8 Theory – COMPLETE OVERVIEW

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Fermions, Manifolds and Arbitrary Variations

Define a Lorentz manifold, which is the connected manifold with $(3,1)$ signature:

$$\mathrm{s} = (\mathrm{M}, \mathrm{g})$$

Invoke it to be stationary by Euler Lagrange operator, $S = S_0 \times \mathbb{R}$:

$$\mathcal{L} = (\mathrm{s}, \mathrm{s}', \mathrm{t})$$

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}} - \left(\frac{\mathrm{d}}{\mathrm{dt}}\right)\frac{\partial \mathcal{L}}{\partial \mathrm{s}'} = 0$$

Develop the last equation:

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \qquad (1)$$

If the Lorenztion manifold to be stationary and no data is attainable from the first three terms, we can require the manifold to those two conditions:

$$\frac{\partial g}{\partial t} = 0 \ , \ -\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0$$

If these two are hold to be true, we have areas of extremum curvature on the manifold and negative time invariant acceleration. The demand of extrunum curvature to stay as they are overtime means the acceleration cannot affect them – if so, directed away from them. This in agreement with what we speculate as "dark energy". Notice that M is now the matric tensor, g is the Ricci flow. That is the result of parametrizing the manifold to "s" variable and inserting it to EL operator, yielding agreement with Einstein principle of equivalence.

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}\delta \mathrm{g} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}\delta \mathrm{g}' = 0$$

Equation reads, length to manifold, manifold to matric, matric to flow, flow to time. $\delta \mathrm{g}$ as amount of arbitrary variations, which by demands of stationarity we require to vanish. Discretizing and partitioning the term δg into a series of sub elements, we can derive the existence of fermions, i.e. showing that it must have an even amount of elements, which differ in sign and create nine threefold combination, and no more than two distinct elements.

$$\delta \mathrm{g}_1 + \delta \mathrm{g}_2 \ldots = \sum_{i=1}^{N} \delta g_i$$

$$\sum_{i=1}^{N} \delta g_i = 0$$

Given four elements distinct:

$$\delta g_1 + \delta g_2 > 0$$

$$\delta g_3 + \delta g_4 < 0$$

If

$$\delta g_1 + \delta g_2 + \delta g_3 + \delta g_4 \neq 0$$

Than the overall series cannot vanish, by that logic we need even amounts of equal elements of pluses and minuses. The amount must be even and summed as zero, ensuring stationary Lorentz manifold. Suppose that we had three distinct elements, two pluses and minus:

$$\delta g_1 + \delta g_2 + \delta g_3 > 0$$

or

$$\delta g_1 + \delta g_2 + \delta g_3 < 0$$

Demanding the series to vanish this will exclude this result, and so there could not be three distinct elements in the series, else the overall series will not vanish to zero. As a result of those sceneries, we require the series to have an even amount of variation elements, manifesting as two distinct elements in the series, which differ in sign. If we allow those sub elements in the series to vary as well, and by the above reasoning, there are only two elements in the series, they are varying in a discrete way, or forming a group. Let it be only four elements in the series and one of the pluses just changed its nature

$$\mathbf{O}: \delta g_1 \to \delta g_2$$

$$\delta g_1 + \delta g_1 + \delta g_2 + \delta g_2 = 0$$

To:

$$\delta g_1 + \delta g_2 + \delta g_2 + \delta g_2 = 0$$

There must be a way to bring it back to where it was, so the overall series can vanish, it takes another map, on the varying element to bring it back to where it was.

$$\mathrm{Y}: \delta g_2 \to \delta g_1$$

Therefore, to bring an element to itself given only two varying elements in the series we need two distinct maps, which attach a varying element to itself, by a threefold combination. $\delta g1(O)\delta g2(Y)\delta g1$ For example. Even though the sub elements in the series are varying, the overall series can vanish.

Now, count all the ways of possible combinations of those elements. We are going to analyze by the integral signs. Since it is a group, there is a natural map, which change an element to itself. One built his analysis firstly on those natural maps.

So:

$$(1(e)1(e)1)$$

$$2(e)2(e)2$$

$$(221)$$

$$(112)$$

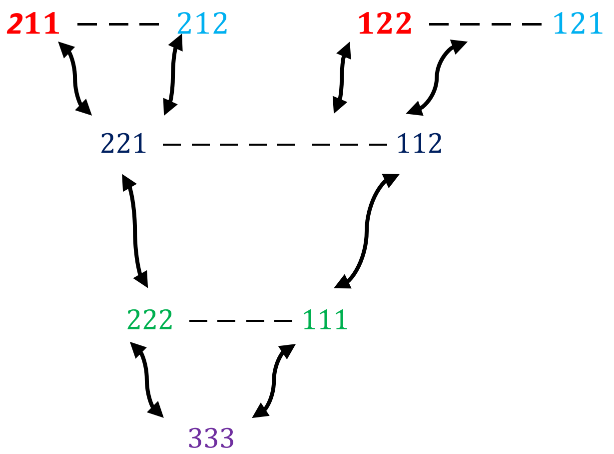
$$(211)$$

$$(122)$$

$$(212)$$

$$(121)$$

The first two combinations are by the natural maps and one used them to build the other combinations. Overall, there are eight such combinations and additional one arrow combination, which yield (333). Here is how one built it, starting from those two natural maps. (Arrows to variations, colors to pairings):



Therefore, we have Lorenztion manifold with arbitrary variations, which vanish into matter based on that idea. One does not know whether these are the actually variations, as the mathematics does not entail any details about that. Therefore, the graph could be inaccurate in elements order. The colors meant to elements pairing.

Reader does not have to agree with what one did**,** but as one will calculate the ratios of all the forces known, one kindly asks the reader to keep reading as some truth seem to obey the reasoning one is suggesting.

Deriving the Coupling Constants Equation

Theorem (1) – nature will not allow a prime amount of variation to appear by itself. Define prime to be (2n+1) variations.

1.1) Prime amounts appear in pairs.

Theorem (2): Nature will generate force if a **prime net amount of arbitrary variation will appear**. Net variations will appear when combine two amounts of prime variations.

Two does not appear, as it is an even amount of variations, which vanish.

Define N_V as the series of prime net variations and the number one.

$$N_V = \ 2V + 1 \qquad\qquad V \geq 0$$

Count all the prime pairs of variations,

$$(3,3)\ \ (3,5)\ \ \ (3,7)\ \ (3,11), (3,13) \ldots$$

$$(5,3)\ \ (5,5)\ \ (5,7)\ \ (5,11)\ \ (5,13)\ \ \ldots$$

$$(7,3)\ \ \ (7,5)\ \ \ \ (7,7)\ \ (7,11)\ \ \ (7,13)\ \ \ldots$$

$$\ldots.$$

$$(29,19)(29,23), (29,29), (29,31) \ldots$$

That is a tedious work, but here is the great part. **We only need to do it twice** to find what nature does repeatedly.

Since we have only two varying elements in the series, we can eliminate almost all the options, as we require obtaining **a sum that is divisible by two** **and after** **yields a number divisible by three.** By The following reasoning: Two as we have only two varying elements. Three as these elements create a certain amount of threefold combinations.

The sums satisfying the condition is (5,13) or (7,11) and (29,31).

Of course, there are more as N_V has no limit, but as one mentioned, it took two pairs to understand the principle:

Theorem (3) –

Each prime pair should have a net variation element N_V proportional to Total Variations value divided by two.

This will be vivid with actual examples:

Analyze the $(\mathbf{7},\mathbf{11})$ total variations pair with $\mathrm{N_V} = (+\mathbf{1})$:

Total variations sum is divisible by two:

$$18/2 = 9$$

And then by three

$$9/3 = 3$$

We know that we have N_V = $(+1)$ so it can be extracted to yield:

$$F_1 = 8 + 1$$

However, even amounts of variations vanish so we can ignore the element 8 and write:

$$F_1 = 1$$

Analyze the next pair of total variations $(\mathbf{29}\,,\mathbf{31})$ with $\mathbf{N_V} = (+\mathbf{3})$

$$29 + 31 = 60$$

$$60/2 = 30$$

In addition, three devisible. We know we have three net variations so extract:

$$27 + 3$$

Now that is all you need to complete the series and calculate the **next element**:

Notice:

$$27 \ = \ 24 + (3)$$

$$(8 * 3) = 24$$

$Obtain\ the\ ratio$:

$$[8 + 1]: [27 + 3] \ = \ [8 + 1]: [24 + (3)] + 3$$

$$[8 + 1]: [27 + 3] \ = \ [8 + 1]: [(\mathbf{8} * \mathbf{3}) + (\mathbf{3})] + 3$$

Next element $V = 2$ and $N_V = +5$ **so if the overall idea to be correct** we take this element, multiply by the even sum of the previous element in the series, **add extra invariant (3)**, and we know we need add to the sum the extracted N_V.

$$[(\mathbf{24} * \mathbf{5}) + (\mathbf{3})] + \mathbf{5} \ = \ \mathbf{128}.$$

Next in line:

$$[(120 * 7) \ + (3)] \ + 7 \ = \ 850$$

$$[(840 * 11) + (3)] + 11 = \ 9254$$

Nature is than the interplay between averages of total arbitrary variations pairs to net variations/curvature. To calculate the magnitude of an element R:

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3) \right) + N_V = 30: 128: 850: 9254.. \qquad (1)$$

$$N_V = 2\left(V + \frac{1}{2}\right); \ V \geq 0 \qquad (1.1)$$

$$N_V \ \in \ \mathbb{P} \ \cup \ \ (+1) \ ; \ \ \mathbb{P} \rightarrow Set\ of\ Primes$$

$$N_V \ = P_{max} \ \in [0, \mathbb{R}] \ \cup \ (+1) \ ; \ P_{max} \in \ \mathbb{P}$$

$$\mathcal{P}_0 = 8 + (1) \qquad (0)$$

$$\mathcal{P}_N \# = \left(2^M * \prod_{V=1}^{V=N} \mathcal{P}_V + (\mathcal{M})\right) + \mathcal{P}_V = 30:128:850:9254.. \qquad (1)$$

Equation 1.1 is another way of representation. $\mathcal{M}$ As the first letter of the word 'Majestic'. # Sign meant for classification as a primorial function. "D" as possible magnitudes.

Overview of reasoning:

Axiom – prime amount of arbitrary variations pair to each other

Their overall sum must be dividable by two and three

Two distinct elements, which create threefold combinations

Define generated force as prime net variation in which we associate N_V elementt

$\frac{\text{total variations}}{2} \propto$ to N_V element by the relative size of total pairing

Net variation function cannot contain an even, as it will vanish

We searched for the first two prime pairs and derived $8 + (1)$ and $27 + (3)$

We saw that nature multiply the even sum by the next element of N_V

We found the invariant (3) element.

We obtained a number to which we add the extracted net variation

We calculated the next element to be exactly 128 and the two next interactions:

$$8 + (1): \big(24 + (3)\big) + 3: \big(120 + (3)\big) + 5: \big(840 + (3)\big) + 7 \ldots$$

$$(1): (30): (128): (850): (9254) \ldots$$

Predictions and Conclusions

There is an infinite number of bosonic fields, which are Lorentz manifold net curvature.

The clusters of total variations grow much more rapidly than the net variations.

The larger the cluster, the weaker the interaction.

The magnitude of interactions is manifested an in infinite series of ratios

$1{:}\,30{:}\,128{:}\,850{:}\,9254\ldots$by the expression:

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

Possible meanings of the Majestic (3)

Option 1

The **invariant three (3) as a cause**. Notice that all the element within the closed term (8*..) Are two and three divisible to vanish into matter. The invariant (3) prevents it completely and then as a result, a net variation will appear. The net variation is proportional to the right element in the bracket$(8 * 3) \propto 3\ and\ (24 * 5) \propto 5$.

Option 2

The **invariant three (3) as a result-**There are perfect clusters of variations such $(8 * 3), (24 * 5)$, which experience additional net variation causing them to destabilize. The result is manifested in the invariant (3). The additional variation could affect them could be external. Less likeable option. It is less likeable as we can them create mixtures (8*3) to destabilize by five net variations, and yield invariant (3) and all the beauty in which we attained than will be lost.

Option 3

The **Invariant three (3) and net variation as duals-** both appear at the same time and they are related to each other by more fundamental relation, which is not attainable nor explainable. Even though we found a jewel, many questions still stand unanswered.

Why the invariant (3) appear as it is and do not change?

Of course that the real answer to that question is that one does not know. However, one can guess and say that (3) is the smallest odd prime. If we assume that nature is Lagrangian oriented, it might be the minimal way to destabilize the cluster of potential matter. Why add (37) additional variations when only (3) is needed? It's a logical argument not a proof, and therefore rightfully argued by reader. One was trying to argue that (3) is a Prime minima, that is the reason for its invariant in the series. Remember that even variations vanish, so two is not an option.

Correlating the Majestic (3) To Spin (1/2) and Matter

In the paper about primes, we have shown that they create a non-abelian group with $\frac{1}{2}$ as generator, by using the anti-commutation relation and vanishing of even amounts of variation. It recently become evident to one that we can represent each element in the series in the following way:

$$[(8 * 3) + (3)] \rightarrow \left[2N1 + \frac{1}{2}\right]$$

$$[(24 * 5) + (3)] \rightarrow \left[2N2 + \frac{1}{2}\right]$$

$$[(120 * 7) + (3)] \rightarrow \left[2N3 + \frac{1}{2}\right]$$

Since (3) is a prime, and aligned on the prime ring located on critical line of $\frac{1}{2}$. The sums alongside of it are even sums such as $8, 24, 120$ and so on. These expressions are interesting, as one believes they represent the notion of matter or fermions. Notice that we omitted the additional net variation, which is also prime. Meaning it is also on the Prime Ring Located on $\frac{1}{2}$. Overall:

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2N1 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2N2 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(120 * 7) + (3)] + 7 \rightarrow \left[2N3 + \frac{1}{2}\right] + \frac{1}{2}$$

So the construction within the parenthesis is prime but the overall additional net is changing it, and making it: $\left(\frac{1}{2}+\frac{1}{2}\right)=1.$ So the overall $1:30:128$ will have to do with certain elements that have element one.We already knows these are bosons, as we found the coupling constants series. If so, than the rest of the terms are fermions, as only $(1/2)$ is there.

So it is the Majestic (3) →in this paper: $(1/2)$ element to destabilize perfect clusters of variations and causing a net variation to appear. Notice that one chose the first option in regards to the meaning of the invariant (3), as we had in part two three ideas to it possible meaning. We have proved that the Majestic (3) is Spin. We also proved, that bosons will propagate within variation clusters destabilized by (1/2), or matter. These are non-trivial statements. We only use one equation, not experiment nor inherited knowledge. **Using that framework, we can see why bosons will propagate within fermions.** Since Its invariant, all matter must have the same spin , $\frac{1}{2}$.

So (2N) are variation clusters, the majestic (3) is really a destabilizing factor which is spin (1/2) yielding matter. Because of that process, a boson will propagate from within the fermion. The nature of the boson is correlated to right element of the term: $(8*3)\rightarrow 3$ (weak particle),$(24*5)\rightarrow 5$ or a photon, so on.

<u>Majestic (3) as the Electron</u>

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3) \right) + N_V = 30:128:850:9254.. \qquad (1)$$

$$8 + (1)$$

$$[(8 * 3) + (3)] + 3$$

$$[(24 * 5) + (3)] + 5$$

$$[(120 * 7) + (3)] + 7$$

.....

$$[(8 * 3) + (3)] \rightarrow \left[2\text{N1} + \frac{1}{2}\right]$$

$$[(24 * 5) + (3)] \rightarrow \left[2\text{N2} + \frac{1}{2}\right]$$

$$[(120 * 7) + (3)] \rightarrow \left[2\text{N3} + \frac{1}{2}\right]$$

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2\text{N1} + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\text{N2} + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(120 * 7) + (3)] + 7 \rightarrow \left[2\text{N3} + \frac{1}{2}\right] + \frac{1}{2}$$

In previous paper, (part three) we called the (1/2) an element to destabilize Perfect clusters of variations and causing a net variation to appear. In this part, we can **call it the Electron.** Later in the thesis, we will prove it by putting inside the equation of the fine structure constant.

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2}$$

$(2N\ variations) \rightarrow Spin\ 0$

$(2N\ variations + 3) \rightarrow Matter\ with\ spin\ (\frac{1}{2})$

$(2N\ variations + 3) + N_V \rightarrow Bosons\ with\ spin\ (1)$

$(2N\ variations + 3) + N_V 1 + N_V 2 + \cdots \rightarrow Boson\ with\ higher\ spin\ integers$

When we first discover the coupling constant equation, we only saw the analytical aspect, by and the ratio between the total variations to net variations. However, by setting the equation on the geometrical realm and examining the critical line of the primes, we can get a deeper insight to what is going on. We are able to analyze the trait of spin, we can understand why bosons have spin 1 and the Invariant (3) spin (1/2). Therefore, it is the electron, which causes the boson propagation from clusters of potential matter.

Sure, we knew that, but we did not have the mathematical equation to describe it. The coupling constants equation has than another powerful use; it describes what it going on in elementary level, not just the magnitude of the interactions. It was only available to us when we examined the geometrical realm.
Please notice that the electron is inside potential cluster $\left[2\mathrm{N}2 + \frac{1}{2}\right]$ so we would not be able to know where it is within the cluster, it blends in [120+3] = 123.

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (e)] + \gamma \qquad (3.11)$$

The Complete Picture:

$Perfect\ clusters\ of\ variations \rightarrow 2N$

$Destabilize\ the\ perfect\ 2N\ \ is\ the\ majestic\ (3) \rightarrow \left(\frac{1}{2}\right) \rightarrow electron.\ \ Blends\ in$

$the\ potential\ cluster\ to\ yield\ in\ that\ case \rightarrow 123.$

$The\ result\ is\ the\ net\ variation, also\ Prime\ \ N_V \rightarrow \left(\frac{1}{2}\right) =\ +(5)$

$The\ overall\ result\ yields\ \left[2N + \left(\frac{1}{2}\right)\right] + \left(\frac{1}{2}\right)\ probability\ to\ an\ emission\ of\ a\ boson.$

$123 + 5 = 128.$

We have taken the third element in the series, as we are familiar with the nature of the electrons due to the great minds of the past century, but the following result would apply to each element in the series from the second and above.

$$[(24 * 5) + (3)] + 5 \rightarrow\ [(24 * 5) + (e)] + \gamma \qquad (3.11)$$

Weak Interaction Negative Left orientation

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30:128:850:9254.. \qquad (1)$$

$$8 + (1)$$

$$[(8 * 3) + (3)] + 3$$

$$[(24 * 5) + (3)] + 5$$

$$[(120 * 7) + (3)] + 7$$

....

$$[(8 * 3) + (3)] \rightarrow \left[2\mathrm{N}1 + \frac{1}{2}\right]$$

$$[(24 * 5) + (3)] \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right]$$

$$[(120 * 7) + (3)] \rightarrow \left[2\mathrm{N}3 + \frac{1}{2}\right]$$

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2\mathrm{N}1 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(120 * 7) + (3)] + 7 \rightarrow \left[2\mathrm{N}3 + \frac{1}{2}\right] + \frac{1}{2}$$

Notice that each term in the series within the parenthesis is prime → $123, 843,9243\ldots$as one did not calculate the entire series he is going to assume that is would be true concerning each higher element in the series. We are leaving out the net variation in this part.

