*Anekāntavāda* in the Context of Quantum Physics

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**Abstract**

*Anekāntavāda,* a unique doctrine of Jain philosophy, is fundamental to understanding the real nature of the universe and consists of *nayavāda, anekāntavada, syādvāda,* and *saptabhangi.* Whereas *nayavāda* and *anekāntavada* describe the real nature of the observer (knower) and objects (knowables), *syādvāda* describes the limits of knowledge itself, and *saptabhangi* provides logical solutions to many practical problems including  those related to personal relationships. I show that many of these features are similar to the quantum mechanical behavior of atomic and subatomic particles and is applicable to  conscious entities as well. *Anekāntavāda* is thus not only a philosophical concept applicable to individuals, family, society, national and international affairs, and inter- and intra-species relationships and is useful in leading to a conflict-free world but it also describes the true, fundamental nature of the basic substances, both *jīva* and nana, in the universe.

*Anekāntavāda* is a unique and unparalleled doctrine of Jain *dārśan* for understanding the true nature of the “Reals,” the basic constituents of the universe. It is the only doctrine that can never be contradicted or disproved: it is valid forever, under all circumstances, because if evidence to refute it is produced, then that argument automatically becomes a part of this doctrine. No other doctrine in any other philosophy has this all-inclusiveness, in which contrarian views are also a part of the whole. In scientific theory, a doctrine or law is valid only until evidence falsifies it, and then the law is either discarded or modified. This is not true of *Anekāntavād,* because contrarian evidence makes it more complete and wholesome. We discuss this aspect later, but first I define the doctrine of *Anekāntavāda*.

*Anekāntavāda* has been colloquially used as an umbrella term to represent four doctrines: *anekāntavāda, nayavāda, syādvāda,* and *saptabhangi*; it has been discussed by many scholars (e.g., Bhandari and Pokharna 2017; Mahaprajna 2010; Matilal 1981; Mookerjee 1994; Samani Shashi Prajna 2014). These four doctrines can be translated, respectively, as multiplicity of modes of all substances, multiplicity of truths, multiplicity of perspectives, and seven modes of existence. In this paper I discuss them one by one and then integrate them to understand the “true” nature of the universe. Let me first introduce two other concepts unique to Jainism.

**Three Classes of Substances in the Universe**

From the point of view of knowledge (*nana*), all the constituents of the universe, according to Jain philosophy, can be classified into three groups, as shown schematically in Fig. 1: the subject or the knower (*jnāyak*); the object to be known, which we may call “knowable” (*jneya*); and knowledge (*nana*), which connects the knower and the knowables. Every living being is a knower and a knower only, nothing more. For every individual “self,” all other objects of the universe and other living beings are knowables. When one wants to know his own “self,” the knower and the knowable become one, and the three—knower, knowable, and knowledge—merge into each other and become knowledge (*nana*). The duality of knower and knowable dissolves, which is the concept of monism or nonduality in the Jain philosophy; ultimately *nana* is the only “Real” in the whole universe.



Fig. 1. The interaction between the knower (*jnātā*) and the object (*jneya*) via the exchange of knowledge (*jnāna*) indicates that any observation modifies both the knower and the object. Further, *nayavāda* (multiplicity of views) applicable to the knower (*jnāyak*); *anekāntavada* (multiplicity of modes) applicable to the object of knowing (*jneya*); and the absence of absolute, unique knowledge (*jnāna*), as enunciated by *syādvāda*, which connects the knower and the knowable, make it impossible to define their “state” precisely at any instant.

**Limits of Knowledge**

Another Jain concept that is relevant here is the limits of the knowledge that can be obtained using sensory organs, the brain, and the mind. They are all imperfect organs and update themselves continuously as they get exposed to more objects or situations and collect their knowledge. Thus, at no stage can they obtain perfection, because they can never know everything and become absolutely perfect. One can gain perfect knowledge without the mediation of these imperfect body organs. That is the knowledge obtained by the *ātmā* directly (*pratyakṣa jnāna*), because only *ātmā* is always perfect and possesses the faculty of omniscience. This faculty can be developed by certain practices under certain conditions. That is what Jainism is all about.

