

Axiom of Choice extended to include Relativity

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Abstract

A foundation from which non-relativistic artifacts can be modeled in conjunction with relativistic models. Axiom of Choice is applied to Quantum Entangled Singularities (QESdunn) and treats quantum entanglement as two different but similar, vast systems of causality that differ by one or a few causal differences. This potentially provides an experimentally verifiable relationship between non-relativistic causality and relativistic causality through synchronous programming.

Introduction

To construct a useful experiment, the attempt is to disprove a suspected relationship by creating a prototype that uses the relationship in question, in order to have a predictable outcome that is exclusively possible only when founded on the relationship to be disproved. Failing to disprove the relationship, only then the relationship holds merit. When attempting to show contention with a reference provided by someone else's work, the reference questioned is regarded highly, and is being used as a reference to experimentally disprove efforts cited here.

Reference in contention: Quantum Causality Threshold and Paradoxes, Florentin Smarandache

If an entanglement is the difference between systems of causality, then the paradox cited by Dr. Smarandache seems not to exist. The cones resolve to a determinant state.

"1. Perfect simultaneousness: Let's consider two entangled particles A and B. {Schrödinger introduced the notion "entangled" in order to describe the non-separable states [Belavkin (2002)]}. At the beginning, both are immobile, in the same space S(A,B) and time t (simultaneously), and none of them is in the causality cone of the other." [Florentin Smarandache]

The following is intended to model the Universe in a quantum computing environment; and when relativistic artifacts of the quantum computer (conditional entanglement) is entangled with physical artifacts of the considered real universe, this provides the ability to warp space/time relationships in the real universe.

Every Newtonian Physics relationship has embedded within it meters/second; i.e. distance/time, or space/time. Where "/" is a scalar regulator between space and time, that is intended to be manipulated here.

By constructing quantum computers running relativistic models of segments of real space, and entangling the model with real space, this potentially provides the experimental environment to attempt to disprove QESdunn models for building relativistic universes and other relativistic tools.

If the modeled relationships are not disproved, then additionally a tool will have been created to provide for the warping of space/time; manipulating the relationships within Newtonian Physics to create, observe, and manipulate physics different than previously observable; other dimensional states.

Foundation of QES perspectives; preliminary assumptions

Systems of Space-time of uniquely characterized properties of a "to be" entangled particle are entangled with nonrelativistic artifacts (non-observable). The act of entanglement of any particle (used loosely here to describe any target of entanglement) is either the additive or destructive change in causal state of two systems of largely similar systems of entanglement. This is modeled as the entire universe existing as a single bound complex causal state, but relativity formed from dispersions of connectedness in the single (scalar) complex causal artifact.

Systems of observable entanglement can be relevant to any property of a particle, but the particle "observable" outcomes may be different. "Systems of relativity" moderate the evolving components of connectedness of the single causal artifact. Very similar to how a quantum computer will be constructed; parallel processing via the forming of relativistic singularities and causal systems forming like crystalline growth in a uniform media with interspersed impurities; a multi-dimensional snow flake with a myriad of outcomes dependent upon the impurities (singularities).

The attempt is to correlate Set Theory of Axiom of Choice to a proposal for relativity in a generally causal environment. To reiterate, the system described has many systems of relativity aliased from a system of singularities. Some of those systems include what we consider scalar physical constants, from which each of the sub-atomic particles are moderated, observable terminus of entanglement, terminus of photons, effects of duality and related fringe patterns ... everything observable in what we consider Real Space and Time.

Discussion

Proposal: Mathematics has a non-reducible limit (Axiom of Choice extended to include relativity)

Quantum Causality proposes that all mathematics shares a common causal core, from which all mathematics can be built in the quantum computing environment. Here, Quantum Causality is further reduced to a foundation from which non-repeating causal events can be modeled (i.e. unrelated to logic nor mathematics; the significance of this shown later). Emphasis here is that current quantum computing defines quanta as being the fundamental element in quantum computers. Here their quanta are characterized as similar vast systems of causality moderated by systems of singularities that differ by one or a few causal "differences".

