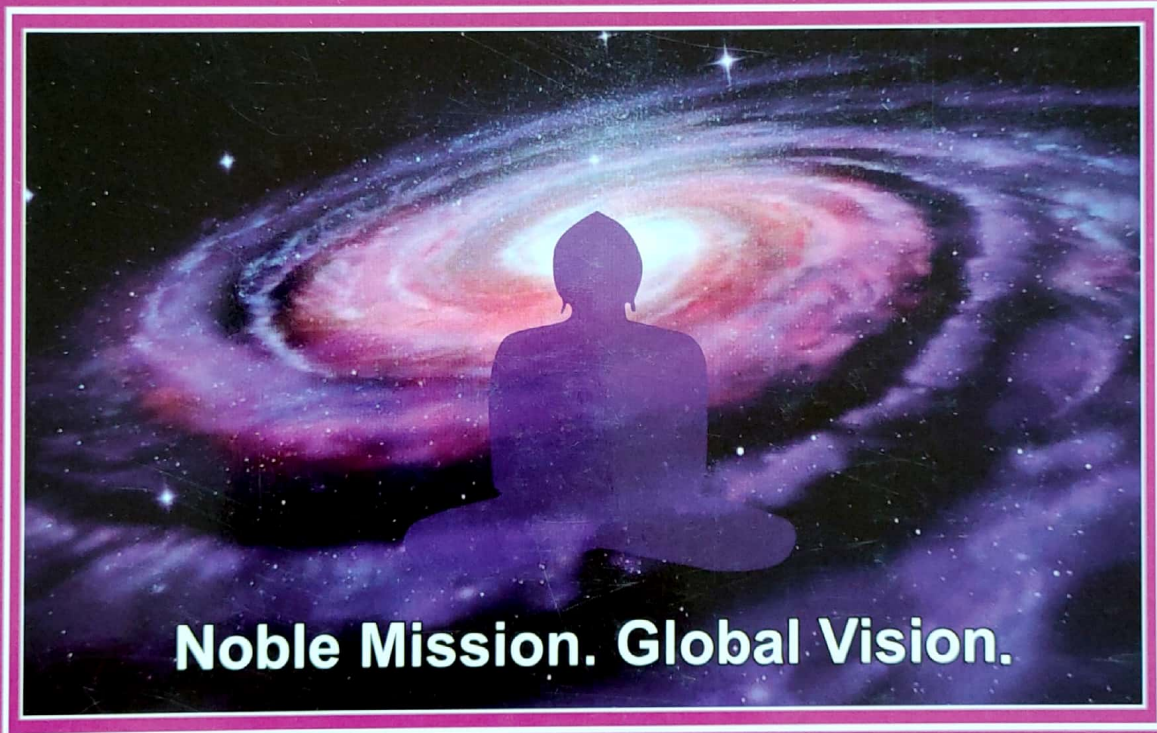


# Jain Philosophy: A Scientific Approach to Reality

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on  
Science and Jain Philosophy  
held at Indian Institute of Technology Bombay, Mumbai, 2016



## Editors

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# **Jain Philosophy: A Scientific Approach to Reality**

**Editors:** Samani Chaitanya Prajna, N.L.Kachhara, N. Bhandari, K.P. Mishra

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## SECTION III: Consciousness and Life

### 10. The Jain Concept of Origin of Life vis-à-vis Scientific Theories

*Samani Chaitanya Prajna<sup>1</sup> and Samani Him Prajna<sup>1</sup>*

#### Abstract

The question of origin of life has always been a dilemma. The intellectuals of all times have tried to resolve the dilemma. They have dealt with the life phenomena from different perspectives. The Jain philosophers have also addressed the issue of the origin and evolution of life. They studied it very deeply and have discussed elaborately all its aspects.

Being a dualistic philosophy, Jainism regards that the Universe consists of two fundamental reals, viz. Living beings (*Jīva*) and Non-living elements (*Ajīva*). Both are real and eternal. They have no beginning and no end. Hence, life has always been there in the universe. The question of origin of life in a particular era of time, therefore, is meaningless.

The question of the origin and evolution of different species in different epochs and the cause of differences in their developments is addressed here. The words 'origin' and 'evolution' denote nothing but the birth, rebirth, and physical and mental development of the living beings.

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The birth, rebirth, and physical and spiritual growth of any living being depend on its karma and self-efforts. In the present paper, we discuss all the aforesaid issues to have better understanding of the origin and evolution of life from Jain perspective.

At the heart of Jainism are the three principles: soul, karma and reincarnation. Every living being has a soul which is bonded, shrouded by the karmas. It is due to the karmas that living beings undergo birth and death in different species and realms of existences.

## 1. Philosophical Background of Birth and Death

It is necessary to ponder over substantive reasons for birth and death in order to understand their reality. The philosophers and seers identified the causes behind birth and death, as described in Mahāprajña's book [1], which are:

1. The universe (*loka*) is eternal (*śāśvata*).
2. The mundane existence (*samsāra*) is without beginning (*anādi*).
3. Every soul (*jīva*) is eternal (*nitya*).
4. There is abundance of karmas.

### 1.1 The Universe is Eternal

The universe, better to say cosmos, is a sum total of the living and non-living entities. According to Bhagawān Mahāvīra, the whole universe is teeming with animate and inanimate as described in *Uttarājñhayaṇāni* [2, 36/2]. The universe (*lokākāśa*) has only two fundamental realities – animate (*jīva*) and inanimate (*ajīva*). The animate includes mobile (*trasa*) and immobile (*sthāvara*) living beings. The inanimate includes the medium of motion (*dharmāstikāya*), the medium of rest (*adharmāstikāya*), space (*ākāśa*), time (*kāla*) and matter (*pudgala*). All these entities are eternal and therefore the universe is also eternal. While describing the order of the universe *Bhagavatī Sūtra* states [3, 1/310]:

- 1) The air (*vāyu*) rests on the space (*ākāśa*).
- 2) The water rests on the air.
- 3) The earth (*pṛthvī*) rests on the sea, water.
- 4) The mobile (*trasa*) and immobile (*sthāvara*) living beings (*jīva*) rest on the earth.

- 5) The non-living (especially karmic matter) is dependent on the living beings.
- 6) The embodied living beings are dependent upon the karmas.
- 7) The non-living (karmic and other matter) is accreted/attracted by the living beings.
- 8) The living beings are affected by the non-living.

Space, air, water, earth, living beings and karmas are the foundational substances of the Universal System. In the system, the embodied soul and karma have a support-supported relationship. The embodied soul provides support to the karmas earned. Other way round, it can also be said that karma provides support to the embodied soul [1, p.219]. It is because the embodied soul only attracts and converts subtle invisible karmic matter into karma and without karma the soul cannot be embodied. It is the karmic matter which is responsible for the embodied state of soul. So long as karma is attached the soul undergoes cycles of birth and death.

According to Jain philosophy, the universe is without beginning and without end. It was, is and will exist forever. As hen and egg both exist simultaneously, none of them is prior or posterior, so is the universe (and trans-universe). None of them is prior or posterior [3, 1/295]. The most accepted scientific view is entirely different and assumes that the universe was created in a great explosion termed 'Big Bang'. Science asserts that creation of matter, space and time is the creation of the universe. Thus, according to science, the universe which is embodiment of living beings and non-living is not beginning-less [4, p.119].

## 1.2 The Mundane Existence is Without Beginning

In Jain view-point the universe is eternal, and the total number of souls is constant and is infinite. Neither a single soul nor a single *paramanu* (indivisible unit of matter) destroys or originates. Also, animate never converts into inanimate and vice versa [5, 12/60]. A living being will always remain a living being and an inanimate matter will always remain so. The non-living entities especially *paramanus* are also infinite. The mundane living beings are infinite and so also is liberated souls. The mundane living beings are bound by karmas. Those souls which annihilate their karmas attain liberation (from mundane existence) and are called '*siddha*' [2,36/48]. Even after infinite number of living beings gets liberated, the universe never gets exhausted of living beings. This is because there are two sets of living beings: 1) *Vyavahāra rāśi* i.e. the living beings interacting with the practical world, and 2) *Avyavahāra rāśi* i.e. the living beings not interacting with the practical world.