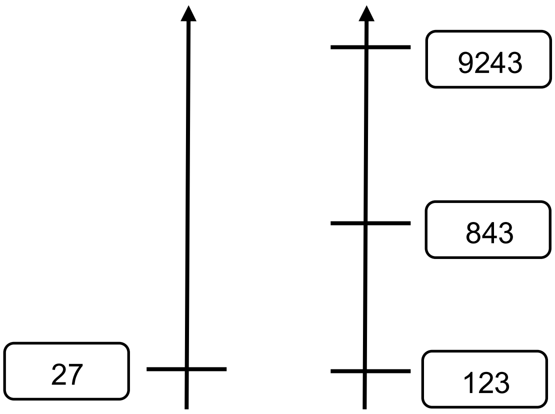
Notice that the only term which is not a prime after added the Majestic (3) or spin (1/2) is the second element in the series, in which we associate with the weak interaction.

$$[(8*3)+(3)]=27$$

As the series is increasing and each term inside the parenthesis is creating a higher prime than the previous element, in order of weak interaction to be of the same nature of the rest of the forces, we would need that the sum of the parenthesis to be a prime, we look for the closest higher prime:

$$[(8*3)+(3)]\rightarrow 29$$

So in order to be like the rest of the forces. Meaning to have a prime inside a parenthesis, it lacks a certain amount of variation. If we associate each interaction to be invariant to direction – and the Cause of such a trait could be the prime term inside the parenthesis, than the weak interaction would differ by its nature.



The fact that the term inside the parenthesis is not on the critical line of the primes, but left to it, can explain why the weak interaction is left oriented and differ by its nature by the rest in terms of its spin. We have proved that the majestic (3) is really a different representation of spin, which destabilizes clusters of perfect variations causing the N_V to appear, which overall yield a propagation of a Boson from the fermion, and therefore gives us the beautiful series of coupling constants.

If all the Terms on the critical line of primes are yielding interactions that are invariant to direction, than one could predict the weak interaction to be spin oriented to the left by the ratio (2), since the strong interaction is also not on the critical line, such orientation could exist in its regards as well.

$$27-29=-2 \qquad (1)$$

$$\left(\frac{1}{2}-2\right)=-\frac{3}{2} \qquad (2)$$

Mathematical Duality of Forces-Virtual Variations

We will take the equation built and first three developments:

$$8 + (1): [(8 * 3) + (3)] + 3: [(24 * 5) + (3)] + 5$$

The idea: we will allow the net variations to vary, and when they have the same value, than the expressions inside the parentheses will become scalar multiple. This will be done by using the idea of virtual variations:

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (3)] + 3$$

Notice that now the third is a scalar multiple of the second by a factor of 5:

$$[(24 * 5) + (3)] + 3$$

$$[(8 * 3) + (3)] + 3$$

Therefore, the weak and the electric are differing now by a scalar. That is simply beautiful. However, the strong force just accepted that extra two variations so it is just become:

$$8 + (1) + 2 \rightarrow 8 + (1).$$

As Even amounts of variations vanish. It does not affect it. We can try something more interesting, and that is the real purpose of the part:

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (3)] + \mathbf{2}$$

$$8 + (1) + 3$$

Now this will ruin the duality and the series, the weak and the electric are not isomorphic, and the strong just got a prime amount of variations that cannot vanish. To solve that we can define a virtual exchange of variation $\rightarrow (1v)$.

$$[8 + (1)] + 3 - (\mathbf{1v}): [(24 * 5) + (3)] + \mathbf{3}$$

The real variations are (+3) but to ensure the nature of the strong force, there is a virtual exchange of one variation, marked in bold. For a very short time period, the strong is now a scalar multiple of the other two. Overall, they have the same prime amount of net variations – will mean they are at equivalence relation. For the first three forces:

$$N_V = +(3).$$

$$[8 + (1)] + 3 - (\mathbf{1v}): \quad [(8 * 3) + (3)] + 3 : \quad [(24 * 5) + (3)] + \mathbf{3}$$

We can say that there are three real exchanges and one virtual, so overall four exchanges, which causes all the forces to align on the $N_V = +(3)$. Taking the average of the Sum: $4/2 = 2\ net$.

The converging value of the those exchanges will modify the middle element:

$$[(8 * 3) + (3)] + 3.$$

Since we want to keep the prime net variation as it is, to ensure duality, and we can't touch the invariant (3), we add this (+2), the first term:

$$((8 * 3) + 2) = 26.$$

The point where they three aligned will be $24 + 2$ variations. certain agreement with this Number exist.

Proof: The Pauli Exclusion Principle

$$F_{V=0} = 8 + (1) \tag{0}$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \tag{1}$$

$$8 + (1)$$

$$[(8 * 3) + (3)] + 3$$

$$[(24 * 5) + (3)] + 5$$

$$[(120 * 7) + (3)] + 7$$

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2\mathrm{N}1 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(120 * 7) + (3)] + 7 \rightarrow \left[2\mathrm{N}3 + \frac{1}{2}\right] + \frac{1}{2}$$

We have seen that we can change the term outside the parenthesis, and so we can reach duality between the forces. When we did it in the first three terms, we saw that their duality is exactly on 24+2 variations, which is in agreement with what we know in other theories of GUT. We briefly mention in that paper, that we cannot touch the invariant three. This will be the subject of this part. If we for example combine:

$$[(24 * 5) + (3)] + 5 \pm \text{INTEGER} \ldots$$

We can switch and change the terms outside the parenthesis, as those are net variations and they do not seem to obey to any strict rules. However, we could not touch the invariant (3) and now we will examine deeply the reason.

$$[(24 * 5) + (3) + (3)] + 5 = [(24 * 5) + Even)] + 5$$

$$Even = 0$$

$$[(24 * 5) + 0)] + 5 \rightarrow \text{Impossible}$$

As even amount of variations vanish. Recall that the invariant three is the cause; It is the destabilizing factor yielding a net variation. In the case of the third element, it is the Electron. So using that framework, we can see why we cannot combine two electrons or invariant three elements together. The term than becomes meaningless, a photon cannot propagate from nowhere and the coupling constant series does not makes sense anymore. So the invariant three cannot be combined, it will repel each other. The net variation however can be changed and switched, which makes the flexibility and duality of the forces. The equation is with complete agreement with our understanding; we are just examining additional meaning of it. It allows us to examine it from a deeper, more profound view. Now we can understand why fermions do not commute – because even variations vanish and so bosons will not be propagated.

If we eliminate the electron, than no boson will be propagate at all. However, consider the following:

$$[(24 * 5) + (3)] + 5 + [(24 * 5) + (3)] + 5 + .. =$$

$$[(24 * 5) + (3)] + 7 + [(24 * 5) + (3)] + 3 + .. =$$

While we cannot touch the terms inside the parenthesis, we can change and combine the net variation, there seems to be no limitation in regards to that operation, we have done it before, and showed that the forces can be scalar multiples. We can cluster the net variations, which means that many electrons can emit net variations together, That is bosons, which agrees to what we know as laser, or what we know as bosons commutation relation in QFT. However, using the 8-theory framework we can get a new and fresh insight on why those things are the way they are using the coupling constant equation. As we mentioned in part four of the paper series on coupling constants, the invariant three blends in the total cluster of the fermions, so we cannot know where he is. That is in agreement with the Heisenberg principle of uncertainty.

Strikingly Beautiful Relation of Three Generations Masses

The idea, which is followed by the last paper, is that if $8+(1)$ to generate force, and force is extended outward, (short or long ranged) than $8-(1)$ would be to generate mass, or arbitrary **variations converging inward**. Equipped with this idea we can search for a mathematical pattern. First, take all the masses, accurate as they can and combine them according to generation:

$[1.9]$ $[1320]$ $[172{,}770]$

$[4.4]$ $[87]$ $[4240]$

$$1.9+4.4\approx 6\tfrac{1}{3} \qquad (1)$$

$$1320+87=1407 \qquad (2)$$

$$172{,}770+4240=177010 \qquad (3)$$

Seemingly nothing in common, we can change it. Soon one will reason why the following exactly, multiple equation one by factor of 9 and divide (3) by a factor of 9.

$$6\frac{1}{3}*9=57=50+7 \qquad (1)$$

$$1320+87=1407=1400+7 \qquad (2)$$

$$\frac{177010}{9}=19{,}667=19{,}660+7 \qquad (3)$$

Also, notice that

$$50 * 28 = 1400$$

$$1400 * 14 = 19{,}600$$

$$(60\ Mev\ Difference - 0.03\%)$$

but

$$28 = 7 * 4$$

$$14 = 7 * 2$$

so to go from first to second:

$$(7 * 4) * 50 + (7)$$

And from second to third

$$(7 * 2) * 1400 + (7)$$

Notice that it is a decreasing by an even factor of two. In addition, if we go from low to high it does not make sense physically, it should be Lagrangian oriented, nature is devising by increasing amount to minimize the arbitrary variations, so if correct we should go from three to one by devising:

$$\frac{19{,}660 + (7)}{7 * 2} = 1400 + (7) \qquad (3.1)$$

$$\frac{1400 + (7)}{7 * 4} = 50 + (7) * \frac{1}{9} \qquad (3.11)$$

Next, we can predict that **total mass** for fourth to sixth families:

$$\frac{50+(7)}{7*8}*\frac{1}{9}= \text{ 0.113 mev}$$

$$\frac{0.113}{7*16*9}= \ 0.000113\, mev \quad \boldsymbol{or} \quad \frac{0.113}{7*16}= \ 0.00100\, mev$$

$$\frac{0.000113}{7*32*9}=5.95*10^{-8}\, mev \quad \boldsymbol{or} \quad \frac{0.00100}{7*32}=0.0000045\, mev$$

Summing 4-6 families: 0.113113 or 0.1140 Mev. We can see a converging to the value of the forth which is 55.25-55.69 lighter than first family:

$$\frac{6.3}{0.1131130595}=55.696 \quad or \quad \frac{6.3}{0.1140}=55.26$$

Note that we needed to readjust the scale by the factor of $8+(1)$ as we manipulated the data, in a search for a pattern. Adjust it in the third family, by Multiplication and in the first and by division.

The following reason, T-B family has much more mass, thus much more arbitrary variation converging inward, that might by the reason it has $8+(1)$ factor in the nominator, and in the first, the arbitrary variations are so small, we need to adjust it in the opposite direction, to increase by $8+(1)$. Whether in the fifth family and below, additional rescales are needed is unknown, we do include two options, with the $8+(1)$ or without it.

So according to the above reasoning and mathematical notion, one will predict infinite family is forming below the masses of the U-D masses, converging to total value of ≈ 0.113113 Mev as family's below the six are neglected due to little contribution the total sum. So overall, we can write:

$$M_{N+1} = \frac{M_N + (7)}{7 * \prod_{E=1}^{r} N_E} * \frac{1}{9} \qquad (3.12)$$

$$M_{N+1} = \frac{M_N + (7)}{7 * \prod_{E=1}^{r} N_E} \qquad (3.13)$$

$$N_E = 2E\,; E \geq 1$$

is to a function for two multiple of variations. N_E

Overview of ideas

Mass is a variation of the manifold converging inward. Just like force but opposite in direction. Nature is eliminating the arbitrary amount of variations by devising in increasing amounts. That prediction is the rule of dark matter in our theory. It suits the fact that very quickly the families total is converging to zero. The rate in which the conserving to zero is made is unknown.

The theory provides two options. First, with the rescaling factor to each family and second option without it. Rescaling only Once. Both options agree on the value of the total mass of the fourth, which is about 56 Times lighter than first.

$$M_{N+1} = \frac{M_N + (7)}{7 * \prod_{E=1}^{r} N_E} * \frac{1}{9}; \quad M_{N+1} = \frac{M_N + (7)}{7 * \prod_{E=1}^{r} N_E}$$

As we combined the net masses of the two elements, the value should be again, decomposed to the two separate elements. There are an infinite variety of families whose mass is decreasing, thus below first generation of quarks, this could agree with so-called, dark matter**.** Cosmologists to decide whether the mass values predicted agree with the data.

The Rise of the Arrow of Time

$$F_{V=0} = 8 + (1) \tag{1}$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \tag{1.1}$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ V \geq 0 \tag{1.2}$$

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \tag{2}$$

In our framework we have a Lorentz manifold inside an Euler- Lagrange equation. The manifold experience arbitrary variations, which vanish into, matter, we proved it in previous papers. Each time net variation appear on the manifold, a boson is manifested into our matric. That was the idea, which derived the coupling constant equation. Net variations are prime, and for each prime, there is a boson, unique boson:

$$8 + (1)$$

$$[(8 * 3) + (3)] + 3$$

$$[(24 * 5) + (3)] + 5$$

$$[(120 * 7) + (3)] + 7$$

However, how does that relate to the arrow of time? Recall that the coupling constant equation is really a built upon a ratio between total variations divided by two and net variations which are prime. We saw that the total variations grew much more rapidly than the net, and we required a Sequence, that it will go from low to high. Therefore, the arrow of time should go from low to high as well. There could not be a photon propagation without electron, which propagate from the nuclei, or cluster of so-called quarks. The sequence of The coupling constant equation is the sequence of time it allows us to build from the elementary to the massive, first arbitrary variations eliminate and vary themselves, create protons and neutrons which vary as well, propagate electrons, which vary as well, yielding photons and electromagnetism.

Nature as the interplay of total variations to net variations, which grow in number and gets weaker from one element to another, explain why the forces at a large scale are much weaker than those at smaller scale, here are much more total variations and the net is divided across the whole cluster. So starts and galaxies must appear only after the strong, weak and electromagnetic.

Nature is going from high to low, from small amount or strong variations to weak amounts of net variations over bigger clusters of total variations. Keep in mind that when one say **variation he means curvature** as we built the 8- theory upon a Lorentz manifold. However, if we look at each element in itself, like electromagnetism for example we will not see any clues for the arrow of time, as it's not telling anything about the arrow. It is only when we found the series of Coupling constants and the intimate relation of the boson to primes and and put them in a row, than and only than we can see the rise of the arrow of time.

In other words, we can reason why galaxies and cluster of galaxies can form only after the strong, weak and the electric. We are also able to reason the weakness of gravity and the interactions in higher terms in the series.

$$1 > \frac{1}{30} > \frac{1}{128} > \frac{1}{850} \quad \ldots$$

$$1 > \frac{1}{30} > \frac{1}{128} > \frac{1}{850} \quad \ldots$$

The Almost homogenous Universe

$$F_{V=0} = 8 + (1) \tag{0}$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \tag{1}$$

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \tag{2}$$

The reason the universe is not completely homogenous based on the framework is that the manifold experience arbitrary variations – which than vanish into fermions. marked in black.

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}\delta \mathrm{g} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}\delta \mathrm{g}' = 0$$

Those variations are arbitrary amount of curvature of a manifold, and they are subject to net variations, which yielded the coupling constant equation. We saw that nature is really the interplay between total arbitrary variations to net variations. Net variations are prime in their nature, and so in the 8- theory Framework for each prime number there exist a boson.

$$8 + (1)$$

$$[(8 * 3) + (3)] + 3$$

$$[(24 * 5) + (3)] + 5$$

$$[(120 * 7) + (3)] + 7$$

The series gives rise to the arrow of time; we should see more interactions as time goes on and so, bigger and bigger structures which makes the manifold less and less homogenous. The bigger the cluster of total variations the weaker the force, as it is divided across the whole cluster.

By looking at those two equations we can see exactly why the universe or the Lorentz manifold in The 8-theory framework is not homogenous, because of those arbitrary variations and the additional net variations. The first accounts for fermions, known as quarks, the other known as bosons. Using that framework, we can see why the manifold cannot be homogenous, it is almost obvious. of course, the question of the homogenous structure is a question in which we cannot really answer, as it has no numerical data, it's a question revolving around a theory in which the lack of Homogeny is a feature of the main axioms and equations. We can see it in the framework of the 8-theory, or any Lagrangian oriented theory, which includes arbitrary variations, which must vanish at border. The beauty and innovative part in the 8-theory is that, all life forms, galaxies, clusters of galaxies **are** those arbitrary variations.

8-Theory on Universe Expansion-Collapse

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}-\frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}=0 \qquad (1)$$

$$\frac{\partial g}{\partial t}= 0 \text{ and } -\frac{\partial^2 g'}{\partial \mathrm{t}^2}= 0$$

This equation describes dark energy or time invariant acceleration from areas of extremum curvature on the Lorenz manifold. We assume no data is available from the first three terms, which describe a varying matric in spatial dimensions. To ensure universe collapse, we need to revert the signs so we will get:

$$+\frac{\partial g}{\partial t} \rightarrow -\frac{\partial g}{\partial t}$$

$$-\frac{\partial^2 g'}{\partial \mathrm{t}^2} \rightarrow +\frac{\partial^2 g'}{\partial \mathrm{t}^2}$$

In other words, the acceleration is now directed inwards, and the new equation is:

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial^2 g'}{\partial \mathrm{t}^2}-\frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial g}{\partial t}=0 \qquad (1)$$

Therefore, we have an inward acceleration and areas of negative curving on the Manifold, which agrees with the description of a compressed Lorentz manifold. However, is it reasonable physically to make such a transformation from (1) to (2)? Suppose it is reasonable to change the direction of the acceleration. By looking at the second term:

$$+\frac{\partial g}{\partial t} \rightarrow -\frac{\partial g}{\partial t}$$

Meaning, all the galaxies, clusters of galaxies, which represent extremum curvature on the manifold, must be eliminated and revert their direction inward, toward the manifold. Such shift will be along an inward acceleration and a process of manifold compression. The process than is synonymous to going from a lower energy state, colder state, to a much higher state of energy. It is a higher state of energy as it is a process of immense masses compressing inward, toward a converging Lorenz manifold, such process will be encompassed by friction, heat and high entropy. It is not Lagrangian oriented and not likeable scenario in our framework. There is no need for calculation of hydrogen atoms per unit space when we have the mathematical equation. We can also analyze the subject of expansion or collapse by using the coupling constant equation in its third representation, the arrow of time.

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

$$1 > \frac{1}{30} > \frac{1}{128} > \frac{1}{850} \;\; \dots$$

$$\xrightarrow{\hspace{6cm}}$$

$$1 > \frac{1}{30} > \frac{1}{128} > \frac{1}{850} \;\; \dots$$

A universal collapse would be to revert the side of the arrow. From weaker and weaker interactions at mega scales, to go for smaller interactions much stronger:

$$\xleftarrow{\hspace{6cm}}$$

$$1 > \frac{1}{30} > \frac{1}{128} > \frac{1}{850} \;\; \dots$$

The physical meaning would be than, stars, galaxies and clusters of galaxies to deform and in an endless succession until we reach quarks and gluons. Such process would require immense amount of energy and it has to happen across all the spectra of the foreseeable universe. In our framework, it means less manifold net variations (positive curving) over time. Physically it does not make sense, it's not Lagrangian oriented. To go from low state of energy and aspire the highest level. There is no indication that such process could accrue in nature, without artificial intervene. As far as one knows, it comes to an agreement with the laws of thermodynamics. Nevertheless, more importantly, in our framework, there is no reason for such unnatural thing to happen.

