

Universal Ode's and Their Solution

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Abstract

This paper presents a solution to the ODE's that govern our universe. It also discusses the Mass Gap, Free Will, the Speed of Light, and the stable universe. The mathematics of time travel is presented. In addition, the solution to the Second Order DE is presented when the constants are equal.

Keywords: ODE; Stable universe; Time travel; Second ODE; Primes; Singularity

Introduction

The Universal ODE is presented as well as its solution. Finally, a treatment of Prime Numbers and their significance is presented. The universe is shown to be a singularity.

The Distance Ordinary Differential Equation and the eigenvector Time

The Laplace transform for the second order linear differential equation is the famous distance equation in physics (Figures 1-4).

$$d=vit+1/2 at^2$$

$$s=st+1/2 s''t^2$$

$$s=1/2s''t^2+st$$

$$t=1$$

$$s=1/2s''+s'$$

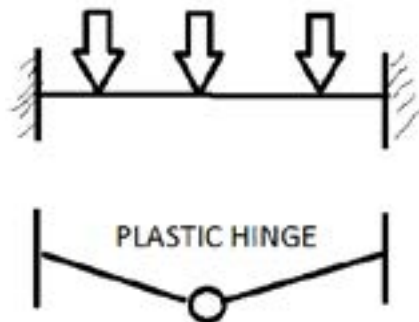


Figure 1: Plastic hinge breaks universe to free will yet minimizes energy.

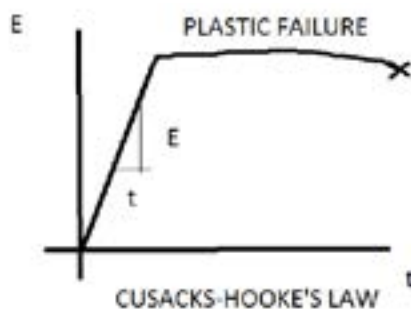


Figure 2: Plastic failure= $de/dt=0$ minimum energy.

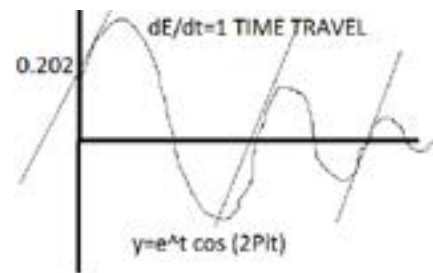


Figure 3: Time travel at $de/dt=1$.

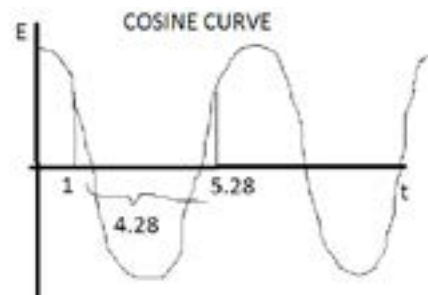


Figure 4: Cosine curve.

Let $s'=et$ & multiply by $(e^t)^2$

$$1/2 s'' (s')^2 + (s')^3$$

$$\text{If } y=y'=y''=e-t$$

Then

$$1/2e^t(e^t) + e^t)^3$$

$$=1/2 (e^t)^3-(e^t)^3$$

Now, Divide by $(e^t)^2$

$$s=-(e^t)^3$$

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$$s' = 3/2 * (e^t)^2$$

$$s'' = 1.5(2)/2(e^t)$$

$$s = -(e^t)^3$$

$$s' = 3/2 * (e^t)^2$$

$$s'' = 1.5(2)/2(e^t)$$

$$= 1.5e^t$$

$$\text{MassGap} = 1.5$$

$$s = s't + 1/2s''t^2$$

$$s = 1.5(e^{-t})^2 * t + 1/2(1.5(e^{-t})) * t^2$$

$$s/t = s' = (e-t) + 0.75(e-t)t$$

$$t = 1$$

$$v = e^{-t} + 0.75(e^{-t})(1)$$

$$v = 1.75(e^{-t})$$

Where

$$1.75 \sim \text{Eigenvector}$$

$$d = e^{-t}$$

$$v = d/t$$

$$1.75(e^{-t}) = e^{-t}/(t)$$

Where $t = 1.75$
 Eigenvector For $\{1, 0, 0; 0, 1, 0; 0, 0, 1\}$ Time is the Eigenvector [1].