The latter set comprises the subtle one-sensed living beings called *NityaNigoda*. *Nigoda* is a term peculiar to Jain vocabulary. Literally, it means a source and shelter of infinite number of living beings. *NityaNigoda* is an inexhaustible source of living beings. This is the reason why the universe will never gets exhausted of the living beings.

The *nigodas* are again of two types: gross and subtle. The *avyavahāra-rāśi-nigoda* are subtle. Whatever number of souls from *vyavahāra rāśi* attains liberation, an equal number of souls from the *avyavahāra rāśi* are transferred to *vyavahāra rāśi*. Thus, even if infinite number of souls attain liberation, the universe never gets exhausted of the living beings [6, p.6], because *avyavahāra-rāśi-nigodas* are infinitely infinite in number.

The subtle *nigodas* are very small in size (infinitesimal) and exist everywhere in the universe. Their number is infinite. All the *nigodas* are similar in many respects. There is no difference in their size, life-span, food, breathing etc. They take birth and die together as *nigoda* species at the same time [8,1/48/53-55]; such similarity is not found in any other living species. The life-span of these beings is very small. In a period of one human breath (inhalation and exhalation, about 10 seconds), they are born and die seventeen times. After remaining in the *nigoda* state for a very long time some of them enter the practical world, higher state, at a propitious time (*kāla-labधि*) [4, p.307].

### 1.3 Life in Modern Science

Biological sciences recognize birth and death of a living being, but assert that the living beings are created initially from inanimate matter and are reproduced from living beings thereafter. According to it the elementary life forms on the earth as single celled algae like species were formed, probably in the sea, about 4 billion years ago, by chemical reactions in an anoxic environment between ammonia, water, carbon di oxide and methane etc. due to some energy source by a process called abiogenesis, i.e. creation of animate beings from inanimate matter. Since then the living beings have been reproduced by living beings only. And it will continue so in the future. The fossil records indicate that the early life forms evolved around a billion years after the earth was formed, i.e. about 3.5 billion years ago. Prior to this there was no life on the earth. The earliest life forms were prokaryotes. In the process of evolution complex multi-cellular forms (eukaryote) were formed. About two billion years ago, the proportion of oxygen in the atmosphere increased and the atmosphere became oxidising and then came mobile beings i.e. moving in water, on the earth, and flying in the air. Then followed the mammals and lastly came the humans [7, p.3].

Evolution to human species took place about 5 million years ago in the form of Chimpanzee. In contrast, in view of Jain theory, living beings are reproduced from living beings only and never from inanimate matter [4, p.307].

#### 1.4 Abundance of Karmas

Every mundane living being is affected by eight types of karmas, e.g. 1) knowledge-obscuring (*jñānāvaraṇīya*), 2) perception-obscuring (*darśanāvaraṇīya*), 3) feeling-experiencing (*vedanīya*), 4) deluding (*mohanīya*), 5) life-span-determining (*āyusya*), 6) body-determining (*nāma*), 7) status-determining (*gotra*), 8) obstructing (*antarāya*) [8, p.284]. Out of these eight, the latter four karmas are regarded as destructive (*ghātī*): knowledge-obscuring, perception-obscuring, deluding, and obstructing, as these karmas destroy the intrinsic qualities of the soul. The intrinsic qualities of the soul are infinite knowledge (*anantajñāna*), infinite perception (*anantadarśana*), infinite bliss (*anantasukha*) and infinite energy (*anantavīrya*). When the destructive karmas are totally destroyed, the intrinsic qualities of the soul manifest in their full glory. The other four karmas, viz. feeling-experiencing, body-determining, status-determining and life-span-determining, are called non-destructive karmas. These are of two types – auspicious (*śubha*) and inauspicious (*aśubha*). Auspicious karmas bring about favourable experiences and inauspicious karmas unfavourable ones. Feeling-experiencing karmas are responsible for pleasure and pain to a living being and are called pleasure-bearing feeling (*sātāvedanīya*) and pain-bearing feeling (*asātāvedanīya*) karmas. Body-determining karmas are the cause of progress or adversity of a living being. It is also of two types – auspicious and inauspicious. The auspicious body-determining karmas endow a living being with loveliness, sweet talk, success and attractive personality. The inauspicious body-determining karma acts exactly in the opposite manner. The karma which determines the superiority or inferiority from the point of view of race, lineage, power, fame, pelf etc. is the status-determining karma. It is also of two types – auspicious and inauspicious. The karma responsible for life-time is called life-span determining karma. It too is of two types – auspicious and inauspicious [1, p.307-308].

The karma is very subtle and weird. In a human body, a large number of cells per second are created and destroyed. In other schools of philosophy in India, the karmic body is called *kārmaṇaśarīra* (literally, causal body) or subtle body (*sūkṣma śarīra*) because without karmic body the gross body of any living being cannot be formed.

In the body of all the living beings there is 'something' which does not perish with the gross body. According to Jain philosophy, the soul of a living being at the

time of death is not alone but is accompanied by the two subtle bodies: karmic (*kārmaṇa-śarīra*) and electric body (*taijas-śarīra*). Attempts have been made with some instruments to photograph soul leaving a gross body at the time of death. Scientists think that it is a photograph of the soul, but the soul being non-material cannot be photographed. Such a photograph may be of the subtle body [12]. It is through the medium of karmic body that the soul takes rebirth and forms a new gross body. It is related to the process of enculturation for several life spans in various species. According to genetic science, the basic reason for the size, type, enculturation etc. is the 'gene'. There are 30 000 types of genes in a human body. In each gene chain there are 2.5 billion pairs of nucleotide bases [11, p.53]. These are responsible for determining the personality of a person. According to the theory of karma, the basic reason of queerness of personality is the karmic body which shapes the gross body [12, p.50].

Thus, the basic reason of the birth and death, as also of personality, is karma, and the basic reason for bonding of the karma is attachment (*rāga*) and hatred (*dveṣa*) [2, 32/7]. It is because of the attachment and hatred that the soul binds itself by karmas. The karmas force the soul to wander in the four-fold mode of mundane existence (*samsāra*) and be born as different species.

## 2. Place of Birth (Yoni)

A living being can take birth in many places. The place of birth of a living being is called *yonī*. In other words, the place where the physical (*audārika*) body, or transformational (*vaikrīya*) body, combines with the fiery (*taijasa*) body and karmic body is called the *yonī*.

### 2.1 Types of Yoni

In Jain philosophy, the places of birth of living beings have been discussed from two points of views: i) types of species and ii) nature of birth places. Indian thought in general and Jain thought in particular recognizes 8,400,000 *yonis* [13, 84/14]. Out of these one-sensed beings of earth-bodied (*prthvikāyika*), water-bodied (*jalakāyika*), and air-bodied (*vāyukāyika*) beings possess 7,00,000 type of *yonis* each. The two-sensed to four-sensed beings have 200,000 types of *yonis* each. The living beings belonging to gods (*deva*), hellish beings (*nārakas*), and five-sensed animal species have 400,000 *yonis* each and the humans (*manuṣya*) have 1,400,000 types of *yonis*. The individual-bodied plants (*pratyeka vanaspati*) have 1,000,000 types of *yonis* and common-bodied plants (*sādhāraṇa vanaspati*) have 1,400,000 types of *yonis* as shown in Table 1.

In Jain philosophy, the number of basic species of total *yonis* is worked out as under [14]. If we remove three zeros from the number of a particular type of species and halve it, we get the number of basic species of that type. And to calculate all the combinations of them with 5 colors, 2 smells, 5 tastes, 8 touches, and 5 shapes we have to multiply the number of basic species arrived at by  $5 \times 2 \times 5 \times 8 \times 5 = 2000$ . For example, the number of species of earth-bodied is 700,000 then the number of basic species of this type is  $700/2 = 350$ . And the total number of this species is  $350 \times 2000 = 700,000$ . Similarly, the number of basic species of water-bodied, fire-bodied, and air-bodied living beings is 350 each; of individual-bodied and common-bodied beings 500 and 700 respectively; of 2,3,4-sensed beings is 100 each; of deities, 5-sensed animals and hellish beings is 200 each; and of human beings is 700. Thus, the total number of species of all living beings will be:  $(4 \times 350 + 500 + 700 + 3 \times 100 + 3 \times 200 + 700) \times 2000 = 8,400,000$ . In fact, the actual number of birth-places of living beings is innumerable but the number of species is estimated to be 8,400,000.

