Introduction

Any system of physics that displays instantaneous properties must represent those instantaneous properties in the foundations underlying observable physics. Two such instantaneous properties are quantum entanglement (electromagnetism) and gravitational aberration (gravity). All observable physics is proposed as Relativistic superposition upon instantaneous and causal foundations. String Theory is useful in modeling functions in the presented relationships. As a coarse perspective, chemistry operates as a form of parallel processing system; as chemicals are mixed, a large variety of predictable outcomes occur. Similarly, parallel processing is commonly realized in analog control systems where a great many influences interactively control outcomes that are constrained to one or a few desirable manipulations. There are two obvious perspectives in parallel processing of these types. The set of instantaneous outcomes from one moment to the next, or the vast systems of "relationships" that cause the outcomes; systems of relationships better allows for understanding Relativity and functioned Quantum Entangled Systems (QES). Functioned entanglements modeled as systems of relationships, not outcomes. Parallel processing in an entangled environment (instantaneous feedback and feed-forward connectivity) provides an environment to support Extreme Relativity.

Foundations for (deduced relativity related to Particle Physics): Higgs Field, Higgs Boson, Space/Time, all forms of energy, forces, and sub-atomic particles.

Yves Couder's [1a] [1b] large particle experiments and other researcher experiments involving macroscopic entanglements, all lead to some probability that "observable" quantum entanglement is the difference between systems of entanglements, not individual entanglements. This provides a perspective of a relativity property of quantum entanglement.

Based upon current quantum-entangled experiments, observable entanglements [2], [4]:
- are differences in systems of entanglements, not individual entanglements [1]
  - in dual slit experiments, systems of observations are consistent, while each photon is non-repeating [4], [5]
- have causal properties
  - the act of observation causes a change in outcome [5] et al
  - causality can be non-unique and still provide the following constructs, but initially unique causality seem likely
- have magnitude assertion properties [12]
  - macroscopic influences
- have connectedness
  - multiple entanglements from a single node
- two or more entanglements can occupy the same space

The below shows the difference between 3D fractal probabilities aliased with a color filter function called AA[11](Anti-Aliasing). Notice in addition to the color changes, the intensity has changed as well. Upon close inspection, many different products were aliased to produce "Relativistic" observations. In the "without AA" tentacles, notice the many relativistic structures; they largely do not exist when aliasing is removed.
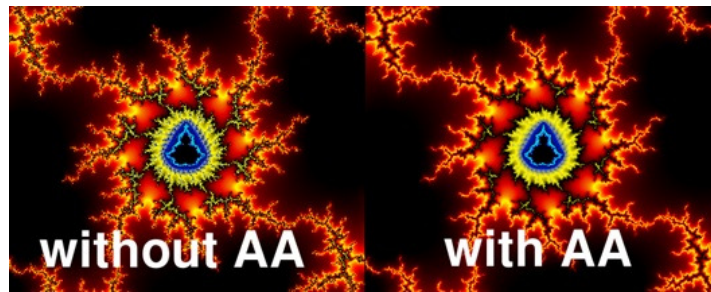
Fig. 1: picture of aliased relationships (Relativity) in a fractal environment
Aliased 2D Graphics [11],[3]

Figure 1 shows a representation of a two dimensional universe with and without relativity. The relativistic components are meant to model observable physics, while the remainder of the non-relativistic components is meant to model foundational support systems. Of critical importance is understanding that entangling photons introduces relativistic properties to observable entanglements. Relativity is the connection with the common references of the Universe; present observable quantum entanglements are relativistic outcomes associated with "systems" of causality, not individual entanglements.

Therefore and henceforth, the following prefix notations will be used:
    relativistic ("r-" or no prefix)
    non-Relativistic ("nr-")

In all cases where mathematics are used the assumption must be that the relationships expressed are approximations and intended for clarity of understanding, and not precise modeling of the Universe. As stated elsewhere, mathematics in no way exactly describes the Universe; i.e. approximation within constraints.

Connecting Quantum Entanglement to Space/Time

Definitions related to "Quantum Entanglement" (entanglement):
- functioned Quantum Entangled Systems (QES)
    - functioned loops of non-relativistic entanglements
    - quantum entanglements represent a primary vehicle for causality
        - loops of entanglements represent causal systems
- Scalar causality is many to one and/or one to many simple unconditional consequence
    - Static Scalar Causality - fixed states - constants - singularities
- Recursive causality is conditional consequence; in a recursive functioned loop environment
    - Static Recursive Causality - fixed recursive states - relativistic constants
- Evolutionary Causality - evolving recursive states
    - observable relativity when magnitude assertions are superimposed on other systems of causality

Suspected is that the elementary particles are the relativistic indicators of the non-relativistic 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.

