$Proof: Primes\ To\ Generate\ Infinite\ Ring\ only\ at\ 1/2$

$Ohad\ manor$

Define a Lorentz manifold

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

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

$L = (s, s', t)$ As $\frac{\partial L}{\partial s} - \frac{\partial L}{\partial s'} * \frac{d}{dt} = \mathbf{0}$

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

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

Turn it to a series of arbitrary variations:

$$\varpi \boldsymbol{s} = \varpi \boldsymbol{s1} + \varpi \boldsymbol{s2} + \varpi \boldsymbol{s}3 \ldots$$

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:

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

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

If

$$\varpi \boldsymbol{s1} + \varpi \boldsymbol{s3} + \varpi \boldsymbol{s2} + \varpi \boldsymbol{s4} \neq 0$$

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:

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

or

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

Demanding the series to vanish this will defy the result, and so prove that there could not be three distinct elements in the series, else the overall series will not vanish.

Decomposing in 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

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

$\omega\boldsymbol{s1} + \omega\boldsymbol{s1} + \omega\boldsymbol{s2} + \omega\boldsymbol{s2} = 0$

To:

$\omega\boldsymbol{s1} + \omega\boldsymbol{s2} + \omega\boldsymbol{s2} + \omega\boldsymbol{s2} \neq 0$

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.

Y: $\omega\boldsymbol{s2} \rightarrow \omega\boldsymbol{s1}$

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. $\omega\boldsymbol{s1}(O)\ \omega\boldsymbol{s2}(Y)\ \omega\boldsymbol{s1}$ *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.

So:

$$(1(\mathrm{e})1(\mathrm{e})1)$$

$$2(\mathrm{e})2(\mathrm{e})2$$

$$(221)$$

$$(112)$$

$$(211)$$

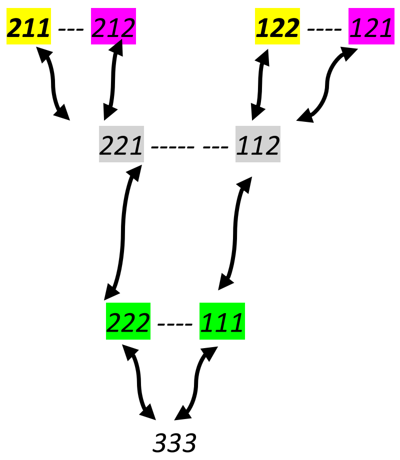
$$(122)$$

$$(212)$$

$$(121)$$

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):



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 $P_{\underline{h}}$ as meant "prime higher".

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

Meaning odd amount of variation not divisible by the elements of P^{m}. $\{2n+1\}$

; to be the set of all primes. $P_{\underline{t}} = P_{\underline{h}} + P^{m}$

Define a functor *V on $P_{\underline{h}}$:*

$$V: set \rightarrow ring$$

Analyze any multiplication or addition combination of $P_{\underline{h}}$ on the ring

$\boldsymbol{Multiplication}$:

Define T *to be a number aspiring infinity: T→ ∞*

Multiply an ***even or odd*** *series aspiring infinity of distinct higher primes to obtain:*

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

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

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

$$N(s) = (n1 + n2 + n3 \ldots) = 0.$$

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

$$2([T\,(n1\, n2 \ldots)] + 1/2)$$

$\boldsymbol{Addition}$

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

$$(2n_1 + 1) + (2n_2 + 1) + (2n_3 + 1) \ldots = [2(n1 + n2 \ldots) + even] =$$

$$[2(n1 + n2 \ldots)]$$

$$as\ even = 0.$$

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*

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

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

$$[2(n1 + n2 \dots) + (even + 1)]$$

However, even amounts of arbitrary variations vanish:

$$even = 0$$

$$[2(n1 + n2 \dots) + 1] \; or:$$

$$2[n1 + n2 \dots + 1/2]$$

$\boldsymbol{Category\ transformations}$

Define a functor on "Primes higher" ring

$$G: ring \rightarrow group$$

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

$$G': group \rightarrow set$$

Add the sets:

$$P_{\underline{\mathrm{h}}} + P^{\mathrm{m}} = P_{\underset{\wedge}{\mathrm{t}}} \; ;$$

Define a functor on $P_{\underset{\wedge}{\mathrm{t}}}$*:*

$$G'': set \rightarrow group$$

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 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:

$$Riemann: Group \rightarrow ring$$

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

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

The reasoning for choosing the numbers of "prime minimal" is due to the nature of fermions, which yield a series of two distinct elements in threefold combinations. Fermions behave according to an anti- commutation relation and vanish in pairs.

There could not be a "quark" or an arbitrary variation of the manifold by itself. The series must be two and three divisible. Even amounts of opposite signs and threefold combination of elements.

$$\boldsymbol{Overview\ of\ reasoning\ -}$$

$1. Deriving\ fermions\ as\ arbitrary\ variations\ of\ a\ Lorentz\ manifold$

$2. Arbitrary\ variations\ to\ vary\ to\ form\ threefold\ combinations$

$3. Using\ the\ fact\ that\ arbitrary\ variations\ must\ vanish -\ to\ derive\ their\ pairing.$

$Threefold\ combinations\ pairs\ in\ color.$

$4. Defining\ a\ prime\ in\ a\ context\ of\ variations -\ knowing\ that\ even\ amount\ of\ variations\ cancel.$

$5. Changing\ the\ setting\ from\ sets\ to\ rings -\ so\ we\ can\ operate\ addition\ and\ multiplication$

$6.\ Showing\ that\ under\ any\ multiplication -\ (1/2)\ will\ be\ invariant$

$7. Showing\ that\ under\ addition -\ only\ odd\ amount\ of\ primes\ will\ ensure\ a\ prime,$

$as\ even\ amounts\ of\ variations\ vanish. thus, could\ not\ be\ a\ prime\ there.$

$8. Changing\ the\ settings\ from\ ring\ to\ group, from\ group\ to\ set, adding\ minimal\ primes,$

$from\ set\ to\ group\ again, and\ group\ to\ ring.$

Closing words

One would like to thank all the readers, who took the time to read, and analyze it.

One truly desired to contribute to our understanding nature and the universe.

His desire manifested in his three papers, whether correct or not, time will entail.

One had the courage to take upon himself such donating topics of research,

as one believes that finding the right ideas and eliminating the wrong ideas

are both to be valuable for our purpose in science, to understand.

Thank you.