In Vedic tradition, *Viṣṇupurāna* mentions the number of species as 8,400,000 consisting of 2,000,000 of immobiles, 900,000 of aquatics, 900,000 tortoises (*kūrma*, may be amphibians), 1,000,000 birds, 3,000,000 animals, 400,000 apes. These total to 8,200,000 after which the living being enters the realm of human beings (8,200,000<sup>th</sup> birth) and in the 8,400,000<sup>th</sup> birth the living being enters the *brahma-yoni*. These *yonis* indicate different stages in evolution. We also come across the description of species in *Brahma Vaivarta Purāna* and *Padma Purāna* [15].

### 2.1.1 Nine Types of *Yonis*

In order to understand the nature of birth places there is mention of nine types of nature of the birth place structures in Jain philosophy. They are:

- 1) Animate (*sacitta*) – Worms are produced in the vagina of cow etc. and such vagina is called animate.
- 2) Inanimate (*acitta*) – When the birth place is free of any animate beings, it is called inanimate. Deities and hellish beings are said to have inanimate birth-places.
- 3) Mixed (*miśra*) – The birth place of the humans and animals, born off womb (*garbhaja*), is mixed since the life is conceived by union of semen of the male and ovum of the female in the vagina.
- 4) Cold (*śīta*) – The birth place of beings born in the first hell is cold.
- 5) Warm (*uṣṇa*) – The birth place in respect of fire-bodied beings is warm.

- 6) Mixed (*miśra* or *śitoṣṇa* - Cold-warm) – Deities, animals and humans born in womb have cold-warm birth places. The earth-bodied, water-bodied, air bodied, plant-bodied, 2, 3, 4 – sensed beings, and asexually-born (*sammūrchhim*) 5-sensed animals and humans have cold, warm, and cold-warm birth places.
- 7) Whirled (*saṃvṛtta*) –Birth places of deities, hellish beings and one-sensed beings is whirled.
- 8) Non-whirled (*vivṛtta*)– the birth place of 2,3,4-sensed beings (*vikalendriya*) and asexually-born 5-sensed animals and human beings is not whirled.
- 9) Mixed or *saṃvṛta-vivṛta* - whirled-cum-non-whirled– The 5-sensed animals and human beings born in womb have whirled as well as non-whirled birth places.

## 2.2 *Yoni and Kula*

A million species of insects and moths have been discovered by scientific studies. According to Jainism, there are 600,000 types of *yonis* of insects and moths which are two-sensed, three-sensed, and four-sensed beings. Scientists conjecture that there may be 8,000,000 and 9,000,000 species of insects and moths respectively [16, p.50-51]. Jain metaphysics recognizes that different types of beings which are termed as lineages (*kula*) can take birth in one type of *yonis*. Obviously, the number of lineages would outnumber the number of species. For example, dung is a type of species in which various lineages of worms, maggots, scorpions etc. can take birth. The total number of lineages in animal world is 15,750,000 [1, p.238].

**Table 1: The Number of *Yonis* and *Kulas* of various Types of Species**

Type	Species ( <i>Yonis</i> )	Lineages ( <i>Kulas</i> )
Earth-bodied	700,000	1,200,000
Water-bodied	700,000	700,000
Fire-bodied	700,000	700,000
Air-bodied	700,000	700,000
Plant-bodied	2,400,000	2,800,000
Two-sensed	200,000	700,000
Three-sensed	200,000	800,000

Cont.....

Type	Species (Yonis)	Lineages (Kulas)
Four-sensed	200,000	900,000
Five-sensed animal species	400,000	Aquatic 1,250,000 Aerial 1,200,000 Terrestrial 1,000,000 Breast-crawling reptiles 900,000 Arms-crawling reptiles 900,000
Human beings	1,400,000	1,200,000
Hellish beings	400,000	2,500,000
Deities (devas)	400,000	2,600,000

### 3. *Gati*: Four Realms of Existence or Forms of Life

The living beings can be divided into four categories, based on forms of life or realms of existence technically known as *gatis*. The four realms of existence are: 1) hellish beings (*naraka-gati*), 2) animal species (*tiryāṅca-gati*), 3) human beings (*manuṣya-gati*) and 4) deities (*deva-gati*). [18, p.2]. Contrary to the literal meaning of 'gati' which is moving i.e. moving from one place to other, here it means going or transferring from one realm to another after death.

#### 3.1 Hellish Beings

The author of *Cūrṇi* of the scripture *Uttarādhyayana* has interpreted 'naraka' (hell) as 'niyante tasmin pāpakarmāṇi iti narakāḥ/ na ramanti tasmin iti narakāḥ// i.e. the place where beings indulging in sinful acts are born is 'hell' (*naraka*); the place where beings are deprived of pleasures is 'hell'. [19, p.136]. Also, 'narakeṣu bhavāḥ narakāḥ', i.e. those born in the hell is called hellish beings (*nāraka*). According to *Dhavalā*, the commentary of *Ṣaṭkhaṇḍāgama*, the karmas responsible for realm of existence in hell arise due to always performing inauspicious deeds [20, 1/1.1.24/201/6]. The hells are situated in the nether world (*adho loka*) in seven tiers named *Ratnaprabhā*, *Śarkarāprabhā* etc. [21, 3/67]. There, the pain due to extreme heat and cold is agonizing. Besides, the hellish beings are subjected to extreme physical and mental torture [22, p.159]. The hellish beings start wailing and lamenting as soon as they are born in their pitcher-like abodes. Hearing their cries, the punisher (*paramādhārmika*) deities approach them and take the hellish beings out of

their abodes by cutting their bodies to pieces. However, as they have transformational (*vakraivika*) bodies, the pieces reunite to form the original bodies. They become quiver and panic by hearing the words and roars of the Satan-like deities as 'hit!', 'cut!', 'cut into pieces', 'burn!' etc. and are baffled as to where to run. Always wailing, they lead a very long life of great sorrow and pain. Not for even a moment they experience any comfort and peace. The '*naraka*' of Jain scriptures is presumed to be the same as '*pātālaloka* (netherworld)' of Hindu *Purānas*, 'hell' of Christianity, and '*dojakhā*' of Islam. According to common view of these religions, a living being lands in the hell and chastised there for sinful acts committed in the earlier life/lives.

### 3.1.1 Causes of Birth in Hell

According to Jain philosophy, a living being is born in the hell for several reasons, as shown in the Table-2 below. [15a, 4/628; 15b, 5/4].

<i>Thāṇam</i>	<i>Sāyagaḍo</i>
Intense actions by ill will	Cruel deeds
Meat-eating	Great violence
Killing living beings	Conduct without restraint
Intense greed for acquisition	Revel in inflow of inauspicious karmas

*Tattvārtha Sūtra* enlists two main reasons for being born in the hell – i) Intensive actions with ill will and malice, ii) Intense desire for acquisition (greed) [23, 6/15]. Moreover, carrying out activities involving high violence, seven types of addictions, and vicious thoughts at the time of death are responsible for bondage of karmas for going to hells and a specified life-span therein.

### 3.1.2 Types of Hellish Beings

According to Jain philosophy, there are seven types of hells: Ratnaprabha etc. in the lower part of the universe. The hellish beings are also of seven types depending on the first to seventh hell [13, 7/12-14].

### 3.1.3 Entry in the Realm of the Hellish Beings

It is natural to ask 'where the living beings come from and go to on death from the hell'? The Jain seers have answered these questions in detail in the text *Gatāgata* (Going and Coming) which is summarized as follows:

- a) Entry in the realm of hellish beings (*āgati*) – What type of living beings are born in the hells? As a rule, only living beings from the realms of humans and

animals can enter various hells and beings from the realms of deities (and hellish beings) cannot be born in the hells. The five-sensed beings without mental faculties (*asamjñī*) cannot go beyond the first hell, arms-crawling five-sensed beings- not beyond second hell, birds- not beyond third hell, lions etc.- not beyond fourth hell, serpents - not beyond fifth hell, a female human - not beyond sixth hell, and aquatic beings can go up to the last (seventh) hell [25, 380-381].