The Coupling Constant Equation and Gauge Fields

The coupling constant equation:

$$F_{V=0} = 8 + (1) \tag{0}$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \tag{1}$$

Each term individually:

$$8 + (1)$$

$$[(8 * 3) + (3)] + 3$$

$$[(24 * 5) + (3)] + 5$$

$$[(120 * 7) + (3)] + 7$$

Let us look at the first term:

$$8 + (1)$$

Remember back in the day, when we concluded that we could ignore the eight, since even amount of variations vanish, and just write that the first element is one.

$$8 + (1){:}\,\big(24 + (3)\big) + 3{:}\,\big(120 + (3)\big) + 5{:}\,\big(840 + (3)\big) + 7 \ldots$$

$$(1){:}\,(30){:}\,(128){:}\,(850){:}\,(9254) \ldots$$

We also know that there are eight gluon fields. These are meditating the strong interaction and color charge. However, this could be just a coincidence. Let us examine the next term in the series:

$$[(8 * 3) + (3)] + 3$$

This term describe the nature of the weak interaction. Notice the right inside the parenthesis:

$$(8 * \mathbf{3})$$

We also know that there are three gauge fields meditating the weak interaction. The massive W the Z bosons. which we correlate to $SU(2)$ and isospin. If the right term inside the parenthesis is a reflection on the number of fields meditating an interaction than we can examine the next term on the series, electromagnetism:

$$[(24 * \mathbf{5}) + (3)] + 5$$

That is a daring statement to make, but if the assumption to hold true, There Should be five gauge fields meditating the electric interaction. Five distinct kinds of photons. It is really an absurd statement to make, given the fact that there are no indication that there is an agreement with experiment regarding that idea. But sometimes in theoretical physics, bold risks must be taken, and so the author of this paper will allow his belief regarding the great power of the equation to guide him and State: **The 8-theory predicts five gauge fields meditating electromagnetism.** Whether such thing could be correct, only time and experiment will tell.

Quark Mass Mixing and Mixing Angles

Take the masses of all the generations and combine them:

$[1.9]$ $[1320]$ $[172{,}760]$

$[4.4]$ $[87]$ $[4240]$

$$1.9 + 4.4 = 6.3$$

$$1320 + 87 = 1407$$

$$172{,}760 + 4240 = 177000$$

The idea by Quark mixture we mean multiplication of masses of the first and second to yield the total mass of third, times a scalar. Therefore, a total mass of the first family multiplied by the total mass of the second family, both multiplied by a scalar, will yield the total mass of the third. We can proof that is the almost case exactly for the values of the masses above:

$$6.3 * 1407 = 8864.1$$

$$\frac{177{,}000}{8864.1} = 19.96$$

If we can allow a slight variation of the first masses to be 6.29 Mev and not 6.3, it will be

$$6.29 * 1407 = 8850$$

$$\boldsymbol{\frac{177{,}000}{8850} = 20}$$

Therefore, just a slight variation of 0.01 Mev and we have a beautiful number and a way to combine the total mass of the first and the second, mix them and multiply by the scalar, to reach the total mass of the third. Reader should argue that it could be just a coincidence, a choice of certain values to yield the scalar and he might be right as the masses are not measured or known as exact, they could divert.

Assuming the mixing will accrue at scalar numbers only, we can build correction angles to ensure the scalar number will hold. So if the masses of the first divert or measured at a higher value that 6.29, there will be a correction angle to retain the same scalar we obtained. The correction angles could have more than one value and they can be positive or negative. Take the mass of the up quark to be average between 1.9 to 2.2 Mev, which is 2.05 Mev.

$$\frac{1.9 + 2.2}{2} = 2.05\ Mev$$

$$2.05 + 4.4 = 6.45\ Mev$$

$$6.45 * 1407 = 9075.15$$

$$\frac{177{,}000}{9075.15} = 19.503$$

The correction angle to reach desired number would be:

$$\mathbf{19.503 + \cos\ (11.5)\ \approx\ 20}$$

There could be many more, the correction angles are not limited in number and depend Upon the masses values taken of the first, second, and the third as well. The idea behind Stay the same. The correction angle will be added to yield a scalar multiple.

$$20 * \big(TotalMass(1) * TotalMass(2)\big) = TotalMass(3)$$

Among all the topics can be explained by the 8-theory, and there has been quite a few, the question of Quark mixing seems to be among the hardest ones, and among the topics not within reach. This part is not a proof of any sort but a mathematical idea, the reader should rightfully argue and doubt it. One was trying to reason in the simplest and most elegant way, the weird phenomenon of Quark mixing. Whether it makes sense or not, readers should decide after analyzing the Paper.

The Coupling Constant Equation and Higgs Mechanism

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

$$8 + (1){:}\,(24 + (3)) + 3{:}\,(120 + (3)) + 5{:}\,(840 + (3)) + 7 \ldots$$

$$(1){:}\,(30){:}\,(128){:}\,(850){:}\,(9254) \ldots$$

Let us look at the first term describing the strong. We saw that the eight vanish since it's an even in our framework.

$$8 + (1) \rightarrow (1)$$

We also know that from physics the gluons are massless. Let us examine the second term.

$$\big(24 + (3)\big) + 3$$

We know that the bosons that meditate the weak interaction do carry mass. Moreover, we know that the symmetry of SU(2) forbids mass terms in the Lagrangian, and the solution which allows us to include mass terms without ruining the symmetry is the Higgs idea. This idea works by including extra terms. In our framework, the **extra term is the Majestic three.** Therefore, the Higgs field is responsible for the lack of order in our series, which could have been a beautiful Series of eight multiples. In a sense of the standard model, we can say it is "breaking the symmetry" by inserting the invariant (3). So overall, we move from spin 0 – perfect clusters of variations. With the Majestic (3) Inserted by the Higgs Field we move to a matter with spin one-half, we did so by setting the equation on the critical line of the primes. This (3) is really a destabilizing factor than yields a net variation, which is prime as well.

For example – Electromagnetism:

Perfect clusters of variations→2N

Destabilize the perfect 2N is the Majestic $(3) \rightarrow \left(\frac{1}{2}\right) \rightarrow$ electron.

Blends in the potential cluster to yield in that case→ 123.

The result is the net variation, which is also prime: $\mathrm{N(V)} \rightarrow \left(\frac{1}{2}\right) \rightarrow +(5)$

The overall frame yields:

$\left[2N + \left(\frac{1}{2}\right)\right] + \left(\frac{1}{2}\right) \rightarrow \mathbf{123 + 5 = 128}$. Magnitude of an interaction.

The main point of the part is that the Majestic (3) is a result of the Higgs field. It is the reason the majestic (3) appears. So overall, our framework does not contradict the Higgs Idea but support it and allow us an additional view on how the mechanism work. As the Higgs is responsible for additional terms in the Lagrangian, and in the 8-theory we see that the first elements in the series of coupling constant differ by an additional term, the Majestic (3) or spin $(1/2)$.

Anti-Matter & Dirac Delta Variation

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \qquad (1)$$

$$\frac{\partial g}{\partial t} = 0 \ , - \frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0$$

$$\left[\frac{\partial \mathcal{L}}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\right]\frac{\partial g}{\partial t}\delta g - \left[\frac{\partial \mathcal{L}}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\right]\frac{\partial^2 g'}{\partial \mathrm{t}^2}\delta g' = 0 \qquad (1.1)$$

$$\sum_{1=1}^{N} \delta g_i = 0 \qquad (1.2)$$

Reader should be familiar with the procedure. Now we have seen that we can derive the nature of fermions and the quark model by allowing the series, which contain two distinct elements to vary. So overall we obtain eight threefold combinations of those elements. Therefore, even though the elements are varying the series could vanish. That is in agreement with a stationary Lorentz manifold. There could be however, another way to ensure a stationary Lorenz manifold.

Which will match each element in the series its mirrored element. That is

$$\delta g1 + \delta \exists g1 = 0$$

$$\delta g2 + \delta \exists g2 = 0$$

By mirror, it means the same but opposite in sign. So the overall sum of the Series will hold as zero. In the 8- theory framework, Quarks are regarded as arbitrary amount of curvature on a manifold. Based on this view, anti-quarks and anti-matter is arbitrary curvature with opposite direction. Same magnitude just different direction. So overall, that framework would allow the existence of anti-matter. That is in agreement with quantum field theory and with the Dirac equation for spinors. In fact, the moment of Singularity could be a result of the series not equal to zero.

$$\boldsymbol{\delta g \neq 0}$$

The moment the series is not equal to zero than means that we have net curvature, or maximal curvature on the manifold, which will yield a negative extremum time invariant acceleration from it.

$$\left[\frac{\partial L}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\right]\frac{\partial g}{\partial t}\delta g - \left[\frac{\partial L}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\right]\frac{\partial \partial g'}{\partial \partial t}\delta g' = 0$$

In other words, the moment of asymmetry in the series yielding net curvature on the manifold could be the reason for singularity and so called among the masses "big bang". It is just an idea of course, but up until now the 8- theory was on point in regards to Issues on other theory could explain.

Dirac Delta Variation

Our main equations in the framework:

$$\frac{\partial \mathrm{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathrm{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \qquad (1)$$

$$F_{V=0} = 8 + (1) \qquad (1.1)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1.2)$$

The Dirac delta in our framework is an interference on the Lorenztion manifold. An arbitrary Amount of curvature δg on the manifold. Since it is not allowed and must vanish, we require $\delta g = 0$, as we did previously in this framework.

$$\delta g \neq 0 \qquad at \qquad t = 0$$

$$\delta g = 0 \qquad at \qquad t > 0$$

So the Dirac delta in our framework describe the process in which arbitrary amount of curvature appear, and vanish into matter. However, there is no restriction with regard to Time. Arbitrary amount of curvature can appear at any time, so we must modify the idea of the Dirac in our framework.

$$\delta g \neq 0 \qquad at \qquad t = Q(t)$$

$$\delta g = 0 \qquad at \qquad t = Q(t + \Delta t)$$

We also require that $\Delta t \to 0$ as just after the arbitrary amount or interference will appear, it will immediately vanish into matter. Therefore, in this framework is rich in delta functions. The difference is that the delta can appear at time that is not null. In a sense, we have more flexibility with the delta. After the delta appeared and as a result fermions were manifested into the metric. Those fermions could still vary, and experience a net curvature or net variation. As was analyzed in this paper those net curvatures were taken to be prime numbers and that was the reasoning behind the construction of the coupling constant equation. Those net variations of the manifold are another interference, but and interference which propagate from fermions, and is prime number. Therefore, in that sense it cannot turn into fermions. **Fermions vanish in even amount of variations.** The result is a propagation across the manifold Ripples on the metric all across.

$$\delta g = 0 \qquad at \qquad t1 = Q(t + \Delta t)$$

At later continuation of time:

$$t2 > t1$$

This condition is satisfied:

$$\delta g \neq 0 \qquad at \qquad t2 = Q(t + \Delta t + \Delta t)$$

Moreover, the amount of variations is either prime or one:

$$\delta g = 2\left(n + \frac{1}{2}\right) \; ; n \geq 0$$

Than we have a ripple on the manifold which propagate all across, toward all directions. The Laplacian operator than is vital to description for a mathematical description of the Manifold ripples, or bosonic fields. Important point to take is that the **underlining reason for the boson propagation all across the metric is their prime number feature**. Define a bosonic ripple across the Lorentzian metric:

$$\nabla^2 = \frac{\partial^2 M_x}{\partial^2 g} + \frac{\partial^2 M_y}{\partial^2 g} + \frac{\partial^2 M_z}{\partial^2 g} \qquad (1.3)$$

That is curvature propagation across all metric spatial dimensions as:

$$M_\mu \in S$$

$$S = (M, g)$$

Reasoning for Spiral Structures of Galaxies

$$\frac{\partial\mathcal{L}}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}-\frac{\partial\mathcal{L}}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\frac{\partial^2 g'}{\partial t^2}=0 \qquad (1)$$

$$\frac{\partial g}{\partial t}=0\ ,-\frac{\partial^2 g'}{\partial t^2}=0$$

$$\left[\frac{\partial\mathcal{L}}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\right]\frac{\partial g}{\partial t}\delta g-\left[\frac{\partial\mathcal{L}}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\right]\frac{\partial^2 g'}{\partial t^2}\delta g'=0 \qquad (1.1)$$

$$\delta g=0$$

$$\delta g1+\delta g2\ldots=\ \delta g$$

Notice the first requirement:

$$\frac{\partial g}{\partial t}=\ 0 \qquad (4)$$

In addition, the second requirement:

$$\delta g=0 \qquad (4.01)$$

Those two simple requirements combined together can allow us to a deep Insight into the structure of galaxies. In the 8-theory framework, we have a Lorenz manifold, the manifold has areas of extremum curvature that stay as they are over time. That is given by the first requirement. The manifold also experience arbitrary variations, the second requirement. Those arbitrary variations vanish into matter in agreement with a stationary Lorentz manifold. The combination of both condition than implies that in order for the areas of extremum curvature to stay as they are, the arbitrary variations cannot appear inside them. That is by the combination of the two requirements.

However, those arbitrary variations still appear in the framework. In addition, the areas of extremum curvature are a vital part of this theory. The combination of both requirement is than resulting in areas of extremum curvatures surrounded by arbitrary variations that could not affect them. The following model of the 8-theory is than intersecting with the large scale geometrical shape of galaxies. However, it is known that so called, black holes in the center of galaxies are absorbing matter and nothing can escape them. So in a Second glance the first requirement will not hold in such case. However, that is not a real problem if we assume that those black holes, which we regard as areas of extrunum curvature inside galaxies also omit matter. We know it is the case, as we call it the hawking radiation $-\delta g(H)$.

$$\frac{\partial g}{\partial t} + \delta g + \left(-\delta g(H)\right) = 0 \qquad (4.02)$$

So overall those two simple requirements in our framework provide an Interesting indication to structure of large-scale matter formations in the universe. The hawking radiation is a vital part of making the two conditions hold true. For each unit of fermions absorbed or manifested inside the area of extremum curvature we require a hawking radiation Particle emitted from the area, so the first requirement will hold true.

The Principle of Least Variation

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

$$8 + (1){:}\,\big(24 + (3)\big) + 3{:}\,\big(120 + (3)\big) + 5{:}\,\big(840 + (3)\big) + 7 \ldots$$

$$(1){:}\,(30){:}\,(128){:}\,(850){:}\,(9254) \ldots$$

We derived the coupling constant as a ration between total arbitrary variations to the net variations, N_V, which are outside the parenthesis. Those net variations are a different representation of curvature on the Lorenztion manifold. Notice the numerical relations between the total to net:

$$\frac{N_V}{T_V} \longrightarrow R \qquad (1.2)$$

$$\frac{1}{9} = 0.111$$

$$\frac{3}{30} = 0.1$$

$$\frac{5}{128} = 0.039$$

$$\frac{7}{850} = 0.008$$

…

$$0.111 > 0.1 > 0.039 > 0.008 \ldots \qquad (5)$$

The reasoning was clear, as the coupling constant equation is multiplies each Even sum of the previous element in the next prime, and the net variations are the prime numbers sequence itself. In means that each element the net curvature is a smaller and smaller portion of the whole variation cluster, which reason why the sequence is getting weaker and weaker. Based on this equation we can vividly derive and predict the weakness of gravity. We can say that nature is aspiring to minimize the ratio of net to total. All the possible amount of curvature can and will appear and nature, but the most common and noticeable ones are those with the bigger ratio, or least amount of net variation:

$$0.111 > 0.1 > 0.039 > 0.008 \ldots \rightarrow 0$$

The bosons in which we are already know of. The interactions associated with the number one, three and five. The two lowest primes and one. The 8 – theory principle, which is derived by this analysis, is the Principle of least variation or curvature as we are dealing with a Lorenz manifold. Just as Feynman did in quantum path integrations, all is taken into account. However, the most significant routes are the simplest ones. In this framework the most significant Interactions are those with the largest ratios between the net Variations to the total variations The largest ratios are those with the least curvature or Smallest prime numbers and the number one, and primes are representing manifold variations.

The Coupling Constant Equation And The Wave-Particle Duality

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

$$8 + (1){:}\,\big(24 + (3)\big) + 3{:}\,\big(120 + (3)\big) + 5{:}\,\big(840 + (3)\big) + 7 \ldots \qquad (2)$$

$$(1){:}\,(30){:}\,(128){:}\,(850){:}\,(9254) \ldots \qquad (3)$$

We can vary the N_V outside of the parenthesis so by doing so, reaching duality among the three first forces at 26 variations was attained.

$$[8 + (1)] + 3 - (\mathbf{1}\boldsymbol{v}){:} \quad [(8 * 3) + (3)] + 3 : \quad [(24 * 5) + (3)] + \mathbf{3} \qquad (4)$$

By analyzing the third element in the series, the propagation of a photon from a fermion so called the electron. Certain insight from the new framework is becoming vividly clear. In the context of wave particle duality.

$$[(24 * 5) + (3)] + 5 \qquad (5)$$

Since it is a prime net variation outside the parenthesis, it can not vanish into matter. As fermions vanish in even amounts. The ripple field of boson across the matric is mathematically described:

$$\nabla^2 = \frac{\partial^2 M_x}{\partial^2 g} + \frac{\partial^2 M_y}{\partial^2 g} + \frac{\partial^2 M_z}{\partial^2 g} \qquad (6)$$

$$M_{x,y,z} \in S \qquad (7)$$

$$S = (M, g) \qquad (8)$$

Suppose, in an experiment we decide to measure the photon momenta of position. Its done by scattering an additional photon onto the photon, which already propagated Form the electron. For simplicity sake, we suppose it is one additional element that is only one photon:

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (3)] + 5 \; + 5 \qquad (9)$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2} \qquad (10)$$

$$[(24 * 5) + (3)] + 5 + 5 \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2} + \frac{1}{2} \qquad (11)$$

equations (10)-(11) are the second variation of the coupling constant equation, which is the prime critical line. By adding the additional net variation, we reach a spin that is no longer associated with boson propagation, $3/2$ .Before our measurement the bosons had spin one. Described by equation (6) and by measurement with additional photon, a variance of spin has occurred, so now our Boson behave like a fermion, it has an additional half unit of spin. Overall in the 8-theory by analyzing the coupling constant equation in the second representation, it is possible to extrapolate the reason for the phenomenon of wave particle duality.

The Feynman Path Integral Variation on Varying Lorentzian Manifolds

In the 8-theory a varying Lorentz manifold is the entity of description. The Lorentz manifold Is inserted to an Euler Lagrange equation and by doing so, the main equation of the framework is obtained.

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \qquad (1)$$

Are the conditions, which the framework is demanding to retain a stationary manifold. Those two conditions describe a time invariant acceleration directed from extrunum areas of curvature on the Lorenztion manifold. Intersection with the so-called dark energy.in addition, if no data is attainable from the first three term, it is vividly clear that there is an agreement with Einstein equivalence principle:

The coupling constant equation was obtained by demanding a stationary manifold to experience net variation,$N_V = 2\left(V + \frac{1}{2}\right);\ V \geq 0;\ N_V \in P$ as P to be is the set of primes and the number one. Those ideas yielded an infinite series, in which each distinct Boson has a distinct prime, which is the N_V value. Even amount of variations vanish,

$2V = 0.$

$$F_{V=0} = 8 + (1) \qquad (2)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (2.1)$$

The Feynman variation on Lorentz manifold - the objective of this part is to find out what is the probability transition of a boson from initial to final state on the manifold .Bosons are associated with prime amount of net variation $N(V) \to 2\left(V + \frac{1}{2}\right)$ which propagates as ripples on the manifold, given by a variation of the Laplacian:

$$\nabla^2 = \frac{\partial^2 M(x)}{\partial^2 g} + \frac{\partial^2 M(y)}{\partial^2 g} + \frac{\partial^2 M(z)}{\partial^2 g} \qquad (9)$$

First, we define a manifold $s = (M, g)$ and insert it to an Euler LaGrange equation and an initial state of the manifold $S(0) = (M, g)$.

