

# EMPTINESS

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Emptiness is a key concept in Buddhist philosophy, or more precisely, in the ontology of Mahayana Buddhism. The phrase "form is emptiness; emptiness is form" is perhaps the most celebrated paradox associated with Buddhist philosophy. It is the supreme mantra. The expression originates from the Prajna Paramita Hridaya Sutra, commonly known as the Heart Sutra, which contains the philosophical essence of about six hundred scrolls making up the Maha Prajna Paramita. The Heart Sutra is the shortest text in this collection. It belongs to the oldest Mahayana texts and presumably originated in India around the time of Jesus Christ.

## **The Heart Sutra** (Translation by Edward Conze)

*Homage to the Perfection of Wisdom, the Lovely, the Holy!*

*Avalokita, The Holy Lord and Bodhisattva, was moving in the deep course of the Wisdom which has gone beyond. He looked down from on high, He beheld but five heaps, and he saw that in their own-being they were empty.*

*Here, Sariputra, form is emptiness and the very emptiness is form; emptiness does not differ from form, form does not differ from emptiness; whatever is form, that is emptiness, whatever is emptiness, that is form, the same is true of feelings, perceptions, impulses and consciousness.*

*Here, Sariputra, all dharmas are marked with emptiness; they are not produced or stopped, not defiled or immaculate, not deficient or complete.*

*Therefore, Sariputra, in emptiness there is no form, nor feeling, nor perception, nor impulse, nor consciousness; No eye, ear, nose, tongue, body, mind; No forms, sounds, smells, tastes, touchables or objects of mind; No sight-organ element, and so forth, until we come to: No mind-consciousness element; There*

*is no ignorance, no extinction of ignorance, and so forth, until we come to: there is no decay and death, no extinction of decay and death. There is no suffering, no origination, no stopping, no path. There is no cognition, no attainment and non-attainment.*

*Therefore, Sariputra, it is because of his non-attainment that a Bodhisattva, through having relied on the Perfection of Wisdom, dwells without thought-coverings. In the absence of thought-coverings he has not been made to tremble, he has overcome what can upset, and in the end he attains to Nirvana.*

*All those who appear as Buddhas in the three periods of time fully awake to the utmost, right and perfect Enlightenment because they have relied on the Perfection of Wisdom. Therefore one should know the prajnaparamita as the great spell, the spell of great knowledge, the utmost spell, the unequalled spell, allayer of all suffering, in truth - for what could go wrong? By the prajnaparamita has this spell been delivered. It runs like this:*

*Gone, gone, gone beyond, gone altogether beyond, O what an awakening, all-hail!*

## **Translations and commentary**

Avalokita = Avalokiteshvara, the bodhisattva of compassion

Sariputra = disciple of the Buddha

sunyata = emptiness, void

prajna = wisdom

paramita = that which has reached the other shore

prajnaparamita = wisdom acquired experientially, by means of intuitive insight, and perfected through cultivation to the level of transcendental knowledge

hridaya = heart

nirvana = ultimate attainment

bodhi = awakened mind

sattva = being

According to Buddhist scholars, the dialogue between Avalokiteshvara and Sariputra is inspired by the Buddha. This is to say it occurs spontaneously without the speaker's intention. The content of the conversation is determined entirely by the power of the Buddha's concentration. The bodhisattva Avalokiteshvara represents the idea of perfect universal wisdom, while Sariputra is regarded as one of the Buddha's closest and brightest disciples. The dialogue takes place at the Vulture Peak near the ancient city of Rajgaya where the Buddha and his community of monks stayed. Sariputra requests Avalokiteshvara to instruct him



on the practice of the perfection of wisdom, which means prajnaparamita in Sanskrit.

The perfection of wisdom refers to the wisdom that directly and intuitively understands the ultimate nature of phenomena. Sariputra answers with the profound words, "Emptiness is form; form is emptiness," and proceeds to state the emptiness of the five aggregates (skandhas), the emptiness of the teachings (dharmas), and the emptiness of all phenomena. The sutra ends with the celebrated mantra "gate gate paragate parasamgate bodhi svaha" which can be translated with "Homage to the awakened mind which has gone over to the other shore." The one who has gone over means: the enlightened one, who has done away with views, ideas, and

perceptions and who looks upon reality without any obstructions of mind.

