

## Multiple Sclerosis

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**Abstract.** In this paper, we use AT math and knowledge of Astrotheology physics as applied to the nervous disorder of MS. MS is caused by the deterioration of the myelin sheath that acts as an insulator around the axons of the nerves leading to the muscles causing them to short circuit; thus paralysis. Familiarity with Astrotheology and AT math are presumed. This is important because MS is a serious debilitating disease. To make a small step forward is a huge milestone.

**Key words:** brain mass, input/ output, golden mean parabola (GMP), regeneration, neuro transmitters, reynold's number, energy, consciousness, the senses, cranial nerves, DNA, binominal tree.

### Introduction

It is well known that in Multiple Sclerosis (MS), the myelin sheath or Schwann cell that acts as an insulator on the axon that permits a signal to travel down the nerve to the muscle is somehow damaged in MS patients (Cusack, 2020a: 1720-1721; Cusack, 2020b: 77; Cusack, 2020c; Cusack, 2020d:37-38). We cannot say what causes the damage to this cell, but I can say that the hydrogen bond to holds the DNA together is disrupted and consequently, the cell disintegrates. We will apply AT Math and Astrotheology Physics to the disease, MS.

### Material and Methods

This paper is a study of how Astrtothehogy Physics and AT Math apply to MS. Knowledge of AT Math, the senses, and consciousness from this author's previous papers is essential.

According to Wikipedia, under signs and symptoms, we see a combination of areas of the nervous system affected in the following proportion:

$$\begin{aligned}
 & \text{Brain Stem (10\%)} + \text{Motor \& Sensory (45\%)} + \text{Optic 20\%} + 25\%(10\%+45\%) \\
 & (\pi+1) 10\% + (\sqrt{3}+\sqrt{G+4})(45\%) + 1/\pi (20\%)+ 25\%(10+45\%) \\
 & =0.414159+2.9469+0.06366+0.1375 \\
 & =3.5622\sim 35.5 \\
 & (\pi+1) 10\%+(\sqrt{3}+\sqrt{G+4})(45\%) + 1/\pi (20\%)+ 25\%(30+45\%) \\
 & =0.414159+2.9469+0.06366+0.1875 \\
 & =3.6122\sim 36 \\
 & (\pi+1) 10\%+(\sqrt{3}+\sqrt{G+4})(45\%) + 1/\pi (20\%)+ 25\%(10+20\%) \\
 & =0.414159+2.9469+0.06366+0.075 \\
 & =3.499\sim 35 \\
 & \text{SUM}=106=R
 \end{aligned}$$

Volts=Current x Resistance

$V=iR$

$105.7=(105.7)(R)$

$R=1$

$i=t^2$

$$t = \sqrt{i} = \sqrt{1.059} = 1/c^2$$

$$V = 1/c^2(1) \\ = 1/9 = M$$

$$E = Mc^2 \\ 1/c^2 = M$$

$$E = c^2 = 9 \\ \ln t = M$$

$$t = e^{1/9} = 117.5$$

$t = i = 1/c^2 = \text{INPUT/OUTPUT of Mind as Black Box. This is the current that goes into and come out of the black box of the human mind.}$

From Astrotheology, space=cross product of energy and time. The angle of 60 degrees is critical in AT Math (Criscuolo et al., 2017: 53; Cusack, 2018a: 11-12; Cusack, 2018b: 380-381; Cusack, 2018c).

$$s = ||E||t \sin 60^\circ$$

$$1/s = 1/E \cdot 1/t \cdot 1/\sin 60^\circ$$

$$1/2 = t \cdot E \sin 60^\circ$$

$$1/s = tE^2$$

$$t = i = 1/c^2$$

$$1/s = iE^2$$

$$3/4c^2 = E^2$$

$$E^2 = 6.75$$

$$E = 2.6 = \text{Poisson's Ratio}$$

$$6.75 \times 2 \text{ Hemispheres} = 1350 = \text{Brain Mass.}$$

$$E^2 = 1350$$

$$E = 367 = 1/2.721 \sim 2.718 = 1/e^1$$

In AT Math, the energy is given by the exponential function. Note that the derivative equals the function in AT Math. Another way of putting it is that position equals velocity equals acceleration. This is the solution to the problem of the impossibility of measuring velocity and position a the same time.

$$E = e^{-1}$$

#### *Golden Mean Parabola*

The GMP is the pinnacle of AT math. It relates energy to time. I The GMP comes from the equation:

$$t^2 - t - 1 = E$$

$$(1/c^2)^2 - 1/c^2 - 1 = 89 = c^2$$

$$E = 1/t = 1/(1/c^2) = c^2$$

True!