- i) Birth in the First Hell – Only human beings from 15 *karmabhūmis* i.e. lands of action, 5 types of five-sensed animals having mental faculties, and 5 types of five-sensed animals without mental faculties, i.e. a total of 25 types of fully developed (*paryāpta*) living beings, can be born in the first hell.
  - ii) Birth in the Second Hell – Only human beings from 15 *karmabhūmis* and 5 types of five-sensed animals with mental faculties, i.e. a total of 20 types of fully developed living beings can be born in the second hell.
  - iii) Birth in the Third Hell – Only human beings from 15 *karmabhūmis* and 4 types of five-sensed animals excluding fully developed arms-crawling ones, i.e. a total of 19 types of living beings can be born in the third hell.
  - iv) Birth in the Fourth Hell – Except the breast-crawling and aerial beings, the rest of 18 types of fully developed beings can be born in the fourth hell.
  - v) Birth in the Fifth Hell – Only human beings from 15 *karmabhūmis* and aquatic beings and breast-crawling beings with mental faculties, i.e. a total of 17 types of fully developed living beings can be born in the fifth hell.
  - vi) Birth in the Sixth Hell – Only human beings from 15 *karmabhūmis* and only aquatics among the five-sensed animals with mental faculties, i.e. a total of 16 types of fully developed living beings can be born in the sixth hell [25, p.380-381].
  - vii) Birth in the Seventh Hell – Only human beings from 15 *karmabhūmis* excluding females and only aquatics among the five-sensed animals with mental faculties, i.e. a total of 16 types of living beings can be born in the seventh hell.
- b) Exit from the Realm of Hellish Beings – As a general rule, after completing their life-span in the hell, the hellish beings are reborn as five-sensed animals with mental faculties (*samjñī*) or as human beings [25, p.380-381]. To be specific, the living beings of the first to sixth hell on death are reborn as

humans in the 15 lands of action, as developed and undeveloped aquatics among five-sensed animals with mental faculties [26, p.298]. In short, hellish beings, on death, can be reborn as humans or animals with mental faculties but not as deities or hellish beings. The hellish beings from seventh hell on death can be reborn as developed and undeveloped five-sensed animals with mental faculties. Thus, a being from seventh hell, on death, can never be reborn as a human.

### 3.2 Realm of Animal Species

*Tiryāṅca*, animals, are so called as they move in curved (*tiryaka*) path. It is also because the animal species are result of rise of animal-body-making karma. In the animal species there are one-sensed to five-sensed beings. The five-sensed beings are of two types – 1. *Sammūrchima*: those born asexually and 2. *Garbhaja*: those born of wombs. Both of these are again of two types: 1. *Samjñī*: Animals with mental faculties and 2. *Asamjñī*: Animals without mental faculties. [2, 36/170-171; 21, 1/34]. Excluding human beings and those born by emergence (*upapāta*), i.e. deities (born by emerging on a flower bed in the heavens) and hellish beings (born by emergence in pitcher-like abodes in the hells), all other living beings belong to the animal species. The animal species, except the one-sensed subtle beings, exist only in the middle universe.

#### 3.2.1 Reasons for being born in the realm of animals

The reasons are deceit (*māyā*), intense deceit (*guḍhamāyā*), untruthful speech, fraudulent weighing (*kūṭatola*), fraudulent measuring (*kūṭamāpa*) etc.

#### 3.2.2 Types of animal species

There are five types of animal species having one-sense to five-senses as follows:

##### 3.2.2.1 One-sensed living beings

There are 5 types of one-sense or immobile living beings – 1) earth-bodied, 2) water-bodied, 3) fire-bodied, 4) air-bodied and 5) plant-bodied.

- a) Earth-bodied (*prthvīkāya*) – The living beings having the hard earth as their body are called earth-bodied beings. Intrinsically, clay, rock salt, ores of gold, mica, silver etc. are earth-bodied living beings [28, 4/4]. The earth is regarded as animate (*sacitta*) before application of force by implements and tools. The earth-bodied beings are innumerable (*asaṅkhyā*). There are two main types of

- earth-bodied beings – 1) subtle (*sūkṣma*) and 2) gross (*bādara*). The subtle earth-bodied beings are so small that they cannot be seen with naked eyes. Gross earth-bodied living beings have gross structure. If the body of each of the earth-bodied beings of a clay-ball is magnified to the size of a gooseberry (*Āvalā*) fruit then they cannot be accommodated even in *Jambūdvīpa* which has a diameter of 100000 *yojana* [27, p.138].
- b) Water-bodied (*apkāya*) – The living beings having water as their bodies are called water-bodied immobile living beings, e.g. pure water, dew, snow, pond (water), mist, fog etc. are some examples of water-bodied beings [28, 4/5]. Such beings are innumerable. If each of such beings in a drop of water is magnified to the extent of a mustard seed, all of them could not be accommodated even in whole of *Jambudvīpa*. Without the intervention of any implement or tools, the water bodies are animate beings [27, p.138].
- c) Fire-bodied (*tejaskāya*) – The living beings with body of fire (or energy) are the fire-bodied beings [2, 36/109]. Ember, burning chaff, fire, radiation, flame, meteor, lightening etc. are examples of the fire-bodied beings [27, p.138]. Their number is innumerable. If each of fire-bodied beings in a spark is magnified to the size of a louse, then they would not be accommodated even in *Jambudvīpa*.
- d) Air-bodied (*vāyukāya*) – The living beings with the characteristics of moving air are called the air-bodied beings [2, 36/118]. Surging air (*utkalikā*), packets of air (*maṇḍalikā*), wind (*ghanavāyu*), reverberating wind (*guñjāvāyu*), storm (*saṃvartakavāyu*) etc. are examples of air-bodied beings [1, p.280-281]. If not intervened by implements or tools, the air is an animate thing. They are innumerable such that if each of the air-bodied beings occupying an area touched by one leaf of a *nīma* tree is magnified to the extent of a poppy seed, they would not be accommodated even in the whole of *Jambūdvīpa* [27, p.138].
- e) Plant-bodied (*vanaspati*) – The living beings with the vine-like bodies are called the plant-bodied beings [18, p.11]. There are two types of plant-bodied beings – individual-bodied (*pratyeka śarīra*) and common-bodied (*sādhāraṇa śarīra*). Individual-bodied is one where one plant has one soul only, e.g. trees like mango etc., vines like bitter gourd, cucumber etc., grasses like panicum (*dūba*) etc., green vegetables, lotus etc. [18, p.11]. In the individual-bodied plant, there is only one soul which creates the body. However, there can be innumerable living beings sheltered in its body. In common-bodied, there are infinite souls who create the body. In other words, common-bodied plant is one where one plant has infinite number of souls. All sorts of root vegetables

belong to the common-bodied plant beings. In this category, the living beings are infinitesimally small in size. Infinite living beings of this size can be accommodated on the tip of a needle. There are two examples to clarify how infinite souls can reside in a body: 1) As in some of medicinal concentrates even the medicine occupying the tip of a needle may contain the properties of hundred thousand different medical recipes, in the same way infinite souls can live in a body. 2) In the same way as fire enters into an iron ball, infinite souls enter a body. These examples reveal the minuteness of the common-bodied plant beings.

### 3.2.2.2 Types of birth of *vanaspati*

From the view point of birth (origin), plant-bodied beings can be divided in 8 classes [28, 4/8] :

1) Tip-seeded (*agrabīja*) – the tips of these plants serve as the seeds, e.g. yellow amaranth etc. 2) Root-seeded (*mūlabīja*) – the roots of these plants serve as the seeds, e.g. radish etc. 3) *Parvabīja* (node-seeded) – the knots of these plants serve as the seeds, e.g. sugarcane etc. 4) Branch-seeded (*skandhabīja*) – The branches of these plants serve as the seeds, e.g. *olibanum* (*śallakī*), eggplant (*kaṇṭakī*) etc. 5) Seeds only (*bījarūha*) – These plants sprout only from the seeds, e.g. wheat, rice etc. 6) Asexual (*sammūrcchim*) – These plants grow by themselves, e.g. fungus, moss etc. 7) Grasses (*trṇa*). 8) Vines (*latā*) – These are vines of *sampangi*, jasmine, watermelon etc. Without the intervention of tools, the plant-bodied beings behave like animate beings.