## What is emptiness?

The Buddhist notion of emptiness is often misunderstood as nihilism. Unfortunately, 19th century Western philosophy has contributed much to this misconstruction. Meanwhile Western scholars have acquired enough knowledge about Buddhism to realise that this view is far from accurate. The only thing that nihilism and the teaching of emptiness can be said to have in common is a sceptical outset. While nihilism concludes that reality is unknowable, that nothing exists, that nothing meaningful can be communicated about the world, the Buddhist notion of emptiness arrives at just the opposite, namely that ultimate reality is knowable, that there is a clear-cut ontological basis for phenomena, and that we can communicate and derive useful knowledge from it about the world. Emptiness (sunyata) must not be confused with nothingness. Emptiness is not non-existence and it is not non-reality.

What is emptiness then? To understand the philosophical meaning of this term, let's look at a simple solid object, such as a cup. How is a cup empty? We usually say that a cup is empty if it does not contain any liquid or solid. This is the ordinary meaning of emptiness. But, is the cup really empty? A cup empty of liquids or solids is still full of air. To be precise, we must therefore state what the cup is empty of. Can a cup be empty of all substance? A cup in a vacuum does not contain any air, but it still contains space, light, radiation, as well as its own substance. Hence, from a physical point of view, the cup is always full of

something. Yet, from the Buddhist point of view, the cup is always empty. The Buddhist understanding of emptiness is different from the physical meaning. The cup being empty means that it is devoid of inherent existence.

What is meant with non-inherent existence? Is this to say that the cup does not ultimately exist? - Not quite. - The cup exists, but like everything in this world, its existence depends on other phenomena. There is nothing in a cup that is inherent to that specific cup or to cups in general. Properties such as being hollow, spherical, cylindrical, or leak-proof are not intrinsic to cups. Other objects which are not cups have similar properties, as for example vases and glasses. The cup's properties and components are neither cups themselves nor do they imply cupness on their own. The material is not the cup. The shape is not the cup. The function is not the cup. Only all these aspects together make up the cup. Hence, we can say that for an object to be a cup we require a collection of specific conditions to exist. It depends on the combination of function, use, shape, base material, and the cup's other aspects. Only if all these conditions exist simultaneously does the mind impute cupness to the object. If one condition ceases to exist, for instance, if the cup's shape is altered by breaking it, the cup forfeits some or all of its cupness, because the object's function, its shape, as well as the imputation of cupness through perception is disrupted. The cup's existence thus depends on external circumstances. Its physical essence remains elusive.

Those readers who are familiar with the theory of ideas of the Greek philosopher Plato will notice that this is pretty much the antithesis to Plato's idealism. Plato holds that there is an ideal essence of everything, e.g. cups, tables, houses, humans, and so on. Perhaps we can give Plato some credit by assuming that the essence of cups ultimately exists in the realm of mind. After all, it is the mind that perceives properties of an object and imputes cupness onto one object and tableness onto another. It is the mind that thinks "cup" and "table". Does it follow that the mind is responsible for the existence of these objects? - Apparently, the mind does not perceive cups and tables if there is no visual and tactile sensation. And, there cannot be visual and tactile sensation if there is no physical object. The perception thus depends on the presence of sensations, which in turn relies on the presence of the physical object. This is to say that the cup's essence is not in the mind. It is neither to be found in the physical object. Obviously, its essence is neither physical nor mental. It cannot be found in the world, not in the mind, and certainly not in any heavenly realm, as Plato imagined. We must conclude that the objects of perception have therefore no inherent existence.

If this is the case for a simple object, such as a cup, then it must also apply to compound things, such as cars, houses, machines, etc. A car, for example, needs a motor, wheels, axles, gears, and many other things to work. Perhaps we

should consider the difference between man-made objects, such as cups, and natural phenomena, such as earth, plants, animals, and human beings. One may argue that lack of inherent existence of objects does not imply the same for natural phenomena and beings. In case of a human being, there is a body, a mind, a character, a history of actions, habits, behaviour, and other things we can draw upon to describe a person. We can even divide these characteristics further into more fundamental properties. For example, we can analyse the mind and see that there are sensations, cognition, feelings, ideas. Or, we can analyse the brain and find that there are neurons, axons, synapses, and neurotransmitters. However, none of these constituents describe the essence of the person, the mind, or the brain. Again, the essence remains elusive.