In AT Math, Force and momentum are measured by the sine and cosine curves, respectively. Any two-pole problem can be modelled by sine and cosine. Where they

meet is a critical point (Dennett, 1995: 23-34; Dennett, 1991: 56-58). They meet at 45 degrees (Fig. 1).

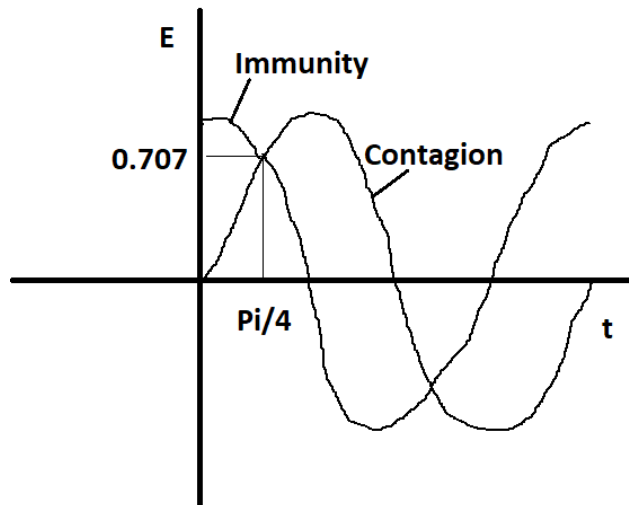


Fig. 1. Sine and cosine curves intersect at 45 degrees and add to sqrt2

Sine = cosine

Immunity = Contagion

$\cos \theta = \sin \theta$

$Mv = 1/t$

$\ln t(1/\sqrt{2}) = 1/t$

$(1/\sqrt{2}) \ln t = 1/t$

$(1/\sqrt{2})y = y'$

$\sqrt{2}y = y'$

$\int \sqrt{2}y = \int y$

$(\sqrt{2})y^2/2 = y$

$1/\sqrt{2} \ x y = 1$

$y = \sqrt{2}$

$\sin \theta + \cos \theta$

$= \sin 45 + \cos 45 =$

$= (1/\sqrt{2}) + (1/\sqrt{2})$

$= 2/\sqrt{2}$

$E = \sqrt{2}$

*Neurotransmitters*

$\text{Na}^+ + \text{K}^+ \text{Pr}^- + \text{Ca}^{+2} + 7 \text{Cl}^- \rightarrow \text{NaCl} + \text{KCl} + \text{PrCl} + \text{CaCl}_2$

$\text{Pr}^- = \text{NO}_3^-$

$\text{CO}^{-2}$

$\text{H}_2\text{S}$

$7 \text{Cl} = 7(35.45) = 248.15 \sim 1/0.403 = 1/\text{Re}$

*Reynold's Number and time*

Both the Reynold's Number and time are dimensionless (Diamond et al., 1985; Goldberg, 2017: 89-91; Gowin and Kothmann, 2016: 39-47; Murphy and LeVine, 2010:

112-115; Redwash, 2008: 17-18). If we make use of the constants derived in AT Math, we get the familiar solution to At Math, namely, that  $t=\pi$ .

$$\begin{aligned} 1/Re &= 1/0.403 = VF/IF = 1/2\rho v^2/[Ma] \\ &= \rho(1/\sqrt{2})^2 / M(1/\sqrt{2}) \\ &= [M/Vol. \times 1/\sqrt{2}] / [2M] \\ 0.403 &= Vol./2\sqrt{2} \\ Vol &= 0.403 \cdot 2\sqrt{2} = 114 \\ 0.403 &= [M/\sqrt{2}] / [2 \cdot 114M] \\ M &= 13 \\ t &= E^2 + E - 2 \\ t &= 180 = \pi \text{ rads} = t_{\max} \end{aligned}$$