The Mass Gap and the Gravitational Constant

$$F = Ma$$

$$dE^2/dt^2 = G = dF/dt$$

$$dE^2/dt^2 - dF/dt = 0$$

$$dE^2/dt^2 - dF/dt = 0$$

$$G - dF/dt = 0$$

$$G = dF/dt$$

Since $F = \sin\theta$

$$G = \sin\theta$$

$$6.67 = \sin\theta$$

$$\theta = 41.8^\circ = 0.7302 \text{ radians}$$

$$\sqrt{\theta} = 0.8545 = E$$

$$1/G = \sin E$$

$$1/G = 1.5(\text{MassGap})$$

$$1/G * G = 1.0000$$

The Speed of Light

Here is why

$$c = 2.9979 \sim 3$$

$$R \text{ Vector} = \sqrt{\{3^2 + 24^2 + 66^2\}} = 6.64981$$

Resistance

$$R = 0.4233 = \text{cuz}$$

$$E = 0.8414 = \sin 1 = \cos 1$$

$$V = iR$$

$$0.8415 / 0.4233 = 198.8$$

$$66.4981 / 198.8 = 2.98949 \sim 3 \sim c = \text{speed of light}$$

The Stable Universe and Free Will

Here is why the universe is stable and will last forever. It is also why humans have free will (Figures 5 and 6).

$$L = 2(L/2 + \delta)$$

$$L = L/2 \text{ Stress/Strain}$$

$$L/2 = F/(AE)$$

$$LAE = 2(26.666)$$

$$LA = \text{Volume} = 2F/R$$

$$125.999/19855 = 6.67 = G$$

At G, the universe becomes a plastic hinge. We have free will. The Second Order Ode and The Taylor Series Solution [2-4].

The Solution to the Second Order Linear Ode is a Taylor Series That Gravitates Toward $\pi - E$. $\pi - E$ Is Geometry Less Numbers To Base 10. Since Numbers are Simply Geometry in the Cartesian plane, Then We Have Geometry Less Geometry = 0. This is a singularity. The Universe is therefore a Singularity. We See this in $dE^2/dt^2 - E = \ln t = 0$

Plastic Hinge Breaks Universe to Free Will Yet Minimizes Energy (Figures 7 and 8). Plastic Failure = $dE/dt = 0$ Minimum Energy

Time Travel and the Singularity

$$\text{At } dE/dt = 1$$

$$dE/dt = 1 = \text{Time Travel}$$

$$y = e^t \cos(2\pi t)$$

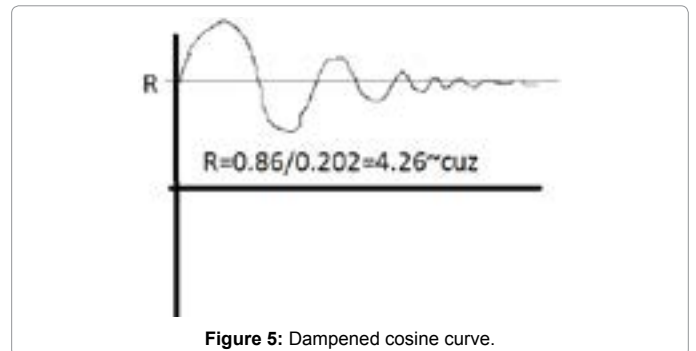


Figure 5: Dampened cosine curve.

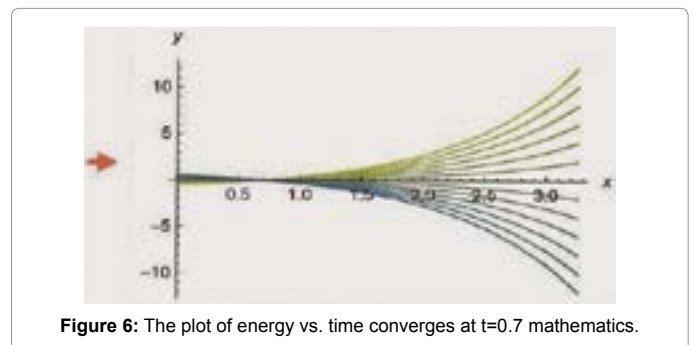


Figure 6: The plot of energy vs. time converges at $t=0.7$ mathematics.