Than we require the manifold to experience arbitrary variations, which vanish into matter.

For simplicity of notation, define:

Let the arbitrary variations appear all across the matric on the manifold.

$$\delta g \in M(x. y, z) \qquad (3.6)$$

Define a ripple propagation of a boson from an initial point on the manifold:

$$q1 = M(x1. y1, z1) \qquad (3.7)$$

And a final position of the matric ripple to arrive at

$$q2 = M(x2. y2, z2) \qquad (3.8)$$

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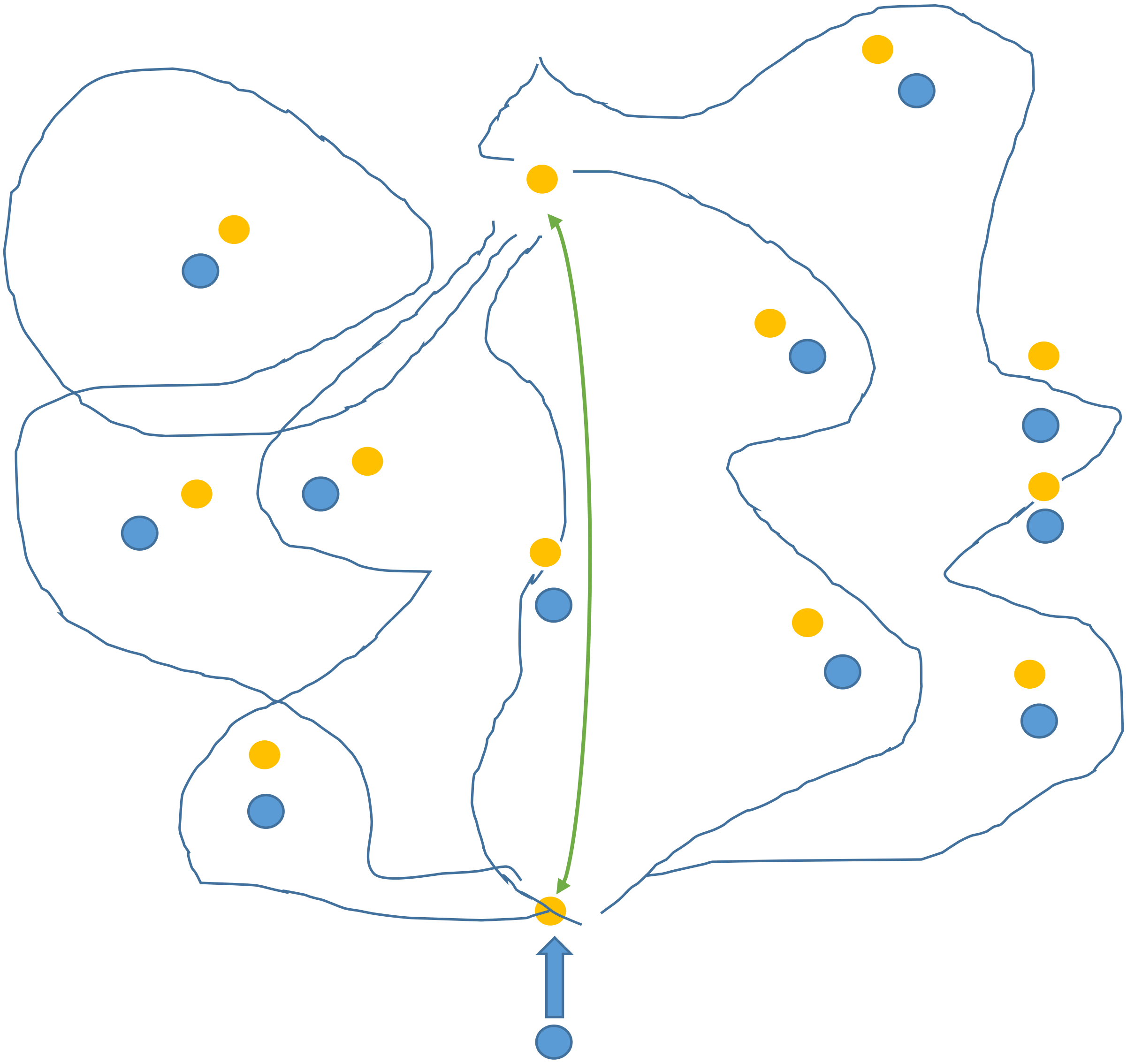


The green arrow is directing the from the initial position of the ripple wave to final Position. The blue dots are the electrons omitting bosons, in that case a photon, marked in yellow.   The manifold has arbitrary amount of fermions on it, which get scatterd by the initial boson wave and omit a new boson. There are infentialy more ways than the above drawing, its vivid. The ripple wave will scatter all the arbitrary variaions, but the highest probablity of arrival will be at the path of least curvature.

Each fermion which get scattered omitting a boson with random direction of propagation. the framework has no data regrading the position of the propagation. The more arbitrary Variations getting scattered, the less probable it is to reach the final position. The following can be analyzed by the equation. The more arbitrary variaions in the Path, the more curved the matric, as there is an accelaration of it outward. The accelaration outward is causing the path to be longer and less linear, and so the time to reach the final position is longer, if only.There is no gurentte a photon will reach the final position in this framework as arbitary variaions created in a random fashion, and in configurations which are not predictable. However, if a photon will reach it will be in the least curved path, or the path with the least fermions getting scattered.

$$P = \int_{q1(t(i))}^{q2(t(f))} dq \exp[(S0) \int_{t(i)}^{t(f)} L(s, s')dt] \qquad (10)$$

Its unclear whether (10) is solvable as the arbitrary variations themselves vary their position over time and in addition, arbitrary variaons appear in random fashion in this framework. Its given by the first equation. So in a sense we can not sum all the paths if the paths vary at all times. it’s a complication of the feynamn result, and at the same time just as beautiful as feynman reuslt. But if we ignore the complication, the probablity transition should be calcuated using (10).

Gravitational Coupling Constant as a Combination of Couplings

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

We can also represent the equation in the form:

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = \frac{1}{30}{:}\frac{1}{128}{:}\frac{1}{850}{:}\frac{1}{9254}.. \qquad (2)$$

Let us analyze the third element – Electromagnetism:

$$[(24 * 5) + (3)] + 5$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2}$$

$(2N\ variations) \rightarrow Spin\ 0$

$(2N\ variations + 3) \rightarrow Matter\ with\ spin\ (\frac{1}{2})$

$(2N\ variations + 3) + N_V \rightarrow Bosons\ with\ spin\ (1)$

$(2N\ variations + 3) + N_V 1 + N_V 2 + \cdots \rightarrow Boson\ with\ higher\ spin\ integers$

Given that framework, we can vividly see that gravity is belonging to the bosons with higher spin integers, as modern theories predict the gravitational interaction to have spin two. In the 8-theory framework, what does it mean? In the context of the coupling constants equation what does it mean? Since it has spin two, we can associate gravity to the category of bosons with higher spin integers, which could relate to a certain combination of elements in the coupling constant series, as the elements are getting weaker and weaker, if the gravitational coupling will not be found by keeping developing to infinity it could mean **gravitational will be found as a combination of elements in the series**. Since it is spin two there should be three net variations outside. Gravitation as a combination of elements, using the fact it has a boson with spin 2.

$$\left[2N_{gravity} + (3)\right] + N_{V1} + N_{V2} + N_{V3} \rightarrow \left[2N_{gravity} + \frac{1}{2}\right] + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} =$$

$$[2N(g) + 2]$$

Using the second representation of the coupling constant equation, meaning spin. It also means that the gravitational is a lot more rare as it is requiring a combination of elements in the series to be emitted and not just a singular element.

Using the Coupling Constant Equation to Predict the Exact Mass of the Graviton

$$F_{V=0} = 8 + (1) \quad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \quad (1)$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ \ V \geq 0$$

$$N_V \in \mathbb{P} \ \cup \ (+1)\,;\ \ \mathbb{P} \to Set\ of\ Primes$$

$$N_V = P_{max} \in [0, \mathbb{R}] \cup (+1)\ ;\ P_{max} \in \mathbb{P}$$

$$8 + (1){:}\,\big(24 + (3)\big) + 3{:}\,\big(120 + (3)\big) + 5{:}\,\big(840 + (3)\big) + 7 \ldots \quad (2)$$

In the 8-theory framework, even amounts of manifold variations vanish. That feature allowed the following shift:

$$8 + (1) \to (1) \quad (2.1)$$

We know that the strong interaction has eight gauge fields meditating it. Those meditating particles do not carry mass. We also know that gravity has spin two. By switching to the second representation of the equation, we can represent gravity as the following:

$$\big[\big(2N_{gravity}\big) + (3)\big] + N_{V1} + N_{V2} + N_{V3} = \left[2N_{gravity} + \frac{1}{2}\right] + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} \quad (2.2)$$

$$\big[2N_{gravity} + 2\big] \to 2N_{gravity} \quad (2.3)$$

ince even amount of variations vanish we will be left with one term in the final form of the term. That is similar to the strong interactions but immensely weaker. Since the bosons mediating the strong interaction are massless, and we can represent it in one term given the coupling constant equation, and by the analysis gravitation has only one term as well, we can reach a mathematical prediction, which will state, that gravitons has no mass. In agreement with reality and agreement with quantum field theory. The only thing taken from what was known before was the fact that the bosons meditating the strong interaction are massless.

Indication That Fermions Are Closed Circles by the Coupling Constant Primorial Function Variation

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ V \geq 0 \qquad (2)$$

$$N_V \in \mathbb{P} \cup (+1);\quad \mathbb{P} \to Set\ of\ Primes$$

$$N_V = P_{max} \in [0, \mathbb{R}] \cup (+1);\ P_{max} \in \mathbb{P}$$

$$8 + (1){:}\,\big(24 + (3)\big) + 3{:}\,\big(120 + (3)\big) + 5{:}\,\big(840 + (3)\big) + 7 \ldots \qquad (2.1)$$

The following representation of equation (1) by replacing the invariant three with pi.

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V \to \left(8 * \prod_{V=1}^{V=R} N_V + (\pi)\right) + N_V \qquad (3)$$

$$8 + \left(\boldsymbol{\frac{\pi}{3}}\right) : \big(24 + (\boldsymbol{\pi})\big) + 3{:}\,\big(120 + (\boldsymbol{\pi})\big) + 5{:}\,\big(840 + (\boldsymbol{\pi})\big) + 7 \ldots \qquad (3.1)$$

That is giving up certain accuracy on the coupling constant equation in order to get an insight regarding the shape of fermions. One is going to argue that such a representation is valid as we have a varying Lorenztion manifold, there could be a slight variations in the invariant three over time, toward pi and vice versa. In other words, the electron is not a perfect circle, but close to it. It is a varying circle, not a perfect shape. Varying in physical theories could mean vibration.

The fact that we have a varying framework allow us to dynamically allow such slight variations without being rigid, the fact that it is not pi, could be a positive indication. Perfect shape of a circle would be problematic in a final theory, but a varying, imperfect circle seems to be much more elegant and suitable to a framework of constant variation. So according to this representation, a boson will be emitted from something close to a perfect circle, which is the electron. We gave up certain amount of accuracy and reached an astonishing insight regarding the shape of an electron. But we can go even further by representing the net variations in pi number multiples.

$$8 + \left(\frac{\boldsymbol{\pi}}{\mathbf{3}}\right) : \left(24 + (\boldsymbol{\pi})\right) + 3 \colon \left(120 + (\boldsymbol{\pi})\right) + 5 \colon \left(840 + (\boldsymbol{\pi})\right) + 7 \rightarrow$$

$$8 + \left(\frac{\boldsymbol{\pi}}{\mathbf{3}}\right) : \left(24 + (\boldsymbol{\pi})\right) + \boldsymbol{\pi} \colon \left(120 + (\boldsymbol{\pi})\right) + (\boldsymbol{\pi} + 1.82) \colon \left(840 + (\boldsymbol{\pi})\right) + (2\boldsymbol{\pi} \ + 0.716)..$$

Such representation is beautiful but what does it mean? of course that the real answer is that one does not know. Two options come to mind. The first is regrading the probability to find a boson in varying area. the bigger variations clusters, the larger the area of possible emission and the less likable it is do detect the boson. The higher the net variations, the smaller the probability to find the boson. Another possible option is of magnitude. The boson propagate across larger areas and thus its energy is getting divided across the area, so overall it gets much weaker as we develop the coupling constant series into infinity. In agreement with the weakness of gravity. Since the 8-theory was born in 2021, there could be more variations to the coupling constant equation. Other indication fermions are of closed shape is the main equation:

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}} \frac{\partial \mathrm{s}}{\partial \mathrm{M}} \frac{\partial \mathrm{M}}{\partial \mathrm{g}} \frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'} \frac{\partial \mathrm{s}'}{\partial \mathrm{M}} \frac{\partial \mathrm{M}}{\partial \mathrm{g}'} \frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \qquad (1)$$

Which describe a varying Lorentz manifold. Fermions were proved to be arbitrary variations of the manifold. If the manifold is of finite size, i.e. closed, the elements in it should be closed as well. They are not a separate entity of the Lorentz manifold, but appear as part of the Lorentz manifold and its ever varying nature. The closeness of the manifold indicate the closeness of the elements that appear in it. There could be more ways to prove that the following is correct.

Primorial Coupling Constants Equation and the Rise of the Arrow of Time

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ \ V \geq 0 \qquad (1.1)$$

$$N_V \ \in\ \mathbb{P}\ \cup\ \ (+1)\ ;\ \ \mathbb{P} \rightarrow Set\ of\ Primes$$

$$N_V\ = P_{max}\ \in [0, \mathbb{R}]\ \cup\ \ (+1)\ \ ;\ \ P_{max} \in\ \mathbb{P}$$

$$8 + (1){:}\,\big(24 + (3)\big) + 3{:}\,\big(120 + (3)\big) + 5{:}\,\big(840 + (3)\big) + 7 \ldots \qquad (2)$$

$$(1){:}\,(30){:}\,(128){:}\,(850){:}\,(9254) \ldots \qquad (2.1)$$

Suppose a boson was emitted from a fermion due to net variation of a certain magnitude. If the arrow of time is two sided and reversible, there must be a way to bring the photon back to the electron. However, the physics of the 20-th Century forbids us from doing that, as we don't even know where the photon is. Momentum and position are conjugate variables in quantum field theory. So once a boson is propagated into the metric, there is no possible way to bring it where it was. An additional argument is that all bosons are indistinguishable, so even if it was possible to trace and revert the photon, in a system with more than one Photon, its again beyond reach. The reason we emphasize those arguments as to the context of the arrow of time. At first, at a certain point after the singularity, there were only elements of the first Element in the coupling series on the expended manifold:

$$8 + (1)$$

If the expended manifold experience multiple net variations of the first element than it is possible to cluster those:

$$\sum_{n=1}^{n=\infty} C_n = \ 8 + (1) \qquad (5)$$

We can cluster into groups of three and get:

$$(8 * 3) + (1) * 3 = 24 + (3) \qquad (6)$$

The invariant three, in 8-theory framework is, as you already know, is the destabilizing factor yielding a net variation so overall:

$$24 + (3) \rightarrow [24 + (3)] + 3 \qquad (7)$$

Therefore, we can derive the intimate relation between the coupling constant series and the direction of time. The following procedure can be done on any additional element in the series. **In the 8-theory what is time? Time is the result of net variations being clustered to different magnitudes**. The succession of bosons with decreasing magnitude converging to zero is the direction of the arrow. The fact that each element is different than is preceding is the physical manifestation of the arrow of time. This equation encompass all the interactions according to magnitude, and so as those are different, the difference is the factor that gives rise to the arrow. If all elements in the series were identical there could not be a rise to the arrow. Using that coupling constant equation, we can reason for the chronology of events from the moment of singularity to the present moment. We can reason for electrons propagation only after protons were created. We can reason gravitational interactions only after electric interactions and we possibly can reason also, how galaxies were formed. Notice that the fourth element in the series is only 6.65 weaker than the electric. That is immensely stronger than the gravitational interaction and using that element as a building block for clustering after electric interactions and it is possible to explain how relatively fast galaxies formed in a short window of time, from the manifold being too hot to being too

Universe Packets - Stationary Manifolds

The main equation:

$$\frac{\partial\mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}-\frac{\partial\mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}=0 \qquad (1)$$

In agreement with our model of the universe. Negative time invariant acceleration From areas of extremum curvatures on the manifold. Validating the Einstein equivalence principle between gravity and acceleration. Again, we assume no data is available from the first three terms, no indication They agree with a stationary Lorentz manifold. Now we can represent the equation (1) in a different way, if there are many stationary Lorentz manifolds we can write:

$$\frac{\partial\mathcal{L}}{\partial S_1}-\frac{\partial\mathcal{L}}{\partial S_2}=0 \qquad (2)$$

Alternatively:

$$\frac{\partial\mathcal{L}}{\partial S_1}-\sum_{n=2}^{\infty}\frac{\partial\mathcal{L}}{\partial S_n}=0 \qquad (2.1)$$

$$\frac{\partial\mathcal{L}}{\partial S_1}\frac{\partial S_1}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}-\sum_{n=2}^{\infty}\frac{\partial\mathcal{L}}{\partial S_n}\frac{\partial S_n}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}=0 \qquad (2.2)$$

The Principle of Least Curvature and Cosmological Flatness

In the 8-theory a varying Lorentz manifold is the entity of description. The Lorentz manifold is inserted to an Euler Lagrange equation and by doing so, the main equation of the framework is obtained.

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}-\frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}=0 \qquad (1)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (2)$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ \ V \geq 0 \qquad (2.1)$$

The framework regard (6) as the second main construction of the theory and currently has five representation and different uses of the equation. (6) represent the concept of Least variation, the most significant interactions in nature, are those with the largest Value of total to net $\frac{N_V}{T_V}$. By analyzing the ratios of the first elements in the series we Conclude the ratio $N\_V/T\_V \rightarrow 0$ as $N_V \rightarrow \infty$, the result is following ratios:

$$\frac{1}{9} = 0.111\,, \qquad \frac{3}{30} = 0.1\,, \qquad \frac{5}{128} = 0.039\,...$$

$$0.111 > 0.1 > 0.039 > 0.008\,...$$

The biggest rations are those with the least $N(V)$ amount and thus they are the most noticeable on the manifold. The third representation of (6) revolves around to the arrow of time. The direction of the series is assumed to match the direction of Time. So as we increment the time $t(1) = t(1) + \Delta t$ and allowing time aspire Infinity $t \rightarrow \infty$, the manifold will experience higher number of net variations $N(V) \rightarrow \infty$. and at the same time the ratio of $\frac{N_V}{T_V} \rightarrow 0$, which means that the matric on the manifold Is getting more and more flat. The most curved, or intense interaction than is the first, the Strong interaction due to its largest value of $\frac{N_V}{T_V}$.

Using the coupling constant equation ratio between net to total variations (curvature) it becomes vividly clear that gravitation will be aspiring to flatness, due to the immense value of N_V. Gravity will be almost not noticeable. It is also possible to derive that the manifold will become more flat followed by the direction of the arrow. Flatness than, in the 8-theory is a continuous process.