### 3.2.2.3 Two types of one-sensed beings

The five types of immobile beings are subtle as well as gross. The entire universe is full of the subtle beings; the gross beings occupy only part of the universe [2, 36/78]. As mentioned before, among the subtle ones, the plant-bodied living beings are also known as *nigoda*. The point worthy to note here in regard to the five one-sensed living beings is that earth (*prthvī*), water (*apa*), fire (*tejas*) and air (*vāyu*) – these type of life-clusters are an assemblage or group of living beings. A clod of mud, a drop of water, a spark of fire and a draft of air are compact collections of innumerable bodies of innumerable souls. Their bodies are of infinitesimal size. One cannot see their individual bodies. Their assemblages only are visible [37, p. 74]. Jain philosophy asserts that plants are sentient beings. Now, 2500 years after Bhagawān Mahāvīra propounded that plants are living beings; scientific studies have confirmed this fact and other schools of thought have recognized it.

According to scientific studies, single-cellular beings like bacteria and virus etc. occupy the earth, water, air, and inhabit the bodies of humans, animals, birds etc. These are invisibly small in size and their number doubles very fast. The biological sciences treat them in the class of plants. Jain concept of *nigoda* is parallel to this concept.

**Entry in and exit from the realm of earth-bodied, water-bodied and plant-bodied beings** – From what realm the living beings come to these realms and where do they go on death? Bhagawān Mahāvīra clarified that 101 types of human beings without mental faculties, 48 types of animal species, 30 types of developed and undeveloped human beings of 15 *karmabhūmis*, and 64 types of deities (10 mansion-dwelling deities, 15 satanic deities, 16 forest-dwelling deities, 10 demonic deities, 10 astral deities, celestial deities of first and second heaven, and first type of menial deity) on death can be born in the realm of earth/water/plant-bodied beings. On the other hand, earth/water/plant-bodied beings on death can be reborn in the realms of 101 types of human beings without mental faculties, 48 types of animal species, and 30 types of developed and undeveloped human beings of 15 *karmabhūmis*, i.e. in a total of 179 types of species.

**Entry in and exit from the realm of fire-bodied and air-bodied beings** – as narrated above, 179 types of living beings on death can be reborn in these realms (fire/air-bodied). On death from these realms (fire/air-bodied) the beings are born in 48 types of animal species.

### 3.2.2 Two-sensed beings

Beings having two sense organs of touch and taste are classified as two-sensed mobile beings. Their life-span is a minimum of an *antaramuhūrta* (period of two moments or one moment less than 48 minutes) and a maximum of 12 years [2, 36/132].

### 3.2.3 Three-sensed beings

These are living beings with three sense organs of touch, taste and smell. Their life-span ranges between a minimum of an *antaramuhūrta* and a maximum of 49 days [2, 36/141].

### 3.2.4 Four-sensed beings

These are beings having four sense organs of touch, taste, smell and vision. Flies, mosquitoes etc. are considered as four-sensed beings. Their life-span varies between a minimum of an *antaramuhūrta* and a maximum of 6 months [2, 36/151].

**Entry in and exit from the realm of two- to four-sensed (imperfect) living beings** – The mini-commentary *Gatāgata* discusses about the realms from which living beings enter the realm of imperfect-sensed living beings and to which realm these beings go after death. The beings taking birth in the realm of imperfect-sensed beings are – 101 types of human beings without mental faculties, 48 types of animal species, and developed and undeveloped beings of 15 *karmabhūmīs*, i.e. a total of 179 types of imperfect-sensed living beings. On death they can be reborn in the same realms [25, p. 382].

### 3.2.5 Five-sensed animal species

The five-sensed animals are of two types: 1) asexually born (*sammūrcchim*) and 2) born of womb (*garbhaja*). Each of these can be further divided in three classes [28,4/9]:

i) aquatic (*jalacara*) – those living in water, e.g. fish, crocodile etc., ii) aerial (*khecara*) – those flying in the air, e.g. birds etc., and iii) terrestrial (*sthalacara*) – living on land, e.g. cow, buffalo etc. [2, 36/170-171; 21, 1/34].

**Entry in and exit from five-sensed animal species** - Souls of five-sensed animals can come from all the four realms of existence, viz. deities, human beings, animals, and hellish beings; on death they may be born in any of the four realms [28, 4/9].

### 3.3 Realm of Existence as human beings

A human being is born in *manuṣya gati* and has the highest potential for (spiritual) development among all the living beings. Human beings are capable of thinking, contemplating and pursuing their goals.

#### 3.3.1 Reasons for being born in the realm of existence of human beings

1) Simplicity, 2) lack of envy, 3) kindness, and 4) modesty determine the birth as humans [15, 4/630]. From karma point of view, the destruction of karmas obstructing the realm of human beings and rise of karmas of human structure (*manuṣya ānuṣṭarvī*) are responsible for a soul to be born as a human.

#### 3.3.2 Types of Human Beings

Human beings are of two types – 1) asexually born, and 2) born off womb [2, 36/197].

- a) Asexually born – The asexually born human beings take birth in 14 places including excreta of human body such as urine, blood etc. Mind does not develop in this type of living beings and they are called *asamjñī* i.e. human beings without mental faculties [2, 36/195]. They have very short span of life less than one *antarmuhūrta*
- b) Born off womb – These human beings are born in womb. They possess mind and are called *samjñī* i.e. having mental faculties. They are divided into following three categories [2, 36/196]:
  - i) **Human beings on lands of action** – These human beings are so called as they are born in *karmabhūmis* i.e. lands of action. For their subsistence they undertake the profession of a warrior (*asi*), writer (*masi*), agriculturist (*kṛṣi*) etc. There are 15 *karmabhūmis* –regions of 5 *Bharata*, 5 *Airāvata*, and 5 *Mahāvideha*.
  - ii) **Human beings on lands of non-action** – These humans do not undertake the professions of agriculture etc. in *akarmabhūmis* i.e. lands of non-action. Their needs are fulfilled by the wish-granting trees (*kalpavṛkṣa*). Here humans are born as twins (one male and the other female). There are 30 *akarmabhūmis* – the regions of 5 *Haimavata*, 5 *Harīvaṛṣa*, 5 *Devakuru*, 5 *Uttarakuru*, 5 *Ramyakavaṛṣa*, and 5 *Hairāṇyavata*.
  - iii) **Island-dwelling human beings (*antardvīpaja manuṣya*)** – There are 56 islands in the *Lavaṇa* Sea. The humans born on these islands are called as island-dwelling human beings. They are of 28 types.

### 3.3.3 Entry in and exit from realm of human beings with mental faculty

According to the scripture *Thānam*, to take birth as a human being, the soul can come from any of the realms of hell, animal species, human beings and deities, and, after death, can take birth in any of these four realms [15, 4/615]. The detailed treatment of entry in and exit from the human realm is available in '*Gatāgata*'. The specific details are as follows:

- a) **Entry in the realm of human beings having mental faculty-** According to the text, a total of 276 types of living beings can be born in the realm of human beings with mental faculties. They are as follows: 101 types of human beings without mental faculties residing in the unholy places such as excreta, urine etc., 101 human beings with mental faculties (of 15 *karmabhūmis*, 30 *akarmabhūmis*, and 56 islands of *Lavaṇa* Sea), 30 types of human beings (15

types of human beings (of 15 *karmabhūmis*) x2 (developed and undeveloped), 48 types of animal species (2 (earth-bodied, water-bodied) x2 (fine, gross) x 2 (developed, undeveloped) = 8, 6 (fine (*sūkṣama*) plant-bodied –developed and undeveloped=2 + gross plant-bodied – individual-bodied, common-bodied – developed and undeveloped=4), 6 (2,3,4- sensed beings–developed and undeveloped), 20 (aquatics, terrestrial, breast-crawling, arms-crawling, aerial – with/without mental faculties – developed and non-developed), 6 types of fully developed hellish beings, 99 types of deities (10 mansion-dwelling (*bhavanapati*), 15 satanic (*paramādhārmika*), 16 forest-dwelling (*vānavyantara*), 10 demonic (*trijambhṛka*), 10 astral deities (*jyotiṣka*), 3 *kilviṣika* (menial celestial beings), 9 deities in higher heavens (*lokāntika*), 12 celestial (*vaimānika*), 9 *graiveyaka* (deities in heavens just above 12 celestial heavens of *vaimānikas*), 5 *anuttaras* (deities in the heaven just above *graiveyakas*)). Thus, a total of 276 types of living beings can be born in the realm of human beings with mental faculties [25,381-382].