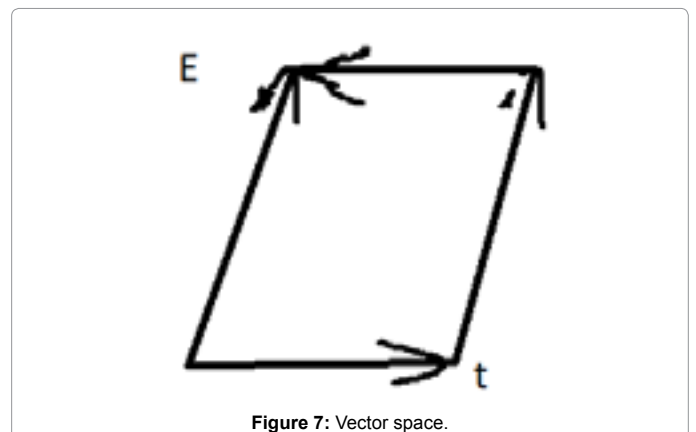


Figure 7: Vector space.

$$y' = e^t \quad (1)$$

$$y = y'$$

$$e^t = 1$$

$$t = \ln t \quad t = \ln 1 = 0$$

$$\cos(2\pi t) = 1$$

$$t = \cos^{-1}(1) / (2\pi = 0.5403 / 2\pi = 0.086 = E/10)$$

$$dE/dt = 0.86/0.086 = 10$$

$$R = 4.26$$

$$R^2/2 = 4.26R$$

$$R = 8.52$$

$$58.47^\circ \sim 59^\circ$$

$$1/R = 0.2018/0.86 = 0.1292$$

$$1/X = 0.1292$$

$$\ln R = 0.1292$$

$$R = 2.298 \sim 23 = \text{prime}$$

From the above estimation it can be stated that universe Gravitates Toward Opposite Poles.

A Unique Solution to the Equations Which Govern our Universe

If there existed anything at all, including space, then the Universe would necessarily exist exactly the way it does. Nothing is left to chance including me typing and you reading. Energy is what exists. And time is Energy stretched. Space is the cross product of Energy and time [5-7].

$$\sqrt{M} = G$$

$$E \times t = ||E|| ||t|| \sin\theta$$

$$R^2 = [(1 \times 8 \times 22) * 3]^2 = 12$$

$$12 = \pi * t * \sin 57.29$$

$$t = 4.539$$

$$1/t = 0.2203$$

$$2 * 0.2203 = 0.4406$$

$$44.06/44 = 100.14$$

$$100.14^{(1/25)} = 1 = E$$

$$\text{So what } n \text{ is } 3^4 = 81 = c^4$$

$$1/81 = 0.012345679$$

Now,

$$t = M/c^2$$

$$t = 1/c^2 * M$$

$$t = 1 / (1+t)^N \quad N = 11$$

$$1/c^2 = 1 / (1+t)^{11}$$

The Universal Compounding Formula

$$(1+t)^{11} = M/t$$

$$\text{And, } E = Mc^2$$

$$M c^2 / c^4 = t = 1/T = 1/\text{Period}$$

$$\pi / 100.14 = 31.8 = \text{Human Perception}$$

The differential equation that summarizes our universe. linear homogenous differential equation with constant coefficients [8,9].

$$y = c_1 * e^{(\lambda_1 x)} + c_2 e^{(\lambda_2 x)}$$

$$= 3 * e^1 + 3e^{(1)}$$

$$= 6e^1 = 16.30$$

$$1/1.630 = 0.613$$

From above:

$$\text{Norm} = ||a|| ||b|| \sin 1 \text{ radian}$$

$$= (0.8415)(0.8415)(0.8415)$$

$$= 0.6133$$

$$y = k \cosh(\lambda_1 t) + k \sinh(\lambda_2 t)$$

General Solution

$$0.8415 = k \cosh(1)(t) + k \sinh(1)(t)$$

$$0.8415/k = 1.5431 + 1.1752$$

$$k = 3.02 \sim 3 \text{ speed of light } c$$

$$T = 2.54 \sim 2.53$$

The plot of Energy Vs time converges at t=0.7 mathematics

$$1.7 = 0.1420 \quad 1 - 0.1420 = 0.858$$

$$\text{Eigen Vector} = 2.2467 = t$$

$$\text{Let } t = 1 \quad E = y = e^{0.224} \cos(2\pi * t) = 1.2514 = -E$$

$$\text{Euler: } c = 3,$$

$$t = 0.224 = \text{Eigenvector}$$

$$1/t = \text{Mass } M = 4.486$$

$$1/2 (e^{-0.7}) \{ (1 - 2(0.7)) \} = \sqrt{3} \sqrt{c}$$

The universe is simply described by 11 equations that break down into 4 equations. They are

$$P = Mv = F = Ma$$

$$d = vit + 1/2 at^2$$

$$\text{Sqrt } c/E = F = P$$

Time t is the Eigen vector. As energy rotates relative to it, there comes a point at 60° where $E = \sqrt{3} = \sqrt{c}$. That is the 1 - 2 - √3 triangle [5].