*Energy*

$$\begin{aligned} t &= E^2 + E - 2 \\ &= (\sqrt{2})^2 + \sqrt{2} - 2 \\ &= \sqrt{2} \\ t &= \sqrt{2} \\ E &= t = \sqrt{2} \end{aligned}$$

*Consciousness*

$$\begin{aligned} E &= (1 - \ln t)^7 \\ 66 &= (1 - \ln t)^7 \\ t &= 0.199 \sim .2 \\ t^2 - t - 1 &= 1 \\ t &= 2; -1 \end{aligned}$$

$$\begin{aligned} E &= (1 - \ln t)^7 \\ &= (1 - \ln 0.199)^7 \\ &= 0.249 = 1/402 = 1/Re. \\ t &= Re \end{aligned}$$

*The Senses*

$$\begin{aligned} \Sigma \text{ Senses} &= \pi + 1/\pi + \sqrt{0.666} + 4 + \sqrt{3} = 0.9996 \sim 1 \\ &= \text{hearing} + \text{sight} + \text{taste} + \text{touch} + \text{smell} \\ \text{Sensory:} \\ \text{CN1 Smell} &= \sqrt{3} \\ \text{CN2 Sight} &= 1/\pi \\ \text{CN3 Hearing} &= \pi \\ &= 5.19 \\ \text{Motor:} \\ \text{CN13 CN14 CN6 CN11 CN12} &= 4 \\ \text{Mixed:} \\ \text{CN5 CN7 CN9 CN10} &= \sqrt{G} = \sqrt{0.666} = 0.816 \\ 5.19 + (4 + 5.19) & \\ &= 14.38 = 1/7 \\ 34.99 / (1/7) &= 243.32 \\ 2.3M/x &= 243.32 \\ x &= 105.8 \sim 106 = \text{Sum} \end{aligned}$$

This is equal to the voltage of the human nervous system. We now turn to the 12 cranial nerves and the brain stem (Nedulla; Pons; and Mid Brain).

*Cranial Nerves*

- CN1  $\sqrt{3}$
- CN2  $\sqrt{G}$
- CN3 1
- CN4 1
- CN5 4
- CN5 4
- CN6 1
- CN7  $\sqrt{G}$
- CN8  $\pi$
- CN5 4
- CN7  $\sqrt{G}$
- CN8  $\pi$
- CN9  $\sqrt{G}$
- CN10  $\sqrt{G}$
- CN11 1
- CN12 1

Without double counting, we have the  $R = \Sigma = 2.050 + 2 + 1 + 9.591 = 1.384$

*Planck's Equation*

$E = hf_{\text{freq}}$   
 $= 6.626 \times 10^{-34} \times 208.87 \times 10^9 = 1.384 \times 10^{-24} \text{ J}$

Degeneration of Myelin Sheath (Schwann Cell) leads to MS

Degeneration = Regeneration

$\cos \theta = \sin \theta$

$\cos \theta = \bar{P} = Mv = t = 1/E = 1/e^{-1} = e^1$

$t = \sin \theta \Rightarrow$  DNA of the cell wall

$M(1/\sqrt{2}) = e^1$

$M = e^1 \times \sqrt{2} = 3884$

$M = \ln t$

$3884 = \ln t$

$t = 104.49 \sim 105$

$V = iR105 = 104.49(1)$

$t = i$

True!

Assume that the DNA of the cell wall is degenerated causing short circuit in nerve cells (Myelin Sheath).

DNA is composed of phosphate and sugars for a backbone. There are hydrogen bonds attracting the A -T and C-G and vice versa.

The energy of the hydrogen bond is 5 kcal.  $x4814 \text{ J} = 20920 \sim 21000 = 21 \text{ kJ}$   
 Cf. 209.65 above (Figs. 2, 3).