All mathematics is causal, even probability. Causal not in terms of time, but rather logic. Without consistent relationships, mathematics has limited value; and the reason thoroughly constraining limits of use must be identified for the use of all mathematics, or the mathematics expressions are not broadly useful; a localized phenomena not consistent in different mathematic spaces; i.e. dimensional environments.

Proposed is that Quantum Causality is made up of two fundamental properties: evolving, and its counterpart, non-evolving causality. There are other elements to support quantum computing, but those will be addressed separately. This, then that. The manner of evolving is irrelevant just so that it is consistent. From these simple foundations any and all mathematics can be built from inside the relativistic quantum computing environment.

To reiterate and drive home the significance if the experimental prototype outcomes fail to disprove the models.

Physics is modeled using math. If using quantum causality to model the universe is ineffective, then potentially the universe cannot be accurately modeled with math and another form of representation will need to be developed that is different than mathematics. Mathematics is useful, but not all inclusive in usefulness in manipulating physics.

http://en.wikipedia.org/wiki/Axiom_of_choice

Applying Axiom of Choice to the system of causality described above. A fundamental component X_i of a Set S where i has only 1 value to represent a fundamental unit of non-evolving causality, and Y_1 to represent a fundamental unit of evolving causality, then the static state of one set is $S_i(X_1, Y_1)$.

For S_i where i is any finite number, then a state of S_i can be formed as $S_i(X_1)$, $S_i(Y_1)$, or $S_i(X_1, Y_1)$ but in no set does $S_i(0)$ nor $S_i(0,0)$ become a legitimate member in a totally known and connected system of causality. Noted here is that only one causal artifact exists in this quantum computing environment. However, determinant methods of chaining causal connectedness allows for vast interactive systems of connected causality. The one causal artifact provides a scalar relationship to all related systems of causality.

Also noted is that direct recursion is not allowed. Entropy requires that the scalar systems evolve. Singularities may be continuously evolving internally, but the external connections evolve in limited ways like that of crystal growth in a media with impurities. The quantum computing output cannot directly feed the input, a causal shift of more than one step event is required to be able to complete a causal recursion; initially thought of as entropy. However, magnitude assertion drives evolving causality into more broadly exposed systems of causality. Magnitude assertion is represented, but whether both evolving and non-evolving causality exert magnitude assertion, and in what combinations, is not as yet significantly considered.

Entropy is a causal indicator of transitioning from one dimensional state towards another; from one Big Bang (transition from previous dimensional state) to the next.

The foundation components of X_1 and Y_1 provide three potential states in combination.

Other sets are present, but all other sets are composed of these fundamental sets.

The Axiom of Choice states that to be a member the sets of consideration must be non-empty. As shown above, if causal states are connected, the zero states do not exist and are not part of the considered set notation.

As stated above in the linked resource, Axiom of Choice is not applicable in all considerations; or at least not easily related. This assumes then that through some permutations of mathematics, sets that are inclusive of zero members are included to better assist in some representation (relativistic perspective). Most common of which is dealing with systems of extraordinarily large numbers. Mathematics uses a form of set theory to create systems of manageable approximations for vast systems of interactions; i.e. relativity. Noise and Error are given a reference in relation to zero.

However, these approximations skew usefulness in Real Physics. The approximations covering up broad influences by and upon the universe. By using models in quantum computers that connect with real space, the zero no longer has a valid usefulness; no approximations are included. Influences by and upon the universe are included in the

models developed. Mathematics is a subset of logic, logic a subset of causality. Spaces of non-repeating causality in our real space, a part of logic and mathematics in other dimensional spaces. And importantly, non-repeating causality not part of any dimensional spaces.

In both finite and infinite evolving causal spaces, eventually causal spaces repeat an infinite number of times. Therefore, based upon the above premises, we and our universe may be repeating an infinite number of times.

Relativity uses zero as a member to define relative differences. In non-relativistic spaces zero has no legitimate representation; systems of causal connected systems are always present in the form of numbers of quantum step events relative to a system of connections (all non-zero).

When a system is self-referencing (relativity), then zero comes into play as a member to demarcate the boundaries of consideration.

In a self-referencing system of causality:

- What is Nothing?
- What is infinite with reference to space, and separately, with reference to time?

