Diversity of floating platforms

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Abstract

Physical reality archives its dynamic geometric data in a read-only repository. This repository emerges from its foundation which is an orthomodular lattice. The repository is a combination of a series of separable Hilbert spaces that share the same infinite dimensional vector space. For the definition of the inner product of pairs of vectors the separable Hilbert spaces apply a private version of the quaternionic number system. A non-separable Hilbert space embeds the separable Hilbert spaces. The version of the quaternionic number system acts as a parameter space. These parameter spaces float over a background parameter space.

1 Floating Platforms

Physical reality archives its dynamic geometric data in a read-only repository. This repository emerges from its foundation which is an orthomodular lattice. The repository is a combination of a series of separable Hilbert spaces that share the same infinite dimensional vector space. Hilbert spaces can only cope with numbers that are elements of a division ring. This statement means that every non-zero number must possess a unique inverse. The quaternions form the most elaborate division ring. That number system includes all other division rings as subsets. Quaternionic number systems exist in many versions that differ in the way that coordinate systems can sequence them. Each separable Hilbert space selects one of the versions for the specification of the values of the inner product of pairs of vectors that are members of the underlying vector space. This explanation means that several Hilbert spaces can share the same vector space. The selected version acts as a parameter space and as eigenspace of a normal reference operator. With the selected version of the quaternionic number system, the separable Hilbert space can act as a part of a read-only repository for dynamic geometric data. Quaternions can store dynamic geometric data as combinations of a real number valued time-stamp and a three-dimensional spatial vector. Reality picks one of these Hilbert spaces as its favorite, and the corresponding version of the quaternionic number system acts as reality's background parameter space. It owns a selected Cartesian coordinate system and a selected polar coordinate system. Also, the other separable Hilbert spaces own a private parameter space and these parameter spaces float over the background parameter space. The private parameter spaces own private coordinate systems. The axes of the Cartesian coordinate systems orientate parallel. The reason for this restriction is that the central part of the volume of the platform must be encapsulated by a cube-shaped boundary to account for all the changes that occur inside that boundary. The restriction significantly reduces the diversity of the separable Hilbert spaces. All separable Hilbert spaces share the underlying vector space. They are platforms on which something can happen. On each of these platforms lives an elementary module.

The rational values of the real part of the background parameter space act as progression values. The real parts of all parameter spaces sequence like the real part of the background parameter space. Each progression value corresponds with a subspace of the underlying vector space, and that subspace represents the current static status quo of reality. The subspace separates a historic part of reality from the corresponding future part of reality.

Each platform possesses properties that relate to the symmetries that the coordinate systems of the parameter space establish. In the whole system, not these symmetries of the coordinate systems are important, but instead, the differences between these symmetries and the corresponding symmetries of the coordinate systems of the background parameter space determine the actual symmetry flavor of the platform. The restriction that the axes of the Cartesian coordinate system must be parallel leaves only the differences in the sequencing along these axes. This restriction results in a short list of differences. Counting the results along different axes and summing these results, generate a short list of possible differences: -3, -2, -1, 0, +1, +2, and +3. In this list the values -2, -1, +1 and +2 correspond to anisotropic conditions. Anisotropy can occur in one or two of the three directions. These conditions relate to situations in which reality can evaluate change. Reality connects symmetry related charges to these situations and these charges are sources or drains of symmetry-related fields.

The signs of the charges determine whether platforms can attract or repel. The size of the charges determines the strength of these actions. The symmetry-related fields implement the action.

2 Elementary Modules

At each new progression instant, a stochastic process provides each elementary module with a new location in its private parameter space. Thus, each elementary module hops around in a stochastic hopping path. After a while, the private platform contains a hop landing location swarm. The stochastic process ensures that the swarm moves as a single coherent object. Consequently, the swarm owns a location density distribution that equals the squared modulus of the wavefunction of the elementary module.

Each hop landing causes a spherical shock front that locally and temporarily deforms the continuum that embeds the elementary module. These deformations overlap, and together they form a significant and persistent deformation of the continuum.

The shortlist enables to discern electrons and several types of quarks and their antiparticles. Color charges appear to relate to anisotropic symmetry differences. The ordering freedom of the polar coordinate system gives rise to the notion of spin.

The embedding continuum and the symmetry-related fields couple via the geometric center of the private platform of the elementary module. It must be clear that the embedding continuum and the symmetry-related fields are fundamentally different fields. Still, these fields obey the same quaternionic field equations.

The fields and the stochastic processes play a major role in the binding of elementary modules into higher level modules. All massive discrete objects that exist in the universe are either spherical shock fronts or modules. Elementary modules constitute the modules. Moreover, some of the modules constitute modular systems. Thus, our creator is a modular designer and a modular constructor. This elucidation teaches us a lesson. Modular design uses its resources very economically. Since the arrival of intelligent species, the intelligent design can locally extend the original stochastic design. Must we as intelligent species follow the footsteps of the creator?

References

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