Quark Confinement

$$\frac{\partial\mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}-\frac{\partial\mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}=0 \qquad (1)$$

We already proved that δg can be analyzed as fermions. Suppose we did what we did back in the day, and break it to a sequence of N distinct elements, such;

$$\delta g \to \sum_{i=1}^{N} \delta g_i = 0 \qquad (2)$$

$$N \in \mathbb{R}, N \to \infty \qquad (3)$$

How would such a set of elements would behave? To answer such a question we can analyze the second term:

$$-\delta g' \to \sum_{i=1}^{N} -\delta g'_i = 0 \qquad (4)$$

$$\delta g \to \sum_{i=1}^{N} \delta g_i = \delta g_i + \delta g_{i+1} + \cdots = 0 \qquad (5)$$

$$-\delta g' \to \sum_{i=1}^{N} -\delta g'_i = -\delta g'_i + (-\delta g'_{i+1}) + \cdots = 0 \qquad (6)$$

On one hand the entire series need to vanish, we have a sequence of opposite signs of even numbers, those arbitrary variations derivative describe a acceleration outward, they will try to aspire to reach distance from each other, that is with agreement with the so-called "anti commutation" relation of fermions. Since half of those elements in the set **already have a negative sign** as we proved before:

$$(-\delta g'_{i+1}) \to -(-\delta g'_{i+1}) \to +\delta g'_{i+1} \qquad (7)$$

Therefore, despite the minus sign, and the outward distancing from each, in accordance to the anti-commutation relation, there is a shift and the minus now varied to a plus:

$$-\delta g' \to \sum_{i=1}^{N} -\delta g'_i = -\delta g'_i + (-\delta g'_{i+1}) + \cdots = -\delta g'_i + \delta g'_{i+1} \ldots = 0 \quad (8)$$

Therefore, that is in agreement with quantum field theory, and their treatment of fermions. They will accelerate toward each other, which can explain the phenomena of quark confinement. The equations show that arbitrary variations of distinct sign will accelerate toward each other, if the reasoning and the mathematical development one presented here is correct.

Quark Confinement and the D'alembert Variation

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \qquad (1)$$

$$\delta g \to \sum_{i=1}^{N} \delta g_i = 0 \qquad (2)$$

$$N \in \mathbb{R}, N \to \infty \qquad (3)$$

$$-\delta g' \to \sum_{i=1}^{N} -\delta g'_i = 0 \qquad (4)$$

$$\sum_{i=1}^{N} \delta g_i - \sum_{i=1}^{N} \delta g'_i = 0 \qquad (5)$$

$$\sum_{i=1}^{N} \partial E_i/\partial t - \sum_{i=1}^{N} \partial E^2{}_i/\partial^2 t = 0 \qquad (6)$$

The sum of all arbitrary variations and accelerations is taken to zero in this framework. Similar to the procedure D'alembert taken with forces and accelerations. That is an additional take on the phenomena of quark confinement, published earlier by the author.

Infinite Dimensional Multiverse

$$\frac{\partial\mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}-\frac{\partial\mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}=0 \tag{1}$$

$$\frac{\partial\mathcal{L}}{\partial S_1}-\sum_{n=2}^{\infty}\frac{\partial\mathcal{L}}{\partial S_n}=0 \tag{1.1}$$

$$\frac{\partial\mathcal{L}}{\partial S_1}\frac{\partial S_1}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}-\sum_{n=2}^{\infty}\frac{\partial\mathcal{L}}{\partial S_n}\frac{\partial S_n}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}=0 \tag{1.2}$$

$$\frac{\partial g}{\partial t}=\frac{\partial\partial g'}{\partial\partial t} \tag{1.21}$$

Equation (4) is the second representation of the main equation. Notice that even though the main equation describe both Einstein theory of relativity (3) and time invariant acceleration away from extremum curvature on the manifold, it lacks providing the reason for such a process. Equation (4) is than used; our universe is wrapped in many similar, stationary manifolds, which are distinct. They are assumed topologically invariant. Such a construction than allow us to understand why each manifold can not have any number of dimensions, it is confined within many other manifolds. Its also more reasonable to assume that there are many stationary manifolds than to assume that there is only one stationary manifold. The (4) is more elaborated equation than equation (1). Suppose that each manifold has n-dimensions.

$$\frac{\partial\mathcal{L}}{\partial S_1}\frac{\partial S_1}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t} \quad\rightarrow\quad N_D^{S1} \tag{6}$$

Take into account the number of manifolds wrapping our manifold making its matric accelerate outward and add those dimensions

$$\sum_{n=2}^{\infty}\frac{\partial\mathcal{L}}{\partial S_n}\frac{\partial S_n}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}\rightarrow\sum_{n=2}^{\infty}N_D^{s(n)} \tag{7}$$

So the number of dimensions in our framework is:

$$N_D^{S1}+\sum_{n=2}^{\infty}N_D^{s(n)}=T_D \tag{8}$$

The Equivalence Principle in Quantum Scale

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \qquad (1)$$

Suppose the matric has a fermion that is an arbitrary variation of the manifold given by the term $\delta g = 0$. What would be the consequence? Given by equation (2) the arbitrary variation will cause the matric to accelerate outward. That is in complete agreement of Einstein theory of gravitation, equation (2) implies:

$$\frac{\partial g}{\partial t} = \frac{\partial^2 g'}{\partial \mathrm{t}^2} \qquad (2)$$

Since the matric varied due to the arbitrary variation, which appeared in it, and in particular, it expended outward, the distance increased. Suppose the quark was conscious and could perform measurement, its very existence affected the matric, and the time in which a boson field will need to reach the object measured has increased because of the quark manifesting. In special relativity, the great Einstein used velocity, but here there is no velocity. There is no such thing velocity in the 8 theory. The quark may conclude that the object is moving, but what is happening is that the matric itself is varying, because of that quark. We also have in this framework the invariance of the speed of light, given by the coupling constant equation, and the fact that the propagation process is similar in all interactions.

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2\mathrm{N}1 + \frac{1}{2}\right] + \frac{1}{2} \qquad (2{,}1)$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2} \qquad (2.2)$$

General relativity implies an equivalence relation between curvature and acceleration. 8 theory implies that as well, but also in addition implies that curvature will **cause** outward acceleration of the matric by (1). Einstein had to add the cosmological constant in an artificial way, but here it's the main equation. Such a condition than allow us to understand relativity in a new and elegant way. C is invariant, and every arbitrary variation of the manifold causing an outward acceleration of the matric, the matric itself varying in such way that those arbitrary variations will eventually measure different distances and times, the measured object can be standing still but it will observed as moving, but what is happening is that the matric is expending. The entire theory of Einstein is not only contained in just one equation but expended to a new horizon.

Majestic Three is the Electron

$$\frac{e^2}{\hbar c} = \frac{1}{128} \qquad (1)$$

$$\frac{e^2}{\hbar c} \rightarrow \frac{3^2}{128} \qquad (2)$$

Recall that arbitrary variations vanish in pairs of even numbers. That axiom in our framework related to fermions and allowed us to make a transformation regarding the strong interaction:

$$8 + (1) \rightarrow (1) \qquad (2.1)$$

So we can vary (2) to prove that the majestic three is indeed an electron and solidify our theory and its validity:

$$\frac{3^2}{128} = \frac{8 + (1)}{128} \qquad (2.2)$$

Even amount of variations taken to vanish so the final form of equation (2) is exactly like equation (1):

$$\frac{8 + (1)}{128} \rightarrow \frac{(1)}{128} = \frac{e^2}{\hbar c} \qquad (2.3)$$

Using the Primorial Coupling Constants Function to Derive C Invariance Yang Mills Conjecture

$$F_{V=0} = 8 + (1) \tag{1.12}$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \tag{1.13}$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ V \geq 0$$

$$N_V \in \mathbb{P} \cup (+1);\ \mathbb{P} \rightarrow Set\ of\ Primes$$

$$N_V = P_{max} \in [0, \mathbb{R}] \cup (+1);\ P_{max} \in \mathbb{P}$$

The second representation of the primorial function using the prime critical line:

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2\text{N}1 + \frac{1}{2}\right] + \frac{1}{2} \tag{2}$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\text{N}2 + \frac{1}{2}\right] + \frac{1}{2} \tag{3}$$

$$[(120 * 7) + (3)] + 7 \rightarrow \left[2\text{N}3 + \frac{1}{2}\right] + \frac{1}{2} \tag{4}$$

Notice that beside the variation cluster which get bigger, all the interactions are taking the same form. We have the destabilizing factor, which is the electron for example, or the $\frac{1}{2}$ inside the parenthesis, yielding a net variation which is also $\frac{1}{2}$ or prime, according to first representation of the primorial function. So the propagation speed of all boson of this type must be similar, precisely because there is no detail regarding the speed of propagation and because there is no difference among the bosons, they are all of the same hand. We already proved their dynamical nature by varying the net variations and as a result making them scalar multiples.

Based on the framework of the eight theory, we can make an additional prediction. All bosons of the above type, $2n() + 1$, with no consideration of their mass, will propagate across at the same speed. The same speed applies for all. Even to bosons with mass. That is the young mills problem, how can a boson that carry mass move at the speed of a boson, which do not carry mass. In the 8-theory the answer is given. Since mass is associated with $8 - 1$ variations, and boons are of the type $8 + 1$ the combination of a boson with mass will not effect on the propagation.

$$8 - 1 + 8 + 1 = 0 \tag{6}$$

The boson that is a mass carrier, causing the matric to converge inward, will be balanced to the other direction by its very nature. As a result, he will move on a linear, not curved trajectory and his speed will not be effected by its mass. In equation six, we took even amount of variations to vanish and so the result is zero. No curving to either direction. Of course, the ideal would be to extract the actual speed of light from the 8-theory. It is currently beyond reach. The equation does not change under any condition that means that the speed of propagation does not means under any conditions. In the case of the third element, than, speed of light is invariant to all. Therefore, the 8-theory framework suggest an elegant and simple solution to the Yang mills conjecture.

8T and QFT – Axiomatic Analysis

Quantum field theory has certain features that play a significant rule, and repeat themselves in one way or another along each epos of the theory. Among those, we can name the commutation and anti-commutation of bosons and fermions. The Dirac delta or interference known as a field, the operators of matter creating and destructing, cluster decomposition and Lorentz invariance. In addition to Feynman path integrations and diagrams. That being said, what are the mathematical axioms in which QFT is built upon? One would like to suggest those following axioms:

Axiom (1) – Nature is probabilistic

Axiom (2) – Fermions repeal, Bosons do not

Axiom (3) – There is only one set of rules

By the first axiom, we can include the Feynman diagrams and the Feynman path integrations. In addition to arbitrary amount of matters appear and disappear by operators we insert. By the second axiom the commutation and anti-commutation relation and the nature of spin and statistics. The third axiom, the Lorentz invariance and the entire set of symmetries and conservation laws, at quantum scale (Nother) and at large scale (Lorentz). Those three axioms also stand at the heart of 8-theory, so in essence the nature of those theories, their innate ideas about nature is the same. The difference is which ideas are describing the axioms and which objectives the theory is set to achieve. Quantum field theory searches for probability of certain occurrences, it does it amazingly well but lacks to provide the reason for those arbitrary numbers, such as coupling magnitudes. QFT uses integrations across the entire space-time that are impossible to solve. 8- Theory is also probabilistic in its nature, maybe even more than QFT. It has no data regarding any direction of motion, momenta, and location at any point and so on. Very little to no physical data is manifested in this theory. However, it does describe beautifully the magnitudes of the couplings, the reason each magnitude is what it is, the process of propagation and the dynamic nature of the forces.

The methods uses are partial differential equations, and the methods also uses in quantum field theory given by axiom (2), the commuting relation of fermions and bosons. It does not currently have complicated integrations over space-time or it can specify the decays as QFT. However, it does describe the dark energy in an accurate fashion given by its main equation, a varying Lorentz manifold. Gravity is within its domain of description as it was built upon the work of two of the greatest minds in science Einstein and Lorentz. It is also supported by the coupling constant equation and predict that graviton will be massless and that gravity is actually a combination of three net variations. The 8T has two arbitrary numbers less than QFT; it predicts infinite bosonic fields, which relate to Lorentz net curvature on the manifold. It also predicts infinite families below first generation, and thus does not face questions as to those arbitrary numbers.

8T and QFT both are described in terms of the Dirac delta. QFT uses the delta as a description for the wave equation, as a way to describe a complete set of states, alongside with a set of amplitudes. 8T uses the Dirac delta in more flexible manner, it applies to times that are different from zero as well, and describe how an arbitrary amount of curvature vanish into matter. Any net variation at a later continuation of time than describing a bosonic ripple field across the manifold, given by a variation of the Laplacian. While QFT is mainly physical, 8T is mainly and almost completely mathematical, the axioms at the heart of those theories are the same, the methods are similar, the 8T describe phenomena not within the realms of QFT, and QFT can calculate probabilities not within the realm of 8T. 8T is just as probabilistic as QFT, if not more. It validates Pauli Exclusion Principle and the fermionic and bosonic difference between spin and statistic, and have just one set of rules. This set of rules has three axioms:

Axiom (1): All universes are Lorentzian manifolds

Axiom (2): All Lorentzian manifolds are stationary

Axiom (3): Net Curvature on the manifold is a bosonic field. Net are Primes.

The Three Critical Theorems

"Theorem (1) – nature will not allow a prime amount of variation to appear by itself. Define prime to be (2n+1) variations.

1.1) Prime amounts appear in pairs."

Theorem (1) - The physical meaning of that theorem is that bosonic fields cannot be propagated from nowhere. The 8T correlate bosonic propagation to prime net variations of the manifold, and bosons, as we know them, propagate from fermions, which vanish in even number of variations.

Theorem (1.1) – even amount of variations is the result of two prime numbers combined. So to create variation cluster vanishing into matter we need two primes to appear in a pair.

"Theorem (2): Nature will generate force if a **prime net amount of arbitrary variation will appear**. Net variations will appear when combine two amounts of prime variations.

Two does not appear, as it is an even amount of variations, which vanish."

Theorem (2): In continuation of theorem (1), after variation cluster vanished into matter, two distinct elements in threefold combination, a net variation, which is prime can propagate from within it. The feature of the bosonic propagation is their prime number amount of variations, and therefore their expansion across the entire matric. A boson must propagate from an even amount of variations, which is matter.

Theorem (3): "Each prime pair should have a net variation element N_V proportional to Total Variations value divided by two"

Theorem (3): Each net variation is proportional to the average of the elements in the pair. There could not be net variation $N_V = +(101)$ propagating from (7,11) total variation pair. It does not make sense.

The three theorems in be put in concise and simple manner:

(1) Bosonic fields cannot propagate from nowhere

(2) Bosonic Fields propagate from matter clusters

(3) Bosonic fields are infinite in kind and isomorphic to prime numbers or one.

Theorem (3) was the critical theorem that eventually allowed calculating the value of the fine structure constant and validating the entire framework.

Refuting Magnetic Monopoles

Examine the term describing the electric coupling. We proved majestic (3) is the electron.

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (e)] + 5 \qquad (2.31)$$

Define a magnet as a set of electrons, which spin around as part of a larger cluster of matter.

$$\sum_{i=1}^{N} e_i \rightarrow \sum_{i=1}^{N} (3)_i \qquad (2.32)$$

$$\sum_{i=1}^{N} e_i \in \sum_{k=1}^{M} \delta g_k\,;\; M > N \qquad (2.33)$$

$$\sum_{k=1}^{M} \delta g_k = 0 \qquad (2.34)$$

As we did in the 8T thesis, the elements in the term describing matter anti commute, appear in an even number that differ in sign and vanish to zero when summed. However, the spinning electrons are added to a positive summation:

$$\sum_{i=1}^{N} (3)_i > 0 \qquad (2.35)$$

We have two conditions that are not aligned and contradict each other. Both were proven in the 8-Theory to be correct.

$$\sum_{i=1}^{N} (3)_i > 0 \;\cap\; \sum_{k=1}^{M} \delta g_k = 0 \qquad (2.36)$$

The only way to satisfy the second term is to add an opposite spinning cluster so the term would vanish into zero, meaning spinning cluster of electrons in the opposite direction, so (2.34) would be satisfied.

$$\sum_{i=1}^{T} (-3)_i < 0 \qquad (2.37)$$

$$\sum_{i=1}^{T} (-3)_i + \sum_{i=1}^{N} (3)_i = 0; \quad T = N \qquad (2.38)$$

$$\sum_{k=1}^{M} \delta g_k = 0 \qquad (2.34)$$

The Most Symmetrical Interaction is The Weak Interaction

We have proven that the majestic (3), in the case of the electric coupling is the electron. The destabilizing factor yielding a net variation. Overall, the thesis main example was the third element in the series. Therefore the weak interaction did not get enough interaction regrading a very interesting feature it possess.

$$\left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = [(8 * 3) + (3)] + 3 \qquad (3)$$

We can replace the net variation by the majestic (3) and the correctness of the term will retain. It could explain why the weak interaction is different in terms of its spin, and also allow us to make prediction regarding a fermion, which is analogous to the electron, which can get propagated by the boson of the weak interaction, , $N_V = +(3)$. The overall value is the same; there is a "symmetry" in such a variation, which is not attainable in any term of the coupling constant series. It could mean that the majestic (3) regarding the weak and the boson, which is propagated, are isomorphic to each other.

$$[(8 * 3) + (3)] + 3 \rightarrow [(8 * (3)) + 3] + (3) \qquad (3.1)$$

$$\left(8 * \prod_{V=1}^{V=R} (3) + N_V\right) + (3) \qquad (3.2)$$

Hermitian Conjunction and Prime Numbers

$$\sum_{i=1}^{N} \delta g_i = 0 \qquad (4)$$

$$N \rightarrow \infty \qquad (4.1)$$

$$N = 2n; \quad n \in \mathbb{R} \qquad (4.11)$$

There is no limitation concerning such measurement, we have an even amount of arbitrary variations, which differ in sign and summed as zero. Suppose we had an odd amount of arbitrary variations.

$$N = 2n + 1; \; n \in \mathbb{R}; \; 2n + 1 \in \mathbb{C} \qquad (4.12)$$

$$\sum_{i=1}^{N+1} \delta g_i \neq 0 \qquad (4.13)$$

So now, the measurement of the fermion cluster become impossible as the manifold is no longer stationary. An elimination of that extra variation must be made. Nature can eliminate it by mirror projections, i.e. Hermitian conjugation. By doing so, the measurement of the fermion cluster will become possible again, or transitioned back to the real field from the complex field.

$$\sum_{i=1}^{N+1} \delta g_i + \sum_{i=1}^{N-1} \delta g_i = 0 \qquad (4.14)$$

$$2n + 1 + 2n - 1 = 0 \qquad (4.15)$$

So even amount of variation is measurement, additional variation causing the measurement to become impossible, and transition it to the complex field which makes the measurement impossible. To retain the previous state, a mirror projection will be taken.

$$2n \in \mathbb{R} \qquad (4.16)$$

$$2n + 1 \in \mathbb{C} \qquad (4.17)$$

$$2n + 1 + 2n - 1 \in \mathbb{R}; \qquad (4.18)$$

Define Hermitian as:

$$\mathscr{H} : \mathbb{C} \rightarrow \mathbb{R} \qquad (4.19)$$

Final Shot at Quantum Relativity

Define an observer, distinct observer, as an arbitrary amount of curvature on the manifold. An infinite series of fermions.