Binominal Tree

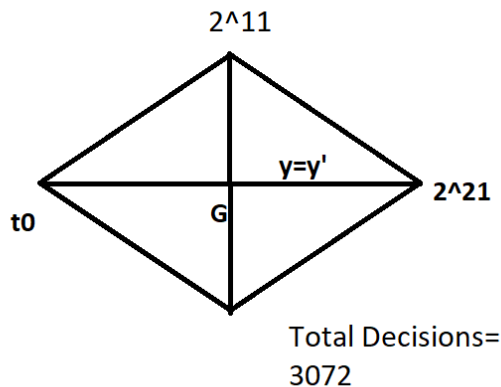


Fig. 2. The Human mind as Binominal Tree

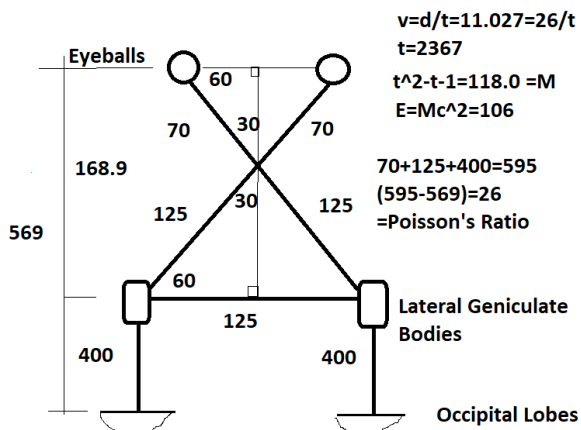


Fig. 3 Cross ipsilateral Senses

$$\begin{aligned}
 s &= |E| |t| \sin 60^\circ \\
 &= (106)(236.7)0.866 \\
 &= 50.278 \\
 &\sim 1/2 \\
 s &= t = t_{\min} \\
 1/2 \times 26 &= 13 \\
 13^2 + 13 - 2 &= 180 = \pi \text{ rads}
 \end{aligned}$$

The power equation from Electrical Engineering is applicable here:

$$\begin{aligned}
 P &= i^2 R \\
 &= (0.940.3)^2 (113.36) \\
 &= 1
 \end{aligned}$$

Now, we turn to MS statistics:

1 M people in the US with MS / 350 million people = 0.2857%  
 2.3M people will die from Ms world wide/ 6.57B in N. Hemi. = 3.500 = 1/0.002856  
 [1/0.2857]/[1/0.002857] = 1/100 = 1% (Table 1).

Table 1. Time, Resistance, and Energy summarized and totaled

t	R	E
	106	
$1/c^2$		$c^2$
		$e^{-1}$
		Sqrt2
Pi		
Sqrt2		Sqrt2
0.2		
0.403		
1	1	
	1	
	1.384	2.09
1/2		
Sqrt 2.666	3.974	
1		$E^{-1}$
t=940.3 E=106.4	113.36	89.88= $c^2$

$$t = E^2 + E - 2$$

$$= 0.2857^2 + 0.2857 - 2$$

$$= -1.630$$

$$2.3 M / 6.57B = 3.500 = 1/0.2856$$

$$t = E^2 + E - 2$$

$$= 0.2856^2 + 0.2856 - 2$$

$$= -9.0127$$

$$= t^2$$

$$t = 1$$

$$t^2 = 2.66 = SF$$

$$i = t^2 = 2.6598$$

$$V = iR$$

$$105.7 = 2.6597R$$

$$R = 3974 \sim 4$$

$$t^2 - t - 1 = E = 0.2857$$

$$t = 152.6; 252.6 = T \text{ Period} = 1/4 = 1/Touch$$

$$t = 1/R$$

$$R = 1/Senses = 1/1 = 1$$

$$t = 1/1 = 1$$

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

$$= e^{-1}$$

Heat and water break a hydrogen bond. Heat is K.E.=t

$$i = t^2 = (940.3)^2$$

$$= 88.4$$

$$1/i = 1/0.884 = 11310 < R$$

$$t = K.E. = 1/2 Mv^2$$

$$= 1/2 (M)(1/2)$$

$$= 29.53$$

$$t^2 - t - 1 = E$$

$$29.53^2 - 29.53 - 1 = 0.8413 = \sin 1$$

$$E = \sin 1$$

Regeneration = Degeneration

$$\cos \theta = \sin \theta$$

$$Mv = 1/t$$

Aside  $v = d/t = 1\text{-}2\text{mm per day regeneration} = 1.1574 \text{ -} 2.314 \text{ mm/sec}$