Bipartite Entanglement is observed r-Entanglement
- nr-Entanglement may have multi-state characteristics
    - isolating r-entanglements from relativity in experiments provides for
        - characterizing nr-entanglements
        - providing opportunities for new manipulations (tools)
        - providing new models in string theory
    - this would potentially indicate that nr-entanglement is composed of other artifacts

r-Entanglement is predictable and repeatable regarding Evolutionary causality.
- Make an observation, get a fixed outcome
    - dual-slit observation outcomes
- Relativistic

r-Entanglement is not predictable nor repeatable regarding Recursive causality for individual events
- photons are semi-random spatially in observations
    - predictability depends upon the number of photon events
    - spatially single photons are unpredictable
- enough photons hit and wave properties appear
    - distributions of magnitudes of photons are predictable
    - recursive/scalar causality (space) is predictable given an interleave of evolutionary/scalar causality (time)
        - individual step events are not causal, but magnitude asserted step events are causal
        - Experiment: Do magnitude assertions accumulate to cause an Evolution step event?

Magnitude Assertion results from any Relativistic Step Event
- when space has magnitude assertion biasing with time, this creates a relativistic step event (space/time continuum)
- combined individual Magnitude Assertions provide Intensity
    - a combination of the Intensity of different systems of space/time relativistic step events creates the base for observable physics
    - space/time without moderators to cause disturbances within space/time would otherwise be homogeneous
        - described in other representations as flat and un-curved space/time

Space is the interleave of scalar and recursive causality of entanglement systems
Time is the interleave of scalar and evolutionary causality of entanglement systems

Observable reality is the relativistic recursive relationships between recursive and evolutionary systems.
Static recursive causality moderates consistency of functioned entanglements.

Scalar causality is treated as a point of reference for a system of entanglements.

Static Scalar causality moderates consistency of scalar systems.

ALL sub-atomic particles are systems of relativistic entanglements.

Expanded Considerations

Consider a causal pathway between two connections, from 'A' to 'B'. Scalar causality is when billions or more of simple causal connections through alternate pathways will take you to the same connection of reference. For separate initial framing of perspective, electromagnetism and gravity relative to any atom from anywhere in the Universe; however, there are other systems of causality that contribute magnitude assertion to relationships.

Consider a system with Recursively causal pathways; not necessarily billions, but may be more. Recursive causality is based in functioned loops of conditional logic. Recursive causality can either be static, or evolutionary. Henceforth, *Static Recursive causality will be implied when sighting Recursive Causality.*

The limited connections between the scalar and recursive causalities create a system of relativity.

The evolutionary causality connectedness to other systems of recursive and scalar causality, with all systems having instantaneous feedback (unrelated to time, space, or both), creates the relativistic systems of evolving space/time.

Bending of Space/Time is when Time (evolutionary causality) is static related to Space (scalar and recursive causality) when separable, but other systems continue to evolve relationships.

New Dimensional spaces are formed when system-wide recursive causality are modified; i.e. new relativistic physical constraints.
Consider the "recursive" nature of our formulation of Joule where mass, length, and time are mass as a large collection of length and time elements (space and time) and a Higgs-Boson moderator.

What is a moderator in terms of relativity?

Speed, like Energy is ratios between Space and Time. Energy is combinations of evolutionary recursive causality with moderators, and Speed is static recursive causality with moderators; each relative to scalar causality. There are many types of abstraction for and between these systems.

Speed has units of meters/second; a ratio of space and time. Thus the relationship of the speed of light to physics in-general.

What is a static ratio; a relativistic moderator. (i.e. Static Recursive Causality / Scalar Causality)

What is an evolving ratio; an evolution moderator. (i.e. Evolutionary Recursive Causality / Scalar Causality)

What is a Boson; a constant moderator. (i.e Static Scalar Causality / Scalar Causality)

There are great numbers of each in a myriad of combinations. Think of the moderated relationships that result from the mixing of two chemicals in relation to the host solution.

Four types of causality have fundamentally different properties; Scalar, Static Scalar, Static Recursive and Evolutionary Recursive. The differences being that Scalar causality is systems-wide consequence, Static Scalar is a systems wide static moderator, Static Recursive results in consistently the same abstract complex conditional results, and Evolutionary Recursive causality evolves new recursive relationships.

Not yet evaluated is whether the network of interconnections is a continuum or if through evolution there is construction/destruction of connections. In a continuum, magnitude assertion would represent observable relativity, while dynamic construction/destruction of connections would be a combination of new connections forming and magnitude assertions of connections (experimental results needed – see attached endnotes).