Thus, there is a basic difference between knowledge obtained by sensory organs even when they are augmented by sensitive instruments. Scientific knowledge is based on the assumption that total knowledge has two components: known and unknown. As an object is studied, the unknown is converted into known, and at some point in time, nothing remains unknown and everything becomes known, as shown by the linear graph in Fig. 2.



Fig. 2. The linear field of knowledge (*left*) used in scientific logic is defined by known and unknown as the two extreme ends. As knowledge increases, unknown becomes known, and eventually everything becomes known. The Jain triangular field (right), additionally postulating something unknowable (*avyakytavya*) is represented by the Hindi alphabet अ in red or as indescribable (reproduced from Bhandari 2018).

Jain philosophy, in comparison, is based on a three-component model: known, unknown, and unknowable by sensory organs. The unknowable can be known by *ātmā* but remains indescribable. The concept of unknowable, indescribable, or indeterminant (such as experiences), shown by a triangle on the right side of Fig. 2, is a basic Jain concept and is discussed later in the context of *saptabhangi*. The incompleteness of knowledge echoes Gödel’s (1931) incompleteness theorems.

Another limit to our sensory knowledge comes from the fact that we are located within the universe, cannot see it from the outside, and cannot know the whole of it. Furthermore, even from the inside, we can see only a limited part, which depends on the age of the universe (13.8 billion years) and the velocity of light (~3x108 m/sec); that is, 46.5 billion light-years or 8.8 x 1023 km. With this limited view, how can we know everything (see Bhandari 2021)?

**Historical Perspective**

All Tīrthaṅkaras emphasized the importance of understanding the true nature of substances (including the self) without which one continues to live in a make-believe world of false notions; for this purpose they developed the science of distinction (*bhedvigyan or vibhājyavāda*), between “self” and other entities of the universe. This has been discussed as *asti-nāstipravāda*, literally meaning the discussion of existence and nonexistence. Bhagavān Mahāvira introduced the concept of *syādvāda* while instructing his disciples thus, “Now that you have taken an oath to speak only the truth, always qualify every statement with ‘*Syāt*’ lest it becomes untruth (or incomplete truth)” (*Sutrakrutāng* 1.14.22). These concepts were explained by Āchārya Bhadrabāhu (433–357 BCE) and elaborated further by Siddhasen Divākara around 500 CE. Sāmantbhadra (ca. 600 CE) gives a full exposition of *saptabhangi naya* in his treatise *Aptamimāmsa. Anekāntavāda* is a term introduced much later and further explained by Mallisena (1292 CE) in his treatise *Syādvādamanjari* and by Vimal Dāsa in *Saptabhangitarangini.*

These Jain doctrines continued to provide the foundation of Indian logic until the medieval period, whereafter Jainism was isolated and these concepts were all but forgotten. During the past century, several scholars have made attempts to revive them, especially Dr. J. B. S. Haldane (1957), P. C. Mahalanobis (1957), and D. S. Kothari (1985) in the light of quantum physics and statistics. G. N. Ramachandran, in a series of papers (1980, 1983) tried to develop logic based on *sapatbhangi naya* and showed that it can be reduced to binary logic, normally used in computers, under certain conditions. Fuzzy logic and quantum computers with probabilistic solutions have now been introduced (see, e.g., Bhandari and Pokharna 2017). Recently Mardia and Ruda (2021) addressed their importance in terms of statistics and logic. I now elaborate on these doctrines in the context of quantum physics.