$$118.11(115.74) = 1/t$$

$$t = 731.5$$

$$t^2 - t - 1 = E$$

$$E = -1.91986$$

$$t = 273.3$$

$$E = -1.1986$$

$$E^2 + E - 2 = t$$

$$t = -1.7619 \sim 100.95$$

$$E = \Delta Q/T$$

$$1.1986 = 100.95/T$$

$$T = \sin 1$$

$$E \times T = (\sin 1)^2 = 1/\sqrt{2} = 0.707$$

$$V = iR$$

$$= (940.3)^2(113.310)$$

$$= 99.998 \sim 1$$

$$1.6.4/89.88 = 118.11 = M$$

$$KE = 1/2 Mv^2$$

$$= 1/2(118.11(1/\sqrt{2})^2)$$

$$= 295$$

$$t^2 - t - 1 = E$$

$$E = 0.867 > 0.866 = \sin 60^\circ$$

$$TE = M [0.15915] = 1/532$$

$$t^2 - t - 1 = E$$

$$E = -1.2498 \sim -1.25 = E_{\min} \text{ of the GMP}$$

$$V = i$$

$$106.4 = 940.3^2 R$$

$$R = 12.03$$

$$R/R = 12.03/113.36 = 106.2 = E$$



$$\begin{aligned}
 S &= \Delta Q / T \\
 TE &= M[0.15915] + \Delta Q \\
 c^2 &= 118.11(1/2\pi) + \Delta Q \\
 \Delta Q &= 9.809 \\
 S &= 9.809 / 293.15 = 0.03346 \sim 1/c
 \end{aligned}$$

$$\begin{aligned}
 TE &= M [c^2 + 1/4] + \Delta Q \\
 c^2 &= 1091 + \Delta Q \\
 \Delta Q &= 1082
 \end{aligned}$$

$$\begin{aligned}
 S &= \Delta Q / T \\
 &= 369.11 / 293.15 = 369 = 1/2.709 \sim 1/2.71 = 1/e^1
 \end{aligned}$$

Enthalpy and Entropy

$$\begin{aligned}
 \Delta Q - E &= t^2 \\
 98 - 0.707 &= \pi^2
 \end{aligned}$$

$$\begin{aligned}
 i &= t^2 \\
 i &= \pi^2
 \end{aligned}$$

$$\begin{aligned}
 V &= iR \\
 &= \pi^2(113.13) \\
 &= 1116 \\
 &= 334^2 \\
 &= S
 \end{aligned}$$

$$\begin{aligned}
 d &= (0.866)(125 + 70) + 400 \\
 &= 168.87 + 400 \\
 &= 568.87
 \end{aligned}$$

$$1/d = 1.0072 \text{ rads}$$

$$V = iR$$

$$\begin{aligned}
 i &= t^2 \\
 &= 940.3^2 \\
 &= 884164
 \end{aligned}$$

$$\begin{aligned}
 V &= (940.3)^2 \times 113.13 \\
 &= 1.000254 \\
 &\sim 1 = E
 \end{aligned}$$

$$\begin{aligned}
 t &= KE = 1/2 Mv^2 \\
 &= 1/2(118.11)(1/\sqrt{2})^2 = 295.2 \\
 &= \Delta Q
 \end{aligned}$$

$$\begin{aligned}
 TE &= M\{c^2 = 1/4\} + \Delta Q \\
 &= 118.11[9.25] + 295
 \end{aligned}$$