“Relativity” has no absolute references, but can be tied back to absolute referencing in set theory. If a quantum entanglement is one or more systems of causality that differ by one or a few causal states, then potentially experimentation can reveal underlying non-relativistic causal artifacts; i.e. investigating space and time relationships different than observable.

"According to Einstein's Theory of Relativity, when a particle is moving with respect to the other, its time and space axes appear inclined from the perspective of the other particle, modifying what for this other particle is "before" or "after", but their causality cones remain the same."

This is a perspective from within the relativistic environment. Stepping outside of the environment, the number of cyclic quantum causal step events in a connection schema, relative to different schema, form relativistic artifacts internally; but are seemingly random systems of relationships of causality outside the system. The aliased differences of causal step events relative to relativistic singularities form and evolve internal systems of references (space-time relationships; i.e. modal particles and related fringe patterns); i.e. deterministic relationships and no causality cone.

The speed of the causal artifact is irrelevant, so long as the causal properties of evolving and non-evolving causality are consistent. Relativistic speed (meters/sec or space/time) becomes instantaneous when causal artifacts are not related to space, or not related to time, or not related to space or time. In a causal environment, causality need not be related directly to space-time. Thus this is displayed in quantum entanglement and double-slit experiments.

The mechanism to correlate quantum causality with parallel processing of modeled singularities is self-organizing chaos. Parallel processing in a causally deterministic environment presents as chaos, but is instead abstractions of moderated systems of causality. The only causality systems observable are those with relativistic reference; repeating of evolving systems. Examples: Try to identify anything detectable that is not evolving at a fundamental level. A photon in route does not change state, and is not observable. None of the sub-atomic particles are directly observable; they become visible as part of evolving interactions.

Initially, quantum mechanics and the related math will be used to describe the Relativistic sub-atomic systems. Causality will then be introduced as a method of isolating relativity while still providing for the experimental outcomes. The resulting mathematic derivations are hoped to provide insight into the nonrelativistic causal characterization of quantum entanglement. Many attempts are likely to be seen and reworked here as descriptors of causality and aliasing are introduced into probability frameworks.

The uniform field model is used extensively as a foundation in quantum physics. The use of the uniform field in mathematically solving many-body-problems obscures the influences of causality. The initial attempt will be to particulate the uniform field based upon systems of singularities as described in other efforts.

The greater of the difficulties here is to reasonably identify the constraints of the mathematic systems used relative to observable experimentation, while attempting to isolate relativity from the relationships. The mathematics and related constraints are expected to transmute depending upon the interactive nature of the systems of causality involved.

Suspected is that nuclear elementary sub-atomic particles are the relativistic indicators of the nonrelativistic functioned loops of entanglement. "Loops" is a term used to describe a system of interactive control but it does not describe the actual structure of the interactive system of entanglements. "Loops" is just a convenient term to associate common potential utility of String Theory, Neural Networks, and Control Theory. The understanding of the ultimate structure of entanglements may evolve into something quite different as experimental results accumulate.

Sub-atomic particles are broader abstractions (relativistic singularities) of scalar systems of influence by causal singularities (physics constants). This being why certain combinations combine, and others dissociate.

Initially proposed is that physics constants strongly regulate subatomic particle properties (causal systems of interactions).

The physical intents of the foregoing are to provide separable experimental influence of causal factors to provide a bending of space/time in macroscopic observable terms. The causal network of "nonrelativistic" quantum entanglement connections (causality) are suspected to form what is referred to as the Higgs Field and other systems of relationships.

References

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2. Dunn, James. "James Dunn's Books and Publications Spotlight." *Building Universes - Relativity from Quantum Causality*. Lulu Press, n.d. Web. 06 Feb. 2014.
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In Memorial

In searching for QESdunn a book will be found: *Building Universes-Relativity from Quantum Causality*. The book is related thought mapping and should only be referenced if experimental outcomes show significant parallelism between experimental intents and results. This was provided to fund experimentation, and as a form of archive to benefit my family once I pass. A form of digital media that transcends obsolescence from computer operating system updates, document editing software version updates, business dissolving, people dying ... When a book is published, it tends to have permanence.