- b) **Exit from the Realm of human beings with mental faculties** – There are 563 types of living beings in all the four realms of existences. Human beings with mental faculties, after death, can be born in anyone of these realms depending on his/her past life. Hence, in Jain view, the Evolution Theory does not work in all individual cases.
- c) **Entry in the realm of existence of human beings without mental faculties (*asaṃjñī*)** – Living beings lacking mental faculties is called *asaṃjñī*. The deities, hellish beings, fire-bodied beings and air bodied beings – fine and gross, developed and undeveloped (8 types), on death, cannot be born as human beings without mental faculties. 101 types of human beings without mental faculties, 48 types of beings from animal species excluding the 8 of fire-bodied and air-bodied ones, and humans of 15 lands of action – developed and undeveloped (i.e. 30 types), on death, can be born as human beings without mental faculties, i.e. a total of 171 types of beings can born as humans without mental faculties. [25, p. 380-381].
- d) **Exit from the realm of human beings without mental faculties (*asaṃjñī*):** Humans without mental faculties can be born in any of the above mentioned 179 types of human and animal beings.

### 3.4 Realm of Deities (*deva gati*)

‘*Divyanti nirupamakṛīḍāmanubhavantīti devāḥ*’, i.e. those who experience heavenly enjoyments are called *devas* (deities) [30, p.77]. Their bodies are formed of excellent fiery atoms.

### 3.4.1 Types of Deities

There are 4 types of deities – mansion-dwelling (*bhavanapati*), forest-dwelling (*vyantara*), astral (*jyotiṣka*), and celestial (*vaimānika*) [2, 36/204].

a) **Mansion-dwelling** – These deities are living in shelters on/in the earth and other earth like planets [31,p.702]. They are of 10 types – *asurakumāra* (demonic), *nāgakumāra* (serpent-like), etc.

b) **Forest-dwelling** – These deities have their abodes on hills, caves, gardens, forests etc. They are of 8 types: 1) *piśāca* (devil), 2) *bhūta* (ghost), 3) *yakṣa* (wish-granting demigod), 4) *rākṣasa* (demon), 5) *kinnara* (singing-dancing deities), 6) *kimpuruṣa* (horse-headed deities), 7) *mahoraga* (python-like demigod), 8) *gandharva* (musician deities) [2, 36/207].

c) **Astral** – The moving ships of these deities are luminescent [31, p.701]. They are of 5 types – moon (*candra*), sun (*sūrya*), planet (*graha*), asterism (*nakṣatra*), and star (*tārā*) [2, 36/208].

d) **Celestial** – The abodes of these deities are also like flying ships (*vimāna*) and hence they are called ‘*vaimānika*’ deities. They are of 2 types – heavenly (*kalpopanna*, born in the lower 12 heavens) and super-heavenly (*kalpātīta*, born in heavens situated above the 12 lower heavens) [2, 36/210-211].

**Deities born in Lower Heavens** – These deities are born in heaven where the system of *Indra* (Chief of deities) etc. prevails. They are of 12 types: those born in heaven named 1) *Saudharma*, 2) *Īśāna*, 3) *Sanatkumāra*, 4) *Māhendra*, 5) *Brahmaloka*, 6) *Lāntaka*, 7) *Mahāśukra*, 8) *Sahasrāra*, 9) *Ānata*, 10) *Prānata*, 11) *Āraṇa*, 12) *Acyuta* [2, 36/212].

**Deities born in Super Heavens** – These are the deities born in higher heavens above the 12<sup>th</sup> heaven of *Saudharma* etc. These are the heavens of *Graiveyaka* and *Anuttara*. The system in these heavens does not have the hierarchies like *Indra* (Chief of deities), servicing deities, counseling deities etc. i.e. all deities have similar powers. These deities are of 2 types: those belonging to *Graiveyakas* and those belonging to *Anuttaras* [2, 36/212].

**Deities of Graiveyakas** – The universe is supposed to be shaped like a person standing with arms stretched. These deities stay in flying ships situated at the location of neck (*grīvā*) and hence they are called *Graiveyakas* [31, p.702]. They are of 9 types, viz. 1) lower-lower, 2) lower-middle, 3) lower-upper, 4) middle-lower, 5)

middle-middle, 6) middle-upper, 7) upper-lower, 8) upper-middle, and 9) upper-upper according to the location of heaven [2, 36/213-215].

**Deities of *Anuttaras*** – As regards influence, pleasures, luster, disposition etc., these deities are regarded as the best (*anuttara*) and hence they are called so [31, p.702]. They are of five types – *Vijaya*, *Vaijayanta*, *Jayanta*, *Aparājita*, and *Sarvārthasiddhi* (for dwelling in ships of same names) [2, 36/215-216].

### 3.4.2 Causes to be born as Deities

The scripture *Thānam* and the commentary *Sukhabodha* of the scripture *Uttarādhyayana* narrate the causes for being born as deities. According to *Thānam*, the causes are – 1) restraint with attachment (*sarāga samyama*), i.e. the restraint observed by a monk with passions; 2) restraint- non-restraint, i.e. to observe the vows partially; 3) penances undertaken by heretic monks (*bālatapa*); 4) penances undertaken without the goal of emancipation (*akāma nirjarā*) etc. [15, 4/631]. Alternatively, the causes are stated as: i) observance of restraints and penances with attachment, ii) practicing mini-vows (*anuvrata*), iii) subduing of mind and senses, iv) attachment towards heretical penances.

Specific Causes for being born as demonic deities (*asura deva*): a) indulgence in heretical penances, b) intense anger, c) conceit over penances, and d) deep animosity.

Specific Causes for being born as forest-dwelling deities (*vyantara deva*): i) committing suicide by hanging oneself, ii) death by consuming poison, iii) death by fire, iv) death by drowning [35].

### 3.4.3 Entry in the Realm of Deities

The 10 types of mansion-dwelling deities, 15 types of punisher deities, 16 types of forest-dwelling deities, 10 types of demonic deities (i.e. a total of 51 types of deities) can come from only the realms of 101 types of human beings with mental faculties, 5 types of animals with mental faculties, and 5 types of fully developed five-sensed animals without mental faculties, i.e. a total of 111 types of living beings.

Living beings born as astral deities and celestial deities of first heaven: They come from only human beings from 15 *karmabhūmis*, twins of 30 *akarmabhūmis*, and 5 types of five-sensed animals with mental faculties, i.e. a total of 50 types of living beings [25II, p.381].

Living beings born as deities in the second heaven: They come from only the

realm of human beings from 15 *karmabhūmis*, 5 types of five-sensed animals with mental faculties, 20 types of twins from *akarmabhūmis* (excluding 5 types of *Haimavata* and 5 of *Hairanyavata*), i.e. a total of 40 types of living beings.

**Living Beings born as first type of Mental (*Kilviṣika*) Deities:** They can come only from the realm of human beings of 15 *karmabhūmis*, 5 types of five-sensed animals with mental faculties and 5 types of developed human beings from each of *Devakuru* and *Uttarakuru*, i.e. a total of 30 types.

Living beings born as second and third types of mental deities and as celestial deities from third to eighth heaven: these can come from only the realms of human beings of 15 *karmabhūmis* and 5 types of five-sensed animals with mental faculties, i.e. a total of 20 types.

Living beings born in the ninth heaven upwards up to *Sarvārthasiddhi*. They come from only the realm of humans from 15 *karmabhūmis* [25II, p.381-382].