I see three different pathways for gravity to be represented in terms of relativity, and any one relative to string theory provides a mathematic method of approximating all relativistic physics. But string theory still does not model instantaneous properties. The pairing of Higgs Boson and the Higgs Field are proposed to be represented within these structures.

Potential Gravity Models (string theory systems may be constructed to model these):
1. Based upon two Quantum Entanglement Systems that act in parallel to produce aliased relativity, they provide electromagnetics and gravity (observable quantum entanglement and gravitational aberration).
2. Based upon functional influences of the aliasing of Quantum Entangled Systems relative to gravitational singularities, and
3. Systems of construction/destruction of entanglement systems and the aliasing of those systems.

Gravity and Gravitational Aberration might be explained and represented by any combination of the above; experimental results are required. Relativity as it relates to entanglements must be understood so that the design of experiments produced will not be influenced by relativistic relationships and skew results. Potentially, differential experiments that deductively null relativistic influences. Literature searches are the first step to deduce relativistic relationships.

A relativistic moderator, the ratio (i.e. feedback or feed-forward) of "evolutionary" with "static" causalities over scalar causality, provides a framework for a space/time continuum in a functioned quantum entanglement environment; observation as relativistic systems of causality.

Thus, the foundation for separable control of space and time; and a pathway of experimentation forms to systematically produce tools for controlling the space/time continuum. See Appendix A – Pathway of Experimentation

Properties of Space/Time in an Entangled Environment

As posed, there are no dimensions to the foundations of space and time and no math model applies in all circumstances of relativity. Tools to manipulate space/time must be created from experimental iteration of functioned quantum entanglement systems. Copying segments of our actual system into a derived system, seeding changes, determining outcomes, and then seeding those changes into our system if useful; thus this provides a simplified model for developing tools to control time and space.

All sub-atomic particles are Relativistic representations of functioned quantum entanglements.

Mathematics models probability aliasing, to predict with some certainty desirable outcomes from observed experimental outcomes. However, in no absolute way can current mathematic systems and tools produce absolute deterministic models of functioned quantum entanglements because the entire observable Universe must be known and correlated to be deterministic. There are cited pathways that make this possible, but that is not the focus of this topic.

The below device (Figure 2) is smaller than 1/2 the width of a hair. The device is intended to be used in particle accelerators and colliders to neutralize specific effects of Relativity upon experimental outcomes; and thus characterize relativity in regards to entanglements.

The experimental outcomes provide support for such things as FERMI: Total Annihilation Project; the breaking of the strong force in any matter; anti-matter so to speak from anything. As is stated in other related developments, the intermediate step of energy will not be necessary and producing energy is a less than elegant solution for solving problems of interest.

By controlling the connectedness between systems of entanglement a great many tools formulate easily. Each of the microsystems projects can be a DARPA QUEST [15] funded project.

A five layer Micro Electro Mechanical Systems (MEMS) fabrication process will be available commercially to provide micro machines like dynamic double slit experiments to characterize static and dynamic entanglement systems in uniform fields of physics that are small enough to fit in particle accelerators and colliders. [16] This provides the environment to characterize entanglement systems in relation to relativity.

Dark Matter/Energy (Ho Go To) potentially has fewer functioned entanglements with White Matter (Ho Go To So); i.e. may not be causally connected to spatial features.

Ho = Higgs Boson singularity (other sub-atomic particles similarly modeled)
Go = Gravity singularity (Higgs Field)
To = Time singularity
So = Space singularity
Xo = other singularities needed to regulate physics relationships like the speed of light, certain types of logic associated with particles...
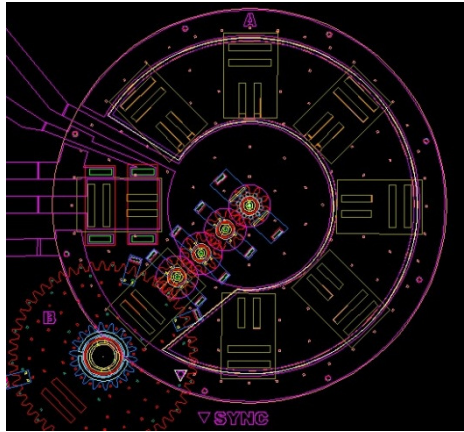
Fig. 1: Experimental device for characterizing quantum entanglement
in relation to Relativistic physics

Singularities are nothing special; simply they are constants.

Singularities are used as moderators of systems of functioned quantum entanglement; static causality, and static recursive causality.

