.2.1 Sample Examples About Jada

What do we mean by paramanu of jada ?

Paramanu of jada = Paramanu of jada

15.4.2.2 Sample Examples About Jiva

What do we mean by deha of jiva ?

Deha of jiva = Deha of all jadas

What do we mean by Prana of jiva ?

Prana of jiva = Prana of all jadas

15.4.3 Sample Examples About Jagat

Let us write down the figure of 8.4

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ॐ (Jagat) ↓

॑ (Prithvi) ∩

ॐ (Ksiti) ⇒

॑ (Antariksa) ∩

ॐ (Jala) ⇒ ॑ (Agni)

॑ (Svarga) ∩

॑ (Vayu) ⇒ ॑ (Akasa) ⇒ ॑ (Atma)

Fig. 15.18

Prithvi, antariksa and svarga are related. Jagat is the cause of these.
Now let us see how this relationship is.

Antariksa is made up of many prithvis.

Antariksa = Prithvi ∨ Prithvi ∨ Prithvi ∨ ∨ Prithvi

Svarga is made up of many antariksas.

Svarga = Antariksa ∨ Antariksa ∨ Antariksa ∨ ∨ Antariksa

Finally, we can say

Antariksa = Prithvi ∨ Prithvi ∨ Prithvi ∨ ∨ Prithvi

Svarga = Antariksa ∨ Antariksa ∨ Antariksa ∨ ∨ Antariksa

= Prithvi ∨ Prithvi ∨ Prithvi ∨ ∨ Prithvi

15.4.3.1 Sample Examples About Prithvi

What do we mean by ksiti of prithvi ?

Ksiti of prithvi = Ksiti of prithvi

15.4.3.2 Sample Examples About Antariksa

What do we mean by jala of antariksa ?

Jala of antariksa = Jala of all prithvis

What do we mean by agni of antariksa ?

Agni of antariksa = Agni of all prithvis

15.4.3.3 Sample Examples About Svarga

What do we mean by vayu of svarga ?

Vayu of svarga = Vayu of all antariksas

= Vayu of all prithvis

What do we mean by akasa of svarga ?

Akasa of svarga = Akasa of all antariksas

= Akasa of all prithvis

What do we mean by atma of svarga ?

Atma of svarga = Atma of all antariksas
= Atma of all prithvis

14.3.4 Sample Examples About Jnana

Let us write down the figure 9.3

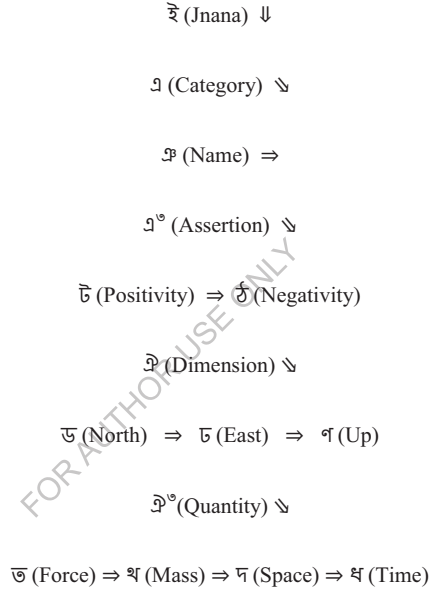


Fig. 15.19

Category, assertion, dimension and quantity are related. Jnana is the cause of these. Now let us see how this relationship is.

Category is one, and this is name .
Assertion is two, and this is positivity and negativity.
Dimension is three, and this is north, east and up.
Quantity is four and this is force, mass, space and time.

Assertion is made up of many categories.

Assertion = Category ∨ Category ∨ Category ∨ ∨ Category

Dimension is made up of many assertions.

Dimension = Assertion \vee Assertion \vee Assertion \vee \vee Assertion

Quantity is made up of many dimensions.

Quantity = Dimension \vee Dimension \vee Dimension \vee \vee Dimension

Finally, we can say

Assertion = Category \vee Category \vee Category \vee \vee Category

Dimension = Assertion \vee Assertion \vee Assertion \vee \vee Assertion

= Category \vee Category \vee Category \vee \vee Category

Quantity = Dimension \vee Dimension \vee Dimension \vee \vee Dimension

= Assertion \vee Assertion \vee Assertion \vee \vee Assertion

= Category \vee Category \vee Category \vee \vee Category

15.4.4.1 Sample Examples About Category

Category is one and category has a name in it.

Category = Category₁ \vee Category₂ \vee Category₃ \vee

15.4.4.2 Sample Examples About Assertion

Assertion is two and all the assertions have categories. Such as:

Positivity has a category in it.

Positivity = Positivity₁ \vee Positivity₂ \vee Positivity₃ \vee

Negativity has a category in it.