=1386> Hydrogen bond

$$M = \ln t$$

$$118.11 = \ln t$$

$$t = 197$$

$$\Delta Q = 295 - 197 = 98 = \Delta t$$

$$i = t^2$$

$$= (98)^2$$

$$= 9604$$

$$\Delta t = 1/2 M v^2$$

$$= 1/2 (M) (1/\sqrt{2})$$

$$= 118.11/4 = 29.5 = \Delta Q \quad = \text{Exothermic Reaction}$$

For chemical reaction of Vitamin D yielding Dopamine and propanoic acid, see paper in reference [2]

$$E = \Delta Q + W$$

$$= 98 + F \times d$$

$$= 98 + (8/3)(568.87)$$

$$= 1.615 \sim 1.618 = \text{Root of the GMP.}$$

*Enthalpy*

$$PE = Mc^2$$

$$118.11(c^2) = 1061$$

$$dH = Tds + V dp + \sum \mu dN$$

$$98 = T(1/2c^2) + 1 - 061$$

$$T = 173 = \sqrt{3}$$

$$\tan 60^\circ = \sqrt{3}/1 = \sqrt{3}$$

$$\sin \theta / \cos \theta = \tan \theta = 1/[Mtv]$$

$$\sqrt{3} = 1/[(M^2/4)(1/\sqrt{2})]$$

$$M = 1.807$$

$$PE = Mc^2$$

$$= 1.807(c^2)$$

$$= 162 \quad \text{Cf } 1615.$$

$$M = 1.8072$$

$$M = \ln t$$

$$t = 6.09$$

$$6.09^2 - 6.09 - 1 = 3.003 = c = E$$

$$3.003 \times 6.023 / \text{mol} = 1808 = M \quad \text{Cf } 1807$$

Vitamin D  $C_{27}H_{44}O_3 \rightarrow$  Dopamine  $C_8H_{11}NO_2 +$  Propionic Acid  $C_3H_6O_2$

$$416 \text{amu} - (153 \text{amu} + 74 \text{amu}) = 189$$

Amu = Atomic Mass Units

$$1/189 = 529$$

$$t^2 - t - 1 = E$$

$$529^2 - 529 - 1 = -.125 = E_{\min}$$

## Results and Discussion

MS is the result of the degeneration of the myelin sheath on the axons that leads to a short circuit in the nerve signal to a muscle. The DNA of these Schwann's cells seem to be disrupted at the level of the hydrogen bond that hold the cells DNA together. Once again, AT Math proves to be an invaluable tools in trying to decipher a disease, this time MS.

The formulas used were derived in previous papers on Astrotheology Mathematics – mathematical physics. There is a general solution, which I termed "AT Math" that is applicable to many situations including deciphering MS. The paramount equation in AT Math is the Golden Mean Parabola (GMP). Since the universe is filled with a fluid called "The Ether" the dimensionless Reynold's number is also particularly important. The basic equation of Astrotheology is that Energy equals the inverse of time. Time is simply Kinetic Energy.

The average brain size is 1350 gm. It can be modelled by an input/ output black box. The input and output are a current of  $1/c^2$ . The internal equation of the black box is the Golden Mean Parabola. We know from previous papers on consciousness that the sense can be assigned values (Sight= $1/\pi$ ; Hearing =  $\pi$ ; Smell =  $\sqrt{3}$ ; Touch =4; and taste = $\sqrt{G}$ . that sum to 1.The 11-dimension universe is telescopic. So is human consciousness. Therefore, the binominal decision tree can model consciousness.

We see that with a knowledge of basic university physics and neurology, we can use AT Math to help us understand how the myelin sheath disintegrates in MS patients.

## Conclusion

We have seen that a lot of Astrtotheogy Physics and corresponding AT Math can yield insight into the disease of MS. By now, the formulas and their resulting constants are familiar. It still is not known why hydrogen causes the myelin sheath to disintegrate. The Mylin Sheath is necessary for the nerves to the muscles to work at all. When they do not, paralysis results. We also made use of our newfound knowledge of the mathematical formulas of consciousness and of the senses. Finally, we make use of our basic formulas of enthalpy and entropy. In sum, MS follows the laws of Astrotheology and AT Math, which should be help in moving toward a cure for his disease.

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