Initially, every Higgs Boson is proposed to be a singularity; a functioned system of fixed entanglements. While the Higgs Field is proposed to be a constant functioned system of entanglements with a causal connection to each Higgs Boson. This provides a position from which to explore gravitational causality.

Experimental outcomes will be required to characterize the singularities and how they are used. (See attached endnotes)

This difference between dark energy and white matter potentially can initially provide a stable instantaneous memory state relative to observable physics because of the limited causal connections between dark energy and white matter; i.e. causally controllable loops of functioned quantum entanglements. Controllable functioned loops may provide tools to produce stable and discrete memory for quantum "sequential" computing within a parallel processing environment. Micro and Nano technology have a relativistic spatial orientation in which we can make a computing interface.

There is logic in the predictable nature of the observable Universe as based in the foundation of which it exists. There are reasons for why the laws/rules of motion have a bases:

1. An object at rest will remain at rest unless acted on by an unbalanced force. An object in motion continues in motion with the same speed and in the same direction unless acted upon by an unbalanced force.
2. Acceleration is produced when a force acts on a mass. The greater the mass (of the object being accelerated) the greater the amount of force needed (to accelerate the object).
3. For every action there is an equal and opposite re-action.

These are all relativistic relationships.

All observable "Relativistic" components of the Universe form from quantum aliasing of functioned entanglements. The mathematic attempt to approximate predictions in these macro-scale aliased systems are models from "Probability Aliasing".

Particle Accelerator/Collider/… Experiments

The forgoing contributes support to the observations in subatomic particle accelerator and collider experiments where everything is relativistic; lacking are foundational impervious particles. All particles are relativistic representations of functioned quantum entanglements.

Collider observations are transitional states of fractured functioned loops of entanglement that interact within white matter; the detectors. Once the relativistic states stabilize, the function fragments of entangled connections revert to stabilize the entangled system as a whole. Keep in mind that Relativistic "speed" exists in relation to a constant moderator and that accounts for finite speeds in instantaneous environments; the purpose of the limitation provided by the speed of light. Quantum Mechanics embeds relativity in probability. Newtonian Physics embeds relativity within measurable tolerance. The relativistic observable universe superimposes upon systems of functioned entanglements (Relativistic Mechanics).[5]

Manipulating systems of functioned entanglements provide the foundation of observable physics (Singularity Mechanics). A Singularity is nothing special; simply a system of entanglements that form a functioned moderator, or constant moderator, to stabilize systems of entanglements (i.e. Higgs-Boson as mass, Time, Space, Higgs Field moderators; singularities).

Tools for manipulation of entanglements are currently the double slit experiment, particle accelerators/colliders/..., and anything producing causal disparity at a unique point of reference.

Relativistic Time is recursive causality (evolution). Space is scalar causality. The instantaneous feedback between systems of scalar/recursive causality is the moderator (ratio) we refer to as space/time.

Whenever entangled connections feedback or feed-forward, a new abstract moderator forms to connect a system of recursive and scalar causality. More importantly, this describes the abstract stabilizing influences that constant moderators and relativistic moderators have in our systems of observable physics.

Based upon this foundation, ALL of physics unifies to include instantaneous properties of entanglement, gravitational aberration, electromagnetic, gravity, and all physics anomalies.

Transposing Models in Particle Physics to Quantum Entangled Systems

In particle physics, nothing travels faster than the speed of light. In particle physics the relativistic speed of light is treated as a scalar constant. Where does QESdunn potentially fit into particle physics?

r-c = relativistic speed of light =

nr-c * e^[{-Frecursive_causality(space, time, Higgs Field, Higgs-Boson)+Fevolutionary_causality(space, time, Higgs Field, Higgs-Boson)}/Fscalar_causaltiy]

Exponential functions occur in nature repeatedly, and in Quantum Entangled Systems the speed of light may be a recursive singularity. The recursive functions of entanglements forming relativistic physics may have their "functions" moderated by a constant set of relationships (i.e. speed of light changes in a liquid). The result of the above exponential function always equals one so long as the functions of causality are balanced. This is just a starting point from which to begin experimental consideration related to relativity.

Getting Existential

Related to the Intelligent Universe philosopher, the macroscopic causal systems of Fate/Evolution as a relativistic moderator called Inception, are constant moderated with a yet to be detailed constant called Karma. The main difference between Scalar Causality and Fate is potentially because of the instantaneous foundation of physics, that everything as part of a continuum repeats, and as such, Fate and Scalar causality are the same.

Therefore, we never die, in a continuum we repeat; potentially with a form of memory.