$\sqrt{3} / 0.2018 = 0.858$ 0.2018 is the initial condition for the dampened cosine curve $y = e^t [\cos(2\pi t)]$

$$\sqrt{3} = \sqrt{c} \quad F = P \text{ with } M \text{ constant } v = a = 0.8415$$

It is simply modeled by waling up an up going escalator. Half the distance is due to velocity; the other half by acceleration. And that is the simplest way to understand our material universe.

$$\sqrt{c} = 1/2 e^{-x} (y')^2$$

Laplace =Euler

The Ultimate Universal Equation

$$\sqrt{c} = \sqrt{2} * ||E|| |t| \cos \theta$$

$$P + F = \sqrt{[E^2 + t^2]} * s$$

$$F + P = \sqrt{2} * 0.8415 = 1.4142 + 0.8415 = 2.25$$

$$M = 2.25 / 1.73 = 13$$

$$M = [\sin + \cos] / \sqrt{3}$$

$$(|E||t| \cos \theta)$$

$$1.73 = \text{Sqrt } 2 * s$$

$$P + F = R * s$$

$$0.8415 + 0.8416 = [(1,1,1) + 2 \text{ eigen vectors}] * s$$

$$2 \sin 1 = [2 \sin 1 + 2 \text{ Eigen Vectors}] * s$$

Solving,

$$2 \sin 1 (1-s) = (2 * \text{Eigen vectors}) * s$$

$$0.8(0.1334) / 0.1334 = \text{Eigen Vector}$$

Vectors F=P

So, if we imagine a plot of P and F, Eigen Function = 1.73 = P+F

$$F_n = M a + M v$$

$$= M(v+a)$$

$$M = 1$$

$$F = P = E g. F_n = M(v+a)$$

Derivative

$$Eg. f_n' = dM/dt(a+a')$$

$$1.73 = dM/dt (C1+C2) = \sin + \cos$$

INTEGRATE

$$1.73 = C3 M = \sin + \cos$$

$$M = [\sin + \cos] / \sqrt{3}$$

$$M = [\sin + \cos] / \sqrt{c}$$

So, Eg. $F_n = \sin + \cos$

$$Eg. F_n' = -\cos + \sin$$

$$\text{Max} = 0$$

$$0 = \sin - \cos$$

$$\sin = \cos$$

$$v = a$$

$$P = F$$

Finally,

$$Eg. f_n = M(v+a)$$

$$Eg. f_n' = dM/dt(v'+a')$$

$$0 = a + a'$$

$$a = a'$$

$$y = y'$$

The Series solution to the ODE is a Singularity. It is 1/R = 1/0.4233 = 1/cuz.

$$1 + 0.84 + 1/2(0.84^2)(1) + 1/6(0.84)^3(1) + 1/24(0.84)^4(1) = 2.3143 = 1/\text{cuz}$$

$$y(0) = y'$$

$$1/R = y'$$

$$y = \text{Ln } R$$

$$y = \text{Ln } (2.3143) = 0.8319 \sim 0.84 = \sin 1 = \cos 1$$

The material universe is the inverse of cuz. prime numbers and our universe

Difference

$$1, 1, 2, 2, 4, 2, 4, 2, 4$$

Or

$$1 \ 1 \ 2 \ 2 \ 2^2 \ 2^2 \ 2^2 \ 2^2$$

$$2 + 2^{10} = 2^{11}$$

$$(1+t)^N$$

$$t = 1$$

$$N = 11$$

$$\text{Now, } \text{Ln } 2^{11} = 7.6241$$

$$1/7.62 = 0.1312 \text{ or } 0.868 \sin 60^\circ$$

Consider that $\sqrt{2}$ is the minimum energy vector.