**Jain Doctrines**

*Anekāntavāda* - *Anantdharmitā*

The doctrine of *Anekāntavāda* relates to every object in the universe and is based on the concept that everything in the universe is made of two components: one is its essence (E), which is eternal, permanent, indestructible, and never changing, and the other is *anant dharmitā*:its mode (M), which is ephemeral, transient, and ever changing. All modes coexist in the substance but manifest sequentially. Anything Y can thus be represented as Y = E + M(t), where t = time. Since the mode is changing every moment (*samaya*), it is not possible to determine M and hence Y. Therefore, nothing is absolutely knowable for all times; everything is in flux, as Buddhism propounds (*kshanikvād*), and has only instantaneous validity. *Anekāntavāda* has been translated as multiplicity of modes, pluralism, multi-foldedness, multi-facetedness, multi-layeredness, multi-sidedness, nonabsolutism or relativism (Mookerji 1994), and co-existentialism; in quantum physics it is called “complementarity.” Complementarity was introduced by Niels Bohr, a foundational thinker in quantum physics, to accommodate particle and wave qualities of elementary particles (e.g. photons, electrons, etc.) that have seemingly opposite natures, because a particle cannot be a wave, and vice versa. Both these qualities coexist in the substance and together reflect its true nature more completely. Bohr explained it by the Chinese concept of yin and yang, the two fishes that are opposite in all respects (color, direction etc.). In a way, *Anekāntavāda* goes much beyond complementarity: it postulates not just two opposites but also a spectrum of infinite modes.

Ācharya Amritchandra (ca. tenth century) defined *Anekāntavāda*, thus: “Any real object in the world is existent and nonexistent, one and many, eternal and non-eternal, describable and indescribable, neither this nor that, but both i.e., this as well as that, in terms of its nature (*svabhāv*), time (*kāl*), space (*kshetra*) it occupies and material (*dravya*) it is made of.” This doctrine is applicable to *jneya*, the knowables or all objects of the universe. Since the self is a knower and its *jnāna* changes all the time or when the self becomes an object of investigation, it is applicable to the self too.

*Nayavāda*

*Nayavāda*can be defined as perspectivism or the theory of viewpoints. It is applicable to the observer, just as *Anekāntavāda* is applicable to the object of study. An observer always views an object with a particular perspective, and this perspective-dependent view is partial and incomplete. This can best be illustrated by the parable of an elephant and six blind men. Unable to see the whole elephant, each blind man, as he felt its leg, stomach, trunk, tail, ears, and tusk described the elephant as a pillar, branch of a tree, rope, hand fan, wall, and solid pipe, respectively. It can also be expressed as the following poem:

And these six stubborn men,

Not able to see the whole, touching whatever part they can,

Sensed elephant’s different parts for long

And formed their opinion, unyielding, and strong,

Although each was partly right,

Alas!! all were completely wrong.

*Nayavāda* has been called the multi-perspective view, perspectivism, or contextuality. Every view is partial, and integrating various views makes the knowledge of an object more complete. Since it is impossible to get all possible views because there may be an infinite number of them, only a universal observer (omniscient) can get a complete, total, and perfect view of an object.

This doctrine is excellently illustrated by placing mirrors everywhere—in a hallway, on the floor, roof, and walls—at various angles and placing Buddha’s statue in the middle; this was done by a Buddhist monk when asked by the Chinese emperor to explain the essence of Buddhism in a simple way. Multiple reflections gave different but partial views of the Buddha (representing the Truth). We all have partial views of the Truth, and to arrive at the complete truth, we have to integrate all the views. This is essentially *Nayavāda*.

Perspectivism represents the frame of mind of the observer. A similarity can be found with the Special Theory of Relativity in which the motion parameters (velocity, acceleration, etc.) of a body depend on the inertial frame of the observer. In the case of *Nayavāda*, the inertial frame of reference is replaced by the mental frame of reference.

Having discussed the conditional constraints imposed by the transient nature of the object and the partial view point of the observer, which leads to incomplete knowledge, we now turn to the more fundamental aspect—knowledge itself—that connects the observer and the observed and imposes further constraints. In science, all information can be synthesised into knowledge but in Jain philosophy, the knowledge  is classified in  two types*: nana  and anana,* what can be termed as “knowledge”  and “igknowledge,” depending on whether it  is useful in one’s betterment or is useless*.*

*Syādvāda*

*Syādvāda* states that there is not “one Truth” and can therefore be called the Jain doctrine of non-absolutism. We can also understand this doctrine as the multiplicity of truths. I can do no better than quote Ācharya Amritchandra again who defined *syādvāda* thus: “The one which denies the existence of a single law to arrive at the true nature of a substance or a phenomenon, is called *‘syāt’* and this law is the only law which is infallible. It establishes the relativity (or relative existence) of a Real (substance).”