## Emptiness of the five skandhas

The Heart Sutra expresses the same idea by stating the emptiness of the five skandhas, i.e. the emptiness of the body, sensations, perceptions, mental formations, and consciousness. The five skandhas are commonly translated into English as the five aggregates. According to the Buddha, these aggregates are



what constitutes a person. As adumbrated above, it is possible to deconstruct the five skandhas in the same manner as objects. However, this method of deconstruction assumes a third person perspective. It analyses phenomena perceived as external to the observer. When we

talk about the essence of a person, the situation is slightly different, because we talk indirectly about ourselves. It may therefore be more intuitive to look at things from a first person perspective. The first person perspective allows us to make statements about the internal state of the observer thereby producing self-reference. What is observed is the observer. Perhaps this will lead to new insights into the essence of mind and body.

First, let's look at experience. What exactly is experience? - Obviously, we experience objects and phenomena through the senses. This is one form of experience. We also experience feelings, moods, thoughts, and emotions. The former can be called sensory experiences and the latter mental experiences. Upon contemplating the distinction we may find that there is no clear boundary between sensory and mental experience. As soon as we perceive a physical object, for example an apple, the corresponding mental experiences are immediately triggered. First, we think "apple". This is identification. Following this thought, a number of things we associate with apples may come to mind, for example "sweet, edible, green, red, healthy, delicious, juicy," and so on. These associations may be followed by the build-up of a desire to touch or to taste the apple. Once the desire is strong enough, our thoughts may be occupied with consuming the apple and we start weighing the merits and demerits of consuming the apple now or later. All these mental experiences are caused by, yet independent of the original object. If the apple is withdrawn, the memory of it may be able to sustain the chain of thoughts for a short time, yet it will eventually cease.

We can infer that mental experience requires sensory experience, or respectively memory of sensory experience. Sensory experience in turn requires the body. If we carried through a thought experiment and examined whether each of the skandhas is able to exist without the other four, we would find that this is not possible. The latter four aggregates all depend on the body. Without the brain and the nervous system there is no consciousness, no sensation, no perception, and no mental formations. On the other hand, we cannot imagine the body to function without the mind. The body and the mind depend on each other, the five skandhas depend on each other. We must conclude that none of the skandhas is fundamental. Body, sensations, perceptions, mental formations, and consciousness are interrelated. Experiences emerge from the interaction of all five skandhas. Just as objects, experiences are conditioned by the interplay of multiple phenomena. Experience has no inherent existence either.

Our brain is advanced enough to reflect on its experiences. By means of self-reference we can direct mental activity onto itself. For example, we can think about thought. From this arises a division between subject, percept, and object. The percept is the mental impression, the subject is the owner of it, the thinker, and the object is that which causes the mental impression. This threefold division seems so natural to us that it is reflected in the grammar of most human languages. We perceive the separation of subject, percept, and object as real, because mind attributes an owner to experience and thought. This owner is the "self", the subject, the centre of consciousness, the supposed psychological entity. Surprisingly, this entity remains completely undetectable. Body, feeling, perception, and mental formations are not the self. Consciousness is not the self



either, otherwise it would follow that the self temporarily ceases to exist during unconscious states, for example during deep sleep.

We might ask how "self" can be independent of a surrounding world. Is it possible for the self to exist in a mental vacuum, a world devoid of sense impressions, thought, and mental images? Would the self not literally run out of fuel if it lacked thoughts and contents to identify itself with or to set itself apart from? It seems there is no basis an independent entity. It seems more that the self is an emergent phenomenon arising from the application of complex interpretative schemes to perception. In particular, it arises from the conceptual division between subject, object, and percept. Through introspection it is possible to realise that the "self" is not fundamental. It is created by the mind through identification and discernment. The "self" is itself a mental formation - a product of mind. It is therefore empty of inherent existence.