Negativity = Negativity₁ \vee Negativity₂ \vee Negativity₃ \vee

15.4.4.3 Sample Examples About Dimension

Dimension is three and all the dimensions have assertions. Such as:

North has both assertions in it. North and south. North has a category in it.

North = North₁ \vee North₂ \vee North₃ \vee

East has both assertions in it. East and west. East has a category in it.

East = East₁ \vee East₂ \vee East₃ \vee

Up has both assertions in it. Up and down. Up has a category in it.

Up = Up₁ \vee Up₂ \vee Up₃ \vee

15.4.4.4 Sample Examples About Quantity

Quantity is four and all the quantities are three dimensional. Such as:

Force is three dimensional. Force has both assertions in it. Force has a category in it.

$$\text{Force} = \text{Force}_1 \vee \text{Force}_2 \vee \text{Force}_3 \vee \dots$$

Mass is three dimensional. Mass has both assertions in it. Mass has a category in it.

$$\text{Mass} = \text{Mass}_1 \vee \text{Mass}_2 \vee \text{Mass}_3 \vee \dots$$

Space is three dimensional. Space has both assertions in it. Space has a category in it.

$$\text{Space} = \text{Space}_1 \vee \text{Space}_2 \vee \text{Space}_3 \vee \dots$$

Time is three dimensional. Time has both assertions in it. Time has a category in it.

$$\text{Time} = \text{Time}_1 \vee \text{Time}_2 \vee \text{Time}_3 \vee \dots$$

15.4.5 Sample Examples About Karma

Let us write down the figure of 10.3

ॐ (Karma) ↓

ॐ^० (Person) ∩

ॐ (Purusartha) ⇒

ॐ (Family) ∩

ॐ (Reproduction) ⇒ ॐ (Marriage)

ॐ^० (Society) ∩

ॐ (Education) ⇒ ॐ (Culture) ⇒ ॐ (Cooperation)

ॐ (State) ∩

ॐ (Population) ⇒ ॐ (Territory) ⇒ ॐ (Power) ⇒ ॐ (Sovereignty)

ॐ^० (World) ∩

ॐ (Life) ⇒ ॐ (Environment) ⇒ ॐ (Authority) ⇒ ॐ (Development) ⇒ ॐ (Peace)

Fig. 15.20

Person, family, society, state and world are related. Karma is the cause of these.

Now let us see how this relationship is.

Family is made up of many persons.

Family = Person \vee Person \vee Person \vee \vee Person

Society is made up of many families.

Society = Family \vee Family \vee Family \vee \vee Family

State is made up of many societies.

State = Society \vee Society \vee Society \vee \vee Society

World is made up of many states.

World = State \vee State \vee State \vee \vee State

Finally, we can say

Family = Person \vee Person \vee Person \vee \vee Person

Society = Family \vee Family \vee Family \vee \vee Family
= Person \vee Person \vee Person \vee \vee Person

State = Society \vee Society \vee Society \vee \vee Society
= Family \vee Family \vee Family \vee \vee Family
= Person \vee Person \vee Person \vee \vee Person

World = State \vee State \vee State \vee \vee State
= Society \vee Society \vee Society \vee \vee Society
= Family \vee Family \vee Family \vee \vee Family
= Person \vee Person \vee Person \vee \vee Person

15.4.5.1 Sample Examples About Person

What do we mean by purusartha of person ?

Purusartha of person = Purusartha of person

15.4.5.2 Sample Examples About Family

What do we mean by reproduction of family ?

Reproduction of family = Reproduction of all persons

What do we mean by marriage of family ?

Marriage of family = Marriage of all persons

15.4.5.3 Sample Examples About Society

What do we mean by education of society ?

Education of society = Education of all families
= Education of all persons

What do we mean by culture of society ?

Culture of society = Culture of all families
= Culture of all persons

What do we mean by cooperation of society ?

Cooperation of Society = Cooperation of all families
= Cooperation of all persons

15.4.5.4 Sample Examples About State

What do we mean by population of state ?

Population of state = Population of all societies
= Population of all families
= Population or number of all persons

What do we mean by territory of state ?

Territory of State = Territory of all societies
= Territory of all families
= Territory of all persons

What do we mean by power of state ?

Power of state = Power of all societies
= Power of all families
= Power of all persons

What do we mean by sovereignty of state ?

Sovereignty of state = Sovereignty of all societies
= Sovereignty of all families
= Sovereignty of all persons

15.4.5.5 Sample Examples About World

What do we mean by life of world ?

Life of World = Life of all states
= Life of all societies
= Life of all families
= Life of all persons

What do we mean by environment of world ?