#### **3.4.4 Exit from the Realm of Deities**

After exiting from the realm of deities due to death, the living beings cannot be born again as deities or as hellish beings. The mansion-dwelling, forest-dwelling, astral deities and deities of first and second heavens, on death, can be born only as human beings on 15 *karmabhūmis* or as 5 types of five-sensed animals with mental faculties or as earth-bodied, water-bodied and plant-bodied beings. The deities from third to eighth heaven on death can be born only as human beings on 15 *karmabhūmis* or as 5 types of five-sensed animals with mental faculties. The deities of ninth heaven onwards up to the *Sarvārthasiddhi* can be born only as human beings on 15 *karmabhūmis* [14, p.53].

## **4.0 Pregnancy**

The end point of life is death and the starting point is birth. *Bhagavatī Sūtra* describes in detail the growth of a fetus in the mother's womb in respect of its time duration, development, sense organs, respiration etc. Indrabhūti Gautama, the Chief disciple (*Ganadhara*), asks Mahāvīra many questions related to pregnancy. For example, Gautama asks whether the soul entering a new realm (birth) does so with or without predetermined life-span. Mahāvīra replies that every being starts a new life with predetermined life-span and not without predetermined life-span. This is because a being's life span is determined by the karmas in the previous life [3, 5/59-60]. A question about formation of sense organs in the womb was resolved by Mahāvīra by stating that, from 'substance' point of view, such living being is without physical senses but from 'essence' point of view it possesses sense organs [3, 1/340-341].

When questioned about body, Mahāvīra explains – from the point of view of gross body- soul (*jīva*) is without a body and from the view-point of subtle body the soul possesses a body [3, 1/342-343]. This implies that physical body is not formed merely by combination of five basic elements (*pañcamahābhūta*) but the previously bonded karmas are instrumental in the formation of the body. *Vātsāyana*, in his commentary on *Nyāyasūtra*, while enlisting the contemporary theories, supports the theory of karmas being instrumental for the formation of the body. He declared that formation of body and incidences of sorrows and pleasures without interplay of karmas is a misbelief [32, 3/2/59, 60, 72]. The processes of birth and death have not been studied in depth by medical science in the modern times and combination of the semen of father and ovum of mother is taken as a cause of conception and formation of the body, and mind is formed later [7, p.106].

What sort of diet is consumed by a baby in the womb? What sustains the current life? In this respect Mahāvīra states that "When the soul discards the old body and enters the new womb, it first sustains itself on the diet of mixture of ovum of the mother and semen of the father [3, 1/344]. Diet is of three types – 1) for vigour (*oja*), 2) by thistledown or hair (*roma*), 3) by morsel (*kavala*) or by mouth intake (*prakṣepa*) [6, p.89]. During the first few moments of birth, the matter particles suitable for the formation of the physical body (like sperm and ovum) are absorbed. This is the vigour intake. Intake by skin pores is absorption of oxygen, air etc. and this takes place throughout the life. Thirdly, morsel (intake) diet includes all sorts of foods and drinks. The fetus in the womb does not take this diet but depends on the diet of the mother. The respiration of the fetus too depends on the mother's [3, 1/345-349]. According to Indian Medicinal system of *Āyurveda*, the oxygen and nourishing diet of the mother is transferred to the fetus through the placenta. Similarly, carbon-di-oxide, urine etc. are thrown out using the medium of the mother.

#### 4.1 Life of Fetus and Number of Living Beings in Womb

According to some Jain texts, the minimum life of fetus is *antaramuhūrta* (little less than 48 minutes) and the maximum is 8 years [3, 2/83]. In case of human beings such gestation period is a minimum of an *antaramuhūrta* and a maximum of 24 years. [3, 2/84]. If a being takes birth after staying in the womb for 12 years, it dies immediately and enters the previous body in the womb and stays there for another 12 years. For this reason the maximum life-span in the womb for human beings is 24 years. In the womb of a woman one, two up to 9,00,000 living beings can be conceived, but all of them do not develop fully and most of them die prematurely [3, 2/88].

## 4.2 Process of Body Formation in the Womb

Jainism regards that a living being in the womb assimilates the food it receives and from that matter builds its body. On death the living being discards the body which becomes life-less. According to science a life is created by unification of the semen of a male and ovum of a female. And, at the time of death various parts of the body stop working and all the processes in the body come to a stop. This is clinically termed as death [4, p.308].

In spite of some similarities in Jain and scientific views, there is a major disagreement in the concepts of birth and death. Jain view is that a soul enters the womb at the conception stage and it exits from the body upon death. The enculturation of previous births stays as records in the *kārmic* body which is carried forward with the soul and is responsible for formation of new physical body. Science describes this process in a rather different manner; the cells in the semen and ovum carry parental characteristics and help form the physical body. One can probably compare *kārmic* body of Jainism as 'form producing code' of the soul that enters the womb at the time of impregnation [4, p.308].

A living being takes birth and ultimately meets its death, but the death does not obliterate its existence. Death takes place at some place and is followed by birth at another place. The cycle of births and deaths is continuing from time immemorial and will continue till liberation of the soul from the karmas. According to Jainism, the body is perishable but this mortal body carries an entity soul, which is ever young, immortal and imperishable. Bound by karmas, it assumes different forms. This process of assuming a new body and discarding the old body by the soul is what one understands as birth and death respectively [4, p.277]. There are some agreements and some differences between Jain theory and scientific models of conception, birth and death.

## 5.0 Duration of Life

In Jain philosophy, duration of life has been discussed in the following two ways:

- a) **Duration of Life in a Realm (*bhavasthiti*)** – The duration for which a being lives in a particular realm (species) uninterrupted is called *bhavasthiti* or life-span [31, p.690].
- b) **Duration of Life in a Body (*kāyasthiti*)** – This is the total duration of being born repeatedly in the same realm continuously [31, p.690].

Life-span and duration of living beings: Briefly, the deities and hellish beings after death are not reborn within the same realm of existence. In these cases the life-span in a particular realm and the life duration of body are the same. The two/three/four-sensed beings can take birth repeatedly within their realm (animal) for thousands of years. The five-sensed human beings and animals can take birth in their own realms repeatedly seven or eight times. The five-sensed animals have the duration of their bodies for a minimum of an *antaramuhūrta* and a maximum of three *palyopamas* plus 2 to 9 *pūrvakoṭi*. The earth/water/fire/air-bodied beings can be born again and again in their class for innumerable number of ascending and descending time cycles (*utsarpiṇīs* and *avasarpiṇīs*) [2, p.187]. The life-span and duration of the living beings are discussed in detail in the text *Gatāgata* as follows:

Life-span of the hellish being: The life-span and duration of a hellish being is a minimum of 10,000 years and a maximum of 33 *sāgaropamas* (an innumerable large quantity of measure of time analogous with the vastness of oceans). This time scale is also used on earth. Duration of body (*kāyasthiti*) of a hellish being is the same as its life-span (*bhavasthiti*).

Life-span of the earth-bodied being is a minimum of an *antaramuhūrta* and maximum of 22000 years [2, 36/80]. Duration in the body of the earth-bodied being ranges between a minimum of an *antaramuhūrta* to a maximum of innumerable *samaya*.

Life-span of the water-bodied being is a minimum of an *antaramuhūrta* and a maximum of 7000 years [2, 36/88]. Duration in the body of the water-bodied being ranges between a minimum of one *antaramuhūrta* and a maximum of innumerable *samaya* [2, 36/89].

Life-span of the fire-bodied being is a minimum of one *antaramuhūrta* and a maximum of 3 day-nights [2, 36/113]. Duration in the body of the fire-bodied being is a minimum of *antaramuhūrta* and a maximum of innumerable *samaya*. [2, 36/114].

Life-span of air-bodied being varies between a minimum of one *antaramuhūrta* and a maximum of 3000 years [2, 36/123]. Duration in the body of the air-bodied being is a minimum of one *antaramuhūrta* and a maximum of innumerable *samaya* [2, 36/123].

Life-span of an aquatic being is a minimum of one *antaramuhūrta* and a maximum of one *pūrvakoṭi* (= 705,600,000,000,000,000,000 years i.e.  $7.056 \times 10^{20}$  years) [2, 36/175]. Duration in the body of the aquatic being is a minimum of one *antaramuhūrta* and a maximum of 2 to 9 *pūrvakoṭis* [2, 36/176].