It must be emphasized that *syāt* does not imply doubt, indecision, confusion, or uncertainty, but this is how the knowledge is, and it is the only statement that can be made with certainty. There is no one or unique way of arriving at a particular conclusion, nor there is there only one ultimate conclusion that is correct. *Syādvād* thus implies a “conditional description” of a substance.

*Saptabhangi**or Septarian Logic*

The three doctrines of *Anekāntavāda, nayavāda*, and *syādvāda* point out that not only can an object acquire infinite forms or modes—depending on its nature, time, place, and association etc.—and the observer can have innumerable ways of looking at an object, each one of which may be partly correct but none complete, but even the knowledge or the truth is not unique. These conditional descriptions lead to an existential dilemma and to the concept of a seven- fold solution to existence or *saptabhangi*, what I call “septa-view existence.”

A thing may exist or may be nonexistent, may be both or none, and may also be in a state that cannot be described or even determined or a combination thereof. Such seven solutions provide all the possibilities of existence.

**Applications of *Anekāntavāda***

These doctrines operate  only under certain conditions. First, *Anekāntavāda* and *syādvāda* cannot be stretched to include falsehood. That a wall is black or white cannot be a matter of differing opinions. Facts are facts and are not matters of opinions or doctrines. Thus, false statements must first be filtered out by logic or observations before any of these doctrines can be applied to get a solution. Second, *Anekāntavāda, syādvāda*, and *nayavāda* only apply to subtle regimes, beyond logic, like experiences, thoughts and truths, where logic does not provide a solution. *Saptabhangi*, in contrast, applies both to coarse and subtle processes.

Taking note of these conditions, the*Anekāntavāda* doctrines have  found many applications in philosophy, social relations, computer logic, resolving paradoxes, and in day-to-day life. Its seven-pronged solutions of statistical problems and subatomic phenomena are similar to those obtained by conventional statistics and quantum physics, as pointed out by Mahalanobis (1957), Ramachandran (1983), Kothari (1985), and Mardia and Ruda (2021); see summaries by Bhandari (2020) and Bhandari and Pokharna (2017).

Greek philosophers knowing only binary logic (yes and no) came across many situations they called paradoxical. As an example, we may quote the Liar Paradox in which a man claims that he always tells lies. When he says that, is he telling the truth or it is a lie again? The Theseus ship paradox can also be resolved by taking recourse to contextuality, as has been discussed before (Bhandari 2018). Our discussion, especially of *saptabhangi*,shows that there are no paradoxes but only indeterminants. Realizing the true nature of the universe, if we resort to *Anekāntavāda* in interpersonal relations, we can create a conflict-free, peaceful, harmonious world where not only different species can coexist but also ideas can blossom to their fullness.

**The Quantum View**

What does modern physics have to say about these Jain concepts? If these widely different approaches—the three doctrines of Jain *dārśana*  enunciated in the East about 2,600 years ago  using spiritual techniques, and quantum physics developed in the West during the past century using scientific techniques—profess the same ideas, then it is likely that both have a kernel of truth in them, as far as the real nature of the universe is concerned. Three aspects of quantum mechanics—Heisenberg’s uncertainty principle, Schrodinger’s wave equation, and Niels Bohr’s explanation of wave particle duality—are important here.

Heisenberg’s uncertainty principle states that all the parameters of a particle cannot be determined with precision at the same time. Examples of such pairs of parameters, called conjugate pairs, are momentum and position, or energy and time. Even the act of measurement of one of them changes the other.

Schrödinger developed the wave theory of matter, which holds that a wave function correctly describes the wave nature of particles with precision. In the process of formulating this wave form for a particular situation, the particle nature of the particle gets completely ignored, thus leading to incomplete knowledge of the other aspects of the nature of the particle.

While explaining the strange phenomena of quantum mechanics, Neils Bohr stated, “The universe is so constructed that the opposite of a true statement is a false statement, but the opposite of a profound Truth is (usually) another profound Truth.”