$$\text{Ln } 2^{0.5}$$

$$= \sqrt{12} = \sqrt{|D|}$$

And

$$FL = \text{Moment} = \pi$$

$$\text{Ln } 0.2667 * \text{Ln } L = \text{Ln } \pi$$

$$= 0.2018 = \text{Minimum Energy} = y = e' \cos(2\pi t)$$

$$E_{ts} * E_{ts} = 12$$

$$(1 - c E_{ts}) = 12$$

$$(1 - 3)(E_{ts}) = 12$$

$$-2 E_{ts} = 12$$

$$E_{ts} = -12/2 = 6 \text{ cycles of time}$$

$$dM/dt = 2 = E_s$$

$$s = 0.1334$$

$$E_s = 2 = 0.1334 (E)$$

$$E = 15$$

$$1/E = t = 0.666$$

$$\text{Now } M * dM/dt = c$$

$$4.486 (2) = 8.972 = c^2$$

Integrate
 $M^2/2 * M = s$
 $M^3 = F = 0.2668$
 $M = 0.6441$
 $0.6441/4.486 = 7$
 $1/7 = 0.1436 \ 0.856$
 $0.1334^x = e\pi$
 $x \ln 0.1334 = \ln e\pi = \pi$
 $x = 0.0662 \sim 0.666$
 $space = s = ||E||t|| \cos 60 = 1/2$
 $0.1334 = 1/2 \ y = 0.2668 = Force \ f$
 $F/x = 4.03 \ \sim 4 = |D|$
 $\det |A - \lambda I| = |D|$
 $\det |A - \lambda I| \pi = F$
 $|D| = F/Geometry$
 $\det |A - \lambda I| \ Geometry = F$
 $\det |A - \lambda I| \ s = Ma$
 Units m^2s^2/kg
 $F \ L = N * m = Moment$
 So
 $\det |A - \lambda I| = Moment$
 $Moment * \pi = F$
 $FL * \pi = F$
 $L = 1/\pi \ (31.8 \ \text{Human Perception})$
 $Moment * \pi = F$
 $12 * \pi = F$
 $6 * 2\pi = F$
 6 cycles of time
 $\sin 12\pi = 0$
 $\cos 12\pi = 1$
 So $v=0$ and $a=1$
 $d = vit + 1/2 at^2$
 $0.134 = 0 + 1/2 (1)(1)^2$
 $0.1334 * 2 = F$
 $d = Moment * \pi$
 $\pi = E$
 $Moment = d/E$
 $E = s/Moment = 0.1334/0.856 = 0.15 - 1 - Moment$
 $s/Moment = 1 - Moment$
 $s/x = 1 - x$

$x/s = 1/(1-x)$
 $1/0.1334 = 1/(1-0.1334)$
 $(1/7.49) - 1 = 1/1.1539 = \sin 60 \ \text{degrees}$

Minimum Energy and the Singularity

The singularity is $1/x$
 From the $1 - 2\sqrt{3}$ triangle,
 $x = \sqrt{3}$
 $1/x = 1/\sqrt{3}$
 $= 0.5774$
 $3761 \text{ BCE } -1 + 2015 \text{ AD} = 5774 = 1/\sqrt{3}$

$t * \text{Eigen Vector} = 1$
 $E^2 - \sqrt{2} E^2 - 2^2 = 0$
 $E = 2$
 $E = 1/t$
 $t = 1/E = 1/2$
 Energy Parabola - Golden Mean
 $x^2 - x - 1 = 0$
 $(1/2)^2 - 1/2 - 1 = 0$
 $-1.25 = t$
 $M/MT = 7$
 $s/M = 7$
 $1/7 = M/s = E$
 $E = M/s \ M = Es = 0.856(0.1334) = 0.1142$
 0.858

The only real numbers are prime numbers. We know 23 is the 10th prime number.

So $\ln 23 = 3.1355 \sim \pi$
 $e^\pi = 23.1406$

$y = y'$
 $e^x = 1/x + C$
 $x = t = \pi$
 $C1 = 72.69 \ (72 \ \text{rule})$
 $E = dE/dt + dE/dt$
 $E = 2dE/dt$
 $E^2 = 4E$
 $E - 2\sqrt{E} + dM/dt = 0$
 $dM/dt = 2$
 $(E-2)(E-2) = 0$
 $E = 2$
 That's the $1 - 2\sqrt{3}$ triangle with $t=1$ and $E=2$
 So $\pi = 1, E = 2\pi = 1 \ \text{cycle}$.
 $e^\pi = 1/\pi$
 $e^x = \ln x$
 $e^\pi = \ln \pi$
 Derivative
 $e^\pi = 1/\pi + C1$

$C1=0.1359$

0.8641 or 60°

As the Energy Vector rotates contraclockwise from the eigenvector

$t=1$, when Resultant $E=0.86$, $E=4.02 = |D|=FL$

So $t*FL = E$ and $t=1$,

The universe occurs at the singularity as illustrated above.

$\ln \pi = e^\pi$

$1.1447=23.1406$

$23.1406/1.1447=0.1358$

0.8642

60 degrees

$e^{23.1406}/[\ln 23.1406]=0.1358$

0.8642

Conclusion

So here we presented the solution to the ODE's that govern our universe. The other variables including Mass, Time, space and the Singularity and prime numbers are provided as to why they are important in our stable universe.

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