Life-span of a terrestrial being is a minimum of one *antaramuhūrta* and a maximum of 3 *palyopama* (a large measure of time determined by analogy with a pit filled with pieces of hairs).

Duration in the body of the terrestrial being is minimum of an *antaramuhūrta* and a maximum of 2 to 9 crore (*koṭi*) plus 3 *palyopama* [2, 36/184-185].

Life-span of an avian being is minimum of one *antaramuhūrta* and maximum of innumerable-th part of a *palyopama*. Duration in the body of the avian being is a minimum of an *antaramuhūrta* and a maximum of 2 to 9 crore (*koṭi*) plus innumerable-th part of a *palyopama*.

Life-span of the plant-bodied being is a minimum of one *antaramuhūrta* and a maximum of 10000 years [2, 36/102]. Duration in the body of the plant-bodied being ranges between a minimum of one *antaramuhūrta* and infinite time.

## 6.0 Process of Creation (Birth)

The process of birth is not the same in different types of living beings. The process of birth of a human baby is different from that of a plant. The human baby is born from the womb of the mother, while a plant is born from the earth.

### 6.1 Types of Birth

From the view-point of process, birth is of 3 types: 1) asexual (*sammūrcchana*), 2) from the womb (*garbhaja*) and 3) emergence (*upapāta*) [34].

**a) Asexual** – When the place of birth is not identified and the birth is not from the womb, it is called an asexual birth. Living beings with one to four sense organs are said to be asexually born. The living beings i.e. five-sensed human beings and animals without mental faculties born in 14 places like excreta, urine, phlegm etc. are also of asexual birth.

**b) From the Womb** – Those born by combination of semen of a male and ovum of a female are said to be born from the womb. Such process of birth is of 3 types – 1) oviparous (*aṇḍaja*), 2) from womb but without placenta (*potaja*) and 3) viviparous (*jarāyujā*).c) Emergence (*upapāta*) – Those who ‘emerge’ in bed-like places are said to take birth by emergence. The deities and hellish beings take birth in this manner. The hellish beings are born in very hard stone-like beds in holes with small opening. The deities are born on flower beds.

## 6.2 Eight Types of Birth Processes

Two-sensed to five-sensed mobile living beings are divided into eight categories depending on their types of birth [28, 4/9]:

- 1) **Oviparous** (*aṇḍaja*), the living beings born from egg, e.g. birds etc.
- 2) **From womb but without placenta** (*potaja*), e.g. elephant etc.
- 3) **Viviparous** (*jarāyuja*), those covered in a membrane at the time of birth, e.g. cows, human beings etc.
- 4) **Bred in fluids** (*rasaja*), such as worms born in curd etc.
- 5) **Born in sweat** (*svedaja*), e.g. louse, nit etc.
- 6) **Asexual** (*sammūcchim*), i.e. those born without copulation of a male and female, e.g. fly, ant etc.
- 7) **Born from earth** (*udbhijja*), insects born by coming out of the earth, e.g. locust (*ṭīḍḍī*) etc.
- 8) **Emergent** (*aupapātika*), living beings born not from womb but in certain specific places, e.g. deities and hellish beings.

The one to five-sensed living beings without mental faculties are sexless as a rule. Deities are never sexless. The five-sensed human beings and animals with mental faculties may be of both sexes (male or female) or sexless.

## 6.3 Procreation in Science

Procreation is a process by which the human beings, animals and plants propagate their own species. Such propagation is of 2 types – vaginal and non-vaginal [16, 63-64].

**a) Vaginal (*yonija*) procreation** – This occurs by copulation of a male and a female. The birth occurs due to fertilization of mixing of semen of the male and ovum (blood) of the female.

**b) Non-vaginal (*ayonija*) procreation** – This type of procreation occurs by process of division of body by the being itself or by some external agency. There is no need of a male and a female for this type of procreation. Human beings and animals procreate by vaginal procreation. The lower order living beings and plants adopt the method of non-vaginal procreation.

Jainism considers vaginal procreation through womb as sexual (*garbhaja*) and non-vaginal procreation as asexual (*smmurchima*). As regards human beings and some animals, there is agreement in Jain theory and modern science. However, science does not recognize procreation process found in deities and hellish beings.

## 7.0 Motion in Transmigration State (*Antarāla gati*)

How the soul moves after death and reaches its new destination, i.e. the next birth-place? For going from one realm to another, a soul moves in two ways – straight line motion (*rju gati*) or curved motion (*vakra gati*), as given in *Bhagavāi* [3, 2/82,83,88].

When the body dies, the soul leaves it and goes in a straight line like an arrow to its next destination. This straight motion takes only one *samaya* to complete the journey. A curved motion, having bends and turns, slows down the motion of the soul and it may take longer to reach the new destination. The duration of the journey in this case is a minimum of 2 *samayas* (one bend) and a maximum of 4 *samayas* (three bends). The liberated soul travels in straight line only. It does not take in any energy on the way so it remains *anāhāraka*. But the worldly soul, travelling in a straight line absorbs energy on the way and is called *āhāraka*. In the zigzag motion in straight lines of 2 *samayas* (with one turn), it does not absorb energy in the first *samaya* but absorbs it in the second *samaya*. In the straight line-zigzag motion for 3 *samayas* (with 2 turns) it absorbs energy in the third *samaya* and in zigzag straight line motion for 4 *samayas* (with 3 turns), it absorbs energy in the first and fourth *samayas* and not in the rest of the *samayas*. The cause of the straight or curved motion is the place of next birth. If the same is collinear with the place of death then the motion is in straight line. If it is not collinear, then the motion is straight but with turns [18, p.6].

## 8.0 Conclusion

Jain philosophy regards the existence of living beings as eternal. Thus, the life has not originated at some particular time during evolution of the universe but has been ever present. With suitable karmic conditions and at appropriate time different species of living beings emerge. The most elementary form of a living being is *nigoda*. The process of evolutionary development begins with the exit of the *jiva* from the realm of *nigoda*. The development of soul is possible only with transformation of the subtle *nigoda* to gross *nigoda*. This can happen under proper conditions at an appropriate time (*kāla-labdhi*). Karmas are responsible for taking the soul to the higher developed level or lower, to less developed level from higher level. The five governing factors for development of soul are time (*kāla*), intrinsic nature (*svabhāva*), karma, human efforts (*puruṣārtha*) and rules (*niyatī*).

The karma is the governing principle for birth and death. As long as soul binds karmas, one has to live for going through the consequences of karmas. There is an essential connection between birth and death. The birth necessarily follows death and vice versa. What is understood by birth? What are the causes of birth? How and where and in what form the birth can take place? This and other questions have been discussed in this article on the basis of Jain scriptures. A separate article will be needed for treatment of death.

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## Glossary

1. **Antaramuhūrta**: All the ranges of time in between second moment (*samaya*) to one moment less than 48 minutes are called *antarmuhūrta*.
2. **Sammūrcchima or Asexually born**: The living beings who take birth anywhere or everywhere when they get conducive environment are called Asexual. In other words, when the place of birth is not identified and the birth is not from the womb, it is called an asexual birth.
3. **Āhāraka**: The stuff required to start new life in the very first moment of birth is technically called *oja āhāra* or *āhāra* i.e. food and one who takes the *āhāra* is called *āhāraka*. The liberated soul does not need such *āhāra* because it does not take birth after liberation so it is always *anāhāraka*.

4. ***Karmabhūmi***: The human beings of *karmabhūmis* are those who undertake the profession of a warrior (*asi*), writer (*masi*), agriculturist (*kr̥ṣi*) etc. for their subsistence. There are 15 such lands in human sphere of the universe according to the Jain scriptures.
5. ***Akarmabhūmi***: The human beings of *karmabhūmis* do not need to undertake the profession of a warrior (*asi*), writer (*masi*), agriculturist (*kr̥ṣi*) etc. for their subsistence. Their life is completely dependent on some specific trees known as *Kalpavṛkṣa*. There are 30 such lands in human sphere of the universe according to the Jain scriptures.