Let us look at the true nature of the constituents of matter in another way. The gross, coarse matter (which is normally visible to the eye) follows classical mechanics and displays several characteristics, like the shape, weight, color, and nature of the material. But as it is broken down into finer and finer constituents, new properties like electric charge, magnetism, spin, and other quantum states (strangeness, parity, isospin, etc.) begin to manifest. There is no limit to new properties arising in subtle matter even though they are not evident in its gross state. Thus, the Jain theory of reality described in these four doctrines and quantum physics tell much the same thing about the appearance of multiple new properties at a subtle level and uncertainties in determining these properties, resulting in limits to knowledge.

Two other aspects of quantum physics are relevant here. One is its subjectivity: it seems that, in the  quantum domain, the observer and the observed have no independent existence but always  appear together as a pair. “The moon is not there when you don’t see it,” as metaphorically dramatized  by Einstein, “is valid only in the quantum domain of the micro world but not in  the classical domain of the gross world.” This is exemplified by the legendary thought experiment known as Schrödinger’s cat in which we do not know whether the cat is alive or dead until we see it; see the work of John Gribbin (1984) for a popular exposition. Second, an electron will appear as a particle or a wave depending on the experiment one sets up for its detection; it will change its behavior depending on whether one keeps it under watch or not. Or, actually, is an electron neither a particle nor a wave but something indescribable? And how does an inanimate particle know how to behave and change its behavior in the presence or absence of the observer? Changing one’s behavior when someone is watching is a typical psychological trait. Some of these experiments take us to the threshold of consciousness. The question is now being asked: Does matter at a particle level possess psyche or consciousness?

Many eminent scientists (e.g., Hameroff and Penrose 2014; Neppe and Close 2015; Agrawal and Sharda 2012) have come to the conclusion that existence in the universe of matter only cannot explain all observed phenomena; therefore, consciousness, which was hitherto ignored in physics, plays a prime role and has to be introduced as an additional Real, in addition to space and time. How consciousness arises is a matter of active debate. Hameroff and Penrose (2014) assume that it arises from matter, whereas Neppe and Close believe that it is an independent Real, as is also enunciated in Jain philosophy. Penrose and many materialists define it as a decision-making process (free will, choice) by invoking quantum mechanics at the micro-tubulin level in neurons in the brain. Yet, modern science still does not understand consciousness well, nor it has arrived at a single acceptable definition. Actually, consciousness is beyond definition, which is why there is no consensus on its role.

How and when probabilistic quantum mechanics at the micro (subatomic) level turns into deterministic classical mechanics at the gross, visible, macro level remains a mystery in physics. The problem is the same as in Jain philosophy in which the free-will-wielding, choice-making consequence of *purushartha* at the level of *ātmā* turns into a choiceless, deterministic, *krambaddhaparyāya* (deterministic sequential transformation). This dichotomy is amply demonstrated by the well-known story of Tīrthaṅkara Mahāvīrahimself, who could not attain *mokṣa* in one of his previous births as Marichi, born as a grandson of the first Tīrthaṅkars Rishabhdev, even though all his brothers could. Although they heardmuch the same sermons from the Tīrthaṅkara, he was predicted to become the last 24th Tīrthaṅkara after a lapse of eons. How could a deviation in the choice to ignore certain instructions still lead to a deterministic, predictable rebirth in the distant future? This leads us to think of the concept of “limited free will” within the subtle, quantum or subquantum regime of the *ātmā* that can be proved by the pigeonhole method, transforming into a deterministic world at the coarse scale, in form of rebirth.

**Conclusion**

While attaining *Kevalajñāna*, Tīrthaṅkara Mahāvīra, had several dreams. In one of them he saw a strange (*vichitra*) bird with seven-colored feathers, which has been beautifully painted by Manju Nahata. Such birds do not exist in nature, but Mahāvīra realized that this is how nature is. This is the origin of *saptabhangi naya*. These doctrines have not yet become a part of scientific thought or of applications in developing logic. Much more work is required to fully use these concepts, which are still novel to modern science.

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