$$\sum_{i=1}^{N} \delta g_i = 0 \qquad (4.2)$$

$$N \to \infty \qquad (4.21)$$

Define an additional observer, distinct, which differ in the amount of curvature it creates on the matric. The observer is an infinite series of fermions which overall vanish into matter.

$$\sum_{r=1}^{M} \delta g_r = 0 \qquad (4.22)$$

$$M \to \infty \ \cap \quad M! = N \qquad (4.23)$$

Now, analysis of the two observers on equation (1.2). Assume they are measuring the same object, and the entire matric is null, the entire matric contain each observer and the measured object. The setting chosen for simplicity sake, as those things will be too complex to analyze in a real physical scenario. Defined the measured object for both observers as:

$$\sum_{k=1}^{T} \delta g_k = 0 \qquad (4.24)$$

Now for the first observer and the measured object, the total arbitrary variation summed as:

$$\sum_{i=1}^{N} \delta g_i + \sum_{k=1}^{T} \delta g_k = 0 \qquad (4.25)$$

Now for the second observer and the measured object, the total arbitrary variation summed as:

$$\sum_{r=1}^{M} \delta g_r + \sum_{k=1}^{T} \delta g_k = 0 \qquad (4.26)$$

$$\sum_{i=1}^{N} \delta g_i + \sum_{k=1}^{T} \delta g_k \neq \sum_{r=1}^{M} \delta g_r + \sum_{k=1}^{T} \delta g_k \qquad (4.27)$$

$$\left[\frac{\partial \mathcal{L}}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\right] \frac{\partial g}{\partial t} \delta g_{ik} - \left[\frac{\partial \mathcal{L}}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\right] \frac{\partial^2 g'}{\partial t^2} \delta g'_{ik} = 0 \qquad (4.271)$$

$$\left[\frac{\partial \mathcal{L}}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\right] \frac{\partial g}{\partial t} \delta g_{rk} - \left[\frac{\partial \mathcal{L}}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\right] \frac{\partial^2 g'}{\partial t^2} \delta g'_{rk} = 0 \qquad (4.272)$$

Those observers will cause the matric to accelerate outward so the object will be observed moving. His velocity is dependent upon the amount of curvature the observer is creating, and so two different observers, different by the above definition, will measure two different distances crossed and two different times for the same object. The reason however, is not for the object itself, it's the different nature of the observers, and in particular the amount of curvature they possess. Now since we proved the yang mills conjecture we have the same propagation speed for all bosons:

$$[(8*3)+(3)]+3 \rightarrow \left[2N1+\frac{1}{2}\right]+\frac{1}{2}$$

$$[(24*5)+(3)]+5 \rightarrow \left[2N2+\frac{1}{2}\right]+\frac{1}{2}$$

$$[(120*7)+(3)]+7 \rightarrow \left[2N3+\frac{1}{2}\right]+\frac{1}{2}$$

The time needed to cross the same matric which accelerated outward in different amounts is different. So, measured time which is different for each observers is quite vivid and a must by using (1.2) and the 8T framework. In fact, using such framework makes relativity notoriously complicated, as everything needs to be taken into account. Everything is causing the matric to vary; it is at a verge of impossible to do at the real world. Our best theories are radically simplified. By "everything", one means every arbitrary variations of fermion in the matric needs to be taken into account, which was not done in that analysis for simplicity sake. The majority of the paper was known to the reader. What is different is the reason of relativity and the analysis of this beautiful idea in the 8T framework, which imposes additional complications, in quantum scale.

The Coupling Constants Series and Total Variations Pairing

$$F_{V=0} = 8 + (1) \quad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \quad (1)$$

We have obtain the net variation, $N_V,$ as part of a total variation pair,(p_1, p_2), which we required the sum to be two and three divisible. We gave two examples for the strong interaction:

$$(p_1, p_2) = (5{,}13) \quad (3)$$

$$(p_1, p_2) = (7{,}11) \quad (3.1)$$

Two points with regard to those pairs. First, it is commutative, we can replace the elements in the pair and nature will be invariant, the coupling series will hold:

$$(p_1, p_2) \rightarrow (p_2, p_1) \quad (3.11)$$

Nature is invariant to the actual value of the elements; we can choose any two primes, as long as their sum creating an even number, two and three divisible of certain magnitude, the coupling constant will hold as well. In the 8T thesis we chosen the first pair, it could have worked exactly as well with the second pair.

$$(p_1 + p_2) = S1 \quad (3.12)$$

$$(p_3 + p_4) = S1 \quad (3.13)$$

An additional point that was not mentioned in the thesis, the coupling series will hold with any additional amount of primes clustering. We chose the simplest one, two primes in a pair. It could have been four, six or any even number of primes pairing. Any even amount of primes added will yield an even number. Of course the adjustment needed to be made regarding to the division, so we can reach the average value.

$$\frac{\sum_{i=1}^{N} P_i}{\mathrm{N}} = S1_{Average} \quad (3.14)$$

If we had four primes pairing, divide by four, six primes divide by six, to reach the average. Of course the average must be two and three divisible, so it could get harder and less likely to find higher numbers of primes pairing which satisfying the condition. It will be impossible to reach the smallest sum in the series with a hundred primes pairing. So for the beginning of the series there could be a limitation.

Fermionic & Bosonic Propagations

$$\left[\frac{\partial L}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\right]\frac{\partial g}{\partial t}\delta g - \left[\frac{\partial L}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\right]\frac{\partial^2 g'}{\partial t^2}\delta g' = 0 \qquad (1)$$

$$\sum_{k=1}^{M}\delta g_k = 0 \qquad (1.1)$$

We partitioned and discretized into a series of arbitrary variations that vanish into matter. We do not have any data regarding the position on the manifold in which those arbitrary variations appear, nor can we assume they possess momenta, as we invoked stationarity on the Lorenztion. M_0 is the connected manifold.

$$M = M_0 \times R \qquad (1.12)$$

In other words, arbitrary variations, which vanish into matter, can be regarded and described by scalar fields that are real, since they have an even amount of variations.

$$\sum_{k=1}^{M}\delta g_k \in \mathbb{R} \qquad (1.121)$$

Those arbitrary variations, still a subject to additional variance. Such a variance is either prime or one in our framework. These are the variations associated with bosonic propagation. One associated with the strong and each prime with additional coupling term, weak, electric and so on. Because of their prime number feature, they are not vanishing like a fermion scalar but rather as a vector propagation all across. The propagation is associated with a variation of the ∇^2 operator to the setting of the stationary manifold. The bosonic ripple field is than described by:

$$\nabla^2 = \frac{\partial^2 M_x}{\partial^2 g} + \frac{\partial^2 M_y}{\partial^2 g} + \frac{\partial^2 M_z}{\partial^2 g} \qquad (1.2)$$

In other words, it is a vector field propagating all across the matric, due to its prime number feature, for the second element in the coupling constant series and above. Since the bosonic propagation is associated with prime amount of variations, we can associate it to a complex field, which than require a Hermitian conjunction in order to perform measurement upon. In other words, we can associate bosonic fields to complex vector fields.

$$N_V = 2V + 1; N_V \in \mathbb{P} \qquad (2)$$

$$N_V \in \mathbb{C}$$

The Lagrangian Variation

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}-\frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}=0 \qquad (1)$$

$$\frac{\partial g}{\partial t}= 0 \quad -\frac{\partial^2 g'}{\partial \mathrm{t}^2}= 0 \qquad (1.1)$$

$$\mathscr{L}= T - V \qquad (1.11)$$

How can a representation of the Lagrangian be made on the varying Lorentz manifold, is the main question one will analyze in this short assay. Of course, the real answer to that question is one does not know. However, educated guess will be made. The kinetic term could be associated to the outward matric expansion, due to $(\partial g/\partial t)$ term, which is synonymous with energy in physical theories.

$$\left(\frac{\partial g}{\partial t}\right)=\left(\frac{\partial E}{\partial t}\right)=\frac{\partial^2 E'}{\partial \mathrm{t}^2} \qquad (1.12)$$

That is the kinetic term. A Ricci Tensor overtime, yielding an energy expansion outward causing a matric acceleration on the object generating the energy. That is the main equation that was derived by putting an Einstein manifold in Euler Lagrange Equation. Now, what is the potential energy in the 8T framework? In physical theories, the potential is associated with the mass, which is certain feature of the object itself. In the 8T we do not have any objects, the objects are manifestations of discretizing and partitioning the term $\delta g \rightarrow \sum_{i=1}^{K}\delta g_i = 0$ in equation (1.) to vanish into fermions. How can we translate that into a potential term?

$$\left[\frac{\partial L}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\right]\frac{\partial g}{\partial t}\delta g-\left[\frac{\partial L}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\right]\frac{\partial^2 g'}{\partial \mathrm{t}^2}\delta g'=0 \qquad (1.2)$$

Since we would like to measure how much arbitrary variations the object we measure contain, and those arbitrary variations are two and three divisible to vanish into matter, two distinct elements which created threefold combinations, to get a measure of the amount of arbitrary variations, the action needed is the following Transformation:

$$\sum_{i=1}^{K}\delta g_i = 0 \rightarrow \sum_{i=1}^{K}|\delta g_i| = \mathcal{V}_{8T} \qquad (1.21)$$

The idea, whether correct or not, was to take the absolute number of varying elements participating in the construction of the object. The operation was done via the insight we gained in previous paper, two distinct elements which differ in sign, so by eliminating the minus sign we can estimate how many arbitrary variations appear in the cluster. To sum up, The energy, causing outward acceleration minus the total amount of arbitrary variations constructed in the cluster.

$$\mathscr{L}=\left(\frac{\partial g}{\partial t}\right)-\sum_{i=1}^{K}|\delta g_i| \qquad (2)$$

Cluster Decomposition

In quantum field theory, one learns that the connected part of the S matrix must vanish. Distinct events do not effect each other.

$$S^C_{\beta\alpha} \to 0 \qquad (1)$$

What is the equivalent of the cluster decomposition principle on the Lorentz manifold (M, g_E) with signature (3,1), invoked stationary, $M = M_0 \times R$, is the subject of this paper.

$$\frac{\partial \mathrm{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathrm{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \qquad (1.1)$$

Since the manifold experience arbitrary variations that vanish into matter, all across the matric, the smoothness of the matric must be taken into account. Bosonic propagation described by the delta must cross the metric before reaching a distinct event on the manifold. The result of such a construction would be that only arbitrary variations that vanished relativity closed to each other, will have an effect on each other. Suppose we had two distinct arbitrary variations, that is by discretizing and partitioning the term δg in equation (1.11), as was done in previous papers of the 8T, to proof that these are fermions:

$$\delta g = \sum_{i=1}^{\infty} \delta g_i = 0 \qquad (1.2)$$

We impose two conditions equivalent to the cluster decomposition in QFT. Those conditions are synonymous with saying that distinct events will not affect each other. Consider two arbitrary variations

$$\delta g_i + \delta g_{i+1} \qquad (2)$$

Suppose those appeared at distinct parts of the matric, M_μ is a four vector isomorphic to the arbitrary variation with the matching index δg_i:

$$M_\mu \to M(x_i\,, y_i, z_i, t_i) \qquad (2.1)$$

$$\delta g_i \to M_\mu$$

Same for the additional variation, δg_{i+1}, a four vector M_ν, the condition than requires that:

$$M_\mu - M_\nu \leq \epsilon \qquad (2.11)$$

$$\epsilon \to 0$$

In other words, two arbitrary variations must appear close to each other on the matric, at very short time interval. That is synonymous with the quantum field theory statement of the connected part of the amplitudes to vanish. The two conditions are synoptic in the four vector. The arbitrary variations should appear close on the matric spatial dimensions and at a short time interval.

The Perfect Symmetry of Hadrons

$$F_{V=0} = 8 + (1) \tag{0}$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30: 128: 850: 9254.. \tag{1}$$

$$8 + (1): \big(24 + (3)\big) + 3: \big(120 + (3)\big) + 5: \big(840 + (3)\big) + 7 \tag{2.1}$$

Now, in the 8T framework, up to this point, we nicknamed the left term of each element in the coupling as a variation cluster, which is divisible by two and three to perfectly vanish into matter. This variation cluster is destabilized by the majestic three, causing a net variation to appear, or in other words, to boson propagation from the fermion. Recently one noticed a very interesting fact, that the left terms of the coupling constant series for the weak interaction are identical to densest packing D_4 highest kissing number that is 24. So all the left coupling terms are actually 4D spheres, leading to a propagation of the electron. That may sound outrageous but not in the 8T, as we only have 4D manifold, three spatial and one temporal. By looking at the coupling constant in that light, we can also regard the hadron as possessing an extreme density, as it has the highest kissing number in 4D, and the electron is not bound to it but revolves around it, as the majestic is a separate term. The following apply to each other term:

$$24 * 5 \rightarrow 120 \tag{3}$$

$$24 * 5 * 7 \rightarrow 840 \tag{4}$$

Notice that those numbers are associated with highest kissing numbers in higher dimensions.

$$E_8 \rightarrow 240 = 120 * 2 \tag{5}$$

$$p_{12} \rightarrow 840 \tag{6}$$

Of course, ignoring the higher dimensions complexity and focusing on the part of the highest kissing numbers, we can reach an insight, those fermionic clusters in each term are most dense, in agreement with what we know about the structure of the fermions, and in particular the hadron. Also, notice that those higher dimensions are scalar four multiples, which as one believes, means that should appear on the manifold eventually. The highest kissing number in D_4 is the base to all other kissing numbers at those higher dimensions. By looking at the coupling constant series, than we can correlate the manifold and validate it has only four dimensions, since all higher terms are the dimension four multiples of the kissing number, 24. And thus there could not be more than four dimensions on our manifold. There are of course other manifolds, which according to the series are four dimensional as well, interacting with our own as given by the main equation of the 8T. But by coupling constant series, it is possible to derive why the manifold has exactly four dimensions, because of the kissing number of the second term and above.

In addition, the number 24 is associated with the leech lattice, which has most density within a certain dimensional range, is intimately related to this number. In the 8-Theory however there is no use of any lattices. Rather we use variations. Notice the 24 is perfectly to and three divisible to vanish into matter. There is no additional variation left alone. The hadron is perfectly compact and most dense because of that trait. Than it is destabilized by additional term, the element in which we called the majestic (3). The point one was trying to make is that the perfect symmetry of the hadronic structure is preserved along each coupling term, i.e. each interaction. In addition, it is than lessen by the electron, i.e. the additional element in the third coupling term. And either the electron is also the cause of that symmetry break in all other terms or electron analogues field.

$$\frac{24 * N_V}{mod(6)} = 0; \qquad (6.1)$$

$$N_V = 2V + 1; V \geq 1$$

$$N_V \in \mathbb{P}$$

If it was any other number than 24, than the symmetry of the hadrons was not perfect, as equation (1.2) will not hold. The symmetry is breaking due to an external element added by the higgs field from the second element and above, the majestic (3). It is currently unclear whether this element is the same for each of the coupling terms. For the electric, it was proven the electron. However, for the weak interaction term and higher terms it could be an electron analogues particle manifested in the element (3) as mentioned in the previous paragraph and again, it's so important one wanted to emphasize it here as well. There are two main points two take from this short assay. The first is the perfect symmetry of the hadronic structure due to its numerical features. The second point is that the symmetry is breaking from an external element not from within the hadronic structure, due to the higgs field, inserting the majestic (3).

The Feynman Diagrams

$$F_{V=0} = 8 + (1) \tag{0}$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \tag{1}$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ V \geq 0 \tag{2}$$

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2\text{N}1 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\text{N}2 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(120 * 7) + (3)] + 7 \rightarrow \left[2\text{N}3 + \frac{1}{2}\right] + \frac{1}{2}$$

Examine the term describing the electric coupling. We proved majestic (3) is the electron in the 8-Theory thesis.

$$[(24 * 5) + (3)] + 5 \rightarrow\ [(24 * 5) + (e)] + 5 \tag{2.31}$$

$$[(24 * 5) + (3)] + 5 \rightarrow\ [(24 * 5) + (e)] + \gamma \tag{2.32}$$

$$\text{e} \searrow\ \longrightarrow\ (\gamma)\ \longrightarrow\ \text{e}\ \nearrow \tag{2.33}$$

$$(+3)\ \longrightarrow (\gamma) \longrightarrow\ (+3) \tag{2.34}$$

$$(+3)\ \longrightarrow (+5) \longrightarrow\ (+3) \tag{2.35}$$

$$(+3) +\ N_V =\ (+3) + 5 = 8$$

$$8 = even$$

$$even = 0$$

The electron, represented as the majestic (3) combined with the net variation yielding an even amount of variation that vanish. That is synonymous with saying that the electron has absorbed the photon. The conservation of variation ensure that no electron can disappear from the manifold. However, as the combination of N_V and the electron, i.e. the (3) yielding an even, there has to be a vanishing of certain sort into the electron. It is moved into an exited state, vanishing of curvature,$(\gamma) = (+5)$ into the receiving electron, which causes the deflection in trajectory. Using the numerical trait and insight

gained by the coupling constant series, by the 8T framework, it is possible to add an additional liar to the Feynman diagrams and interactions among bosons and fermions in what seems as a very simple and elegant manner. What can be derived about the nature of the electron using the coupling constant representation? First of all, it is bounded by the bracket, it cannot escape and behave as the net variation, i.e. the photon. Despite the fact that both elements represented by a prime. Second, the electron is represented as a prime number, (3), which cannot vanish into matter, but also cannot propagate as a bosonic fields across the matric its behavior than would propagation across the nuclei, in agreement with current understanding about the probabilistic behavior of that particle. There is no data regarding the current position, momenta, orbitals, no physical data of any sort is manifested in the 8-theory. An additional way to analyze it is to say that the electron blends in the hadronic cluster, $[(24 * 5) + (3)]$. The hadronic cluster is closed and represented in a closed term within the bracket. The summation of the term is perfectly suitable to vanish into matter.

The Axis of Evil

The main equations in our new framework:

$$\frac{\partial \mathrm{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}} - \frac{\partial \mathrm{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \tag{1.1}$$

$$\frac{\partial g}{\partial t} = 0 \quad -\frac{\partial^2 g'}{\partial \mathrm{t}^2} = 0 \tag{1.11}$$

Describing the Lorentz manifold (M, g_E) with signature (3,1), invoked stationary, $M = M_0 \times R$. Equation (1.1) satisfy the Einstein principle of equivalence and expends it to a cause and effect relationship. Invoking a stationary manifold, any amount of curvature on it, will yield an outward acceleration of the matric. In that sense, it is different from general relativity, as there is no need to insert the cosmological constant as a separate entity. Using that equation, we built a new way to explain relativity by saying that two distinct observers will cause different accelerations of the matric, and so, by measuring the same object, will reach different times and distances.

