

# EXISTENCE AND REALITY

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The entire universe (and everything in it, including us) exists. Its existence is not one of many conjectural activities of the human mind. Irrespective of the presence of the human race, the universe existed, exists, and will continue to exist in a more or less similar state. Generally speaking, there are two levels of existence. The first level of existence is that which does not depend on others for its existence. The universe as a whole and its material constituents form this group. These are real entities. They are there because of their objectivity. The second level of existence is that which depends on others for its existence. These are functional entities. Functional entities are born out of real entities and their relations. They are created by the intellect of real entities for definite purposes.

**Real entities** have objective reality and positive existence in space. These qualities are provided by their substance (stuff from which they are made). Each real entity exists independently due to its substance. Therefore, substance is essential for the existence of all real entities in space. Space is an imaginary container, envisaged by rational beings, whenever they think of real entities. Space extends to infinity, which means, however far we go, we can find real entities there and beyond. Space may be partitioned for our convenience into different spatial systems. Currently, the most preferred spatial system is three-dimensional.

Because of their objectiveness, real entities have forms and structures. They can deform, contract, or expand. When they are in direct contact, they can act on each other and be acted upon by other real entities. Examples of real entities are: matter, universal medium, photons, primary and secondary 3D matter-particles, sub-atomic particles, atoms, etc. Real entities have volumetric existence in the three-dimensional spatial system. In the 3D spatial system, we use three mutually perpendicular planes through the origin as references to measure distances to an object and indicate its exact position in space with respect to the origin. Unless we are able to provide more planes through the origin, which are perpendicular to the original three mutually perpendicular planes, we cannot have higher-dimensional spatial systems and entities.

**Functional entities** are invented by rational beings for specific purposes. They have neither objective reality nor positive existence in space. They are without substance and exist only in the minds of rational beings and in mathematical analyses. However, they fulfill all functions assigned to them. Many of them perform like real entities, even without having substance, by the grace of their creators. It is a regular feature that a functional entity, created for a specific purpose, if suitable, is often used for unrelated purposes elsewhere. That is to say that with sufficient skill and enterprise, a functional entity can be established to perform like a real entity. A deliberate attempt by a mathematician can create the required relations between functional entities and between functional and real entities. It is convenient and easier to blame the cause of an action on a functional entity when no real cause is obvious. This tendency caused grave damage to logical reasoning in the development of physics.

As they do not have substance, functional entities have no forms or structures. They cannot deform, contract, expand, attach to, or detach from other entities. The very existence of functional entities depends on rational-thinking beings. Without mental exercise from rational beings, all functional entities will cease to exist. Examples of functional entities are: life, mind, intellect, energy, mass, time, force, field, information, action, motion, etc. Changes in certain (undefined) fields are aptly named as 'virtual particles', yet they are considered, in mathematical analyses, to act like real entities in many ways.

**We are 3D beings**, living and operating in a three-dimensional spatial system. We sense and observe real entities through our sense organs and various instruments. Functional entities are scrutinized by our intellect. Our sense organs and instruments are devised to sense and observe only real entities, which exist in a 3D spatial system. Therefore, our sense organs and instruments are not perfect to observe all that is going on in the universe. If the measurement of a real entity in one or two spatial dimensions is too small to sense or observe by us or our instruments, we are bound to regard it as non-existent. By definition, a point, a line, or a plane cannot exist in a 3D spatial system. Yet for all practical purposes, they are treated as real

entities. This is not due to the unreality of the objects but due to the inability of our senses and instruments to observe and measure them. Such objects exist in 2D or 1D spatial systems. Therefore, it is possible for real entities to exist in lower spatial dimensional systems and simultaneously have volumetric existence in the three-dimensional spatial system.

**In the current scenario**, real entities in lower-dimensional spatial systems will forever remain undetectable by us and our instruments. We may infer their existence and nature from observable actions on/by 3D bodies or devise better instruments. All 1D, 2D, and 3D entities have their volumetric existences in the 3D spatial system, but the differences are due to our inability to recognize entities in lower-dimensional spatial systems. As the whole of the universe and every real object in it are formed by substance, we should accept the presence of substance (particles) in all 1D, 2D, and 3D spatial systems (individually or in combinations) for the betterment of science.

It is evident that many entities, which we usually consider functional (imaginary or virtual), are in fact real entities, and many entities, which we normally consider real, are in fact functional (imaginary or virtual) entities. To differentiate them, it is necessary to classify them according to their substance rather than our ability to sense and observe them. All those that have substance are real entities, and those that have no substance are functional entities.

We observe diverse objects in the universe with different characteristic properties. There cannot be too many kinds of substances to provide widely diverse properties to different types of real entities. Ideally, there can be a single type of fundamental substance that forms all real entities. Differences in the relative arrangements of substance-particles in the structures of different objects endow them with different properties. Therefore, fundamental substance can have no inherent property, except its ability of positive existence (in volumetric space).

We may call the fundamental substance by any name. However, in the material world, the existence of matter is nearest to absolute truth. Hence, it is reasonable that the fundamental substance that provides objective reality and positive existence in space to all real entities may be called 'matter'. Any entity that is made of matter is real, regardless of our ability to sense and observe it. And any entity that is not made of matter is functional, despite its uses in explanations of various phenomena. As a product (effect or action) cannot define its producer (cause or mechanism), matter (being the most fundamental entity and cause of everything else) is beyond definition or description. It can only be inferred and described by the intellect (a functional entity) of rational 3D beings' minds.

Considering matter as the most fundamental substance and by step-by-step reasoning, we can see that unstructured matter (by its inherent ability to exist) fragments into minute quanta of matter, which endeavor to limit their existences into single-dimensional spatial system. These actions also help the quanta of matter to arrange themselves into structural formations in two-dimensional spatial systems and cause all dynamic actions in nature. Latticework formations by quanta of matter in all possible planes, together, form an aether-like all-encompassing 'universal medium' that fills the entire space outside basic 3D matter-particles. Universal medium has all desirable properties of aethers, proposed in various theories, and none of their objectionable properties.

**Universal medium** is simultaneously particulate & continuous, anisotropic & homogeneous, and inherently under compression. As it is in direct contact with all basic 3D matter-particles, the universal medium avoids 'action at a distance through empty space'. The steady nature of the universal medium offers us an absolute reference frame. Its self-stabilizing property produces all kinds of 'natural forces' and causes all physical actions in the universe, including creation, development, sustenance, and eventual destruction of all basic 3D matter-particles (photons), fundamental particles, superior 3D matter-particles, sub-atomic particles, atoms, unions of atoms, and macrobodies (including the rational beings). Universal medium, together with basic 3D matter-particles, form a single block of matter of uniform matter-density that fills the entire universe, without scope for vacuum or emptiness. Therefore, although the real matter itself cannot expand or contract to vary its matter-density, the universal medium helps to sustain a steady state of the universe with more or less even distribution of macrobodies throughout its expanse, which is unlimited.

**Reference:** 'MATTER (Re-examined)', published by the author.