Environment of world = Environment of all states
= Environment of all societies
= Environment of all families
= Environment of all persons

What do we mean by authority of world ?

Authority of world = Authority of all states
= Authority of all societies
= Authority of all families
= Authority of all persons

What do we mean by development of world ?

Development of world = Development of all states
= Development of all societies
= Development of all families
= Development of all persons

What do we mean by peace of world ?

Peace of world = Peace of all states
= Peace of all societies
= Peace of all families
= Peace of all persons

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15.5 Foundations of Generancy Philosophy

15.5.1 Generancy Philosophy at a Glance

Original book	Modelling of generancy
Vedas	Based on Vedic texts
Karmavada	Believes in Karmavada
Pramanas	Pratyaksa, anumana, upamana and sabda
Causation	Sankhyavada
Soul	The soul is eternal, characterless and self-luminous
Consciousness	The soul is pure consciousness
God	Affirms God
What is moksa	Moksa is the own form of the soul
Nature of moksa	Complete joyous situation
Way to attain moksa	Nishkam karma and bhakti, bhedajnana and vivekakhayati

Tab. 15.1

15.5.2 Generancy Model

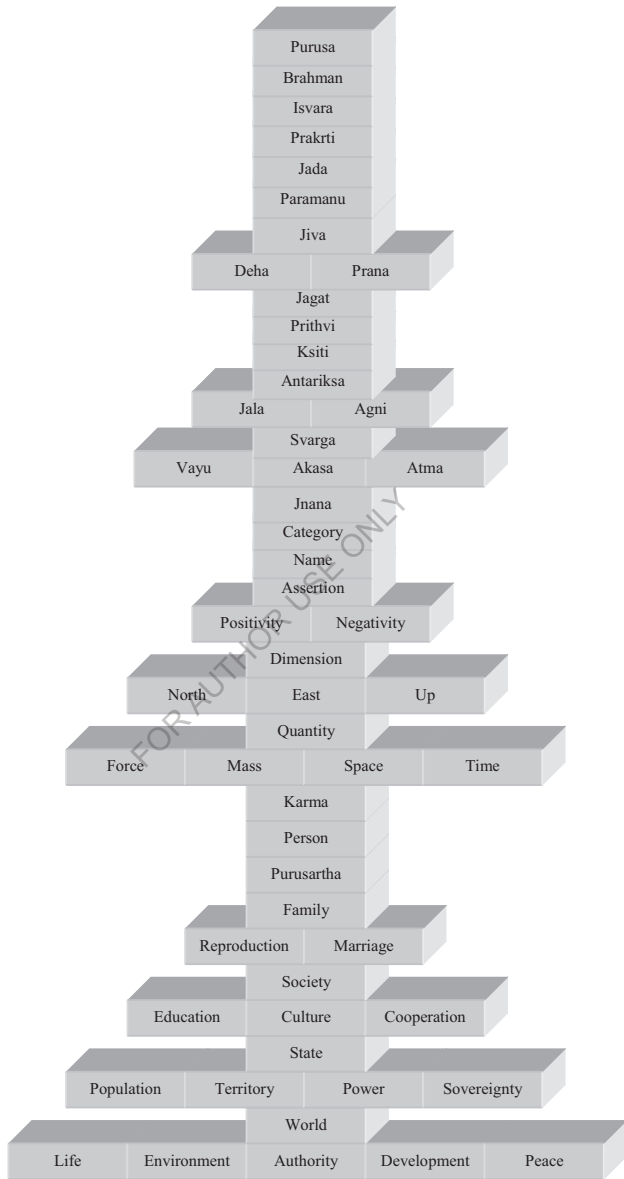


Fig. 15.21

15.5.3 Generancy Basis

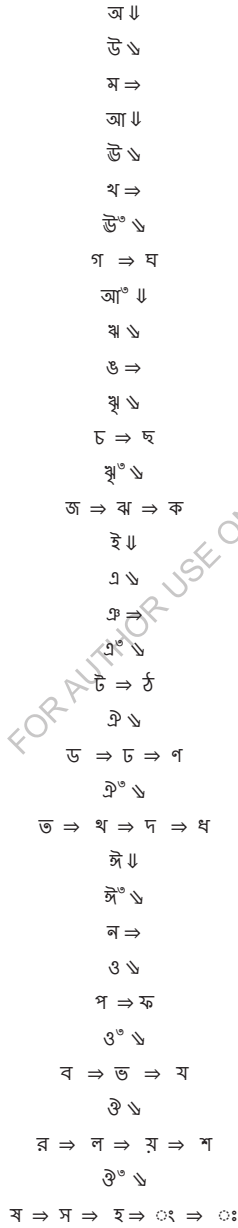


Fig. 15.22

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