## The emptiness of matter

The ancient Greeks believed that matter is composed of indivisible small elements with certain characteristics, such as the characteristics of earth, water, air, and fire. They called these elements atoms and they held that atoms were solid and fundamental, like microscopic billiard balls. Ernest Rutherford



invalidated the billiard ball theory by conducting an experiment, which suggested that atoms have an internal structure. He established that atoms have a nucleus containing most of its mass and that electrons orbit the nucleus. Moreover, he established that the nucleus of an atom is only about one ten-thousandth of the diameter of the atom itself, which means that 99.99% of the atom's volume consists of empty space. This is the first manifestation of emptiness at the subtle level of matter. Not long after Rutherford's discovery, physicists found out that the nucleus of an atom likewise has an internal structure and that the protons and neutrons making up the nucleus are composed of even smaller particles, which they named quarks after a poem of James Joyce. Interestingly, quarks are hypothesised as geometrical points in space, which implies that atoms are essentially empty. This is the second manifestation of emptiness at the subtle level of matter.

The terms "quarks" and "points in space" still suggest something solid, since they can be imagined as irreducible mass particles. Yet, quantum field theory does

away even with this finer concept of solidity by explaining particles in the terms of field properties. Quantum electrodynamics (QED) has produced an amazingly successful theory of matter by combining quantum theory, classical field theory, and relativity. No discrepancies between the predictions of QED and experimental observation have ever been found. According to QED, subatomic particles are indistinguishable from fields, whereas fields are basically properties of space. In this view, a particle is a temporary local densification of a field, which is conditioned by the properties of the surrounding space. Ergo, matter is not different from space. This is the third manifestation of emptiness at the subtle level of matter.

An important class of phenomena in the subatomic world is defined by the various interactions between particles. In fact, there is no clear distinction between the notions of phenomena, particles, and interactions, although interactions can be described clearly in mathematical terms. For example, there are interactions between free electrons by means of photons that result in an observed repelling force. There are also interactions between the quarks of a nucleon by means of mesons, interactions between the neighbouring neutrons or protons, interactions between nucleus and electrons, and interactions between the atoms of molecules. The phenomena themselves -the nucleon, the nucleus, the atom, the molecule- are sufficiently described by these interactions, meaning by the respective equations, which implies that interactions and phenomena are interchangeable terms. Interestingly, the interrelations of quantum physics do not describe actual existence. Instead they predict the potential for existence. A manifest particle, such as an electron, cannot be described in terms of classical mechanics. It exists as a multitude of superposed "scenarios", of which one or another manifests only when it is observed, i.e. upon measurement. Therefore, matter does not inherently exist. It exists only as interrelations of "empty" phenomena whose properties are determined by observation. This is the fourth manifestation of emptiness at the subtle level of matter.

## **Emptiness in mathematics**

In mathematics the notion of emptiness finds expression in the number zero, as well as in contemporary set theory. The concept of zero was discovered in India prior to the sixth century A.D. The "Arabic" number system we use today is neither Arabic nor Greek in origin. In fact, the digits 0123456789 go back to India where they were first created. The ancient Indian number system distinguished itself from other positional systems by virtue of allowing the use of zero as a legitimate number. Interestingly, the number zero did not exist in Greek mathematics, because the Greeks were essentially geometers and had no use for the mathematical concept of a non-entity, neither did it exist in Egyptian



mathematics. The Arabs, who encountered the Indian number system during their early conquests in India, found it superior to their own traditional system which used letters, and thus adapted it to develop Islamic mathematics. The Arabic word for zero is "sifr", meaning "empty." In the 12th century, the Italian mathematician Leonardo Pisano Fibonacci studied Arabian algebra and introduced the Hindu-Arabic numerals to Europe. The word "sifr" thus became "zephirum" in Latin and "zero" in English.