In our theory, the manifold has a varying matric according to a varying topology. The subtle idea is that the manifold has a compact topological space that is accessible from every point given high enough energy. Such space covers every point in matric space. Such a space is what makes the theory works, it is the space keeping the manifold stationary and with the second condition causing it to accelerate outward. Since there are no coordinate to such space, it is the same everywhere, and since every point in the matric is connected to it, there could be the illusion that each point in space was the point in which something cosmologically significant has accrued at singularity. Not the whole topological space is satisfying the condition, $\partial g/\partial t = 0$ there are arbitrary variations in that space which vanish into matter on the matric, we have proved it in previous papers. Each net variation than is isomorphic to the prime numbers or to the number one, and thus we were able to prove the coupling constant series, presented in equation(2) and (2.1). The point of this short assay is the fact that there is an underlining space, which is invariant to matric coordinate and covers the entire matric. We know it covers the entire matric as the manifold is connected to the topological space but no spatial coordinates are given in equation (1.1). The topological space is than invariant, and the equation is really a right to left chain of the order. Notice that the chain (3) is exactly describing the order in which things are happening in cosmological scales.

$$\frac{\partial \mathrm{L}}{\partial \mathrm{s}} \longleftarrow \frac{\partial \mathrm{s}}{\partial \mathrm{M}} \longleftarrow \frac{\partial \mathrm{M}}{\partial \mathrm{g}} \longleftarrow \frac{\partial \mathrm{g}}{\partial \mathrm{t}} \tag{3}$$

Reasoning Bosonic Probabilities

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \qquad (1)$$

$$8 + (1){:}\,\big(24 + (3)\big) + 3{:}\,\big(120 + (3)\big) + 5{:}\,\big(840 + (3)\big) + 7 \ldots \qquad (1.11)$$

Examine the term describing the electric coupling. We proved majestic (3) is the electron in the 8-Theory thesis. The photon is represented as net variation, which is unbound. It is free to propagate all across the manifold.

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (e)] + 5 \qquad (1.12)$$

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (e)] + \gamma \qquad (1.121)$$

Suppose such a photon just propagated from the electron. i.e. the majestic (3). The meaning of such an occurrence is that there is a net curvature that is unbound on the manifold. Such curvature will effect all other potential propagation toward itself. It will create a pull effect on other potential boson propagating from fermions. That is in agreement with what we know about the commutation relation of bosons, and the fact that the probability to find a boson increase if there is already a boson in a certain position of the matric. The innovative part of this paper and the main point to take is the new setting, a in which a photon itself is a net curvature causing other curvature propagating at later time to converge to its position. When analyzed via the new framework it than becomes quite easy to understand what is going on at that fundamental level.

$$\sum_{i=1}^{N} \gamma_i > 0 \qquad (2)$$

$$\sum_{i=1}^{N} \gamma_i = \sum_{i=1}^{N} \delta g_i > 0 \qquad (2.1)$$

The point of view presented is not presented in quantum field theory framework, the methods they use to describe the commutation and anti-commutation is VOA, vertex of algebra, and there is simply no way to imagine or to grasp the intuitive reason for the such a behavior. By using an approach combining manifolds and variation, i.e. Euler Lagrange, it is possible to explain the behavior of bosons in an intuitive and simpler fashion. It is possible to state that each boson is creating a "gravitational effect", i.e. curvature on the manifold, and thus increase the probability of arrival for other bosons to itself.

The Conservation of Variation

$$F_{V=0} = 8 + (1) \qquad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30:128:850:9254.. \qquad (1)$$

$$N_V = 2\left(V + \frac{1}{2}\right);\; V \geq 0 \qquad (2)$$

$$8 + (1): \big(24 + (3)\big) + 3: \big(120 + (3)\big) + 5: \big(840 + (3)\big) + 7 \ldots \qquad (2.1)$$

$$8 + (1) + 3 - (1v): \quad \big(24 + (3)\big) + 3: \quad \big(120 + (3)\big) + 3 \qquad (2.1)$$

In the paper about the interactions dynamic nature, we varied the first and the third interactions, i.e. the strong and the electric, in their N_V element, so all the net variations will align on the same integer. The important point, which was not mentioned, is that the net variations varying their position among the terms are confined within the manifold. In other words, it is conserved. That is also the case with the gravitational coupling, which as far as the 8T can predict, is a result of two net variations added to the original net variation. The data regarding the nature of gravity came from the second representation, i.e. the spin representation of the coupling constant equation.

$$[2N_{gravity} + 2] = \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \left[\big(2N_{gravity}\big) + (3)\right] + N_{V1} + N_{V2} + N_{V3} \quad (2.2)$$

We can put the conservation law in rigor and construct an appropriate theorem:

Theorem (1.0) – The sum of net variations on all the coupling elements cannot escape the manifold.

Theorem (1.1): The sum of all net variations increase with time.

$$\oint_{t=0}^{t=Z} (dM)(M_0 \times R)\Big(\sum_{V=0}^{\infty} N_V\Big) \in M \qquad (3)$$

$$\mathrm{Z} \rightarrow \infty$$

If one constructed properly, one summation of the net variation to each V across the entire manifold matric, over time, must belong to the manifold itself and cannot decrease. It could be related to the second rule of thermodynamic, the entropy rise alongside the net variations overtime. Of course, the total variations grow much faster, but that was not the subject of this paper. The point was to emphasize that the sum of net variation is bounded to the manifold, despite the fact it grows with time.

Bosonic Strings - Cyclic Groups

$$F_{V=0} = 8 + (1) \quad (0)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30:128:850:9254.. \quad (1)$$

$$8 + (1):\big(24 + (3)\big) + 3:\big(120 + (3)\big) + 5:\big(840 + (3)\big) + 7 \ldots \quad (1.11)$$

$$8 + (1)$$

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2\mathrm{N}1 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\mathrm{N}2 + \frac{1}{2}\right] + \frac{1}{2}$$

$$[(120 * 7) + (3)] + 7 \rightarrow \left[2\mathrm{N}3 + \frac{1}{2}\right] + \frac{1}{2}$$

Cyclic groups in mathematics are represented by the following, if a set of elements is generated by one single element, than we have a cyclic group. Since all the bosonic fields or net variations in the 8T are generated by the same element, i.e. the majestic (3), than there is in this framework an infinite cyclic group. Define the majestic three as the generator:

$$(3) \rightarrow \mathcal{M}$$

$$\mathscr{B} = \{N_1 = (+3)\mathcal{M}, N_2 = +(5)\mathcal{M} \ldots.\} \quad (3.1)$$

By representing the propagation in such fashion, we can state that since the bosons are propagations are part of an infinite cyclic group, the sub elements of that cyclic group are cycles themselves. We have proven the representation of the coupling constant series in the thesis:

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (e)] + \gamma \quad (3.11)$$

$$\mathscr{B} = \{N_1 = (+3)\mathcal{M}, N_2 = +(\gamma)\mathcal{M} \ldots.\} \quad (3.12)$$

Therefore, that is a proof that bosonic net variations are cycles, or in physical theories, bosonic particles are in fact closed strings. That is because they are generated by the same element.

Curvature Absorptions

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (e)] + \gamma \qquad (3.11)$$

$$(3) \rightarrow \mathcal{M}$$

$$\mathscr{B} = \{N_1 = (+3)\mathcal{M}, N_2 = +(5)\mathcal{M} \ldots.\} \qquad (3.1)$$

$$\mathscr{B} = \{N_1 = (+3)\mathcal{M}, N_2 = +(\gamma)\mathcal{M} \ldots.\} \qquad (3.12)$$

All of this was covered in previous papers. The majestic (3) is a generator of a cyclic group of bosonic net curvature propagations, isomorphic to the primes or one. We made a Feynman diagram using the new framework:

$$e \searrow \ \longrightarrow (\gamma) \longrightarrow e \nearrow \qquad (2.33)$$

$$(+3) \longrightarrow (+5) \longrightarrow (+3) \qquad (2.35)$$

$$(+3) + N_V = (+3) + 5 = 8 \rightarrow 0$$

The point of this paper is that in order to understand how the manifold vary, there are to be a summation of all curvature absorptions and emissions. As an electron absorb a photon, the manifold gets more flat, as $N_2 = +(5)$ just vanished into the electron and vice versa. By looking at clusters of photons in unit matric, it is also possible to estimate how much curvature exits on the manifold. As bosons are net variations unbound, it was derived that preciously for that reason the probability of boson arrival after a boson is propagated.

$$\sum_{i=1}^{N} \gamma_i > 0 \qquad (2.4)$$

$$\sum_{i=1}^{N} \gamma_i = \sum_{i=1}^{N} \delta g_i > 0 \qquad (2.41)$$

The point is, we can use space- time summation and in particular, the distribution of fermions to bosons to estimate how curved the matric, or how it varies over time. It is vividly clear that a real world estimation is at the verge of impossible, but a rough evaluation is always within reach.

$$\sum_{i=1}^{N} \gamma_i \rightarrow \wp$$

$$\frac{\partial \wp}{\partial t} - \frac{\partial M}{\partial g} = 0 \qquad (3.1)$$

Light is Bending Space-Time

$$\left[\frac{\partial L}{\partial s}\frac{\partial s}{\partial M}\frac{\partial M}{\partial g}\right]\frac{\partial g}{\partial t}\delta g-\left[\frac{\partial L}{\partial s'}\frac{\partial s'}{\partial M}\frac{\partial M}{\partial g'}\right]\frac{\partial\partial g'}{\partial\partial t}\delta g'=0 \qquad (1.13)$$

$$\sum_{i=1}^{N}\delta g_i=0 \qquad (1.14)$$

$$\sum_{i=1}^{M}\gamma_i>0 \qquad (1.15)$$

$$\sum_{i=1}^{M}\gamma_i=\sum_{i=1}^{M}\delta g_i>0 \qquad (1.16)$$

By putting the Lorentz manifold in Euler- LaGrange framework and allowing arbitrary variations to appear, in which we require to vanish, in the 8T we discretized and partitioned the term (1.14) and were able to prove that arbitrary variations of the manifold vanish into matter. Each net variation or net curvature is isomorphic to a bosonic field propagation. In particular the boson associated with photon propagation is $N_V=+(5)$. Such propagation is than yielding a positive summation, i.e. a positive curvature by (1.15), so fermion clusters are flat according to the 8T framework, but bosonic propagations are curvature on the manifold. The weird and unexpected result is that bosonic fields are deflecting fermion clusters and not the opposite as believed by GR. It is an unexpected result, but up until recently we thought there are only four forces, and such thought lead to thinking that physics can be unified.

The Riemann Hypothesis – Proof

Define a Lorentz manifold

$$\mathbf{s} = (\mathbf{M}, \mathbf{g}) \qquad (1)$$

Use it to assemble a Lagrangian and require it to be stationary:

$$\mathrm{L} = (\mathrm{s}, \mathrm{s}', \mathrm{t}) \qquad (2)$$

$$\frac{\partial \mathbf{L}}{\partial \mathbf{s}} - \frac{\partial \mathbf{L}}{\partial \mathbf{s}'} * \frac{\mathbf{d}}{\mathbf{dt}} = \mathbf{0} \qquad (3)$$

Allow arbitrary variations of the manifold. Ensure it will vanish:

$$\varpi \mathbf{s} = 0$$

Turn it to a series of arbitrary variations:

$$\varpi \mathbf{s} = \varpi \mathbf{s1} + \varpi \mathbf{s2} + \varpi \mathrm{s}3 \ldots \qquad (4)$$

If there are only four elements in the series, and we require them all to vanish, than we can allocate two pluses and two minuses:

$$\varpi \mathbf{s1} + \varpi \mathbf{s3} > 0$$

$$\varpi \mathbf{s2} + \varpi \mathbf{s4} < 0$$

If

$$\varpi \mathbf{s1} + \varpi \mathbf{s3} + \varpi \mathbf{s2} + \varpi \mathbf{s4} \neq 0 \qquad (5)$$

Than the overall series cannot vanish, by that logic we need equal amounts of plus and minuses. The overall amount must be even and summed as zero.

Suppose that we had three distinct elements, two pluses and minus:

$$\varpi \mathbf{s1} + \varpi \mathbf{s3} + \varpi \mathbf{s2} > 0$$

or

$$\varpi \mathbf{s1} + \varpi \mathbf{s3} + \varpi \mathbf{s2} < 0$$

Demanding the series to vanish this forbid this result, and so there could not be three distinct elements in the series, else the overall series will not vanish. As a result of those sceneries, we require the series to have an even amount of variation elements, manifesting as two distinct elements in the series, which differ in sign. If we allow those sub elements in the series to vary as well, and by the above reasoning, there are only two elements in the series, they are varying in a discrete way, or forming a group. Let it be only four elements in the series and one of the pluses just changed its nature

$$\mathbf{O}: \varpi \mathbf{s1} \rightarrow \varpi \mathbf{s2}$$

$$\varpi \mathbf{s1} + \varpi \mathbf{s1} + \varpi \mathbf{s2} + \varpi \mathbf{s2} = 0$$

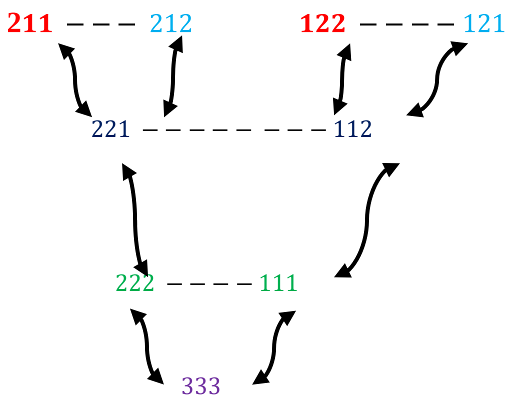
To:

$$\varpi \mathbf{s1} + \varpi \mathbf{s2} + \varpi \mathbf{s2} + \varpi \mathbf{s2} \neq 0$$

There must be a way to bring it back to where it was, so the overall series can vanish, it takes another map, on the varying element to bring it back to where it was.

$$\mathrm{Y}: \varpi \mathbf{s2} \rightarrow \varpi \mathbf{s1}$$

Therefore, to bring an element to itself given only two varying elements in the series we need two distinct maps, which attach a varying element to itself, by a threefold combination.
ω**s1**(O) ω**s2**(Y) ω**s1** For example. Even though the sub elements in the series are varying, the overall series can vanish. Now, count all the ways of possible combinations of those elements. We are going to analyze by the integral signs. Since it is a group, there is a natural map, which change an element to itself. One built his analysis firstly on those natural maps. The first two combinations are by the natural maps and one used them to build the other combinations. Overall, there are eight such combinations and additional one arrow combination, which yield (333) here is how one built it, starting from those two natural maps. (Arrows to variations, colors to pairings):



Now that we have a series of 2N elements, varying to one another and forming threefold combinations, **which we require to vanish at end**, we can set the stage for a proof of primes. **Define:** P^m as the set of {2 , 3} as "minimal primes". In addition, all the other primes to be in a set of P_h as meant "prime higher".

Define $P_h = \{2n + 1\}$ not divisible by P^m as "prime higher" set – 2n taken as amount of Lorentz manifold arbitrary variations.

$\{2n + 1\}$ as an odd amount of variations not divisible by minimal primes

$$P_t = P_h + P^m \text{; to be the set of all primes}$$

Define a functor V on P_h:

$$V\text{: set} \rightarrow \text{ring} \qquad (6)$$

Analyze any multiplication or addition combination of P_h on the ring. Let the ring exist on a Lorentz manifold, a topological space.

<u>Multiplication</u>:

Define T to be a number aspiring infinity: T→ ∞ Multiply an **even or odd** series aspiring infinity of distinct higher primes to obtain:

$$[(2n_1 + 1)(2n_2 + 1)(2n_3 + 1)\dots(2n + 1]) =$$

$$2\left[T\left((n_1\, n_2 \dots)\right) + (n1 + n2 + n3 \dots) + \frac{1}{2}\right]$$

$$= 2([T((n1\, n2 \dots)) + N(s) + 1/2]$$

$$N(s) = (n1 + n2 + n3 \dots) = 0 \qquad (7)$$

As sums of even amounts of arbitrary variations vanish. Since all the elements are two multiples, they all vanish. Final form:

$$2\left([\mathrm{T}\ (\mathrm{n1\ n2}\ \dots)] + \frac{1}{2}\right) \qquad (8)$$

Addition

Add any infinite **even series** of distinct higher primes to obtain

$$(2n_1 + 1) + (2n_2 + 1) + (2n_3 + 1) \dots = [2(n1 + n2 \dots) + \mathrm{even}] =$$

$$[2(n1 + n2 \dots)] \qquad (9)$$

$$\text{as even} = 0.$$

Prime cannot form, as even amount of variations vanish exactly to zero. That is the reason the paper begins with deriving fermions, their anti-commutation relation. Even amount of distinct higher primes added will never form a prime.

Add any infinite **odd series** of distinct higher primes to obtain

$$(2n_1 + 1) + (2n_2 + 1) + (2n_3 + 1) \dots =$$

$$[2(n1 + n2 \dots) + \mathrm{odd}] =$$

$$[2(n1 + n2 \dots) + (\mathrm{even} + 1)] \qquad (10)$$

However, even amounts of arbitrary variations vanish:

$$\mathrm{even} = 0$$

$$[2(n1 + n2 \dots) + 1] \ \text{or:}$$

$$2[n1 + n2 \dots + 1/2] \qquad (11)$$

Category transformations

Define a functor on "Primes higher" ring

$$G: \text{ring} \rightarrow \text{group}$$

All "primes higher" are forming a closed non-abelian group with 1/2 as generator. The condition to group forming is to have an odd amount of primes under addition and eliminating even amounts of arbitrary variations taken as an axiom. Define additional functor

$$G': \text{group} \rightarrow \text{set}$$

Add the sets:

$$P_{\underline{h}} + P^{m} = P_{\hat{t}} \ ;$$

Define a functor on $P_{\hat{t}}$:

$$G'': \text{set} \rightarrow \text{group}$$

All primes are forming a non-abelian group of generator 1/2. Minimal primes are part of the group by nature of the proof, defined technically to be prime. Primes are forming a non-abelian group under addition and multiplication. The condition to satisfy is to have an odd amount of primes under operation of addition. No matter how far into infinity we will go, the framework of vanishing of even amount of variations will ensure that all primes take the same form – aligned on $\frac{1}{2}$. Setting the stage and **examining primes not as numbers**, **but rather as arbitrary variations of a manifold**, which vanish in pairs of even variations, we are able to show primes to form a non-abelian closed group under 2(n+1/2). Final functor on the total group of primes:

$$\text{Riemann: Group} \rightarrow \text{ring}$$

All primes are forming an infinite ring on the critical line of 1/2 and only there.

$$\boldsymbol{End\ of\ proof.}$$

Visualization - Photon Emission

$$8 + (1): \big(24 + (3)\big) + 3: \big(120 + (3)\big) + 5: \big(840 + (3)\big) + 7 \ldots \tag{1.12}$$

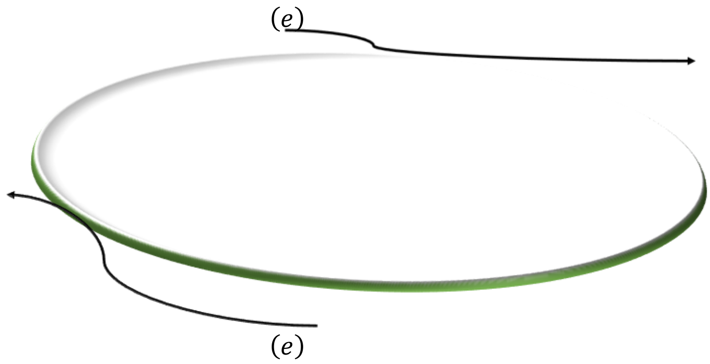
$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (e)] + \gamma \tag{1.13}$$

$$(e) = (3) \rightarrow \mathcal{M}$$

$$\mathscr{B} = \{N_1 = (+3)\mathcal{M}, N_2 = +(5)\mathcal{M} \ldots .\} \tag{1.14}$$

$$\mathscr{B} = \{N_1 = (+3)\mathcal{M}, N_2 = +(\gamma)\mathcal{M} \ldots .\} \tag{1.15}$$

Equations (1.12) to (1.13) describe the process of emission to the invariant three, proven the electron, assumed the electron for each higher term in the coupling series. equations (1.14) **-** (1.15) describe the invariant three as the generator of a cyclic group, meaning all bosonic propagations are sub elements of that group and so we prove they are closed cycles themselves. And so we can draw the interaction between two electrons and a photon emission in the following way:

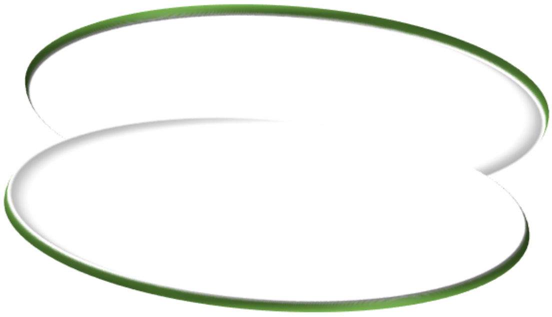


As was proven, they cannot move at the same orientation of the distortion due to their prime number feature, combined together there will be a vanishing and so the coupling series than would not make sense. The end conclusion would than imply that the boson propagated from nowhere which is impossible.