That said, there is a probability that in the interest of sustaining evolutionary relationships that a universal cognitive entity(s) constantly realigns the above cited singularities. The apparent nature of quantum entangled systems is to evolve new relationships. In nature and in simulations, the natural systems of outcomes are usually extremes; either chaos or the elimination of causal evolution. In either case this would tend to mean a destruction of all meaningful systems of relativity; the destruction of our universe. A stabilizing control system may be encountered and it may be cognitive. For religious peoples this should be a relief.

Regardless of the actual foundation for which quantum entanglement is built within; the proposed system allows us to create universes of our own design to use as tools for the complex control of our own systems of entanglement. Any number of different foundational support environments may exist, so long as they support a system of quantum entanglement, the instantaneous process can provide the same functioned quantum entanglements as described above.

By copying systems of entanglements into separate systems of entanglements and cloning them (instantaneous), realizes the foundation of an unconnected "relativistic" universe.

We can make an exact copy of our universe (parallel universe) and accelerate that derived universe' causality. By setting up a system trigger, we can capture technological developments, and anticipate global extinction events, and be prepared to avert those impending destructions.

A parallel universe is a universe that may be sequenced differently with different outcomes, but all relativistic physics are identically the same; with the same constants/moderators.

References (1 page)

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Additional references are available. The contradictions between the articles also contributed to the above defined relationships, allowing to be able to deduce and inductively create a potential system without the contradictions. This essay shortened as a requirement of contest entry.

Endnotes (2 pages)

Inferred Pathway of Experimental Outcomes leading to Control of Space and Time

The sequence is intended to provide efficient discovery of suspected relationships of which will support the next experimental systems.

NIST develops Quantum Entanglement properties database and relational tools

University Alliance created with interactive coordination with all schools (ed.gov)

Schools begin contracting with students – full support in exchange for 5% of all earnings

Cited Government Departments coordinate under 6-Sigma Concepts

Focus upon industry funded research and related business developments

NIST indirectly guides shortest-path development for controlling space/time/gravity

The following are sets of outcomes and the system relevant relationships, not individual developments:

1: Discern the difference between systems of entanglement and that of test and measurement observable entanglements.

2: Determine a method of monitoring entanglements without measurement changing outcomes. Dark Energy entanglement with White Matter is a current consideration due to limited causal relationships.

3: Determine a method for identifying the individual segments of entangled loops.

4: Create a method of mapping entanglement connections. Provide a method of breaking entanglements and mapping the consequences.

5: Create a functioned loop of entanglements by breaking all other entanglements within a segment of system of entanglements.

6: Identify the similar functioned entangled loops associated with White Matter

7: Identify the similar functioned entangled loops associated with Dark Matter

8: Create an entangled connection between White and Dark Matter to provide a stable memory state (MEMss) This is the bases of infinite and instantaneous memory.

9: Create an independent loop of entanglements.

10: Create a method of attaching a single entanglement to a junction between two separate loops of entanglements. These are systems of influence, not objects.

11: Create a triggered and latching MEMss to capture asynchronous states of parallel processing.

12: Create two separate functioned loops of entanglement and attach an entanglement at specific junctions of two separate functioned loops of entanglement; and, provide a MEMss to capture an event system.

13: Capture and analyze functioned entanglement loops to derive Mass (Higgs Boson), Time, Space, and Gravity (Higgs Field) functions (singularities).

14: Create similar functioned loops of entanglement in four independent quantum singularities.

15: Install MEMss connections at points of interest.

16: Create "neural network"-like systems in conjunction with functioned loops of entanglements to provide the basics of quantum physics in the contrived Universe.

17: Seed crystalline-like growth of contrived Universe (Big Bang); i.e. self-forming functions shaped by constants provided by functioned entangled singularities.

18: Map derived entanglement systems to systems in our universe and implement systematic development of foundational tools for controlling time and space.

19: Using the tools develop, clone entangled systems of our universe into derived entangled systems.

20. Use foundational tools to manipulate derived universe and capture resultant entanglement states and relativistic outcomes. Capture events MEMss (event trap) to evolve knowledge for our own Universe.

21: Use tools developed for active and separable control of space and time. Gravity and other system moderators also become controllable.

Definitions:

Alternate Universe: Any universe other than our own

Cloned Universe: Exact copy of ours or any universe

Parallel Universe: Any universe with identically formed singularities and foundation of causal systems creating identical physics constant, but not necessarily similarly sequenced consequences

Alternate Dimensional Space: Any independent universe that has one or more physics constants that are new, different, and/or missing

Warping of Space/Time Continuum: Isolating a connectedness between functioned entangled systems causes a biasing/warping of all related systems.