5.14159265358979323846264338327950288419716939  
 3375105820974944592307816406286208998628034825  
 3421170679821480865132823066230664709384460955  
 3582231725359408128481117450284102701938521105  
 5596446229489549303819644288109756659334461284  
 7564823378678316527120190914564856692346034861  
 9454326648213393607260249141273724587006606315  
 5881748815209206282925409171536436789259036001  
 1330530548820466521384146951941511609433057270  
 3657595919530921861173819326117931051185480744  
 5237996274956735188575272489122793818301194912  
 383367336244065664308602139494639522437190702  
 1798609437027705392171622931767523846748184669  
 4051320005681271452635608277857713427577896091  
 7363717872146844090122495343014654958537105079  
 2279689258923542019956112129021960864034418159  
 3136297747713099605187072113499999983729780499  
 5105973173281609631859502445945534690830264252  
 2308253344685035261931188171010003137838752886  
 5875332083814206171776691473035982534904287554  
 3873115956286388235378759375195778185778053217  
 1226806613001927876611195909216420198938095257  
 2010654858632788659361533818279682303019520353  
 1185296899577362259941389124972177528347913151  
 5574857242454150695950829533116861727855889075  
 98281754237464020310350604000377016511300003

In the ancient Indian context, the number zero did not originally refer to nothingness or nullity. The Sanskrit word for zero is shunya, which means "puffed up, hollow, empty." The zero stands for emptiness suggestive of potentiality. The discovery of the mathematical zero concurred with the emptiness of prajna-intuition in India around 200 BC. Both signify polar opposition between being and nonbeing. Zero is that which contains all possible polarised pairs such as (+1, -1), (+2, -2), etc. It is the collection of all mutually cancelling pairs of forward and backward movements. Put it another way, zero is fundamental to all existence. Because of it, everything is possible. Zero is the additive identity, the focal point of all numbers; without it, numbers cannot be created. India alone, among the great civilisations of antiquity, was able to fathom the depth of emptiness and willing to accept its consequences in mathematics.

Following the introduction of the Hindu-Arabic numerals into Western culture, zero became a number that was used in calculations like any other number. Consequently, it lost some part of its original meaning, namely the part that suggests potentiality. Today, most mathematicians do not associate the notion of emptiness with zero, but with the empty set, which is a construct of set theory. A set is a collection of objects or numbers. For example, the set { 1, 2, 3, 5, 8 } is a set of numbers containing five elements; it is therefore said to have the "cardinality" of 5. The empty set { } is a collection that contains nothing and has the cardinality 0. The mathematician John von Neumann (1923) invented a method, known as von Neumann hierarchy, which can be employed to generate the natural numbers from the empty set as follows:

- Step 0: {} (empty set)
- Step 1: {{{}} (set containing the empty set)
- Step 2: {{{}, {{{}}} (set containing previous two)

Step 3:  $\{\{\}, \{\{\}\}, \{\{\}, \{\{\}\}\}\}$  (set containing previous three sets)

Step 4:  $\{\{\}, \{\{\}\}, \{\{\}, \{\{\}\}\}, \{\{\}, \{\{\}\}\}, \{\{\}, \{\{\}\}\}, \{\{\}, \{\{\}\}\}\}$  (etc.)

This sequence is obtained by iterating a functor that creates a new set from the union of the preceding two sets, thus generating sets with the cardinalities 0, 1, 2, 3, 4, ad infinitum. In less mathematical terms, the principle can be described as follows: Beginning with emptiness (step 0), we observe emptiness. Through the act of observing we create an entity containing emptiness (step 1). Now we perceive emptiness, as well as an entity. From the combination of the former two we create another entity by observation, which is different from the first entity (step 2). This process is repeated again and again. Interestingly, if we define suitable operations on the obtained sets based on union and intersection, the cardinalities of the resulting sets behave just like natural numbers being added and subtracted. The sequence is therefore isomorphic to the natural numbers - a stunningly beautiful example of something from nothing.

## Emptiness of emptiness

In *The Art of Living* (2001) the 14th Dalai Lama says, "As your insight into the ultimate nature of reality is deepened and enhanced, you will develop a perception of reality from which you will perceive phenomena and events as sort of illusory, illusion-like, and this mode of perceiving reality will permeate all your interactions with reality. [...] Even emptiness itself, which is seen as the ultimate nature of reality, is not absolute, nor does it exist independently. We cannot conceive of emptiness as independent of a basis of phenomena, because when we examine the nature of reality, we find that it is empty of inherent existence. Then if we are to take that emptiness itself is an object and look for its essence, again we will find that it is empty of inherent existence. Therefore the Buddha taught the emptiness of emptiness."