Interference

$$[(24*5)+(3)]+5 \rightarrow [(24*5)+(e)]+\gamma \qquad (1.13)$$

The image above represent a net curvature on the Lorentz manifold, in that specific case, it's the photon associated with $N_V = (+5)$ net variations, and total 128 variations. Suppose that we perform the two slits experiment and open an additional route for net curvature. this is the visualization of what could happen according to our new theory:



There are two ways to explain. The first is to say that two opposite but similar in magnitude curvature occupying the same space will have a segment of mutual cancelation. If we define ripple operators ≬ from a starting area to another area, the mutual area of both will be the amount of interference.

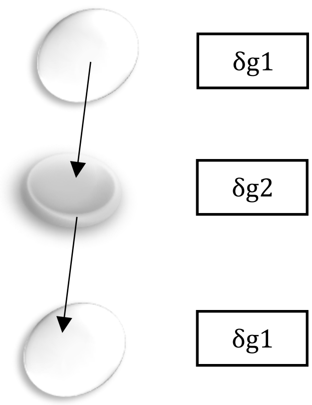
$$\between : A \rightarrow B \qquad (1.131)$$

$$\between : A' \rightarrow B \qquad (1.132)$$

Interference will accrue at the manifold segment that is mutual to both starting point. Define the interference operator:

$$\not\approx : A \cap A' \qquad (1.133)$$

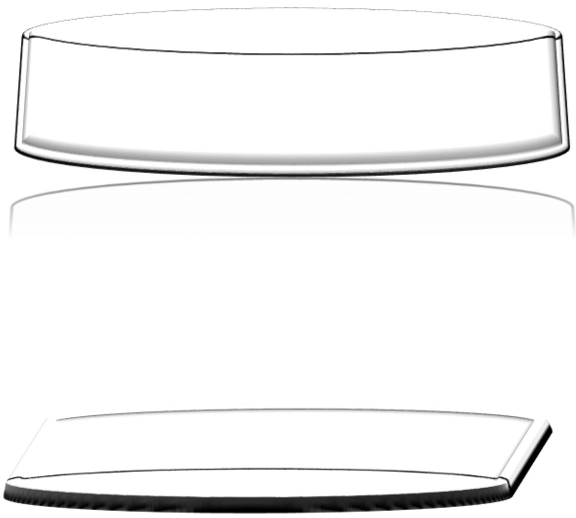
Quark Visualization



Imagine constant variation so the overall construction is curvature varying, according to the combination where will be a pairing according the graph presented in the 8 theory thesis or the group suggested by the particle physicist Gell Mann. Each arrow in the visual is a representation of the gluon, or the first element in the coupling constant primorial function.

Visualization of the Multiverse

$$\frac{\partial \mathcal{L}}{\partial S_1}\frac{\partial S_1}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}-\sum_{n=2}^{\infty}\frac{\partial \mathcal{L}}{\partial S_n}\frac{\partial S_n}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}=0 \tag{1.2}$$



Strong Interaction – The Electron

$$F_{V=0} = 8 + (1) \quad (1)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \quad (1.1)$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ V \geq 0 \quad (1.11)$$

$$N_V \in \mathbb{P} \cup (+1);\quad \mathbb{P} \rightarrow Set\ of\ Primes$$

$$N_V = P_{max} \in [0, \mathbb{R}] \cup (+1);\ P_{max} \in \mathbb{P}$$

$$8 + (1){:}\ \big(24 + (3)\big) + 3{:}\ \big(120 + (3)\big) + 5{:}\ \big(840 + (3)\big) + 7 \ldots \quad (1.12)$$

$$\mathbf{[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (\boldsymbol{e})] + \boldsymbol{\gamma}} \quad (\mathbf{1.13})$$

The main argument of this short assay is that it is possible to regard each higher coupling terms as the strong interaction being destabilized in ever-growing fermion formations. It's the electron that has so much significance in the coupling constants series. Back in the day, when author derived the coupling series, in the thesis he believed that each term would have unique destabilizer, but now it seems very clear that such an assumption is quite likely wrong and eventually will lead to complexity that is not needed. Another way to state it is that three is isomorphic to itself. What is varying is the size of the fermionic cluster and the magnitude of the net curvature. The shift in understanding manifested itself in toward the end of the thesis but still it is important to clarify to avoid confusion among readers. It is also possible to represent the coupling, as you already know, in the form of spin representations by setting it on the prime critical strip.

$$[(8 * 3) + (3)] + 3 \rightarrow \left[2\text{N1} + \frac{1}{2}\right] + \frac{1}{2} = 2N_1 + 1$$

$$[(24 * 5) + (3)] + 5 \rightarrow \left[2\text{N2} + \frac{1}{2}\right] + \frac{1}{2} = 2N_2 + 1$$

$$[(120 * 7) + (3)] + 7 \rightarrow \left[2\text{N3} + \frac{1}{2}\right] + \frac{1}{2} = 2N_3 + 1$$

To solidify the statements made in previous papers, the variance in that representation is the fermionic clusters, represented in the right of each term, and the net variation, or net curvature that is prime or one. The conclusion if one is correct is the electron is destabilizing larger and larger fermionic cluster yielding an infinite succession of net curvature on the manifold, which causes the endless process of clustering. One prefer that version, as it is simpler than to assume that each term would have a unique destabilizer. As the fermionic cluster gets much more massive in rate, the net curvature than becomes less significant, preciously the idea behind the principle of least variation.

Virtual Curvatures

In calculus of variations, we have the procedure of the following for the vanishing of virtual displacements within a massive cluster. Such a procedure makes description of motion rather simple, as we do not need to describe the innate motion of a static body. Similar in a sense to the Laplace operator.

$$\sum_{i=1}^{N} F_i dr_i = 0 \qquad (1.1)$$

What would be the equivalent statement in the 8-theory? As we do not use force in the innate description of the theory, all we have is net curvature, N_V, on the Lorentz manifold, which was invoked stationary by the Lagrangian operator. We also did not use radius per se, it is different from the Riemann line element in which we associate curvature. One will suggest the following analogue for the equation (1.1):

$$\sum_{i=1}^{N} \delta g_i \partial L_i = 0 \qquad (1.11)$$

The sum of all arbitrary variations per varying manifold unit length is summed as zero. As we say variations, we mean curvature, so the sum of arbitrary curvatures is taken to zero. We can similarly use that construction in the same manner and for the same purposes used in calculus of variations, to avoid describing the inner motions of a static body.

Curvature Knots

$$F_{V=0} \quad = 8 + (1) \qquad (1)$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}128{:}850{:}9254.. \qquad (1.1)$$

$$N_V = 2\left(V + \frac{1}{2}\right);\; V \geq 0 \qquad (1.2)$$

$$N_V \in \mathbb{P} \cup (+1)\,; \quad \mathbb{P} \rightarrow Set\ of\ Primes$$

$$N_V = P_{max} \in [0, \mathbb{R}] \cup (+1)\;;\; P_{max} \in \mathbb{P}$$

Suppose that instead of a prime number as in equations (1.3) and (1.31) describing the weak and the electric, we would have a number that is odd, which could be a composite of odd number primes. Define the odd number function:

$$\Phi_n = 2n + 1 \qquad (2)$$

$$n \in \mathbb{R};\; \Phi_n \notin \mathbb{P}$$

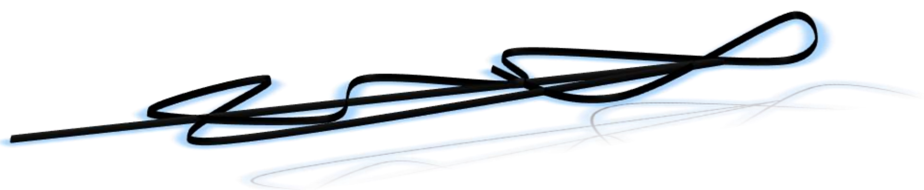
$$\mathbb{P} \longrightarrow set\ of\ primes$$

So Φ_n is a series of odd numbers that replace only the external N_V in the coupling constant series. The new series is now described by:

$$\left[2\mathrm{N}_1 + \frac{1}{2}\right] + \Phi_{n1} \qquad (2.1)$$

$$\left[2\mathrm{N}_2 + \frac{1}{2}\right] + \Phi_{n2} \qquad (2.11)$$

Since Φ_n is not a prime it cannot act as a bosonic ripple field on the matric tensor. Since it is on an even number, devisor of modulo (6) it cannot vanish into matter. It is a composite of prime, or a composite of net curvature, and because it is a composite, which is stable on the matric tensor, we will have a curvature which is time- invariant, not matter like nor boson like. In other words, a knot. The main point is if one is correct, a knot is composite of net curvature, associated with odd numbers. That is an expansion of the 8T, which did not analyze the odd numbers, but rather referred only to prime numbers and even numbers, isomorphic to primes and evens respectively. Since odds are not on the prime critical line the expressions on terms (2.1) and (2.11) would not have spin one, but neither spin one-half, that is to say they cannot be associated with a particle of any sort. According to the size of the odd numbers we should be able to observe those knots on the matric tensor. Below an example to such knot.



Matric Tensor Fluctuations and the Birth of Universes

$$\frac{\partial \mathcal{L}}{\partial \mathrm{s}}\frac{\partial \mathrm{s}}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}}\frac{\partial \mathrm{g}}{\partial \mathrm{t}}-\frac{\partial \mathcal{L}}{\partial \mathrm{s}'}\frac{\partial \mathrm{s}'}{\partial \mathrm{M}}\frac{\partial \mathrm{M}}{\partial \mathrm{g}'}\frac{\partial^2 g'}{\partial \mathrm{t}^2}=0 \qquad (1)$$

$$\frac{\partial g}{\partial t}= 0 \ , \ -\frac{\partial^2 g'}{\partial \mathrm{t}^2}= 0 \qquad (1.1)$$

$$\frac{\partial L}{\partial S_1}-\sum_{n=2}^{\infty}\frac{\partial L}{\partial S_n}=0 \qquad (1.2)$$

$$\frac{\partial L}{\partial S_1}\frac{\partial S_1}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}-\sum_{n=2}^{\infty}\frac{\partial L}{\partial S_n}\frac{\partial S_n}{\partial M}\frac{\partial M}{\partial g}\frac{\partial g}{\partial t}=0 \qquad (1.21)$$

The matric tensor experience arbitrary variations that vanish into matter. We describe the process of arbitrary variations vanishing into matter in the thesis, by the variation of the Dirac Delta function.

$$\delta g \neq 0 \qquad at \qquad t = Q(t)$$

$$\delta g = 0 \qquad at \qquad t = Q(t+\Delta t)$$

$$\delta \mathrm{g}_1 + \delta \mathrm{g}_2 \ldots = \sum_{i=1}^{N} \delta g_i$$

$$\sum_{i=1}^{N} \delta g_i = 0$$

There is always a chance net curvature will appear at later continuation of time. That is bosonic fields given by the primorial coupling series:

$$\delta g = 0 \qquad at \qquad t = Q(t+\Delta t)$$

$$\delta g \neq 0 \qquad at \qquad t2 = Q(t+\Delta t+\Delta t)$$

$$\Delta t \to 0$$

Moreover, the amount of net curvature is either prime or one:

$$\delta g = N_V = 2\left(V+\frac{1}{2}\right) ; V \geq 0$$

Now that we presented the 8T foundation, we can visualize the birth of new universe. By assuming a segment of the matric tensor to experience a certain amount of curvature it could lead to a departing from the original manifold. One can try to put it in visual means. This idea is synonymous with the vacuum fluctuations in QFT.

The main point of this short assay is that the net curvature led to a departing from the original matric tensor to a new entity. The outer shell of this new manifold will accelerate due to other manifolds wrapping around it given by equation (1.2). That is in agreement with QFT prediction of infinite universes. The entire evolution of the universes from singularity to complete flatness in given by the main equation (1). The stage and actual flattening moment in different in each manifold. That is an elegant way to eliminate the question – why 13.7B years?

EMT Symmetry

suppose that the electron has absorbed a discrete amount of net curvature, its energy increased. Since we are familiar with the equivalence relation between mass and energy, as presented by Albert Einstein, energy increase is synonymous with mass increase. Suppose its mass increased in such way that now instead of the electron, it is a Muon or a Tau.

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (\mu^{-})] + \gamma \qquad (1.45)$$

In addition, the Tau:

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (\tau^{-})] + \gamma \qquad (1.46)$$

Mass is curvature converging inward, so if the electron has absorbed net curvature its mass increased. That is supported by the Quark masses series of the 8T. Those higher generation particle according to coupling series are representing a symmetry. The magnitude will stay as it is, invariantly of the actual particle, we can call it the EMT symmetry, first letter of each generation particle name. What will vary as a result of the particle varied is energy of the photon emitted. The heavier the particle, the more energy the emitted net curvature should contain. That is again implied by equivalence between mass and energy. Such a construction allow us to make two predictions regarding the energy of the net curvature, i.e. the photon in the case of the third coupling term:

(1) The Energy of the photon emitted is proportional to Lepton generation.

(2) The coupling constants series is invariant to generation – what is varying is the energy of the net curvature.

The Coupling Constants Series and Probability

First, we can represent the original equation, which regard Bosonic fields to be net curvature on the varying Lorentz manifold. Those Bosons are isomorphic to prime numbers or one - $\mathbb{P} \cup +(1)$, and propagating from matter clusters destabilized by the majestic (3), which is the electron, from the second element and above. Associate a probability of certain sort to the first element, $N_V = (+3)$. the majestic three and the invariant multiplier eight will be presented as a constants, $\mathcal{M}$, K.

$$F_{V=0} \quad = 8 + (1) \tag{1}$$

$$F_R\# = \left(8 * \prod_{V=1}^{V=R} N_V + (3)\right) + N_V = 30{:}\,128{:}\,850{:}\,9254.. \tag{1.1}$$

$$N_V = 2\left(V + \frac{1}{2}\right);\ \ V \geq 0 \tag{1.2}$$

$$N_V \in \mathbb{P} \cup (+1)\,;\ \ \mathbb{P} \rightarrow Set\ of\ Primes$$

$$N_V = P_{max} \in [0, \mathbb{R}] \cup (+1)\ ;\ P_{max} \in \mathbb{P}$$

$$8 + (1){:}\,\big(24 + (3)\big) + 3{:}\,\big(120 + (3)\big) + 5{:}\,\big(840 + (3)\big) + 7 \ldots \tag{1.21}$$

Correlating the net curvature element to a certain probability.

$$N_V = (+3) \longrightarrow P(A) \tag{2}$$

$$P(A) < 1$$

Now, for simplicity sake assume that the probability is the same for all each higher element in the series. As we do not really know what is the probability of such an event, it is possible to assume that is the case. We can represent the equation in means of probability.

$$P_A\# = \left(\mathrm{K} * \prod_{A=3}^{A=2n+1} P(A) + \mathcal{M}\right) + P(A) \tag{2.1}$$

$$A \in \mathbb{P};$$

For each higher term than there is a dependence, the next element in the series can only arise after a previous probability was satisfied, as it is a series. So the longer we develop, the smaller the probability to detect the boson as it is depended upon longer chain of events, with probability smaller than one. We can represent it in a simpler fashion by ignoring the constants:

$$P_A\# = \left(\mathrm{K} * \prod_{A=3}^{A=2n+1} P(A) \right) \quad (3)$$

Let $A \rightarrow \infty$

$$P_A\# = \left(\mathrm{K} * \prod_{A=3}^{A=2n+1} P(A) \right) \longrightarrow 0 \quad (3.1)$$

Such a representation of the primorial series than makes it easier to understand how hard it will be to detect those higher term coupling bosons, and why they have not found up to this day. However, it scientists have detected gravitational waves they should be able to detect the next elements in the coupling series, as they are about seven, and seventy two weaker than the electric. Therefore, despite each term is an individual element which have a unique boson isomorphic to $\mathbb{P}$ for the second and above, there is an implicit dependence given by the fact that is a mathematical series and each even sum is a scalar multiple of the next prime. If we represent the series from an angle of the arrow of time, the higher the coupling term, the more time it will need to develop it. Weakest interactions appear than after longer periods of time, and the strongest most common ones appear at the beginning. We can make a prediction:

(1) The probability of locating the boson of the third term is significantly higher than the sixth term.

Asymptotic Freedom

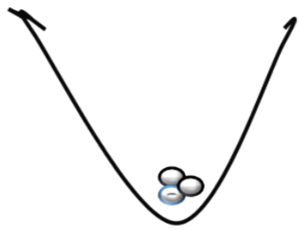
Bosons were proven discrete amount of net curvature on the matric tensor, we can represent them by the term in equation (1.3):

$$\sum_{i=1}^{M} \delta g_i > 0\,; M \longrightarrow \infty \quad (1.3)$$

$$\sum_{i=1}^{M} \delta g_i \in (+1) \cup \mathbb{P}$$

$$\mathbb{P} \longrightarrow Set\ of\ Primes$$

Now, we have used the visualization of the sea of gluons on the Quark triplet in the following way.



In the context of asymptotic freedom, when we indulge in high energy collusions, that is synonymous with trying to roll the quark triplet uphill. It is possible to try as the bosons are just net curvature unbound as given by (1), however since each boson is a curvature of certain magnitude it increase the probability of arrival to its position, therefore we have a "sea" of gluons. For example, in the third coupling term presented in equations (3) to (3.1):

$$\sum_{i=1}^{M} \gamma_i = \sum_{i=1}^{M} \delta g_i > 0 \tag{3}$$

$$[(24 * 5) + (3)] + 5 \rightarrow [(24 * 5) + (e)] + \gamma \tag{3.1}$$

Taken from that point of analysis, asymptotic freedom is a result of curvature converging to a point, or the existence of gluons on the quark triplet. If the number of bosons is ever increasing on the quark triplet, so does the overall curvature of the magnitude. To roll a quark uphill an infinite curve is at the verge of impossible. The attempt to roll the quark triplet elements uphill will eventually lead to a the quark reaching the minima, lowest point on the curve. Similar to other physical phenomena aspiring minima. Overall the 8T from birds eye overview, allow us to explain phenomena which is considered "advanced" such as Pauli Principle, asymptotic freedom, Spin, the commuter, the reason for the coupling magnitudes, dark energy and probability of arrival in rather simple and elegant way. All we need is just two equations, (1) and the coupling constants series.